SRI LANKA STANDARD

SLS ISO 12468-2 : 2016

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EXTERNAL EXPOSURE OF ROOFS TO FIRE -

PART 2 : CLASSIFICATION OF ROOFS

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard
EXTERNAL EXPOSURE OF ROOFS TO FIRE – PART 2 : CLASSIFICATION OF ROOFS

SLS ISO 12468-2 : 2016
(ISO 12468-2 : 2013)

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SRI LANKA

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

Sri Lanka Standard
EXTERNAL EXPOSURE OF ROOFS TO FIRE – PART 2: CLASSIFICATION OF ROOFS

NATIONAL FOREWORD

This standard was approved by the Sectoral Committee on Building and Construction Materials and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standard Institution on 2016-07-22.

This Sri Lanka Standard is identical with **ISO 12468-2: 2013,** published by the International Organization for Standardization (**ISO**).

This Sri Lanka standard establishes a classification for roofs tested.

TERMINOLOGY AND CONVENTIONS

The text of the International Standard has been accepted as suitable for publication as a Sri Lanka Standard. However, certain terminology and conventions are not identical with those used in Sri Lanka Standards.
Attention is therefore drawn to the following:

a) Wherever the "International Standard" appear referring to this standard they should be interpreted as "Sri Lanka Standard".
b) Wherever page numbers are quoted, they are "**ISO**" page numbers.
c) The coma has been used throughout as a decimal marker. In Sri Lanka Standards it is the current practice to use a full point on the base line as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test method or observation shall be rounded off in accordance with **SLS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

CROSS REFERENCES

International Standard	Corresponding Sri Lanka Standard
ISO 12468-1 : External exposure of roofs to fire -- Part 1 : Test method	SLS ISO 12468-1 : External exposure of roofs to fire -- Part 1 : Test metho

INTERNATIONAL STANDARD

ISO 12468-2

Second edition
2013-11-01

External exposure of roofs to fire —

Part 2: Classification of roofs

Exposition des toitures à un feu extérieur —
Partie 2: Classification des toitures

Reference number
ISO 12468-2:2013(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 92, *Fire Safety*, Subcommittee SC 2, *Fire containment*.

This second edition cancels and replaces the previous edition (ISO 12468-2:2005), of which it constitutes a minor revision.

ISO 12468 consists of the following parts, under the general title *External exposure of roofs to fire*:

— *Part 1: Test method*

— *Part 2: Classification of roofs*

The following parts are under preparation:

— *Part 3: Commentary*

Introduction

This part of ISO 12468 establishes a classification for roofs tested in accordance with ISO 12468-1. The classifications described in this part of ISO 12468 consider the three levels of fire exposure as defined in ISO 12468-1.

— Level A: A large burning brand coming from an adjacent building and falling onto the roof. Level A considers the effects of wind and additional radiant heat.

— Level B: A medium burning brand coming from a fire in a neighbourhood and falling onto the roof. Level B considers the effect of wind but without additional radiant heat.

— Level C: A small burning brand transported by the wind from a remote fire and falling onto the roof. Level C considers the effect of wind but without additional radiant heat.

INTERNATIONAL STANDARD **ISO 12468-2:2013(E)**

External exposure of roofs to fire —

Part 2: Classification of roofs

1 Scope

This part of ISO 12468 establishes the classification of roofs tested in accordance with ISO 12468-1. Performance criteria are established with respect to the following:

— fire penetration or openings;

— external fire spread;

— falling of flaming droplets or debris.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12468-1, *External exposure of roofs to fire — Part 1: Test method*

ISO 13943:2008, *Fire safety — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12468-1 and ISO 13943:2008 apply.

4 Classification

4.1 The classification scheme in Table 1 is based on the results of testing a roof in accordance with ISO 12468-1. (Fire exposures: Level A test conditions include a large burning brand with radiation and wind; Level B test conditions include a medium brand with wind; Level C test conditions include a small brand with wind.)

4.2 Six classes are established in the rank order: A1, A2, B1, B2, C1, and C2 with A1 being the highest performance. (Level A exposures result in A1 or A2 classes, Level B exposures result in B1 or B2 classes, and Level C exposures result in C1 or C2 classes.)

5 Test results

Table 1 gives the test results.

Table 1 — Classification scheme

Test results	Classes					
	A1	**A2**	**B1**	**B2**	**C1**	**C2**
Fire penetration or openings	None within 30 min	None within 15 min	None within 30 min	None within 15 min	None within 30 min	None within 15 min
External fire spread	Does not reach the limits of the measuring zone in any direction within 30 min	Does not reach the limits of the measuring zone in any direction within 15 min	Does not reach the limits of the measuring zone in any direction within 30 min	Does not reach the limits of the measuring zone in any direction within 15 min	Does not reach the limits of the measuring zone in any direction within 30 min	Does not reach the limits of the measuring zone in any direction within 15 min
Falling of flaming droplets or debris	None within 30 min	None within 15 min	None within 30 min	None within 15 min	None within 30 min	None within 15 min

6 Field of application

There are three parameters (pitch, nature of deck, and level of fire exposure) in the test method that define the field of application.

6.1 Pitch

Classification obtained in a horizontal position shall apply to roof systems having a pitch of less than 5°.

Test results obtained at 15° shall apply to roof systems having a pitch of 5° to 20°.

Test results obtained at 30° shall apply to roof systems having a pitch greater than 20° up to 70°.

Roof systems having a pitch greater than 70° are outside the scope of this part of ISO 12468.

When two tests carried out at 0° and 30° give the same classification, that classification applies to any pitch from 0° to 70°.

Test results obtained at an alternative specified pitch shall apply to the roof system for that pitch only.

6.2 Nature of the deck

6.2.1 Test with standard supporting decks

Test results obtained with a standard supporting deck shall apply to all systems with the same components (including the thicknesses) installed in the same way, but with different decks as follows.

6.2.1.1 Test results obtained with a wood particleboard deck as defined in ISO 12468-1, with gaps between planks not exceeding 0,5 mm, shall apply to the following:

— any continuous wooden deck with a minimum thickness of 12 mm and with gaps not exceeding 0,5 mm;

— any non-combustible continuous deck with a minimum thickness of 10 mm.

6.2.1.2 Test results obtained with a wood particle board deck as defined in ISO 12468-1, with gaps of 5,0 mm + 0,5 mm between planks, shall apply to the following:

— any continuous wooden deck;

— any deck made from wooden planks with plain edges;

— any non-combustible deck with gaps not exceeding 5,0 mm.

6.2.1.3 Test results obtained with a trapezoidal profiled steel deck as defined in ISO 12468-1 shall apply to the following:

— any profiled steel deck;

— any non-combustible continuous deck with a minimum thickness of 10 mm.

6.2.1.4 Test results obtained with a trapezoidal aluminium deck as defined in ISO 12468-1 shall apply to the following:

— any profiled aluminium deck with thickness greater than or equal to the tested thickness;

— any profiled steel deck;

— any non-combustible continuous deck with a minimum thickness of 10 mm.

6.2.1.5 Test results obtained with a reinforced calcium silicate board as defined in ISO 12468-1 shall apply to the following:

— any non-combustible continuous deck with a minimum thickness of 10 mm.

6.2.2 Test with alternative supporting deck

Test results obtained with an alternative supporting deck shall apply only to that roof system.

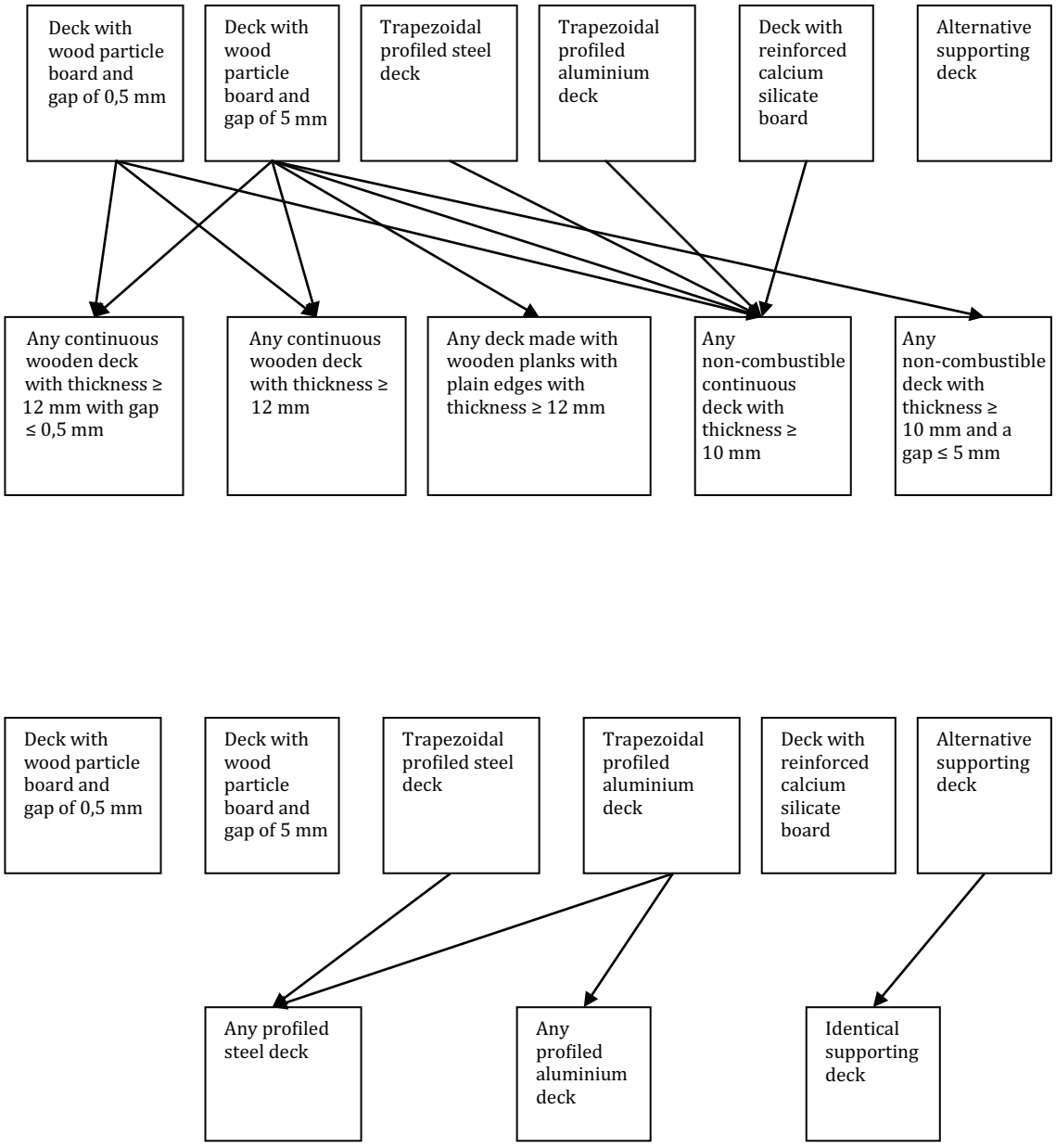

Figure 1 — Illustration of the field of application for the type of deck versus the standard supporting deck used for the construction of the test specimen

6.3 Level of fire exposure

Any roof system that satisfies requirements related to level A1 is deemed to satisfy the same requirements at levels A2, B1, B2, C1, and C2 without any supplementary test.

Any roof system that satisfies requirements related to level A2 is deemed to satisfy the same requirements at levels B1, B2, C1, and C2 without any supplementary test.

Any roof system that satisfies requirements related to level B1 is deemed to satisfy the same requirements at levels B2, C1, and C2 without any supplementary test.

Any roof system that satisfies requirements related to level B2 is deemed to satisfy the same requirements at levels C1 and C2 without any supplementary test.

Any roof system that satisfies requirements related to level C1 is deemed to satisfy the same requirements at level C2 without any supplementary test.

6.4 Extension of the field of application

The field of application can be extended by changing only one parameter as described in 6.1 or 6.2 or 6.3.

To vary more than one parameter at the same time requires an additional test or an appraisal from a designated laboratory that issues classification reports.

7 Classification report

The report shall refer to this part of ISO 12468 and provide all information relevant to the selected level (A, B, and C) of fire exposure, the selected test procedures, the product(s) tested, and the classification obtained.

The report shall include the following:

a) name of the classification laboratory and the date of the issue of the report;

b) names of the sponsor, the product, and the manufacturer of the specimen and its component parts, if known; if unknown, this must be stated;

c) complete reference (date and number) of the test report;

d) full description of the test roof deck. This shall include the method of attaching the roof covering e.g. nails, fixings, spacing, adhesives, the density or mass per unit area of materials and, where applicable, moisture content of the materials used. This shall also include the building materials' classes with reference to standards, the nature and quantity of adhesives, or their rate of application, if necessary, to define the product uniquely;

e) pitch at which the specimen was tested;

f) observations and measurements during and after the test, including but not limited to the following:

   1) external fire spread, expressed by the time of occurrence, in minutes and seconds, at distances of 100 mm, 300 mm, 500 mm, 700 mm, 900 mm, 1 100 mm, and 1 300 mm and the upper edge of the measuring zone, in an upwards direction;

   2) time that any flaming materials fall from the surface of the roof (see ISO 12468-1);

   3) burned length upwards, downwards, and laterally as measured from the nearest edge of the projection of the brands (see ISO 12468-1);

   4) time, in minutes and seconds, at which fire penetration occurred and a description of the type of penetration, i.e. sustained flaming or glowing on the underside, flaming droplets or debris falling through the specimen or from the underside, or the creation of an opening;

   5) description of the damage to the test specimen, including

      i) extent of non-flaming propagation (smouldering and glowing),

      ii) extent of internal damage (see ISO 12468-1) upwards, downwards, and laterally, and

      iii) maximum length of burnt material (see ISO 12468-1) upwards, downwards, and laterally in each functional layer;

   6) time at which the test is terminated and the reason for termination (see ISO 12468-1);

g) classification determined according to Clause 4 and Clause 5;

h) field of application for which the classification is valid, as defined in Clause 6.

ICS 13.220.50;91.060.20

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The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science, Technology and Research.

The Principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote Standardization and quality control by educational, consultancy and research and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and Administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in return are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution Endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of Standardization as are of special interest to Sri Lanka.

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