
**External exposure of roofs to fire —
Part 3:
Commentary**

*Exposition des toitures à un feu extérieur —
Partie 3: Commentaire*

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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*.

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*
- *Part 3: Commentary*

Introduction

This part of ISO 12468 describes the background used in the development and ongoing revision of ISO 12468-1:2013 and ISO 12468-2. Guidance is provided on the use of the test method and classification methods.

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External exposure of roofs to fire —

Part 3: Commentary

1 Scope

This part of ISO 12468 provides background and guidance on the use and limitations of the external fire exposure to roofs test method, the classification system, and the application of the data obtained. This part of ISO 12468 is designed to be of assistance to code officials, fire safety engineers, designers of buildings, and other persons responsible for the safety of persons in and around buildings.

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 12468-1:2013, *External exposure of roofs to fire — Part 1: Test method*

3 ISO 12468-1, test method

In the development of the test method, an attempt was made to evaluate as many of the potential sources of external fire exposure a roof system could be subjected to as possible. Once identified, the test method attempted to define tests that simulated the identified possible exposure conditions, while at the same time, utilizing tests that already exist and are described in national test methods.

The ultimate goal of the test method development was to create an international test procedure which incorporated the most desirable elements of the existing test methods that could be used in national regulations and replace the wide variety of test methods that exist in national regulations.

The following are the three levels of fire exposure for roofs defined in ISO 12468-1:2013:

- Level A: A large burning brand falling onto the roof from an adjacent building. Level A considers the effect of wind and 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 the wind but without additional radiant heat.

The following presentation starts with a summary background description of some fire scenarios, relevant for test methods regarding external fire exposure to roofs. Then the decisive evaluation parameters for different classification systems, based on test measurements and observations, are identified.

4 Fire scenarios

[Figures 1](#) to [6](#) show different types of external fire exposure to a roof.

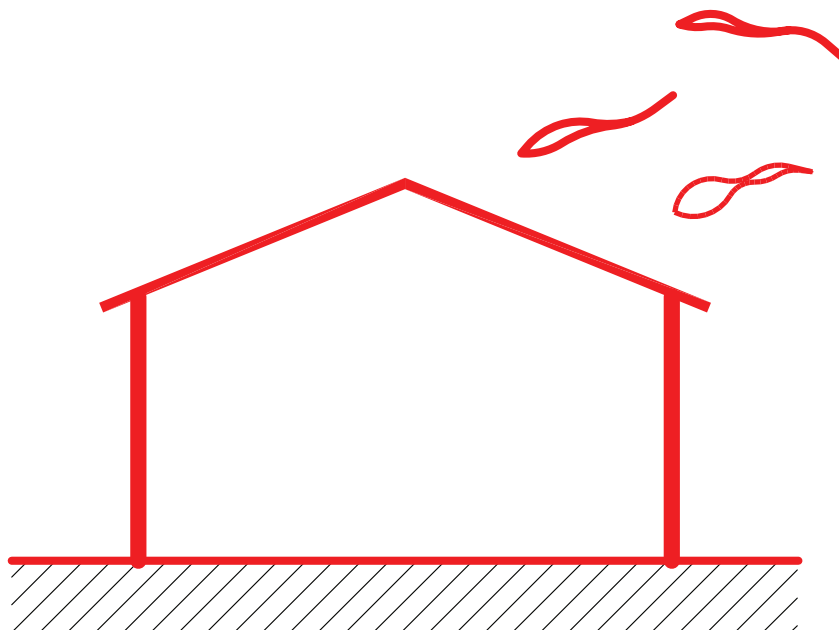


Figure 1 — Flying brand from a remote building or from environmental vegetation

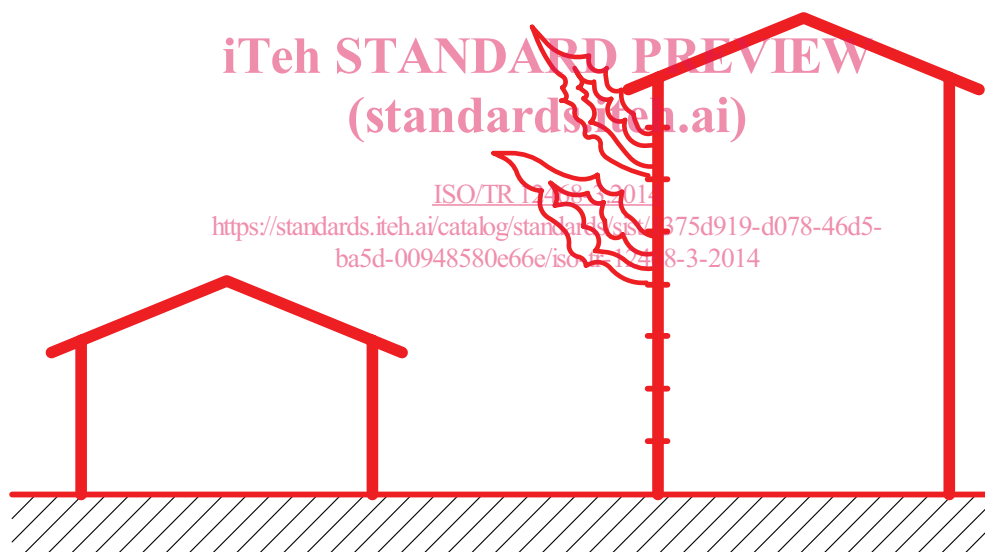


Figure 2 — Radiation exposure from a fire in a nearby building

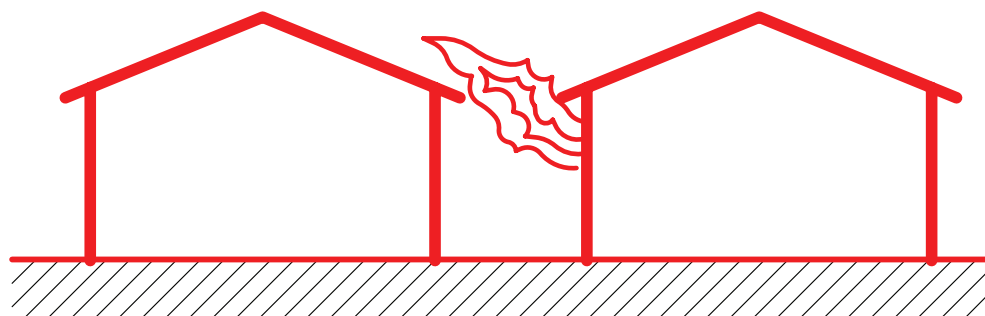


Figure 3 — Direct flame exposure together with radiation exposure from a fire in a nearby building in a dense small house area

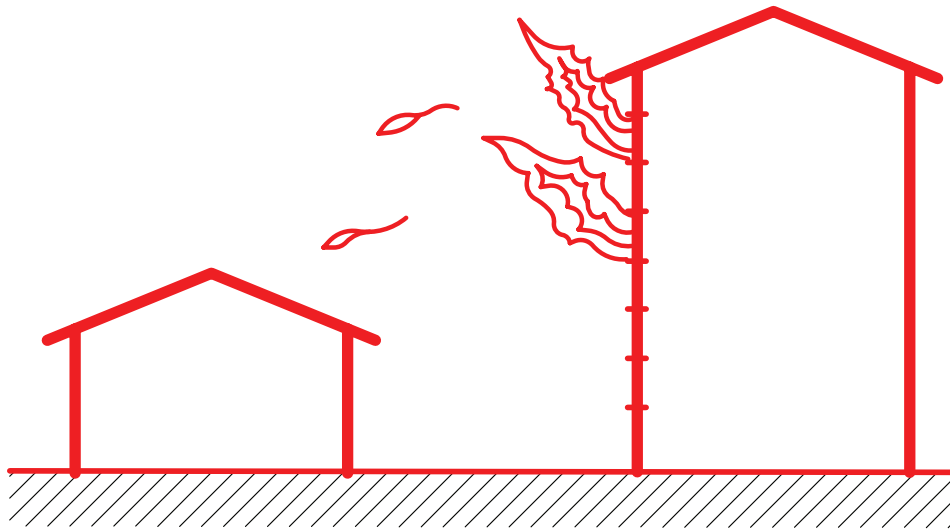


Figure 4 — Combined exposure by flying brand and radiation from a nearby building



Figure 5 — Radiation exposure, with or without a simultaneous flame contact, from flames emerging through a roof opening for fire venting or through a window opening in a compartment below the roof