
International Standard 6944

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Fire resistance tests — Ventilation ducts

Essais de résistance au feu — Conduits de ventilation

First edition — 1985-12-15

UDC 699.81 : 697.922 : 620.1

Ref. No. ISO 6944-1985 (E)

Descriptors : buildings, ventilation, wind tunnels, tests, fire tests, determination, fire resistance, test equipment.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6944 was prepared by Technical Committee ISO/TC 92, *Fire tests on building materials, components and structures*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Fire resistance tests — Ventilation ducts

0 Introduction

This International Standard has been prepared because a fire resistance test for ventilation ducts has become necessary in order to permit evaluation of ducts designed to prevent fire spread across fire barriers in the absence of fire dampers. It should be read in conjunction with ISO 834.

The annex provides explanatory notes which give important background information, but it does not constitute a mandatory part of this International Standard.

SAFETY WARNING — So that suitable precautions may be taken to safeguard health, the attention of all concerned in fire tests is drawn to the possibility that toxic or harmful gases may be evolved during the combustion of test specimens.

1 Scope and field of application

1.1 This International Standard specifies a method of test and criteria for the determination of the fire resistance of vertical and horizontal ventilation ducts under standardized fire conditions.

1.2 The general purpose of this test is to measure the ability of a representative duct or duct assembly to resist the spread of fire from one fire compartment to another without the aid of fire dampers.

1.3 It is applicable to vertical and horizontal ducts, with or without branches, taking into account joints, air supply and exhaust openings, as well as suspension devices, etc.

1.4 This International Standard is not applicable to:

- a) ducts above fire-resisting suspended ceilings (horizontal membranes) in those cases where the ducts rely for their fire resistance on the performance of the ceiling;

NOTE — Other tests are necessary for these ducts.

- b) ducts containing fire dampers at points where they pass through fire separations.

NOTE — In order to assess the fire resistance of fire dampers, other tests are required. A method of test for fire dampers is under consideration as a subject for a future International Standard.

1.5 This International Standard is not appropriate for the following ducts unless the further criteria described in the annex are established to the satisfaction of the appropriate authority:

- a) ducts of materials which are extremely sensitive to thermal shock;

NOTE — Thermal shock may affect such ducts in a way that would differ from the effect in this test, but the test may still be used where it can be established that sensitivity to thermal shock is within acceptable limits.

- b) smoke outlet ducts;

NOTE — These ducts need to retain their integrity and cross-sectional area under fire conditions. Consequently criteria for acceptance additional to those given in this International Standard are required. This International Standard is only applicable, therefore, to smoke outlet ducts if the criteria for integrity failure of a representative smoke outlet duct within the furnace and the loss of retention of cross-sectional area of such ducts are agreed between all parties concerned and are investigated and reported (see the annex).

- c) ducts lined on the inside with combustible material or which in practice may accumulate combustible deposits on their inside face (such as kitchen extract ducts).

NOTE — Additional criteria regarding the insulation performance of the duct are required in this case (see the annex).

1.6 This International Standard does not take into consideration the effect of impact shock loading on ducts due to the collapse of supporting or adjacent structural members or other components, or of impact- or thermal shock loading resulting from the application of a water (hose) stream.

NOTE — The method described in this International Standard should be used solely to measure and describe the properties of ducts and their supports in response to heat and flame under controlled laboratory conditions and should not by itself be considered or used for the description, appraisal or regulation of the fire hazard of such ducts or supports under actual fire conditions.

2 Reference

ISO 834, *Fire-resistance tests — Elements of building construction*.