

Australian Standard<sup>®</sup>

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**Methods for fire tests on building  
materials, components and  
structures**

**Part 4: Fire-resistance tests of  
elements of building construction**

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This Australian Standard was prepared by Committee BD/18, Fire Tests. It was approved on behalf of the Council of Standards Australia on 3 October 1997 and published on 5 December 1997.

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The following interests are represented on Committee BD/18:

Australian Building Codes Board  
Australian Chamber of Commerce and Industry  
Australian Fire Authorities Council  
Australian Institute of Building  
Australian Wool Testing Authority  
Building Research Association of New Zealand  
Bureau of Steel Manufacturers of Australia  
Cement & Concrete Association of Australia  
CSIRO—Division of Building Construction and Engineering  
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Originated as part of AS A30—1935.  
Previous edition AS 1530.4—1990.  
Fourth edition 1997.

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD/18, Fire Tests, to supersede AS 1530.4—1990.

This Standard is the result of a consensus among the representatives on the Joint Committee that it be produced as an Australian Standard.

The test method follows the basic principles and procedures contained in ISO 834: 1975, *Fire-resistance tests—Elements of building construction*. Relatively minor departures from the ISO recommendations have been made only where specific performance requirements for elements of building construction have been traditionally acceptable in Australia.

This edition addresses furnace control and furnace thermocouples so as to achieve uniformity with ISO 834.

Technical changes in this edition have been made to Sections 1, 2, 5, 6, 8 and 10, and changes of an editorial nature have been made to bring the Standard into line with current Standards Australia style.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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## STANDARDS AUSTRALIA

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Australian Standard**Methods for fire tests on building materials, components and structures**

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**Part 4: Fire-resistance tests of elements of building construction**

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## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard applies to heating conditions, test procedures, and criteria for the determination of fire-resistance of an element of building construction. In most cases, a single test, carried out in accordance with this Standard, establishes the fire-resistance for the element of construction concerned.

In addition to providing information on which the fire-resistance of an element of construction can be assessed, the test report includes information which may be of use to the designer. (Records of temperature at critical times may be used by a designer to assess the fire-resistance of a variant of the tested prototype flexural member where the procedure for such an assessment is defined in the appropriate design code.)

In certain cases, the test methods described herein provide information for the determination of—

- (a) resistance to the incipient spread of fire through ceiling systems;
- (b) safe distances for the spacing of combustible materials from elements that provide a separating function;
- (c) radiant heat flux emitted from doorsets, shutter assemblies, damper assemblies and glazing; and
- (d) the free cross-sectional area of air ducts to provide functional operation while providing fire-resistance.

**1.2 PRINCIPLE** A representative specimen of an element of construction is conditioned and then exposed to heat under controlled conditions in a furnace which is operated to satisfy a specified time/temperature curve. In order to minimize the effect of variation in ambient temperature on the outcome of the test, the heating curve is expressed in terms of temperature increments above ambient rather than actual temperature. Where it is not possible to model the element or system of construction satisfactorily with one specimen, it may be necessary to test more than one specimen. Observations are made on the performance of the specimen while it is subjected to thermal and, where applicable, physical loading. The elapsed times at which various failures occur are recorded.

**1.3 APPLICATION**

**1.3.1 Fire hazard assessment** The results of these fire tests may be used to directly assess fire hazard, but it should be recognized that a single test method will not provide a full assessment of fire hazard under all fire conditions.

Each test shall be performed in accordance with the general requirements of Section 2 and with the following Sections, as appropriate:

- (a) Section 3—Walls and partitions.
- (b) Section 4—Floors, roofs, floor/ceiling systems and roof/ceiling systems.