



Components for the protection of openings in fire-resistant walls

Part 1: Fire-resistant doorsets



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- Architectural Door Hardware Association
 - Australasian Fire and Emergency Service Authorities Council
 - Australian Building Codes Board
 - Australian Industry Group
 - Australian Security Industry Association
 - Building Research Association of New Zealand (BRANZ)
 - CSIRO Materials Science and Engineering
 - Engineers Australia
 - Fire Protection Association Australia
 - Fire Protection Association New Zealand
 - Insurance Council of Australia
-

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Australian Standard[®]

Components for the protection of openings in fire-resistant walls

Part 1: Fire-resistant doorsets

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee FP-019, Passive Fire Protection, to supersede AS 1905.1—2005.

This Standard incorporates Amendment No. 1 (July 2016). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide manufacturers, suppliers and installers with minimum requirements for the construction and installation of fire-resistant doorsets designed to protect the openings in walls and elements of construction that are required to resist the passage of fire.

The objective of the revision of AS 1905.1—2005 is to address inconsistencies in the Standard, to meet the Australian Building Codes Board and Standards Australia protocols for *National Construction Code* (NCC) referenced documents and clarify the requirements for testing, assessments, installation, marking and documentation.

This revision includes following changes:

- (a) Compliance with the ABCB protocol for the development of NCC referenced documents.
- (b) Clarification of requirements for testing, assessments, installation marking and documentation.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

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.

This Standard incorporates a Commentary on some clauses. The Commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number and is printed in italics in a panel. The Commentary is for information only and does not need to be followed for compliance with the Standard.

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STANDARDS AUSTRALIA

Australian Standard

Components for the protection of openings in fire-resistant walls

Part 1: Fire-resistant doorsets

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the construction and installation of fire-resistant doorsets that are used to protect openings in walls, and for partitions that are required to resist the passage of fire. It also applies to transom panels over doors, where the panels are contained within the doorframe and form part of the doorset.

NOTES:

- 1 Where it is intended to install the fire-resistant doorset in high-traffic areas, it is recommended that it be tested in accordance with Appendix A.
- 2 Durability designations for locksets, including methods for their cycle testing for minimal, moderate and high frequency usage, are given in AS 4145.2.
- 3 Durability designations and closing forces for door closing devices, including methods for their cycle testing for minimal, moderate and high frequency usage, are given in AS 4145.5.
- 4 Permissible variations that do not require assessment are specified in AS 1530.4.
- 5 The requirements for maintenance of fire-resistant doorsets are covered in AS 1851.
- 6 This Standard does not apply to lift-landing doors. The requirements governing lift-landing doors are given in AS 1735.11.
- 7 A smoke control system (or other external environmental conditions) can impose loads greater than 5 N on the strike. In such circumstances, a substantially greater resistance force may be required of the strike to ensure the door remains in the latched position during a fire emergency.
- 8 For information to be supplied with enquiries and orders, see Appendix B.

1.2 APPLICATION

This Standard is intended to complement the fire-protection requirements of the *National Construction Code* (NCC) and to be used with the appropriate clauses of AS 1530.4.

1.3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard.

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS

- | | |
|--------|---|
| 1530 | Methods for fire tests on building materials, components and structures |
| 1530.1 | Method 1: Combustibility test for materials |
| 1530.4 | Method 4 Fire resistance test for elements of construction |
| 3600 | Concrete structures |

AS

- | | |
|------|--|
| 3700 | Masonry structures |
| 5007 | Powered doors for pedestrian access and egress |

- | | |
|-----|----------------------------|
| NCC | National Construction Code |
|-----|----------------------------|

1.4 DEFINITIONS

For the purposes of this Standard, the definitions below apply.

NOTE: See also Figures 1.4(A), 1.4(B) and 1.4(C).

1.4.1 Applicant

An entity (or entities) who seeks (seek) a particular test or assessment service in accordance with this Standard.

1.4.2 Assessment report

A document that confirms the FRL and is prepared for the purpose of meeting the requirements of NCC, BCA Volume 1, Specification A2.3.

NOTE: Also referred to as a 'formal opinion'.

1.4.3 Astragal

A member, or combination of members, applied to one or both doors of a pair at their meeting stiles to close the clearance gap for the purpose of providing a weather seal, minimizing the passage of light or sound between doors or retarding the passage of smoke or flame during a fire.

1.4.4 Automatic

Where applied to a fire-resistant doorset, designed to close when activated by a sensing device in accordance with Clause 2.1.7.

1.4.5 Doorset certifier

An entity or entities with suitably qualified practitioners in the field of certifying fire doorsets to this Standard.

NOTE: State authorities may license such certifiers.

1.4.6 Combustible

The classification of a material based on its reaction to defined elevated temperature conditions and which—

- (a) has been deemed combustible in accordance with the NCC; and
- (b) has been subjected to the test conditions in AS 1530.1 and has exceeded flaming or temperature rise limits specified in that Standard.

1.4.7 Door leaf of similar construction

A door leaf having the same core materials and form of construction and capable of achieving a fire resistance level (FRL) the equivalent of the tested assembly.

1.4.8 Doorset

A complete assembly comprising—

- (a) the door leaf or leaves including any glazing and other inbuilt features;
- (b) the doorframe, if any, with its fixings to the wall and, for a sliding doorset, with all guides and their respective fixings to the lintel, wall or sill;
- (c) any fixed panel and its associated transom or mullion (including the methods of fixing) that is contained within the doorframe;
- (d) all door hardware; and
- (e) fixtures and fittings attached to the door leaf or doorframe.

1.4.9 Doorstop

That part of a doorframe against which the door leaf stops.

1.4.10 Double-acting doorset

A doorset whose leaf is equally capable of opening in either direction, usually having no stop in its frame, and may be single-leaf or multi-leaf.

1.4.11 Essential latching components

The latching components that are critical for latching the doorset, which include—

- (a) the latch bolt;
- (b) the strike; and
- (c) the bolt-retaining plate.

1.4.12 Facings and edgings

The surface covering and all perimeter strips of the door leaf, including their methods of fixing.

1.4.13 Fire resistance level (FRL)

The nominal grading period, in minutes, that is determined by subjecting a specimen to the standard time temperature curve regime as set out in AS 1530.4, to specify—

- (a) structural adequacy;
- (b) integrity; and
- (c) insulation,

and expressed in that order.

NOTES:

- 1 For example, a building element with an FRL of 120/60/30 will maintain, when tested in accordance with AS 1530.4—
 - (a) structural adequacy for a period of 120 min;
 - (b) integrity for a period of 60 min; and
 - (c) insulation for a period of 30 min.
- 2 The structural adequacy criterion is not applied to doorsets and the FRL is expressed in terms of (–/YY/ZZ).
- 3 The fire resistance test applies a fourth criterion, radiation to fire-resistant doorsets, dampers and glazing, but the radiation grading period is not included in the statement of FRL given on the door-tag. For details on the use of the radiation criterion, see the NCC.

1.4.14 Fire resistance test

A method to determine the ability of an element of construction, component or structure to fulfil, for a stated period of time, the required structural adequacy, integrity, thermal insulation or other expected attribute, during exposure to the standard fire resistance test regime specified in AS 1530.4.

1.4.15 Fire-resistant doorset

A doorset, except when varied as specified in this Standard, that is identical in assembly, construction and installation with a specimen doorset that has been submitted to the standard fire resistance test, and has fulfilled all the relevant test requirements.

NOTE: Fire-resistant doorsets are referred to as ‘fire doors’ in NCC.

1.4.16 Frame girth

The flat width of steel required to manufacture the finished folded profile.

1.4.17 Full-scale test

The standard fire resistance test carried out on a doorset in accordance with AS 1530.4.

1.4.18 Fixtures and fittings

Any item or parts fitted to any part of the doorset, which may or may not be essential for the correct operation of the doorset.

1.4.19 Hardware

A broad term used to group all items that are fitted or related to doorsets and includes, but is not limited to, hinges, pivots, sliding door track assemblies, locks, latches, snibs, panic exit devices, closers, pull handles, lever handles, sequence selectors, bolts, reed switches, buffers, power transfers, hold-open devices, any part of an automatic closing device that is attached to the doorset, electric locking, and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) that form the assembly.

1.4.20 Latch handle

The operating device (e.g. knob, lever) that effects the retraction of the latch bolt.

1.4.21 Manufacturer

An organization or individual who manufactures any part of the doorset used in a fire-resistant doorset.

1.4.22 Meeting stiles

The abutting vertical members in a pair of doors.

NOTE: This excludes astragals.

1.4.23 Mullion

A vertical bar dividing sections of a panel over a doorset within the doorframe other than the door leaf.

NOTE: See transom panel.

1.4.24 Non-combustible

As defined in NCC.

1.4.25 Pilot-fire test

A fire test of a representative section of a doorset in a furnace, complying with AS 1530.4 but having the furnace opening not less than 1000 mm × 1000 mm and minimum clear opening size of 800 mm × 800 mm).

1.4.26 Registered testing authority

Registered testing authority as defined in NCC.

1.4.27 Regulatory authority

An authority administering Acts of Parliament or regulations under such Acts.

1.4.28 Self-closing

Where applied to a fire-resistant doorset, equipped with a device designed to bring the door leaf to the fully closed position immediately after each opening or on release of the hold-open device or the delayed action door closer.

1.4.29 Self-latching

Action of a device installed on a swing door, which will mechanically engage and hold the door in the closed position.

1.4.30 Shall

Indicates that a statement is mandatory.

1.4.31 Should

Indicates a recommendation.

1.4.32 Tested specimen

A doorset that has been submitted to the fire resistance test to establish its fire resistance level.

1.4.33 Threshold

The floor, or horizontal member and not part of the doorframe, installed beneath a closed door or in a wall opening.

1.4.34 Transom panel

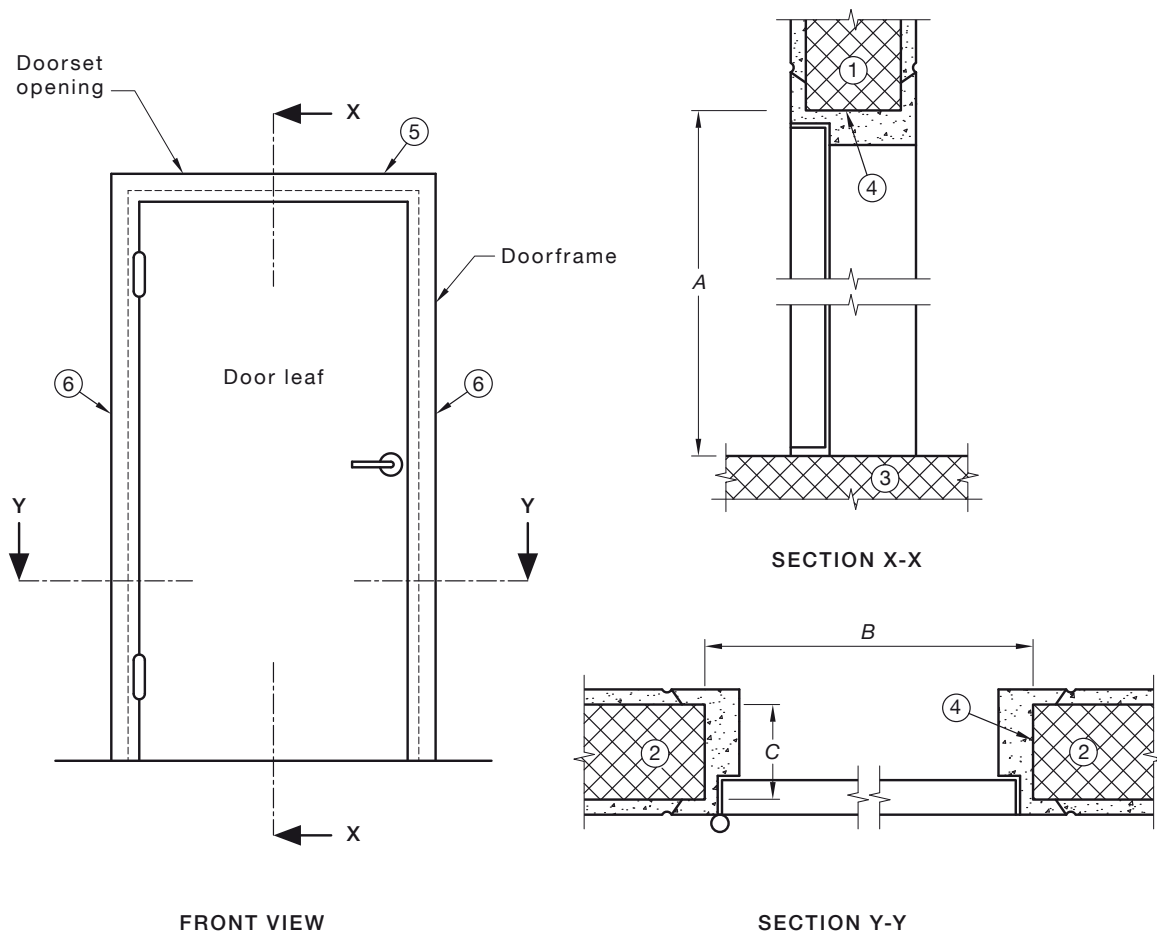
A panel mounted within the doorframe above the door leaf or leaves fitted above a transom member that forms part of the doorframe or fitted directly above the door leaf.

1.4.35 Walls of concrete construction

Reinforced concrete walls constructed in accordance with AS 3600.

1.4.36 Walls of masonry construction

Brick or concrete block walls constructed in accordance with AS 3700.



(a) Terms relating to the opening

LEGEND:**Nomenclature***Doorset opening*

- 1 = Head
- 2 = Jamb
- 3 = Threshold
- 4 = Wall opening

Doorframe

- 5 = Head
- 6 = Jamb
- 7 = Door seat rebate
- 8 = Doorframe anchors
- 9 = Door sill
- 10 = Architrave faces

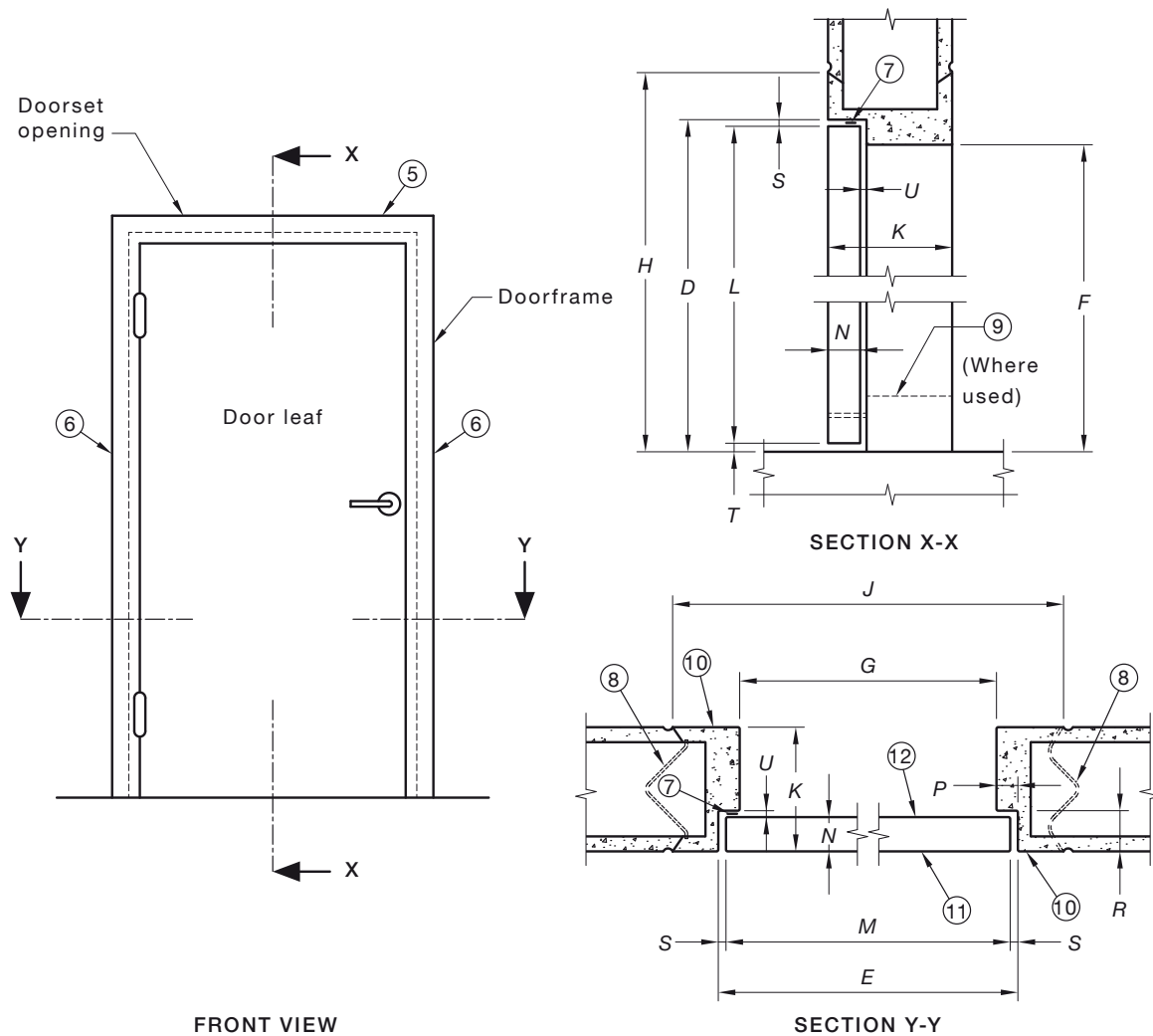
Door leaf

- 11 = Opening face
- 12 = Closing face

Dimensions

- A = Doorset opening height
- B = Doorset opening width
- C = Doorset opening depth
- D = Door opening height
- E = Door opening width
- F = Clear opening height
- G = Clear opening width
- H = Doorframe height
- J = Doorframe width
- K = Doorframe depth
- L = Door leaf height
- M = Door leaf width
- N = Door leaf thickness
- P = Door seat rebate width
- R = Door seat rebate depth
- S = Clearance between leaf and frame
- T = Clearance between leaf and finished floor

FIGURE 1.4(A) (in part) TERMS RELATED TO SIDE-HUNG FIRE-RESISTANT DOORSETS



(b) Terms relating to the doorset

LEGEND:**Nomenclature****Doorset opening**

- 1 = Head
- 2 = Jamb
- 3 = Threshold
- 4 = Wall opening

Doorframe

- 5 = Head
- 6 = Jamb
- 7 = Door seat rebate
- 8 = Doorframe anchors
- 9 = Door sill
- 10 = Architrave faces

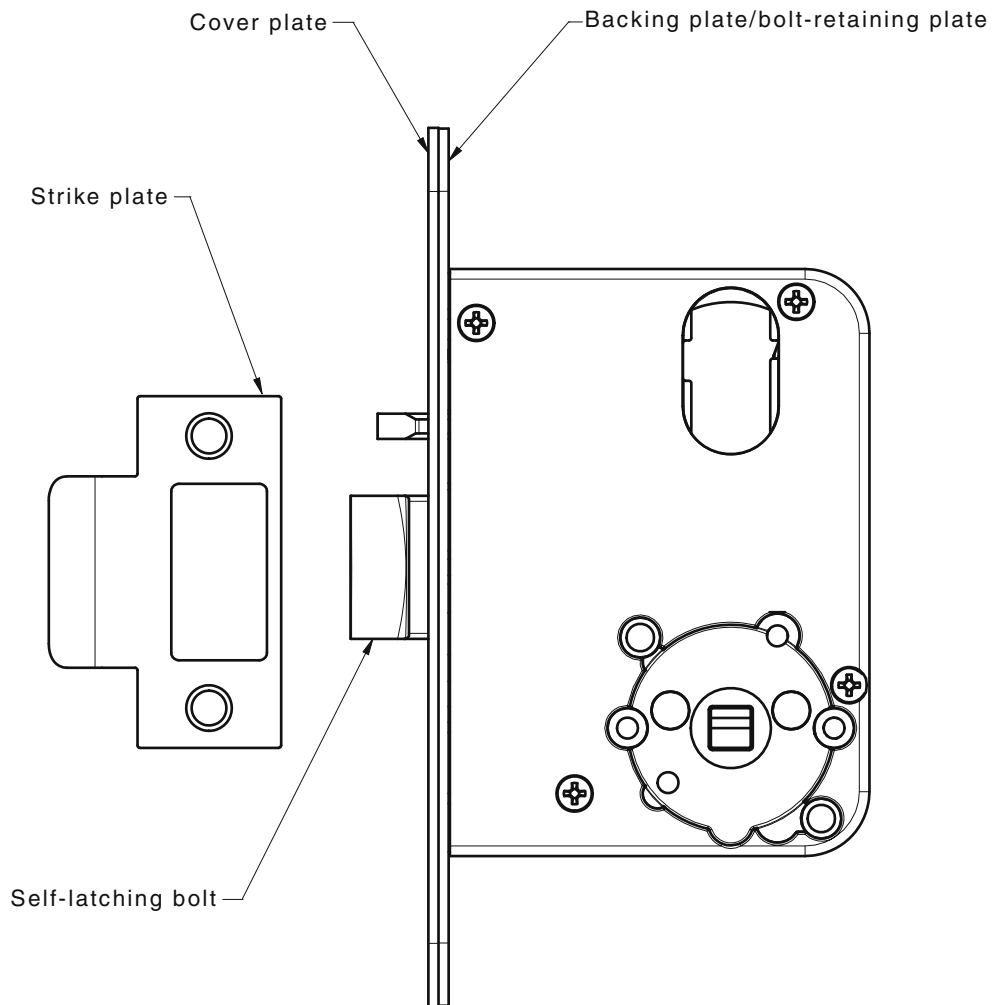
Door leaf

- 11 = Opening face
- 12 = Closing face

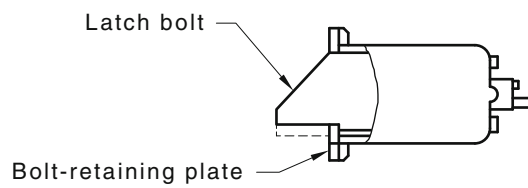
Dimensions

- A = Doorset opening height
- B = Doorset opening width
- C = Doorset opening depth
- D = Door opening height
- E = Door opening width
- F = Clear opening height
- G = Clear opening width
- H = Doorframe height
- J = Doorframe width
- K = Doorframe depth
- L = Door leaf height
- M = Door leaf width
- N = Door leaf thickness
- P = Door seat rebate width
- R = Door seat rebate depth
- S = Clearance between leaf and frame
- T = Clearance between leaf and finished floor
- U = Clearance between leaf and door stop

FIGURE 1.4(A) (in part) TERMS RELATED TO SIDE-HUNG FIRE-RESISTANT DOORSETS

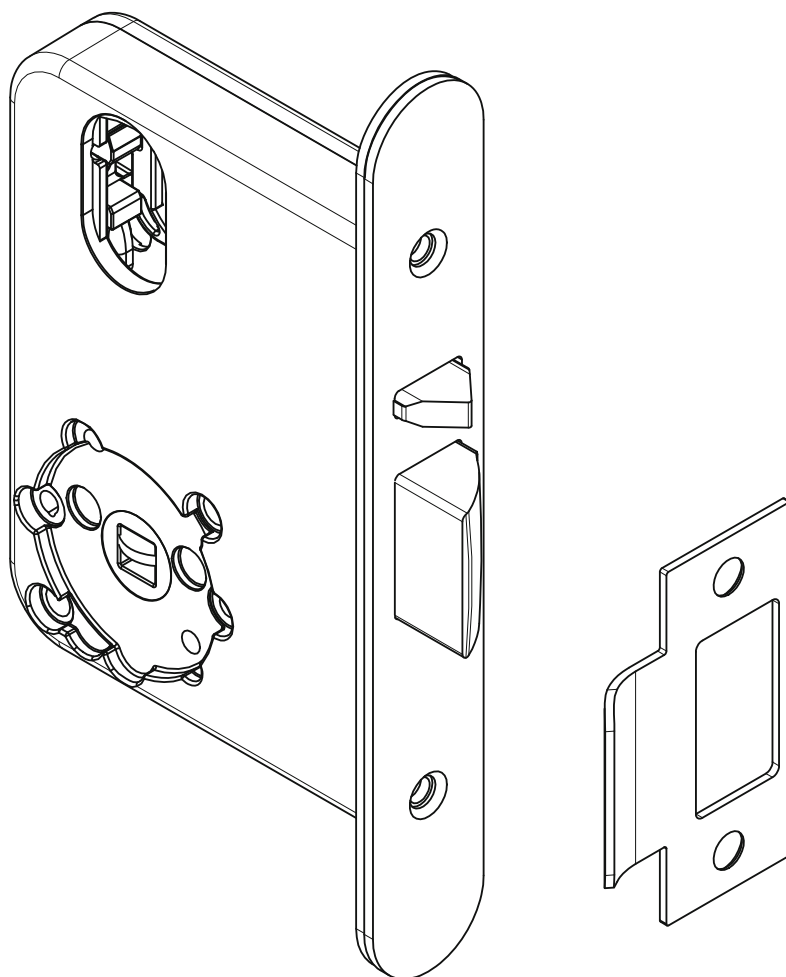


(a) Mortice latch



(b) Cylindrical latch

FIGURE 1.4(B) (in part) TERMS RELATED TO LATCHSET IN SIDE-HUNG FIRE-RESISTANT DOORSETS



ISOMETRIC VIEW

FIGURE 1.4(B) (in part) TERMS RELATED TO LATCHSET IN SIDE-HUNG FIRE-RESISTANT DOORSETS

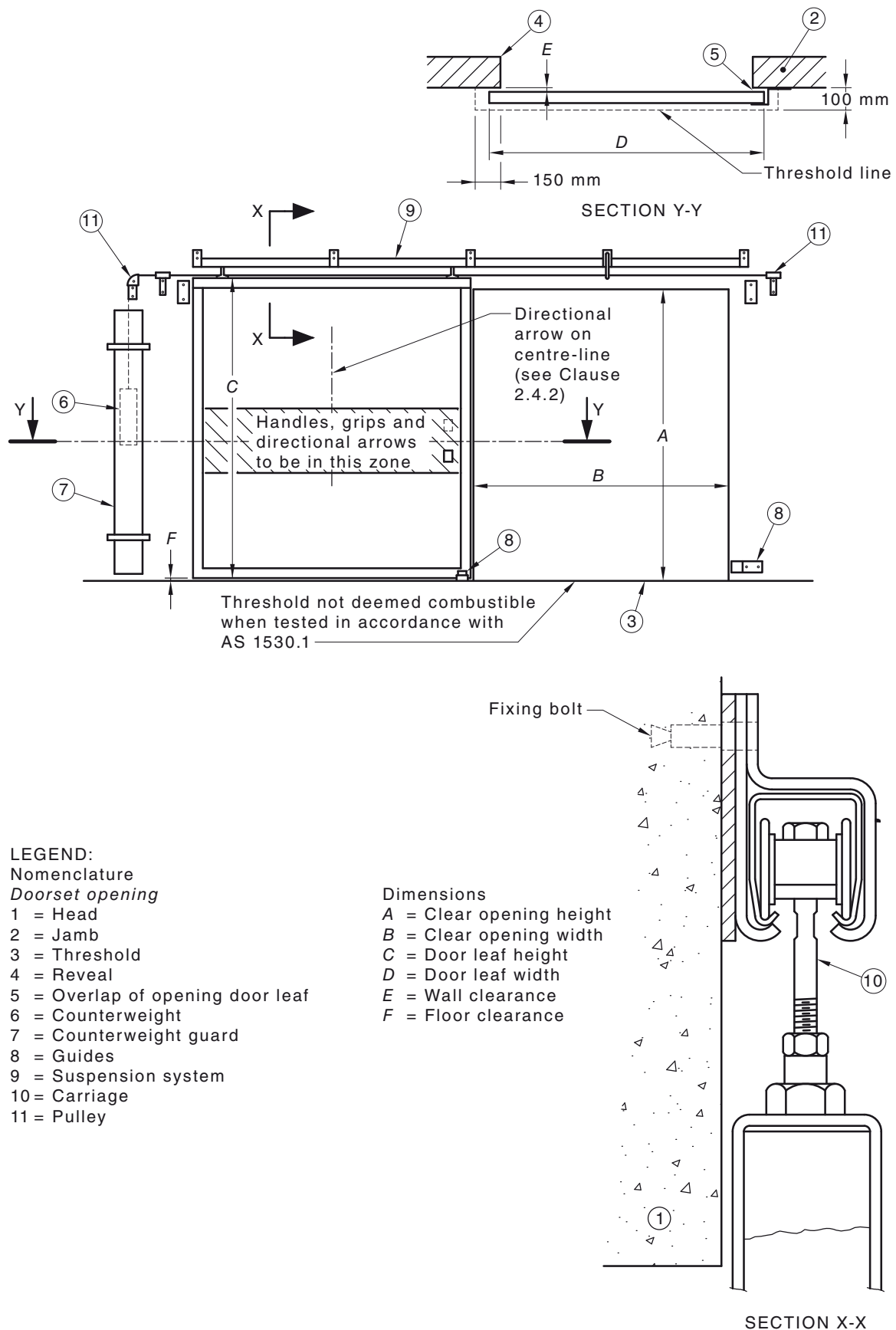


FIGURE 1.4(C) TERMS RELATED TO SLIDING DOORSETS