



Timber and composite doors



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 - Australian Building Codes Board
 - Australian Glass and Glazing Association
 - Australian Industry Group
 - Australian Institute of Building Surveyors
 - Australian Window Association
 - CSIRO
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 - Master Builders Australia
 - Master Locksmiths Association of Australasia
 - National Association of Testing Authorities Australia
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-

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Australian Standard®

Timber and composite doors

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PREFACE

This Standard was prepared by the Standards Australia Committee BD-021, Doors and Windows, to supersede AS 1909—1984, *Installation of timber doorsets*, AS 2688—1984, *Timber doors* and AS 2689—1984, *Timber doorsets*.

The objective of this Standard is to assist manufacturers, suppliers, distributors, installers and purchasers of doors and doorsets by providing—

- (a) definitions for doors and doorsets;
- (b) means for identifying standard sizes, tolerances and construction types;
- (c) requirements for the proper selection;
- (d) criteria for assessing the physical features of doorsets; and
- (e) doorsets installation details.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is for information and guidance only.

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STANDARDS AUSTRALIA

Australian Standard

Timber and composite doors

S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard sets out the following requirements for the manufacture and installation of timber and composite doors and doorsets (including flush panel doors, joinery doors and doorsets) to be used in buildings:

- (a) Selection, classification and identification.
- (b) Appearance.
- (c) Standard sizes.
- (d) Structural.
- (e) Storage and handling.
- (f) Installation.
- (g) Hardware.
- (h) Maintenance.

This Standard does not apply to ballistic, thermal and frameless glass doors.

The requirements for fire resistance, acoustics and performance are beyond the scope of this Standard.

NOTE: Where applicable, test methodologies to determine performance requirements (deflection, air infiltration, water penetration and ultimate strength) should conform with AS/NZS 4420.1 and the performance criteria should conform with AS 2047, Section 2.

1.2 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

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

AS

1288 Glass in buildings—Selection and installation

2047 Windows and external glazed doors in buildings

4145 Locksets

4145 Locksets and hardware for doors and windows

4145.1 Part 1: Glossary of terms and rating system

4145.2 Part 2: Mechanical locksets for doors and windows in buildings

4145.5 Part 5: Controlled door closing devices (EN 1154:1997, MOD)

AS/NZS

1080 Timber—Methods of test

1080.1 Part 1: Moisture content

2271 Plywood and blockboard for exterior use

ABCB Australian Building Codes Board

NCC National Construction Code

1.3 DEFINITIONS

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

1.3.1 Balanced construction

A construction of flush panel doors in which the facings on one side of the core are essentially equal in thickness, grain direction, properties and arrangement to those on the other side of the core, such that the forces induced by uniformly distributed changes in moisture content will not cause warpage.

1.3.2 Blockboard (core plate)

A panel consisting of timber strips not wider than 50 mm, or finger-jointed timber strips, laid and glued edge to edge.

1.3.3 Composite

Doors or frames that are manufactured from a combination of materials.

1.3.4 Door

A hinged, sliding, or otherwise supported openable barrier providing entrance to and exit from a building, corridor, or room.

NOTE: Doors are also used to enclose a space in walls and in items of furniture. The primary functions of a door are to provide security and privacy, while enabling movement from one space to another. Other functional requirements may include weather resistance, fire resistance, sound control, thermal insulation, durability, and ease of operation. For protective reasons, external doors are generally more robust than internal doors.

1.3.5 Door components

NOTE: For an illustration of door components, see Figure 1.1.

1.3.5.1 *Muntin(s)*

The vertical intermediate member(s) incorporated in a joinery door.

1.3.5.2 *Panel*

A sheet or block of timber, glass, or other material, the edges of which are recessed or rebated into the members of a panel door.

NOTE: Panels may be flush, raised or recessed.

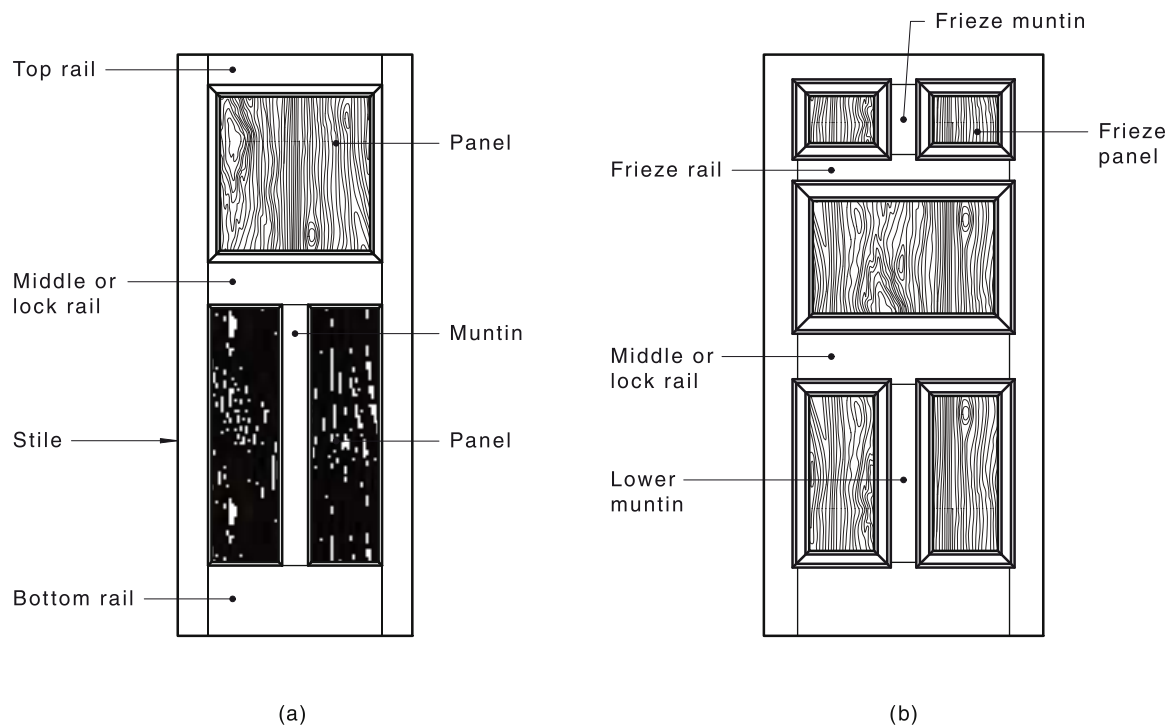


FIGURE 1.1 DOOR COMPONENTS

1.3.5.3 Rebated door

A door with a rebate to the door stile.

NOTE: Similar to a rebated frame. Used when multiple doors close on each other and are required to be locked.

1.3.5.4 Rail

A horizontal member in a door.

1.3.5.4.1 Bottom rail

The bottom horizontal member of a door.

1.3.5.4.2 Middle/lock rail

The intermediate rail that receives the lock hardware.

NOTE: This member is sometimes also known as a ledger rail.

1.3.5.4.3 Top rail

The top horizontal member of a door.

1.3.5.5 Stile

The perimeter vertical members of a door.

1.3.6 Door frame**1.3.6.1 Door frame**

An external frame built into single skin or cavity masonry.

1.3.6.2 Door frame/door jamb

A frame of timber or metal that supports a door and typically consists of two stiles and a head and sometimes may include a sill (or threshold) and a transom.

1.3.6.3 *Door jamb*

- 1 An internal door frame; also referred to as a jamb lining.
- 2 An external door frame built into a timber or brick veneer wall.

1.3.6.4 *Split jamb*

A door jamb with stiles and head in two sections, fitted from either side of the opening, with a doorstop that is fitted to conceal the gap/join between the two sections.

NOTE: Unless indicated otherwise, a reference to a door jamb or door frame is to be taken as a reference to either.

1.3.7 Door frame components

1.3.7.1 *Doorstop*

A section fitted to a rectangular door frame to arrest the swing of a door.

NOTE: A doorstop is used in lieu of a rebated frame (see Figure 1.2).

1.3.7.2 *Head*

The horizontal top member of a door frame.

1.3.7.3 *Mullion*

An intermediate vertical member of a door frame.

1.3.7.4 *Rebated frame*

A door frame with a rectangular recess cut along the leading edge (the rebate) of the frame to enable fitting of the door or doors and to arrest the swing of the door(s).

1.3.7.5 *Sill/Threshold*

The bottom horizontal member of a door frame.

1.3.7.6 *Stile*

The vertical members of a door frame that support the hinges and locking hardware.

1.3.7.7 *Transom*

A horizontal framing member of a door frame that allows a panel to be inserted above the door opening.

NOTE: See Figure 1.2.

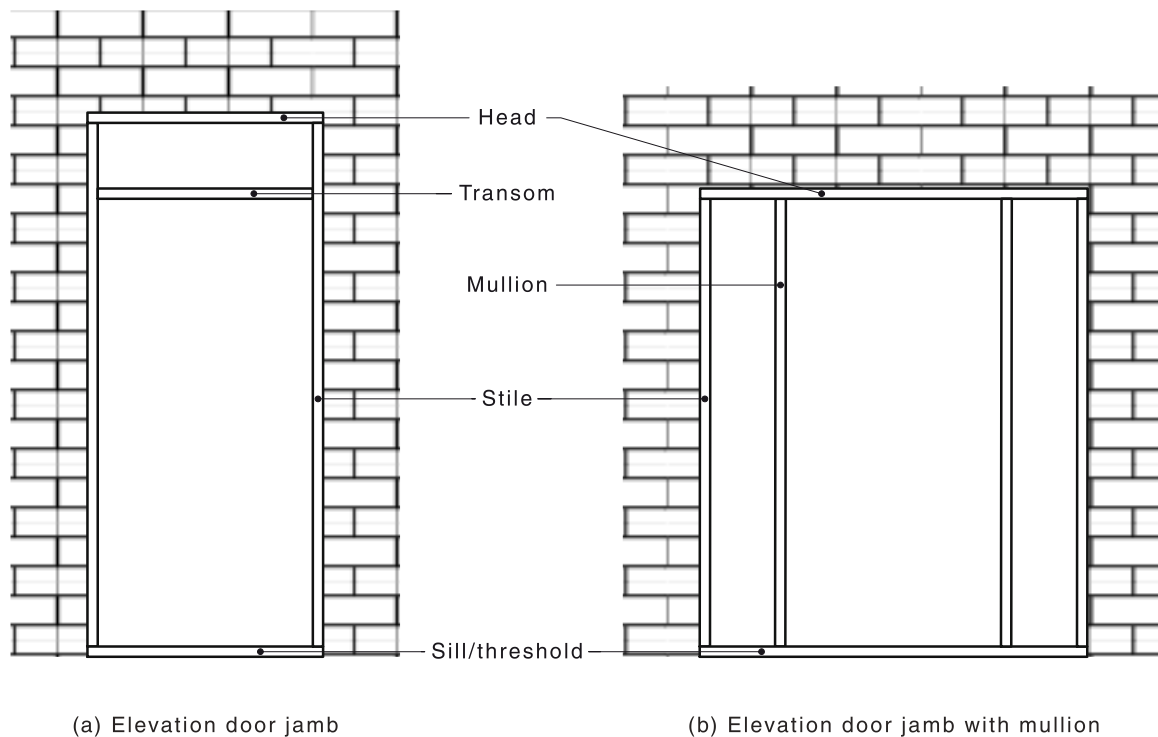


FIGURE 1.2 EXAMPLES OF DOOR FRAMES

1.3.8 Door leaf

A single independently moving panel of the doorset.

1.3.9 Doorset (i.e. the door)

An assembly comprising a door (or doors) fitted into a door frame and the necessary fitted hardware which may include hinges, door handles/knobs, locks and door closers.

1.3.10 Flatness

The coincidence of the edges of a face of a doorleaf with a reference plane.

1.3.11 Handing

The direction of movement of the door leaf relative to its method of support, usually specified on project documentation.

NOTE: Sliding for a door supported at the top and/or bottom by a track, side hung for a door supported on the side by hinges or pivot hung for a door supported at the top and bottom by a special pivot mechanism.

1.3.12 Hinged door

A door attached to a door jamb, usually to a stile by means of a set of hinges which allows the door to open and close.

1.3.13 In wind

Fixed in a flat plane such that the frame and fitted door are without twist.

1.3.14 Light reflectance value (LRV)

A measure of the percentage of visible and usable light that is reflected from a surface when illuminated by a light source.

1.3.15 Lining board

A decorative strip (of material) fitted to a surface.

1.3.16 Medium-density fibreboard (MDF)

An engineered wood product made by breaking down hardwood or softwood residuals into wood fibres, combining it with wax and a resin binder and forming panels by the application of high temperature and pressure.

1.3.17 Plywood

An engineered wood product made of layers of wood plies or veneers that are glued together flat with the grain of each layer at right angles to the adjacent layer to give strength and stability.

1.3.18 Primer

A substance used as a preparatory coat on timber and metal to aid adhesion of subsequent layers of paint.

1.3.19 Rebate

A recess on the edge of a stile to a door or door jamb created by removing or adding material.

NOTE: See Figure 4.1.

1.3.20 Sealant

Any of various liquids or soft substances that may be applied to a surface, drying to form a watertight coating.

1.3.21 Surface undulation

The telegraphing of internal components through the face of the door.

NOTE: For method of measurement of surface undulation, see Clause 3.2.1.

1.3.22 Square

A surface that is at right angles to an adjacent surface.

1.3.23 Step joint

A 'step' due to varying thicknesses of two adjoining sections.

NOTE: Typically, a variation in the thickness of a joining stile and rail will realise a 'step joint'.

1.3.24 Suitably qualified person

A person with the skills and qualifications to assess and determine compliance with this Standard.

SECTION 2 SELECTION, CLASSIFICATION AND IDENTIFICATION

2.1 SELECTION

The doorset design and selection shall be appropriate to the location in which it is to be installed. When selecting doors and frames, the following performance requirements shall be taken into account to ensure suitability for intended use:

- (a) Exposure to environmental elements, such as water, wind, sunlight, humidity, heating and cooling appliances, and the like (see Clause 2.5).
- (b) Frequency of use and operating life.
- (c) Impact resistance (Clause 5.3.4).
- (d) Security requirements (see Clause 2.3).
- (e) Acoustic requirements.
- (f) Hardware fixing requirements (see Clause 5.3.7).
- (g) Decorative/design requirements.
- (h) Surface finishes (see Section 3).
- (i) Frame fixing requirements (see Section 7).
- (j) Glazing (in accordance with AS 1288).
- (k) Any other applicable requirements in accordance with the NCC.

2.2 CLASSIFICATION OF DOOR TYPES

2.2.1 Location

2.2.1.1 *Internal*

A door for use in a fully protected location within the building, required for privacy rather than for security or weather resistance and generally of a lighter construction than that required for an external door. Suitable facing materials include plywood, MDF, pre-primed tempered hardboard or other suitable facings.

2.2.1.2 *External*

A door that connects the interior of a building with the outside and has to be weather-resistant and secure against unwanted intrusion and, therefore, usually stronger than an internal door. Suitable facing materials include exterior-grade plywood in accordance with AS/NZS 2271, external grade MDF, and pre-primed tempered hardboard.

2.2.2 Construction

2.2.2.1 *Glazed door*

A door with glass panes or panels installed. Glazing in doors shall conform to AS 1288.

NOTE: For examples of glazed doors, see Figure 2.1.

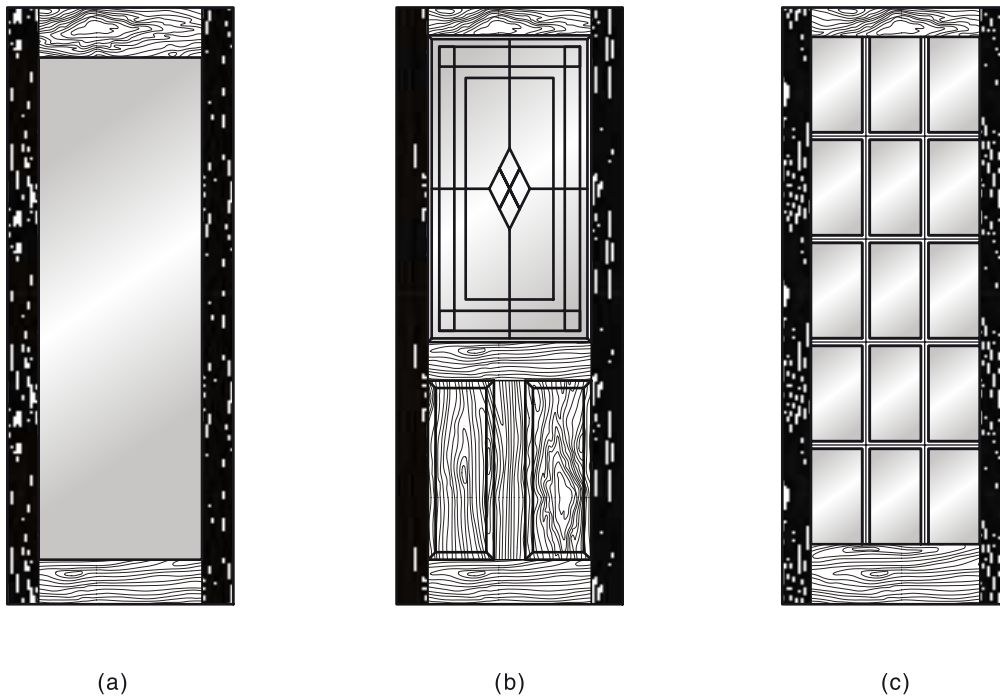


FIGURE 2.1 EXAMPLES OF GLAZED DOORS

2.2.2.2 Flush panel door**2.2.2.2.1 General**

A door having two opposing plane faces that entirely cover and conceal its internal structure and includes hollow core, solid core and mono core doors. Common types of flush panel doors are hollow core door (Clause 2.2.2.2.2), semi-solid core door (Clause 2.2.2.2.3) and solid door (Cause 2.2.2.2.4).

2.2.2.2.2 Hollow core door

A door with a perimeter frame and non-solid infill.

NOTE: A hollow core door is also referred to as a cellular core (see Figure 2.2).

2.2.2.2.3 Semi-solid core door

A door with minimum 40 mm width internal perimeter frame and a minimum of 4.75 mm veneer facing or skin with a core that is either cellular or polystyrene.

2.2.2.2.4 Solid door

A flush panel door that has a completely solid core that contains no air cavities. The core is generally constructed using block board, flax board, MDF or particleboard or other suitable infill material. The facing mostly consists of plywood or pre-primed tempered hardboard (see Figure 2.3).

NOTE: For requirements for flush panel doors, see Clause 5.2.1.