

Australian Standard™

**Installation of roof slates and
shingles
(Non-interlocking type)**

This Australian Standard was prepared by Committee BD/8, Roof Tiles. It was approved on behalf of the Council of Standards Australia on 16 July 1999 and published on 5 September 1999.

The following interests are represented on Committee BD/8:

Australian Building Codes Board

Construction Forestry Mining and Energy Union

CSIRO—Division of Building, Construction and Engineering

Housing Industry Association

Master Builders Australia

Master Tilers, Slaters and Shinglers

Monash University

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STANDARDS AUSTRALIA

RECONFIRMATION
OF
AS 4597—1999
Installation of roof slates and shingles (Non-interlocking type)

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Roofing Tile Association of Australia

NOTES

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PREFACE

This Standard was prepared by the Standards Australia Committee BD/8, Roof Tiles.

The objective of this Standard is to provide the installers of roof slates and shingles of the non-interlocking type with specifications covering the installation and performance of such roof slates and shingles for use in domestic, commercial or light industrial applications.

Statements expressed in mandatory terms in Notes to Tables and Figures are deemed to be requirements of this Standard.

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 only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard
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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the placement and fixing of terracotta, fibre cement and timber shingles and slates of the types specified in BS 680.2. The fixing methods described in this Standard apply only to roofs of buildings that are intended for domestic, commercial or light industrial purposes.

This Standard applies only to roofs with a pitch of 17.5° or greater.

NOTES:

- 1 This Standard does not restrict the use of other fixing and fastening methods or materials where it can be shown that their performance is not inferior to that achieved by the materials and methods described herein.
- 2 The type of roof construction described in this Standard may not be adequate to resist wind forces in cases where the height of the eaves is more than 15 m above the mean surrounding ground level. In such cases, or in areas where cyclones or high winds are known to occur, the fixing and fastening methods and sarking recommendations given in Appendix A are recommended.
- 3 Appendix B provides a check list of information to assist slating and shingling.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS

1170	Minimum design loads on structures (known as the SAA Loading Code)
1170.1	Part 1: Dead and live loads and load combinations
1170.2	Part 2: Wind loads
1170.3	Part 3: Snow loads
1316	Masonry cement (metric units)
1562	Design and installation of sheet roof and wall cladding
1562.1	Part 1: Metal
1672	Limes and limestones
1672.1	Part 1: Limes for building
1684	National Timber Framing Code
1720	Timber structures
1720.1	Part 1: Design methods
2049	Roof tiles
2334	Steel nails—Metric series
2758	Aggregates and rock for engineering purposes
2758.1	Part 1: Concrete aggregates
3566	Screws—Self-drilling—For the building and construction industries
3623	Domestic metal framing

3700	Masonry structures
3972	Portland and blended cements
4055	Wind loads for housing
AS/NZS	
4200	Pliable building membranes and underlays
4200.1	Part 1: Materials
4200.2	Part 2: Installation requirements
SAA	
MP20	Admixtures for concrete
MP20.1	Part 1: Permeability-reducing admixtures
MP20.2	Part 2: Thickening admixtures for use in concrete and mortar
MP20.3	Part 3: Expanding admixtures for use in concrete, mortar and grout
BS	
680	Specification for roofing slates
680.2	Part 2: Metric units
1014	Specification for pigments for portland cement and portland cement products
ABCB	
Building Code of Australia	

1.3 DEFINITIONS

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

NOTE: Care should be taken to ensure that the definitions and terms used in this Standard are properly understood and that terminology appropriate to the trade in the particular locality is used. Reference to local trade or organizations may be helpful.

1.3.1 Accessory

A concrete or terracotta product used to finish the slate and shingle roof and may include apex, ridge and barge capping.

1.3.2 Edge of roof

The area of a roof bounded by the eaves, ridge and barge, extending towards the centre of the roof for a distance equal to 0.1 multiplied by the minimum plan dimension of the building, measured from eaves to eaves, or barge to barge.

NOTE: For roofs in a domestic application, a 1200 mm wide band bounded by the eaves, ridge and barge extending toward the centre of the roof, would satisfy this requirement.

1.3.3 Fixing materials

Components used to fix and weatherproof a roof, e.g. nails, screws, clips, mortar.

1.3.4 High wind areas

Areas in which the basic design wind velocity, modified for terrain and height in accordance with AS 1170.2, is greater than 33 m/s.

1.3.5 Required

Required by a regulatory authority.

1.3.6 Roof slate or shingle

A non-interlocking fibre cement, terracotta, timber or slate product used to form the field of the roof.

1.3.7 Weatherproof

The performance of a roofing system or component that is equal to or better than the performance of the datum specimen when subjected to the dynamic weather resistance test, (see Appendix C).

1.4 PERFORMANCE CRITERIA FOR THE COMPLETED ROOF

1.4.1 Loading

The fixing of sarking, battens, slates, shingles and accessories shall be sufficient for the completed roof to withstand the loading requirements of AS 1170.1, AS 1170.2 (or AS 4055 for housing) and AS 1170.3.

NOTE: Fixing requirements would normally be provided by the slate or shingle manufacturer.

1.4.2 Weather resistance

The completed roof shall be sufficiently free from defect or distortion to be weatherproof and shall perform to at least the results obtained by the datum specimen when subjected to the dynamic weather resistance test specified in Appendix C.

S E C T I O N 2 M A T E R I A L S

2.1 SARKING

2.1.1 Pliable roof sarking

Pliable roof sarking shall comply with AS 4200.1.

2.1.2 Reflective foil laminate

Sarking membranes of reflective foil laminate shall have an anti-glare finish and shall comply with AS 4200.1.

2.1.3 Rigid or semi-rigid materials

Rigid or semi-rigid materials may be used provided that a performance and life expectancy equal to or greater than that of pliable roof sarking or reflective foil laminate can be demonstrated.

NOTE: For alternative materials, regulatory authorities may require third party appraisal.

2.2 ROOF BATTENS

Timber battens shall be in accordance with AS 1684 or AS 1720.1, as appropriate.

NOTE: For suggested batten size, see Appendix D.

2.3 MORTAR

Mortar mixes used for bedding or pointing shall be in accordance with AS 3700, and the following:

- (a) Cement shall be in accordance with AS 1316 or AS 3972.
- (b) Sand shall be in accordance with AS 2758.1.
- (c) Admixtures shall be in accordance with MP20.1, MP20.2 and MP20.3.
- (d) Pigments used for colouring of mortar used for pointing shall comply with BS 1014.
- (e) Flexible bedding and pointing shall be in accordance with AS 3700.

NOTES: Recommended mixes are as follows:

- (a) Cement mortar for bedding and pointing (1.3)—1 cement, 3 $\pm$ 0.3 sand.
- (b) Pigment proportions should be in accordance with ridge tile manufacturer's recommendations.

2.4 FIXING SYSTEMS

2.4.1 General

Fixing systems shall comprise, either singly or in a combination, mechanical fastenings such as clips nails, screws, adhesives, fillers and cement mortars (see Table 1).

Irrespective of which fixing system and where it is used, the applicable requirements of AS 1170.1, AS 1170.2, AS 1170.3 and AS 4055 shall be satisfied.

2.4.2 Fixing requirements

Table 2 gives the minimum mechanical fixing requirements for slates, shingles and accessories. This Table shall be used in conjunction with the loading requirements of Clause 1.4.1.

Where mechanical fixing is required (see Tables 1 and 2), mechanical or adhesive hold down shall be designed to resist the appropriate wind load as specified in AS 1170.2 or AS 4055, as applicable.

Systems for fixing battens to rafters and slates and shingles to battens shall comply with the loading requirements of Clause 1.4.1.

NOTE: The specification of fixing of the batten to the rafter or truss is dependent on the design wind velocity as nominated by the designer or builder.

The following additional requirements shall apply:

- (a) Where mechanical fastenings are the only means of fixing the roofing material to the battens, such fastenings shall be stainless steel, copper or other corrosion-resistant material.
- (b) Where mechanical fastenings are not the only means of fixing the roofing material to the battens, galvanized nails are acceptable.

NOTE: Stainless steel or copper fasteners would satisfy this requirement.

- (c) Fastenings for battens to steel frames shall be non-ferrous, stainless steel or steel with an appropriate corrosion-resistant coating.

Nails for batten fixing shall provide adequate withdrawal loads to resist the appropriate wind loads as determined in tests on the substrate timber or in accordance with AS 1720.1.

NOTES:

- 1 Nails used for fixing to steel frames should be as specified by the manufacturer of the steel frame.
 - 2 Appendix E gives tables of acceptable nails and fastenings for batten size relative to rafter spacing for hand nailing.
 - 3 Appendix F gives tables of acceptable nails and fastenings for batten size relative to rafter spacing for machine (gun) nailing.
- (d) Clout nails shall comply with AS 2334, have a minimum diameter of 2.8 mm, and be of such a length that the nail will penetrate not less than 15 mm into the batten.
 - (e) Self-drilling screws shall comply with AS 3566.

NOTE: Care is necessary to avoid overdrilling, which may split the timber batten or strip the screw thread.

- (f) Where clips are the only means for fixing slates and shingles, they shall be non-ferrous, stainless steel, copper or aluminium. In any case, the clip shall be designed so as not to interfere with the fit of the slates and shingles.

NOTE: The clips should be as specified by the manufacturer and may also need to allow for shrinkage of timber battens.