



Installation Guide





Disclaimer

Kandui makes no warranty, representation or guarantee regarding the information presented in this document. Kandui does not assume any responsibility for problems associated with defects that are not directly associated with the product itself. All recommendations for adhesion of Green Ceramic tiles have been made with reference to Australian standards. This guide aims to present suggestions regarding material selection and does not present in-depth instruction for installation using Green Ceramics. Installation steps aligning with Australian Standards should always be used when handling Green Ceramic products. Test the product in an inconspicuous area first. Green Ceramics were manufactured by Kandui in Australia. The information presented in this document is to the best of our knowledge as at the time of sharing.

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Overview

This document presents a general guide to the proper use of Green Ceramic™ Tiles in relation to adherence to a surface. It concerns the usage of different adhesives, grouts, primers and other related materials for bonding/ adhering a Green Ceramic tile to a substrate. This substrate may be for dry or wet interior environments.

This document is a set of recommendations and does not aim to present itself as an Australian Standard. Instead, existing Standards have been referenced to provide clearer guidelines. The 2019 Australian Tile Council's Tiles & Tiling Guide (Australian Tile Council Inc., 2019), internal testing, and past project experiences were referenced to present a comprehensive set of guidelines and recommendations.

The table below provides a schedule of references used by this guide.

Code	Description
AS 3600	2018 Concrete Structures
AS 3610	2018 Concrete Formwork Specifications
AS 3700	2018 Masonry Structures
AS 3740	2004 Waterproofing of Domestic Wet Areas
AS 3958.1	2007 Ceramic tiles Part 1: Guide to the installation of ceramic tiles
AS 4662	2003 Ceramic Tiles - Definitions, classification, characteristics and marking
AS 4992.1	2006 Ceramic tiles - Grouts and adhesives
AS/NZS 1859	2017 Reconstituted wood-based panels - Specifications Particle Board
AS/NZS 2270	2006 Plywood and blockboard for interior use
AS/NZS 2271	2004 Plywood and blockboard for exterior use
AS/NZS 2588	2018 Gypsum plasterboard
ASTM C630	Standard specification for water-resistant Gypsum backing board
ISO 13007-1	2014 Ceramic tiles – Grouts and adhesives

Substrates

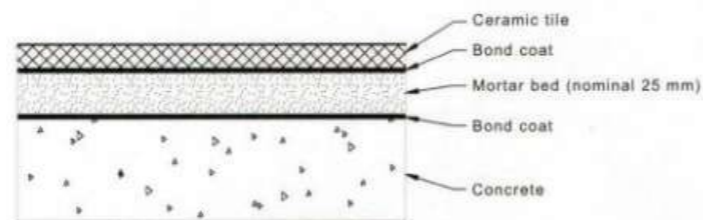
The area to be tiled must be set out in accordance with the Australian Standard AS 3958.1– 2007 Ceramic tiles Part 1: Guide to the installation of ceramic tiles or similar.

- This standard outlines the various substrates and structures for both floor and wall systems in preparation for the installation of ceramic tile systems. These floor and wall systems are suitable for the installation of Green Ceramic Tiles.
- Substrates have been defined as 'primary or underlying materials, to which other materials are applied.' (Australian Tile Council Inc., 2019)
- It is recommended that you don't tile over existing tiles.
- Thin layer of fast drying levelling compound can be applied for smooth substrate.
- In every situation the substrate should be true, sound and dry before installation of the tiles takes place.
- Incorrect or inadequate surface preparation is the most common cause of failure of the bond.

Applications	Suitable Materials	Description
Wall Tiling	Gypsum Plasterboard Sheets	<ul style="list-style-type: none"> - Minimum thickness 10 mm. - AS/NZS 2588 compliance for dry areas. - ASTM C630 performance requirements and - AS/NZS 2588 specifications for wet areas (defined by AS3740. Includes areas of periodic wetting eg. Bathrooms)
	Fibre-Cement Sheets	<ul style="list-style-type: none"> - Minimum thickness 6 mm - Minimum thickness in heavy duty commercial applications 9 mm - Check with sheet manufacturer if tile is to be fixed to sheet which is fixed to building façade.
	Compressed Fibre- Cement Sheets	<ul style="list-style-type: none"> - Minimum thickness 9 mm
	Plywood	<ul style="list-style-type: none"> - Minimum thickness 10 mm - AS/NZS 2270 for dry areas - AS/NZS 2271 for wet areas
	Concrete / Masonry Walls	<ul style="list-style-type: none"> - AS 3600 for Concrete structures - AS 3610 for Concrete surface finish - AS 3700 for masonry

Substrates

Applications	Suitable Materials	Description
Wall Tiling	New Concrete Walls	- Continuous air-drying for 4 weeks prior to surface rendering or direct tile installation. Remove surface contaminants thoroughly.
Floor Tiling	Plywood	- Minimum thickness 10 mm - AS/NZS 2270 for dry areas - Screw sheets at 100mm centres for the edges, 200 mm centres for the rest. - Suitable flexible thin-set adhesive with a flexible additive from the same manufacturer for tile installation.
	Structural Particle Board	- AS/NZS 1859 Minimum thickness 19 mm - Recommended that minimum 6 mm thick ceramic tile underlay is used prior to tiling and waterproofing (if necessary)
	Fibre Cement Sheets	- Minimum thickness 15 mm - Used as separating layer / underlay
	Compressed Fibre Cement Sheets	- Minimum thickness 15 mm
	Concrete	- AS 3958.1 2007 for industrial, commercial and residential interior substrates. - Allow slabs to cure and dry first



To create an even surface, a 3:1 mix of fine wash sand and cement may be used to prepare the surface substrate. In this situation, two options are available for tiling. The decision is based upon the porosity of the tiles. Tiles below 6% are best used with adhesives. AS 4662 provides more details.

- Conventional adhesives can be used once new screed dries and cures.
- Tiles can be laid in the sand and cement bed as the screed is laid. A separating layer will be required if laid over existing timber substrates.

Cement render surfaces requires minimum 7 days before tiling, unless advised otherwise by adhesive manufacturer.

Bonding

A range of adhesives can be used for bonding Green Ceramics but must comply with the following.

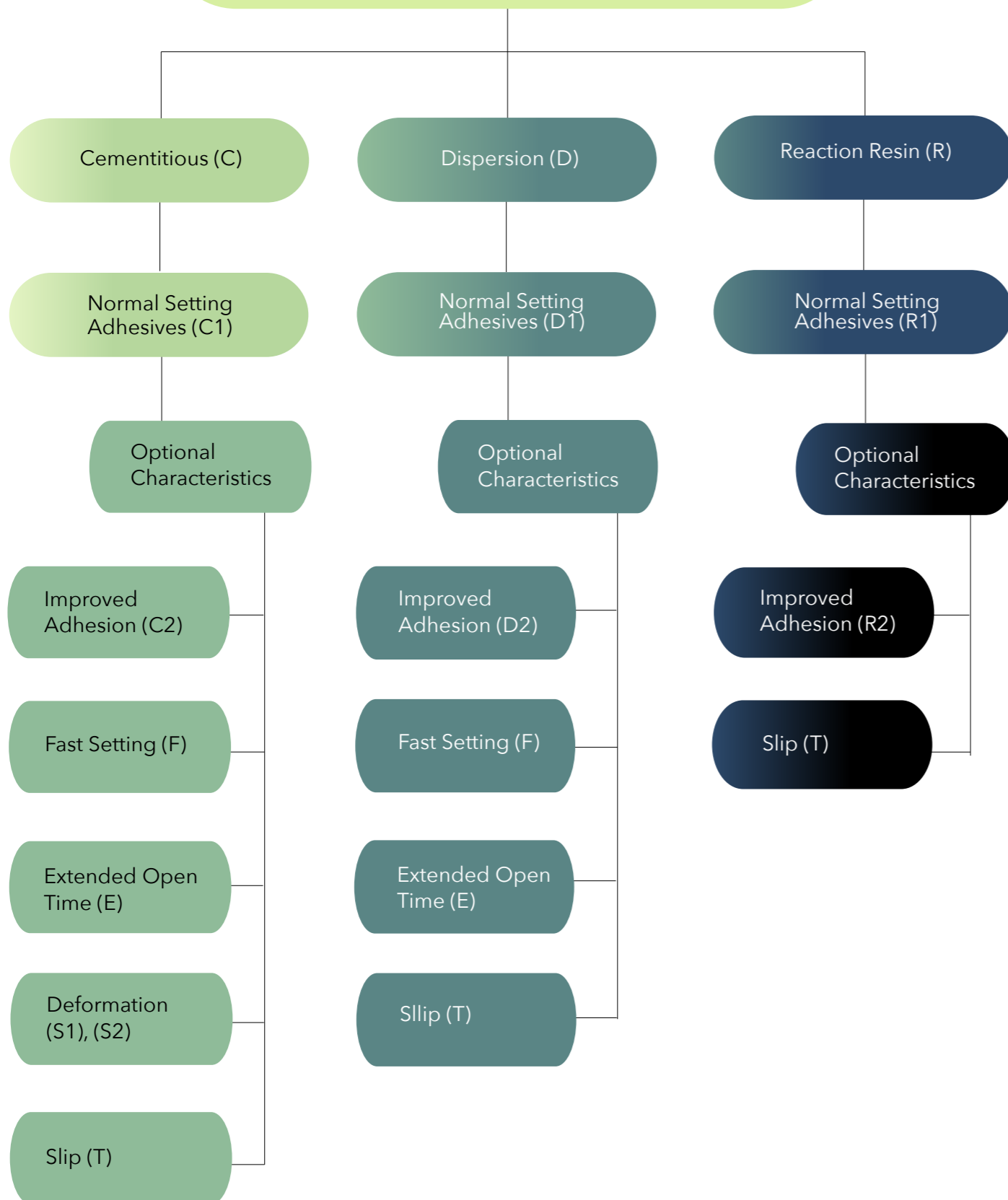
- The adhesives to be used must meet Australian Standard AS 4992.1–2006 Ceramic tiles–Grouts and adhesives or ISO 13007-1:2014 Ceramic tiles – Grouts and adhesives
- The adhesives must meet or exceed Cementitious C2S2TE and / or Dispersion D1TE classifications. A breakdown of the classification system has been included in the following diagram.
- Primers can be used to improve the characteristic of the adhesive. Follow the adhesives manufactures guidelines.
- For difficult to bond areas a product like Sikaflex 111 or 11FC can be used.
- Test the product in an inconspicuous area first.
- Do not tile if the temperatures are excessive.
- Do not apply more than the recommended amount of adhesive as it may dry and become ineffective.
- Some All-Purpose Adhesive from Dunlop¹, Davco² and similar will work in most situations with Green Ceramic Tiles.

1. <https://dunlopdij.com/product/dunlop-tile-all-plus/>

2. <https://aus.sika.com/en/46017/tile-stone-installationsystems/tile-adhesives/davco-apa-all-purposeadhesive.html>



Tile Adhesive Classification to AS 4992.1 - 2006



Grouts

Covered by ISO 13007.

- Applied in 2 mm joints (walls) or 3 mm joints (floors) following AS 3958.1. May be thinner if specified by Kandui, in response to a customer request.
- Tile fixer should decide between using AS 3958.1 standard or manufacturers suggestion based on flatness of substrate. Wider joints are recommended for uneven substrates, both vertical and horizontal.
- Tiles may be laid without grout if they are the same batch and has been discussed with Kandui.
- Standard grouting systems can be used as per Australian Standard AS 4992.1– 2006 Ceramic tiles–Grouts and adhesives or ISO 13007-1:2014 Ceramic tiles – Grouts and adhesives and inline with Australian Standard AS 3958.1–2007 Ceramic tiles Part 1: Guide to the installation of ceramic tiles.

Adhesive Types	Classes	Special Characteristics	Applications
CG (Cementitious grouts)	1 - Normal 2 - Improved	F - Fast - setting A - High Abrasion resistance W - Reduced water absorption Highly versatile, most common	Can improve by mixing additive for improved resistance to mould and staining and improved flexibility
RG (Reaction Resin/ Epoxy Grouts)		Higher Performance than improved CG	Primarily commercial environments where grout joints may encounter liquid or chemical spills.

Primers

- Improve bonding between the substrate and tile.
- Improve tile adhesive characteristics. Better water retention for longer curing, longer open time and increased ultimate strength. Longer open time allows more tiles to be laid in one period and more time to adjust.
- Should be applied to all substrates prior to tiling unless the substrate has a water proofing membrane on top.

Waterproofing Membranes

- If the tiles will be installed in wet areas, a waterproofing or water-resistant process must be applied following AS 3740 – Waterproofing of Domestic Wet Areas.
- Ensure chosen tile adhesive, grout and primer is compatible with waterproofing membrane.

Tile Preparation

- Tiles can be cut to size with a wet saw system.
- Refer to Safe Operating Procedure - Operating a Wet Tile Saw.

References

Australian Tile Council Inc. (2019). The Tile & Tiling Guide. Retrieved from Australian Tile Council Inc. <https://www.austriantilecouncil.com.au/tiles-and-tiling-guide>

