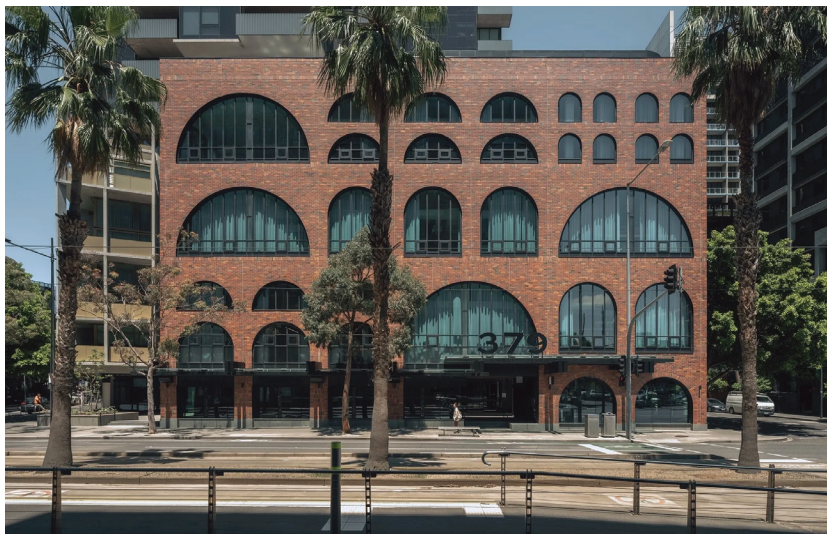




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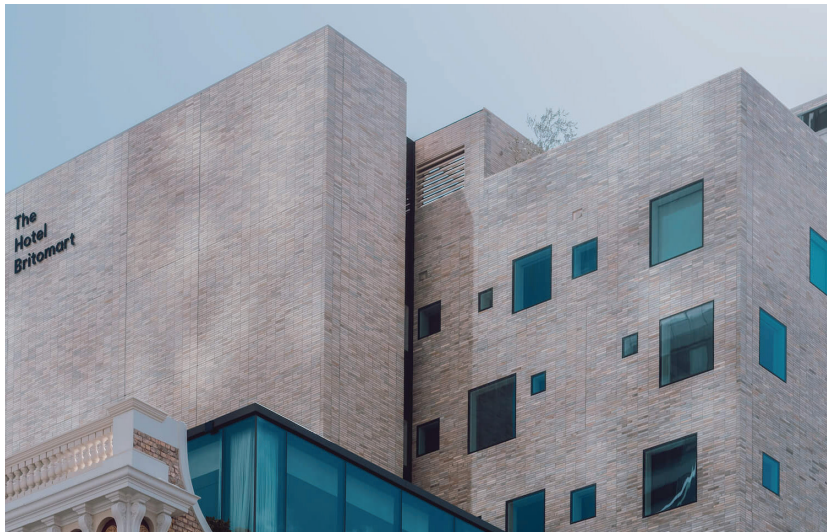
Facing Tile Installation Guide



Escala, Docklands

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The Hotel Britomart, New Zealand

This information within this guide is general in nature and is a reference document to assist with the application of the following products produced by Krause Bricks:

- **Standard Facing Tile**
230x16x76mm
48 per m²
19.2kg per m²
- **Empress Facing Tile**
290x30x50mm
55 per m²
46kg per m²
- **Emperor Facing Tile**
390x30x45mm
46 per m²
46kg per m²

This guide outlines the essential steps for tile installation in compliance with Australian Standards, primarily focusing on AS 3958.

Step 1. Pre-Installation Planning & Material Selection

Compliance Focus: AS 3958:2008 Sections 2 & 3

- **Storage:** Facing Tiles should be stored in a dry, secure environment, protected from extreme temperatures.
- **Tile Type & Application:** Select tiles suitable for the intended use (e.g., slip resistance for wet areas, abrasion resistance for high-traffic zones). Refer to AS 4586 (Slip resistance classification of new pedestrian surface materials).
- **Substrate Suitability:**
 - **Rigidity:** The substrate must be rigid and stable to prevent cracking of tiles and grout. Deflection limits are critical, especially for flexible substrates (e.g., timber floors).
 - **Condition:** Substrates must be clean, dry, sound, free from dust, grease, paint, curing compounds, and loose material.
 - **Moisture Content:** Ensure concrete slabs are adequately cured (typically 28 days) and have acceptable moisture content. Timber substrates should be acclimatised and stable.
- **Adhesive Selection:** Choose an adhesive appropriate for the tile type, substrate, and environmental conditions (internal/external, wet/dry areas, heated floors). Adhesives must comply with AS 2358 (Ceramic tiles - Adhesives) and AS 4992 (Adhesives for ceramic tiles – Requirements for suitability for use). Flexible adhesives are often required for timber or other substrates prone to movement.
- **Grout/Mortar Selection:** Select grout suitable for the tile joint width, tile type, and exposure conditions. Grout must comply with AS 2358.
- **Waterproofing (Wet Areas):** For bathrooms, laundries, balconies, and other wet areas, waterproofing is mandatory and must comply with AS 3740 (Waterproofing of wet areas within residential buildings). This must be applied by a licensed waterproofer if required by local regulations.
- **Movement Joints (Expansion Joints):** Critical for accommodating thermal and structural movement. Plan for movement joints in accordance with AS 3958:2008 Section 3.6. They are typically required:
 - Around the perimeter of tiled areas.
 - Where tiling abuts columns, walls, or other fixed elements.
 - Over structural movement joints in the substrate.
 - At junctions between different building elements or substrates.
 - In large tiled areas, typically at maximum intervals of 4-8 metres internally and 2.5-5 metres externally, depending on tile size, colour, and exposure.
 - Where changes in substrate material occur.
- **Surface Preparation Materials:** Primers, levelling compounds, and screeds as required.
- **Efflorescence** appears as a white, powdery, or crystalline deposit on the surface of concrete, masonry, and other porous materials. This visible layer is a water-soluble salt left behind after water moves through the material (often from groundwater or mortar) and then evaporates.

While efflorescence itself isn't damaging to the brick or the building's structure, it can be unsightly and often signals a deeper issue with moisture penetration. You can remove efflorescence with water and a stiff brush, but it will likely return if the underlying moisture problem isn't resolved. To prevent efflorescence from forming, it's crucial to have a robust waterproofing and moisture management plan in place.

Step 2. Substrate Preparation

Compliance Focus: AS 3958:2008 Section 4

- **Cleanliness:** Thoroughly clean the substrate to remove all contaminants.
- **Level & Flatness:**
 - The substrate must be flat within tolerances specified in AS 3958:2008. Generally, no more than 3mm deviation over a 1.2m length for floors, and 4mm over 2.4m for walls.
 - Use levelling compounds or screeds to achieve the required flatness and falls to drains in wet areas. Screeds must be adequately cured.
- **Priming:** Prime the substrate if required by the adhesive or waterproofing manufacturer to improve adhesion and reduce porosity.
- **Waterproofing Application (Wet Areas):**
 - Apply waterproofing membrane according to AS 3740 and manufacturer's instructions.
 - Ensure adequate curing time before tiling.
 - Conduct flood testing if required by local regulations.

Step 3. Setting Out the Tiling

Compliance Focus: AS 3958:2008 Section 5

- **Dry Lay:** For complex patterns, a dry lay of tiles can help visualise the layout and minimise cuts.
- **Blending:** Tiles are not pre-blended. Ensure that all tiles are blended during the laying.
- **Centering:** Determine the starting point to ensure a balanced layout, minimising small cuts at edges.
- **Reference Lines:** Establish plumb and level reference lines using a spirit level or laser level.
- **Joint Widths:** Maintain consistent joint widths using spacers. The standard recommends a minimum joint width of 1.5mm, but this can vary based on tile type (e.g., rectified tiles may allow narrower joints).
- **Falls to Drains:** For wet areas, ensure adequate falls (gradients) are incorporated into the substrate or adhesive bed to direct water to floor wastes. AS 3740 specifies minimum falls.

Step 4. Adhesive Application

Compliance Focus: AS 3958:2008 Section 6 & Adhesive Manufacturer Data Sheet

- **Mixing:** Mix adhesive strictly according to the manufacturer's instructions.
- **Trowel Size:** Use a trowel with a notch size recommended by the adhesive manufacturer and suitable for the tile size and backing profile to ensure adequate adhesive coverage.
- **Coverage:**
 - Achieve a minimum of 80% adhesive coverage for internal dry areas and 90% for wet areas, and external areas.
 - For external areas or large format tiles, back-buttering the tile (applying a thin layer of adhesive to the back of the tile) in addition to trowelling the substrate is highly recommended to achieve maximum coverage and prevent voids.
- **Open Time:** Do not spread more adhesive than can be tiled over within the adhesive's open time (pot life).
- **Bedding:** Press tiles firmly into the adhesive bed, using a slight twisting or sliding motion to ensure full contact and collapse of adhesive ribs. Tap tiles with a rubber mallet or levelling system to achieve a flat, even surface.
- **Lippage:** Minimise lippage (differences in height between adjacent tiles) to comply with AS 3958:2008 tolerances (typically no more than 1mm or 2mm depending on tile type).
- **Adhesive Removal:** Clean off any excess adhesive from tile faces and grout joints before it cures. Ensure grout/mortar joints are clean and clear to the full depth of the tile for proper grouting later.

Step 5. Grouting/Mortaring

Compliance Focus: AS 3958:2008 Section 7 & Grout Manufacturer Data Sheet

- **Curing Time:** Allow the adhesive to fully cure before grouting. Refer to the adhesive manufacturer's instructions (typically 24-48 hours, but longer for some applications).
- **Mixing:** Mix grout strictly according to the manufacturer's instructions.
- **Application:**
 - Apply grout using a rubber float, working it diagonally across the tile joints to ensure full penetration.
 - Work in small sections to prevent premature drying.
- **Cleaning:**
 - Once the grout has firmed slightly (hazed over), use a damp sponge to remove excess grout from the tile surface. Clean the sponge frequently.
 - Avoid using excessive water, which can weaken the grout.
 - For persistent haze, use a suitable grout haze remover after the grout has fully cured.

- **Joint Profile:** Ensure grout joints are consistently filled and finished flush or slightly concave, without voids.

Step 6. Movement Joints & Perimeter Sealing

Compliance Focus: AS 3958:2008 Section 3.6

- **Fill with Flexible Sealant:** All movement joints (expansion joints) and perimeter joints (where tiling abuts walls, fixtures, or different surfaces) must be filled with a suitable flexible sealant (e.g., silicone or polyurethane sealant) that complies with AS 3958:2008.
- **Backer Rod:** For deeper joints, use a closed-cell backer rod to control the depth of the sealant and prevent three-sided adhesion.
- **Smooth Finish:** Tool the sealant to a smooth, neat finish.

Step 7. Post-Installation Care & Protection

Compliance Focus: AS 3958:2008 Section 8

- **Curing:** Protect newly tiled surfaces from traffic and heavy loads until the adhesive and grout have fully cured (refer to manufacturer's recommendations, typically several days).
- **Cleaning:** Initial cleaning to remove any residual grout haze or construction debris.
- **Sealing (if required):** For porous tiles (e.g., some natural stones, unglazed ceramics) or porous grout, apply a penetrating sealer as recommended by the tile or sealer manufacturer. This helps protect against staining.
- **Protection:** Protect the tiled surface from damage during subsequent construction activities.

Key Australian Standards Referenced

- AS 3958:2008 Ceramic tiles - Guide to the installation of ceramic tiles
- AS 3740:2021 Waterproofing of wet areas within residential buildings
- AS 4586:2013 Slip resistance classification of new pedestrian surface materials
- AS 2358 Ceramic tiles - Adhesives (and related adhesive standards like AS 4992)
- Always ensure you are using the current versions of these standards. You can purchase copies from Standards Australia.



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