The background of the entire page is a high-resolution, close-up photograph of water ripples. The ripples are concentric circles of varying sizes, creating a complex, textured pattern of light and dark blue tones. The lighting is soft, highlighting the peaks and troughs of the water's surface.

MTB23002
**BEST PRACTICES
FOR EXTERNAL
TILING IN WET
TROPICAL
CLIMATES**



External Tiling



External tiling is a common practice in construction projects. It can provide an aesthetically pleasing finish to a building and can also provide functional benefits such as slip resistance and durability. However, external tiling can be prone to issues such as efflorescence, and in rare cases polymer leaching. These can occur more often in wet tropical climate conditions as water is the main driving force. In this document, we will discuss some of the best practices for external tiling installation that can help prevent such issues.



Considering the use of materials that do not contribute to efflorescence

Efflorescence is an important aspect to consider during the planning stage of external tiling applications. While it does not often compromise the adhesive's performance, efflorescence has the potential to create an unsightly tiling system that requires on-going maintenance.

Efflorescence is a phenomenon that arises in building materials containing Portland cement. Water, often derived from rainfall, transports soluble salts to the surface finish. Upon evaporation of the residual water, the remaining salts form a white, powdery substance known as efflorescence.



Ensuring appropriate drainage and a waterproofing system

It is important to ensure that moisture is allowed to easily be directed to wastes. Adequate drainage and waterproofing are essential for this. When installing waterproofing it is important to consider factors such as incorporating adequate falls to waste, using suitable membranes, and ensuring that the system is installed on a suitable substrate.



Allow for longer curing time over membrane installations

When installing porcelain tiles on a waterproofing membrane, the adhesive can take longer to cure (in comparison to installing the tiles on porous substrates). Therefore, if tiles are installed on a waterproofing membrane, allow for additional drying time (double the curing time).



Consider possible rainfall during or soon after installation

It is also important to consider weather conditions during external tiling installation. Rain and excessive moisture from other sources can increase the risk of materials being affected before products such as ceramic adhesives have the chance to fully cure. Therefore, it is recommended to avoid installing tiles during periods of heavy rain or when rain is expected within 48 hours of installation. Using rapid-setting products like screeds, tile adhesive and grouts can be beneficial in reducing the amount of time that materials are or could be exposed to water, thereby reducing the risk. Using a rapid set product can be particularly useful in areas where sudden weather changes are expected, such as here in Australia.



Full bedding beneath tiles

Full bedding is an important technique that involves spreading adhesives evenly across the entire back of a tile before laying it. This ensures that there are no voids beneath the tile where excess water can accumulate. The use of full bedding helps to prevent moisture-related issues such as efflorescence and tile failure like tile cracking and drummy tiles

AS 3958 specifies that external tiling must have at least 90% coverage of adhesive on the back of the tile to ensure proper bonding and to avoid tiling failures such as moisture retaining in the tiling system and drummy, debonding and cracking of tiles.

Proper trowelling and bedding techniques are crucial for successful external tiling installation. This involves using the right trowel size and angle to spread the adhesive evenly on the substrate and removing a tile regularly to check appropriate coverage.



Proper installation

Proper installation of external tiling in wet tropical climates is crucial to avoid issues such as efflorescence and other tile failures. It is important to use the correct materials and follow the manufacturer's guidelines for installation, considering the use of non-efflorescence producing materials, incorporating adequate drainage and waterproofing systems, considering weather conditions during installation and ensure full bedding of tiles. Installers should also allow for longer curing time over membrane installations and incorporate appropriate movement joints to accommodate the natural expansion and contraction of the tiles. By following these best practices, external tiling can provide both functional and aesthetic benefits to a building without being prone to issues caused by excessive moisture.



Mixing products following the manufacturer's recommendations

Mixing the products correctly is crucial to ensuring the success of external tiling installations. It is important to follow the manufacturer's guidelines when mixing the adhesive and grout. Using too much or too little water can affect the properties of the products, which can lead to tiling failures. Installers should always use clean tools and ensure only the recommended dosage of water is used to mix products.



Incorporate appropriate movement joints

Movement joints allow for the natural expansion and contraction of the tiles due to temperature and moisture changes. Failure to include movement joints can result in tiles buckling, cracking, or dislodging. It is recommended to place movement joints at least every 4.5 m in external tiled areas in accordance with the AS 3958.



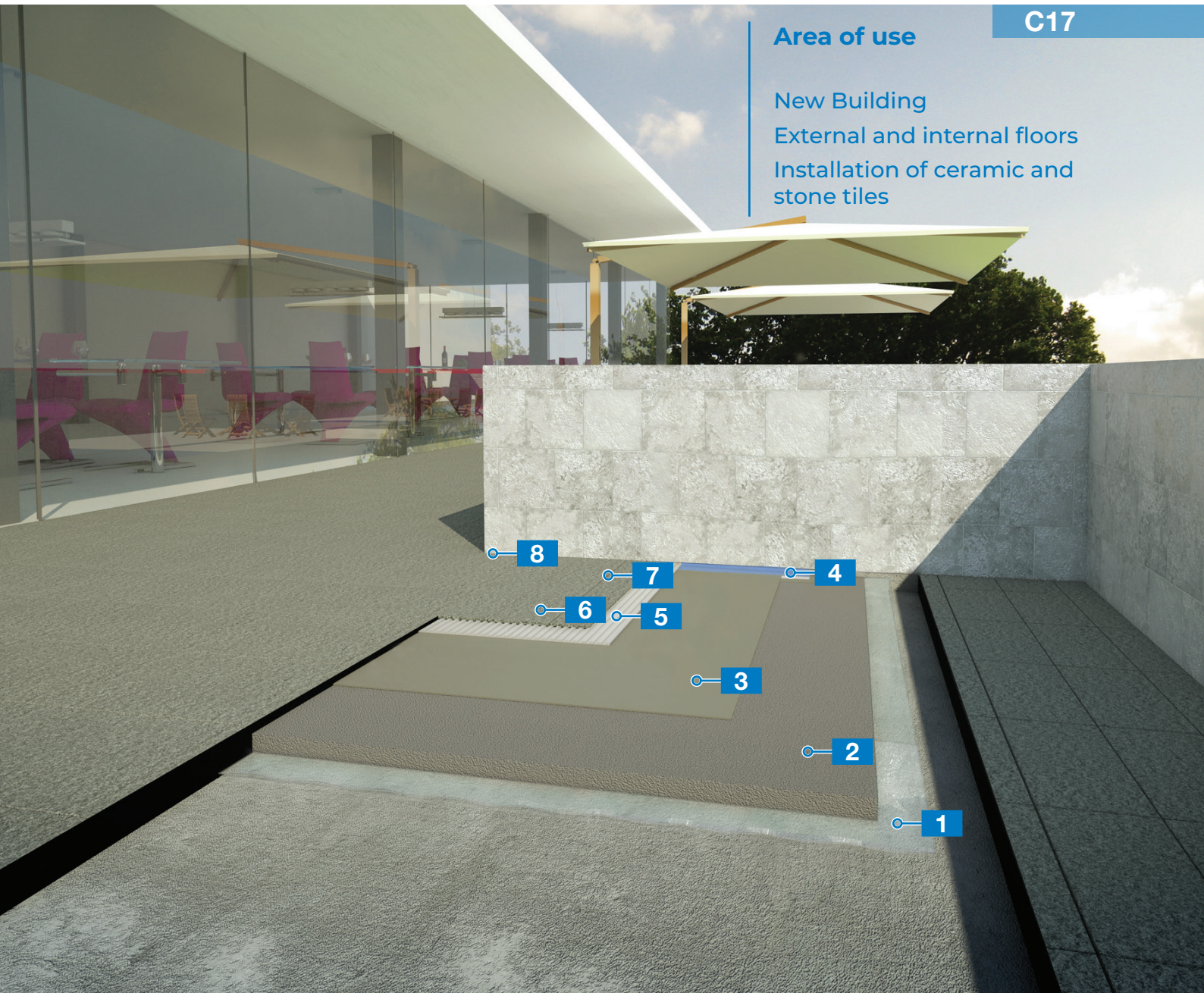
Using the right adhesive and ensuring correct mixing

Proper installation of tiles entails adherence to the manufacturer's guidelines, including the use of suitable adhesive and grout for the tile type and ensuring correct adhesive mixing. For example, Mapei recommends utilizing a highly deformable adhesive (S2) during installation of large format outdoor tiles to cater for possible movements due to thermal expansion from sunlight. Referring to the products' technical data sheet (TDS) is always essential to ensure accurate mixing procedures.



Mapei System for the Installation of an Anti-Efflorescence Tiling System - C17

Mapei has a full system of products specifically designed to eliminate the occurrence of efflorescence



Area of use

C17

New Building
External and internal floors
Installation of ceramic and stone tiles



