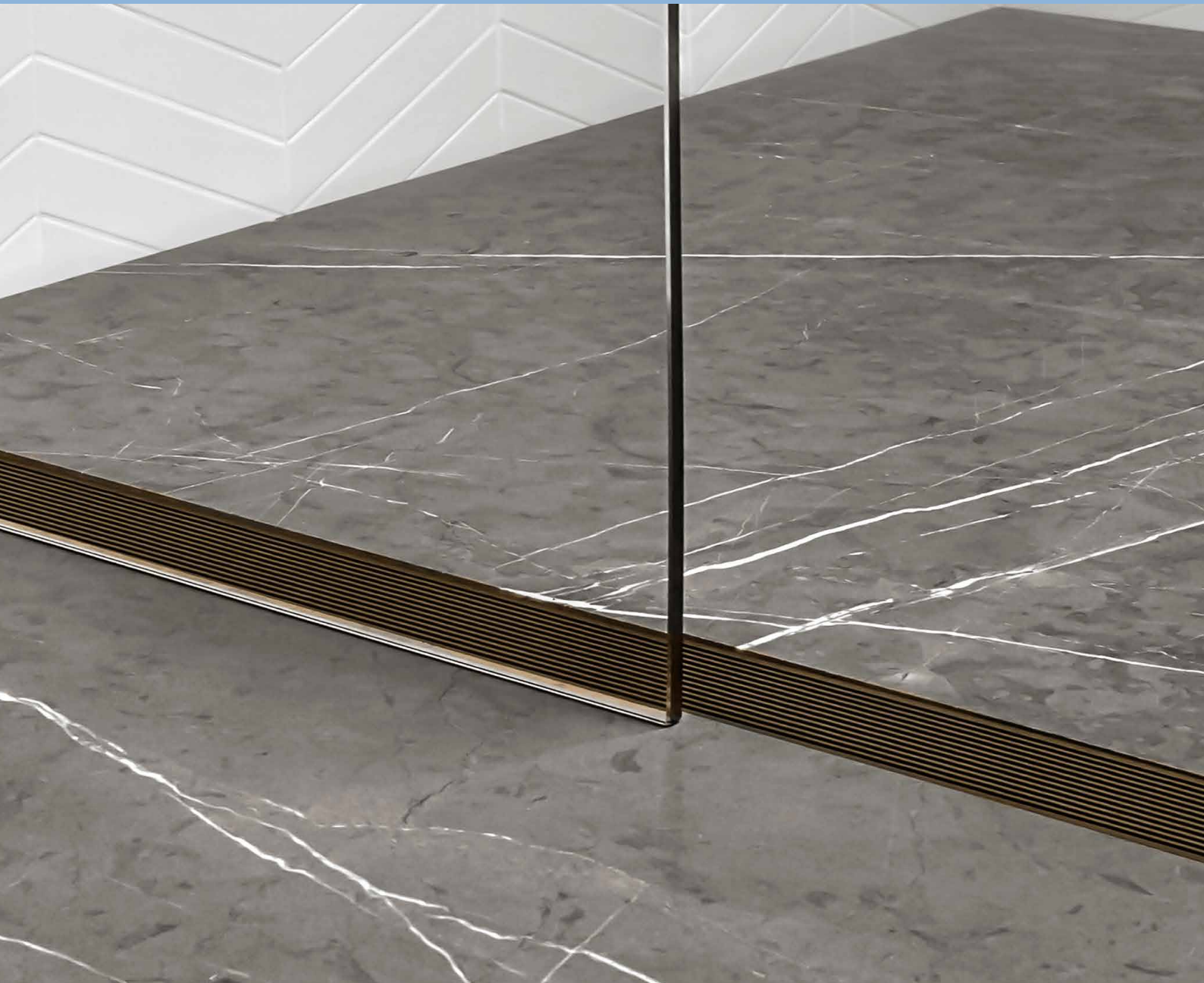


HOW PROPER PLANNING CAN STOP YOUR PROJECT GOING DOWN THE DRAIN



INTRODUCTION

Drains are a vital element of any residential or commercial project. In both contexts, drains are necessary to ensuring that important everyday activities using water – including bathing, cooking, and washing – can be done safely and efficiently. Drains remove water from the property and prevent damage caused by excess or improperly managed water, including structural issues, mould, and bacterial growth. In spite of being central to a successful construction project and operational life, drains are rarely subject to scrutiny: when they are working properly, they are often out of sight and out of mind.

Unfortunately, drain planning is frequently similarly overlooked. It is a common mistake amongst builders and designers to detail or select the drain once most construction has already been completed. This approach has serious complications, and typically results in ineffective drains that inevitably require a change of specification. Changing the drainage specification can also impact the selection of flooring materials, causing quite significant redesign and unfortunately potentially requiring repairs or replacement down the track. Often, damage caused by inadequate or improper drainage is not limited to the drain itself, and impacts on the drain's surrounds and the rest of the building structure. According to the Queensland Department of Housing and Public Works, faulty drains are the sixth most common building construction defect.ⁱ

Proper planning and preparation is a crucial precursor to installing an effective, lasting drainage solution and can prevent catastrophically expensive repairs and replacement as time progresses. In this whitepaper, we emphasise the importance of planning to successful drain installation in new builds, and examine the key considerations that must be taken into account at the planning stage.



LOCATION

The first step to ensuring successful drain installation is identifying the most appropriate location for the drain. Before construction commences, ensure that there is enough space to accommodate the drain and that the desired location has adequate access to the greater plumbing and drainage systems. The location of the drain will provide guidance as to the most appropriate type of drain and elicit a number of installation-specific additional considerations.

This is particularly true for outdoor drains. According to the ABC, rain events are set to increase markedly in terms of both intensity and frequency, making outdoor drainage more important than ever.ⁱⁱ Incorrect drain placement can degrade non-absorbent surface and cause serious structural damage: in 2014-15, the Queensland Building and Construction Commission paid out \$9.2 million in insurance claim costs for subsidence,ⁱⁱⁱ which may be caused or exacerbated by poor drainage. Poor drainage and inadequate surface grading have repercussions that reach far beyond the building structure and immediate surrounds, extending to environmental impacts

including high salinity, erosion, and reduced water quality and aquatic biodiversity.^{iv}

Drainage installation sites located on an indoor/outdoor divide also merit closer examination, and require use of a specially designed threshold drain. These drains have a low profile and streamlined body that allows level plane drainage beside the door frame.

At this stage, it is also important to carefully assess the floor surrounding the intended installation site and the slope of this toward the drain. While leaving the slope to the absolute bare minimum may initially appeal due to reduced labour and cost requirements, it inevitably diminishes the overall utility of the finished drain. Drain surrounds with inadequate slopes simply allow water to accumulate, causing the host of problems associated with ponding. To avoid this, falls in floor finishes outside of showers must have a minimum fall to waste of 1:100, and floor finishes in shower floors without a vertical separation from the wet area must have a minimum fall of 1:80.^v



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STYLE OF DRAINAGE

There are two main drainage styles: traditional drains with a single, centralised drainage point, and linear drains. Linear drains can be placed anywhere in the wet area, and only require 2-way floor grading toward the channel, as opposed to the 4-way grading required by traditional grates.

Linear drains also have the advantage of contemporary, streamlined design that can be discreetly incorporated into a variety of commercial and residential projects alike. When using a linear drain, it is essential to allow for either multiple outlets or a deeper channel, depending on the situation.

Additionally, the finish of the selected drain must be understood before construction commences. Though metal finishes have been popular for almost 10 years, widespread confusion as to their surface qualities remains. Simply put: most metal finishes are not meant to stay shiny. They will intentionally weather and tarnish in any environment, but certain conditions accelerate rates of corrosion and cause finishes to leach into surroundings. Areas with high airborne salinity – for example, seaside locations – are particularly corrosive. This can be addressed using an electro-polish finish, which minimises the rust-sensitive iron in stainless steel against oxidation.

REGULATORY COMPLIANCE

As with all construction elements, drains must comply with the relevant Australian regulations and standards. Firstly, specifiers must be sure to use the correct drain connections. Inspectors are increasingly targeting connections with the incorrect size and/or diameter for their application, and consider incorrect sizing a form of serious non-compliance.

Secondly, specifiers should be aware that aluminium channel is no longer deemed compliant under AS 3500, and must be removed from existing applications. It cannot be specified for new projects or retrofits.

AS 3740:2010 – Waterproofing of wet areas within residential buildings

This Standard sets out waterproof measures that are intended to protect interior spaces from unwanted water incursions. The requirements of the Standard vary depending on the material chosen for the surface of the drain surrounds and the substrate beneath this. As such, ensure that you carefully double-check the requirements for your materials prior to specification.

AS 4654.2:2012 – Waterproofing membranes for external above-ground use design and installation

This Standard establishes the minimum requirements for waterproof membranes in above ground use. Again, the

guideline requirements depend on the chosen threshold and surface materials. As a general rule, it is good practice to always carefully check the requirements for your selected materials.

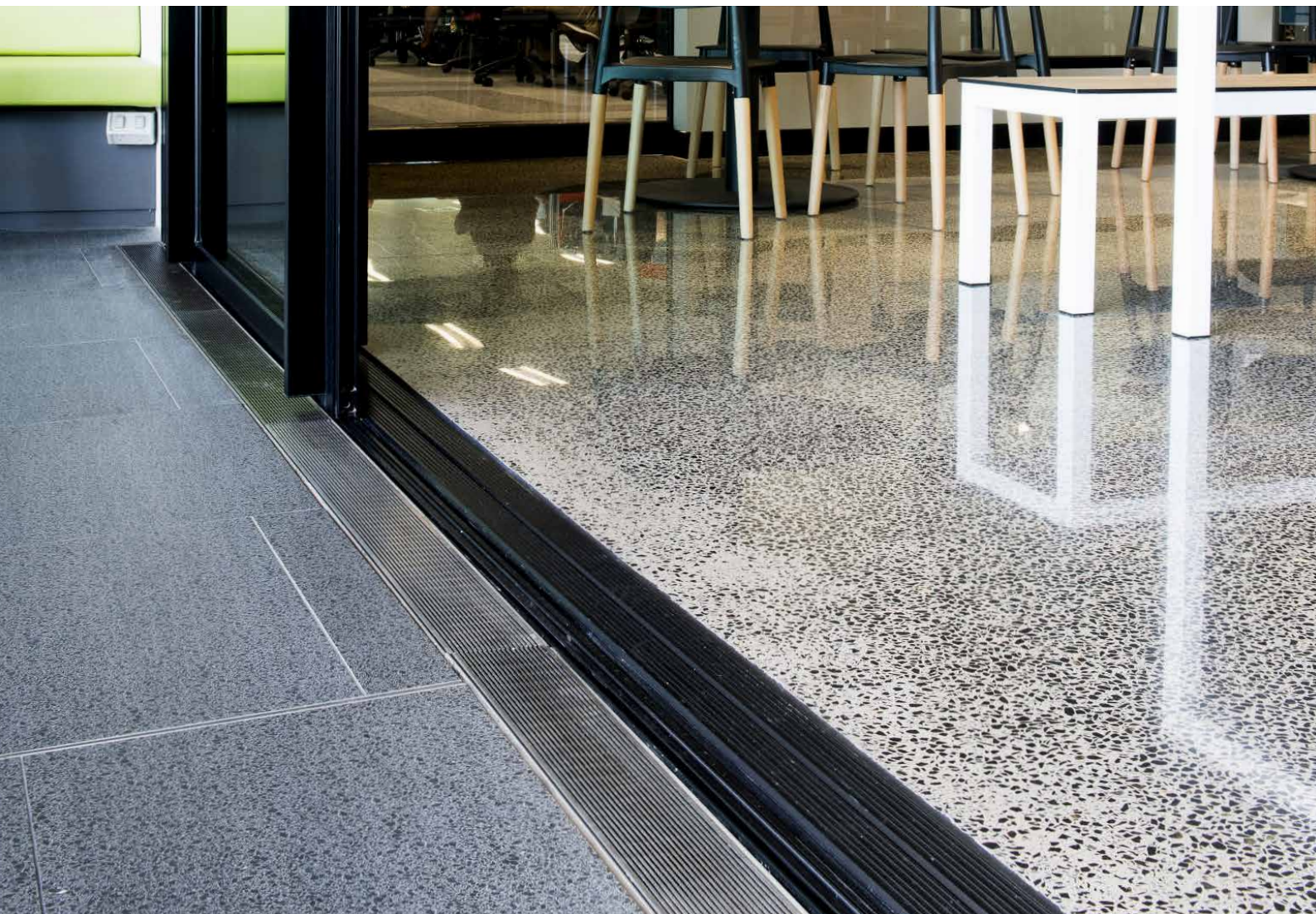
Plumbing Code of Australia (PCA) 2016

The PCA is a performance-based code that sets out performance requirements for plumbing products in Australia. As with the Building Code of Australia (BCA), these requirements can be met with either a Deemed to Satisfy (DtS) solution, performance solution, or a combination of the two. AS 3500 is part of the DtS provisions of the PCA.

Local regulators may interpret the PCA differently. Accordingly, inform yourself of your local regulator's stance on the PCA before commencing specification and construction.

TIMING OF CONSTRUCTION

As noted above, plumbing and drains must be installed before construction commences (the 'rough-in' or 'first fit'), ideally at the time of onsite preparation. This provides easy access for installation and clean-up, and ensures that any mishaps or other issues can be quickly and easily rectified.





STORMTECH

With more than 25 years' experience at the forefront of the global drainage industry, Stormtech has earned a reputation as one of Australia's most respected drainage manufacturers and suppliers. The company is driven by innovation and a genuine passion for developing practical, long-lasting design solutions to everyday problems. Stormtech products go beyond fit for purpose, and meet the stringent regulatory requirements surrounding drainage in Australia. All Stormtech drainage products are WaterMark certified for use in Australia and are approved for use internationally, including in accordance with the US Uniform Plumbing Code (UPC) and Canadian Standards Association (CSA).

Bolstering Stormtech's catalogue of durable, high performance drainage solutions is their team of experienced, knowledgeable experts. Stormtech's technical staff can guide you through the steps for choosing the most suitable drainage product for your project, and will develop tailored solutions where no existing ones are appropriate. The Stormtech team can also provide assistance at the planning stage to ensure that all the relevant considerations are taken into account.

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