



The Custom Drainage Revolution

Meeting the Challenges of Modern
Commercial Design and Construction



INTRODUCTION


It is impossible to overestimate the significance of effective water management over the lifespan of buildings. In busy commercial spaces, effective drainage solutions are essential to the efficient operation, curb appeal and health of the property.

Still, not every space is the same, and a one-size-fits-all approach to drainage will not always be effective. This is where customised drainage solutions come into play, providing individualised solutions to challenging drainage problems that are beyond the scope of standard or “off-the-shelf” products.

Proper drainage efficiently removes surface water, preventing ponding, structural damage, and maintaining the integrity of landscapes and buildings, seamlessly integrating ‘water-shedding’ principles. In complex spaces, such as those with unique layouts, particular aesthetic requirements, or difficult environmental conditions, standard drainage solutions may not be sufficient in form, function, and installability.

In this paper, we examine how custom drainage systems can meet the challenges faced by today’s building projects. Custom-designed drainage solutions excel in complex spaces because they are made from the ground up to satisfy the unique requirements of a project, guaranteeing a drainage system that precisely satisfies the space's functional and aesthetic requirements.





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BENEFITS OF CUSTOM DRAINAGE

The primary advantage of custom drainage is that it is designed to handle specific site-conditions—from unconventional layouts to varying elevations to unique environmental concerns—ensuring effective and efficient water management, thus reducing the risk of water-related damage. This means reduced maintenance requirements, reduced business downtime, and more attractive working and living conditions.

Additionally, a custom solution can be designed to ensure compliance with building standards from the outset.

Products that are not specifically designed for a given site may not be fit for purpose, leading to defect reports, premature failure, damage or construction delays. Much like trying to squeeze a square peg into a round hole, trying to fit a standard drainage system into a complex site is likely to lead to difficulties during the design and construction stages. Product switching is more likely to occur to minimise costs, however, unintended consequences of the change often result in less effective products being selected.

Practitioners tend to avoid custom solutions as they are thought to be more expensive and require longer lead times than off-the-shelf products. These issues can be avoided through good design and planning, and by partnering with reputable suppliers with proven custom capabilities. Even if the initial outlay is more than what you would pay for a standard product, using custom solutions and high-quality materials in the build will reduce time

spent on installation, thus delivering cost savings in both the short and long term.

Further, in commercial and residential projects, customised drainage is often used to overcome issues with unplanned design changes or errors during construction and to avoid extremely costly and time-consuming rework. A common example of an unplanned change is a seemingly minor change in room layout, that then has a knock-on effect on already installed drainage risers being out of position, which then require core-hole drilling, or other costly remediation, including interrupting the sequence of trades completing schedule.

Unlike standard products, custom drains can be designed with aesthetics in mind, blending seamlessly with the surrounding environment or becoming a design feature in their own right. For example, custom drains can fit seamlessly with a variety of flooring materials because they can be made in different sizes, shapes, and finishes. Moreover, distinctive patterns or logos can be added to create a distinctive design element that reflects the space's personality or branding.

Custom drainage systems can become more than just tools for managing water; they can become an essential component of the intended design. Their ability to combine form and function creates a harmonious and aesthetically pleasing environment that is simply not possible with standard drainage solutions.





APPLICATIONS FOR CUSTOM DRAINAGE

For areas with high foot traffic, strict hygiene requirements, or critical water removal needs, custom drainage solutions are essential to maintaining operational effectiveness and safety. In common areas, for example, custom drains not only improve an open space's aesthetics, but they also help keep it clean and safe for both employees and visitors, thus reducing the risk of loss of amenity. Loss of amenity is so critical that it is embedded in almost every section of the National Construction Code. These features align with the growing demand for higher quality and healthier workspaces.

In public urban environments, drainage systems are employed to manage stormwater runoff and prevent flooding, which is particularly needed in densely populated areas with a preponderance of impermeable surfaces. However, the design of urban public areas needs to be compatible with existing establishments and cater to a range of activities and functions. If the urban space has historical or cultural significance, then the designer must preserve those characteristics as well.

Due to their flexibility in both form and function, custom drainage solutions are better equipped to handle the unique challenges of urban landscaping. The custom solution can be designed to complement both natural and artificial elements in the urban environment or blend in seamlessly within it, ensuring the drainage system does not disrupt the flow of the space or detract from any of its distinguishing features, such as curved walls or terraced areas following the natural contour of the land.

In the interest of public safety, slip resistance can also be enhanced to reduce the risk of falls. Higher load ratings can be specified if the public space is subject to heavy vehicle traffic or high point load equipment such as trolleys and pallet jacks.

In the hospitality sector, custom drainage systems are frequently needed for bars and pubs in order to meet the functional and aesthetic requirements of the establishment. In an environment where spills are common, custom drains with rapid drainage capabilities that are easily cleaned are crucial to preventing slips and maintaining hygiene standards.

Drainage solutions that blend in seamlessly with the overall design scheme improve the ambiance and functionality of hospitality spaces. Whether it is a quaint pub in a historic building or a hip urban bar, custom drainage systems can be made to blend in subtly with the surroundings while effectively managing water and guarding against water damage to flooring, furnishings, and other building elements.

Residential projects benefit significantly from customised drainage systems. Modern designs are becoming increasingly complex, providing challenges in the unconventionality of the architecture, the diversity of landscapes, size and space constraints and demanding environmental conditions. Increasingly, standard solutions are falling short when building and landscape designs deviate from the norm.

THE CUSTOM DRAINAGE PROCESS

Design and engineering: Designing a customised drainage system early on significantly reduces costs, leadtime constraints and ensures integration with the building fabric and follow-on trades. With detailed site and situational requirements, drainage design and fabrication experts create a solution that is tailored to the functional and aesthetic needs of the project. This might entail accommodating channels of a specific size, curves, choosing special finishes like brass or chrome, and ultimately creating a solution that blends in perfectly with the surrounding architecture.

Site assessment and planning: This entails a thorough evaluation of the area, taking into account its physical attributes, environmental conditions, and any other site-specific challenges. Consultations with architects, engineers, the builder and the client are essential to fully understanding the scope and specific project requirements.

Compliance: This is often overlooked by builders using fabricators who are not experts in drainage (such as general “job shop” fabrication). Only fabricators who have current WaterMark™ certification, specifically for custom drainage fabrication, can supply compliant custom drainage solutions. For example, a WaterMark™ product of standardised width and depth is not compliant when modified.

Material selection: Custom drainage systems make use of a range of materials that are selected based on how well they fit the unique requirements of the project; this process is referred to as “fit-for-purpose”. Depending on what the project requires, materials are chosen based on their strength, resistance to corrosion, or visual appeal. Stainless steel and other similarly durable materials are preferred for their ability to resist the elements across almost the entire built environment spectrum.

Finishes and colours: The visual impact of the drain is also taken into account, with finishes and colours selected to enhance or complement the project’s design. Examples include drainage grates that match the colour of other elements in the space or finishes that complement other fixtures or materials used in the surrounding environment.

Manufacturing: After finalising the design, materials and finish, the custom drainage components are manufactured. Leading brands use the latest techniques and advanced machinery to ensure precision and quality. Skilled metal fabricators hand fabricate and weld drains in accordance with the customer’s exact specifications. This includes special requirements such as appropriate load ratings for heavy-traffic scenarios or slip resistance for public spaces.



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CUSTOM LINEAR DRAINAGE BY STORMTECH

Stormtech™ are the inventors of the permanent formwork slot-drain, linear drainage for bathroom applications and threshold drainage. In a constantly changing architecture and design landscape, Stormtech™ has stayed ahead of the curve by meeting new challenges with innovative drainage solutions that boast an unmatched balance of quality drainage performance, durability, and aesthetic appeal.

Stormtech™ offers a tailored site-specific service to suit the complex needs of large and intricate projects, including a free site measure and quote. Linear drainage systems can be customised to suit unique design challenges, including dimensions, load, capacity, slip resistance and grate colour finishes, to give specifiers, trades and end users complete confidence that the products they are using are purpose-built for the required application.

To accommodate unusual building situations where standard sizes are unsuitable or to match a specific architectural aesthetic in shape and style, a dedicated custom fabrication team works closely with architects and builders. Examples of custom products are tree grates for streetscapes, entry mats for public buildings or beautiful accent pieces for high-end bathrooms. Stormtech's use of Grade 316 marine-grade stainless steel illustrates its dedication to a higher quality of material.

Manufactured in Australia, all Stormtech™ drains are Watermark™ certified. Taking pride in contributing to sustainable projects, they are the only drainage manufacturer with GreenTag Level A Gold certification, which is the product rating certification approved by the Green Building Council of Australia. Stormtech™ works proactively to ensure all drainage solutions exceed the requirements of NCC regulations and Australian building standards.



