

PLANTER WATERPROOFING

Commercial grade Glass Fibre Reinforced Concrete (GRC) technology has significant advantages over other realistically priced technologies for use in making outdoor planters. Strength, durability, waterproofing, fire resistance, UV resistance, modularity and adaptability are all key issues that collectively make commercial grade GRC planters both impressive and sort-after for commercial projects.

A significant part of commercial grade GRC's durability advantage is that it can be made to be water-impermeable or waterproof. Waterproofing is a major consideration when specifying planters, particularly for commercial projects. The potential for problems resulting from leaking water, the health of the vegetation in the planters and the impact of leakage or water permeability on the structural integrity of the planters themselves are all important issues to consider when specifying planters.

■ The Quality of the GRC

Fundamentally, GRC planter waterproofing starts with the quality of the GRC itself. The use of sub-standard raw materials (which usually also means cheap) or poor manufacturing process management can create poor quality GRC that lacks density and is therefore porous and very difficult to make waterproof or freeze/thaw resistant. However, not all GRC is made from quality raw materials or with industry standard manufacturing processes.

The appropriate and consistent dosages and mix timing of silica sand, ISO standard cement, polymers, pozzolans, aggregates, plasticizers, antifoaming agents, viscosity modifiers, densifiers and water proofing admixtures used in the manufacture of quality GRC are all part of what is required to make it of commercial grade and therefore resistant to water permeation.

■ Internal Sealants

The managed use of polymer modified GRC, and the inclusion of advanced waterproofing admixtures are significant advances in the waterproofing of GRC and they are effective. However, no matter how effective these advances are, they do not in themselves provide enough waterproofing to support the warranties generally required on "commercial grade" GRC planters. Therefore, GRC planters will still need either an acrylic-membrane-based sealant or a bitumen-based sealant applied to the surface of their internal walls and internal base.

Acrylic-membrane-based sealants and bitumen-based sealants are both good quality sealants. However, the bitumen-based sealants cost a little more and provide a greater level of waterproofing protection. Therefore, the decision between the two different types of sealants fundamentally comes down to cost verses risk based on the purchaser's personal judgement.

In assessing the waterproofing risk associated with GRC planters, it is important to understand that when they have adequate drainage, irrigation water will generally drain not pond at the bottom of the planters. However, if a planter's drainage is blocked the irrigation water will pond and, apart from the resulting damage this may cause to the planter's vegetation, this will put additional pressure on the planter's internal sealant to hold the ponded water. In addition, if a planter is damaged by the egress of water from ponding, the remedial repairing will generally require the removal of the planter's soil and vegetation, re-grouting, and the internal and external sealing of the planter. This can be an expensive task, especially with larger planters, so needs to be avoided.

Therefore, as a general guide, Satu Bumi would normally suggest the use of an acrylic-membrane-based sealant on smaller planters up to 750mm high where the installers are confident that the planters will be installed with reliable drainage. However, Satu Bumi would also suggest that a bitumen-based internal sealant should be used on large planters and on planters where there is any risk that the drainage may get clogged over time.

Note: All Satu Bumi CityScope GRC planters are supplied with a high-quality bitumen membrane-based sealant unless otherwise specified by the customer. The option of a bitumen sealant is slightly more expensive but a worthwhile consideration on large planters and planters with automatic irrigation systems.

■ Automatic Irrigation Systems

Automatic irrigation systems on GRC planters can be handy. However, ill-fitting irrigation systems or irrigation systems where their drainage can get blocked can cause significant water leakage problems. In particular, blocked drainage can cause ponding on the bottom of the planters which can lead to water leakage over time. Therefore, Satu Bumi strongly recommends that drainage system designs should be carefully reviewed and only installed by an experienced professional. And, if there is any chance of drainage blockage, an internal bitumen ponding sealant should be used on the planters rather than the standard acrylic waterproofing membrane. The use of an internal bitumen ponding sealant will not stop the vegetation in the planters rotting due to excess water. However, it will minimise the potential of water leakage that can happen from waterlogged planters.

Note: Water leakage from water ponding caused by poor drainage is a problem that can be avoided.

■ External Sealants

The practicality of waterproofing the inside of GRC planters is an important issue. However, the external waterproofing of planters is also

important to consider. From an aesthetic perspective, sealing the external walls of GRC planters minimises the proliferation of moss or algae, resists the build-up of dirt, minimises the potential for scratching and virtually eliminates the potential of freeze/thaw cracking.

Note: All Satu Bumi CityScope GRC planters are supplied with a high-quality external sealant unless otherwise specified by the customer.

■ Graffiti Protection Sealants

Graffiti protection sealants are very robust external sealants that are excellent for use in providing additional protection on GRC surfaces located in public spaces. However, they are typically topical sealants, which means they sit on the surface of the GRC as a protective layer and as such tend to add a slightly shiny appearance.

Note: All Satu Bumi GRC street furniture is supplied with an external graffiti protection sealant unless otherwise specified by the customer. The graffiti protection sealant is an optional extra for Satu Bumi CityScope GRC planters.

■ Minimization through Modularity

A different aspect of waterproof management is the minimisation of the impact of waterproofing issues by using modularised planters as opposed to concrete blockwork. More detail relating to the advantages of modular planters is available in a separate Satu Bumi information sheet called "Masonry Blockwork V's Modular Planters". However, the fundamental principle here is that modular planters can usually be replaced if they cause a waterproofing problem whereas finding leaks and fixing masonry blockwork is typically a much more significant and expensive issue to address.

■ Conclusion

Even the best quality GRC planters need to be sealed with good quality sealants and selecting the right type of sealant is an important consideration when ordering GRC planters.

If you have any concerns about this issue, please contact Satu Bumi for assistance on 03 5292 1001 or at sales@satubumi.com.au

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