

## FIXING GRC PLANTERS

Due to their robustness, commercial grade GRC planters are often installed on the side or edge of buildings or as barriers and hence require some form of controlled fixing for both practical and building regulation purposes. Therefore, some of the things that could be considered in addressing this issue, specifically relating to GRC planters, have been summarised below to assist Satu Bumi customers.

### ■ Customisation of Planter Designs

When a construction and/or landscaping project requires the fixing of GRC planters to a substratum or a wall, Satu Bumi will work with its customers to find an appropriate planter design and manufacture it to facilitate the chosen fixing requirements. However, unless otherwise agreed, it will be the customer's responsibility to ensure the fixing design has the appropriate engineering certification.

### ■ Fixing Design Examples

The following is a non-exhaustive summary of examples of some of the more common approaches to fixing GRC planters into position.

#### 1. By bolting the planters to a solid fixing point

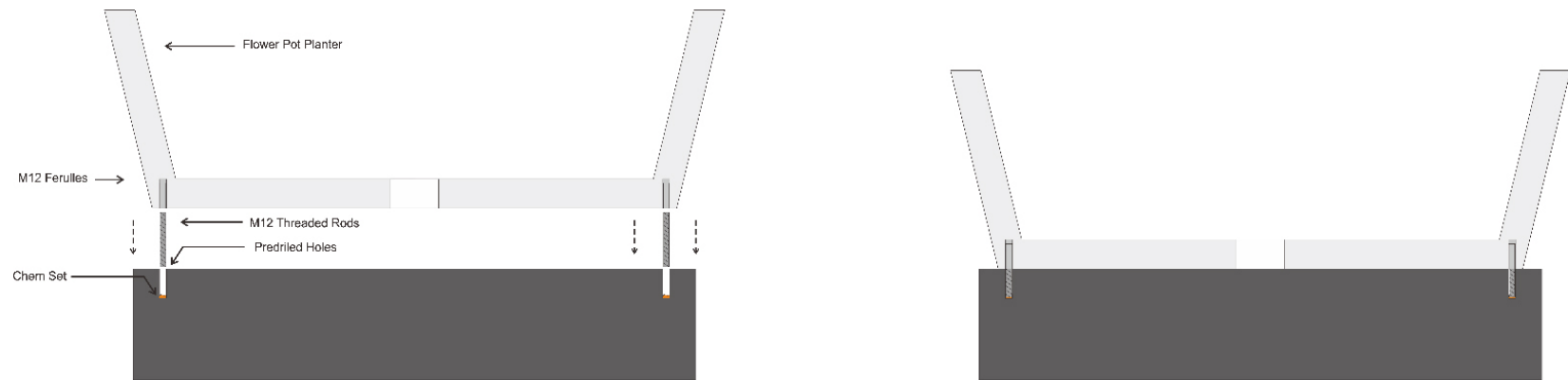
##### **Via holes through the planters**

Satu Bumi can provide holes in GRC planters as directed by an approved set of shop drawings or holes can be drilled through the planters on site where required, to accommodate fixing bolts. This approach can be effective but the areas holding the bolts within the planters will have to be carefully resealed for waterproofing. This is particularly important if the holes are on or towards the bottom of the planters.

##### **Via ferrules implanted in the planters during manufacture**

Satu Bumi can embed ferrules into the bottom of GRC planters during manufacture. These ferrules will provide a base to screw in threaded bolts at the time of installation. When screwed into the embedded ferrules, these bolts will protrude from the bottom of the GRC planter and can then be lowered and chem-set into pre-prepared holes in a solid base such as concrete, steel or stone.

This approach will generally be a little more expensive than using simple bolt holes through the planters. However, it will not damage the planter's internal waterproofing membrane. Satu Bumi can install the appropriate ferrules in virtually any locations on the planters eliminating any need to pierce the internal planter waterproofing membrane during installation.



**SCHEMATIC OF IMBEDDING FIXING FERRULES INTO THE BOTTOM OF GRC PLANTERS**

Satu Bumi's ferrule insertions are generally precisely located in accordance with the relevant approved shop drawings for the planters. However, Satu Bumi would recommend that the holes in the solid base onto which the planters are to be lowered should be drilled to make allowances for some variation in precision to avoid last minute installation problems.

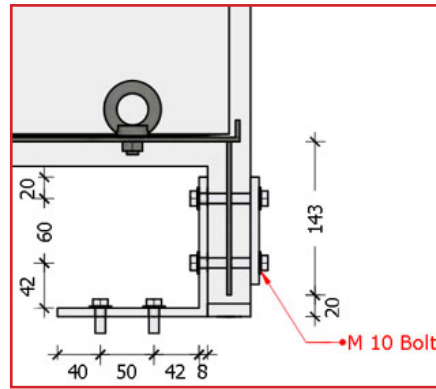
**WARNING! – Satu Bumi recommends that holes that pierce a planter's internal waterproofing membrane should be avoided where possible to reduce the risk of water leakage.**

## 2. By using brackets

There are many ways that brackets can be used to secure GRC planters, and Satu Bumi can make its planters to suite the specific design requirements of virtually any project. However, here are a couple of methods that Satu Bumi has used successfully: -

### Small brackets attached to H design planters

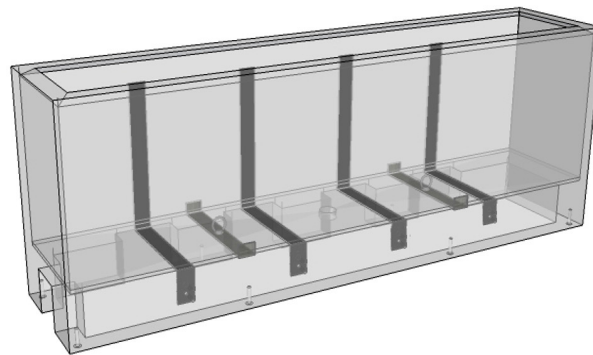
The following drawings show how planters can be manufactured to facilitate the use of hidden "L" brackets for fixing, in conjunction with lifting lugs and a raised planter floor, to provide hidden access for drainage.



DETAILED AND TRANSPARENT VIEWS OF A SMALL BRACKET FIXING DESIGN THAT INCLUDES LIFTING LUGS

### Large brackets attached to large planters

Where GRC planters are large and intended to be installed on a wall, the planters can be designed to accommodate very large brackets as shown in the following pictures.



TRANSPARENT AND BACK VIEWS SHOWING FIXING BRACKETS, LIFTING LUGS, AND A RAISED PLANTER FLOOR FOR IRRIGATION AND DRAINAGE FACILITIES



PHOTOGRAPHS OF THE ABOVE LARGE FIXING DESIGN DURING INSTALLATION

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