

HOLMAN

Vertical Planting Kit with Watering System Installed



Australian Patent No: 2014100545 - Patent Applied for -
608582 in New Zealand

Installation Instructions

HOLMAN GreenWall
Vertical Planting Kit w/ Installed
Watering System

Product Code: GW1001



For more information
regarding this product
and to watch the video
of how it works please
scan the QR code with
your mobile device

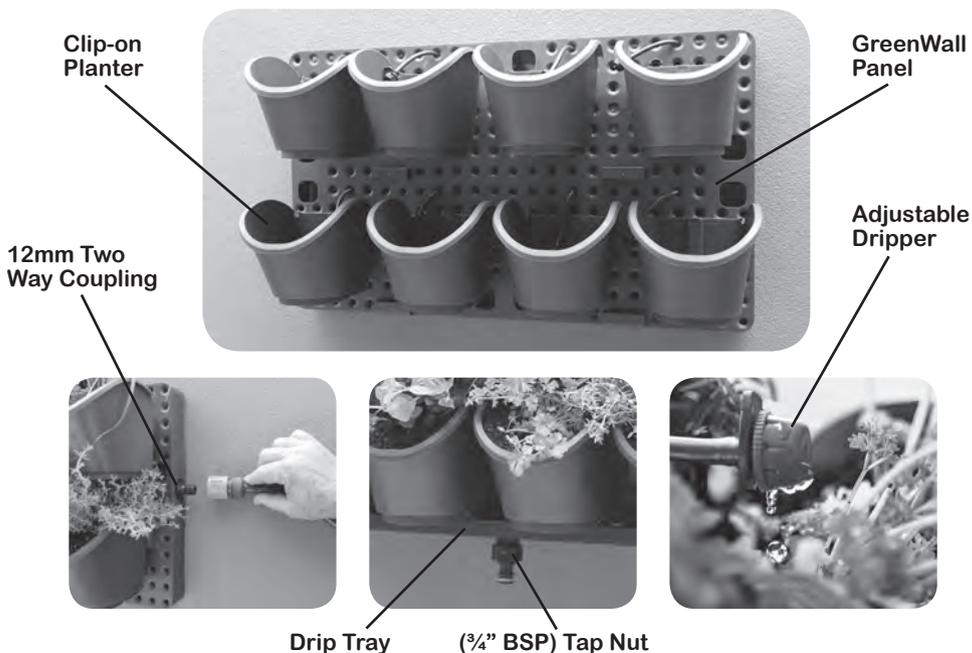


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HOLMAN GreenWall GLOSSARY



GreenWall Contents List:

1 x GreenWall Panel	2 x 12mm Two Way Couplings	1 x Pressure Reducer
8 x Clip-on Planters	1 x Stainless Steel Hanging Bracket	1 x End Caps
8 x Adjustable Drippers	2 x Stainless Steel Hooks	1 x 13mm Tail x ($\frac{3}{4}$ " BSP) Nut
1 x Drip Tray	5 x Wall Plugs	1 x ($\frac{3}{4}$ " BSP) Tap Nut
5 x 6mm x 25mm Screws		

INTRODUCTION

GreenWalls or living walls have been known since the Hanging Gardens of Babylon before the birth of Christ. The gardens of today tend to have small footprints but lots of walls. These offer many possibilities for home gardeners to bring living greenery back into our lives. The Holman GreenWall is an engineered platform that is designed to make hanging or vertical gardens easy to set up and maintain in an Australian yard. Even if that is now an apartment balcony.

GreenWall will allow you to transform a wall into a lovely growing space. The system is simple to set up and most importantly incorporates a pre installed irrigation system. This vertical garden unit enables you to grow a herb or vegetable garden near your kitchen, to beautify indoor spaces and patio areas make a colourful and welcoming entry statement for your home.

Australia's harsh summers mean that watering is the key to successfully growing vertical gardens. Holman have designed the GreenWall garden panel that makes a stable platform from which you can hang pots but it also has an integrated professional watering system that delivers controlled amounts of water into each individual pot.

KEY FEATURES OF THE "HOLMAN GreenWall" ARE :-

- A convenient wall panel that allows pots to be hung and removed from the wall very easily.
- The panel has pipe work pre installed so that water can be accurately delivered to each pot.
- The panels are easily hung to the wall on a stainless steel mounting bracket.
- GreenWall panels can easily hang side by side and then be "clicked" together to connect a continuous water supply pipeline that runs behind the wall panels. The pipe work is all out of sight except for the very small tubes that deliver water to a pressure compensating dripper positioned at each pot.
- A water supply from a household garden tap is easily connected to the wall panel at the most convenient point.
- Each panel has four water connection points. This facilitates panels being connected in a wide range of patterns. A "full" GreenWall can be created or a "hit and miss" pattern or long runs of vertical or horizontal panels or indeed almost any pattern desired.
- The GreenWall system includes a "gutter" than can be fitted below each row of pots that will collect any excess water and allow this excess water to be piped to a garden or a collection vessel.
- The GreenWall system includes a generous amount of extra fittings that allows the user to do most connections they may need to do!
- All connections are "industry standard" and are available at your local hardware store or garden centre.
- The GreenWall panel has a clever marking template built into it. This allows easy marking of the drill holes for the stainless steel hanging bracket. It is very easy to build up an array of joining panels. Wall plugs and screws are included in the kit.

HOLMAN GreenWall Installation

It is strongly recommended that the GreenWall be watered automatically using a Holman electronic tap timer.

The Holman “Misting System” tap timer is particularly well suited to watering the GreenWall because it can be programmed down to minutes and even seconds. This will allow you to work out the ideal maximum watering time that minimises the amount of “waste” water from the system. With a little patience you will be able to program the precise amount of time required to just moisten the mix in the pots. Also it is possible to water at very regular intervals. Say every 4 or 6 hours for a duration of perhaps of 1 minute each time. Regular watering will prevent the soil from drying and will help to maintain vigorous plant growth.



*Misting Timer
Product Code: CO3009*

INSTALLATION

The installation of your GreenWall is easy to do.

1) “Location” is as important in growing a GreenWall as it is in real estate. Growing on a vertical surface means that the amount of full sunlight is going to be restricted. North and west facing walls get the most light and heat. South and east facing walls get less than half a days direct exposure. This has a big bearing on what will grow successfully. Many homes have narrow alleys down the side where the eaves may be less than a metre away. This can turn even a north facing wall into a growing spot that gets as little as 1 hour of direct sun. Also think about where your water source will be and how easily you can run a hose from that tap.

2) Determine how many panels you want to install. What pattern do you want to create?

Remember that to interconnect the water supply mainline you must join an edge to an edge. Also the panel can only be oriented in one direction with the “hooks” for the pots facing up.



*3 Panels connected horizontally with only 1 hose connection required for watering
(GreenWall Vertical Planting contains 1 panel per kit)*

HOLMAN GreenWall Installation

3) Once you have determined where your first panel will be located you hold it against the wall and get it level (use a spirit level). It is most important that you get it level if you are going to add more panels because a small level error will magnify as the line of panels grows longer. Also the drain tray will overflow if its not horizontal.



Next you need to mark the wall to position the stainless steel holding bracket.

Look for the two guide holes identified with small “flower petals” around the edge which are located in a line in the centre of the panel.

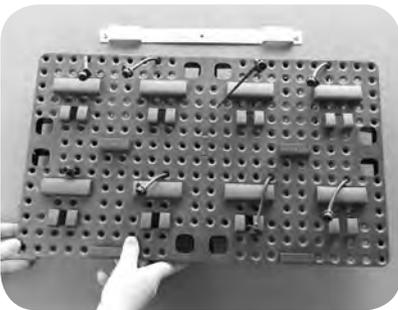
With the panel level use a sharp screwdriver or a drill to mark the drill holes for the bracket. You can then remove the panel from the wall and using the stainless steel bracket as a guide, mark a third central hole to provide added strength to the whole unit.



4) If attaching to a solid wall such as brick or concrete, use a 6.5mm masonry bit to drill all three holes.

Then insert the plastic wall plugs which are supplied.

Fix the stainless steel bracket to the wall using the stainless steel screws provided.



5) Hang the panel onto the steel brackets.

6) Once your single panel or group of panels are fitted to the wall and the watering path is interconnected (if you have more than one panel), connect the water to the panel system. Check that the watering mainline is properly connected (no leaks) and all the drippers are working at a similar output rate. They should have a steady drip rate.

If some drippers are not working well, you can unscrew or slightly loosen the cap of the dripper.

Remember to connect the pressure reducer and filter to the outlet of the tap. It is very important to keep the water supplied to the drippers clean from dirt and grit.

HOLMAN GreenWall Installation

7) Plant the hanging pots before you attach these to the panel. One of the real breakthroughs in the Holman GreenWall system is that pots can be removed from the frame. This means that you can do your potting at a bench at a good working height. You can even establish the plants on the ground before positioning on the frame. Once growing on the module if something goes wrong, its easy to remove a single pot and sort the problem and even replant and then pop it back into its original position.

(See page 9 for more details on potting)



8) Hang the pots on the panel. Each pot has a flat hook at the rear. This slides into a slot on the panel. The slot is wider than the hook and this allows you some movement when positioning the pots. Once the pot is in position the most critical step is to position the dripper in the centre of the pot.

Each dripper has a pot spike which can be pushed into the potting mix and this enables you to anchor the emitter in the right spot so it doesn't get blown, or even spring, out of position.



9) If you are going to grow a mixture of plants in your GreenWall then its worth noting that the top row is best for taller growing plants as their natural vertical habit of growth wont be inhibited.

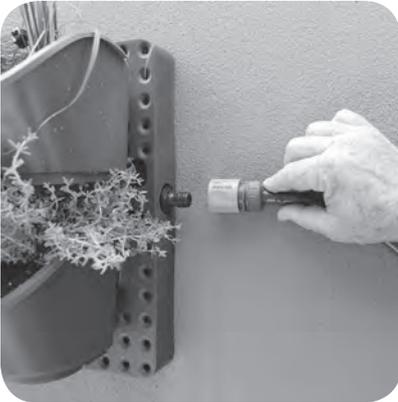
For the rows beneath its better to choose plants with a flat or even trailing growth habit so these can get out from under the top pots to get access to sunlight.





10) Place the drip tray underneath the bottom row of pots if you want to catch any excess water. The drip tray has a threaded outlet onto which you can screw a fitting to connect to poly pipe or garden hose to take the water away.

If you intend to recirculate this water through the system a filter is essential as soil and other fine debris will quickly clog up emitters and block water getting to your plants.



11) Once the plants are in place connect a hose from a tap and click it into any one of the four entry point on the panel.

Turn on the water and check if the water system is working well. If it is leaking somewhere investigate and fix.



12) Water the plants as regularly as required. As a general rule the surface of the soil should dry out between drinks.

Watering requirements will vary as determined by weather, plant and soil type. It is strongly recommended that an automatic electronic tap timer is used to regulate how much water is applied to the plants.

Adding Extra Panels / Checking Your System

ADDING EXTRA PANELS TO THE GREENWALL

It is a simple matter to add extra panels to the GreenWall. Once you have your first panel installed get the second and hold it in line and adjacent to the first. It is very important that the edges of the two panels line up and are level. Mark the screw holes using the “flower petal” holes and drill the holes. Fix the stainless steel bracket. Hang the panel on the bracket.

Use a double ended click connector (supplied) to join the water pipes of both panels. Click the fitting into one panel and then slide the adjoining panel to where you can click it in.

NOTE - The connection is made through a click connector that has a water stop valve inbuilt. Sometimes a small amount of debris can get under the seat of the valve causing a leak. If this happens push the valve up with a screwdriver to flush the debris away and the valve should seat properly without leaking.



CHECKING YOUR WATERING SYSTEM

It is critical to keep checking your watering system at regular intervals.

Because the GreenWall has small pots they can dry out very quickly and this can lead to dead plants.

The drippers need to be checked to ensure that an equal amount of water is flowing from each dripper. A filter is very important to ensure the water is clean and the drippers do not block up. Keep a close eye to ensure the filter is not blocked because this will restrict water flowing to all plants.

Once your GreenWall is planted check that all the pots in the GreenWall are getting water.

It is worth investing in a electronic watering timer that can be set to water for small intervals. A Holman Misting timer is ideal for this. It is worth taking a little time to experiment and work out the optimum time to water your plants. This is likely to be no more than about 1 minute before water is flowing freely through the pot. It is best you stop watering just before the water flows freely. Too much water flowing through will leach nutrients and also waste water. If you use a Holman misting timer then you can programme the “Run” time to within 1 second and the “Off” time to say about 4 or 6 hours. Then the pots will be watered for a very small time on a regular basis.

The amount of water your plants require will vary with the type of plant, the weather conditions and the type of potting mix you use. Use your finger to check the moisture by scratching the potting mix to a depth of 1cm.

3 Panels connected vertically with only 1 hose connection required for watering (GreenWall Vertical Planting contains 1 panel per kit)

SELECTION OF PLANTS

Apart from your imagination and knowledge of plants the only other restriction to what can be grown is the size of the pots. Trees by definition are not going to work.

So what's possible? First up many gardeners look to growing food. Most herbs can be cultivated, even some of the woody shrubs such as rosemary and lavender. Both of these plants need long hours of direct sunlight to succeed so an exposed west or north facing wall will be needed. Soft stemmed herbs such as parsley, mint, basil and coriander are very happy in small pots as long as their water needs are supplied.

The idea of a wall of vegetables is very appealing. This dream can be easily achieved with fast crops such as lettuce and the small Oriental cabbages such as Pak Choi and Gai Lan. Not all lettuces produce heads such as the well known Iceberg. Non-heading lettuces can be harvested 'leaf by leaf' and there are plenty of varieties from which to choose. Vegetables do best in high light situations.

Flowering annuals can make a dramatic and welcoming splash of colour. Many of these are well suited to vertical gardens. Examples are petunia, portulaca, pansy, viola, sweet alyssum and lobelia. For shaded east or south facing walls look at plants like bedding begonia and impatiens.

For a more permanent show where regular watering might be a problem, look to succulents. There are many families of succulent plants where form and foliage colour creates long term features. This is not to say that these plants don't flower, they do and in many cases with great flair. 'Flaming Katy' or 'florists kalanchoe' is a terrific example putting up a dazzling flower show for three or four months at a time.

Succulents are accustomed to getting by on little water and as a result have a tendency to rot if their roots are constantly wet. Use a cactus potting mix to fill the pots. In full sun you only need to water perhaps once every couple of weeks during summer so the plants experience dry soil in between drinks. Most succulents demand hot sunny locations to give their best show.

Some of the most spectacular vertical gardens are located indoors where there is more control over the environment, particularly when it comes to watering. Choosing a range of different foliage feature plants makes it possible to paint living pictures.

As a general rule soft stem plants are amongst the most successful, so trailing pothos, philodendron and peperomia are good choices for vertical indoor gardens.

In a similar vein patios and outdoor living areas can be decorated with living plants using the vertical format to create drama and effect. Tree growing orchids and bromeliads (air plants) are two groups of shade loving plants that are well suited to life in the air.

it is possible to grow plants in both hydroponic and aquaponic systems using the Holman GreenWall. Fill the pots with expanded clay as the soil-less medium.

It is a good practice to drain the water into a reservoir or pond. With hydroponics you would add nutrient to the pond. In the case of aquaponics, fish would supply the nutrient through their excreta. In both systems use a small pond pump to lift the water up into the GreenWall units for recirculation.

Potting Plants / Re-Potting Plants

POTTING PLANTS

One of the real breakthroughs in the Holman GreenWall system is that pots can be removed from the frame. This means that you can do your potting at a bench at a good working height.

You can even establish the plants on the ground before positioning on the frame.

Once growing on the module if something goes wrong, its easy to remove a single pot and sort the problem and even replant and then pop it back into its original position.

Choose top quality potting mixes as these will not only drain well but also have good water holding characteristics.

Also these mixes wet easily and moisture readily spreads through the whole of the root zone.

Red tick Australian Standards compliant potting mixes come with sufficient nutrients to keep plants growing for months after initial potting.

The black tick standard mixes are stable but will require fertiliser at planting time for continued growth.



RE-POTTING PLANTS

Most herbaceous or soft stemmed plants have a life span of one to two years and will need to be replaced when they start to look crook. These can be removed pot by pot from the panels.

Don't attempt to save the potting mix as it will have been exhausted by the growth of the previous plant. Empty the pot and use fresh potting mix.

When planting up the pots fill the potting mix to the top of the lip as settling will bring it down as much as a centimetre once it is in the system.

Additional pots will be available to buy separately and having a few spares can be a great idea.

You could for an example have a back up crop growing off the wall so that the changeover is instantaneous with the display always looking good.

Feeding Requirements / Pest Control / Drainage Options

FEEDING REQUIREMENTS

By choosing the Red tick potting mixes you will ensure that anything that you plant will have sufficient food to get them through a couple of months of growth.

Following on from this there are two ways to go. One is to use a controlled release fertiliser and the main advantage is that most of the nutrients will be taken up by the plants. Examples are Osmocote and Acticote. The other alternative is to use a liquid fertiliser. These by their nature are highly soluble and are taken up quickly.

The trick is to apply a small amount so that you don't find yourself staring at a stream of waste water coming out of the bottom of your GreenWall which contains most of the nutrients you applied at the top. Recommended liquid fertilisers include Power-feed and Yates Uplift Organic Plant Starter and Root Booster.

PEST CONTROL

Being suspended up off the ground your plants are out of reach of most pests. Snails may be able to get to them.

There are low toxic pellets available that can be sprinkled over the soil to combat snails and their shell-less relative - slugs. Look for MultiGuard snail and slug pellets.

Caterpillars are reasonably well adapted to attack a GreenWall vegetable or flower display as their eggs may have been deposited directly on the host plants by the flying adult butterfly.

At the first sign of damage I would suggest spraying with Yates Success. This is a non toxic control for these big eaters.

DRAINAGE OPTIONS

If you have combined a number of units to make a wall of flower or food you may end up with a number of drainage points. By using the drip tray supplied, each vertical line of modules will drain to the bottom unit. Instead of having a hose attached to each of the drainage units to take the waste water away, make up a drain line using 13 mm poly tube.

In the kit you will find a screw on connector for the drain tray. This has a barbed end onto which you can push a short length of poly pipe. Buy poly "Tee's" and "Elbow's" to allow you to connect the drip tray together so that one poly pipe can draw off all the waste water from your wall.

Overwatering can easily occur if you have a vertical installation of a number of modules. This can happen when water drips down through the layers, each of which has its own supply. The top layer receives the least amount where the bottom run in a series of 5 modules will receive as much as 10 times this amount.

Two solutions to this potential problem are to water so sparingly that water does not drain. The second solution is to attach the 'clip drain' to every unit in the vertical arrangement so water can only drip down one layer of the module at a time before the excess is drained away.

If the GreenWall is in a position where rain can do the watering for you it won't be such an issue as the top level will tend to get the most water and individual pots won't be getting a combination of drip and irrigated water at the same time.

Warranty

HOLMAN

Vertical Planting Kit with Watering System Installed



Should you have any questions about this product or its operation please telephone our customer service helpline on 1300 716 188.

HOLMAN offer a 1 year replacement warranty from the original date of purchase.

HOLMAN offer no guarantee or compensation for subsequent damage or waste of water.

It is the responsibility of the user to check that the product is always operating satisfactorily.

To claim warranty the product **MUST** be returned with a copy of the original receipt.

We will honour all statutory guarantees that this product is of acceptable quality (including that it is fit for purpose). Product images may change without notice.



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