
Plant Wall Pro – installation

Version with Frame



We thank you very much for purchasing our vertical garden system Plant wall Pro. We will explain how to install and maintain the system and which tools you need to perform this job properly.

We hope you will enjoy your end result in making the world a little greener.

The complete plant module consists of:

Components:

- a) Metal frame for positioning the plant pots.
- b) 50 litre Fytocell is delivered with the module
- c) Terram 1000HB filter for plant pot
- d) 20 plant pots 4.7 litre/each.
- e) 2 suspension brackets
- f) Ornamental framework with integrated drainage tray.
- g) Irrigation components - based on stand-alone water tank concept.

Pictures of the individual components:



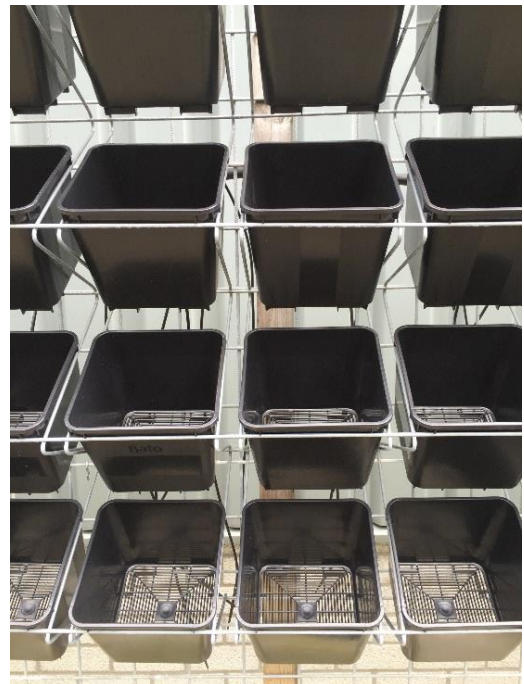
a) Metal frame for positioning the plant pots.



b) Fytocell lightweight substrate



c) Terram 1000 HB filter for plant pot



d) Square pot – 4.7 ltr heavy model with grid



e) 2 suspension brackets for vertical garden system (2 metal double profiled rails)



f) Ornamental framework with integrated drainage tray



g) Irrigation components - based on stand-alone water tank concept

Necessary tools / additional parts for installation:

The only additional components for installation are mounting screws and plugs for hanging the suspension brackets on the wall. These screws and corresponding plugs should be optimal suitable for the structure / material of the backwall.

Since the system does not need an external water supply, the installation can be done very fast and easy. Only a electrical power supply in the direct surrounding of the wall / water tank is necessary. Tools which are needed are a drilling machine, a measuring tape, a screwdriver, a level.

Additional items for completing the wall are: local soil to mixed with the Fytocell, local plants and appropriate nutrition.

In some cases an additional timer should be advised to adjust the timing of the irrigation cycles more precise. This depends on the type of plants and the local climate around the wall. With an additional timer you can overrule the basic settings in the Gardena timer and make your own cycles.

Substrate – soil

An essential part of the green wall is the optimal substrate mixture with an optimal water-air ratio. Adding Fytocell substrate to a high quality (potting) soil in a 50/50% mixture will create an optimal environment for plants. It is also possible to use 100% Fytocell and make an full hydroponic vertical garden. In that case you need to have knowledge about growing plants in a hydroponic environment. Especially nutrition and maintenance requires additional knowledge.

The plant pots are 4.7 ltr. and due to shrinkage of loose soil you need to add about 15% additional volume to the total. The volume of the root ball of the plants should be reduced, so for one complete module of 20 plants you will need about 100 litre of soil mixture.

50% will be Fytocell, so additional local soil will be also around 50 litre.

Choose the soil which is suitable for your choice of plants.

Installation instructions:

The total process can be split in three parts:

- 1) Installing the metal frame including the ornamental frame on the wall,
- 2) preparing the plant pots with substrate mixture and plants,
- 3) assembling the irrigation drippers and lines and install the total irrigation system in the back of the framework and lead the dripper pins into the individual plant pots.

1) Installing the metal frame including the ornamental frame on the wall.

First you need to determine where you want to install the wall. Look around for enough free space around and decide where you want to put the water tank. Also look to the power connection in the direct surrounding of the water tank.

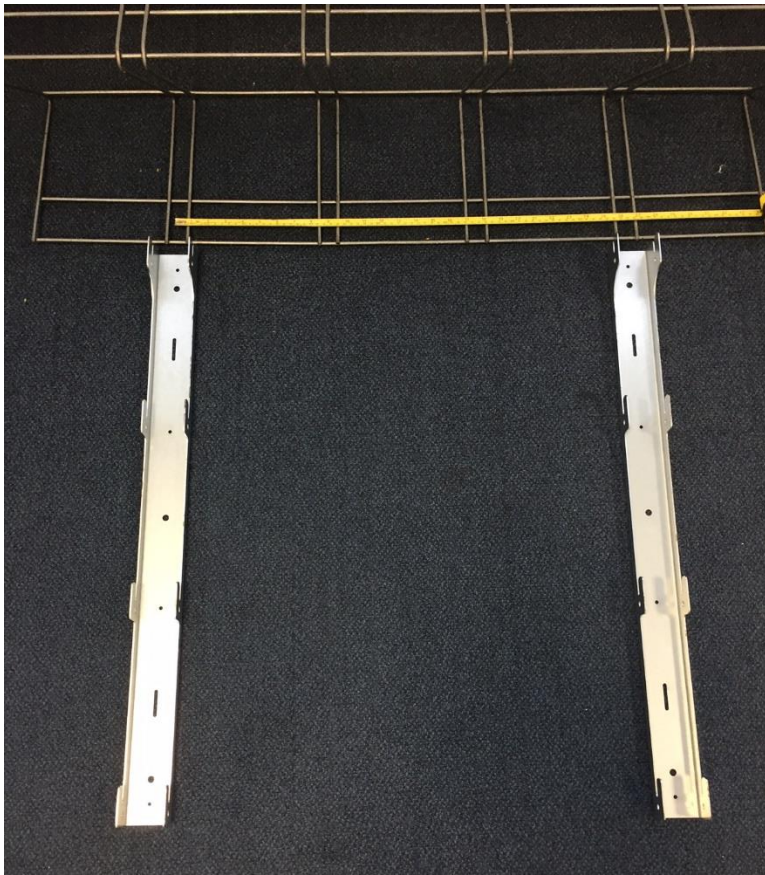
The two suspension brackets should be mounted on the wall first.

On the inside of the ornamental frame there are special hooks where the frame for the plant pots fit in. You need to put the plant pot frame into the ornamental frame first and immediately after that lift the total and install the combined set in the hooks of suspension brackets.

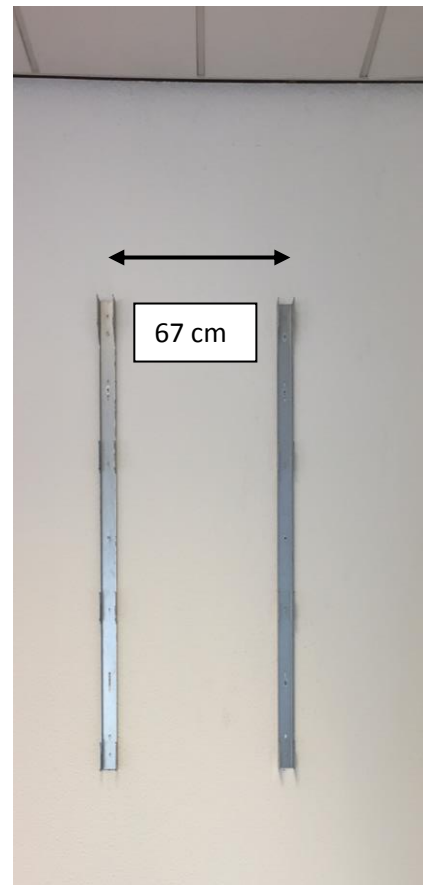
The ornamental frame is not hanging direct on the wall but on the ends of plant pot frame.

The plant pot frame with the ornamental frame is hanging on the suspension brackets on the wall.

The brackets should be installed 100% levelled

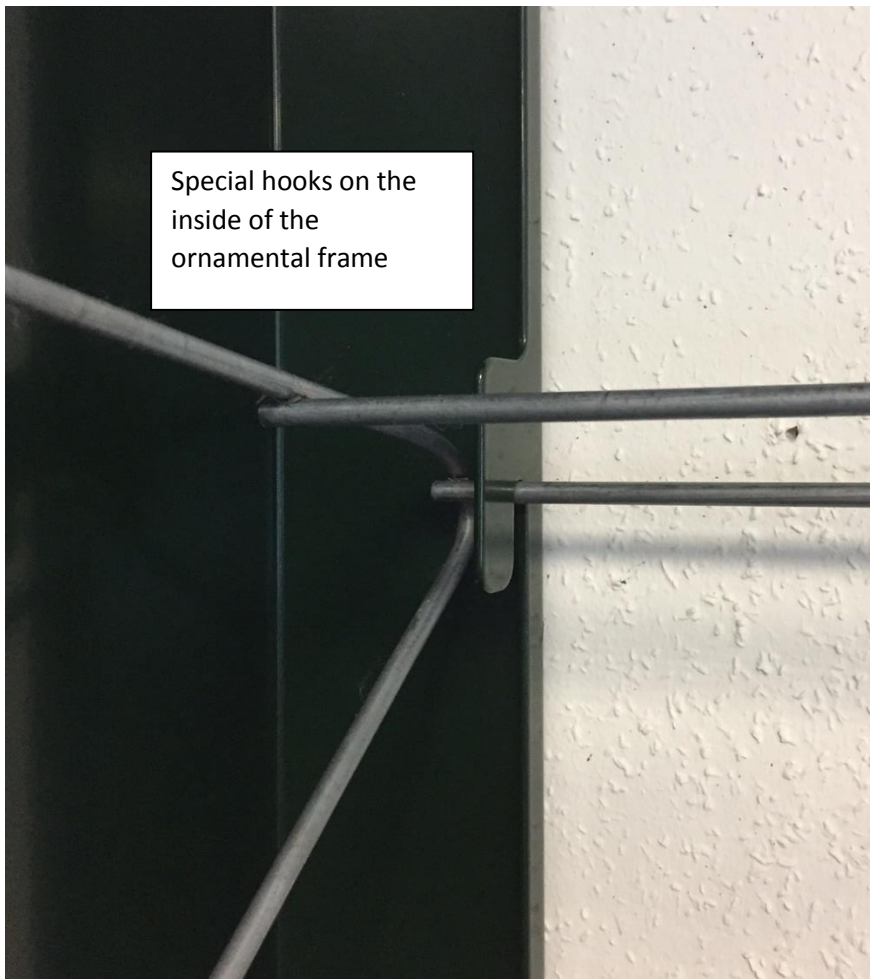


The suspension brackets should be installed first on the wall. The position is as in the picture where the two outside double steel wire will fall inside the brackets. The distance between the two brackets is 67cm

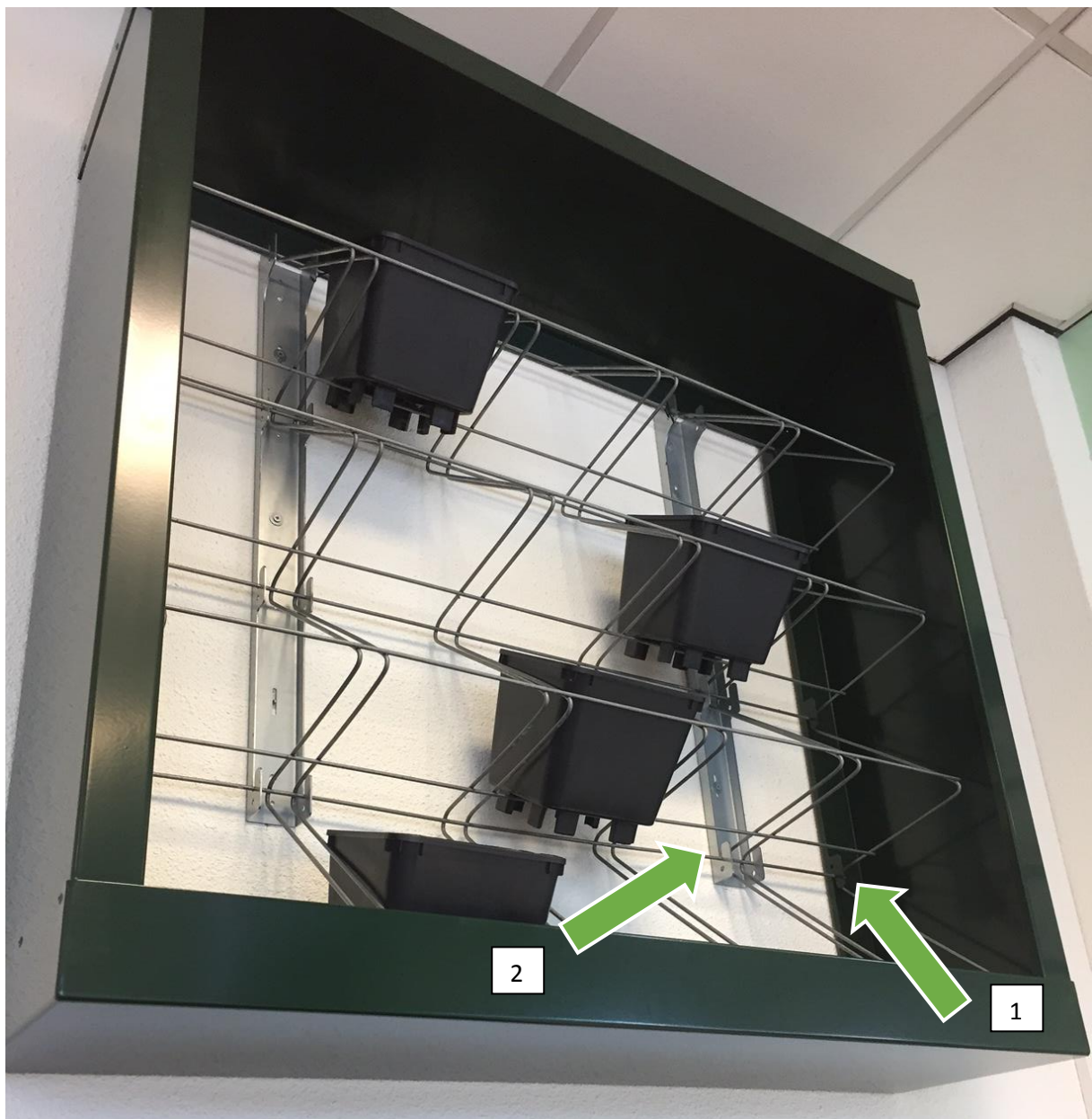




First install the plant pot frame inside the ornamental frame, and lift the total set by holding the plant pot frame and install this in the suspension brackets on the wall.



Special hooks on the inside of the ornamental frame



1) The ornamental frame is now hanging on the side-wires of the plant pot frame.

2) The plant pot frame is linked now to the suspension brackets on the wall.

Note: If the plantpot frame has the tendency to get out of the hooks of the suspension brackets, you can use a small tie-wrap to prevent this. For this purpose there are small holes on the side of the suspension brackets.

The lowest row of the plant pot frame is positioned direct inside the drainage tray and not in hooks.

2) Preparing the plant pots with substrate mixture and plants.

Necessary tools: mixing bowl, water, Fytocell, soil, normal bucket, short pipe around 10cm diameter.

See text hereunder which is also shown on page 2 about substrate – soil.

Substrate – soil

An essential part of the green wall is the optimal substrate mixture with an optimal water-air ratio.

Adding Fytocell substrate to a high quality (potting) soil in a 50/50% mixture will create an optimal environment for plants.

It is also possible to use 100% Fytocell and make an full hydroponic vertical garden. In that case you need to have knowledge about growing plants in a hydroponic environment. Especially nutrition and maintenance requires additional knowledge.

The plant pots are 4.7 ltr. and due to shrinkage of loose soil you need to add about 15% additional volume to the total. The volume of the root ball of the plants should be reduced, so for one complete module of 20 plants you will need about 100 litre of soil mixture. 50% will be Fytocell, so additional local soil will be also around 50 litre.

Choose the soil which is suitable for your choice of plants.

First water the Fytocell. To do this, you can make a small opening at the top of the bag and hold the water hose here and run for a few minutes. The Fytocell will absorb water and be well moist after a few minutes. You can open the bag at the bottom by making a small hole here too. The excess water will then run away and the moist / wet Fytocell will remain.

You can of course also make all Fytocell in a wheelbarrow or large cement cube and then wet it. In dry Fytocell this may slightly dusty, so pay attention.

Put the Fytocell bag close to your working area, because after watering the bag this will be very heavy to move.

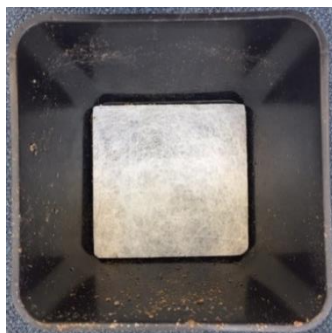
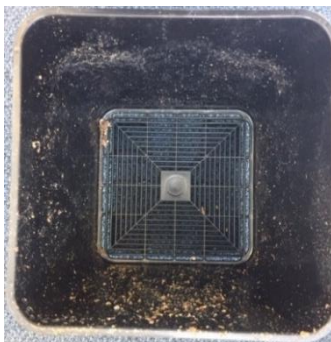
First put the Terram filter mat on the bottom. This prevents very small soil particles to flush away in time. Water will pass the filter without any problem. Apply a layer of approximately 4 cm pure Fytocell to the bottom of the pot. The pots are 16 cm high, so fill about 1/3 with Fytocell.

Mix the rest of the Fytocell with the soil, and fill, for example, 10 pots. We recommend for this mixture a ratio of about 50% Fytocell substrate and 50 % special soil.

Take a short round pipe (about 10 cm diameter) and make a round hole in the center of the pot.

The content of the round pipe can be returned to the bin with the mixture.

Most plants will be delivered in a 9 or 12 cm diameter pot. Often they are relatively dry, so before planting it is wise to remove the pot from the garden center and put the plant a few seconds into the bucket of water. Then plant in and ensure that the mixture is well connected to the root ball of the plant. Push the substrate-soil mixture gently around the root ball to ensure this.





Thanks to the Fytocell, your soil mixture keeps moisture as long as possible while retaining sufficient air for the plant roots. The plants are rooted in the Fytocell flakes and the moisture in the flakes is fully available to the plant. Adding nutrition to the water means also an efficient Fytocell will never completely saturate, so there is always air available (minimum 35%) for the plant. This air also provides a certain degree of insulation in winter, which reduces the risk of freezing. For outdoor walls in frosty climates an optimal solution.

Some examples in the pictures below.



3) Assembling the irrigation drippers and lines and install the total irrigation system in the back of the framework and lead the dripper pins into the individual plant pots.

The irrigation system is based on a water tank with pump unit and automatic timer. The water tank should be positioned close (under) to the plant wall to avoid long hoses etc. The water tank should be filled regularly with tap water and appropriate plant nutrition should be added in a low concentration each two months. It is not necessary to add nutrition each time to avoid "over feeding". The choice for the optimal nutrition is depending on the chosen plant species. **Take always a fluid nutrition of a high quality brand (Peterson for example). No powder to avoid clogging and possible problems with the nozzles.**

Check regularly the water level of the tank to avoid damage of the pump. The pump cannot run dry.

The system has the following parts:

- 1) Pump
- 2) Pump – transformer with timer adjustment
- 3) Water supply lines
- 4) Adjustable nozzles – in-line
- 5) Dripper needles
- 6) Connection parts for dripper lines.

The system should be installed as a closed circuit in order to secure an equal pressure to all nozzles. In a central main dripper line, all drippers should be installed and from the individual drifter a short line with the needle should be placed into the plantpot.

In this way the water will go direct into the soil and not run off the top layer of the soil.



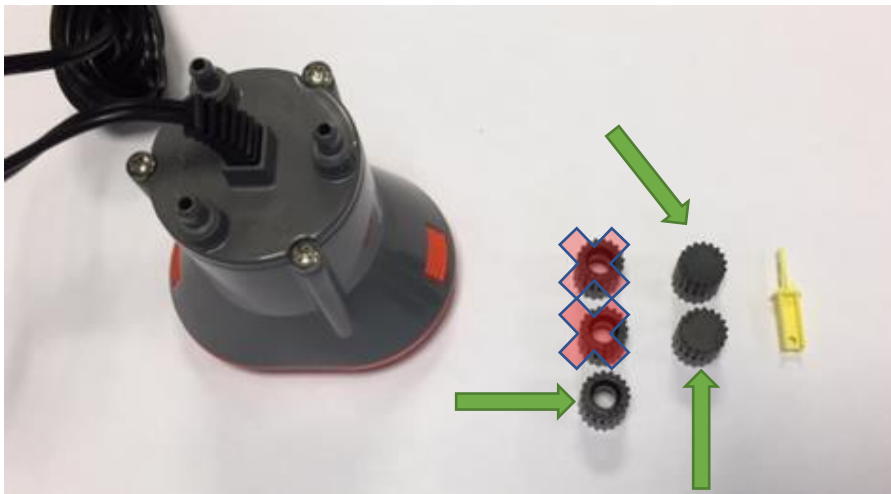
In the package there will be enough dripper line connectors to create this irrigation circuit.



Timer – transformer for pump operating. The setting is depending on the local climate (temperature, humidity etc) and plant choice. **Most common setting will be position 1 – each 3rd day 3 minutes.** **Important note: if this setting is not optimal, please adjust the settings of the individual nozzles which can be changed from 1 to 8 ltr/hour.** **In case these settings are not adequate, you should connect the timer-transformer to a normal timer clock and use the setting – M – on the transformer.**



Water tank with timer-transformer on top. The timer is connected to the pump and from the pump the black hose goes to the plant wall.



Water pump to be placed in the water tank on the bottom. **Only one open connection is needed to attach to the central hose.** The other two pump connectors should be blinded!

Each plant pot will be provided with it's adjustable nozzle. These are all put in line and the total should be a closed system which means a constant pressure.



Nozzles: the adjustable nozzles can be adjusted from 1 to 8 litres/hour. In this way you can adapt the watering for each individual plant pot. You should start with all the nozzles on the first position (= 1 ltr / hour). During the first weeks you need to control the moisture in the plant pot and if necessary change the nozzle flow.

To avoid leakage of water “rolling” from the top of the substrate, the nozzle should be foreseen with a dripper pin which will lead the water direct into the soil.

