Green Walls

Green walls are self-sufficient vertical gardens that are attached to the exterior or interior wall of a building. The plants receive all the water and nutrients they require from within the vertical support instead of from the ground.

There are numerous benefits to installing a green wall at your place.

- Aesthetic value
- Building protection from the elements
- Increased property value
- Increased air quality
- Reduced energy consumption savings
- Reduced noise pollution
- Sustainability benefits
- Increase general health and well being

At RB Landscapes we have two distinct systems when it comes to the construction of our green walls, both of which are non-hydroponic systems, making them more sustainable options than some of our competitors.

1. Galvanised framed system

Our galvanised framed systems consist of a galvanised cage like structure that can either be free standing or secured to an existing structure. This cage is lined with a geo-fabric material and core filled with our own specialised planting medium with high water and nutrient retention properties reducing the need for excessive pump operation. This system is irrigated internally via a drip irrigation system made invisible to the viewer.

2. Geo-fabric system

Our geo-fabric system is designed to be mounted on a pre-existing structure and is lightweight in comparison to our metal framed system. This system also depends on our own specialised planting medium with high water and nutrient retention properties reducing the need for excessive pump operation. This system is irrigated internally via a drip irrigation system made invisible to the viewer. The main advantage to this particular system is the reduction in weight associated with the absence of a galvanised framework. This system also has the potential to be hand watered eliminating the need for an automatic irrigation system. Probably the biggest advantage to this system would be its versatility. It can be made to any shape or size and can be purchased as a DIY install if you are feeling up to it.

All of our green walls are low maintenance thanks to an automated irrigation system and careful plant selection. We have an ever growing selection of plants we incorporate into our systems based on positioning and available lighting.

It is also important to note that both of our green wall systems have the potential to be installed as closed or open systems.

A closed system install has a water reservoir component located at the base of the wall that acts as the walls water supply and gets recirculated periodically. Having the water stored and recycled makes this system a sustainable option.

An open system install has no water storage component and operates on a saturate and drain principle. Water is pumped through the wall from an external water supply be it mains or tank and allowed to drain freely onto the ground. The absence of a water storage component makes this system slightly more flexible in its application.

So no matter the desired location for your living wall you can be assured the end result will be a lush colourful display of foliage.

Green Roofs

Why stop at greening your walls?

The same principles can be applied to your roof on a horizontal plane, be it house, shed, garage, carport or any other type of roof.

A green roof is a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.

Some of the benefits that can be expected from installing a green roof at your place include:

- Increased aesthetic value. Through clever use of planting and materials, green roofs can be made to suit any landscape design, from formal right through to a bushland setting.
- Storm water run-off management. Just 10cm substrate can retain up to 60percent of total rainwater that hits the roof.
- Water Filtration. Any water that does make it off the roof will have filtered through the substrate layer and any impurities will have been removed. Leaving clean healthy water to return to our waterways.
- Absorbs and filters impurities in the air. Like any form of planting the plants on your roof will absorb CO2 and other impurities from our atmosphere and return clean oxygen for us to breath.
- Climate cooling. Again like any form of planting the plants on your roof through respiration will have a cooling effect on your environment.
- Habitat restoration. You will be increasing vegetation and habitat for local wildlife.
- Lowers indoor ambient temperatures in summer saving energy costs.
- Food production. A roof can be a great place for a vegie garden in areas where space is limited. A great way to slash your grocery bills.
- Increases value of the property. Like with any home renovation, increased property value can be expected along with buyer interest should you ever wish to sell your property.
- Potentially doubles life of roof. The plants and supporting substrate act as a protective layer. Shielding your roof from the elements, increasing its overall lifespan.

With all these associated benefits, a green roof really is a sustainable alternative to traditional roofing and worth considering for your next project.

Aquaponics

Aquaponics is the process of growing fish and plants within an intergrated system. The system consists of a grow bed where the plants are grown and a fish tank where the fish are stocked.

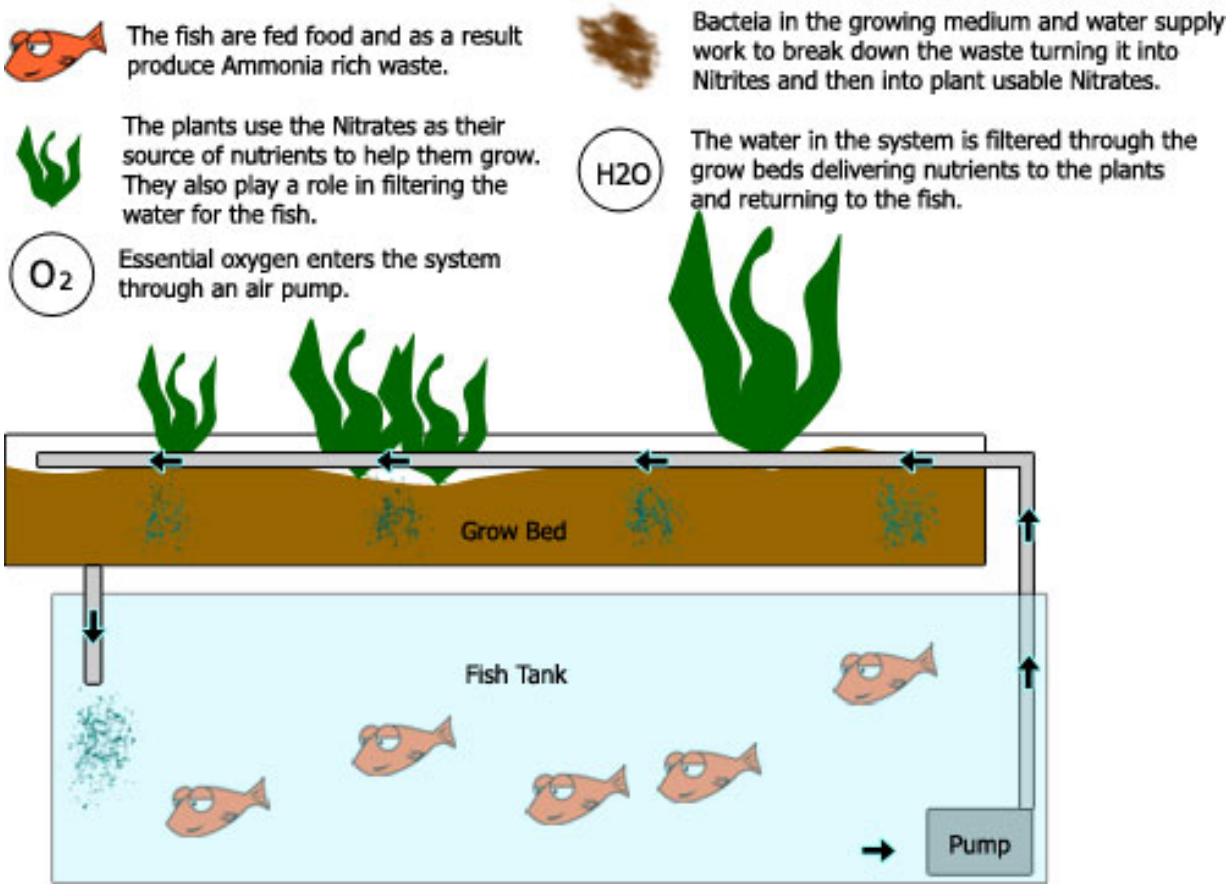
The system works as a harmonious relationship between fish and plants. Water from the fish tank is irrigated through the plants grow bed where Nitrifying bacteria converts fish wastes into plant-available nutrients, by converting ammonia into nitrites and then into nitrates, which the plants use as their main growing nutrient. The fish also benefit from this process, as the water is filtered by the plants, giving the fish clean water to live in.

Aquaponics can be considered a sustainable alternative to conventional produce gardening.

Traditionally produce gardens are irrigated by saturating garden beds with water from an external source where it is then allowed to drain freely back into the earth, meaning each time the garden is watered a new supply of water is required. With aquaponic systems the same internal water supply is used over and over as it is filtered of any impurities with every cycle greatly reducing water consumption whilst producing the same amount of food.

The need for chemicals in the form of fertilisers is completely removed as the nutrients are made available to the plants by the fish waste.

An aquaponics system can come in many shapes and sizes. RB Landscapes will be able to design a system to suit your requirements.



WHAT ARE THE MAIN FACTORS FOR A SUCCESSFUL SYSTEM?

- Dissolved Oxygen - All fish require dissolved oxygen to survive. The amount of oxygen that the water can hold depends on the properties of the water, particularly temperature, with warmer water holding less oxygen. High oxygen depletion occurs shortly after feeding. Factors that will change the amount of dissolved oxygen in the system include stocking density (more fish, less oxygen), temperature (higher temperature, less oxygen), salinity of water (high concentration of dissolved salts, less oxygen) and use of air diffusers (smaller bubbles, more oxygen). Water will only absorb a certain amount of oxygen before it becomes saturated.

- Water Temperature - Water temperature is critical for fish survival. A drop or rise in temperature too great can induce a state of shock, possibly causing fish deaths. Each species of fish has a different temperature range, and depending on your climate, heating or cooling of the water may be needed to keep fish happy. In cold locations, if water is not heated over winter the fish will enter a type of suspended animation, where they will not eat or swim too much, until water warms up again.

- pH - The pH is a way of expressing the number of H+ (Hydrogen) ions in water. Pure water (distilled) has a pH of 7 which is classed as neutral. The pH scale ranges from 0 -14, anything below 7 is acidic, anything above 7 is alkaline. The optimum range for Aquaponics system pH is between 7 - 7.5, which is a compromise between optimal ranges for the fish, plants and bacteria.

- Water Hardness - Water, depending on its source can have many dissolved compounds. Large differences occur between the hardness of rainwater (slightly acidic) and bore water (generally much more acidic), due to bore water traveling through the ground and dissolving many compounds, particularly carbonates. The more of the dissolved material in the water, the harder the water is. The hardness is used to show the total concentration of calcium and magnesium ions in the water, and is measured in parts per million (ppm) of calcium carbonate. Soft water has 0 - 55ppm, very hard water has 211 - 500 ppm.

- Nutrients - Both macro nutrients and micro nutrients are essential for the plants in an Aquaponics system. Most of these nutrients come from the fish waste, which has been produced from the ingredients of the fish food. Plants will still grow with little nutrients, but their look and taste will be compromised - fruiting plants will struggle to produce good fruit, and plants will be more likely to suffer from pest and disease problems.

- Water Testing - Testing of your Aquaponics water is essential to know how your system is performing, and if records are kept of each test result, you are able to look back over time to see how much specific levels have changed. Keeping records also gives a good indication of what is a balanced system, it is easy to look back and collect info together to create graphs of your system performance.