

- INDOOR OUTDOOR
CASSETTE SYSTEM



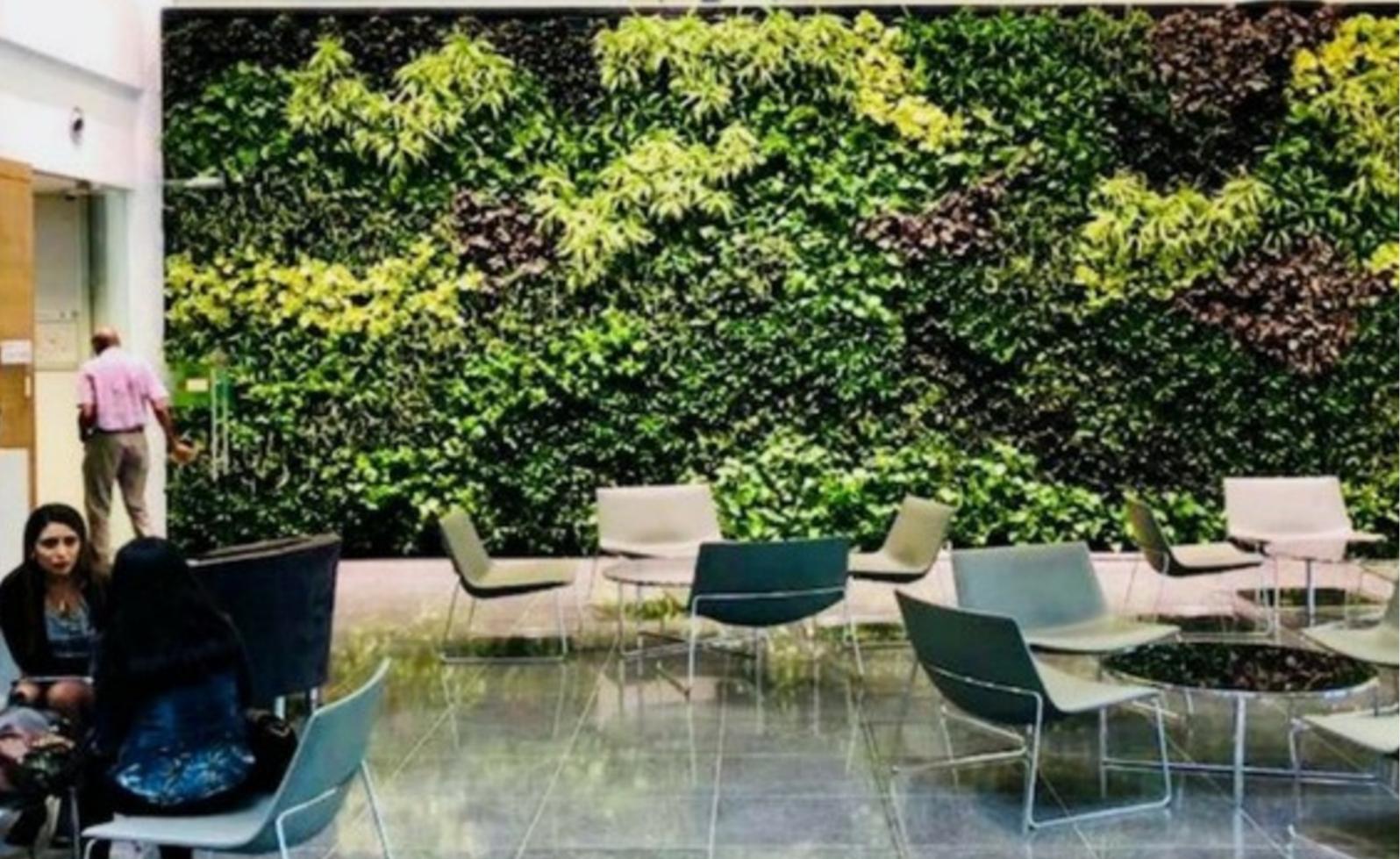
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UPscapers



CUTTING EDGE CASSETTE SYSTEM



Your Greenwall will need routine maintenance, it is key to its long-term success. It is not difficult nor takes a lot of time but consistent care will ensure a great-looking and healthy wall for years to come. Since your greenwall is made up of living plants, there are a number of factors to pay attention to during your regular maintenance activities. Each wall is unique so you will need to modify your maintenance based on your specific situation, including:

- plant selection
- soil used
- environmental conditions such as ambient temperature, humidity, lighting, direct sunlight etc.

There are a few key requirements to healthy plants; light/sun, water, pruning, and fertilizer. It is important that you pay attention to all three of these needs. In order to keep your green wall in optimal health, you can use these guidelines along with your knowledge of plants to make the specific decisions required for your wall.

HOW IT WORKS

4 STEPS TO
YOUR
PERFECT
GREEN WALL



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Watering

1

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Lighting

3



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Troubleshooting

4



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Fertilizing

2



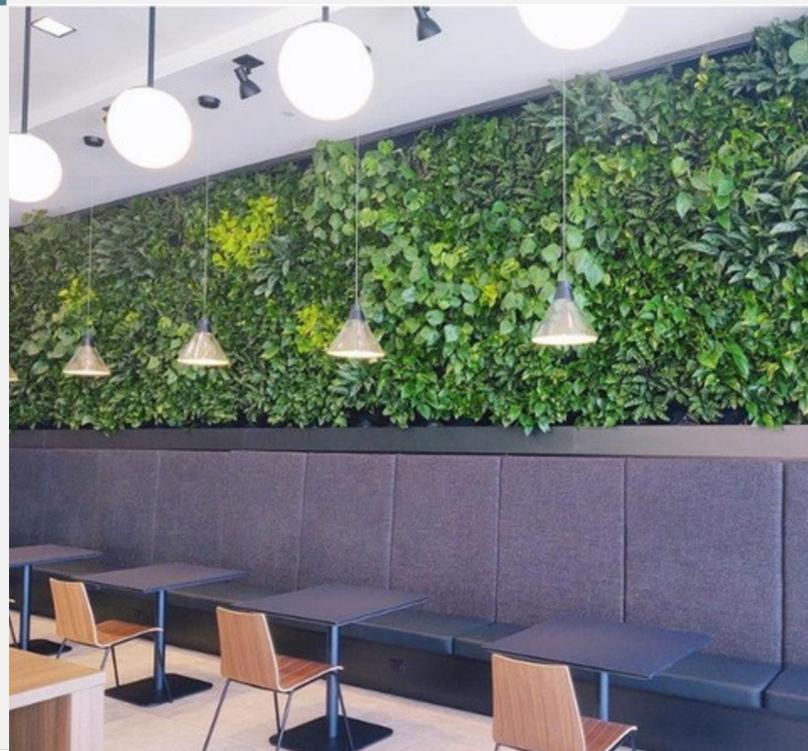
WATERING

The UpScapers system is designed to provide regular, flood irrigation to the plants. This means that the plants are flooded during the watering cycle. As important as getting water is, the plants also need time to dry out between watering's. This is a very natural way for plants to grow. Overwatering your wall and not allowing enough time between watering cycles is very bad for your plants. This is the most common mistake with plants and Greenwalls, let them dry out and everyone will be happier.



During the first few weeks after installing your Greenwall you want to pay attention to the watering needs keeping in mind this wet / dry cycle. Your wall's irrigation system is designed to fill each tray with water starting from the top and working its way down to the bottom row. Each plant in the wall has a wick installed into the bottom of the pot that extends down to the bottom of the tray.

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FERTILIZATION



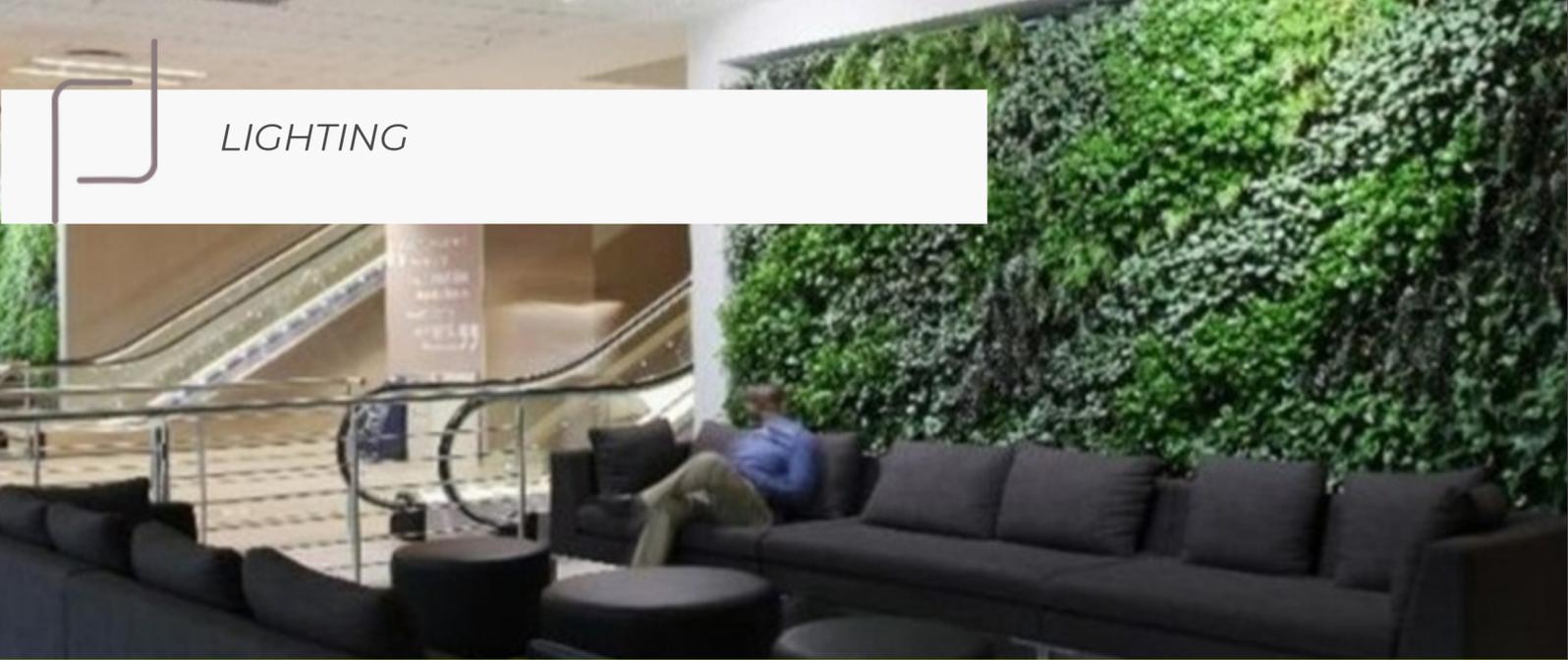
Plants like food and greenwall plants are no different. Fertilize your plants when they start looking like they are not performing as well as before. Simply add liquid fertilizer into each tray, diluted according to the fertilizer instructions. If you have pets, be careful to use an organic fertilizer that will not hurt your pets.

Weekly | Bi-weekly Maintenance Visit Checklist

- Inspect for bugs or pests
- Do any areas look dry or like the plants are not doing well, if so, investigate until you find the reason and correct. (Possibly a wick that is not properly inserted into the plant etc.)
- Are any specific plants growing too fast and shading other plants, if so, swap them moving the larger plant down and smaller plant above.
- If you have the overflow connected to a drain, confirm it is clear.
- If the wall is all looking good check the moisture in a selection of plants by inserting your finger into the soil. If the moisture is NOT as expected based on when the wall was last watered and when it will be watered next, make appropriate adjustments to the timing system for the next watering cycles
- Remove any brown leaves and trim/prune plants of any excess growth. Keeping the plants tight and neat leads to healthier plants.
- Replace any plants that have not done well and need remedial action. Plants are growing organisms and a certain amount of attrition is expected.



LIGHTING



Limitation of lighting

Plants need two things to grow – water and sunshine. While living wall systems and regular plant maintenance ensure that living walls are properly watered, lighting has remained an issue for many indoor plant installations. Insufficient lighting is the most frequent cause of living wall failures.

Traditionally the design, location, and plant choice for a living wall was restricted by the amount of available sunlight. This not only jeopardized the quality of the living wall but could prevent its installation altogether. This is an issue that has been recently addressed through grow lights.

Grow light science

Grow lights really began to hit the indoor gardening scene with the legalization of marijuana. Engineers and plant scientists found they were able to replicate the sun's photosynthetic spectrum with man-made lighting. The latest grow lights can perfectly mimic the desired photosynthetic spectrum to replicate the sun and even be manipulated to best suit the plants you want to grow. Because people grow plants indoors for many different reasons, grow lights are designed to adapt and suit different needs. While most grow lights are designed for agricultural operations and small-scale tabletop plants, there have been very few grow lights designed specifically for living walls which, like other indoor growing systems, have their own unique lighting needs.

What to look for in living wall lighting (SAP rule)

There are several factors to consider when evaluating grow lights for your living wall – power, intensity, color temperature, color rendering, and spectrum. As plant people, the best way to remember this is with the SAP rule - Spectrum, Appearance, Power.

Power:

30W or 100W

Lighting is a critically important consideration when planning your green wall. Insufficient light, or even the incorrect light, can cause green wall problems. Need help getting the right lights for your living wall? Contact us.

To learn more about greenwall lighting, watering, care and best practices? Visit our resources page.

(S) Spectrum

What gives a grow light the ability to grow plants is their photosynthetic spectrum. The reason why plants react to grow lights rather than ambient light is because grow lights target the wavelengths of light that plants respond to. Regular ambient lights neglect to include those wavelengths since they're outside the perception of the human eye. While plants react best to red and blue, the human eye reacts best to green. In recent years LEDs have become the ideal grow light for this reason. LEDs can be designed to pinpoint the exact desired chlorophyll peaks along the wavelengths that activate a plant's growth. A basic rule of thumb is; non-flowering plants prefer blue light to encourage leafy growth, while flowering plants prefer red light to trigger blooms and flowers. However, since the human eye must be taken into consideration when designing living walls, it is best to include red, blue and green light in a grow light. These are known as full spectrum grow lights and appear as regular ambient lighting.

(A) Appearance

Unlike many other indoor growing systems, living walls are designed to be admired, which is why the appearance of the light displaying them is very important. Kelvin (K) and Color Rendering Index (CRI) values, are measurements which are used to determine both a light's appearance and its ability to display. Kelvin measures the colour temperature of a light and is typically preferred at approximately 3000K or 5000K. 3000K is a warm white colour and preferred by interior designers for its inviting ambiance while a 5000K light is a cooler white color and is typically preferred for a crisp and invigorating setting. Colour Rendering Index is used to determine how accurately a light displays true colour. It scores from 0 – 100 with 100 being the most natural representation and highest accuracy of true color.

(P) Power

Power becomes important in two ways when considering living wall lighting – strength and appearance. You want a light that's strong enough to grow your plants, but not too overpowering or it will become a harsh eyesore in a room. Watts are used to measure the general output of light and Lux and Footcandles are used to measure the intensity and strength with which the photosynthetic light reaches the desired area. It's always best to measure the wall with a light meter to see how much natural light the wall is already receiving before adding the supplemental lighting. This is important because the grow light will add to any natural light that may already exist in the desired area.

Appearance:

Warm White / Cool White | 97 CRI

LIGHTING

Popular grow lights for living walls

The installation of a living wall is only half the battle. Its long-term success also relies on how well you take care of it. Be sure to keep these products in mind next time you consider investing in a living wall.

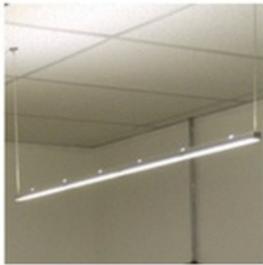
Kessil - Tuna Sun

According to Kessil, the A160WE/ A360WE Tuna Sun, “replicates the look of natural sunlight on the ocean floor”. While originally designed for fish tanks, the Kessil offers a spectrum that can support plant growth.

Spectrum:	Photosynthetic	
Appearance:	Blue	
Power:	40W or 90W	

Sunlite - ST30 and ST40

The Sunlite ST30 and ST40 are LED bar lights that maintain the photosynthetic spectrum while giving off white light.

Spectrum:	Photosynthetic	
Appearance:	Warm White / Cool White 75 CRI	
Power:	50W	

Soltech Solutions - Highland Series

The Highland is an LED track light designed specifically for living walls. Designed to both grow plants while beautifully displaying them, the Highland incorporates both the photosynthetic spectrum and museum quality lighting in to an LED track light.

Spectrum:	Photosynthetic	
Appearance:	Warm White / Cool White 97 CRI	
Power:	30W or 100W	



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- If the watering system is working well and some plants are not, consider if:
 - They are getting watered too often
 - There is enough light to keep them healthy.
 - Check if any plants are being denied of light by plants above them in the wall.

This is common and an important design consideration as the plants starved of light may not do well

- Review the wall for any signs of pests or disease. If you note any issues discuss them promptly with an area plant specialist. Any pests or diseases can spread quickly through living walls.