



FREQUENTLY ASKED QUESTIONS

SEMPERGREENWALL

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FREQUENTLY ASKED QUESTIONS

1. LIVING WALL SYSTEM

1.1 Why Sempergreen Flexipanel and not plastic or steel boxes to house the plants?

Flexipanel is a 'pillow' that connects each panel to the next both vertically and horizontally. This allows the plant's roots to migrate into all directions instead of confining them to a box. This is similar to how a goldfish will adjust itself in size according to the size of the fishbowl. The same fish will grow much larger once moved to a much larger bowl. Likewise, if you want static or bonsai'd looking plants that rarely bloom, you will want to choose a system that will box in the plants roots. However, if you want a vertical garden where plants can grow across 4-5 feet of the wall (think Buddleia/Butterfly bush that is 5ft in diameter) and will mature and bloom lushly you will want to use our Sempergreen Flexipanel system. This system will provide you with a dynamic, vertical garden; not tiny plants that seem frozen in time and place like a goldfish stuck in a small bowl.

1.2 Why do Sempergreen use mineral wool and not soils like others do?

Mineral wool is a product that disperses moisture throughout the profile with its strong capillary forces that are equal or close to gravitational forces. The fine fibers of the mineral wool attract and hold water, yet when the plant roots want to absorb the water; they readily release it to the plant. Soil based systems are organic and will wash out, blow away, are picked up by birds, or decompose over time (3-5 years). Furthermore, soil is not good in the fight against gravitational forces and will shrink over time; causing vertical rivers that allow the water to 'fall out'. Due to the issues with using soil, we choose a material that will last for 40+ years and not change its characteristics in regards to water management or structural capacity.



Sempergreen Flexipanel



FREQUENTLY ASKED QUESTIONS

1. LIVING WALL SYSTEM

1.3 Are green walls risky?

Yes, they can be. We see many green wall failures in the marketplace. This is because most people underestimate the fact that a green wall is actually a vertical garden grown in a very thin profile. This is not something that is found in nature, therefore, there are additional challenges. For example, gravitational forces create challenges with water retention and application that most conventional soils cannot handle well in a vertical setting. These challenges, when not handled properly can become a frustrating and costly affair. However, when these challenges are handled properly though, you can have the beautiful frustration free green wall that everyone else wants.

When you choose a SemperGreenwall a green wall is not a risky investment. Sempergreen understands green walls because they have learned from their mistakes and failures, albeit 10 years ago. That is a fair statement, we discovered and solved a lot of problems the first seven years. Now, 15 years later, we have volumes of experience, which allowed us to avoid problems before they occur. We also understand that well intended people are a green walls worst 'enemy'. Think of the houseplant in the office. Either everyone thinks nobody watered it and everyone waters it daily; thereby rotting the plant roots or everyone thinks someone else must surely have noticed that the plants are stressed and dead leaves are falling off and no one does anything about it. Either way it is disastrous.

"Sempergreen eliminated this factor by relying on modern technology with a multitude of sensors so we notice any accidental human intervention and can combat the gravitational challenges. Our vertical gardens grow happy plants, and happy plants are healthy plants. We are very confident we can maintain green walls successfully and without any problems. Simply ask us about our unconditional warranty that is unheard of in the industry."



FREQUENTLY ASKED QUESTIONS

2. PLANT CARE SYSTEM

2.1 What does a Plant Care System (PCS) do?

The PCS is a smart system that evaluates all inputs into a green wall system and irrigates accordingly; adjusting for daily weather changes and seasonal differences in plant needs. This system protects a SemperGreenwall investment by constantly measuring all of the environmental conditions that the green wall is exposed to and monitors the moisture conditions in the root zone. Due to this constant evaluation of the conditions, the PCS eliminates the reason most green walls fail, human error (turning off the water (de-hydration), poor winterizing schedules (winter plant loss), and stuck or broken valves that dehydrate portions of the wall). In the event that any of these or other events occur, the PCS will send a report via phone or email. This allows the issue to be fixed before any harm is done to the plants. This report gives the responsible person a sufficient time to correct the issue or put measures in place to avoid harm to the plants. The PCS also keeps a record of all issues that occur, and this report can be accessed at any time in order to assess where an issue may have occurred in the event of unforeseen damage to the plants.

2.2 How much water does a SemperGreenwall use per sqft?

The amount of water used per sqft differs per SemperGreenwall, but on average a SemperGreenwall uses around ½ gallon per 10 sqft per day or about 1.8 liters/m² per day. Many variables can influence the amount of water used by the green wall including wind impact, drafts, sun exposure, plant type (indoor or outdoor) and time of year.

2.3 Does a SemperGreenwall use more or less water than most other systems?

A SemperGreenwall uses significantly less water than other systems. Fleece based systems that flush the wall with a continuous water application apply two times as much water as needed, since most of the water falls out at the bottom and flows to the drain. Boxed, or encased green walls have many gaps through which the water can escape and soil based systems tend to form channels through which the water can escape. A SemperGreenwall uses less water than the other systems because of the efficiency of the PCS. The PCS minimizes outflow through programs that are specially adjusted to every season.

2.4 Why does the Plant Care System have a break tank?

The use of a break tank is preferred and often required per building code to ensure that injected fertilizer cannot accidentally backflow into the city water supply. The break tank creates a physical air gap between the city water supply and the PCS.

2.5 What kind of utilities do I need by the Plant Care System?

The PCS will need four 110v outlets, one CAT-5 internet port with port forwarding and a ½" residential water line that is terminated with a hose bib that has a male garden hose thread.



FREQUENTLY ASKED QUESTIONS

2. PLANT CARE SYSTEM

2.6 Why do I need an internet connection?

The entire green wall system is monitored remotely, 24/7 through an internet connection. The remote monitoring of the system means that alarms, such as low moisture levels, high moisture levels, temperature levels and tank levels are addressed as quickly as possible.

2.7 How is the Plant Care System connected to the SemperGreenwall?

Typically, a PCS unit requires a 3" (or bigger) conduit with all long sweep elbows, big enough to house multiple ½" waterlines and ¼" sensor wires. Every section of a SemperGreenwall has his own ½" waterline and ¾" sensor wire cable

2.8 Where do I place the Plant Care System and what is the maximum distance between the Plant Care System and the SemperGreenwall?

The entire PCS unit requires a heated space that is approx. 3ft deep x 4ft wide x 5ft tall with a floor drain in order to let the water escape in the event of a broken pipe or valve. The PCS can be placed anywhere in the building, but the closer the unit is to the green wall the better because if the PCS is placed further than 100 ft from the green wall it will require larger pumps and additional resources. The PCS will also require a larger pump and additional resources if the PCS is placed in the basement or on lower floors, because vertical distances have a large impact on pump requirements.

2.9 Why is the Plant Care System so 'big and expensive' compared to other irrigation computers?

The PCS is 100% self-contained; it is not just a computer. It is a fully assembled pumphouse, that irrigates based on water need (not on time). The 'brain' of the PCS has a preventative capacity to monitor the SemperGreenwall conditions and the equipment itself to ensure the conditions for the plants are always optimal; which gives the SemperGreenwall owner an assurance that their investment is well protected. Contained within this unit is the break tank with its own pump, plus the fertilizer tanks. In addition to these tanks, it also houses all the valves, filters, pressure regulators, fertigation connections, etc. The unit is "Plug-n-Play", containing all required components and designed to meet building code in all markets.





FREQUENTLY ASKED QUESTIONS

2. PLANT CARE SYSTEM

2.10 Why couldn't I do this with a cheap and simple time clock?

A PCS makes managing green walls simple. However, trying to run a green wall with a \$1,000 irrigation clock has proven repeatedly not to work. The design of the PCS prevents plant loss before it happens and therefore reduces the costs associated with maintenance of the wall (plant replacements, labor, etc.) and lost PR opportunities.

A simple timeclock only function as an automated on and off switch to irrigate the green wall and have no ability to sense any issues. These clocks irrigate regardless if it rained or not. They do not compensate for humidity levels, wind or draft conditions, or seasonal changes. These clocks also do not alert you if there are any issues such as a plumber who disconnected the water to the green wall and forgot to reconnect it or an electrician who disconnected the power to the green wall and did not reconnect it. Small mistakes, such as these, if unnoticed, can be hugely destructive and very costly to repair. It is not uncommon to replace 20-50% of the plants on an outdoor wall every season, if the proper irrigation system is not used.

High levels of plant replacement caused by human error can be very easily eliminated though. The PCS eliminates the issues created by a green walls biggest enemy, human error, by sending alarms to whomever is remotely monitoring the wall to let them know that there is an issue. The use of the PCS will result in less plant loss and more savings in the long run than if you would have purchased a simple time clock system.

Since green walls are mostly a PR or visual statement on a property; why not make sure that this is perfect at all times, for many years to come?



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3. PRICE/QUOTATION

3.1 How do I get a budget quote?

You can get a budget quote by sending us a detailed drawing with dimensions and drawings that show the location of the wall and accessibility of the wall from the ground. It costs Sempergreen a lot of time to do a detailed quote and without having visited the site, understanding access restrictions, time of year installation, etc. therefore, we can only give you an approximate cost price per square feet. This budget quote should typically be within \$5-15 per sqft from the quoted installed price. The bigger the green wall, the smaller the discrepancy will be. Once a project becomes real, the installation company can inspect the site and look at detailed drawings; which will allow Sempergreen to produce a more precise, installed green wall quote.

4. PLANT DESIGN

4.1 What kind of plant assortment can I use?

Sempergreen prefers that you set the parameters of the design. You can emphasize if you like seasonality (changing with the seasons like a real garden), level of blooming color (lots or little flowering), modesty (lots of green vegetation with little flowers), or perhaps a design with different shapes or a logo. Once you set out the parameters, we would like to fill in the details. We will suggest to you a series of plants that we know perform well in the green wall and that will work well with your design criteria, but ultimately you as the designer have the final word. If you choose plant species that we are not familiar working with, it may void the warranty on these plants, so it is highly advisable to follow our guidance with plant choices. For outdoor walls we highly recommend using a substantial portion of evergreens or semi-evergreens in order to have the green wall look presentable in winter as well.





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5. LIGHTING

5.1 What are the light requirements for an Interior SemperGreenwall?

An Interior SemperGreenwall requires a light source from above that falls onto the top of the plant leaf. This light source should provide 800-1200 LUX, or 75-110 Foot candles across the complete green wall.

5.2 Who designs the lighting system?

You will need to provide a lighting designer. Sempergreen will provide your lighting designer with the required light volume and intensity parameters. They in turn will need to provide a 'light intensity map' with corresponding light levels per sqft based on the physical layout of the wall. Once Sempergreen approves the 'light intensity map', the green wall designer can incorporate hardgoods into the design that match the approved light levels.

6. FINISHING

6.1 Why is the Interior SemperGreenwall gutter (9") wider than an Exterior SemperGreenwall gutter (6")?

The indoor gutter is wider because we want to capture or minimize the amount of falling debris, like spent leaves, flower petals or few water drops that may fall down onto the interior floors. However, this tends to be a non-issue for an outdoor wall. You are free to customize gutter dimensions, though.

6.2 Can I request custom gutters and caps, or custom edging?

Yes, custom metalwork is possible. Sempergreen will supply you with a detailed design and you can have your own edging and/or gutter fabricated. These detailed shop drawings will be made after the initial down payment has been received. We do ask that you adhere to the Sempergreen list of approved metals though, because fertilized water is corrosive to some metals and can alter the appearance of some metals.



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7. INSTALLATION

7.1 Can I apply a SemperGreenwall to any surface? What are the weight requirements per sqft?

A SemperGreenwall can be installed on any surface, provided that, the surface meets anchoring requirements and is able to hold the weight of the wall which is approximately 9-10lbs/sqft or 45kg/m². In order to anchor the wall, the vertical omega profiles, on which the Flexipanel hang, needs to be able to be secured to the wall with a screw or bolt every 2-3 vertical feet. Therefore, the wall needs to be able to anchor these fasteners and hold the weight of the system that is transferred to the screws or bolts.

7.2 Do I need to waterproof the wall before installation?

Adding waterproofing behind the wall is optional. Sempergreen typically installs house wrap behind the wall as a preventative measure. Another preventative measure is the 2" airgap between the SemperGreenwall and the wall it is installed on. Each Flexipanel also has a TPO backing to further prevent water and mold damage. Since, the Flexipanel are installed like roofing shingles they overlap and do not allow water to find its way behind the wall.

7.3 Do I need to supply drains below the wall?

Yes, the gutter below the wall needs to have at least 1 drain with a 2" diameter, and it is smarter to always have two drains in case one of the drains gets clogged up with plant debris. Larger green walls may need additional drains. The exact locations of the drains required will be noted on the shop drawings created by Sempergreen.

7.4 How much lead time does Sempergreen need before installing?

Sempergreen needs at least 4 to 6 months of growing time from the day we receive the down payment, to the date of final expected installation. The amount of growing time required though may be longer due to seasonal influences or plant selection. If you require your green wall install to occur sooner, we may need to start with much larger plants which will increase the cost of the green wall. So, the way to save on purchase costs is to give us more lead-time so we can start with smaller and cheaper plants as this has a big impact on the cost price of the total green wall.



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8. MAINTENANCE

8.1 How often do I need to add fertilizer to the Plant Care System?

You will not need to add fertilizer to the PCS because adding custom blends of fertilizer, specific to each season, is included in the maintenance contract. Furthermore, our PCS monitors the fertilizer levels and will contact the maintenance company when the fertilizer level hits 1/3rd. This will give ample time for the maintenance company to get it refilled. The amount of fertilizer used by our green walls is minimal; a 1,000 sqft SemperGreenwall will only use about one 5lb bag every 6-9 months. The low amount of fertilizer use is because we are not trying to fertilize the green wall so we can harvest from it, we simply want to keep the plants healthy, and that only requires minimal doses of fertigation.

8.2 Can I do my own maintenance and management?

No, Sempergreen monitors all of the green walls they install in order to ensure that they are maintained properly and up to the Sempergreen standards. Depending on the location, Sempergreen may maintain it themselves or outsource the maintenance to an approved third party. In some markets, we work with the local companies that will perform some of the visits, but Sempergreen will still supervise each project and will monitor all of the walls remotely. Our reputation is at stake and we take this very seriously.

8.3 How often do you visit a SemperGreenwall for maintenance?

Sempergreen or its licensed installers will visit the green wall 7-9 times per year. Twice a year the SemperGreenwall will be pruned; in the spring, we apply a hard pruning that keeps the plants orderly and in the fall we will do a light pruning. Fall pruning is done lightly because the plant uses winter foliage to protect itself from the harsh weather and often energy is stored in the above ground stems and leaves that is available to the plant during times of stress (winter). The other 5-7 visits are check-ups and cleanup visits where we will manicure the green wall, double check equipment functioning, inspect the system for leaks or any other issues, and evaluate plant health and potential insect problems that may need to be addressed. Once more, happy plants mean less disease and less insect problems, and Sempergreen Flexipanel®s are the only green wall components that allow for plants to grow just like if they were in the garden.