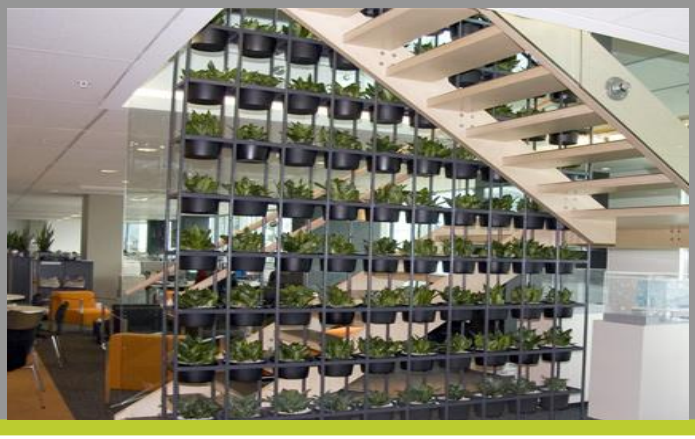
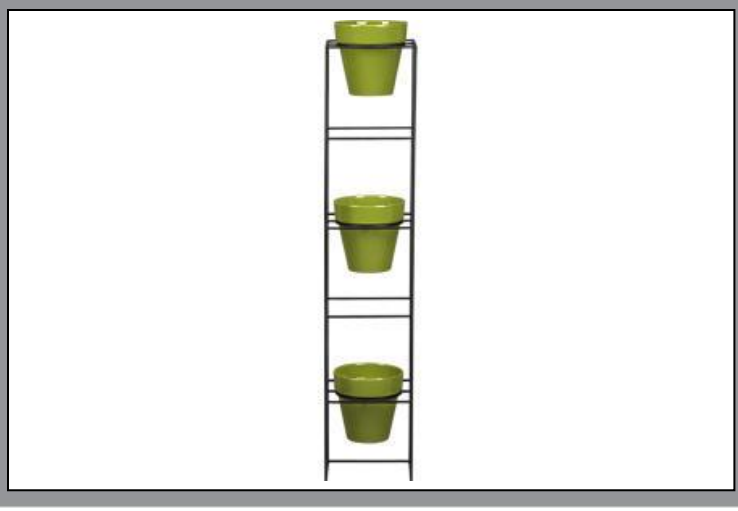
The Living Wall

Make Your Own Living Wall





Silverhill Institute of Environmental Research and Conservation

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Living walls are vertically constructed gardens suitable for the interior of a building, which provide numerous environmental and health benefits. Living walls are relatively simple installations that can greatly enhance the quality of a space. This brochure provides a guide of how to construct your own indoor living wall so that you can start enjoying its benefits immediately.

To construct a living wall all you need is an appropriate structure that can hold planters, a growing medium (usually soil), a catch basin (to collect water), and a selection of appropriate plants. You may also need a drill, a few nails or screws, and a hammer.

6 STEPS TO A LIVING WALL

1. The first step in installing a living wall is to choose a **suitable vertical structure** that can accommodate a planter and plants, and fits in your space at the same time. Erect the structure at a place that promotes good air circulation. Good circulation of air through the living wall will ensure efficient assimilation of toxic gases by the plants and cleansing of the indoor air. You can use any of the following as a structure:

a. A Cabinet or Shelf
b. Vertical Planter Holder
c. Custom designed vertical structure, or
d. Anything vertical that can hold a planter and accommodate plants

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2. Choose a planter suitable to the structure that can hold plants you want to grow.

a. Flower pot
b. Woolly Pocket
c. Plastic/Glass Containers
d. Vertical Planter Kit

3. Plants could be grown in **potting soil** or using a hydroponic medium. Soil is better as it has added environmental advantages over a hydroponic medium.

4. Fill the planters with the potting soil.

5. Select plants based on the VOCs that you want to remove and **plant them**. (For information on a plant's capacity to remove VOCs, refer to Silverhill's "Health Benefits of Indoor Plants" report). It is advisable to use more than one type of plant as they increase aesthetic quality and effectively remove a wide range of VOCs.

6. Place planters on the structure. If you are using woolly pockets, nail the woolly pocket on to the wall or plywood. Plastic or glass containers could be vertically fixed on walls or placed on a vertical plant holder.

Your **living wall is ready!!**

Maintain your living wall regularly. The efficiency of removal of toxic gases depends on the health of the living wall; therefore, it is essential to ensure that factors that contribute to the proper growth of the living wall – water, light and nutrients – are not in short supply.

If you are using woolly pockets or plastic/glass containers, hang onto the wall before filling and planting. Make sure to put a catch basin to collect water draining from planters. Many planters and planter kits come with a catch basin, if not use a plastic/glass container to collect water. Water your living wall as often as needed, depending on the requirements of the plants you have selected.

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Want to Know More?

LEARN HOW YOUR LIVING WALLS HELP YOU

As natural air filters, the use of plants indoors has numerous benefits to human, both physiological and psychological. The plants help in combating Sick Building Syndrome (SBS), which is one of the most prevalent health problems related to contaminated indoor air. Studies have reported a reduction in complaints of cough and fatigue, dry throat, and dry/itchy skin when plants were present indoors, resulting in an elevated level of comfort.

The psychological benefits of having plants indoors are reduced stress levels, elevated level of mood, increased productivity and performance. Scientists have found that the proximity of staff to plants in a work setting has a reliable correlation with increased productivity and decreased sick leave.

These health benefits have long lasting impacts on your personal life and career. Improved physical and mental health ensures financial benefits that would otherwise be lost due to sick days or decreased productivity. The cumulative effect of individual financial benefits could be significant for the economy as a whole. However, there are certain benefits that can never be quantified, for example, the benefit of reducing the possibility of illness.

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How the living wall works?

As active bio-filters, the plants in a living wall effectively absorb airborne volatile organic compounds (VOC) while also reducing concentrations of carbon dioxide (CO_2) by converting them to oxygen and decreasing the level of CO.

Different plants have been recognized for their ability to effectively absorb volatile organic compounds like formaldehyde, xylene, benzene, n-hexane, and ammonia from the indoor air, which are common indoor air pollutants. Some potted indoor plants can reduce the indoor VOC level by as much as 75%. It is not only the plant which contributes to air quality improvement but also microorganisms supported by the plant's roots. As each plant supports different flora of microorganisms, different plants will remove VOCs at a different rate.

The indoor plants not only remove CO_2 from the air but also take away carbon monoxide (CO). The CO can stimulate roots growth and seed germination.

The bacteria present on roots use CO as a nutrient and cleanse the indoor air of CO. Studies have reported a 25% reduction in CO_2 and up to 92% reduction of CO in offices with indoor plants.

Through the process of transpiration, living walls have been reported to reduce office temperatures by up to 7^{o}C and reduce heating and cooling costs by 20%.

Additionally, plants can also increase humidity by up to 15% by releasing moisture into the air, which could also increase indoor comfort level.

If properly located, indoor plants can reduce noise levels by interrupting sound waves from reflecting on hard surface and reducing reverberation. Although noise reduction is not a direct function carried by plants, they add to the comfort level.

With numerous applications, living walls are particularly well suited to multiple unit residential buildings as a way to create relaxing space while cleaning the air. Living Walls are accessible to everyone. In order to enjoy the benefits of these living structures, a large commercial installation is not necessary, and a simple version can be easily built at home. The primary concern is that plants receive sufficient water, light, and nutrients, and that drainage is managed so as to avoid any damage to the interior of the home, building, or the plant itself. Collecting several plants into a vertical arrangement will produce positive effects and does not require sophisticated infrastructure.

Follow the step-by-step guide explained in this brochure and begin enjoying the benefits of a living wall in your own home!

The information in this brochure was compiled from a number of public sources.