



# IT'S EASY BEING GREEN

Living walls low maintenance but require continued care to survive, thrive

*by Alan Darlington*

Once experimental, living walls have become popular elements in the built environment thanks to their many benefits. These truly green additions are not only aesthetically-pleasing but they purify the air, dampen noise, reduce the ambient temperature, and improve occupant health, well-being and productivity. And they do this all while taking up minimal floor space.

Living walls can vary from potted plants arranged vertically on a wall to sophisticated computer-controlled hydroponic indoor air purification systems that are integrated right into a building's air handling system. These indoor air biofilters actively improve indoor air quality. Recent studies conducted by the University of Guelph have demonstrated that indoor living wall biofilters reduce common indoor air pollutants by 30 per cent.

Like all building components, living walls must be maintained. Each system has its own distinct needs; however, generalities on their maintenance do exist.

Caring for a living wall is easy so long as the persons charged with the task know what they're doing. Most of the maintenance is obvious and revolves around good hygiene. Healthy plants will drop their leaves from time to time. While a normal occurrence, these leaves become unsightly if left on the floor so routine general cleaning of areas adjacent to a living wall is a must. Beyond this, periodic pruning, removal of dead plant material and plant replacement is required. Maintenance staff with some horticultural knowledge is an asset. There are several national and regional programs that offer accreditation in the area of plant maintenance. However, if in doubt, hire a trained maintenance technician familiar with horticultural issues, specifically living wall systems.

#### LET THERE BE LIGHT

To many people's surprise, much of the success of a living wall is actually depen-

dent on what happens between the technician's visits. For example, proper lighting will impact the success of a living wall. The principles that apply to any interior plant also apply to a living wall. Skylights and windows provide an excellent source of both direct and indirect light. However, an obstruction can negate the effect of a well-placed window and drawn shades make the windows totally redundant as does dirty windows, which are akin to curtains.

Although ideal, natural light is not essential for healthy plant growth. Living walls also thrive under artificial light. While some plants can tolerate as little as 75 foot-candles, most living walls need at least 125 foot-candles for 18 hours per day to succeed. This works out to approximately 100 watts of light (not incandescent) per square metre. When selecting a lamp, consider the amount of light generated per watt of input energy. Even though fluorescent and halide lamps are still being used, LEDs are energy-efficient, have a more consistent output and longer life. Fluorescent and halide lamps should be replaced every two years because of reduced output, whereas LEDs can last up to 10 years. Regardless of lamp type, dirt buildup can decrease light output by up to 30 per cent, so it's important that maintenance staff clean the fixture lenses (when cool) bimonthly or quarterly. It's also essential that staff regularly check lights to ensure they are operating properly. A living wall's life depends on it.

#### JUST ADD WATER

Apart from light, there is little else to be greatly concerned about in the maintenance of a living wall. Most thrive at room temperature (between 15 C and 25 C). Once established, nearly all plants can tolerate

temperatures from 4 C to 34 C. However, adequate water moisture is required for plants to survive in warmer temperatures.

Typically, living walls are designed with an automatic irrigation system. Still, care must be taken to ensure all plants are receiving adequate water, daily. Maintenance staff should regularly conduct a visual inspection or, better yet, feel the root media to ensure plants are getting enough moisture to support growth.

#### BUG OFF

Like any collection of plants, living walls are susceptible to insect attack. While it's often the responsibility of the horticulturalist to keep pests in check, maintenance staff should keep an eye open for unwanted guests. Vigilance is key to keeping nuisance insects away.

One of the best ways to control pests is to routinely 'wash' plants with a diluted soap solution (40 parts water to one part liquid soap). Adding a small amount of rubbing alcohol and/or lemon juice to the solution will further protect plants. This environmentally friendly treatment should be thoroughly sprayed on both the upper and lower surfaces of the plant leaves for it to be most effective. Some plants may need a water rinse afterwards.

Biocontrol, or the introduction of certain insects to kill unwanted insects, is also an effective pest control measure. However, some insects, such as ladybird beetles (more commonly known as ladybugs), have little interest in remaining where they are needed and may become more of a nuisance than the original pest in the space. Also, special training and licensing may be required to apply even 'organic' materials. Maintenance staff should check local guidelines before applications. /

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Alan Darlington has a PhD in horticulture, with a speciality in indoor plant-based biofilters. With this expertise, he formed Air Quality Solutions Ltd. in 2001, now Nedlaw Living Walls based in Ontario.