



This blog post was commissioned to encourage more corporations to embrace a more sustainable and healthy approach to air quality management. It was used by a Canadian installation firm as part of a PR campaign to drive awareness of the approach.

3 BENEFITS OF BUILDING AN INTERIOR LIVING WALL

Which is better for corporate office air filtration, a highly sophisticated, constantly maintained and updated mechanical air filtration system or a simple garden in the central reception area?

You might be surprised by the results.

A number of Canadian companies in recent years have adopted the living wall approach as a better solution to overall workplace health and well-being. Studies conducted on these approaches have revealed three major benefits over purely mechanical solutions. These include benefits to employees in terms of a sense of well-being and work productivity, benefits to the company in terms of savings and profits, and secondary benefits to both the company and employees in terms of client or customer relations.

A living wall is essentially a vertical garden, reducing the overall space required while incorporating all the benefits of horizontal garden space. Loosely defined, living walls are structures where plants grow on the wall rather than the floor. They can be naturally occurring (i.e. vine covered exterior walls) or intentionally constructed within interior spaces. Living walls can be built indoors or outdoors as desired with the indoor version sometimes requiring additional specialized lighting to promote plant growth and overall health.

Examples of Living Walls

Living walls have been constructed in the following Canadian buildings: the office of ING Direct in downtown Vancouver, Sheraton Hotel Lobby in Vancouver, the Robertson Building in Toronto, Queens University in Ontario, and The Core Shopping Centre in Calgary.

The ING Direct building in downtown Vancouver features nearly floor to ceiling living walls in several locations within the building space - most notably in the cafe and in the manager's office. In the cafe, several living walls provide an interesting contrast within the space between windows which look out onto a concrete city scene.

Rising from an elegant marble base in which the water system is held, plants are rooted in a recycled synthetic fibre substrate (Webb, 2011). The variety of plants used provides an interesting texture and rich green colour to the setting, encouraging patrons to relax and unwind. Splashes of reddish-coloured plants reinforce the 'living' state of the wall.

Similarly, the living wall in the manager's office helps visitors relax in a normally tense environment. Instead of using reddish plants for contrast, which could cause people in this specific setting to feel higher anxiety, the wall uses purple plants to reinforce the concept of soothing colour. According to users of the building, the system is highly effective in delivering an aesthetically-pleasing, soothing environment (Webb, 2011).

Large scale living walls are also possible. Queens University in Ontario has a very impressive three-story tall vertical living wall constructed within a recessed block of a common area. The living wall has been so successful in its intended purpose as an air filter for the building that the university created a webpage dedicated to explaining its function in more detail. This page can be found at http://livebuilding.queensu.ca/green_features/biowall.

The size of the wall allows for larger plants to be incorporated including ferns and peace plants. These plants are rooted in layers of a porous plastic material screwed into a concrete backing. Water drips between the concrete and the plastic, keeping the plants moist at all times and promoting growth. According to the website, the roots of these plants tend to grow downward and can extend several stories long.

At each of the three levels of the building, fans pull air through the wall and into the rest of the building's interior area ensuring full filtration. "The wall requires no more maintenance than any other indoor landscaping feature. The plants are all chosen to spread no pollen, and the constantly running water and fresh air stop mould from getting a foothold" (Biowall, 2010).

The living wall has proven highly effective in filtering dangerous or unhealthy elements from the air of the building more efficiently than any form of commercially available filtration systems.

Benefits of Living Walls in Corporate Spaces

Living walls provide numerous benefits as a result of the plants growing on it. Although they allow for more efficient use of existing space, the benefits derived from these structures are a "side-effect" of the plants themselves.

Benefits to Employees

Plants have been proven to reduce indoor air pollution by absorbing toxic gasses and air-borne particles as well as improving air humidity, providing 'natural fresh air' indoors. Instead of breathing corporate, indoor air full of chemical residue, employees gain many of the benefits of working outside.

But a healthier working atmosphere is not the only benefit experienced by employees working within a building that incorporates a living wall. "The individual experience of the subject's state of health can be at least partly explained by the following reasoning: an improved sense of well-being raises the levels of tolerance for irritation. Consequently, the individual will experience the indoor atmosphere more favourably if there are plants in the working environment" (Fjeld, 1996). In other words, employees are overall happier and more tolerant of petty annoyances when a living wall is incorporated into the building.

Benefits to the Company

There are many different commonly used items within corporate buildings that contribute to concentration of chemicals generally referred to as VOCs. These items include computers, carpets, paints, glues, photocopiers and refrigerants such as those used in the air conditioning systems and break areas. When the concentration of VOCs reaches a certain level, they create a situation known as sick building syndrome (Indoor Air Facts, 2010).

Although there are a number of high tech scrubbers and commercial filtration systems available on the market to address the problem of VOC concentration, these all cost money to install and maintain, don't contribute anything aesthetic to the building space and quickly become saturated requiring expensive replacement (Biowall, 2010). The living wall is more effective, more efficient, and contributes greatly to the aesthetic elements of the building without necessarily detracting space for ugly mechanics.

Benefits to Customers

Visiting clients and customers entering the building also benefit from a living wall. The presence of an artistic “garden” and a relaxing atmosphere leads naturally to a more positive attitude on the part of the client. They become more relaxed and develop an intrinsic sense of well-being that becomes quickly associated with the character of the company and the individual employees they encounter. This improved attitude may increase profits for the company as customers feel more inclined to do business with the comforting culture. Having an innovative design in the reception area may also improve the image of the building itself.

Disadvantages

Living walls have many benefits as well as some disadvantages. Although commercial manufacturers of living walls advertise the idea that these walls can reduce overall power consumption (Green Walls, 2008), this is still a highly debatable concept to scientific researchers. It is also true that indoor living walls may require special lighting, air filtration, watering, nutrient supplementation and maintenance, thus incurring additional expense.

However, when compared to the cost of attempting to accomplish all of the benefits of a living wall via other means (large scale artworks, air scrubber filtration systems, etc.), expenses associated with living walls are negligible while delivery is high.

Conclusion

The long-term benefits of a living wall compensate for the initial additional cost in construction and maintenance. A living wall increases productivity, lowers stress, and improves the air quality and aesthetic value within the building. This in turn results in greater profits which makes it a worthwhile long-term investment. The company should authorize a more thorough study into the feasibility of adding a living wall to the renovation project for the new reception area in Canada.

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