



# It's alive

## How biofilters are helping green today's indoor spaces

By Terri Sparks

**T**hese are facts: Living wall biofilters not only boost any commercial building's aesthetics, they also make indoor air quality better and improve building performance. Around them, employees become inspired, more alert and energetic. Consumer appetite for green vertical walls is growing year over year – even basic living walls (plants-on-a-wall) offer a type of large-scale artwork that very few dislike: a visual feast of living, growing and changing natural foliage.

The ultimate living wall really is a living biofiltration machine, a working technology replicating natural processes. In simple terms, the biofilter uses the complex microbiota associated with the lush, mature plants to produce indoor air as clean as the outdoors.

This process yields perhaps the most effective, energy-efficient and aesthetically pleasing interior space imaginable. Of course, the popularity of these natural, green, vertical objets d'art is increasing like wildfire because of their positive impact on building atmosphere. Properly designed and installed, these systems qualify for numerous LEED points.

Nowadays, savvy architects, builders, tenants and visitors all know the benefits offered by an eco-friendly building. Studies by the U.S. Green Building Council (USGBC) indicate that the perceived value of a commercial property with LEED points almost always is greatly heightened.



Large-scale living wall biofilters installed in hotel lobbies, corporate reception centers, enclosed shopping centers and more, actually function as natural air-filtering systems, which benefit everyone. By using fans or being connected to the building's HVAC system, they disseminate cleansed air into the closed environment. They also cut down on noise levels, as they have the natural ability to soften sound waves and absorb harsh acoustics.

One company in Canada has taken the living wall experience to this incredibly high level. Headquartered outside of Toronto, Nedlaw Living Wall Biofilters offer a hybridization of three technologies: biofiltration (using nature to break organic pollutants down to their benign constituents), phyto-remediation (the use of green plants to facilitate the remediation or reclamation of contaminated soils or water) and hydroponics.

The firm repackages these into a system specifically engineered for the indoor environment to deal with the issues of air quality. As a result, this system incorporates nature's ability to remove contaminants into an aesthetically pleasing format, and adapting it specifically for interior space.

### How is this done?

In a nutshell, air naturally is cleaned via a regimen using no artificial chemicals. Other methods of interior air cleaning rely on moving air through filters with various chemicals working not unlike sponges, seizing contaminants from the air.

Just like a sponge, these filters become saturated to a point where they can no longer remove any contaminants. These filters then must be disposed of along with all contaminants they harbor – becoming hazardous waste, unsafe to both humans and to the environment.

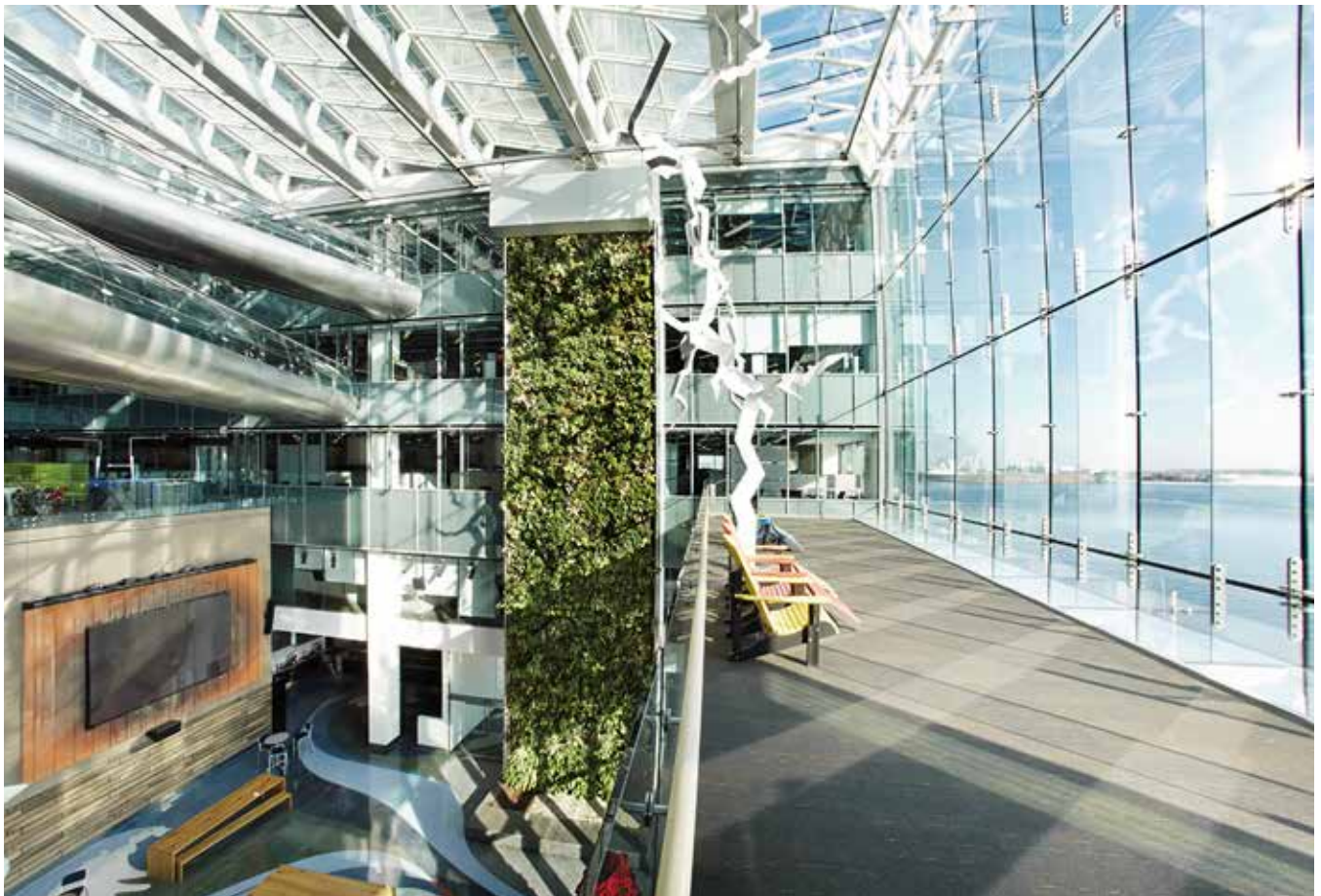
Designer of Nedlaw's patented systems, Dr. Alan Darlington was part of a research team looking at biological life support for long-term space habitation and has become a world-recognized authority on the use of biological systems to improve indoor air quality.



“Living Wall Biofilters are an ecologically friendly green machine in which air pollutants are broken down into their benign constituents,” says Darlington, founder of Nedlaw Living Walls. “Although our living wall biofilters are typically designed to last over twenty years, their biological aspects have the ability to continue with their functions forever. The biological component of active living wall biofilters is self-repairing and self-rejuvenating. Although it is the microbiota (beneficial microbes) in our biofilters that break down the contaminants, the green plants create the environment that maximizes the microbes cleaning ability.”

And what an environment the plants create. “Green plants clearly have a great aesthetic value,” Darlington says. “Maintaining an indoor space that is truly green and alive increases worker productivity and lowers absenteeism.”

Darlington points out that careful selection of plant species promotes pollutant-degrading microbes and that plants can quickly adapt to growth on vertical surfaces. “Potted plants have very limited impact on cleaning indoor air, it is the incorporation of the biofilter into the air-handling system that maximizes the ability to



break down pollutants. Plants can reduce the amount of dust in an enclosed space, as well.”

One noteworthy project to incorporate a living wall biofilter, as both a focal component and for air quality effect, is the Dr. David Suzuki Public School in Windsor, Ontario, one of the most energy-efficient schools in Canada and, possibly, all of North America. Named for the country’s foremost environmentalist, the school has earned all 10 LEED energy points, qualifying it to be certified as LEED Platinum.

The structure includes wind turbines, display-control monitors, green roofs, solar wall panels, bicycle generators, solar hot-water-heating panels and, a two-story Nedlaw Living Wall Biofilter. Environmental experts throughout North America have

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stated that the building itself is a veritable “green teaching tool.”

How about the cost? To avoid the buildup of harmful pollutants, most buildings are ventilated with new outside air. This air must be heated in the winter and cooled in the summer representing a huge portion of a building’s energy expense.

“Our biofilters return cleansed air already at the right temperature, so this stiff energy expense can actually be greatly reduced for building owners,” says Randy Walden, president of Nedlaw Living Walls. “Clean air can be supplied to building occupants for as little as 24 watts per person or even less. You see, we don’t just want to make an indoor environment have a stunning, natural allure, while at the same time be healthier for those within it. We want to make it less expensive to maintain, as well.” <CCR

Terri Sparks is a writer with Communicators. For 10 years, she was advertising/marketing manager of Terrazzo & Marble Supply Co., one of Chicago’s largest marketers of stone materials. Prior to that, she worked as an account executive for Treister Inc. in Chicago.

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**Mike Levin Photo/Video (215)-740-1747**  
Email: [mklphoto@sprynet.com](mailto:mklphoto@sprynet.com)  
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