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Green thumb in the workplace

Plantscapes can improve IAQ, absorb noise and reduce stress

By M.J. Gilhooley

Building managers are now rethinking plants in the workplace. Plants have proven to be an economical method of managing the growing risks and liabilities associated with poor indoor air quality.

Live interior plantscapes can actually lower operation and maintenance costs by decreasing energy, cooling and repair expenses. Plants can absorb sound, decrease stress, and contribute to heightened productivity levels while enhancing aesthetic value.

Interior plants can make it possible to have an energy efficient building while reducing the potential for sick building syndrome and improving the bottom line by keeping workers healthy.

U.S. companies can save as much as $58 billion annually by preventing sick-building illnesses and an additional $200 billion in worker performance improvements by creating offices with better indoor air quality, according to researchers William J. Fisk and Arthur H. Rosenfeld of the Lawrence Berkley National Laboratory (LBNL).

It's not always easy, though. More energy efficient buildings are often accompanied by less fresh air from outdoors, and as the trend to make buildings more efficient grows, sick building syndrome is turning into a serious and expensive liability.

As energy efficient construction becomes more common, "green building" designers have become justifiably concerned about the indoor air quality (IAQ) dilemma. According to research by Bio-Safe Inc., New Braunfels, TX, energy efficient office structures are often 10 times more polluted than the air outside.

Research shows that rooms containing plants contain fewer airborne molds and bacteria than rooms without plants. Information such as this has become an important tool for today's environmentally efficient corporate designers and facility managers for such companies as U.S. Energy Systems, Inc. In fact, this growing energy company is enthusiastically endorsing the use of indoor plants in the workplace.

Courtesy of the ALCA Awards

"We practice what we preach, and find that our investment in interior plant services has had the expected outcome of improving indoor air quality, supporting a positive outlook in the workplace and increasing employee productivity," says Susan Odiseos, V.P. of Corporate Communications for U.S. Energy Systems. "Interior plants are a solid return on investment, and a must for any corporation concerned with sustainable, 'green building' solutions."

For almost 20 years, Dr. Billy C.Wolverton and his aides in the Environmental Research Laboratory at John C. Stennis Space Center have been conducting innovative research employing natural biological processes for air purification.

"We've found that plants have the ability to suck some toxic chemicals out of the air," Wolverton says. "After some study, we've unraveled the mystery of how plants can act as the lungs and kidneys of these buildings."

In "How to Grow Fresh Air: 50 Houseplants That Purify Your Home or Office," Wolverton says plants can absorb office pollutants into their leaves and transmit the toxins to their roots, where they are transformed into a source of food. Also, plants can emit water vapors that create a pumping action to pull dirty air down around the roots, where it is once again converted into food.

Wolverton has found that plants are especially needed in office buildings where sick building syndrome is common. He goes so far as to suggest that everyone have a plant on his or her desk, within what he calls the "personal breathing zone," an area comprised of six to eight cubic feet where most of the working day is spent. In addition, Jay Naar, author of "Design for a Livable Planet," suggests that 15 to 20 plants are enough to clean the air in a 1,500 square-foot area.

According to the Plants for Clean Air Council of Davidsonville, MD, "virtually every tropical indoor plant and many flowering plants are powerful removers of indoor air pollutants."

According to literature from the Associated Landscape Contractors of America (ALCA), proper selection and placement of plant materials can actually lower heating and cooling costs.

Plants cool by a process called transpiration, which, according to the U.S. Department of Agriculture, decreases air temperature in offices by 10 degrees. A recent study out of Washington State University demonstrates that plant transpiration in an office environment releases moisture, creating a humidity level exactly matching the recommended human comfort range of 30 percent to 60 percent.

Similarly, the same study concludes that in the absence of plants, the relative humidity in offices runs below this recommended range. When the relative humidity of office air is too low, costly materials such as wood can become damaged and crack, requiring expensive repairs. On the other hand, when relative humidity is too high, condensation on windows and exterior walls can result in costly structural damage.

Reducing office noise

The positive contribution of interior plants to sound absorption has been well documented in numerous studies, including work done by Dr. Helen Russell from the University of Surrey, England and Dr. David Uzzell of Oxford University. With professional placement, plants can quiet down an office; a small indoor hedge placed around a workspace will reduce noise levels by 5 decibels.

Although it would be difficult to measure the cost of productivity loss due to office noise pollution, one doesn't have to go very far to find examples. Almost anyone who works in an office setting will admit to having been "annoyed" into taking a break due to the common audible elements of their busy surroundings.

Courtesy of the ALCA Awards

According to the ALCA, landscape professionals are now replacing stale cubicles for "tree walls" and other innovative plant groupings to reduce the effects of the costly "decibel distraction factor."

Plants offer a means of decreasing stress while enhancing productivity by as much as 12 percent.

It is widely known through the respected research done by Dr. Roger S. Ulrich of Texas A&M University and recent studies conducted by Dr. Virginia Lohr of Washington State University that plants significantly lower workplace stress and enhance productivity.

In addition to demonstrating significant increases in their post-task attentiveness, subject reaction time in the presence of plants was as much as 12 percent faster than that of subjects in the absence of plants. In addition, visual exposure to plant settings has been shown to produce significant recovery from stress within five minutes.

As many performance-based incentives also give rise to stress, the rare capability of plants to raise productivity while lowering stress levels is extremely valuable. Progressive human resource executives are finding they cannot afford to ignore such an efficient method of human asset management.

The dramatic aesthetic value inherent in indoor landscaping has continued to be the number one return on interior plant investments.

As reflected in the 2001 BOMA/CEL Tenant Satisfaction "A-List Awards," "appearance and condition of the property" is a top category used for evaluation among tenants.

In addition, studies out of England's Oxford Brookes University conclude that people (clients or employees) perceive a building with interior plantings as more expensive-looking, more welcoming and more relaxed. Conversely, the studies

prove that peoples' perceptions of a building are less positive in the absence of plants.

Melissa Coley, V.P., Brookfield Financial Properties, is a corporate interior plant enthusiast. She asserts that the vast plantscapes located throughout Brookfield's facility "provide a critical elegance to this bustling business setting of 40,000 corporate employees."

Selection, installation and maintenance

Selecting the best plant for an office space, and deciding on proper placement of plants within an office building, are complex issues requiring careful calculations of environmental and design considerations. In most cases, these processes are best left to professional interior plantscapers.

If the facility is not yet finished, the interior plantscaper may use blueprints to develop a detailed plant program. If the facility is finished, the plantscaper will take light meter readings, check on numerous details such as the status of window treatments, and consider a number of long-term maintenance implications.

Elements that determine optimal placement may include: quality and intensity of light, area humidity, traffic patterns around the plant, heat conditions and décor selections.

A recent building management survey listed outsourcing as one of four top industry trends in 2001. Outsourcing interior landscaping contracts has afforded key services staff and management the opportunity to focus more completely on tasks specific to facility goals.

According to Karen Parks, Contract Manager, Aetna Business Resources, the need to outsource interior plant services was obvious. Her in-house grounds staff salaries, equipment and material costs were increasing yearly, and she found her crews struggling to meet the growing demands of the property and OSHA regulations.

Indeed, many in-house staffs are spread so thin that they become unable to apply professional standards to properties. As a result, appearance and property values may begin to suffer.

Finding a professional

The benefits of indoor plants far outweigh the costs of maintaining them, and businesses across the country are discovering that indoor plants are an attractive and surprisingly affordable way to improve the bottom line.

To take full advantage of the benefits indoor plants have to offer, the services of a professional interior plantscaper are highly recommended. For a listing of professional interior plantscapers near you, visit the Plants at Work Web site at www.plantsatwork.org. Or, consult your local yellow pages under the heading "Plants – Interior Design & Maintenance."

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