

## *Plants at Work*

# **6 BOTTOM LINE BENEFITS OF INTERIOR LANDSCAPING**

### **1. Plants offer a means to decrease stress while enhancing productivity by twelve percent.**

According to Wayne Hansen, a member of Cal-OSHA and an editor for JCAHO publications, human assets are the most valuable and expensive assets of any business. In terms of cost/square foot, the human asset is approximately 10 times the total building operating cost and nearly 100 times the energy cost. No matter how it is expressed, when a business can give rise to personal productivity, the business wins.

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

In Dr. Lohr's study participants were 12 percent more productive and less stressed than those who worked in an environment with no plants. The study took place in a simulated office setting. Common interior plants were used in a computer laboratory with 27 computer workstations. A computer program to test productivity and induce stress was specifically designed for these experiments which incorporated one hundred symbols and time-measured readings of participants' reactions. They were presented in the same randomized sequence to each subject. Blood pressure readings recorded while using the program confirmed the program was effective in inducing stress.

Emotional states and pulses were also measured during the experiment. Plants present and plants not present were the only variables that participants experienced. When plants were present, they were positioned so that a cluster would be in the peripheral view of each subject sitting at a computer terminal, but would not interfere with the subject's activity. In addition to demonstrating significant increases in their post-task attentiveness, subject reaction time in the presence of plants was 12 percent faster than those in the absence of plants.

The results indicating an influence of plants on blood pressure are consistent with research conducted by Dr. Ulrich. Visual exposure to plant settings has produced significant recovery from stress within five minutes.

As many performance based incentives to enhance employee productivity also give rise to stress, this rare capability of raising productivity *while* lowering stress is extremely valuable. Progressive human resource executives are finding they cannot afford to ignore such an efficient method of human asset management.

### **2. Interior plants lower O&M (Operations and Maintenance) costs while contributing to 'Green Building' design considerations.**

Plants cool by a process called transpiration, which, according to the U.S. Department of Agriculture, decreases air temperature in offices by ten 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 30-60 percent. Similarly, the same study

## 6 BENEFITS OF INTERIOR LANDSCAPING-2

concludes that in an 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 become damaged and crack. When the relative humidity is too high the condensation of windows and exterior walls can result in costly structural damage.

According to the International Society of Arboriculture, the net cooling effect of one young, healthy tree is equivalent to ten room-size air conditioners operating 20 hours a day. According to literature from the Associated Landscape Contractors of America, proper selection and placement of plant materials can lower heating and cooling costs by as much as 20%. These statistics have become an important tool for today's environmentally efficient corporate designers and facility managers such as U.S. Energy Systems Inc. This growing energy company is enthusiastically endorsing the use of indoor plants. Susan Odiseos, V.P. of Corporate Communications states "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." She continued "interior plants are a solid return on investment and a MUST for any corporation concerned with sustainable, 'green building' solutions."

The advantages of outsourcing interior landscaping services are readily apparent and can be measured in visual and bottom-line advantages to the property. Richard Greninger, managing director of CarrAmerica Realty Corporation (with 326 buildings in fifteen markets) claims that through outsourcing these services, "live plantscapes have become a value-added distinguisher, defining our first class brand identity."

### **3. Plants in the workplace attract, retain and enhance attitude of today's selective employee.**

Surveys conducted by Unifi Network, Westport, Conn. report numerous factors that assist in managing today's competitive workplace market. The data indicates that in order to attract and retain top employees, the workplace must include aspects of what inspires employees during "off" time. Gallop polls indicate that two thirds of the American working force cite gardening as their favorite hobby. Perhaps this "green thumb" passion explains *why* humanizing the workplace with green plants is a highly effective method to promote employee satisfaction. Copious studies such as those conducted by Dr. Ulrich and Dr. David Uzzell from Oxford University verify the positive effect plants have on employee perception and disposition. In the final analysis, marketing research (Krome Communications, 2000) confirms that employee attitude and retention is a top incentive for corporations to continue interior landscape contracts.

### **4. 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 Award"* (Building Owners and Managers Association), "appearance and condition of the property" is a top category of evaluation among tenants. Similarly, studies out of England's Oxford Brookes University reinforce that while indoor plants continue to cost less than most alternative corporate décor choices, they offer a guarantee of positively enhancing perception and contributing to well being. The same set of studies conclude that people (clients or employees) perceive a building with interior planting as more expensive-

## 6 BENEFITS OF INTERIOR LANDSCAPING-3

looking, more welcoming and more relaxed. Conversely the studies prove that people's 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 throughout Brookfield's property "provide a critical elegance to this bustling business setting of 40,000 corporate employees."

### **5. It's finally possible to have an energy efficient building *without* "Sick Building Syndrome!" Plants help with bottom line savings on mounting sick leave expenses.**

"Sick Building Syndrome" develops into a serious and expensive liability when these toxins become concentrated inside sealed office buildings. NASA reports that the syndrome is widespread in these energy efficient buildings. The problem is that these sealed energy efficient buildings have less exchange of fresh outdoor air for stale indoor air. This causes higher concentrations of toxic chemicals in indoor environments, brought about by emissions from a great variety of building constituents. As energy efficient construction becomes absolutely essential, 'green building' designers have become justifiably concerned about this indoor air quality (IAQ) dilemma. Perhaps one of the most troubling reports comes from research published by Bio-Safe Incorporated (New Braunfels, Texas). Their data confirms that energy efficient, sealed office structures are often 10 times more polluted than the air outside!

Research shows that plant-filled rooms contain 50-60 percent fewer airborne molds and bacteria than rooms without plants. For almost twenty years Dr. Billy C. Wolverton and his aids in the Environmental Research Laboratory of John C. Stennis Space Center have been conducting innovative research employing natural biological processes for air purification. "We've found that plants have been found to suck these chemicals out of the air," he says. "After some study, we've unraveled the mystery of how plants can act as the lungs and kidneys of these buildings." The plants clean contaminated office air in two ways. They absorb office pollutants into their leaves and transmit the toxins to their roots, where they are transformed into a source of food for the plant. In his book, *How to Grow Fresh Air: 50 Houseplants That Purify Your Home or Office* (Penguin, 1997), Dr. Wolverton details exactly how plants emit these water vapors that create a pumping action to pull dirty air down around the roots, where it is once again converted into food for the plant.

Wolverton has found that plants are especially needed in office buildings in which 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." This is an area of six to eight cubic feet where you spend most of your working day. Jay Naar, author of *Design for A Livable Planet*, suggests 15 to 20 plants are enough to clean the air in a 1,500 square foot area.

### **6. Plants help reduce distractions due to office noise.**

Strategically placed, plants quiet down an office. A small indoor hedge placed around a workspace will reduce noise by 5 decibels. The positive contribution of interior plants to sound absorption has been well documented in numerous studies including the work done by Dr. Helen Russell, Oxford, England and David Uzzell, University of Surrey, England. Although it would be difficult to measure the cost of productivity loss due to office noise pollution, one doesn't have to go far to find examples! Almost anyone who works in an

## 6 BENEFITS OF INTERIOR LANDSCAPING-4

office can give account to being “annoyed” into a taking a break due to the common audible elements of a busy office. According to the Associated Landscape Contractors of America, landscape professionals are replacing stale cubicles for “tree walls” and other innovative plant groupings to reduce this costly “decibel distraction factor.”