

# FACTS

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## FOUR BOTTOM-LINE BENEFITS OF INTERIOR OFFICE PLANTS

While every company and office set up is radically different, Plants at Work has assembled new research indicating that an adequate installation\* of interior plants can deliver bottom-line benefits and is a solid return on investment.

1. Plants can improve tenant occupancy and retention by 17%.

Based on various case studies, including a scientific case study on the Opryland Hotel performed by Michael Evans, Former Associate Professor of Hotel, Restaurant and Institutional Management of VA Polytechnic Institute and State University.

For more information see:

<http://www.plantsatwork.org/pdf/opry.pdf>

2. Findings indicate that an adequate installation of interior plants in a modern, sealed office structure could save U.S. companies \$129 billion via contributions to improved indoor air alone.

Researchers William J. Fisk and Arthur H. Rosenfeld, Lawrence and Berkeley National Laboratory (LBNL), Berkeley, CA found that U.S. Companies could 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. The same study verified that 40% of all sick days are IAQ-related. The work of NASA scientist Dr. B.C. Wolverton and others has clearly indicated that interior plants reduce the responsible airborne molds in a sealed office environment by as much as 50%.

For more information see:

<http://www.ri-research.com/tropplan/EnvBen/airqual/frameset.htm>

<http://www.ngia.com.au/np/2001no02/01-02.html>

<http://www.wolvertonenvironmental.com/air.htm>

<http://www.buildings.com/Articles/detail.asp?ArticleID=511>

<http://www.wsu.edu/~lohr/hih/air/>

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3. During recent studies, interior plants have enhanced worker productivity by 12%. Depending on the size of a company's labor force, an increase in productivity of this measure could translate into millions in final revenue earnings.

It is widely known through the respected research done by Dr. Roger S. Ulrich of Texas A&M University, Helen Russell, Surrey University, England and the recent studies conducted by Dr. Virginia Lohr of Washington State University that an adequate installation of plants\* can significantly lower workplace stress, decrease fatigue and enhance productivity by as much as 12%. Human assets have proven to be the most valuable and expensive asset of any business. In terms of cost per square foot, the human asset is ten times the building operating cost and nearly 100 times the energy cost.

For more information see:

<http://www.wsu.edu/~lohr/hih/productivity/>  
<http://www.plantsatwork.org/pdf/perception.pdf>

4. Proper selection and placement of plant materials can lower heating and cooling costs by as much as 20%.

According to the International Society of Arboricultural, 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, in addition to providing shade from solar radiation and cutting wind speed, plants reduce air temperature through evaporation and transpiration.

For more information see:

<http://www.plantsatwork.org/pdf/economic.pdf>  
<http://www.plants-for-people.org/ekonomy/o.htm>

\*The number of plants is dependent on many factors. In every room, different qualities of air can be found, which are dependent on the location of the building, the quality of the outside air, the type and capacity of the ventilation system, the quantity of air let into the room, the air temperature and the relative air humidity, the type of control system, the capacity of the filter system, the service span of the system, the regular cleaning of the office and the detergents used, the office furniture and equipment, the bringing-in and distribution of harmful substances, the number of employees in the office and the type of work. Taking all of these factors into consideration, it is recommended to use as many plants as possible, in harmony with the given design, in order to achieve the best possible improvement of the environmental conditions. It has been found that 15 to 20 plants are enough to clean the air in a 1,500 square foot area.

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