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### ***Interior Plants in Offices Are Vital to Human Comfort & Health***

RESTON, VA--Interior plants are vital to maintaining the approved human comfort range for relative humidity in offices. A study conducted by Washington State University determined that when plants were placed in offices, the relative humidity increased significantly and actually stabilized at the recommended range of 30 to 60 percent. In the absence of plants, the relative humidity in offices was slightly below the recommended range for human comfort and health.

The relative humidity of air inside office buildings is often found to be extremely low, especially in the winter when buildings are being heated. This occurs because relative humidity drops as air is heated if no supplemental moisture is added. Relative humidity is defined as the amount of moisture in air and is expressed as a percentage of the maximum amount the air is capable of holding. Warm air can hold more water than cooler air.

Plants contributed to interior humidity by adding moisture to the air through transpiration and secondarily through evaporation from growing media and drainage dish surfaces. The relative humidity in the offices stabilized because plants naturally reduced their levels of transpiration when relative humidity was high and increased the rate of transpiration when lower relative humidities were present. The study documented that plants did not contribute excessive amounts of moisture to any of the interior spaces studied.

Researchers recorded the relative humidity of office space in a building with a central, forced air system in the presence and absence of plants. Measurements were taken during four consecutive winter months. Once each week, plants were added or removed as required. Humidity and temperature were recorded every six hours. A variety of plant species were used. Air exchange rates were estimated to average one to two air changes per hour.

Relative humidity inside buildings should be maintained to prevent damage or harm caused by high or low levels of moisture. Buildings are routinely designed to remove humidity by venting interior air to the outside. Without the exchange of air, interior relative humidity would rise to saturation because there are many sources of moisture in most buildings: people release moisture through their skin, as they breathe, and from cooking and washing.

Most buildings do not have systems to maintain humidity within desirable ranges. Those with systems often have problems with humidifiers that become contaminated by microorganisms that can cause human disease. When the relative humidity of interior air is too low, workers develop colds and virus infections more frequently. Materials are damaged. For example, wood will dry out, and through variations in humidity, will crack and creak.

Similarly, high relative humidity in buildings causes numerous problems. The condensation of windows and exterior walls in winter can result in structural damage. These

repairs as well as others are costly. Molds and mildews grow when relative humidity exceeds 75 percent, and dust mites multiply faster in environments with higher relative humidities. Again, workers exposed to unhealthy conditions become more vulnerable to disease and illnesses.