



GEORGIA TECH VIDEO:

FRESH AIR AND ENERGY WHEELS: BETTER AIR QUALITY WITHOUT INCREASING BILLS

February 4, 1992

Improving air quality inside buildings may not have to result in skyrocketing energy bills, a Georgia Institute of Technology study suggests.

Researchers led by Dr. Charlene Bayer, Georgia Tech Research Institute (GTRI) principal research scientist, have found that increasing levels of fresh air in buildings does indeed improve air quality. The researchers also confirmed that using

a specific type of energy recovery system to prepare air for building interiors does not transfer pollutants and helps keep air heating and cooling costs low.

VISUALS AVAILABLE

*Researchers using various instruments to measure air quality.

*Energy wheels working inside the ventilation system of Eleven Hundred Peachtree Street.

*Interviews with Dr. Charlene Bayer, principal research scientist; and additional sound bites with John Fischer, energy recovery and dehumidification technology consultant, SEMCO.

Both these findings are important in light of growing awareness of 'sick building syndrome,' physical symptoms linked to poor air quality and lack of thorough operation and maintenance procedures for keeping buildings clean. The syndrome may manifest itself as nasal problems, headaches, scratchy eyes, sinus infections and exhaustion experienced only in the office at certain times of day. Those

experiencing sick building syndrome may notice dust or unusual odors permeating their work spaces.

Bayer's group tested a new indoor air quality standard set by the American Society of Heating, Refrigeration and Air Conditioning Engineers and recently adopted as part of some building codes. The standard requires ventilation systems of

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new and renovated office buildings to provide 20 cubic feet of outside air per minute per person (cfm), up from just five cfm under the old standards for buildings that don't allow tobacco smoking.

A study of air quality at the Eleven Hundred Peachtree Street Building, a new 27-story office building in Atlanta, showed that allowing the greater amount of fresh air to circulate reduced levels of volatile organic compounds (VOCs) in an occupied area by 40 percent; lowered carbon dioxide concentrations by 33 percent; and reduced formaldehyde concentrations by 24 percent. Formaldehyde and VOCs are irritants that may cause allergic reactions in sensitive persons and can be released by office equipment, furnishings and cleaning products.

The researchers also found that a certain type of energy recovery system -- a method of capturing energy from exhaust air leaving a building -- does not transfer pollutants. The total energy recovery system tested was developed by SEMCO Manufacturing Co. of Columbia, Missouri and uses energy "wheels" that transfer energy as they alternately pass through streams of incoming and exhaust air. The "wheels" are coated with a molecular sieve material that does not allow pollutants to move from exhaust air to incoming air. Molecular sieves have microscopic pores that sort materials according to the sizes of the molecules that make them up.

Recognizing the need for energy conservation and indoor air quality, Carter and Associates (owner), Sunlink Corporation (owner), and Rosser Fabrap International (engineer) incorporated the new ASHRAE ventilation requirements and the molecular sieve energy recovery design into the Eleven Hundred Peachtree Street Building.

Those who think they may have air quality problems in their offices can encourage managers to investigate and correct the problem with a reputable company specializing in air quality inspections. In the meantime, one can avoid or minimize sick building syndrome by not covering air diffusers or vents -- cutting down on air flow into a space increases pollution.

Avoiding spraying pesticides in an area, minimizing the use of heavy perfumes and keeping a space clean, neat and dust-free also can help keep air quality -- and the perception of air quality -- high.

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If you are interested in reporting on this research and need more information or missed our Tuesday, February 4, 1992 satellite feed, please call Toni Mills at (404) 894-2452 or Lea McLees/John Toon at (404) 894-3444. Dr. Bayer can be reached at (404) 894-3825. Our satellite feeds are scheduled 3 to 3:15 p.m. each Tuesday through May 26, 1992 at coordinates Westar 5, Transponder 24, Audio 6.2/6.8.