Defining Acceptable Office Equipment for Green Indoor Environments

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Introduction

Acceptable indoor environmental quality is a necessary requirement of manufactured products that are placed and used in today's office buildings, schools, public facilities, and personal residences. On a global basis, indoor air quality is one of the top three environmental issues facing all countries and all people. Toxic chemicals, particles, and microbes that are released by products into the indoor environment can contribute to human irritation, discomfort, and potentially long term health consequences to those exposed. These human effects can lead to excessive medical costs, significant loss of productivity, and undesirable litigation. Office equipment is known to be contributors of indoor pollution such as respirable particles, volatile organic compounds such as styrene and formaldehyde, and ozone. Sources of these include construction materials, electronic and heating processes, inks and toners, papers and transparencies, plastics, and cleaning solvents. Manufacturers of office equipment, in their proactive efforts to design for the environment, include indoor air quality as an important part of their product stewardship. Eco-criteria have been established for the definition of acceptable office equipment and qualification of its positive performance in the indoor environment.

Eco-criteria are based on the performance of operating office equipment and acceptable contributions of certain pollutants. Acceptable pollutant emissions of respirable particles, formaldehyde, styrene, and total volatile organic compounds are based on existing health and safety data with some consideration for protecting sensitive people from irritants and odorants. The primary measurement technique, environmental chamber technology, has been validated to test products under realistic use conditions and to determine emission rates of pollutant release. This data can be used in exposure computer models to predict and estimate potential human exposures, and to compare product data with prescribed eco-criteria. This measurement technology has been accepted on a global basis and ISO documentation is being prepared as a joint US/European effort

Current eco-criteria as being used in the United States' GREENGUARD certification Program will be presented. In addition, data will be presented to illustrate how US and European manufacturers are: 1) incorporating this important environmental attribute in the design and manufacture of environmentally preferred product, and 2) how manufacturers have improved product performance for indoor environmental quality.

Biography

Dr. Marilyn Black, founder and Chief Scientist of Air Quality Sciences, Inc. is a leading expert in characterizing indoor air pollutants and their sources, with more than 18 years of experience. She had directed numerous research studies involving indoor air pollution and human health effects, mold growth in buildings, and the impact of indoor furnishing on indoor pollutant levels. Dr. Black wrote the state of Washington indoor air quality standards for new construction, established the emissions test protocols for carpet and flooring products, and established the GREENGUARD Program for the selection of environmentally preferred, low emitting products. Dr. Black holds Ph.D., M.S., and B.S. degrees in chemistry and environmental health. She has presented numerous training seminars in indoor air quality at EnvironDesign, NEOCON, and AIA's National Convention.