

Culmination of 20 years of green, energy savings research at MCI

Research at MCI over the past 20 years by Dr. Marion Mecklenburg and his international team of collaborators has shown that most cultural heritage materials are much more resistant to temperature and humidity changes than generally thought. As a result of this research, in 2004 the Smithsonian adopted new guidelines of 45% RH +/- 8% RH and 70°F +/- 4° for our 640+ buildings, including 19 museums. These guidelines permit most collection and building spaces a greater flexibility in temperature and humidity fluctuation over the year than the “common wisdom” versions that had previously been adhered to for over four decades. The new guidelines have been in place for over five years and have resulted in dramatic energy cost savings (about 17% per year); less condensation on walls in the winter, and therefore less wear and tear on the building envelope; and no known problems for any object, artifact, or collection. (Note: Collections, and individual objects, that conservators recommend be maintained with tighter controls than the new guidelines are still accommodated within the new guidelines.)

Interest in Europe about Dr. Mecklenburg’s work has grown tremendously in recent years. He has helped create Ph.D. programs and taught extensively in universities in Barcelona and Valencia, Spain; as well as teaching in Copenhagen, Denmark; Torino, Italy; and Gotland, Sweden, where his research is prompting rethinking their museum climates. Now North American museum directors, conservation scientist, and conservators are reviewing and accepting Dr. Mecklenburg’s guidelines.

- Dr. Mecklenburg presented a talk at the DC Metro Area Chapter of the IAMFA [International Association of Museum Facility Administrators] Quarterly meeting on April 28, 2010 at NMAI. Dr. Mecklenburg discussed research approaches taken to determine allowable ranges of temperature and relative humidity in museums in his talk “Determining the Acceptable Ranges of Relative Humidity and Temperature in Museum and Galleries.” The audience included facilities managers, engineers and other people with vested interests from the SI, the National Gallery, The Walters Gallery, the National Archives, and the Library of Congress.
- Dr. Mecklenburg, Dr. Robert Koestler, and Dr. Paula DePriest participated in a meeting “Rethinking the Museum Climate” held at the Museum of Fine Arts, Boston on April 12-13, 2010. More than 65 representatives from major North American museums and conservation programs attended, with written input of those from the UK. After two days of presentations and discussion the group was nearly unanimous in approving a proposal with 16-25°C (59-77°F) and 40-60% RH ranges as acceptable for the majority of cultural materials that are on loan between museums. [Please note that the Smithsonian comes out on the conservative side of the proposed environmental guidelines with its current 70°±4°F and 45±8% RH.] The statement, supporting an earlier statement by the Bizot Group (also known as the International Group of Organizers of Large-scale Exhibitions), will go to an American Institute for Conservation (AIC) task force and to the National Museum Director Conference (NMDC) for further discussion. The session ended with an appreciation of Dr. Mecklenburg's ground breaking work.
- Dr. Marion Mecklenburg was the opening speaker and a member of the discussion panel at the international workshop “Allowable Microclimatic Variations for Polychrome Wood,” February 18-19, 2010 in Oslo, Norway. The workshop summarized the findings of the multi-year research program *COST ACTION IE0601 – Wood Science for Conservation of Cultural Heritage* to determine the effects of heating historic churches in Poland and Norway that had no prior climate controls. In addition, he made a presentation “Structural response of painted wood to variations in relative humidity and temperature.” The workshop was sponsored by EEA Grants (Iceland, Liechtenstein, and Norway), Norsk Institutt for Kulturminneforskning (NIKU), Institute of Catalysis and Surface Chemistry (ICSC), Polish Academy of Chemistry, and COST ACTION IE0601.

Related topic, but not MCI:

- The American Institute for Conservation of Historic and Artistic Works (AIC) is partnering with the International Institute for Conservation of Historic and Artistic Works (IIC) to present a roundtable discussion “The Plus/Minus Dilemma: The Way Forward in Environmental Guidelines” as part of the AIC Annual Meeting in Milwaukee, WI on May 13, 2010. The program notes that “Given the looming energy crisis, the global economic downturn, and the rising awareness of green technology equating to good stewardship of our natural resources, responsible and efficient environmental control has become essential.”