

AIR POLLUTION

Blades, Nigel; Kruppa, Declan and Cassar, May. Development of a Web-based software tool for predicting the occurrence and effect of air pollutants inside museum buildings. *13th triennial meeting Rio de Janeiro, 22-27 September 2002 : preprints*. James & James, London (2002), pp. 9-14.

This contribution describes the ongoing development of a software tool to help museums, galleries, archives and libraries deal with air pollution damage to collections caused by pollutants from the external environment, such as sulfur dioxide, nitrogen dioxide, and ozone. The tool provides information, advice, and case studies on pollution damage and has at its core a computer model to predict the performance of buildings in controlling external pollutants. It will estimate concentration ratios of indoor to outdoor pollution from a range of building parameters, such as ventilation strategy and rate, interior layout, and surface finishes. The software tool is being developed in close cooperation with museum partners and other potential users, such as architects and engineers. On completion, the software tool will be available through a freely accessible Web site. (AATA)

For software tool see: <http://www.ucl.ac.uk/sustainableheritage/impact/index.htm>

Dahlin, Elin; Gr̃ntoft, Terje; Rentmeister, Sara; Calnan, Christopher; Czop, Janusz; Hallett, Kathryn; Howell, David; Pitzen, Christoph and Sommer-Larsen, Anne. Development of an early warning sensor for assessing deterioration of organic materials indoor in museums, historic buildings and archives. *14th triennial meeting, The Hague, 12-16 September 2005 : preprints*. James & James, London (2005), pp. 617-624.

Discusses results from laboratory and field testing of an early warning (EWO) sensor developed in the EU-funded MASTER project (EVK-CT-2002-00093). Laboratory testing shows a clear response to low concentrations of the single contaminant gases, NO₂, O₃, and SO₂. In a comprehensive European field test program, a corresponding effect to that seen in the laboratory was observed for indoor NO₂. The main aim of the MASTER project is to develop a preventive conservation strategy including an early warning system, with an EWO sensor, for the protection of organic objects. (AATA)

See also: http://www.nilu.no/master/project/project_summary.html

Grzywacz, Cecily M. *Monitoring for gaseous pollutants in museum environments. Tools for conservation.* The Getty Conservation Institute, Los Angeles (2006).

Cultural property inside museums--textiles, works of art on paper, pigments, and leather bindings, for example--can be threatened by outdoor pollutants, such as automobile exhaust fumes, and by pollutants generated from indoor sources, such as gases from cleaning products. Indoor-generated pollutants generally pose the greatest threat to artifacts because of their continuous and close proximity. The focus of this volume, based on the Getty Trust Museum Monitoring Project as well as case studies, is environmental monitoring for common gaseous pollutants, with emphasis on passive sampling. The volume begins with an overview of the history and nature of pollutants of concern to museums and a discussion of the challenges facing scientists, conservators, and collections managers seeking to develop target pollutant guidelines to protect cultural property. Subsequent chapters address passive sampling, the planning and conducting of an air quality monitoring program, and the interpretation of results and mitigation considerations. The appendices are comprehensive compilations of the major gaseous pollutants encountered in museums, their sources, and the at-risk materials. (AATA)

Tétreault, Jean *Airborne pollutants in museums, galleries and archives risk assessment, control strategies and preservation management* Canadian Conservation Institute, Ottawa (2003), 168 p.

This book provides a wealth of qualitative and quantitative data to identify, assess, and control key airborne pollutants (acetic acid, hydrogen sulfide, nitrogen dioxide, ozone, dust, sulfur dioxide, and water vapor) in indoor museum environments. Ammonia, carbon dioxide, formaldehyde, oxygen, and volatile organic compounds (VOCs) are also briefly discussed. Exposure-effect relationships are described and quantified based on "No Adverse Effect Levels" (NOAELs) and "Lowest Observed Adverse Effect Doses" (LOAEDs). Control strategies at the building, room, and enclosure levels are presented that avoid, block, dilute, filter, or absorb pollutants, reduce reactions to pollutants, or reduce exposure time. Response strategies and monitoring are discussed. A preservation management (risk assessment) system is presented to assess and compare pollutant risks; establish guidelines for control strategies; establish guidelines for assessing how well collections are protected; and provide cost benefit analysis in relation to the museum's goals and policies. (AATA)