

CULTURAL HERITAGE CONSERVATION SCIENCE AND SUSTAINABLE DEVELOPMENT

LES SCIENCES DE LA CONSERVATION DU PATRIMOINE Et le développement durable Acquis, recherche, innovation

PREVENTIVE CONSERVATION STRATEGIES DURING MUSEUM CONSTRUCTION PROJECTS

Fraunhofer Institute for Wood Research

Project content and aim

The project targets on the implementation of preventive conservation issues into practice. Depending on the specific needs and requirements of each museum site, different priorities have been set within the project.

The main focus of the renovation work at the HAUM is to return the listed building into its previous condition according to the original architectural design. New exhibition galleries including interior decoration and furnishing have therefore to be planned. Hence, a special focus is on the showcase design which has to meet both architectural and conservation requirements. In order to obtain pollution levels within the showcases as low as possible, materials suggested by the architects have been emission tested. Based on these results, recommendations were developed and alternative materials proposed. The success of the preventive measures will be examined after completion of the construction works by on-site emission measurements.

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Introduction

The Fraunhofer WKI performs a two years project funded by the *Deutsche Bundesstiftung Umwelt (DBU)* to integrate preventive conservation aspects at an early stage into museum construction work. Two museums with different collections have been accompanied.

The Herzog Anton Ulrich-Museum (HAUM) in Braunschweig, opened in 1754, belongs to the oldest art museums throughout Europe. Important cultural objects from the medieval to contemporary times of nearly all artistic domains are presented on 3600 m² exhibition space. In contrast, the *Domschatzkammer zu Minden* is a small-sized museum for sacred art mostly from the middle ages, which was founded in 1980. The presentation includes objects which were used for the church service. Concerning the Domschatzkammer zu Minden a more comprehensive approach was needed as the current small exhibition with 62 m², which is mainly run by volunteers, shall be enlarged and professionalized. Thus, a comprehensive research including climatic parameters, lighting and pollutants has been performed to formulate specific preventive conservation demands. The defined parameters are checked in a model room and two showcases to simulate the later interior equipment. The monitoring results will give important advices concerning the environmental conditions in the new exhibition before opening it to the public.

In both museum collections, object damages induced mainly from lighting, pollution and climate fluctuations can be observed. In order to gain knowledge about the sensitivity of damaged materials towards further pollution impact or fluctuating environmental conditions, corrosion tests are currently performed. Copper, lead and silver, which are known to be sensible against pollutants, are exposed to formic acid, acetic acid and formaldehyde. Changes in the corrosion layers depending on pollutant concentrations and climatic parameters will be observed.





The project results are intended to provide practically oriented assistance in creating procedures and in decision making during museum building projects taking into account architectural and conservation requirements as well as budget restrictions.



Image on top: HAUM historically building – renovation measure (© C. Cordes) Image below: Domschatzkammer zu Minden – current situation (© A. Weigelt)



Arm reliquiar of Saint Margaret – pollution damaged (© A. Freund)

Desiccator with metal coupons inside – corrosion test (© M. Lingnau)

