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# Office presentation ProDenkmal

ProDenkmal have been examining and planning heritage projects for over 20 years with the emphasis being the restoration and execution of manual conservation works. With around 1,000 finished objects to date, we have continually focused on handling historic matter in the interest of conservation.

Issues raised by working in the interest of restoration and conservation on a historic monument naturally require careful planning and coordination, and unforeseen difficulties can often arise. Likewise, with regard to stable cost calculations, so-called 'small issues' and the imperative for close attention to detail may influence significantly the final outcome of a project in terms of aesthetics and conservation value.

Furthermore, even the best conservation and restoration concept can be jeopardised if it is not grounded in expert knowledge and carefully monitored by means of suitable procedures, from the start of the bidding process through to the handing over of the object after completion.

Overseeing a complex and large-scale heritage project to completion can only be successfully achieved by a strong interdisciplinary team. In this respect, and unique in Germany, ProDenkmal have been uniting all of these required qualities under one roof. Staffed with a wide variety of experienced specialists and experts in their respective fields, we are in a position to achieve any such set of goals. As there is close interaction between our conservators, heritage-architects, engineers, scientists (using our in-house laboratory), art historians and in-house IT department at all times, it is possible to adopt the requisite comprehensive and professional approach. As a consequence, the paths of processing all relevant information within the team remain short.

The following materials and techniques are within our remit:
Natural stone (granite, vulcanite, metamorphite, sand stone, lime stone), artificial stone, brick tiles, terracotta, wood, metal, mosaic, terrazzo, mortar, plaster, colour frames, glazing, emaille, glas, paper, wall paper.

With an increase in size and number of objects, establishing a well-structured and centrally available method of data administration, which is both safe and relevant for the future, is of paramount importance. Since 2000 the IT department of ProDenkmal has therefore been developing the Heritage Information System (DIS), relating to the areas of restoration, conservation and archaeology, in order to fulfill any demand for expert and specific object knowledge that may arise in day-to-day practice.
The DIS forms the ideal basis for the preparation, control and documentation of the management, care and maintenance of heritage monuments. Integral to this is the so-called management plan which helps ensure the adequate handling of the finished historic monument, in particular in view of the delicate historic surfaces.

The Work of ProDenkmal follows international standards and guidelines of conservation and restoration (UNESCO, ICOMOS, Charter of Venice and other agreements). The main approach is that preservation of the original substance is the guiding principle for all measures and having regard for any overlying history of alteration. The aim is to find practicable solutions based on a modern approach, while at the same time maintaining respect for the integrity of the historic building.

***Restoration planning of monuments and archaeological objects***

ProDenkmal supports building and restoration projects for all types of cultural monument.
The restoration aim for historical monuments under protection is the responsible treatment of the object and to the greatest possible extent the preservation of its substance and significance.

These aims can only be fulfilled if a professional, step-by-step planning is carried out following conservation and technical demands. This procedure alone ensures the feasibility of reliable restoration work at an optimal cost. Planning the restoration work starts with a detailed research into the history of the building, its techniques and materials, by using research, examinations and scientific analysis. Planning and monitoring of samples and tests are necessary to develop restoration techniques, to answer technical questions and judge future aesthetic effects.

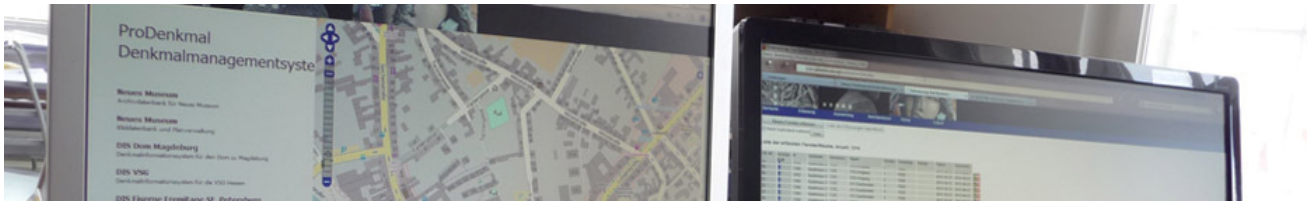
The restoration of historical buildings in the last thirty or forty years has made use of new repair and conservation materials, which promised to be more effective than traditional materials. The consequence of this development in many places is a juxtaposition of different materials, which, from a conservational point of view, has not always proved successful..

In order to determine a reliable restoration concept, the properties of the used materials must be either known or researched. Often the only alternative is to attempt to reverse former restoration and conservation measures. The original building substance is generally the starting point in the search for suitable restoration and conservation materials. For example, mortars are selected according to their properties, which must be adjusted to the original substance. The adjustment is made either by the reproduction of historical mortars or by the use of modern products. Each decision must be made individually from case to case after considering the individual requirements of the object. In addition to the material aspect, any cause and development of damage phenomena (salt concentration, humidity etc.) as well as exposure and the climatic environment must be taken into account in assessing the specific nature of an object.

A close cooperation of partners and decision-makers in all phases of the project is the base for a successful restoration planning. The aim is to plan the "long run" with regard to sustainability by using traditional materials and techniques. To this end it is essential to monitor all implemented measures. Of course all measures should be reversible and assure the possibility of further repair in the distant future.

- Preliminary survey:
  - assessment of the extent of historical building fabric and its state of conservation: detailed mapping of materials and damages of all relevant surfaces via use of CAD.
  - damage analysis
  - experimental technical investigations for preserving the historic construction structures
  - development of restoration and conservation concepts
  - budget planning
- Planning:
  - mapping of differentiated measures, evaluation of number and size by means of a database
  - planning and monitoring of samples and tests
  - catalogue of historic materials and restoration techniques
- Tender and award:
  - Suitable restorers are the true guarantors of a successful execution of the planned measures. Therefore the description of the intended restoration work, drawn up in service descriptions, must be done as precisely as possible.
- Supervision of all restoration measures:
  - organization and coordination of the construction progress
  - supervision of time scheduleobject monitoring and quality assurance supported by scientific analysis

***Heritage Information System - Digital room book***




With an increase in size and number of objects, establishing a well-structured and centralized system of data administration with local access, which is both safe and relevant for the future, is of paramount importance. Since 2000 the IT department of ProDenkmal has therefore been developing the Heritage Information System (Denkmal Informations System - DIS), relating to the areas of restoration, conservation and archaeology, in order to fulfil any demand for expert and specific object knowledge that may arise in day-to-day practice.

The DIS forms the ideal basis for the preparation, control and documentation of the management, care and maintenance of heritage monuments. Integral to this is the so-called management plan which helps ensure the adequate handling of the finished historic monument, in particular in view of the delicate, historic surfaces. The contents are as follows:

- Care and maintenance plan
- Techniques and materials to be inspected following a rota
- Monitoring concept
- Inspection

Performance/advantage over conventional network database systems:

- Communication between all project participants facilitated by a shared standardized platform in the Internet
- Individual access regulations for users
- No software installation or maintenance required at user areas; only an Internet browser is necessary
- Data is stored in a standardized, relational data base format capable of being exported to a secure XML format
- The exclusive use of open source technology requires no licence fees
- Structured survey of the architectonic building substance
- Room book navigation follows the lines of the actual building structure
- Data of other modules are easily integrated into the room book structure

***Ascertainment of basics***

The basis for all structural measures on historic monuments is comprehension of the history of the building as well as a complete documentation of the associated assets. The professional education of our staff (art historian and architects with specific expertise in historic structures and heritage conservation) and the experience in the field of building conservation and provide a reliable basis for a successful result.

- research of archives
- survey of building
- historical building research
- development of construction phase plans
- documentation of all assets in a room book

***Museum - Transportation - Depot planning***

In addition to architectural monuments, archaeological collections are increasingly the subject of our planning. The special nature of collections in regard to their cultural significance, the variety of given materials and the often varied conservation history of many objects with corresponding signs of damage pose particular demands on restoration planning.
The restoration concept takes museological and conservationist considerations as well as the requirements of display and access into account. Ideally the objects should be in the care of a conservator from the point of their excavation and transport up to their storage in a vault or display in an exhibition. The management of large collections requires sophisticated documentation, storage and logistic systems.
The museum should offer the facilities to store each object under ideal environmental conditions to make “preventive conservation” possible.

*Documentation and Evaluation*

- Development of specific documentation systems for the museum
- Survey and evaluation of facilities, including the environment and pollutant emission of storage furnishing
- Systematic documentation of single objects and object groups
- Evaluation of restoration measures with regard to the securing, restoration, packing and transport of each object
- Determination of suitable storage conditions for each object
- Compilation of the results in a museum and/or planning database
- Evaluation of mass and quantity based on the database

*Inventory*

- Documentation and evaluation of objects and archival records with regard to their location and cultural significance
- Digitalization of existing records
  Systematic compilation of inventory-, location- and serial numbering within an efficient inventory system
- Compilation of the results in a museum and/or planning database

*Transport and Storage*

- Planning object-related packaging
- Planning the logistics of relocation
- Determination of object-related storage facilities
- Planning a storage system according to the requirements and characteristics of the collection
- Planning object-related storage facilities
- Determination of necessary lighting, climate, safety requirements

***Laboratory: On-site diagnosis***

In addition to the substance and damage survey of a monument, it is often necessary to employ diagnostic methods in order to investigate the materials in depth. Suitable investigation methods generally do not cause any further damage to the substance and provide valuable information that helps identify the cause of the damage and determine corresponding restoration measures.
The main objective is to gain knowledge about the existing materials: the composition and properties of building substances are fundamental for evaluating their suitability as building materials. The information is also needed to determine the materials used in conserving, restoring and repairing the monument. On the other hand, diagnostic methods help to recognize, quantify and evaluate the damage**.** Based on this combination it is possible to determine the restoration concept.

- Material humidity
- Salt contamination
- Materials and their deficits
- Assessment of former conservations and repair materials
- Climate monitoring
- Monitoring of active deterioration processes

***Laboratory analysis***

Scientific tests are an essential and in many cases indispensable part of restoration planning. The selection of appropriate test programmes and the in-depth analysis and interpretation of the results contribute to the success of scientific tests.
The ProDenkmal laboratory, with its many years of experience, provides services in restoration planning for both in- and external enquiries. Quality protection and control are indispensable in building operations. Common instances are the analysis of mortars, which are produced on the building site, and the evaluation of the extraction success of salt reduction measures.
Our laboratory specializes in the following research areas:

- Physical, chemical and mineralogical properties of the materials of the object
- Investigation into composition of mortars, stone, brick, etc.
- Investigation into paint and colour layers
- Material humidity / type and concentration of salt contaminations
- Examination of the remaining effectiveness of preservation and coating materials