



Delft University of Technology

Introduction

The conservation process

Quist, Wido

Publication date

2025

Document Version

Final published version

Published in

Dealing with Heritage

Citation (APA)

Quist, W. (2025). Introduction: The conservation process. In B. Lubelli, U. Pottgieser, W. Quist, & S. Rexroth (Eds.), *Dealing with Heritage: Assessment and Conservation* (pp. 9-16). TU Delft OPEN Publishing.

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

Dealing with Heritage

Assessment and Conservation

Barbara Lubelli

Uta Pottgiesser

Wido Quist

Susanne Rexroth

Table of Contents

1 – Introduction: the conservation process	9
Wido Quist	
2 – Conservation of natural stone	17
Wido Quist	
3 – Decision-making in the intervention on buildings affected by rising damp	37
Barbara Lubelli	
4 – Treatment of historic surfaces with water repellent and consolidation products: choices for intervention	51
Barbara Lubelli	
5 – Conservation of windows and glazing	73
Uta Pottgiesser & Susanne Rexroth	
6 – Conclusions	111
References	113
Colophon	120

1 – Introduction: the conservation process

Wido Quist

The heritage field in general and heritage conservation in particular present a distinct discipline: the past, present and future are constantly at odds with each other. There is a need to find a balance between preservation and renewal and there is a constant discussion about what to preserve and how to preserve it. The discussion on what to preserve takes place in the field of valuation: the statement of significance. Decisions in the field of conservation have a high degree of complexity, as they involve many dimensions and multiple actors with possibly different and conflicting objectives (e.g. conservators, local authorities, owners).

Most interventions may have irreversible effects on architectural heritage in terms of material decay and/or loss of heritage value. Therefore, decisions in this field should consider aspects inherent to both technology (related to material and construction) and values (related to intangible aspects including aesthetic, artistic and social values) and be based on knowledge of the effects of past interventions. The financial framework is also essential.

This is not always the case in the present conservation practice. In general, decision-making processes in the field of conservation lack a transdisciplinary approach necessary when dealing with the multifaceted problems involved in the conservation of cultural heritage (Avrami et al., 2000).

1.1 – Material value

There are many ways to value heritage and to determine which aspects - tangible or intangible - are of essential importance. This book does not examine these valuation methods or make a statement about a possible classification and ranking of the various indicators in relation to each other (see two previous volumes in this series: Meurs, 2016 and Kuipers & De Jonge, 2017). This book starts with the premise that the material authenticity of built cultural heritage is considered so important that all necessary effort will be made to preserve it and pass it on to the next generation(s).

In keeping with this point of departure, the obvious thing to do is to choose restoration materials carefully and in the service of the authentic material.

Decisions on what to conserve – based on the heritage significance - are frequently taken independently from those on how to conserve. This is partially due to the isolation of the research and professional fields (architectural history, building archaeology, conservation sciences and design). Even when a multidisciplinary approach is attempted, experts in the different fields are often only consulted during distinct phases of the decision process, with little interaction between them as a result. Because of the great attention paid to what to preserve in the preparatory phase of a restoration, it sometimes seems that the discussion about preserving heritage stops there. The discussion about how to preserve often takes place in a much smaller group and with far fewer accompanying discussions or are just left to the contractor (see also Quist, 2011).

Dutch context

This book especially refers to the Dutch context when it comes to materials, the legal framework and the organisation of building and restoration processes. This does not mean that the book is not applicable to other countries; it only requires a reinterpretation with regard to other materials, damage processes and legal contexts.

The relevance of the original building material and, by extension, its preservation, has always been one of the most important pillars of monument protection in many (Western) countries and certainly in the Netherlands. This is evident, for example, from formulations in the 1917 Dutch Grondbeginselen, published by the Royal Netherlands Antiquities Association (KNOB) and the Monumentenwet (1961, 1988; Monuments Act), the conservation policy of the Cultural Heritage Agency (RCE, and its legal predecessors) and the importance that the Netherlands has always attached to the 1964 Venice Charter. The principles behind the Uitvoeringsrichtlijnen (URLs; Implementation Guidelines) issued in recent years by the Stichting Erkende Restauratiekwaliteit Monumentenzorg (Foundation ERM for Accredited Restoration Quality, cf. Naldini et al. 2020) are also based on maximum conservation of the original material. There are various reasons why maximum conservation is not the same as conservation of all original material. We need only to refer to Tillema (1975) in which he illustrates, with many before and after photos of restored buildings, how much some heritage buildings have changed during restoration and how much historic building material has therefore disappeared. His analysis of restoration projects completed and of national policy, as well as the examples cited by Denslagen (1987), show that restoration principles are not always consistent with each other, and the interpretation of those principles often differs between theoretical art historians and pragmatic architects. It is also not always possible to reconcile them. This consequently regularly leads to the removal of historic building material from monuments without there being an immediate demonstrable technical need to do so.

1.2 – Transdisciplinary approach

A new, transdisciplinary approach, that enables a balanced consideration of technical-, value- and design-related aspects through the full process of heritage conservation, renovation and re-use of buildings and building parts, is needed. In this approach different disciplines are integrated in the full decision process instead of assembled in a disjointed sequence. The present organization of the Heritage & Architecture (HA) section of the Faculty of Architecture and the Built Environment of Delft University of Technology (TU Delft) concretizes this much-needed transdisciplinary approach in its educational structure: students are encouraged to integrate value and technical aspects in their design intervention on heritage buildings [FIG. 1.1].

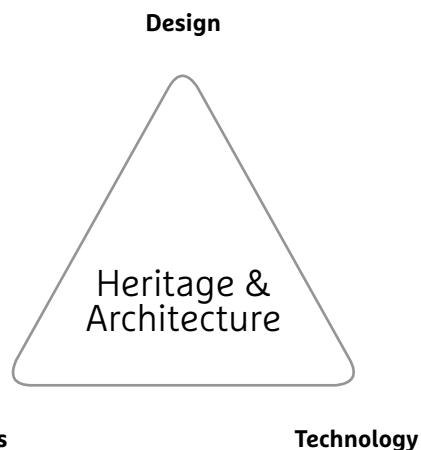


FIG. 1.1 HA-triangle reflecting the mission of the three chairs

(Digital) tools or guidelines to support the choice of interventions in built heritage through the assessment of the possible consequences of different scenarios could be a great help in conservation practice.

1.3 – Methodological context of the conservation process

The International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter), one of the results of the Second International Congress of Architects and Specialists of Historic Buildings held in Venice in 1964, is still one of the most referred to documents with respect to the preservation of historic buildings (Venice Charter 1964). It is centred around the notion of authenticity. The concepts of reversibility and minimal intervention are related to the reasoning of the Venice Charter, but unlike what is often assumed, are not a textual part of the Charter (Quist 2011). The interpretation of 'authenticity' has caused and still causes a lot of debate also in relation to previous interventions. Authenticity is also of importance in World Heritage listing and management. The Operational Guidelines for the Implementation of the World Heritage Convention (2019), mention that nominations need to meet the criteria of authenticity, referring to the Nara Document on Authenticity (Nara 1994). Many policy documents refer to authenticity in a comparable way, leaving much space for interpretation. In the NEN-EN 15989:2019 - Conservation of cultural heritage - Main general terms and definitions, authenticity is defined as the: 'extent of alignment between an object and the identity attributed to it' where object is defined as 'single manifestation of tangible cultural heritage'.

Reversibility was actually defined a few years before the Venice Charter, in the 1961 American Institute for Conservation (AIC) Code of Ethics: 'The conservator is guided by and endeavours to apply the 'principle of reversibility' in his treatments. He should avoid the use of materials which may become so intractable that their future removal could endanger the physical safety of the object. He also should avoid the use of techniques the results of which cannot be undone if that should become desirable' (AIC 1964). This was clearly defined from a restorer's point of view and doesn't

completely match the context of the Venice Charter. The main author of the Venice Charter, R.M. Lemaire (1921-1997), had a more architectural interpretation of the term, as he used reversibility in the context of being able to distinguish and eventually remove architectural additions to historic buildings (Anonymous, 1983).

Reversibility is often not achievable and, in some instances, not applicable. It is a difficult to apply the term as a guideline in conservation practice. That's why during the nineteen nineties, the concepts of compatibility and retreatability were introduced. (Teutonico et al., 1997, p. 294) defined compatibility as: 'a treated material should have mechanical, physical and chemical compatibility with the untreated historic materials under consideration. Simply stated, compatibility means that introduced treatment materials will not have negative consequences', together with retreatability, defined as 'the possibility of applying a new treatment without negative results. Simply stated, a retreatable material (or its aging) would not preclude further treatment'. As both concepts ask for the definition of tolerance for change (Kuipers & Quist, 2013), they can be very useful terms with which to discuss possible interventions and to come to a choice for a material or technology suitable for a specific situation.

Process of intervention

By critically examining restorations that have been completed, methods and techniques used, and available restoration technology, the basic conservation process can be fleshed out as consisting of the following steps [FIG. 1.2]:

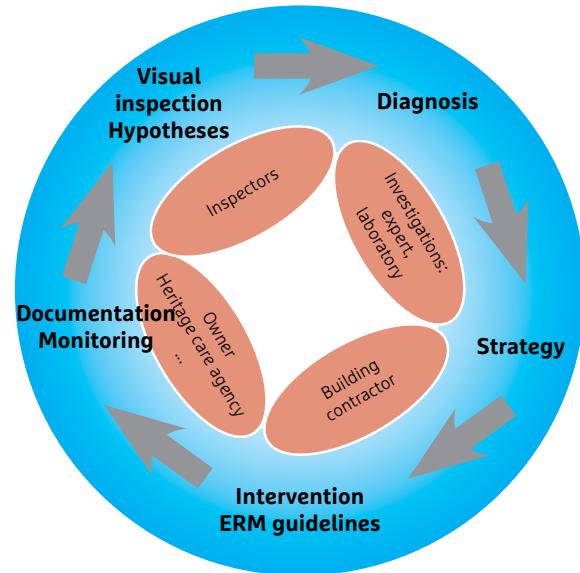


FIG. 1.2 From visual inspection to intervention and monitoring (Cf. also Naldini & Hunen 2019, p. 90)

- 1 Determining the state of conservation
- 2 Making hypotheses on possible cause(s)
- 3 Undertaking research aimed at proving or disproving hypotheses
- 4 Reaching a diagnosis of damage process(es)
- 5 Deciding on intervention strategies
- 6 Planning and carrying out interventions (maintenance, conservation...)
- 7 Documenting the whole process and monitoring the state of conservation

1.4 – Determining the state of conservation

Every intervention in a monument should start with a thorough investigation and documentation of the existing: which materials are involved and what is the technical condition? It is important that this assessment goes a step further than ‘... the natural stone is in poor condition’ and is more precise than ‘... the masonry shows frost damage’: the damage needs to be visually identified (e.g. layering) and hypotheses on its causes made (e.g. frost damaging process). It is also important that all those involved in the restoration process use the same (correct) terminology. This is not always the case in practice. In the Netherlands, a uniform approach is being developed, based on the methodology and damage definitions in MDCS (Monument Diagnosis and Conservation System, available through <https://mdcs.monumentenkennis.nl/>) and implemented in the various guidelines of the ERM and the inspection manuals of Monumentenwacht (see for example Naldini & Hunen, 2019; Naldini et al., 2019; Naldini et al., 2020; Hees & Naldini, 2020).

When describing the state of conservation, it is important to identify the material as precisely as possible. In the case of natural stone, for example, the distinction between sandstone and limestone and, where possible, the distinction between types such as Bentheim sandstone or Udelfangen sandstone can be of critical importance. Where this is not possible, a specific description can be of use. The same applies to the type of damage (e.g. sanding or flaking), the location of the damage (e.g., flat wall or cover), the amount of damage (all blocks or just a single block) and the severity of the damage (slight, moderate, severe).

Diagnosis of damage process(es) and possible causes

Before developing a proposal for intervention, it is necessary to ensure that a correct diagnosis of the damage process is made and to determine any underlying causes. Such a diagnosis can only be made if the damage found is fully documented. Often, a visual inspection will not lead to a complete diagnosis. Therefore, it will be necessary to carry out specific (material-technical) investigations in order to identify the damage process or the cause of the damage. Identification of the process and cause of damage are necessary to determine its severity and estimate its possible future development.

Determining intervention strategies

Once the damage types, processes and their causes have been identified, intervention strategies can be determined to remedy the problem and achieve the intended goal. Possible variants can be outlined, each with their specific characteristics depending on various non-material factors such as availability of materials, availability of techniques, accessibility of the site to be restored, vulnerability, historical value, level of ambition, available budget, etc..

The ERM has developed the ‘conservation ladder’ for Dutch restoration practice [FIG. 1.3]. This instrument is helpful in formulating variants for a certain intervention and in determining the most important characteristics on the basis of which a choice can be made (www.stichtingerm.nl). The ladder consists of three steps with a preferred sequence of (1) preservation/maintenance, (2) repair and (3) reconstruction, each taken while keeping the following considerations in mind:

- *Minimal intervention*
(as much as needed, as little as possible)
- *Solidity / durability*
(determining the service life of the intervention)
- *Compatibility*
- In principle the materials used for an intervention should be weaker than the original material
- Replace as much as possible with similar materials or with alike materials and/or alike techniques

Selection and implementation

A substantiated choice for an intervention strategy can only be made when the characteristics of the strategy are well defined and when the right expert opinions have been heard. Implementation can then proceed. If unforeseen situations arise during the implementation - for example, an unexpected poor technical condition - the steps described above must be followed in order to make an appropriate choice. In many instances, the process is therefore cyclical rather than linear and is influenced by the timeframe and the financial constraints of the intervention.

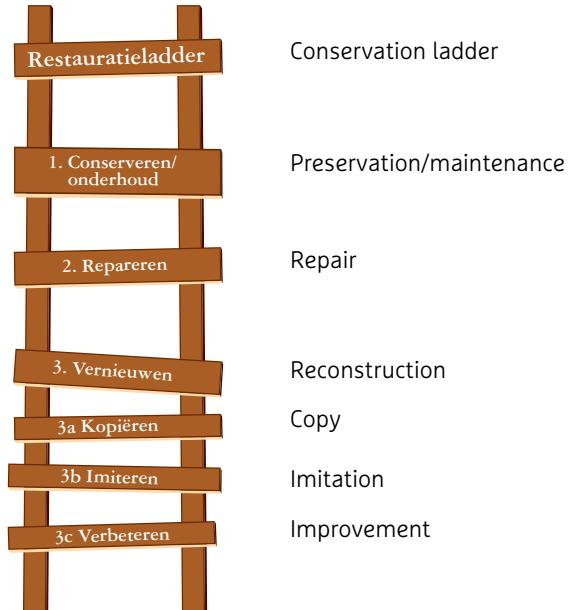


FIG. 1.3 ERM Restauratieladder (with English translation)

Documentation and monitoring

In order to close the circle of maintenance, it is important that all decisions in the process and the reasons for these decisions, including the intervention, the materials and techniques used and why they were chosen, are properly recorded so that they can be referred to at a later stage. Periodic monitoring entrusted to independent inspectors is important to properly identify the effects of the intervention. If the monitoring is well documented, this automatically lays the foundation for a new step 1 when the next intervention cycle occurs.

1.5 – Structure of the book

The complexity of making choices is addressed in this book using a number of different materials and techniques. A brief methodological context is followed by examples of approaches, developed tools and thinking models. The book thus provides examples of approaches that can be used in the integrated assessment process for the conservation and restoration of historic building materials:

- The many aspects of the conservation of historic stone is the topic of chapter 2;
- Chapter 3 focusses on the elaboration of an integrated approach to the decision process regarding the diagnosis and treatment of rising damp;
- The dilemmas and criteria for choice regarding water repellent and consolidation products will be dealt with in chapter 4;
- The challenge presented when dealing with historic window frames and glass is explored in chapter 5;

The tools, guidelines and procedures presented are not meant to dictate decisions; they rather outline the considerations that should be taken into account for sound decision-making, thereby facilitating the achievement of a well-informed agreement among the involved responsible parties. Those approaches not only will help to take the economic and technical consequences of an intervention into consideration on the short term, but will also allow to assess possible effects on for instance the monumental and social value of the building and its context and on the durability and sustainability of the intervention.



Nieuwstadskerk Zutphen/Photo: W.J. Quist