



# Managing indoor climate risks in museums: the 9-step approach

## Learning from experience

The Cultural Heritage Agency of the Netherlands (RCE) has many years of experience of managing indoor climate risks in museums and in historic buildings. In the 1990s, new repositories and museum galleries were created in the Netherlands, and existing buildings were adjusted to store and preserve collections. All these spaces had to be adapted in order to upgrade air-conditioning and air-purification, and they benefited from contemporary mechanical improvements.

At that time, the recommended indoor climate specifications were formulated based on the maximum achievable safety of materials that were highly sensitive to moisture. This principle applied to all types of collections, based on the assumption that all objects were



*Air-conditioning in Paramaribo's Legermuseum (top left), as seen during the 2017 workshop in Suriname.*

of equal value and reacted to climate conditions in similar ways. Through the application of these strict specifications, many historic buildings redesigned as museums were rigorously adapted to the needs of moveable collections. It later became clear that fluctuations in relative humidity don't always result in a high risk of damage and that collections are better preserved at lower temperatures. Nowadays, the environmental and financial aspects of climate control are becoming increasingly important and technological innovations are enabling more sustainable approaches to climate control.

## The complexity of managing indoor climate risks

Managing indoor climate in museums is an essential yet complex task. Much effort is required in order to keep museum collections safe. Because every building and every museum collection is unique, a climate control system that works in one museum, will probably not be adequate for another. In order to find out what is the best solution for a given situation, it is important to consider several aspects throughout the decision-making process. First of all, one is required to establish the goals of the museum and its collection – is the main goal collection preservation, increasing financial profit, or rendering the collection more accessible? A clear vision concerning one's objectives is essential before considering what kind of system for managing indoor climate works best.



*The paintings gallery in the Teylers Museum, the Netherlands. In the 19<sup>th</sup> century, grills for hot air were installed on the floor (in the background) and radiators in the couch (on the left). Since then, climate control increasingly became an issue in museums throughout the world to reduce the impact of large seasonal swings in relative humidity.*

Secondly, it is very important to consider why it was deemed necessary to improve or to change the indoor climate in the first place – was it due to renovation work, the opening of a new space, damage to the collection? Thirdly, sometimes it is necessary to modify a museum’s structure in order to improve the preservation of its collection. Hence one needs to consider to what extent an institution is willing to modify the building in order to meet the needs of the collection. Furthermore, because each artefact is different, a collection may have different needs when it comes to establishing a preservation strategy. Therefore, one is also required to consider the different parts that make up a collection and the building itself, since certain types of indoor climate might have a negative effect on the make-up of a building. To reflect on these and other aspects is an essential part of the decision-making process towards the identification of the most adequate strategy for managing the indoor climate(s) of a given museum.

### A 9-step process

To support this decision-making process, two experts from the RCE – Bart Ankersmit and Marc Stappers – have developed a 9-step process for collection managers and stakeholders. The focus of this method is not only on the outcome, but also on the equally important step-by-step process that leads to that outcome. These steps are: develop a decision context and establish goals; value the building and the collection; define the needs of the collection, building and staff members and visitors; analyse and understand the building’s physics; develop climate specifications; develop options to improve the indoor climate; and finally, choose the best option based on a cost-benefit analysis. To support heritage professionals in the Netherlands and abroad, the RCE has developed a [brochure](#) and an [infographic](#) about this 9-step approach.

The infographic is a one pager that was designed to present an overview of the complex 9-step process in an easily understandable form. The brochure expands on the infographic to explain the 9-step approach in detail. Divided into 9 parts, it describes each step while listing many aspects which should be taken into consideration when reflecting on a given aspect of the museum, its collection and its climate. It provides many suggestions that may constitute the ideal solution for a given situation. Furthermore, it makes use of infographics to clarify complex information and it presents many photographs with real life examples. At the end, the brochure lists a number of freely accessible websites with further information on managing indoor climate risks in museums.



The 9-step process explained in the RCE’s infographic.



Measuring the indoor climate at the Olinda Regional Museum during a workshop carried out in 2011 in Brazil.



Participants of the 2015 [workshop in Colombo \(Sri Lanka\)](#) during a group discussion

## Sharing expertise

The Shared Cultural Heritage programme of the RCE aims to promote international cooperation and the exchange of knowledge. To support this task, it has recently created a [webpage dedicated to this expertise](#), entirely accessible in English. It provides information about managing indoor climate risks in museums and about the available instruments developed by the RCE to support heritage professionals. These instruments include a [video outlining the method](#) developed by the RCE and the infographic and brochure mentioned above. Besides these tools, in 2017 an in-depth book about ‘[Managing Indoor Climate Risks in Museums](#)’ written by Bart Ankersmit and Marc Stappers was published. This book elaborates on different aspects of the decision-making process concerning the management of climate

risks in museums, as well as in historic houses. Besides delving into each of the 9-steps in detail, the book includes also a final chapter with recommendations.

Another instrument is the on-demand training available for Shared Cultural Heritage partner countries about the RCE’s method for managing indoor climate risks in museums. These trainings delve into the practice of risk-based decision-making in order to optimise the management of indoor climate conditions for museum collections and buildings. Through these trainings, the Shared Cultural Heritage programme aims to share and gain experience of climate management in different contexts and conditions around the world. They are organised on demand and tailor-made within the framework of the Shared Cultural Heritage programme of the RCE.

Several workshops on the subject have been carried out across the panoply of Shared Cultural Heritage partner countries. For example, in 2016, Bart Ankersmit, Marc Stappers and Bill Wei delivered a [workshop in Diamantina](#) (Brazil) and in 2017, they carried out a [workshop in Paramaribo](#) (Suriname). The method developed by the RCE can be applied to different types of collections. The success of the workshops stems from their development in close collaboration with local stakeholders, meaning that they are always adapted to the local context. The topic of indoor climate risks is also included in trainings on [risk management for collections](#), since climate is one of the threats that museums professionals are required to manage in order to safeguard their collections. In terms of the method used, both the workshops on risk management and those on indoor climate are based on group work. And the approach of both types of trainings is based on a consideration for cultural value, on formulating risk scenarios and on searching for measures to reduce risks.

---

## Questions?

Please send an email to Bart Ankersmit, [b.ankersmit@cultureelerfgoed.nl](mailto:b.ankersmit@cultureelerfgoed.nl) or have a look at our website [www.cultureelerfgoed.nl](http://www.cultureelerfgoed.nl)

Author: Sofia Lovegrove

Images: Cultural Heritage Agency, unless noted otherwise.

March 2019

Cultural Heritage Agency, Smallepad 5, 3811 MG Amersfoort.

Through knowledge and consultancy, the Cultural Heritage Agency of the Netherlands offers the future a past.