



Preventive  
Conservation  
in Historic Houses  
and Palace  
Museums:  
Assessment  
Methodologies  
and Applications

SilvanaEditoriale

# **Preventive Conservation in Historic Houses and Palace Museums: Assessment Methodologies and Applications**

Conference of the National Museum of the Palace of Versailles (EPV), the Association of European Royal Residences (ARRE), and the Research Centre of the Palace of Versailles (CRCV)

In collaboration with the International Committee for Historic House Museums (DEMHIST), held at the National Museum of the Palace of Versailles and Trianon

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## **Conference Proceedings**

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# The Stakes in Preventive Conservation Research Applied to Historic Houses

**I**n what way do historic houses present, in terms of preventive conservation, a specific case in relation to the museum? Do the challenges at stake justify new research? And in this case, what can the head of collections expect? It is to these questions that I will try to answer with examples drawn from my experiences. I will start with a case with a large financial and heritage stake, that of climate treatment at the Palace of Versailles, to then broaden the subject.

## **Béatrix Saule**

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## **A Present Case: the Climatic Treatment of the Central Body of the Palace of Versailles**

### *View from the Queen's Room*

This Queen's room, is the context of a miracle, the "Versaillais miracle," according to Gaël de-Guichen's word. And the miraculously saved is the extraordinary cabinet placed in the alcove: the Queen's jewel case. Delivered by cabinetmaker Schwerdfeger in 1787 for Marie-Antoinette, it has regained its original place. The prestige of its provenance is matched only by its fragility due to the composite nature of its materials, mother-of-pearl, painting on vellum, etc. The successive condition reports attest to quite a satisfactory conservation state.

And yet, it is in one of the Palace's places that presents the most unfavourable climate conditions: southern exposure, high windows, attendance (18,000 visitors on average a day that stop to look), which is translated by catastrophic hygrometry curves that justify the climate treatment installation project. The observation of this anomaly is at the origin of my request concerning the last state of preventive conservation research, which Danilo Forleo would transform into the EPICO programme.

Now, allow me a flash-back of preventive conservation in Versailles, a series of realisations that can shed light on the current situation.

## **From one Realisation to the Next**

### *Awareness of a General Need*

In 1975, when I arrived in Versailles, preventive conservation was an ignored concept. The first course at ICCROM on the subject is precisely in 1975. Meanwhile, at the École du Louvre, the contribution of scientific techniques applied to heritage, that were taught in museology, exclusively focused on the criticism of authenticity and on restoration.

The notion of preventive conservation appeared in France in the 1980s and only became apparent in professional circles during the following decade.

Then Versailles became aware of the general need to modify the climatic conditions inside the palace. But in front of the scale of the task, we were resigned to be always restoring (the ceilings every 50 years). It is only after the creation of the EPV (Etablissement public du château, du musée et du domaine national de Versailles) in 1995 and the considerable contribution of human, technical and financial resources that we could take into consideration the Palace of Versailles' development masterplan.

One of its many components provides for a total refurbishment of the facilities, including the heating system, of which some of the base heaters date back to the reign of Louis-Philippe generating real fire hazards. So there is a consensus to not miss this opportunity and deal with all the problems, in particular, climate control.

The requirements issued in 2003 by the Conservation correspond to the standards commonly accepted in museums: a 50% RH tolerating a 5% difference on the + or on the -, requirements further increased during the restoration of the Hall of Mirrors where, according to the architect, dips to 10% RH are recorded close to very degraded vaults.

#### *Awareness of a Specific Need*

The realisation of infrastructures means that the details of the project only came out in 2012. It is based on the requirements expressed in 2003 and on a temperature stratification scheme that justifies air circulation in addition to a hygrometric treatment. Engineers at the technical office in climate engineering applied their standards: so much metre cubed of air need treating according to the volume and the attendance, it implies this duct size and so many traps for return air. Focused on the ceilings question, the furniture collections were not taken into account, which resulted in aberrations: an air return under the Queen's bed, but more generally, air returns on the edges of the rooms and on the historic spot of most of the furniture on display...

Faced with such disparity between real needs and what was offered, it was clear that the ideal conditions for a museum could not be applied. This resulted in a second realisation, the need to research specific methods for historic houses so as to have a fair estimate of the risks.

### **From One Research to the Next**

#### *Support Research*

In the immediate future, in consultation with the architects, correctives measures were adopted:

- widening of the temperature range from 45 to 65% RH, which has allowed the reduction of duct diameters as well as the number and placement of air returns;

– reduction of the air treatment application perimeter by the exit of the project for the Queen’s cabinet, less exposed to temperature variations, as well as the attic floor.

And a whole series of measures has been developed by a multidisciplinary team of conservators, managers, internal and external conservators to preserve the collections.

The scale of the project and the heritage stake have often led them to come up with novel solutions, in particular for the protection of painted and textile decorations remaining in situ or for the control protocols to be ensured during the building work in terms of security, fire safety, and other menaces such as shocks, vibrations, dust and after the building work, in anticipation of tests to avoid a thermo-hygrometric shock to the collections.

All these studies and considerable research were founded on very fine risk evaluation analyses, according to a question that met EPICO’s programme then under development.

#### *Preventive Research*

All the studies I just mentioned are done off the cuff, if I may say so, in addition to pre-programmed work. The continuation of the project, that concerns the North Central body, the symmetrical wing housing the King’s Grand Apartment, will benefit from feedback that will be rich on lessons concerning the pieces reactions in their new climatic environment, well, provided, to observe a necessary deadline.

However, even in the case of satisfactory results, a simple transposition would not be risk-free because from one space to the next the parameters differ. The challenge of applying the EPICO method is to provide irrefutable and coherent data that will answer the following question: knowing that the refurbishment of the heating system (repair work) remains essential, should the same climatic treatment solution be retained while, in the first place, the conditions are not the same, such as northern exposure and sunshine?

Here is a good challenge for the EPICO method but its field of application is not limited to the construction site at Versailles. Its ambition is broader because it concerns the collections of historic houses in general.

#### **Broadening the Subject**

I now propose to leave the case of Versailles and to widen the subject to historic houses that present a great diversity. The Château de Maintenon, which is not a castle-museum but a private home classified as an historic monument, offers a good example. It turns out that this beautiful castle, 70 km south-west of Versailles, currently concerns me because the CDEL (Conseil Départemental d’Eure-et-Loire) who manages it, asked me to participate in the drafting of its scientific and cultural project. It is a good observatory to estimate why and on what conditions would a specific scientific research on preventive conservation be profitable.



*Fig. 1*  
View of the Château de  
Maintenon –  
Conseil départemental  
d'Eure et Loire.  
(© Danilo Forleo)

### *The Complexity of Protecting the Collections in an Historic House*

What strikes me is that I find, on another scale, of course, the same issues that I faced in Versailles. Whether large or small, the historic house presents peculiarities which means that the standards of preventive conservation observed in the museums cannot be practised without adaptation. It turns out that the protection of the displayed collections is more complex. First, because of the configuration of the place and the very nature of the collec-

tions, which generate specific degradation risks; second, because of other constraints related to the history and usages.

### *Related to the Configuration and Nature of the Place and the Collections*

This view of the Maintenon Castle highlights what are called external constraints:

- an immediate high impact environment (a running watercourse, the Eure which moats the castle, a garden) and around the countryside and the forest;
- an old building (itself a work of art that needs protection), rearranged from the 17<sup>th</sup> to the 19<sup>th</sup> centuries. The building's bodies are composed of various materials. Complex in its orientations and distribution, the facades are pierced with wide openings and, what we do not see in the figure, frames without thermic isolation but thick walls offering a natural inertia.

And inside, the way of presenting the collections is in close connection with the architecture, which is characterised by:

- the coexistence of fixed decorations and mobile collections;
- decors and collections that form a whole, an inseparable group, from floor to ceiling (from the original floor tiles and carpets to the painted beams).

All are composed of various materials which have their own constraints (hangings of Cordova leather or tapestry, panoramic wallpaper, cabinet pieces, lacquered cabinets, gilded bronzes, Chinese vases, painted portraits, etchings, drawings).

### *Specific Degradation Risks*

Before mentioning specific degradation risks that threaten all this heritage, I will mention, without dwelling on them, the most serious ones, destruction by fire or disappearance by theft: the collections managers' obsession, whether in museums or in historic houses.



*Fig. 2*  
Château de Maintenon,  
view of the moat.  
(© Danilo Forleo)

*Fig. 3*  
Château de Maintenon,  
Madame de Maintenon  
Bedroom.  
(© Danilo Forleo)

At Maintenon, the damage generators that are already identified (and which will be studied) are:

- the dustiness stimulated by the height of the walls and the visitor attendance arriving from the gardens;
- exposure to sunlight through the windows;
- infestation in the lumber and in the seats' upholstery;
- humidity that generates mould and varnish cracks (in the summer) because during the winter the heating ensures regulation, or even dryness causing cracks and risings in the marquetry;
- furniture handling by volunteers, and even their use, during events and shows;
- vandalism most often unconscious, careless (I support myself), curious (I touch) or affectionate (I caress).

Faced with this, we know the entire proven panel of museography devices and actions designed for the conservation of collections (from dehumidifiers to barriers to keep distance via UV resistant glass, from micro-aspiration to public awareness including the movement of the pieces) but the head of the institution that I was, will tell you that many of the means accepted without reluctance in museums, will be rejected for reasons that relate to the identity of the house or to the various activities it accommodates.

## **Towards a New Method**

### *Other Stakes to Integrate*

If, just like in a museum, the purpose of preventive conservation is, in an historic house, to ensure the long-term preservation of the

decorations and the collections, even if it is more difficult to achieve for the reasons we have seen, it also has to integrate the existence of other challenges, such as:

- historical veracity, which is based on inventories and the usage of the positions linked to the objects function that impose their rules on the presentation of the collections;
- concern for authenticity, which raises the question: when does the nature of the risk justify storing and replacing by a copy?;
- an aesthetic research, which often does not fit well with certain museography devices;
- the public's satisfaction, who comes to experience the atmosphere of an inhabited house, which we risk losing by trying to protect too much;
- the bustle of the house through receptions, concerts, shows, etc., which perpetuate a tradition but, by multiplying themselves, present threats to the collections, threats that need to be objectified.

For the discipline of preventive conservation, the integration of such issues is a novelty.

Thus these studies specific to historic houses will face two new challenges.

The first one is the number of parameters to be taken into account (with their interactions) for the establishment of the fairest and the most complete possible risk diagnosis.

The second one relates to the final phase of the recommendations which must be conceived, no longer in a systematic approach, but in a realistic and pragmatic project.

#### *The Head of Collections Expectations*

For the head of collections, the result of all these research works are a considerable decision aid during his arbitrations.

What can he expect from these new approaches for maintaining or improving the conditions of heritage conservation?

I will conclude five verbs that will be able to express them:

- **to understand**: which assumes a clear diagnosis;
- **to know**: which supposes a clear vision of the cartography of the risks;
- **to exploit**: which presupposes feasible recommendations both for the management of the collections and for the orientation of the projects;
- **to prioritise**: this involves a hierarchisation of the needs for programming and budgeting;
- **to persuade, finally**: which supposes solid bases for discussions and consultations with the partners.



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