



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 Influence of Artificial Light on Historic Interiors

## Abstract

We try to keep our historic rooms in the best possible condition, the room itself together with the items in it. We do that to be able to experience the interior in its original beauty, not only now but also in the future. What we see in practice, often well-preserved items are exhibited under such poor lighting conditions that it seems as if the objects are poorly preserved, that cannot be our intention! To be able to see all colours, we need light with a spectrum that contains all colours. Daylight, candle light and the incandescent light bulb all have a continuous spectrum. This is often not the case with modern energy-efficient light sources like compact fluorescent and LED lightbulbs. LED's seems to be the future but is difficult to select the right LED light source. Some will do in a certain room while others will give a more satisfying result in a different setting.

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## LED Lighting, a Blessing or a Disaster?

In order to see and experience a historic interior, we need light. However, this light, natural or artificial, is also damaging the materials in that space. There is a distinction between physical damage and visual damage. Physical damage involves the actual deterioration of colours and materials, visual damage occurs when an item is no longer visible in its original beauty because of the poor quality of the light under which it is displayed. The process of physical quality alteration of materials will go slowly over the years. Visual damage can occur instantly, simply by switching on the wrong type of light. Physical damage is mostly irreversible, visual damage caused by poor lighting can be repaired.



*Fig. 1*  
Same wallpaper; different  
lightsources.

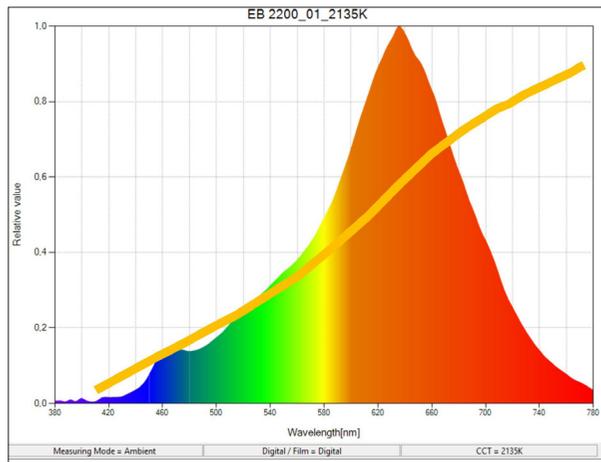


Fig. 2  
Spectral distribution.

It is important to know the light conditions in a room and detect harmful situations to avoid physical damage. The goal must be to minimise the harm caused by light, and on the other hand maximise the visual overall quality of the interior. LED light seems to be the solution. LED light contains no ultra violet radiation and generates not much heat. On the other hand, the quality of LED light is not consistent. The phased out incandescent light bulbs from all manufacturers offered the same high-quality light, with LED that is not the case.

Candles are in many cases first replaced by incandescent candle bulbs and now, hundred years later, by LED candle bulbs. The first replacement meant almost always an increasing of the light level. The second one not only that, but also a decreasing of the quality of the light. Increasing light levels can be desirable, a loss of light quality must be avoided at all cost.

Modern LED luminaires can be small and provide additional light in a room without being visible themselves. Visually, only light is added to a room. This light is not authentic, the room and the items in it has never looked like this before. On one hand we try to preserve an authentic interior as well as possible, on the other hand we show that space to the public in a historically seen incorrect way. Adding light to a historical space can still be an ethically responsible solution. After all, the authentic low light level was not a conscious choice of the designer or architect. Technically it was simply not possible to create higher light levels. Artificial light was a scarce article until 150 years ago, when higher light levels became available, great use was made of it. Designers from previous centuries would probably also have added more light to their interiors when that would have been possible.

LED technology is relatively new, unfamiliarity has led to many wrong applications in recent years, also historical interiors have suffered visual damage and lost part of their beauty.

#### Bibliography

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