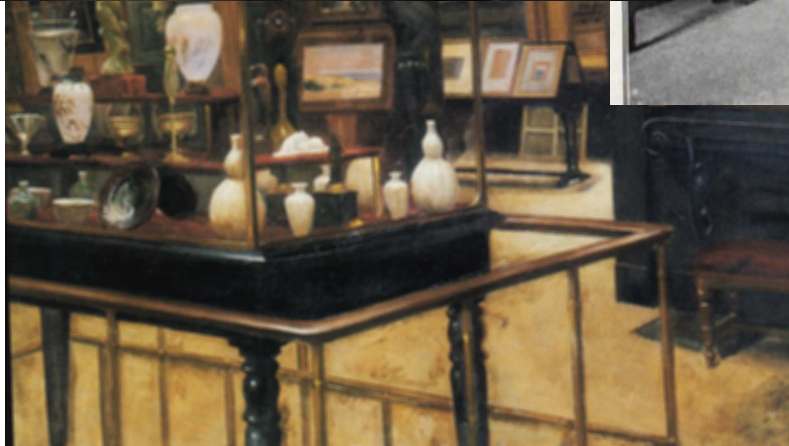


PROPOSAL FOR SHOWCASE STANDARD



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CEN/TC 346, WG4

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CEN / TC 346

- 2003 Proposal from a few european countries to work about standardization for Conservation of cultural property
- 2004 First meeting in Venice : 17 countries
- Business plan and 5 working groups

WG

- WG1 : General guidelines and terminology
- WG2 : Materials constituting cultural property
- WG3 : Evaluation of methods and products for conservation works
- **WG4 : Environment : a lot of items : climat measurement, light and lighting, church heating, storage...**
- WG5 : Transport and packing methods

TG showcase

- French proposal 2005
- TG group : F, I, Sw, GB, D

- European Enquiry : spring 2009
- Standard : 2011 ?

- Standard : recommandation, guideline

Showcase

- **Conservation of cultural property – Guidelines for management of environmental conditions– Recommendations for showcases used for exhibition and preservation of cultural heritage**
- Conservation des biens culturels – Recommandations pour la gestion des conditions d’environnement des biens culturels – Recommandations pour les vitrines destinées à exposer et préserver des biens culturels
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- **Introduction**
- **1 Scope**
- **2 Terms and definitions**
- **3 Principles and components of a showcase for exhibition of objects**
- **4 Preservation recommendations for showcases exhibiting cultural objects**
- **Bibliography**

Goal and Endusers

- **Long discussion before beginning work**
 - A standard ?
 - Why and How to propose something in a few pages?
 - For what ?
 - Tool for a classification of showcase ?
 - A list of prescriptions ?
 - For who ?
- **Decisions**
 - General : guidelines, recommendations
 - Endusers
- All questions (????) to ask about a showcase
-before the showcase exist

Goal and Endusers

- **Introduction**

- Better material knowledge of objects and their interaction with the environment, results in better preservation. With increasing development of mass cultural tourism the number of exhibitions and visitors are likely to continue to expand in the future.
- In light of this new knowledge, and to prevent risks of decay related to the exhibitions, the showcase is a useful tool to preserve and protect objects.
- In a showcase, environmental parameters such as hygrometry, dust, pollutants, and risks of physical damage such as theft, and vandalism can be better controlled.
- **This document concerns all those in charge of the preservation and the exhibition of cultural heritage objects or in charge of designing, making or fitting out showcases.**

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- **1 Scope**

- **This document defines the characteristics and the conditions for use of showcases for the exhibition of cultural heritage, reducing environmental interaction, and complying with the requirements for better preservation.**

Terms and definitions (examples)

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- **2.1 absorption:** physical/chemical process that occurs when a gas or liquid solute diffuses into a solid to form a solution or is transported and kept into the volume by capillary forces.
- **2.2 accessibility:** physical capability of intervention in a display case: handling of an object, technical intervention, and maintenance
- **2.6 conservation material:** stable and inert material close to or touching objects and exercising no effect on them or their environment
- **2.7 microclimate:** synthesis of the ambient physical conditions and their variability (e.g. average levels and fluctuations, time and space distributions) of the atmospheric variables (e.g. temperature, humidity, radiation, air motions) including heat and mass exchanges with other bodies (e.g. infrared emission, lighting, evaporation/condensation, particulate deposition) over a period of time representative of all the conditions determined by natural and manmade forcing factors.
- **2.9 showcase:** a closed container of any dimension, designed to preserve and display objects in safe and secure conditions.

Recommendations for showcases used for exhibition and preservation of cultural heritage

- **3 Principles and components of a showcase for exhibition of objects**
- **3.1 Functions of the showcase**
- **3.2 Criteria of design or choice of the showcase**
- **3.3 Components of the showcase**
- - **3.3.1 Exhibition volume**
 - **3.3.2 Technical compartments**
 - **3.3.3 Base and attachment unit of the showcase**

 - **3.3.4 Device of presentation of the collections**
 - **3.3.4.1 Overlay inside the showcase**
 - **3.3.4.2 Supports**
- **3.4 Security**

Principles and components of a showcase for exhibition of objects

- **3.1 Functions of the showcase**
- The fundamental functions of a showcase are:
 - - to display an object while protecting it
 - - to prevent and minimize any kind of adverse effects to the objects
 - - to reduce the exchange rate of air and associated components such as water vapour, dust, and pollutants, between the internal volume and the outside environment
 - - to improve object preservation, safety and security

Criteria of design or choice of the showcase

- **The design, the adaptation or the choice of a showcase shall be determined by the aim of showing an object in conditions of safety and security, and at the same time providing the best conditions needed for the object preservation. It shall conform to standards or regulations of public institutions.**
- It is necessary to take into account:
 - a) **the characteristics of the object:**
 - - dimensions (height, width, depth) and weight,
 - - physical, chemical, and structural nature of the exposed materials,
 - - brittleness and sensitivity in relation to the material history of the object;
 - b) **the collection management of the institution:** turnover of the collections, exhibition duration, handling of the objects and of the showcase;
 - c) **the maintenance and interior cleaning of the showcase:** they shall be easy and without danger for the objects;
 - e) **the showcase and the public:** stability, sufficient space of circulation, lighting;
 - f) **environmental characteristics** of the area where the showcase will be located.
 - d) **placement of the object in the exhibition, design**

Components of the showcase

3.3.1 Exhibition volume

- The exhibition volume contains and presents the objects.
- It shall be made with stable, inert and neutral materials
- **Its dimensions take into account the size of the objects, their condition, props, supports and mountings, the accessibility and any element of the museographical context.** It allows the installation of sensors/devices to monitor or control the internal environmental factors and facilitates the registration of data.

• 3.3.2 Technical compartments

- The technical compartments have their own access allowing for the maintenance of the installations.
- The technical compartment dedicated to the regulation of the microclimate of the showcase is related to the exhibition volume. The air circulation between the technical compartment and the exhibition volume allows a fast and homogeneous air exchange.
- The technical compartment dedicated to the light sources is isolated from the exhibition volume. It has its own ventilation if necessary, with the possibility of controlling the temperature and humidity, while avoiding air leakage, light escape and dust contamination.

3.3.3 Base and attachment unit of the showcase

- The base or any attachment unit of the showcase shall ensure its stability and limit the vibrations.
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Device of presentation of the collections

- **Security**
- The assembly of the showcase shall preserve the degree of resistance of the glazing. The non-glazed parts, (bottom, ceiling, back), shall have a resistance equivalent to the resistance of glazing and shall be composed of non-dismountable elements with common hand tools.
- **The choice of glazing is modulated according to the level of safety required by the exposed objects. It respects the standardized class of material.**
- In case of particularly attractive collections or collections of high value, the showcase shall be equipped with a certified shock or warning device. The alarm can be an acoustic alarm, an independent alarm or an alarm using cable or radio links to the centralized warning system of the establishment.

Recommendations for showcases used for exhibition and preservation of cultural heritage

4. Preservation recommendations for showcases exhibiting cultural objects

- **4.1 Constituting materials, assembly and fixing**
 - **4.1.1 Characteristics of constituting materials**
 - **4.1.2 Assembly and fixing**

- **4.2 Management of the environmental conditions**
 - **4.2.1 Principle**
 - **4.2.2. Climate**
 - **4.2.2.1 Recommendations**
 - **4.2.2.2 Microclimate of the room and the showcase**
 - **4.2.2.3 Air exchange**
 - **4.2.3 Lighting**
 - **4.2.3.1 Type of source, effects on the objects and installation**
 - **4.2.3.2 Management of light**
 - **4.2.3.3 Follow-up and maintenance**

- **4.3 Pollutants, dust and micro organisms**
- **4.4 Conditions of use of the showcase**

Preservation recommendations for showcases exhibiting cultural objects

- **Constituting materials, assembly and fixing**
- **Characteristics of constituting materials**
- **Not all materials are suitable for long-term preservation of exhibits. When the materials forming the showcase, or the objects, are chemically unstable, they degrade, possibly releasing (harmful) volatile organic compounds (VOC). The materials used to produce the showcase, e.g. structure, panes, varnishes, sealants, glue, shall be carefully selected, after checking of the available documentation (compliance certificates, technical report, instructions) or after tests.**
- To prevent the VOC accumulation in the showcase, the materials shall comply with the condition of
 - - chemical inertia and innocuousness: the constituting materials shall not cause any reaction with the objects to which they are near or in direct contact;
 - - chemical and physical stability: the initial properties of material remain constant and do not produce any reaction or transformation.
- These criteria are to be considered according to conditions under which the objects are put together with the materials:
- **Assembly and fixing : In the event of assembly of the elements of the showcase by gluing, a time of drying is recommended before the installation of the objects in order to allow the evaporation of solvents.**

Management of the environmental conditions

- **4.2.2. Climate**
- **4.2.2.1 Recommendations**
- The level of temperature and relative humidity required by the various cultural artefacts located in the same exhibition volume shall be identical or at least compatible: **for this reason it is necessary to avoid installing objects, which materials require too different thermo hygrometric conditions.**
- It is important to know the state of dryness or humidity and the hygroscopic potential of materials constituting the showcase and the elements of presentation in order to adapt them to the climatic conditions required by the objects.
- **4.2.2.2 Microclimate of the room and the showcase**
- When the climate of the room and that of the showcase differ too much, it is necessary that its sealing is maximum and that the showcase shall be equipped with passive or active control devices.
- **These devices shall be based on a preventive knowledge of the environmental factors in the room and in the showcase. Any choice of a control system is preceded by measurements of the interior climate of the showcase.**
- The control of the interior climate can be obtained either by an active or passive treatment.
- (definition and conditions : Facilitating the installation of buffers is envisaged as part of the design of a new showcase or as an improvement of an existing showcase. The capacity of these compartments shall be proportioned with the volume of air to treat. An exchange of air shall be ensured between the volume of the showcase and the buffering compartments.

Management of the environmental conditions

- **4.2.2.3 Air exchange**

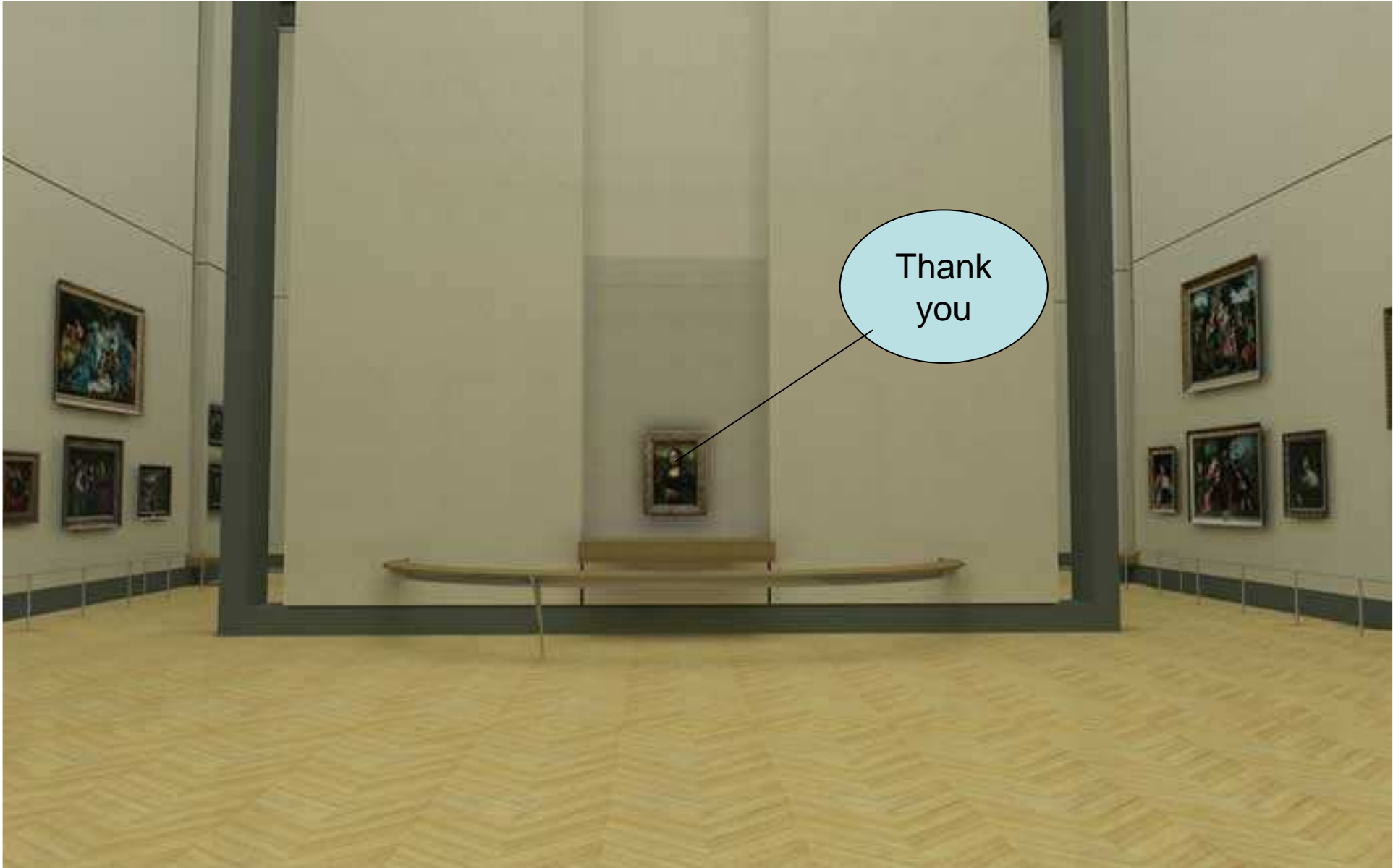
- Air exchange rate controls the performance of many aspects of a showcase. Its ability to buffer and control RH is fundamentally limited by the air exchange rate. This is also defined by the RH of the room in which the showcase is placed. The ingress of damaging external pollutant gases and particles is also controlled by the air exchange rate.
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- To control the relative humidity inside a showcase the following ranges of air exchange rate will be required;
- To dry below 30% for archaeological iron and air exchange rate of less than 0.4 per day.
- For mechanical drying with a dehumidifier, air exchange rates below 8 per day are required.
- For mechanical humidification, air exchange rates below 8 per day are required.
- For mechanical RH control with low air velocity units (<2ltr/min), air exchange rates below 0.1 per day are required.
- For mechanical RH control with high air velocity units (>2ltr/min), air exchange rates below 1 per day are required.

Lighting

- **The sensitivity of the artefacts to all sorts of radiation should be considered when choosing lighting in the showcase.**
- **4.2.3.1 Type of source, effects on the objects and installation**
- (exemple) **In the case of a system with optical fibres, the generator is located in the technical compartment, correctly ventilated, without any contact with the exhibition volume to avoid any diffusion of heat in these volumes.**
- **4.2.3.2 Management of light**
- Artificial light should be provided with controlled and stable intensity, only for the strictly necessary exposure time and the exposure time shall be checked. For objects very vulnerable to light, a measuring equipment of lighting, hour per hour, can be integrated. For objects very vulnerable to light, an equipment to monitor the light intensity should be included to verify the correct value of the light supplied In the case of a temporary exhibition the use of dosimeters with change of colour is recommended.
- **4.2.3.3 Follow-up and maintenance**
- **To ensure a quality of light and to reduce maintenance and manipulation, sources having long lifespan (e.g. electroluminescent diodes, fluorescent tubes but shielded against UV emission) or sources off-set (e.g. system with optical fibres) are recommended.**

Conditions of use of the showcase

- The showcase shall be located in an appropriate and safe position that does not affect the climate and the lighting level in the exhibition volume.
- The location should be convenient for the static stability, without any risk of shock; it shall also allow free passage of visitors and easy motions of technical apparatus in use within the museum or in the case of emergencies.



Thank
you