

Read, Reflect and Learn - 006; Apr 2015

Normal Conditions

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The Guild's Framing Standards suggest that Museum and Conservation framed artwork offer protection from physical and mechanical damage, airborne pollution and acids from framing materials for up to 35 and 20 years respectively under Normal Conditions. But what are the Normal Conditions and how are they defined?

Normal Conditions are based around three environmental factors: sunlight, temperature and relative humidity.

Light damage is the most pervasive and difficult to avoid. The damage is dependent upon two factors; the time of exposure and the intensity of the light source. Damage caused by sunlight is cumulative and irreversible. It manifests itself in several ways; cellulose materials bleach, darken and yellow, they become weak and brittle and sunlight causes pigments and dyes to fade and/or change colour, e.g greens can appear blue due to the loss or fading of the yellow tones from the green. Ultra violet (UV) radiation is a major contributor to damage and fading. As a subject this will be covered in a separate article, but one should also consider that both visible and infra-red light are factors.

The temperature range is defined as between 10°C and 25°C. It is always best to keep artwork in cool and stable conditions and Museums aim for a temperature of between 16°C and 19°C; perhaps too restrictive for a domestic environment. High temperatures result in chemical reactions occurring faster. Fluctuations in temperature cause dimensional change which may result in the flaking of pigments leading to the cracking of oils/acrylics, cockling and buckling, and damage to photographic emulsions.

The most destructive environmental factor that influences and triggers many other factors is relative humidity (RH). RH is defined as the amount of moisture in the air compared to the amount of moisture air can hold at a given temperature. Air has less capacity to hold moisture compared to that of wood and paper. If the RH of air changes, an exchange of moisture will occur between the air and paper until equilibrium is reached. Changes in RH cause dimensional change such that as RH increases the paper expands and vice versa. Low RH may cause problems including the flaking of paintings, cracking, the warping of wood and the possibility of the desiccation of some organic materials. Whereas the main problem of high RH, certainly at levels greater than 70%, is to provide ideal conditions for the growth of mould and associated insect infestation.

Extreme changes or fluctuations in either temperature and/or RH may cause considerable damage due to the differential expansion and contraction of materials.

Whilst the display of framed artwork is out of the control of the framer once it leaves the workshop, some framers provide customers with a simple guide to displaying their artwork and this advice should include basic information of the Normal Conditions.

Questions:

1. In simple terms define the environmental factors that are the basis of Normal Conditions?
2. What is the expected life of items framed to Conservation and Museum level and after what period should they be re-examined by the framer?
3. What two main factors determine the damage caused by light?
4. Give reasons why infra-red light might result in the fading of artwork. -
5. Why do green colours appear blue after being exposed to light?
6. Describe the main problem with high temperature and the damage it might cause.
7. How is Relative Humidity defined?
8. When changes in RH occur, why is it necessary for materials to be in equilibrium?
9. Describe the dimensional change to paper/boards with changes in RH.
10. When advising a customer on the display of their artwork, why should they avoid hanging it directly against the interior of an outside wall?