



Maintenance-Based Approach Prolong Life Span of Building Materials

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Introduction

At the beginning of the project, a multidisciplinary team of conservators, scientists, architects, and engineers faced a set of challenges. First, a number of physical conditions in the main house and living room were identified by the Getty Conservation Institute, together with the Eames Foundation, as requiring investigation in order to determine possible conservation treatments. In the living room, the square vinyl tiles had lost adhesion to the concrete floor and had become loose after sixty years in place. These floor tiles had also become brittle, having reached the end of their life span. In addition, examination of the tile composition confirmed that the tile and adhesive materials were laden with asbestos and required careful removal and abatement [1]. Once the tiles were removed, the source of underlying moisture intrusion was confirmed to be seepage through the concrete floor. To prevent future intrusion, the Getty Conservation Institute worked with the Eames Foundation's consulting architects, Escher GuneWardena Architecture, to evaluate liquid moisture barrier systems and select one for application beneath the new vinyl composite tile flooring. It was aesthetically critical for the new living room floor tiles to match the originals in appearance [2]. The moisture barrier system also had to be compatible with the new flooring, to ensure a healthy interior environment and long-term performance of the new flooring system. Another area of Getty Conservation Institute investigation was the use of colour and paint at the Eames House. Getty Conservation Institute staff was able to document more fully the use of colour at the house [3]. Ray Eames was an artist and colourist, and her influence on the selection of paint colours and patterns at the house was evidenced in the investigation of the paint stratigraphy. By careful examination of paint samples removed from the interior and exterior metalwork, researchers recorded the series of painting campaigns over the life of the house, confirming how the colour changed over time, as substantiated by the Eames Foundation [4]. The Getty Conservation Institute carried out on-site paint excavations at selected areas of the metalwork and steel window frames. Using stainless steel scalpels and on-site microscopy, conservators made small exposure windows on painted surfaces, peeling back each paint layer to reveal the layers underneath. Through this examination, the GCI discovered a first-generation paint layer of a light, opaque warm grey [5]. The paint was distinctively mixed and possibly tinted by hand with mineral pigments such as red iron oxide, Prussian blue, and chrome yellow a finding that tends to confirm the original warm grey colour of the metalwork described in early accounts of the house [6]. Understanding this paint stratigraphy, combined with documentary evidence, will assist in making choices about repainting the metalwork, both now and in the future. Whereas a tremendous amount of information exists about most of the materials used to construct and fabricate the Eames House, little information existed about the wood panelling wall in the living room [7]. The long narrow panel boards in the room are configured vertically from floor to ceiling and form a continuous walled surface of warm golden wood that spans the interior rear wall of the living room and continues on the other side of the glass wall to the south-facing exterior terrace area [8]. The large glass expanses allowed long-term exposure to daylight, including ultra-violet light that has caused some degradation of the living room wood finishes and some distress to the living room contents as well.

Getty Museum conservators identified the wood species by removing small samples, cutting them into small thin-section specimens, and examining the cellular structure microscopically [9]. This examination, which included studying the size and arrangement of the wood vessel pits, confirmed that the wood is a species of eucalyptus commonly known as Australian tallow wood. Interestingly, similar eucalyptus trees stand outside the Eames house and populate the neighbouring hillside. Conservators recommended a treatment for the panelling that would preserve the original tallow wood and varnish treatments, including the patina. Treatment began with a gentle overall cleaning of the wall with a mild aqueous solution to remove soil from the pores of the wood [10]. Then several re-saturating varnishes were evaluated for colour and appearance, with minimal aesthetic impact to the original wood substrate being an important consideration. The treatment chosen involved a light re-saturating varnish that maintained the warm glow of the tallow wood panelling.

Acknowledgement

None

Conflict of Interest

None

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Received: 27-Oct-2023, Manuscript No. JAET-23-121623; **Editor assigned:** 30-Oct-2023, PreQC No. JAET-23-121623 (PQ); **Reviewed:** 13-Nov-2023, QC No. JAET-23-121623; **Revised:** 19-Nov-2023, Manuscript No. JAET-23-121623 (R); **Published:** 26-Nov-2023, DOI: 10.4172/2168-9717.1000361

Citation: Wanare S (2023) Maintenance-Based Approach Prolong Life Span of Building Materials. *J Archit Eng Tech* 12: 361.

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