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SUSTAINABILITY: FEASIBILITY OF REINTRODUCING STUCCO THROUGH THE MODERNIZATION OF TRADITIONAL TECHNIQUES IN CONTEMPORARY CONSTRUCTION

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Introduction

Stucco is a traditional wall coating technique. With records of its use in Egyptian, Greek, Roman, and Arab civilizations, stucco was particularly valued for its plasticity, aesthetic versatility, and low cost. It consists of a mixture of lime, sand, and water, to which additives may be incorporated for aesthetic purposes. Throughout history, the technique has undergone different periods of use, maintaining its presence in Islamic architecture and the European Renaissance. However, with transformations in construction processes and the popularization of new materials, stucco gradually lost its prominence in the construction industry. Its predominantly artisanal application, the need for skilled labor, and longer execution times contributed to this decline, highlighting the need to seek alternatives for its modernization.

Objectives

This study aims to analyze the possibilities for modernizing the traditional stucco technique, considering its historical evolution, conventional application methods, and technologies currently proposed for its use. It seeks to identify alternatives that may simplify its application and promote its reintegration into contemporary construction, establishing a theoretical foundation for future experimental research aimed at evaluating the effectiveness of these proposals.

Methodology

The methodology employed in this study was based on a literature review, involving research conducted using standards, books, and scientific articles on stucco. Historical aspects, material characteristics, traditional application methods, and factors that contributed to the decline of this technique were investigated. Additionally, studies on modernization technologies were analyzed, along with references on contemporary wall coatings, particularly gypsum plaster, in order to understand the transformations in application methods and material choices over time.

Picture 1. Application of a preparation layer



Source: Silveira, Veiga e Brito (2003)

Picture 2. Stucco ornaments



Source: Cotrim, Veiga e Brito (2005).

Main Results

The decline in stucco use is mainly associated with its artisanal application, dependence on skilled labor, and longer execution times, which have favored the adoption of faster and more practical coating systems.

The literature review identified modernization possibilities in two main areas. Regarding material composition, the incorporation of polymers and reinforcing fibers may contribute to improving material performance. Regarding application processes, premixed products and mechanized spraying systems offer alternatives to simplify execution and increase productivity (Schepdael, 2025).

Studies on mortar application mechanization indicate potential improvements in productivity, execution time, and finishing uniformity (Nyemba et al., 2020). Furthermore, research on traditional lime-based materials highlights the importance of adapting these systems to contemporary construction while preserving their relevant characteristics, particularly in the conservation and rehabilitation of historic buildings (Dettmering, 2019).

Therefore, combining material innovation with improvements in application methods represents a promising approach to restoring the use of stucco in contemporary construction.

Picture 1. Mechanized application of stucco

Picture 2. Stucco finish



Source: Instagram @beelt.pt (Portugal, s.d.).

Conclusion

The literature review indicates that stucco has potential for reintegration into contemporary construction. Modernizing its composition and application methods may improve productivity and finishing quality, contributing to more sustainable construction practices while preserving traditional characteristics. However, experimental studies are still needed to validate these alternatives.

References

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