University of Cyprus
Department of Architecture

The Department of Architecture invites you to the

Ph.D. Thesis Defence of

Maria Costi de Castrillo, Architect, Dipl. Arch. Eng., M.Sc.

Title: "Adobe bricks in Cyprus from built heritage to contemporary sustainable architecture. Experimental investigation and proposals for site- and use-specific applications."

Friday, 10th of December 2021, 13:00 – 14:00

Room 205, 2nd floor, Department of Architecture, Ledra str., Nicosia

Abstract: Since prehistory, people have used adobe bricks to construct their dwellings. This earth building technique was in continuous use until the mid-20th century, when industrialised building materials replaced it. The abandonment of adobe bricks created gaps in the relevant legislative framework. Adobe construction today is rare. Research studies aiming at the reintroduction of the material in contemporary construction, in the framework of both sustainability and heritage conservation still lack a holistic approach i.e., physico-mechanical characterization of both raw material and unit properties and pilot applications on actual buildings. In the framework of this Ph.D. thesis, experimental testing was carried out for the physico-chemical characterization of the raw material of local adobes from three different historic periods (prehistory, vernacular and contemporary architecture), and of laboratory designed and produced adobes of different compositions (using straw or sawdust at quantities 30% - 70% v/v); reference adobes from the market were also tested for comparison purposes. The effect of adobe composition, fibre type/content, and production technology on the properties of the end-product is highlighted. The experimental results, together with the database of information compiled from the literature review, led to the classification of laboratory adobes and to proposals for their site- and use-specific application in contemporary construction. The conclusions point towards the need for reintroducing the versatile use of adobes of different dimensions and compositions, documented as a common practice in antiquity, in contemporary construction with composite adobe walls. Floor plans based on vernacular typologies, along with established construction details from restoration and new construction, are used to propose site- and use-specific application of the laboratory designed and produced adobes. It is anticipated that the outcomes of this thesis will assist in the re-introduction of adobe in contemporary construction by supporting the development of the Cypriot legislative model for new and existing adobe construction.

Short Biography: Maria Costi de Castrillo, Architect Engineer (Dipl. Arch. Eng., M.Sc., National Technical University of Athens, 2005) is a Specialist in Conservation of Built Heritage (ICCROM, Rome, Italy, 2016) and a Specialist in Building with Earth ('Fachkraft im Lehmbau', Dachverband Lehm e.V. and Chamber of Craftsmen of Baden-Württemberg, Biberach an der Riss, Germany, 2010). She is a founding member of the research and development architectural company 'Between the Lines ltd.' and of the first earth-building organization in Cyprus, 'Geodomo'. Since 2010, she has been professionally involved in numerous research projects, collaborations in European earth-building projects and the conservation of built heritage projects. Additionally, she has organized conferences and workshops around earth-building and vernacular heritage. Her research and professional experience focus on adobe brick use in restoration and new construction and the conservation of built heritage. The outcomes of her research work have been published in refereed scientific journals and peer-reviewed international conference proceedings.

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