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# paesaggio urbano

URBAN DESIGN



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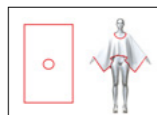


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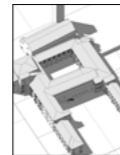
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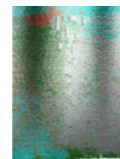


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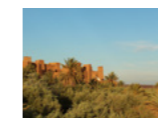


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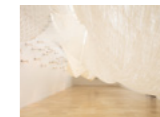
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# Earthen heritage in Chile and Abruzzo: Understanding, documenting, valorising vernacular architecture

## Patrimonio in terra in Cile e Abruzzo: comprendere, documentare, valorizzare l'architettura vernacolare

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The study aimed to define a methodology for the understanding of earthen vernacular heritage of northern Chile and Abruzzo, Italy, through a comparative analysis which has the goal to promote an active proposal for its regeneration. The work stands out for its innovative scope by proposing a theoretical and cultural investigation on the study of constructive, decorative and earthquake-resistant features of earthen heritage, which has never been addressed in detail and in a thorough manner and holds a vital significance for Chile and Abruzzo. The research in Chile involved the engagement, through workshops, of local communities in the revival of the traditional decorations of earthen houses. This initiative offered interesting scientific results for the valorisation of the fragile earthen heritage rooted in the collective memory. As a consequence, this study established an international research collaboration between La Sapienza University and the University of Chile, with a specific agreement that addresses conservation strategies of earthen vernacular heritage, design, analysis and survey and documentation and dissemination of tangible and intangible values.

Lo studio si è focalizzato sulla definizione di una metodologia di conoscenza del patrimonio vernacolare in terra cruda del nord del Cile e dell'Abruzzo, Italia, attraverso una metodologia comparativa che ha lo scopo di proporre una proposta attiva di rigenerazione e recupero. Il lavoro si distingue per la sua portata innovativa proponendo un approfondimento teorico e culturale di grande rilevanza per il Cile e Abruzzo, esplorando il tema dei particolari costruttivi, della decorazione e degli aspetti di resistenza al sisma dei manufatti di terra, mai affrontato nel dettaglio e nella sua sistematicità. La ricerca in Cile ha previsto il coinvolgimento, tramite workshop, delle comunità locali nella riproposizione degli apparati decorativi tradizionali delle case in terra. Tale iniziativa ha offerto interessanti risultati scientifici per il riconoscimento e la condivisione del patrimonio fragile in terra radicato nella memoria collettiva. Successivamente, questo studio ha innescato una collaborazione di didattica e ricerca internazionale sancita tra l'Università la Sapienza e l'Universidad de Chile, con un accordo specifico sulla conoscenza per la valorizzazione, conservazione e recupero del patrimonio culturale, disegno, analisi e rilevamento, documentazione e divulgazione dei valori tangibili e intangibili.

The interest in the study of vernacular earthen architecture arose during Elena De Santis's thesis within the diploma of Specialization in Restoration of Architectural Heritage and Landscape. The study aimed at focusing on comparisons between two similar rural earthen heritage case studies, the Abruzzo's houses in 'massone' technique, [Fig. 01., Fig.02., Fig. 03.], also known as 'cob' or 'bauge' and a variety of Chilean adobe houses. Both countries share seismic vulnerability associated with certain earthen construction techniques provided with anti seismic devices (De Santis et Al, 2025). In this context, a contact with the Chilean professor and some local professionals were made, giving the professor expertise in this field and her scientific production (Jorquera, 2022: Jorquera, 2014 among others).

**01.**  
Dilapidated Massone house of Abruzzo located in the countryside near Casalincontrada (CH)

**02.**  
Massone house of Abruzzo located in the countryside near Casalincontrada (CH)



01.



02.



03.  
Massone house abandoned in the countryside of Casalinocontrada (CH)

During the academic pathway of Elena De Santis PhD course, the topic of earthen architecture has been expanded, focusing on the documentation and valorisation of decorative techniques applied on vernacular buildings façades in the Region of Coquimbo, Chile (De Santis et al, 2025). Earthen constructions (once considered as a symbol of poverty and fragility) have been rediscovered as an example of sustainable architecture. Earthen architecture is built using local materials with low environmental impact techniques and the hygrothermal properties of earth ensure adequate indoor thermal comfort, thereby reducing the need for heating and other active systems. Nonetheless, a significant portion of earthen-built heritage is located in highly seismic regions and is at risk of disappearing; this is the case of Abruzzo and Chile. In this regard, documentation, surveying, and characterization of this heritage represent a crucial contribution to the safeguarding of a rich yet extremely fragile legacy.

Chilean earthen heritage became an interesting case study, as Chile is one of the most seismically active country in the world (due to the subduction of the Nazca Plate beneath the South American Plate) and because the country possesses a rich earthen-built heritage across two-thirds of its territory.

As part of De Santis's PhD thesis ("*Conoscenza e valorizzazione delle tecniche decorative su edifici in terra cruda della Regione di Coquimbo, Cile*") and within the framework of the research project

"*Understanding and valorising decorative techniques on earthen buildings in Coquimbo Region, Chile*" (Jorquera et al, 2025) led by Professor Jorquera, the Italian researcher traveled to Chile to document the earthen-built heritage of the Coquimbo Region. As previously mentioned, during this work, she developed an interest in its decorative coatings, which until then had neither been studied nor properly enhanced, on which very little information and archival material could be found. In this way, the author's dissertation marked the beginning of cooperation between Sapienza University of Rome and the University of Chile, with Professor Emanuela Chiavoni serving as the dissertation advisor and Professor Jorquera as co-advisor. Thus, the decorative elements of the earthen-built heritage of the Coquimbo Region in Chile became the subject of study, while Italian methodologies—specifically those developed by the Department of History, Drawing and Restoration at Sapienza (DiSDRA)—regarding documentation, surveying, and characterization were applied to the research object. As a result of this thesis and international cooperation, scientific articles have been already published and others are under review (De Santis et al, 2024).

#### INTERNATIONAL AGREEMENT UNIVERSITY LA SAPIENZA E UNIVERSITY OF CHILE

This initial cooperation was formalized through an agreement between the Department of History, Drawing, and Restoration at Sapienza University of Rome and the Department of Architecture at the University of Chile, in 2023. Within the framework of the aforementioned international agreement between the two Universities, various scientific and cultural collaborations are underway, including activities such as scholar exchange visits, participation in research programs, academic meetings, seminars, and courses on topics covered by the agreement, as well as the exchange of scientific documentation and publications. Among the possibilities for scholar exchange there is the Visiting Professor project, which offers the opportunity for one of the faculty members to spend an extended period as a guest at the partner university, allowing for direct, collaborative research activities in the field (Docci et al, 2013). These longer periods of integration are particularly fruitful, as they provide opportunities for deeper mutual understanding, closer interaction in study processes, and the direct exchange of knowledge and teaching practices. During these stays, teaching activities are also carried out within various academic courses. In this context, the authors of the present contribution, submitted a project to Sapienza University to obtain a Visiting Professor appointment, aimed at conducting a comparative study between the earthen-built heritage of Chile and that of the Abruzzo Region in Italy, given the seismic activity in both territories and the similar characteristics of earthen heritage.

#### VISITING PROFESSOR PROJECT: A COMPARATIVE STUDY OF EARTHEN ARCHITECTURE OF ABRUZZO AND CHILE

The research project submitted to Sapienza, titled "*Survey and Characterization of Earthen-Built Heritage in Abruzzo: Comparative Studies between Chile and Italy*," aims to document, analyze, and characterize the earthen-built heritage in the Abruzzo region and northern Chile (Valle de Limari) through a methodology that emphasizes extensive fieldwork and active involvement of the local communities. The Abruzzo region was selected because of its rich vernacular houses built using the technique *Massone*, which reveals interesting constructive and decorative details [Fig.04., Fig.05.]. With the support of local organizations the project envisions developing knowledge pathways about earthen houses through on-site drawing, a valuable tool for social integration and community participation aimed at enhancing the value of the territory. The project also plans to involve, in addition to local residents, small groups of students. It proposes to carry out detailed



04.



05.



06.

Earthen house in Coquimbo, Region, where the ground floor is larger than the upper one for a better seismic performance

04., 05.

Abruzzo's earthen houses and typical details of materials and external finishes

surveys, including geometric documentation, chromatic, material, constructive, technological, and morphological analyses of the heritage structures (Chiavoni, 2019). As widely emphasized, Abruzzo is a region with a high concentration of earthen buildings, which are continuously threatened by the territory's strong seismic activity, abandonment, and the lack of a national policy for their protection and valorization.

The study of Chilean earthen-built heritage will serve as the starting point for the comparative analysis, as it offers an opportunity to observe construction techniques, the development of seismic cultures, earthquake-induced damage, and the resilience of a heritage considered both fragile and sustainable—encompassing all these characteristics [Fig. 06., Fig. 07., Fig. 08.].

During the survey itineraries in Abruzzo, structured as workshops, participants will be guided in drawing the rural heritage scattered across the Abruzzo territory following a selected route. At the end of the session, the works produced by the participating faculty and students will be collected, forming a fundamental historical record of this fragile earthen heritage of Central Italy.

This outcome, the result of the cooperation between the Italian and Chilean universities, will be delivered to the Permanent Documentation Center on Earthen Houses (Ced Terra), which was established specifically to collect testimonies of local knowledge on *massone* construction and it was officially recognized in 1996 under Regional Law No. 144/92, "Regulations on Museums of Local

Authorities and Local Interest." The presence of Sapienza University of Rome, through its Department (DiSDRA), along with the presence of Visiting Professor Natalia Jorquera, Associate Professor at the University of Chile, will ensure the quality of the activities carried out in the field. At the same time, the knowledge gathered on-site will be analyzed and shared within the DiSDRA, the PhD Program in History, Drawing, and Restoration of Architecture, and the Laboratory of Materials – AStRe-LabMat.

#### CONCLUSIONS AND FUTURE RESEARCH PERSPECTIVES

Earthen architectures are extremely relevant today, but remain largely unexplored, requiring critical reflection on their documentation and enhancement. The knowledge that leads to the scientific and cultural recognition of these tangible and intangible values – linked to construction processes and local craftsmanship – is a fundamental preliminary step in planning conservation and preservation actions for such architectural assets. The use of an analysis method that can always be replicated through drawing and scientific surveying of these structures allows for a critical reading of the form and geometry of the various characteristics. The acquisition of analytical data also allows the creation of two-dimensional and three-dimensional representations of great clarity and expressiveness, in terms of materials and colours.



07.



08.

07., 08.

Earthen houses in Coquimbo, Region with anti-seismic wooden reinforcements

One of our objectives is to survey, document and disseminate this heritage using the potential of advanced technologies and dynamic, interactive digital systems. The result of ongoing international cooperation is the development of a methodology for surveying, cataloguing, documenting and enhancing the built heritage of earthen buildings, whose importance lies in its replicability for other types of built heritage in different regions of Italy and Chile, as well as in other parts of the world where vernacular heritage and active local communities are present. The various comparisons and contrasts between the different buildings, together with the interdisciplinary nature of the study between surveying, history, restoration and technology, have increased the value of the project, also opening up new future research scenarios.

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