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Heritage for people

Sharing vernacular knowledge to build the future

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Stampato su carta di pura cellulosa *Fedrigoni Arcoset*

CONTENTS

CONSERVATION AND RESTORATION OF TRADITIONAL ARCHITECTURE

Camilla Mileto, Fernando Vegas
Universitat Politècnica de València, Valencia, Spain

Traditional architecture goes beyond an established concept or image. It does not respond only to its builders' project, engineered and manufactured from arcana and artisanal gestures (Vegas, Mileto, 2011). The architectural forms which have evolved over centuries are not merely the result of the local availability of materials and climate conditions, but the result of many centuries of trial and error. In addition to these factors we find another vital component: culture. Traditional culture is made up of the trades, processes and techniques, the relationship with the territory and the landscape, the forms of use of architecture and its status as framework for socialisation. Traditional architecture is therefore not only tangible heritage, but also an important intangible heritage which cannot be separated from it.

This brings up the need to question what is conserved when restoration work is carried out on traditional architecture. Undoubtedly, the building as object is conserved, but at the same time so is all the intangible baggage of the architecture, contemplating the history of its culture, tradition, materials, ancient construction techniques, and probably also its connection with the surroundings, manufacturing processes, transmission of knowledge to guarantee its survival, etc. (Mileto et al., 2020).

The conservation of traditional architecture is not an exercise limited solely to protecting or freezing a building but is also a dynamic action, which has the capacity to transmit knowledge, educate and raise awareness among owners, residents, intervention stakeholders, tourists and the general public. This is a feedback process, as the greater the awareness, the higher the expectations for the protection and conservation of other examples of vernacular architecture, both locally and beyond.

In view of the complex nature of traditional architecture, what are we conserving when we undertake the restoration of a traditional vernacular building?

The answer is nuanced, since the restoration of traditional architecture, when carried out with respect, sensitivity and full awareness of its substance, entails, among other things, the conservation of the material form, the reactivation of trades, the promotion of the local economy, the fight against depopulation, the reaffirmation of cultural identity, the defence of the natural territory and landscape, the promotion of sustainable tourism, and actions against climate change.

opposite page
Sod constructions, Iceland.
The conservation and enhancement of the vernacular architecture characteristic of each place, such as this building, simultaneously allows the reaffirmation of the local identity
(credits: authors)

The material conservation in wooden architecture in Finland means over time replacing damaged parts using the same construction techniques

The conservation of traditional thatched houses in Miyama (Japan) has encouraged the revitalization of the thatching craft

(credits: authors)

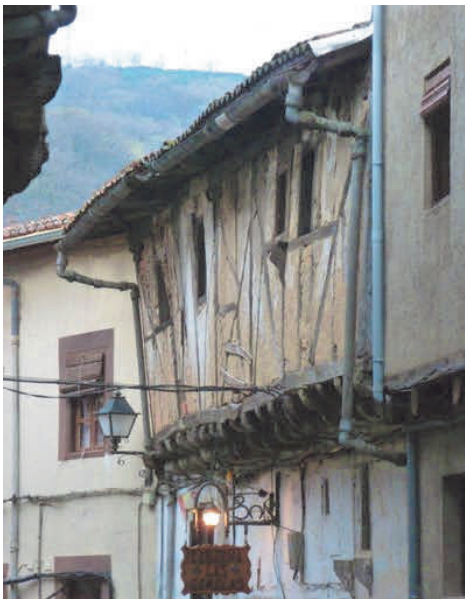
Conservation of the material form

The restoration of traditional architecture aims mainly to preserve the material form of the original building in a manner compatible with its intended new use or distribution and installation updates to contemporary standards. Often, material conservation also entails the preservation of the typical construction or imprints of the artisanal execution of this type of building, which are so closely linked to the human experience of traditional master builders. In material terms, the conservation of the building is also the conservation of an object which can be further studied in the future as a source of knowledge concerning materials, construction techniques, degradation or conservation processes, and traditional prevention and conservation processes. Furthermore, the restoration of a given type of architecture requires a deliberate attempt to understand the previous uses and functions of these spaces, their reciprocal relationship and distribution, their relationship to people and social and family structures, as well as aspects such as lighting, ventilation, regulation of temperature and sun exposure, etc.

Renewed popularity of trades

The restoration of traditional architecture often also entails the conservation or promotion of local or regional traditional trades. Restoration does not always equal the reproduction of parts, elements, or techniques belonging to historic architecture, but it does require a knowledge and understanding of the architecture of the past in order to repair it.

Traditional trades which are actively conserved and safe from globalising construction trends allow both the filling of the *lacunae* found in the building and the repair of its construction. In extreme cases, where traditional trades have completely disappeared, restoration offers the opportunity to rediscover materials and techniques, reactivating them through use.



Promotion of the local economy

This reactivation of trades not only affects the survival of this individual artisanal and manufacturing culture, but also the promotion of the local economy. In fact, for the same cost, the investment in restoration, particularly the restoration of vernacular architecture, leads to a higher percentage of local labour hired compared to new constructions, where higher percentages are allocated to the acquisition of premixed or prefabricated materials, usually in locations far from the construction (Mileto, Vegas, 2006).

Fight against depopulation

A second and equally important consequence of the reactivation of trades is the settlement of population in areas which are often rural and at risk of depopulation. If local economic activity provides the necessary living means to support a family, not only does the local population remain, but there is also an influx of people in search of work. This has been the case in rural areas which welcome manual labour from other countries to cover the growing demand.

Reaffirmation of cultural identity

The restoration of the traditional architecture of a given area, with its authentic character, simply strengthens its personality and distinctive nature when compared to other regions and to other transformed or globalised urban settlements. This defence of individual culture with reference to the built matter generates or strengthens the feeling of identity and, as a result, a growing desire to respect and conserve it from external interference that is not strictly necessary.

Historic center of La Alberca, Salamanca, Spain.
The conservation of environments with their original vernacular character also promotes sustainable tourism

Half-timber wall in Garganta La Olla, Cáceres, Spain.
The restoration of vernacular architecture in the face of a possible replacement constitutes an action to fight against climate change due to the enormous savings of energy and carbon emissions into the atmosphere

(credits: authors)

The rehabilitation and restoration of rural houses and auxiliary buildings on the island of Formentera defends the territory and the natural landscape against the threat of speculative urbanism
(credits: authors)

Defence of the natural territory and landscape

For a number of reasons the restoration of existing traditional architecture does not only involve the re-affirmation of cultural identity but also often the defence of the surrounding natural territory and landscape. From the outset it avoids the need for the construction of new buildings using contemporary materials and techniques which often distort the surroundings; it is a preventive measure against unnecessary or excessive growth of nuclei through expansions, at least whenever there are historic buildings available for reuse, and it reduces the impact on quarries and the exploitation of materials in the immediate surroundings of traditional locations.

Promotion of sustainable tourism

The conservation of cultural identity also attracts sustainable tourism, often directed to inland nuclei and regions in areas where there is no coast. These tourists visit the sites in question attracted by the integration of natural and cultural landscape and the authentic vernacular architecture which can still be found in them.

Action against climate change

The restoration of traditional architecture, especially when resorting to traditional local construction materials and techniques, characteristically sustainable and circular in nature, is also a silent and anonymous, yet ultimately powerful action in the fight against climate change. Recent studies have estimated savings of up to 80% compared to the carbon footprint caused by the new construction of a similar building and 50% in relation to the carbon footprint generated by a restoration using industrial materials (Mileto et al., 2021). Therefore, while from the perspective of climate change it is convenient to conserve the existing building, its restoration using traditional construction materials and techniques is also doubly useful and efficient.

References

Mileto C., Vegas F. 2006, *La restauración de la arquitectura tradicional como recuperación de los valores culturales y desarrollo económico. La experiencia en el Rincón de Ademuz (Valencia)*, in *Actas del II Congreso Internacional de Patrimonio Cultural y Cooperación al Desarrollo, Valencia, Spain. 8-10 June 2006*. Universitat Politècnica de València (PUV), Valencia, pp. 256-265.

Mileto C., Vegas F., Diodato M., Cristini V., García L. 2020, *3D Past. Guidelines and strategies for maintenance of vernacular architecture in World Heritage Sites*, La Imprenta, Valencia.

Mileto C., Vegas F., Llatas C., Soust-Verdaguer B. 2021, *A Sustainable approach for the refurbishment process of vernacular heritage: the Sesga house case study (Valencia, Spain)*, «Sustainability 2021», no. 13, 9800, https://doi.org/10.3390/su13179800.

Vegas F., Mileto C. 2011, *Aprendiendo a restaurar. Un manual de restauración de la arquitectura tradicional de la Comunidad Valenciana*, COACV, Valencia.

RESTORATION OF A VERNACULAR HOUSE IN SESGA, VALENCIA (ES)

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VERSUS SUSTAINABILITY PRINCIPLES

2. Taking benefit from natural and climatic resources
3. Reducing pollution
4. Ensuring environmental comfort and well being
5. Reducing disaster risks
7. Transmitting and sharing building cultures
8. Encouraging creativity
9. Recognising intangible values
11. Supporting autonomy
12. Promoting local activities
13. Optimising construction efforts
14. Extending lifetime
15. Saving resources

This humble house which, based on the dendrochronological analysis, was originally built in 1732, was reconstructed and enlarged during the Forties of the 20th century, in both cases using traditional local construction techniques: structural pillars made of gypsum, jack arch floors with logs and gypsum-poured vaulting, thatched and tile roofs, walls in masonry or stone masonry, and partitions made with stone slabs bonded with gypsum. The restoration of this house, which was in a deplorable state of preservation due to being abandoned for fifty years, has made use of local trades, craftsmen and materials, as well as of traditional construction techniques, or an interpretation of them for the sake of compatibility, decarbonisation and sustainability, understood in their broadest sense. The collapsed sections have been reconstructed using wooden logs and gypsum-poured vaulting, the traditional reed board of the roof plane was plastered over; the roof tiles were bonded with a mixture of earth and straw to increase adhesion and flexibility against the movements created by the thermal gradient. The historical carpentry of doors, gates, shutters and partitions have been consolidated, and the masonry walls of the first floor have been grouted with clay, in accordance with tradition, to avoid the rise of humidity by capillarity. After several lab tests using different gypsums and plant-based reinforcements, some innovations, based in tradition, were introduced, such as the compression layers of the floors using gypsum reinforced with reeds or a hemp rope mesh and the plastering reinforced with tightened strings, or the insertion of log ties, the use of traditional waxed gypsum or burnished limecrete pavements, the restoration of the original furniture, etc. Preference has been given to work units with a high proportion of manual labour instead of favouring alternatives with a greater presence of machinery or processed materials, in order to promote the local trades and craftsmen. It has been possible to demonstrate with numbers that restoration interventions benefit the local activity and local economy to a much greater extent than a similar project involving a new construction. Finally, a Life Cycle Assessment of the restoration of this house with local materials and traditional techniques has been carried out, which shows an extraordinary potential in terms of decarbonisation for the environment, not only compared to a new building of similar characteristics, but also compared to a similar restoration carried out with already processed industrial materials.

House at Sesga once restored
Applying the waxed gypsum flooring
(credits: F. Vegas, C. Mileto)

URBAN BUILDING ON CALLE MALDONADO 33, VALENCIA (ES)

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This nondescript urban building located in the historic center of Valencia, being under no heritage protection, was initially condemned to be demolished and replaced with another social housing building of similar characteristics. At the proposal of the architects, the building was restored in its current state. Research in the historical archives, with the support of mensiochronology, dendrochronology and chronotypology, and a study of the building's materials and construction techniques, allowed dating its original construction to approximately 1580, as well as subsequent alterations carried out during the second half of the 18th century, in 1864 and 1900, which had concealed its former configuration and true antiquity. The building had been constructed with brick walls, jack arch floors with flat-tile vaulting filled with gypsum and roof with timber rafters and ceramic board covered with tiles. It also included half-timber walls in the courtyard with dovetail joints whose construction dated back to the 18th century. This is a technique that was quite common in the past, yet has practically disappeared from the historic center of Valencia. The project resulted in three social housing apartments, one for each floor, as well as a commercial unit on the ground floor. The inclined floors were reinforced and leveled with wooden trusses; the timber of beams and joists was repaired and the deflection of the joists was leveled with wooden ribs, which also added bearing capacity; the floors were consolidated with a dry compression layer of plywood; the colored cement tiles were restored; the corroded anchorings of the balconies were repaired, as well as all historical ironwork and woodwork; the historical wooden eaves overlooking the courtyard were recovered; a treatment was applied against the termites that were damaging the building; the simple ornamental paintings that decorated the 18th century gypsum jack arch vaulting of the floors were recovered; and finally service installations were upgraded to contemporary residential standards. The result was the same three social housing apartment building which was to be built anew by demolishing the existing building, but at a much lower cost and with an extraordinary added bonus in terms of history, spatial quality and traditional finishings.

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VERSUS SUSTAINABILITY PRINCIPLES

3. Reducing pollution
4. Ensuring environmental comfort and well being
7. Transmitting and sharing building cultures
8. Encouraging creativity
9. Recognising intangible values
13. Optimising construction efforts
14. Extending lifetime
15. Saving resources

A view of the building from the street
Inside of the restored apartment
(credits: F. Vegas, C. Mileto)

CONSERVATION OF A VALENCIAN BARRACA (ES)

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BUILDING SUPERVISION
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VERSUS SUSTAINABILITY PRINCIPLES

2. Taking benefit from natural and climatic resources
3. Reducing pollution
4. Ensuring environmental comfort and well being
5. Reducing disaster risks
7. Transmitting and sharing building cultures
8. Encouraging creativity
9. Recognising intangible values
11. Supporting autonomy
12. Promoting local activities
13. Optimising construction efforts
14. Extending lifetime
15. Saving resources

The *barraca* is a traditional dwelling from the area surrounding the city of Valencia (Spain), found in the southern lagoon area and in the cultivated areas to the north, as well as in the old fishermen's quarters on the Mediterranean coast. This vernacular architecture, housing for fishermen and agricultural workers, is part of the tradition of building around Mediterranean bodies of water, as well as other marshes and lakesides worldwide. *Barraca* walls were built with adobe, wattle-and-daub or cob walls and the roof was thatched on timber structures and reeds. This heritage, which is both local and global and is a clear representation of a now-extinct culture, has long been neglected, replaced and mistreated. Only recently, on the verge of complete extinction, has it been highlighted as cultural heritage and as a source of information on environmental, socio-cultural and socio-economic sustainability in relation to circular economy and climate change. The adapted reuse being carried out in the listed *barraca* of the Aranda family was based both on extensive research aimed to recover materials, techniques, and trades, and on the dissemination of the local and global values of these buildings and the tangible and intangible culture they harbour through lectures, documentaries, technical specialist visits, students, administrations, etc. The aim is to prevent this adapted reuse from remaining merely an isolated action, in order to become instead part of a process which enables knowledge, valorisation, conservation, education, training, awareness and innovation.
The conservation process of the *barraca* of the Aranda family began by dismantling the remains of the timber structure which had collapsed partly due to termite damage. Subsequently, the adobe walls, which were at a 75 degree angle due to the thrust from the roof rafters, were reinforced following the disappearance of the tie beams that provided stability to the structure. This reinforcement consisted in adding a side foundation underpinning in lime concrete and a new adobe wall on the outer side of both longitudinal walls, connecting the new and the original walls so that they work jointly. The timber structure was then assembled, adding the reed board, gypsum render, and other intermediate gypsum and cork layers in compliance with current fire regulations, before thatching the roof back.

Building the reed layer of a traditional barraca
(credits: S. Tomasi)

The thatched barraca after restoration

Internal view of the restored thatched barraca
(credits: V. Jimenez)