

## Restoration of Gothic Wooden Ceilings

Fernando Vegas<sup>1</sup>, Camilla Mileto<sup>2</sup>

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### Extended abstract

The church of Virgen de la Asunción is located in the central core of the mountainous village of Vallibona (Castellon, Spain), surrounded by vernacular housing in its East, North and West facades. When it was built between the end of 13th and the beginning of 14th century, it was a single nave divided into five sections by four main ashlar pointed arches that supported the wooden polychromatic ceiling and the gable tiled roof. At the end of 17th century, the church was converted into a Baroque temple, building a decorated barrel vault inside the existing temple concealing the gothic wooden ceiling behind it. Moreover, at the beginning of 20th century, a new big chapel was added laterally to the North elevating the gable end of the church to cover the new whole. This involved dismantling the wooden ceiling of the northern gable and re-assembling it anyhow in disorder as an extension of the historical southern gable, elevating the gable end in order to build a new northern gable able to cover the new adjacent chapel. Finished the timber from the gothic northern gable reused in the extension of the historical southern gable, it was then necessary to build the new northern gable with new timber in the form of wooden logs and wickerwork between them as a base for the upper tiles.

A very detailed survey has been made based upon orthophotography, that has helped to define the exact dimensions of the wooden pieces, its assembly, constructive details, painted decoration and current damages. Nearly 3.000 photographs have been taken of every painted face of each piece forming the Gothic wooden ceiling. All these photos have been afterwards graphically rectified in order to create metrical orthophotos to be inserted in the architectural survey. Hundreds of plans have been developed this way, forming a unique architectural, constructive and decorative documentation of the whole wooden ceiling and its current state, that present many leaks that are not only washing away the coloured paintings and exposing the wood to insects and fungus attacks, but also affecting very seriously the Baroque vault built with flat vaults bonded with gypsum and with a very complex decoration made of gypsum.

The restoration project has been thought in order to be able to restore and put into value the Gothic ceiling without demolishing or even affecting the Baroque vaults that give the current main character to the church, allowing the usual visit of the church and the direct and near observation of the Gothic coloured ceiling in the space between the extrados of the Baroque vault and the roof gables. The project has considered and evaluated three possibilities. The first one consisted in leaving the relocated wooden pieces of the former northern gable in its current disordered position at the extension of the southern gable, favouring the documental value of this disorder, as this situation also forms part of the history. On the other hand, taking into account its accidental placement, the second considered option was to try to re-assemble it in a better ordered disposition, similar to the original one in Medieval times. The third option considered the restoration of the southern gable ceiling in situ and the

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<sup>1</sup> Fernando Vegas, IRP, Universidad Politécnica of Valencia (Spain), fvegas@cpa.upv.es

<sup>2</sup> Camilla Mileto, IRP, Universidad Politécnica of Valencia (Spain), cami2@cpa.upv.es

dismantling of the former northern gable ceiling in order to restore it and relocate it hanged under the wooden ceiling as part of a permanent exhibition of the history of the building itself.

Being objective, we could argue against the first option, i.e. leaving the relocated wooden pieces from the former northern gable in their present chaotic disorder, that many of them are upside down in touch with the tiles mortar or form part of the improvised floor under the roof, in both cases seriously jeopardizing the paintings. Being subjective, it is true that on the contrary to the original southern gable that is possible to restore in situ, the disordered relocating of the former northern gable with beams, purlins and boards out of the original rhythm does not help at all to restore them, at least, what regards the paintings. Dismantling the roof in order to have access to these pieces, restoring them and relocating them in their hazardous ubication or even upside down in touch with the tiles mortar, would be an absurd.

The second option of relocating the former northern gable in its Medieval original situation would have caused serious problems of draining for the roofs because of the existence of the new chapel, would have cancelled the generous space under the roof and would have made it difficult for the visitor to observe the interior. The reconstruction of the whole northern original gable *com'era dov'era* with these pieces would have been anyway difficult, because most of the special pieces of the central more preciously decorated part had been pillaged. Ultimately, the alternative option of incorporating constructively the former northern gable as an ordered extension of the original southern gable would have been very expensive and difficult to manage. In fact, given the disorder of the pieces, this approach would have meant the restoration of the whole ceiling in just one turn, forcing to build an auxiliary roof while finishing the restoration, classification and reordering long processes.

With all these arguments in hand, it was decided the third option, i.e. to tackle an in situ restoration of the original southern gable, dismantle the relocated and disordered former northern gable to restore it in workshops and expose it afterwards. Before proceeding to repair the tiled roof, it was necessary to previously consolidate the paintings, because many of them were risking to peel off. Thus the process for each ceiling sector would be following: consolidation of paintings from the interior in order to avoid losing them with the help of Japanese paper if necessary; dismantling of the tiles and piling them for reuse; eliminating the mortar and/or other layers till arriving to the extrados of the painted wooden boards; carefully dismantling of the wooden ceiling in the former northern gable nowadays placed in disorder as an extension of the southern gable numbering and classificating all the painted elements in order to be restored in workshops; building of new beams, purlins and listels following the existing constructive logics and rhythm in the original southern gable; treating all the wooden ceiling against insects and fungus; creating a ventilated and thermic isolated chamber on the wooden ceiling extrados and a second layer of fenolic boards sealed in their joints for improved waterproofing; putting again the original tiles; and finally, once eliminated all the leaks, restoration of the polychromatic wooden ceiling of the original southern gable in situ. On the other hand, once restored in workshops, all the recovered pieces of the former northern gable would be remounted constructively in place, hanged at short distance from the new wooden ceiling in order to be exposed for the visitors in the big central space. It would be also possible to organize a perimeter course upon the Baroque vaults in order to be able to observe not only the relocated northern gable from the existing generous space under the roof, but also the southern gable in its original position.

According to the available finncement, a first phase of repair has been executed in the fourth and fifth sections, as described. While dismantling the tiled roof, a historical protection layer of 8 cm of earth for the Gothic ceiling was uncovered, as well as other details of its original assembly system, building site organization, painting system and artisans... For example, wood was cut with a hand saw and then sanded only on the exposed surfaces; numbered incisions have been discovered on the purlins' upper surface that indicated their position within the wooden ceiling; there were only five different painters, one for each section, with a different style and painting manner, and so on. All these data may allow us to re-assemble logically and orderly the former northern gable during next interventions in near future.