



Loughlin Kealy  
Stefano F. Musso  
Editors

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# CONSERVATION/ TRANSFORMATION

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**Stefano F. Musso**  
Editors

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This book presents the papers written by 65 participants after the 2nd Workshop in Conservation, organized by the Conservation Network of the European Association for Architectural Education in 2009 in Ireland.

The workshop was attended by almost 65 participants representing: Belgium, Denmark, France, Ireland, Italy, Poland, Portugal, Spain, United States of America, United Kingdom.

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Professor Stefano F. Musso  
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# Conservation/Transformation

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# Teaching Architectural Restoration through Reflection on Intervention Criteria

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The experiment presented here involves Architectural Restoration, which is taught as a compulsory subject in fifth year at the Superior Technical School of Architecture in Valencia. The discipline of architectural restoration is not common to all Spanish schools of architecture, but rather an exception. Where it does exist, it is usually an optional or free choice subject. However, at the Superior Technical School of Architecture in Valencia, this subject is obligatory, so students will have to take it before graduating.

Certainly not all the future architects who study at our school will dedicate themselves to architectural restoration as their specialisation in the future. But it is true that it is more and more difficult to go through one's professional career without receiving a commission that is somehow connected with refurbishment, conversion, restoration or with intervention to an existing building, be it monumental or residential, noble or modest, urban or rural, etc. At the European level, today's statistics show that at the present time, over 50 per cent of an architect's professional work involves interventions to built edifices. In Spain, at least before the appearance of the current recession, all the statistics leaned towards new buildings, but it is likely that in the near or medium future, the number of projects for intervention to existing buildings will outnumber the projects for new buildings.

For that reason, in the short span of forty-two academic hours in a quadrimester, it is necessary to teach basic restoration concepts that will permit future architects who are not going to specialise further to intervene on our built heritage. Taking into account that restoration materials, products and techniques change with great speed over the years, the authors believe that it is not so much a priority to teach these short-lived items as it is to impart basic criteria that will serve as a reference for any type of intervention (Earl 2003: 3-4).

The approach to teaching this subject involves a continuous reflection on the criteria that form the basis for architectural restoration works. The subject also includes the teaching of some rudiments of the history of the discipline of architectural restoration. It also involves a sometimes cyclical history of

the criteria and concepts applied to restoration over time, with examples of restoration according to each of the theories and trends. This serves to create open-minded reflection about the effects and concrete impacts they have on the constructed building.

Why insist on teaching basic criteria for the restoration of heritage buildings? The growing interest in heritage and the scarcity of work in other areas of the discipline are giving rise to a growing number of professionals dedicated entirely or sporadically to the world of restoration. Furthermore, the important technical development of the discipline of restoration has exponentially complicated the scenario for intervention on heritage, and has disconcerted those professionals who are unable to keep up with all the novelties in this field. Thus, the greater number of professionals working in restoration, even if they have been well-trained, nevertheless may be less well-prepared from a technical point of view, because it is very hard to cover all the knowledge involved. This makes it necessary to teach basic criteria that can make up for the deficiencies and lack of both the technical and conceptual knowledge and training.

There are some dangers involved in the discipline of restoration that can be mitigated, to a certain extent, by the teaching of some basic criteria. These dangers are the other side of the coin to those described above: the lack of information and often of experience on the part of technicians, the excess of trust or blind faith in technique and technology as main guidelines for restoration, as well as the insufficient theoretical reflection that accompanies many interventions today.

The solution proposed to solve all these problems is a more in-depth reflection on the basic restoration criteria, not as a useless, unfounded theoretical debate, but as a permanent dialogue with the building during the process of preparing the preliminary study, drawing up the project and executing the works, that will make it possible to find the most suitable solutions for its restoration (Mileto & Vegas 2005).

Concepts and criteria include: the authenticity of the historic document; the building's character and aura; compatibility in all the aspects of the intervention (material, structural, building, functional, etc.); sustainability as the basic principle of the intervention in residential, rural, non-monumental heritage edifices and in historic cities; reversibility of the intervention as a goal to be fought for; the 'distinguishability' of the contemporary additions and measured expressive modernity as regards the compatibility of its impact; capacity to transmit antiquity as an added value in a restoration intervention (Carbonara 1997: 450-451) – these constitute the core of the students' continual reflection, debate and practice.

The criterion of conservation of authenticity applies both to the material

document and to the character of the building to be restored. The historic building must be considered as a document that is to be conserved in all its authenticity, with its different parallel or layered histories as regards the project, its construction and transformations, its restoration architects, later restorations, prevalent customs, tastes, artistic and aesthetic intentions, etc. By conserving the material document as much as possible in the manifestation of its surfaces, its genuineness is conserved at the same time (Vegas & Mileto 2007: 7). On the contrary, trying to simplify the complex stratified history of the building to achieve a fictional unity often brings about not only a loss of authenticity, but an impoverishment of the built heritage reflected in the edifice. The reversibility of the intervention is a criterion that allows us to measure, to a large extent, the impact of our intervention on the building. It allows us to evaluate the real need for the intervention, as well as to consider different options for utilising materials and building methods, always providing for the possibility of reversing the intervention on the historic building. The reversibility of the intervention is desirable in order to ensure the conservation of the authentic document, since an incorrect intervention could thus be eliminated without damaging the pre-existing building (Pasetti 2003: 169-171). The best guarantee of complete reversibility is always to add rather than remove during the intervention. Indeed demolition is the least reversible action in an intervention. But an addition can also have a different effect and impact on the building, depending on what is added and how.

As with other concepts, the criterion of reversibility is illustrated to the students by means of actual examples. One of the most often referenced cases is the different restorations of Roman or Greek theatres carried out in the last few decades. The city of Valencia lies 24 km away from Sagunto, location of the Roman theatre that underwent a total, and in many ways irreversible, intervention by the architects Giorgio Grassi and Manuel Portaceli. Following legal proceedings instituted as the result of a private complaint, the court verdict concerning the works came out a year ago. It was unfavourable to the intervention carried out, precisely because its irreversible character went against the provisions of the Heritage Law of the Valencian Community. However, the verdict was paradoxical. It obliged the Administration to reverse the intervention, because its irreversibility constituted a breach of the law, although the institution responsible managed to avoid carrying out the onerous *de-restoration* contained in the verdict, precisely because of its patent irreversibility.

Other restorations of Roman theatres in Spain have been much more discreet and reversible, as is the case of Segóbriga and Mérida. The intervention in the Roman theatre in Cartagena by Rafael Moneo is far more invasive, although not to the same extent as in the case of the Roman theatre in Sagunto. Other

theatres from ancient times, situated in Italy, such as Siracusa, Taormina, Verona, etc., have been restored by means of completely reversible and provisional portable devices, so that they can be used in the summer, thus respecting the authenticity and genuineness of the ruins.

The criterion of reversibility is also presented to the students from the point of view of structural interventions, considering above all, the negative and difficult-to-reverse effect of many structural consolidation works with reinforced concrete on historic buildings in the twentieth century, especially from the 1920s onwards. The students learn to distinguish between a reversible and an irreversible structural intervention, also in relation to other factors such as the compatibility, visibility and innocuousness of the works.

On the other hand, it is always good to implement the minimum intervention necessary in order to conserve and guarantee the survival of the building, and to avoid unnecessary innovation and embellishment works that do not respect the authenticity and antiquity of the building. This criterion of minimum intervention must guarantee the material and structural conservation of the building, and restore its functionality and necessary decorum, even as regards the design of the new elements that are strictly necessary to achieve this end. In the same way, this criterion is illustrated with examples of restorations that feature consolidation of structures with few elements, selective re-bonding of materials, or improvement rather than total compliance with the standards required by regulations regarding structures, fireproofing, insulation, function, etc.

The students are also taught the criterion of distinguishability and expressive contemporaneity, according to which the intervention (especially if it involves the addition of matter) should be distinguishable in order to conserve the authenticity of the historic document. The new should be distinguishable from the old. However, this criterion gives rise to a large range of possible technical, physical, material, linguistic, etc. ways of achieving this distinction. This range of possibilities goes from those interventions where the addition of matter ends up being far too obvious to those that adopt a subsidiary role barely noticeable to a specialist in the subject. For that reason, the Gestalt theory is used to analyse the concepts of figure and background applied to the addition of matter in a historic building during restoration, so that the students can learn how to gauge the intervention.

At this point it is a good idea to review also the contemporaneity and wisdom of Camillo Boito's proposals for distinguishing the new from the old, ranging from the difference in style and material to the simplification of outlines and decoration, and not forgetting the practice of engraving dates and placing inscription tablets in a nineteenth-century context, where above all, the obsession was focused on linguistic issues.

The compatibility of the intervention is another fundamental criterion for students to follow. It should be pursued in order to best conserve the building in every aspect: material (physical, chemical...), structural, visual, aesthetical, spatial, functional, characterwise (Pasetti 2003)... This criterion is absolutely necessary in the profession of architect-restorer, not only from a material point of view, where we have seen a large number of restorations in the past in which the solution is worse than the problem (Esponda 2010), but also at a other levels: the functional level (if the programme exceeds the reasonable possibilities of the building); the structural level (when the structural operation of the building is completely changed, and the point of view of character, aesthetics and appearance (in particular when the new additions do away with the essence of the building), etc. (Doglioni 2008: 255-258).

The durability of the intervention is another concept that is studied and taken into account in the teaching of architectural restoration. Durability of the intervention helps conserve the building better. In this sense, the material and structural compatibility of the parts added to the existing building is deemed very important, as we explained in the point above, and also the durability of the new materials themselves. The idea is not only to make our intervention last longer, but to ensure it does not have a negative effect on the durability of the building being restored. This criterion is illustrated by means of unsuccessful examples, where inappropriate and apparently harmless interventions in buildings, hundreds and even thousands of years old, have involved a loss of durability and even endangered their survival.

In this subject, a specific theory or attitude is not presented in a dogmatic manner, but in the belief that comparing different ideas develops the students' critical capacity, so that they can later proceed in any situation according to their own judgement and not by indiscriminately copying rigid models. In this way, the classes become an interactive dialogue between students and lecturer and a continuous debate is established with ideas, opinions, criteria and enlightened remarks.

In the practical exercises, the students, in groups of about six, draw up a restoration project for a small building, which starts with a complete preliminary survey with its phases of historic study, metric-descriptive mapping, preparation of photoplans, material elevations and lists of building methods, a study of material pathologies, a study of structural pathologies, a stratigraphic study and files of the different materials, building methods and pathologies. Once they have completed the preliminary survey, the group must reflect on the restoration criteria to be applied in their restoration project, in view of the criteria debated in class, their knowledge of the building and their own personal view (Mileto, Vegas & Noguera 2008). After this long written reflection, they start the layout, function and computer simulation of



the restoration project, giving the results and major details. This project is evaluated, not so much according to their choice of one method or other, but with regard to the coherence between what they say in their report and what is demonstrated in their restoration project.

The same didactic method is also used in the teaching imparted in the official Postgraduate Course in Architectural Heritage Conservation, where each of the two authors teaches a subject of 40 hours, that is, similar in length to the undergraduate subject described above. Indeed, the basic criteria for architectural restoration are expounded and illustrated in a series of lessons where the students mull over what they are taught. At the same time the students are asked to choose a recent restoration in their town, or published and divulged in the usual media, and to carry out research into the criteria applied by the authors of the restoration project on that particular building. After doing this work, all the students report their conclusions to the teacher and the rest of the class and a debate – often quite heated – arises about the cases studied.

The experiment carried out by the two authors (professors of undergraduate and postgraduate studies at the Superior Technical School of Architecture in Valencia) demonstrates that teaching restoration criteria really makes its mark on the students, clarifies their ideas and prepares them to tackle the restoration of historic buildings, regardless of the degree of complexity and technical content. In addition, teaching the history and theory of restoration complements these studies, but is merely a parallel aspect of the subject, taught by means of dialogue and debate and consisting of considering and illustrating some basic restoration criteria.

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