The RehabiMed Guide
to the rehabilitation
of traditional buildings

An integrated approach
to the building
Objectives of the Guide

With the aim of rehabilitating traditional architecture in a conscious, orderly and adequate manner, this document offers the architect/engineer a guide to follow during the rehabilitation of traditional buildings.

The way we have chosen, though not necessarily the only one, first of all defends the need to preserve the fact of ‘dwelling’, both in the sense of improving the living conditions of inhabitants and preserving the meaning of this architecture within the community. Secondly, it sets out to recognise traditional architecture as part of the Mediterranean cultural landscape. Its rehabilitation with a minimum rigour represents the transfer to future generations of heritage values (historical, artistic, memorial, testimonial, etc.).

We have to point out that acting according to these principles calls for an arduous task of sensitization: of the technical professionals, because most of their university training is based on the construction of new buildings using reinforced concrete and industrialized techniques that are hard to reconcile with this architecture, and of the community, because it is vital for it to recognise the testimonial value of its architecture. To this end, we propose mechanisms for the community’s active participation in decision-making.

It is also a guide that sets out to be, as far as possible, ‘scientific’, ‘objective’ and ‘precise’, and one that places a great deal of emphasis on the initial phases of diagnosis and reflection prior to the project; it is a guide that disagrees with interventions in built environments carried out without a thorough knowledge of the building and its circumstances, on the basis of the fact that ‘this is how it's always been done’; a guide that mistrusts the excesses produced by a blind faith in new technologies applied without criteria; and, finally, a guide that aims to cut back the habitual lack of economic control of rehabilitation work.

It is quite true that for each specific building it is necessary to find the scale and scope of each of the stages proposed. The RehabiMed guide therefore presents a general outline of maxims to be adapted to each specific case.

The guide takes as its starting point the premiss that if we do not know, we are unable to reflect and, therefore, we cannot rehabilitate. It therefore proposes four divisions of the process (knowledge, reflection and the project, the work, lifespan) within which the different stages of work are carried out.

The aspects of architecture and construction proposed in a guide of this kind for the rehabilitation of buildings might seem to be well known to all, but the very fact that they are known often leads to false premisses in the various stages, and the quality of rehabilitation work tends to suffer.

To close this introduction, we would just like to remind that this guide acquires its maximum value when it is applied in a broader area of action, whether on the scale of the district, the town or the territory, and as part of a coordinated action plan as proposed in the RehabiMed Method for the rehabilitation of traditional Mediterranean architecture.
The initial agents in the process

The foremost agent in any operation to rehabilitate a building is the owner, who may be public or private, individual or collective. In all cases, the owner represents the soul of the operation, the seat of the desire to improve a home, do business, simply keep a building standing, share in the collective enthusiasm of improving a street, etc. It is also important to remember that some or all of the dwellings in an apartment building may be rented, and the needs and opinions of the tenants therefore have to be taken into account.

On the other side of the relation, the architect/engineer is the professional qualified to direct the various stages of rehabilitation with the collaboration of a multidisciplinary team. This guide uses the term architect/engineer, though in the Mediterranean context we find various professionals who are qualified, totally or partially, for this kind of work, such as the architect, the architect-engineer, the building engineer, the technical architect, etc. However, the complexity of careful rehabilitation work means that they are particularly trained and sensitized to these issues, as well as being open to the collaboration of experts from different disciplines (historians, anthropologists, restorers, topographers, etc.).

The third agent in the process is the builder or contractor. The role and capacity of this figure is different all over the Mediterranean. In some areas, traditional know-how has completely disappeared, whereas in others it is still possible to build as it was done in the past. By protecting traditional Mediterranean architecture, we are also protecting these crafts.
The phases of the Guide

RehabiMed observes how, in practice, the client decides on a series of improvements or changes to be made to a building and immediately undertakes rehabilitation work. In some cases, the client will consult an architect/engineer, but the result of rehabilitation is the reflection of the immediate needs of the moment. Some would argue that it has always been so, that this is an ‘architecture without architects’, but we all know that the organic growth of pre-industrial architecture responded to techniques and conduct that were distilled by tradition and carried out by true professionals, experienced workmen, whether master builders, masons or maalem, who all form part of a world that has practically disappeared. The proposal of the systematic participation of university-trained technical professionals may seem a frankly technocratic alternative, but we think it responds to the reality of the far-reaching social changes in the Mediterranean basin. All of these technical professionals have to be aware of the inevitability of most of these changes and the fact that, as Kevin Lynch reminds us, they will probably only be able to ‘manage transitions’.

As a rough guide, we might say that, while in general practice the process comprises just two phases (the decision to take action and the work itself), RehabiMed proposes a sequential procedure, a process in four consecutive phases that begins with the decision to act:

I. Knowledge: any intervention must be preceded by knowledge of the building and its occupants. Stage one (1. Preliminaries) includes the client’s decision to take action but takes the form of a preliminary diagnosis that makes an initial, objective valorization of the proposal and the object of intervention (the building and its users). The complexity of the building usually calls for a second stage of knowledge (2. Multidisciplinary studies (Analysis)), based on meticulous disciplinary research to analyse social, historical, architectural and construction aspects.

II. Reflection and the project: once knowledge of the building and its users has been acquired, we can go on to reflection, which represents a third stage, 3. Diagnosis (Synthesis), that
synthesizes the information collected during the previous phase. This stage individually explores problems and their causes, and produces an overview of the building’s potentials and deficits. The fourth stage (4. Reflection and decision-making) picks up the client’s ideas for rehabilitation work and seeks to reconcile them with the reality of the building, its heritage values, economic possibilities for investment, etc. At this point the criteria of intervention are confirmed (how to conserve, to what extent to transform, etc.), and they must therefore be guided by a solid professional ethic. And, finally, on the basis of sound criteria, it is now possible to move on to the fifth stage (5. Project) and the drafting of the project document that enables the contracting, constructing and control of rehabilitation.

III. The work: Having passed through these two major stages, phase six (6. Rehabilitation), will be far more precise, preserving the values of the building, adapting better to the client’s needs and, though apparently contradictory, at a lower economic cost because the uncertainties surrounding work have been better defined. But in order to guarantee the quality of physical rehabilitation work, the contracting of the builder and his collaborators is vital, be they artisans, restorers or other specialised companies.

IV. Lifespan: It would seem that once rehabilitation of the building is complete, the process is at an end, but we also include a seventh and final stage, 7. Maintenance, which comprises minor cleaning work, repairs and renovations carried out according to a timeframe throughout the building’s lifespan until future rehabilitation (a major operation that will restore the building to the standards of the time). Particularly important in this stage are periodic inspections to detect deficits and new needs before the building begins to decline.

As shown in this poster printed by Guarda City Council, although each of the street’s inhabitants carry out with the best of intentions operations that might be termed rehabilitation, without supervision, a guide or criteria of conservation, the street will ultimately be changed to the point that it is unrecognisable. Câmara Municipal da Guarda, 1985, Portugal.
Preliminaries

This first stage brings together all the necessary contacts to begin a building’s rehabilitation process, once the client has decided to do so. The themes addressed are very varied in order to allow a sufficiently open initial approach to the general framework of the operation. This stage turns around what is generally called the preliminary diagnosis, a phase of orientation for the client.

Decision to take action / Interview with the client

This stage represents an open dialogue between the owner and the architect/engineer. The architect/engineer has to identify the client’s needs and desires, and detect possible ways of putting the idea into effect. It is important to bear in mind that the initial reasons for a commission may differ from the final decision. The owner will often consult an expert for a minor problem (a crack, damp, etc.), issues of comfort, municipal conservation requirements, etc., but it is the architect/engineer who has to be capable of orienting the owner in order to rationalize the
intervention and perceive the more determinant needs which may be different to the owner’s initial concerns. The owner may also have decided on rehabilitation of the building for purposes of financial investment, and in this case the architect/engineer has to be a good advisor with regard to the legal aspects and economic cost of the operation.

Preliminary diagnosis

The key point in this first stage is the preliminary diagnosis. This involves an initial global approach to the building, its values (architectural, historical, etc.) and its problems (related to construction, habitability, etc.) by means of a preliminary inspection of the building. This first visit takes the form of a visual inspection in which the architect/engineer’s experience plays a fundamental role. A visit to the whole building will be conducted in an attempt to recognise the construction system used, its characteristic architectural values, the pathologies affecting it, associated social problems, etc. Particular attention will be paid to the load distribution and water drainage.

All of this information can be compiled in one or various systematized inspection sheets. This is the case of the MER in France and Switzerland, and the Test Mantenimiento in Spain, etc. Some of these inspection methods have recently incorporated data associated with the building’s energy behaviour and other environmental parameters.

In situations of major fragmentation of ownership of the building, a series of interviews is required to guarantee the participation of all owners and users of the building.

Alongside the inspection, the architect/engineer has to investigate the building’s legal status with a view to finding out the urban planning obligations and restrictions to which it is subject (permitted urbanistic use, level of listing, legal protection imposed by urban planning, mortgages, censuses, etc.) and the grants that may be applied for in the event of rehabilitation. The degree of heritage protection of the area and/or building is generally decisive to the operation. Initial contact with the corresponding authorities (municipality, regional administration, etc.) may help to clarify this context. It is also necessary to detect the legal conditions of the building’s occupants: low-rent tenants, occupied dwellings, sublet tenants, etc.

The preliminary diagnosis report

After inspection and legal consultations, the architect/engineer has an initial understanding of the building and will have detected its deficits and potentials.

The preliminary diagnosis report may clearly include in summarised form the data collected, and must evaluate the building’s state of conservation and set forward recommendations. The expert may, then, from the start of the process, inform the owner of the possibilities of rehabilitating the building and technical and economic restrictions. At this point, the client has to decide whether to continue with his or her initial ideas or reformulate the intervention. This report may of course take the verbal form of an interview, but it is always best to make a written record, as the client may wait several months to make a decision or consult another expert, and the written word is always more precise.

If the building is in a good state of repair and no major changes are foreseen, we can go straight on to stage 7 (7. Maintenance) and propose a preventive maintenance plan. However, 90% of cases call for a second stage of multidisciplinary studies before starting rehabilitation.
Multidisciplinary studies (analysis)

This stage of the process consists of the systematic collection of information in all the fields requiring research in order to produce full knowledge of the object of study. Conducting these multidisciplinary studies successfully depends on the training of the expert responsible for carrying out or directing them (the corpus of knowledge of the technical expert may, in the simplest cases, be concentrated in one person with, at some points, the consultation of various specialists). We cannot trust exclusively to our own experience and intuition, which, though very necessary, must be accompanied by the systematic collection of information, which, in some cases, will be backed by specialized tests.

Establishing of provisional hypotheses

The multidisciplinary studies stage is fundamental to gaining sufficient knowledge of the building and its context before intervention begins. By this token, it is advisable to set the objectives and some initial hypotheses in accordance with the information collated in the preliminary diagnosis report and to verify them as the studies advance.

Programme of multidisciplinary studies

These hypotheses will be taken as a basis to plan a feasible, coherent study campaign using the means available. At this point, the architect/engineer must be fully aware of the scale of the intervention (a small house, a large building containing many dwellings, a listed building of great monumental value, etc.). The work may also be staggered to allow subsequent verifications to be made of initial ones. By this point it should be clear who the director of all the studies is to be.

Social aspects

Depending on the type of rehabilitation, socioeconomic aspects may be crucial to the intervention. The basis for study tends to be a sociological survey to detect family units and possible problem situations (overcrowding, marginalization, unemployment, abandonment, etc.) and their relation with the district as a whole. According to the type of operation, the possibility of provisional or definitive rehousing of inhabitants with very close links to the municipality should be organized.
Furthermore, in the world of traditional architecture, anthropology may provide us with valuable data about the social significance of the house, use of spaces, customs, etc.—all the intangible aspects related to the community’s perception of its architecture. In the case of constructions that are as fragile as traditional architecture, anthropological studies should be promoted to document forms of dwelling that are in danger of disappearing. The fact that many dwellings in traditional neighbourhoods are now inhabited by people emigrating from other traditions implies the need for knowledge of both cultures and the possibility of combining them harmoniously.

**Historical aspects**

Architecture, and this also applies to the traditional form, is valued when it can be recognised as part of a tradition. The introduction of historical studies always helps to set far more solid criteria of intervention.

First of all, the historical method explores documentary sources (notary archives, family archives, old photographs, past projects for the building) in order to compile data that helps to understand the building and its transformations. At the same time, the building itself is a splendid historical document that can be carefully studied as material culture using the archaeological method that is generally conducted alongside the graphic survey of the building (test drilling in walls, analysis of construction materials, stratigraphic analysis of the building, etc.). Another historical discipline, oral history, plays an important role in the rehabilitation of traditional architecture. Asking questions of the elderly may produce very useful data about the building and also about traditional construction techniques that are disappearing.

**Architectural aspects**

Without a good graphic survey of the building it is difficult for the architect/engineer to understand it and therefore to produce a project in keeping with reality. The level of complexity of the building and planned interventions will suggest the most suitable type of plan and its degree of precision. The type of survey may be manual (using a tape measure), topographic or photogrammetric.
In all cases, all efforts must be made to produce a precise plan, since it will provide the basis for all subsequent work. At the same time, good photographic or video documentation is extremely useful, since it retains elements that may go unnoticed at first sight.

A graphic plan is not only an abstract measuring operation. Drawing the building is the best way to discover and understand it. An important part of the plan is recognition of the building’s architectural values and the graphic plan of materials, construction techniques and their pathologies from a construction viewpoint. The way a 21st-century architect/engineer sees traditional architecture is inevitably a present-day viewpoint marked by present-day concerns. It is important to take into account the fact that the very idea of cultural heritage is a cultural construction of the last 200 years. In this respect, the value and authenticity of traditional Mediterranean architecture, in all its diversity, cannot be valorized by a fixed criterion. The necessary respect for the cultures of the Mediterranean basis calls for an understanding of architecture in its tradition.

The inspection will involve an unbiased study of the building’s architectural values (integration in the place, spatial configuration, singular structure, type of ornamentation, etc.), attempting to...
avoid fragmentary appreciations and seeking the unitary logic that produced the architecture.
During this stage we recommend consultation of the completed studies about the building’s typology and, in some cases, the carrying out of further studies about singular aspects of the building. Traditional architecture is particularly characterized by the surfaces of its walls (colour, texture, irregularities, etc. of façades and interiors), making studies of colour and applied decoration very valuable. This will involve multidisciplinary participation, because the focus on the use of colour or applied paint calls for a study of the history, art and construction of traditional techniques.
It is also important to remember that though change is slow in the pre-industrial world, a traditional building grows and is modified in keeping with the needs and means of each period. It is therefore advisable to study the building’s architectural transformations, once again with recourse to a historical study, in order to understand its present-day configuration.
This stage will also require detailed consultation of the building’s legal and urbanistic framework. In the case of listed buildings, their records will be studied in order to understand why they are partially or completely listed.

In order to understand a building within the architectural tradition of the area, it is important to consult works of reference about local architecture (historical or typological studies, etc.). J. Revault: Palais et demeures de Fès, CNRS, 1988, Morocco.

A building tends to have a long life, and the exterior image may have changed several times in its history. Colour studies analyse the layers of painting and/or stucco on the façade with a view to discovering its original decoration and how it has evolved. Façade on the Rambla in Barcelona, Spain.
Construction aspects
This stage includes the identification of all the building's physical and construction elements, and observation of its lesions. Here we should point out that the training of architects and engineers since the 19th century has centred on the study of construction by subsystems (foundations, walls, floors, facings, etc.); in traditional architecture the building was constructed as a whole, and it is important to address it from this global viewpoint. This stage therefore calls for an architect/engineer who is familiar with the traditional construction methods of the region, with a solid scientific and technical training in the pathology of traditional buildings.

The approach to problems has to be as scientific as possible: detection of lesions, a preliminary hypothesis as to their causes and verification of these hypotheses. The architect/engineer will also have access to a series of experts (chemists, geologists, biologists, etc.) and tests (on site and in the laboratory) that will allow him/her to identify materials, possible alterations, monitoring of fissures, wood boring insect attacks, etc.

It is particularly important to evaluate the building's structural safety in order to avoid accidents. This involves soil investigation (by means of a geotechnical report if necessary), an analysis of the structural coherence of the whole and the structure's load capacity. This evaluation is particularly essential in seismic areas, where a careful study of the building's vulnerability is necessary. This is a particularly conflictive issue, since structural safety standards are designed for new constructions of steel and reinforced concrete, and it is practically impossible to assimilate them to the traditional reality. The dilemma of simultaneously conserving and making a building secure can be nuanced by knowledge of the building's structural behaviour over long periods of time.

When approaching the rehabilitation of a building, we recommend introducing criteria of sustainability and environmental protection. This involves analysing the building's water and waste cycles and energy consumption, and studying winter and summer comfort levels. Mediterranean construction tradition has countless bioclimatic solutions that should not be undervalued due to ignorance of them during an intervention.

This phase should not overlook verification of the building's connectivity (state and position) with basic infrastructures (drainage, drinking water, electricity, telephone networks, etc.) in order to foresee from the start the effective possibilities of connection, which in some cases would call for work that is simply unfeasible.
II. Reflection and the project

3 Diagnosis (synthesis)

Critical evaluation of studies

The diagnosis stage involves a task of synthesis and critical reflection that is based on the multidisciplinary studies carried out during the previous stage. This evaluation has to lead to unitary planning to avoid excessively fragmentary results due to limitations on the material available.

In order to organize and establish information it is always necessary to place it beside other information and highlight it. For example, superposing it graphically over the geometric plan of the building. Three types of maps can be systematically drawn (in floor plan, elevation, section): firstly, a map of values with notes about the spatial, colouristic, historical and artistic values of each part or the whole of the building; secondly, a map of deficits with notes on the building’s social problems, features, and lesions and degradations; and thirdly, the map of former and/or existing uses showing how the building was and is used before intervention.
The diagnosis phase must bring together all information in an orderly fashion (plans of values, deficits and previous uses). The team of Professor Luigi Zordan at the Università degli Studi dell’Aquila (Italy) has developed a ‘reasoned guide’ offering examples of how to represent this data in order to produce a judicious diagnosis (Luigi Zordan: Le tradizioni del costruire della casa in pietra: materiali, tecniche, modelli e sperimentazioni, 2002).
II. Reflection and the project

Confirmation of hypotheses

The initial evaluation should produce an overview of the building and confirm the hypotheses put forward at the start of multidisciplinary studies, based on observations and tests. However, it is always possible to raise new hypotheses (initial hypotheses not subsequently confirmed, appearance of new conditioning factors, etc.) and return to the study phase in order to verify them.

Writing a report

At the end of this stage it is once again necessary to establish, in writing, the knowledge gained about the building. This report will list the building's composition, describe and justify its values, list its deficits and their causes, and offer recommendations. The diagnosis report will always be written on the basis of individuation of problems and their causes, according to the criterion of technical impartiality. This is a reasoned expert report and must be written so that other technical professionals external to the process can understand it, but it must also include a summary that can be understood by a non-professional reader. The conclusions must be clear, concise and complete. This note will specify the strong and weak points in order to show the potential for rehabilitation of the existing building.
**Reflection and decision-making**

**Feasibility**

Now, with a perfect knowledge of the building and its users, it is possible to study the feasibility of the client’s ideas. A further dialogue will take place with the owner about his/her future needs and economic possibilities with regard to the potential of the existing building.

The feasibility study will be based on three partial studies: 1. What we call the transformability map, which simply compares and contrasts the maps of values, deficits and previous uses produced in the last stage, showing which parts of the building would be subject to changes (eliminations, additions, alterations, etc.) and which parts should be conserved to preserve their value; 2. The programme of new uses proposed by the client (the brief) and rationalized (surfaces, relations between uses, etc.) by the architect/engineer; 3. The evaluation of regulatory conditioning factors associated with parameters of urban planning and listing of cultural objects.

And, finally, it is time to go back to the client’s ideas and analyse their feasibility. Meeting at Selva del Camp Town hall, Spain.
Another two examples from Professor Zordan's guide show us how to graphically represent what he calls the map of transformability and processes of compatibility with a view to reflecting on the integration of new uses.
Continuity of use is generally accepted as the best way of protecting this architecture, though in some cases its revitalization involves a change of use. It is important to suggest sensible changes of use, since some proposals may involve the practical total loss of the values of traditional architecture.

**Confirmation of criteria**
As commented above, due to its great diversity, traditional Mediterranean architecture cannot be approached with fixed criteria.
In this stage, the architect/engineer has to establish the criteria to be applied to the project (additions, eliminations, priority of aspects of habitability, reintegration of lost parts, reversibility of risky interventions, consolidation of ruined parts, etc.). Initially, neither extreme should be dismissed: pure conservation or pure restoration. The Charter on the Built Vernacular Heritage represents a first general framework to consider.

**Decision-making**
Having confirmed the criteria, the compatibility of the type of intervention has to be considered, striking a balance between improvement to the inhabitants’ living conditions, safety of the structure, safeguarding heritage values and the available economic resources.
And, finally, the decision can be taken, with full knowledge of the type of rehabilitation work (from conservation to restoration).
Project

Outline proposals
The outline proposals are a stage of comprehensive dialogue with the client, during which it should be possible to activate the participation of the inhabitants or users of the building. It will gauge which of the various planning alternatives best adapt to the proposed alterations and the existing building by applying the criteria outlined during the previous phase. From the start, particular attention will be paid to compliance with the legal framework. Finally, the client will reach an informed agreement as to the type of intervention contained in the project.

Project
The working drawings will describe the intervention in sufficient detail to be able to follow administrative procedures, contract the work and carry it out without deviating from established costs. The project interprets the criteria of intervention and applies a series of technical parameters for the physical construction of the intervention.
As a general rule, therapeutic intervention in a building’s problems must address the causes, not just the symptoms. The choice of a traditional or a modern technique will also depend on the kind of builder who is contracted. It is now a question of finding out whether traditional techniques are still used in local construction and whether it is possible to recover them to carry out rehabilitation.

Here we would like to mention a trend in theory that we think could usefully be adapted to the rehabilitation of traditional architecture and which centres on a necessary knowledge of traditional techniques for responsible intervention in this form of architecture. It includes the works by the Compagnons du Devoir in France, studies on timber structures (Carpintería de lo blanco) by Enrique Nuere in Spain and, most particularly, by Paolo Marconi in Italy, who has put this knowledge to practice in the Manuale del Recupero. The Manuale documents local construction tradition (generally of a municipality or homogeneous region) and presents professionals with forms of traditional intervention. Another step forwards taken in Italy is the Codice di Pratica which introduces methods of analysis and intervention in traditional architecture (structural consolidation, earthquake, etc.), seeking to reconcile traditional construction and more modern techniques. These documents should be consulted during this phase and their

The design of the project calls for consultation of publications on local construction (Paolo Marconi: Manuale del Recupero del Centro Storico di Palermo, 1997 / Antonino Giuffrè and Caterina Carocci: Codice di Pratica per la Sicurezza e la Conservazione del Centro Storico di Palermo, 1999)

The project specifies interventions to consolidate and reinforce the building in sufficient detail on the right scale. Reinforcement of the timber floor of Can Plantada, Spain - Cristina Gonzalo Diego
II. Reflection and the project

Recommendations followed when working on the project. It was these documents that launched the debate in Italy about the use of modern techniques to reinforce and consolidate old structures. During the design of the project, the impact of each of the techniques used will be studied, along with their compatibility with the existing building and the final visibility of the intervention.

The same pains should be taken when integrating modern installations into the building. From the outset, measures must be taken for their integration without detracting from façades and interiors, for example by proposing specific layouts.

The project also has to incorporate such parameters of sustainability as are reasonable for the scale of the intervention (water- and energy-saving measures, introduction of renewable energies or facilities for the correct management of domestic waste, etc.).

At the same time, each of the design decisions will study what is now called the maintainability of construction solutions—that is, ensuring that all elements are accessible for subsequent ease and safety of maintenance. The most obvious example is a window that is practically impossible to clean, etc.

The project must be detailed but open to modifications justified by discoveries made during rehabilitation work. It will include the following documentation: geometric definition of the proposal with measurements (floor plans, sections and elevations), plans of the structure, finishes and installations, technical description, bill of quantities, budget, technical specifications, and health and safety measures.
Rehabilitation

Tender action
In order to guarantee correct rehabilitation, the choice of the builder or contractor is very important. In some regions it is still possible to find builders who are familiar with and use traditional construction techniques, though they are, sadly, fast disappearing. In some cases it may be possible to train the builder(s) in specific techniques, but in most cases it is simply not possible to use certain techniques because of their economic cost. If working with a construction firm that has little specialized knowledge, particular attention must be paid to the contract in order to supervise materials and techniques. The type of contract will guarantee the quality of work and the professionalism of the builder(s). Some tasks of cleaning delicate walls or artistic works call for the temporary contracting of restoration professionals using specific methods and techniques.
Obtaining the building permit
The programming of rehabilitation has to take into account the waiting time for the relevant authorities to issue permits. In the case of listed buildings, waiting times may be longer. The report may also be unfavourable, necessitating a return to the project phase.

Carrying out the work
Works direction in the case of a traditional building calls above all for flexibility and dedication. Unforeseen events tend to arise as work is carried out, and it is difficult to only apply what is indicated by the project.

The follow-up of the work may, then, allow the ongoing revision of the project and reinterpretation of the building in the light of new discoveries, which, in some cases, may call for changes to the project.

The project describes construction solutions to reinforce, consolidate or renovate an element. During work it will be necessary to establish mechanisms to verify the suitability of the construction solution and its correct functioning.

Important aspects to follow up are initial considerations, economic supervision, and control of the effectiveness of solutions to reinforce and coordinate the safety of work.

During work a mechanism will have been established to produce a dossier about all the work carried out, upon completion. This comprises a series of plans that reflect how the rehabilitation is built. This document is vital for documenting work in accordance with the Venice Charter but also for organizing a maintenance programme (see stage 7).

There are also a series of organizational aspects of the work that have to be taken into account, ranging from the programming of work to the planning of the entry of several trades, to studies of site accessibility (a great deal of the work is carried out in the narrow streets of historic centres), interior work using small machines (low heights, narrow passages, etc.), foreseeing the protection of certain parts of the building from the elements and rehabilitation work itself, and avoiding accumulation of workers.

Furthermore, it is difficult to envisage demolition operations on a rehabilitation site; these will in fact be deconstruction or dismounting operations. At the start of work, elements to be dismounted for reuse will be marked (collecting tiles, timber beams, etc.) and measures will be taken for the correct disposal of site waste. The project supervisor must at all times supervise dismounting work and take the necessary safety measures to avoid accidents due to partial imbalances in the building or the appearance of materials or products that are dangerous for health (asbestos cement, asbestos insulation, electrical transformers with PCBs, etc.).

Handover of the work
Upon completion of the work, legal procedures will be carried out to consider it finished and, in some cases, to apply for grants.

It is important to use this stage to analyse the management, construction and compliance of the project with planned uses. Though at this point some aspects can be corrected, this feedback stage should serve to improve the project phase for subsequent commissions; no opportunity to learn from mistakes should be wasted.
As we have commented several times, traditional architecture is extremely vulnerable. Custom has been responsible for its conservation (whitewashing during spring celebrations, checking tiles after high winds, etc.), but socio-cultural changes in today's world (the culture of disposability) have accentuated the abandonment of this form of architecture.

If the need for rehabilitation has arisen, it is due in part to such abandonment. Having made the effort to undertake rehabilitation, it is important to make the most of the opportunity to promote its upkeep, because on the very day rehabilitation work is completed, the building starts to age.

Publicizing the building’s values among the community
The breakdown of the traditional world and cultural homogenization have led to disregard for much of this architecture as a symbol of the poverty and backwardness of its
population. Once rehabilitation work is complete, it has to be a priority to acquaint the community with its values and make them part of its rehabilitation. Each case will be different but it is important to promote some kind of sensitization activity to show the value of the work carried out (a small event to show how work was carried out, publication of photographs of before and after rehabilitation, publication of the work in the local press, etc.).

**Choice of the model of maintenance**

An initial definition of building maintenance would be the series of periodic tasks carried out in order to conserve it, during its lifespan, in suitable conditions to cover foreseen needs. Maintenance is habitually associated with the idea of repairing damaged elements, what we call corrective maintenance, but what the RehabiMed method proposes is to think in terms of planned and preventive maintenance.

Planning involves the preparation of a calendar of maintenance operations, and preventing means carrying out maintenance operations before the construction element deteriorates.

**The ‘identity card’**

In order to systematize this way of organizing maintenance, we propose to give the building an ‘identity card’, a document that compiles all the information about the building and incorporates a timeframe to programme maintenance operations. This card will be presented to the owner (in some cases to all the tenants) so that recommendations can be followed. In most cases, the architect/engineer who completed work and is perfectly acquainted with the building will prepare the information about the building and a timeframe of maintenance operations. Information about the building will comprise the dossier as built (see previous stage) and recommendations for use of the building. The timeframe will also programme maintenance operations for the coming 10 years (cleaning, inspections, repairs and renovation). The timeframe should also indicate who will carry out these tasks (the user, a trusted builder, an installer, a specialized firm or the architect/engineer).

These cards can also be used to make a note of maintenance operations carried out, incidents that have taken place and alterations made, so that with the passing of the years it becomes a record. The ‘identity card’, a kind of clinical record about the building, will also in the long term provide invaluable information for the conservation of and future interventions in the building.
Maintenance work according to a timeframe

The operations programmed on the calendar will include a series of periodic inspections by an architect/engineer to evaluate the building’s safety (for example, in relation to detachment of façades, risk of gas leaks, structural deformations) and reprogramme the timeframe. In some cases, it will be possible to detect serious problems in time and propose the repeat of the entire process (1. Preliminaries).

In this way, the architect/engineer will become, like a family doctor, the ‘general technical practitioner’ with the building among his or her records, thereby ensuring long-term sustainability of what is now a complete rehabilitation project.

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1. Research and documentation
Any physical work on a vernacular structure should be cautious and should be preceded by a full analysis of its form and structure. This document should be lodged in a publicly accessible archive.

2. Siting, landscape and groups of buildings
Interventions to vernacular structures should be carried out in a manner which will respect and maintain the integrity of the siting, the relationship to the physical and cultural landscape, and of one structure to another.

3. Traditional building systems
The continuity of traditional building systems and craft skills associated with the vernacular is fundamental for vernacular expression, and essential for the repair and restoration of these structures. Such skills should be retained, recorded and passed on to new generations of craftsmen and builders in education and training.

4. Replacement of materials and parts
Alterations which legitimately respond to the demands of contemporary use should be effected by the introduction of materials which maintain a consistency of expression, appearance, texture and form throughout the structure and a consistency of building materials.

5. Adaptation
Adaptation and reuse of vernacular structures should be carried out in a manner which will respect the integrity of the structure, its character and form while being compatible with acceptable standards of living. Where there is no break in the continuous utilisation of vernacular forms, a code of ethics within the community can serve as a tool of intervention.

6. Changes and period restoration
Changes over time should be appreciated and understood as important aspects of vernacular architecture. Conformity of all parts of a building to a single period will not normally be the goal of work on vernacular structures.

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The maintenance timeframe programs operations over the year and indicates which professional should carry them out. (Carnet d’entretien, PI-BAT, 1991, Switzerland)
RehabiMed Method for rehabilitation of traditional buildings
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