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Web-site of the Project: http://www.culture2000-wood.it/

Abstract

The article illustrates objectives, methods and phases of a European Project inside the framework of the “Culture 2000” Programme with the double intention of giving dissemination on the practical and theoretical knowledge of the different European Countries involved on the subject of restoration sites for different construction typologies of historical buildings, on one side. On the other hand there is the intention to highlight analogies and specificities inside wooden buildings in Europe. Europe is here considered as a unique and wide restoration site. This Project was approved in December 2000 from the General Directorate “Instruction and Culture” for the development of community policies in cultural field – in the Culture 2000 project, for a period of three years. This paper intends to illustrate with examples the different themes of the project.

1 Introduction

The increased sensibility towards restoration and conservation on architectural Heritage as a whole, also in terms of historical construction technique memory, has arisen a renewed interest in the study of wooden structures, investing both new constructions and existing building restoration issues in Europe. With specific reference to the restoration of existing buildings, it must be stressed that the variegated articulation typology in various geographical areas across Europe, and the specific nature of wood as a material (biological), make defining homogenous principles for preserving and respecting local building cultures a difficult matter.
"Wooden Handwork / Wooden Carpentry: European Restoration Sites" is:
- One of the five projects that the European Community recognized in 2000 of utmost importance in the frame of "Actions and agreements of cultural transnational cooperation, structured and pluriannual" in the field of Cultural heritage of "Culture 2000" Project.
- It was the only project among these actions with 9 Countries-partners and with Italian leadership (Politecnico di Torino).

2 Objectives

The objective of the project is addressed to the conservation and the preservation of the Heritage of knowledge of the culture and practice of working with Wood. This is through the definition of a "European laboratory of cultural heritage wooden buildings" which contribute to the development and diffusion of technical knowledge and practice, as preservation principles, diagnostic techniques, intervention techniques, that link tradition and innovation of the sector techniques at a European level.

The idea is to organize/visit/work on some laboratories/restoration sites, which of course have also an important didactical aspect, as well as confrontation with different methods of interventions and techniques.

These working-sites that constitute the framework of the project are held in different Countries, according to the proposals of the partners.

The actions are integrated in the frame of International Cultural co-operation accordance, structured and pluriannual.

The following actions are foreseen:
- Activities in European cultural sites and monuments (see map).
- The use of innovative technologies: new products for the preservation and strengthening of wood and wood-based materials;
- Highlight of cultural differences;
- Implementation of workshops devoted to the specific training of young Professionals, through exchanges with qualified scientists, technicians and specialised carpenters, both at theoretical and practical level (work-camps for restoration interventions at each selected cultural site);
- The major action of this project is the organization and implementation of several workshops on different European sites, in order to exploit skills and abilities of carpenters specialized in interventions on wood architectures.

The interaction among scientists, technicians and craftsmen will improve the mutual knowledge and awareness, giving an International dimension to the complex matter related to conservation of the historical cultural heritage. The realisation of prototypes complying with traditional architectures and woodworking techniques is part of the project outcomes.

The meaning of the project is therefore the promotion of cultural dialogue, creativity and trans-national distribution of culture, aiming to the exploitation of traditional woodworking knowledge and to the special training of professionals.
- Curricula for International Master Courses, promoting the cultural integration among different European countries, will be also developed.
Map of restoration and new sites of European cultural interest:
1. Castles of Lagnasco (Italy)
2. Salbertrand, Susa Valley (Italy)
3. Oubre-Rong, Alagna Valsesia (Italy)
4. Cimego (Trento) (Italy)
5. Church in Kinsamaki (Finland)
6. Petajavesi Old Church (Finland)
7. Rauma Wooden Town (Finland)
8. Seurasaari Open-air Museum (Finland)
9. Villa Uunila, Kokemaki (Finland)
10. Myllymaki Old Farm (Finland)
11. Athens (Greece)
12. Vernacular architecture (Greece)
13. Rosos Old Historical Town (Norway)
14. Caminha's Main Church (Portugal)
15. S. Joao de Tarouca Cister Monastery (Portugal)
16. Salzedas Monastery and Jewish Quarter (Portugal)

Figure 1

3 Brief description of the project

"Wooden Handwork / Wooden Carpentry: European Restoration sites" is a project aimed to share and valorise European timber Cultural Heritage, to diffuse and promote know-how on good practices relevant to the conservation and the protection of that heritage and to define a special training of professionals.
3.1 Approaches and methods

Theoretical comparison of the acquired knowledge in the different Countries, about the characteristics of the material, the diagnosis, the principles and the guidelines for the conservation; practical experiences through workshops in restoration and new building working-sites of timber architectures. Important architectures, being at present under restoration, are a part of the programme. There, the theoretical experience is put into practice and compared to the real operative complexity.

3.2 Partners

A highly qualified association is involved: Universities, Research Institutes, Companies and professionals from 9 European Countries (Italy, Finland, Greece, France, Sweden, Norway, Portugal, Belgium, Luxembourg) for a total of 24 Operating Unities:

3.3 Description of activities

The entire project is structured in two work packages, each with experimentation in specific areas. Each work package includes several activities.

- Wood carpentry: a theoretic approach for the conservation of the cultural heritage and the project of innovative interventions.
- Wood carpentry: a practical approach for European sites representing the culture between nations.

Concerning the activities proposed, the aim of the first research is a theoretic approach to diagnostic themes, regulations, conservation methods and renovation techniques. The predicted impact is a document gathering the knowledge of the partners from different countries in the sector for a concrete and real evaluation of patrimony conservation.

The second research has the aim of applying traditional carpentry, diagnostic techniques and innovative interventions compatible with the environment and new constructions using innovative industrial products. The predicted impact is the creation of a professional figure able to work on restoration sites and new constructions.
3.3.1 Didactic impact
From a quantitative point of view the new model for the engineering and architecture department foresees the formation of increasingly specialized graduates in the next three years with concrete professional job potential. Currently universities are not able to transfer the alphabet which is necessary for providing a basic service, a service which is increasingly distant from a real knowledge for professional use. Thus the project foresees a formative program of a year to create professional engineers and architects with preparation at a first specialized level in wood carpentry.

3.4 Beneficiaries
The European scientific community, National Boards of Antiquities, architects, technical assistants and SMEs, involved in the protection of Cultural Heritage.

3.5 Duration
36 months starting from October 2000.

3.6 Locations
The different partners will organise the theoretical activities; through congresses, seminars and conferences. The practical activities will be located in the restoration working-sites disposed by the partners (see map).
4. First and second year of activity

The aims of the first two years of activity can be summarised as follows:

1- To organise international seminars and workshops on different European sites, in order to establish a beneficial interaction among scientists, technicians and craftsmen involved in the complex matter related to the conservation of historical wood structures. Dissemination of scientific and technical awareness about carpentry and wood architectures has been achieved through 7 international seminars that were held in Torino and Trento (Italy), Oulu (Finland), Porto (Portugal), Mons (Belgium), Lavrio (Greece), Røros (Norway). The Seminars have been finalised from one hand to explore the present problems of the design of new buildings or of recovery and rehabilitation of complexes, or timber buildings or components, taking into account the possible ways to transform the technical and normative restraints into building solutions, and, on the other hand, to compare the different knowledge and cultural techniques of the different European partners. They aimed to improve our knowledge on old techniques and technologies, in order to recover and eventually use them for a proper and respectful restoration of wood architectures belonging to our cultural heritage. The Seminars faced also the relationships between architecture and engineering, in view of possible rehabilitation of old timber constructions which have to comply with modern performance requirements.

2- To recover and apply to existing wood structures the traditional knowledge about carpentry, in view of the implementation of new training courses for specialists in this field. Emphasis is given to the knowledge transfer between all partners through the active participation to practical activities on site such as: visits and inspections on wood buildings, construction of components of traditional architectures, preparation of traditional protective coatings. The whole panel of 24 participants is involved in the project activities, either through written contributions or participation to practical work in the restoration sites. SMEs are also involved in the working-sites activities. Since now workshops and activities on restoration sites have been organised in Italy, Finland, Portugal, Greece, Norway.

3- To produce and disseminate written documents (publication of proceedings, Web pages, CDs) pertaining to technical and scientific aspects, and targeted to operators in the fields of construction and restoration. Two books of Proceedings have already been published. The web-site of the project is http://www.culture2000-wood.it
4- In the last year of the project (2003) is foreseen the building of a wooden prototype through an International work-camp in Susa valley (Italy), a videoconference, a final International Seminar in Venice, the publication of a third book.

5 Conclusions

In Italy current interest in the conservation and restoration of ancient timber structures, important aspects of our architectural heritage, represents a recently introduced sector of the Cultural Heritage Department, which has raised problems regarding diagnostic surveys and intervention techniques focused on conservation. Over the past few years, there has been growing firm conviction that these structures must - wherever possible - be conserved and restored in accordance with their static role, using interventions that are consistent not only with the original design but also with the material: timber.

In Italy the panorama of timber constructive typology referred to historic architecture refers to a wide sector of building components, between whom roof structures, floors, false vaults, but also to whole timber vernacular architecture. However, in practice, many recent interventions involving structural restoration have betrayed the idea of conservation: in extreme instances we have witnessed the unjustified demolition of century-old floors, wooden ceilings and roofs. Furthermore - frequently - ancient buildings have been altered by the widespread use of new structures and new materials in replacement of the original ones.

These arbitrary -and to say the least “heavy-handed” interventions- are in the majority of cases induced by the difficulty of evaluating the state of the conservation of materials and the real load-bearing capacity of the structural
elements, or by an incorrect evaluation of the overall structural function, or the choice of summary and profitable procedures rather than procedures guided by the real needs of the timber components.

It is precisely their load-bearing capacity that is constantly debated today, in spite of the renewed interest in studies on wood, by operators who, clearly lacking the necessary know-how, demonstrate their complete distrust through their interventions on existing timber structures. This distrust has been expressed and given tangible form through the development of consolidation techniques that foresee the extensive inclusion of every type of implant, made from "new" materials that, precisely because they are new, are regarded as superior from a short-sighted point of view that does not take account of durability problems in medium and long-term projects.

Many interventions - also those of an innovative type - currently appear to lag behind the conservative criterion which has to be spread not only in monumental restoration, but also in the restoration of historical or simply traditional (or vernacular) buildings. Too often we witness operations focused mainly on unjustified radical interventions: timber floors consolidated with heavy metal structures or capped in reinforced concrete, partial or total roofing with steel elements or reinforced epoxy conglomerates.

In these types of intervention, which reflect the distrust of this material, the traditional construction methods and the ancient master builders, it is often possible to note the lack of one of the characteristic phases of structural restoration project management: the diagnostic survey.

This projects intends to achieve the implementation of a permanent international forum on theory and praxis of the restoration of European wood architectures.

Acknowledgement

This study refers also to the results of the research "Ancient Timber Structures: Structural Functionality, Building Technologies and Intervention Techniques" (U. O. Co-ordinator: C. Bertolini, in a special project CNR-Cultural Heritage, 1997-2002) and mainly to the Culture 2000 Project "Wooden Handwork / Wooden carpentry: European Restoration Sites".

References

1 The general co-ordinator of the Project is:
- Dipartimento di Progettazione architettonica of the Politecnico of Torino (Italy)

The Co-organisers are:
- University of Trento, Dipartimento di ingegneria civile e ambientale, Faculty of Engineering (Italy)
- Istituto della ricerca sul legno, IVALSA-CNR Firenze, (Italy)
- University of Oulu, Department of Architecture (Finland)
- National Board of Antiquities, Department of Monuments and Sites, Helsinki (Finland)
- Meri-Lappi Institute, University of Lapland, Kemi (Finland)
Technical Research Centre of Finland, VTT Building Technology, Oulu and Espoo (Finland)
National Technical University of Athens – Department of Architecture, Athens (Greece)
Faculty of Applied Sciences (Faculté Polytechnique) of Mons, (Belgium)
Gotland University College, Visby (Sweden)
County Administration of Gävleborg, Dep. of Cultural Heritage Preservation, (Sweden)
Norwegian Institute for Cultural Heritage Research – NIKU – Oslo (Norway)
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The Participants are:
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- Comunità Montana Valsesia, (Italy)
- Unione Alagnase, O.N.L.U.S., (Italy)
- Comune di Alagna, (Italy)
- Comune di Cimego, (Italy)
- Du Pont Engineering Products S.A. (Luxembourg)
- University of Gävle, Centre for Built Environment - Materials Technology Division, Gävle, (Sweden)
- GECoRPA, Grémio des Empresas de Conservação e Restauro do Patrimônio Arquitetônico, Lisbon, (Portugal)
- Zoppoli & Pulcher, construction and restoration firm, Turin, (Italy)
- Studio Legno-Wood Consulting, Florence (Italy)
