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Performance and Knowledge Management Joint CIB Conference

W102 Information and Knowledge Management in Building

W096 Architectural Management

Preface

There is a never-ending demand for performance improvement in the building industry internationally. This imposes the need for better construction professionals and effective innovation management. The busy practitioners take in and convert the information from contracts, plans, specifications, catalogues, research reports, websites etc. into knowledge when they are obliged – by contract or by law – to do so. The other way is to learn how the new practises make their life easier. Information and knowledge management is a prerequisite for performance improvements. We need to understand the current situation in order to propose better performance, and to convert effectively and efficiently information into knowledge in real building projects. The objectives of CIB2008 joint conference were to study:

- Knowledge based performance improvement
- Architectural design management and knowledge
- Communicating design
- Integral design and knowledge development
- Data and knowledge sharing in construction projects
- Role of client in the construction process
- Adaptation of KM in organizations
- How to build and maintain viable KM architectures and thriving communities of practice
- Networking with knowledge

This joint conference brings together two CIB working commissions: W096 and W102. CIB is the International Council for Research and Innovation in Building and Construction. The local organizers are the Association of Finnish Civil Engineers (RIL) and Vaasa University of Applied Sciences.

In 1992 the first conference on architectural management, initiated and organized by Paul Nicholson, was held at the University of Nottingham in the UK. During the same year CIB approved the formation of the working group W096 Architectural Management. Since this time the Commission has been active in the area, with regular conferences, meetings and published conference proceedings. The Architectural Management working group attempts to bring together researchers and practitioners worldwide, concerned with the whole life cycle of building and construction projects. Active working areas are; revaluing design, communicating design, inclusive design, design management, design

integration, design management education and revaluing architectural practice – all with an underlying sustainable research agenda.

The first meeting of W102 was initiated and organized by Colin Davidson in Montreal, Canada in 1999. During the same year CIB officially accepted W 102, Information and knowledge management in building, to be its new working commission in the area of information and documentation. The working group explores for example, information and knowledge management processes to improve performance in construction supply chains; the challenges of global markets for professionals, firms and construction industry in different countries; the challenges of innovation, information and knowledge transfer to Small and Medium Enterprises; and how the exploitation of information and knowledge management could benefit construction education.

Thank you all authors around the world who provided excellent contributions to this book and related full paper proceeding. I would also like to express my gratitude to the scientific committee whose advice and reviewing has considerably helped in forming the book of extended abstracts and full paper proceeding. Special thanks to editors of these volumes.

Altogether 44 papers were accepted for this proceedings. In addition we have full paper volume with 40 accepted papers.

Dr. Marja Naaranoja
Chair of Scientific Committee
CIB Helsinki 2008
Joint Conference of CIB W102 and CIB W096

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Knowledge development to improve the performance of the rehabilitated traditional architecture. The case of "Sassi di Matera"

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Quality is the ability of a building structure to meet the functional requirements. It is measured by identifying the level of performance of building components in relation to the requirements which have guided building design and construction. Quality is not measured against an absolute set of criteria but in relation to the project objectives. The need for flexibility leads to a different methodological approach in the design of new buildings and the rehabilitation of built heritage. In the case of the built heritage, the objective is "future proofing" by planning for potential changes of the heritage use or its building services in the future. This methodological approach has been tested on two Sassi neighbourhoods which have been converted into flexible spaces whilst the typology and the morphological-environmental equilibrium of the historical context have been preserved. It enables an "integrated conservation" of the historical built heritage ensuring the preservation of its cultural, historical and architectural values.

Keywords: *quality, performance requirements, rehabilitation, technological innovation, compatibility*

1. Introduction

To undertake an "adequate" restoration of vernacular architecture means, on one hand, to preserve and evaluate technological systems and original building fabric, and on the other, to meet the continuously increasing performance requirements imposed by contemporary lifestyle.
This process inevitably includes the construction/fabric and typological/morphological qualification of building structures which are the object of intervention.

The study addresses the problem by demonstrating how a careful analysis of architectural heritage allows the application of an "effective" methodological approach to the restoration and enables the interventions that improve the performance in relation to the social, historical, economic and technological values of heritage.

2. Methodology

The research is based on the analysis of some interventions undertaken in Matera (Italy) whose ancient city has a particularly significant historical, typological and architectural fabric which has been on the UNESCO's World Heritage list since 1993. Through the analysis of two applications of experimental research on two urban units which have been converted into new uses, the "Locanda di San Martino" and "Hotel Sant' Angelo", the study aims to develop a methodological approach for restoration of this specific architectural context.

The design process, beginning with a detailed knowledge of urban environment and buildings (through a careful research of historical documents, a direct survey of the fabric and non-destructive investigations) and with the respect for the environmental qualities and functional demands of "modern lifestyle" and current standards, was based on the comparison of a coherence between existing architectural forms and different functional and performance requirements of potential "new" users with the possible technological and functional solutions which can meet these requirements.

3. Knowledge as means for achieving the quality of restoration

To move away from the mixed historical fortunes which characterised Sassi (caves) of Matera in the last sixty years, the need to define, in an unambiguous way, the guidelines for interventions of this heritage became extremely evident.

Numerous studies and the subsequent publishing of the Code of Practice [1] and a Restoration Manual [1], bring to the fore the need to address the problem of their conservation especially through the understanding of the surrounding urban environment and the consequent definition of cultural and operative direction.
In particular, for new functions and re-use of a very specific and vast built environment, a study of sanitary improvements, comfort control and

inclusion of technological services was also necessary.

The above testifies that the "appropriateness" of an intervention is much more than the moment of selection of the method for meeting the performance requirements. It becomes a detailed study of different, and continuously rising, demands of usage and of possibilities for meeting them, always with a full respect for the specific character of existing heritage [3].

All this leads, then, to a different approach to the restoration of built heritage. Through the definition of a system of architectural, technical and technological values which should be preserved and a system of uses understood as a totality of technical and technological choices which meet the requirements it is possible to determine compatibility and coherence of the intervention and guarantee "living continuity" of the heritage [4].

4. Intervention's methodology

New components do not have to be "integrated by force" into the existing architecture, but can simply be "added" to it. Such a superimposition can be more or less successful. It could be a controlled process where new components are combined with the building system configuration and gain a formal validity in defining space, but it could also be a process without any specific control where they are added to the existing fabric with indifference and without establishing any kind of relationship.

Therefore, if even the minute details of the superimposition are coherently controlled, giving a sense of continuity between the old and new, the architectural quality of the "Sassi", in its formal, spatial and material aspects, will not be affected. Whereas, the superimposition of new functions, performances and components without any interest in and connection with the original structure, creates a clear-cut distinction between new uses and the specific architecture of the "Sassi" that, instead of solving the dualism between old and new, heightens the sense of opposition and extraneousness.

Another, often used method is a presumed "integration" of components in the existing architecture by disguising them into the structure and unnecessarily tampering with it [5].

5. Conclusions

The above considerations testify that the quality (technical/structural and material/formal) of a restoration consists of an "adequate quality" of intervention in terms of the capacity of building structure to respond to the functional performance requirements.

The level of performance of buildings is measured against the conceptual requirements and in terms of "quality of relationship" that an intervention creates with the architectural context [6]. Therefore, the objective is not the transformation of built environment but its conservation by creating a harmony between contemporary performance requirements and the respect for authenticity of an object, its original structural language and the need for its preservation. This is achieved through new, more appropriate functions which allow restoration of environments and structures otherwise difficult to include in the life cycle process without significant tampering.

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