REHAB 2017
3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures

BOOK OF ABSTRACTS

Edited by
Rogério Amoêda
Sérgio Lira
Cristina Pinheiro
REHAB 2017
Foreword

REHAB 2017 - 3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures aimed to proceed with the discussion on built heritage and the preservation of its legacy that was established in the previous editions of the event. The importance of conservation of historical constructions (built landscape, urban fabrics, buildings, and engineering works) are of utmost importance to preserve the cultural references of a community and was deeply discussed on March 2014, in Tomar, and July 2015, in Porto.

Under the main topics of discussion, subjects of preservation and rehabilitation methodologies and technologies, as well as the importance of the economic and social impacts of preservation practices were covered as the main leading guidelines for the conference debate. Furthermore, different communities’ scales (local, regional, national or even worldwide) and authentic-ity interpretation raise different questions and approaches, and therefore different solutions that are worthily to study, to compare and to experience. The sustainability approach was covered once more, highlighting the importance of the commitment between heritage preservation and technical requirements related to its occupancy and use, such as energy efficiency or materials recovery. Inclusivity was also an important aspect to be discussed as public historical sites and buildings need to be adapted to receive different kind of visitors (children, elderly or handi-capped persons) and to establish an adequacy with the perceiving of the physical environment and information contents.

A new chapter was included in this edition of REHAB 2017 and Earthen Buildings were brought into a particular approach highlighting the complexity of their preservation, maintenance and rehabilitation. Earthen buildings techniques are in many cases of a great importance for local economies and access to housing.

Authors submitting papers to REHAB 2017 were encouraged to address one of the above mentioned topics of the Conference by providing evidence on past experience and ongoing research work. As a result, REHAB 2017 welcomed a significant number of papers and presentations addressing field work and case studies but also theoretical approaches to historical buildings preservation and conservation. As in past editions of this Conference, REHAB 2017 also gave stage to early stage researchers and students willing to share the results of their research projects, namely post-graduation projects and doctoral projects. REHAB 2017 received a significant number of such proposals the quality of which was confirmed during double-blind re-

view.
We would like to express our gratefulness to all the partners of this edition of REHAB who joined the effort to make a significant Conference. Our special word or recognition to the Ministry of Culture – Regional Directorate of Culture North, Museum D. Diogo de Sousa, Monastery of Tibães, Instituto da Habitação e Reabilitação Urbana, Portuguese Order of Architects, Portuguese Order of Engineers North, Association Centro da Terra and Projecto ReVer of the University of Minho. As media partners of the event we would like to thank Construção Magazine.

Last but not least, a special word of recognition to the Municipality of Braga that assisted the Organising Committee in all manners.

The Organising Committee also expresses its gratitude to all Members of the Scientific Committee who reviewed the papers and made suggestions that improved the quality of individual work and the over-all quality of the event.

The Editors

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Sérgio Lira
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Rogério Amoêda

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**Scientific Committee**

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*Technologies for inspection and monitoring of buildings performance and pathologies*
Survey to architects: challenges to inspection and diagnosis in historical residential buildings

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ABSTRACT: Using a web query among architects (n=57), we could identify the main obstacles found in the application of inspection and diagnosis procedures in historical residential buildings. The results revealed that these procedures are not yet uniformly applied in this built heritage and pointed out the need to develop simplified methodologies and less resource-consuming methodologies, to ensure their applicability.
From “brutalist” to “sustainable” – the COIM shopping and office center in Potenza, Italy, becomes NZEB

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ABSTRACT: The “brutalist” architecture has led to the construction of buildings with perimeter walls, roof slabs and floors on unheated spaces devoid of thermal insulation which, nowadays, are extremely costly to deal with, and often have serious thermo-hygrometric pathologies. The distinctiveness of the outer surface finish, as well as its importance for the appearance of the building structure, make difficult any kind of energy retrofitting external intervention, since the problems arising from an insulation from inside can be far more than those solved, due to the thermal bridges added. Built in the eighties, the Potenza COIM shopping and office center shows in all its different parts an energy consumption of 42,67kWh/m² per year, (whereas the index provided for by Italian standards is 15,33kWh/m² per year). The paper shows how is possible the realization of the economic feasibility and project sustainability aims in respect to the original architectural configuration, thus suggesting an intervention model applicable to all similar cases.
Mobile Mapping and laser scanner to interrelate the city and its heritage: the Roman Circus of Tarragona

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ABSTRACT: Historic urban centers have a very specific problem, with very large demands in relation to documenting their heritage elements. Not only for its typological diversity and extent, but also by the need to determine the interactions established between the different elements, especially the dialogue between the modern city and the historic towns. We present here the experience of the Roman circus of Tarragona, which occupies four hectares of the historic center of the city, where we have used the “Backpack”, the Mobile Mapping solution installed on a backpack from Leica-Geosystems. This system allows access –and therefore the documentation– of areas which are only accessible on foot, as well as underground and inside buildings.
Automatic recognition of materials from laser-scanner survey data by the reflectance method

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ABSTRACT: One of the most common techniques for surveying architectural heritage today is the laser scanner. With this technology a point cloud is obtained which, after being processed by computer, results in a geometric mesh, and ultimately a three-dimensional model. But laser scanning delivers also, as a byproduct, the value of the reflectance of the documented surfaces, which is the quotient of the energy of the emitted laser beam (by the machine) divided by the energy received after reflecting on the surface of the measured object. This value varies according to the angles of incidence and reflection of the beam, but also on the optical and surface properties of the materials on which the laser light is reflected. This latter characteristic has led to hypothesize that the different materials that compose the surveyed surface can be individualized and automatically recognized. After studying similar cases in the scientific literature (made with natural light, with flights and LIDAR, etc.) we have tried to see if this assumption could be confirmed experimentally, with promising results. In this work, we explain the evidence and the methodology of the experiments performed to test the validity of this hypothesis.
Chapter 2

Seismic behaviour of historic buildings
ABSTRACT: In Roman Baths the Romans employed groin vaults of great dimensions, with maximum span more than 20 m; simple tools of structural analysis of ancient wide span vaulted halls are still lacking, due to geometrical and material complexity. In this paper we study the collapse behavior, under horizontal static action, of a corner cross vault of the Baths of Diocletian in Rome (Hall I). In the present modeling, masonry is discretized as a system of interacting rigid bodies in no-tension and frictional contact. The computational code consists in a linear programming approach which make use of a series of optimization packages via lower and upper bound techniques of limit analysis. The main difficulties of the proposed procedure consists in a suitable description of the overall 3D geometry, here afforded with a specific pre-processing approach.
The wooden elements as anti-seismic presidia in the built heritage of L’Aquila

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ABSTRACT: The earthquake of 2009 has brought to light the different anti-seismic presidia implemented over the centuries, in the aftermath of repeated earthquakes occurred in the city of L’Aquila, which represent the result of a knowledge and a constructive culture linked to a direct observation of the damage, the intuitive interpretation of the seismic response and the possible countermeasures experimentation. An important role is attributed to the wooden elements that have different functions and are used in the context of standard and palace building. The integration of the wooden elements can become a real system and be extended to the entire building unit, as in the case of the adoption of the "hut" system (sistema baraccato). Alternatively, it can be used only for single and specific building elements, such as the use of "wooden roots" (radiciamenti lignei) in the walls and vaults or wooden elements used for the construction systems of the roofing. This paper aims to contribute to the knowledge of these anti-seismic systems, framed within a broader constructive culture linked to the pre-modern building.
Seismic behaviour of historic masonry structures: the case of the neoclassical city of Patras, Greece

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ABSTRACT: Catastrophic earthquakes as the case of Amatrice (2017), emphasise the need for constant research on the response of historic structures under dynamic loads. This paper examines the behaviour of neoclassical masonry dwellings of the Greek city of Patras, to relate the historic style and its seismic behaviour with the rehabilitation processes and examine how far it addresses its specific needs. The study is based on archive material of affected buildings and in-situ surveys, and is approached qualitatively. Morphological features of neoclassicism in Patras were found to contribute positively to their seismic behaviour, while the secondary role of the building fabric to the architecture produced masonry of poor quality and a brittle behaviour. This, along with outdated State regulations, has led to the use of invasive and non-reversible methods.
Earthquakes and historic masonry buildings: an experimentally-based algorithm for debris formation prediction

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ABSTRACT: Immediately after an earthquake, the emergency paths play an important role for evacuees and rescuers in historic centres. Especially in historical scenarios, earthquake effects could affect the mobility system and interaction between people and modified scenario. The spreading of debris from damaged buildings on the paths could obstacle the citizens’ evacuation to safe points and rescue operations. For this reason, defining quick criteria about seismic behaviours of historic building and related debris formation along streets and public spaces are the first steps in defining effective damage scenario maps, designing risk reduction interventions on critical areas, evaluating emergency plans and innovative risk-reduction tools for helping peoples. The present work offers an experimental relationship for the estimation of external debris formation (amount of debris along streets) by means of post-earthquake aerial images of Italian historic centres (images of the immediate aftermath of L’Aquila-2009 and Emilia-2012 earthquakes are examined). For each building, the quick proposed algorithm evaluates the percentages of external debris area (along the facing street) as function of its vulnerability and earthquake magnitude (Richter scale). The algorithm is firstly validated by comparing predicted and effective values of ruins area depths in the considered case-studies. Similar debris estimation relationships could offer significant information for evaluating risk levels in street network damages and could be also combined with simulations about probable pedestrians’ evacuation in post-earthquake scenario. Results will be useful in order to reduce the identified interferences between built environment and evacuation process through interventions on critical historic buildings (in their relations with the street network elements) and strategies for emergency management.
The relative value of the architectural heritage in seismic hazardous countries: the Severín library (Valparaíso, Chile)

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ABSTRACT: In Chile, the value of the heritage concept is relative. The seismic reality has granted a condition of fragility to any architecture built. However, this quality requires a process of cultural adaptation, typological, materials, which has accelerated the search for new forms of construction for conservation. While the seismic hazard temporarily narrows the built, it develops technologically. The city of Valparaíso, declared a Historic-Cultural Heritage Site by UNESCO in 2003, was set as one of the main ports in the South Pacific since the opening of the route through Cabo de Hornos, establishing himself as one of the most important cities the country and getting itself to designate as the "Jewel of the Pacific". However, the city was not without disasters due to its location on the so-called "ring of fire", one of the areas with the greatest seismic hazard worldwide. The earthquake of August 1906 destroyed almost the entire sector into crisis Almendral all buildings of the time. The reconstruction plan, executed four months later, was an opportunity to change the techniques with a view to the Centenary of the Chilean Republic. The paper studies the case of Severín Library as one of the first neoclassical buildings, executed in the city, developed with the goal of being a landmark heritage building in the port city. Located opposite Victoria Square, it is designed by architects Renato Schiavon and Arnaldo Barison and executed in 1912 with techniques that allowed her vocation of continuity in time. Compound with classical elements but with a novel structural type, this building will be an equity benchmark for the time when it was built and by the objectives that originated it.
Chapter 3

Preservation and rehabilitation of historic buildings and structures: case studies
Erbil Citadel revitalization and the presence of its emergence history

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ABSTRACT: In July 2014 Erbil Citadel (Iraq), a rare and unique surviving model of an urban ancient settlement, has been included in the UNESCO list of world heritage. The process of inclusion was preceded by many studies prepared to achieve the revitalization of the citadel as a residential, tourist and cultural center for Erbil. Other studywas initiated for the area surrounding the citadel to enhance the integration between the Citadel and the surrounding districts and to provide an added layer of protection. Our paper focuses on the relationship between Erbil Citadel and the surrounding districts as a significant issue for the citadel revitalization project. It argues that the revitalization of Erbil Citadel as well as its neighboring area - buffer zone -, in an integrative approach cannot be justified only by the geographical adjacency between the two entities, but it may be necessitated, additionally, by their historical adjacency. It is argued that the relationship between the Citadel and the lower surrounding districts, historically and in terms of urban development, is a relationship of complementation rather than a relationship of a mere repetition as raised by previous studies. To support this argument, those studies are reviewed and discussed. Then, the nature of the urban growth occurred, the types of the urban fabric elements and the urban functions of certain elements are introduced as the indicators considered as the items of a theoretical framework used to support the abovementioned hypothesis. A methodology usually used in historical researches, is adopted to objectively investigate the historical documents, manuscripts and sketches, travelers’ journeys and other sources as evidences to be analyzed and compared. The research concludes that the unique adjacency relationship between Erbil citadel and its neighboring districts which characterized their emergence across history evidently justified the integrative approach adopted in the current Erbil citadel revitalization project.
Preservation and rehabilitation of the former Hoffman ceramic urban factory, in the UNESCO city of Mantua (Italy)

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ABSTRACT: This paper presents the outcomes of an environmental project, for new uses of the former Hoffman ceramic factory (inaugurated in 1868 an abandoned in ‘60) and its surrounding context, in the UNESCO buffer zone of Mantua. The zone is subjected to an ongoing development plan that meets the need for stopping the decay, going beyond the isolation and developing fruition activities, in order to have positive effects on the socio-economic system of the town. The paper presents the approach and the strategy of intervention: preservation of the cultural value of the building and enhancement of the use of the area, designing environmental interventions, new spaces for social and cultural activities (co-housing, student housing), meeting points, commercial activities (for the promotion of the local agri-food sector), green spaces and spaces for new ways of working (co-working).
Restoration and adaptive reuse of Modern Architectural Heritage – case study: Great Warehouse of the Kayseri Sümerbank Textile Factory

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ABSTRACT: Kayseri Sümerbank Textile Factory Complex (Ivan Nikolaev for Turkstroj, 1932-1935), one of the most important examples of Modern Architectural Heritage in Turkey, has been abandoned through privatization in 1999 and allotted to Abdullah Gül University in 2012 to be used for higher education. The so-called Great Warehouse, a long and narrow building measuring 135x45m and 6,000m² and planned as a high single-story space, designated with a function centering on education in the master plan, became the focus of the first restoration and adaptive reuse project at the campus. Following the completion of the design project in 2014, the implementation took one-and-a-half years and the building was opened in September 2016.
The single miners' dwelling by Gustavo Pulitzer Finali. Recovery and reuse

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ABSTRACT: The single miners' dwellings designed by Gustavo Pulitzer Finali in 1937 outline the pathways connecting the dwellings of the company town of Carbonia with the great Mine of Serbariu. Conceived with the forms of "autarchical rationalism", they constitute a substantial change of scale compared to homes surrounded by gardens. Relying on his experience as a renowned naval architect, Pulitzer entrusted the composition of the building to a few elements. In 2005 the city administration, with the scientific support of a multidisciplinary team of the University of Cagliari, recovered one of these building from the point of view of "philological" conservation, introducing an Integrated Educational Youth Center. The study of the conditions of deterioration and dilapidation, carried out by the team of Technologists, allowed us to verify the validity of the data collected, to detect the properties and capabilities of the materials used, and to ascertain the suitability of the technical solutions proposed with regard to the current state of the building.
Seismic assessment of hotel El Comercio, Peru

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ABSTRACT: Hotel El Comercio, situated in Lima, is a typical three-story casona, L-shaped mixed timber-adobe masonry patio building, dated back to middle 19th century, involved in the ongoing Getty Seismic Retrofitting Project under the auspices of the Getty Conservation Institute. The building is mostly uninhabited and in state of decay. Aim of this paper is the assessment of its structural performance, particularly the seismic safety, through numerical models and analyses, both linear elastic under vertical loading and nonlinear static under mass proportional lateral loading. Modeling strategies for the structural elements of the building are compared in terms of sensitivity of the results, especially to the adopted constraint between first and second story walls.
God is moving house: Churches on sale

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ABSTRACT: Churches close: this is the current situation both nationally and European, which highlights that the abandonment or disposal of ecclesiastical complexes is now an urgent phenomenon that asks designers to think on the fate of these heritage. The intervention of abandoned ecclesiastical structures focuses some issues, still to be investigated, related to a general depopulation of the countries, a progressive secularization of society and a overall crisis of religious faith that asks to find new places, new spaces and new stories to profess the faith. At European level and particularly Italian one, it follows a surplus of Christian religious heritage that poses urgent questions in relation to its conservation and its use, in accordance with their historical and architectural value. There are also many cases of underutilization or prolonged or permanent closure as an antidote or advance of disposal processes, sale or re-functionalization. The phenomenon of "empty churches" shows an interesting intervention of architectural metamorphosis with overturn use changing, in some cases even blasphemous or provocative. Especially in Northern Europe the abandoned and deconsecrated churches become theatres, atelier, libraries, luxury hotels or private homes included in the architectural frame of the church but also kindergartens, bars, clubs or skate parks. This paper intended to present the methodological process and the outcomes of an activity of an International Summer School named "[RICH*] - Reuse and Improvement of Cultural Heritage" funded by the University of Pavia in which teachers and students from different countries (Italy, Spain and Turkey) have worked together to set the reading and the strategies of the project in which new definitions and new roles of religious complexes can found, in particular contexts, reason and meaning. Specifically, the case study refers to the church of Ognissanti, in the ex-Certosina complex of the historical building Palazzo Botta in Pavia. Precisely because of the centrality of this case study in the city historical centre and of the broader reading of urban policies, the theme of the reuse of ecclesiastical complex was considered both to the architectural scale and to the building-environment relationship, really with the general aim of triggering new uses and new stories of the city.
Historic heritage in ruins in Sardinia (Italy). Between schemes of collapse and consolidation measures

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ABSTRACT: The buildings in ruins, belonging to different historical periods and to several types (castles, churches, factories, buildings, etc.), they also have a structural layout related to the particular conditions that have been created because of the collapse and of abandonment. The particular nature of the ruins determines how these processes of decay, but certainly the construction techniques and geometric and dimensional characteristics have a particularly important role. The construction of a building depends mostly by materials but the installation techniques, the arrangement regular or irregular, the presence of a sufficiently resistant section, the presence of more or less mortar, etc., are in themselves aspects that give the factory a greater or lesser resistance and durability. In Sardinia (Italy), which is sparsely populated with vast low-density areas, there are a lot of buildings, which today arise in bleak abandonment, made even more evident by various material signs. This paper, which anticipates the results of a research project in progress, aims to further explore the following aspects of the topic: -examination of numerous buildings, studying the possibility of predicting the modality of collapse even in the absence of a factor of disturbance from the known behaviour, such as an earthquake; -critical examination of restoration, reuse and maintenance, assessing its sustainability; -define the scope of minimal interventions, able to prevent subsequent collapses and compare them to their feasibility on a large scale, with low cost strategies.
Adaptive reuse for social agriculture: a sustainable approach for the recovery of abandoned villages in Sicily

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ABSTRACT: This paper focuses on the case study of Borgo Lupo village, a suburb of Mineo (Catania) built in the early 1940s in the framework of the agrarian reform in Sicily and abandoned in the 70s. It intends to outline the criteria and operational procedures for the adaptive reuse of such a built reality, as part of a global landscape strategy to enhance resilience, sustainability and local community development. This purpose finds in the social farming an effective concept that leads on one hand to the recovery of unused buildings with great symbolic significance, retaining their integrity while providing modern needs and, above all, new chances for their residents. On the other hand, it offers an exemplary opportunity for the invigoration of a territory, today characterized by a barely populated landscape, but at a very high agricultural vocation, by promoting environmental and social justice, well-being and solidarity.
Reuse of historic buildings in the city of Seville for institutional purposes. A public proposal for heritage and urban regeneration

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ABSTRACT: The reuse of heritage buildings is a key measure for the regeneration of the historic fabric of cities. To do so efficiently and sustainably, it is necessary—in addition to private initiatives—that public institutions become involved and promote these performances. What happened in the city of Seville in the last thirty years provides an interesting case study. On the one hand, because public bodies have drawn the attention of the specialists, which ultimately has served as a guideline for the selection of suitable buildings for adaptation, and on the other hand, above all, because public bodies have assumed the responsibility for the rehabilitation of several buildings to host their institutional headquarters. This research addresses which of these historic buildings have been successfully transformed—architecturally and functionally—for their adaptation to the new institutional purposes, either acquiring a cultural, an educational or an administrative use.
Talking walls and authenticities to be preserved in the rehabilitation of the abandoned parish complex of San Giovanni Battista in Carpineto (Fisciano, Salerno, Italy)

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ABSTRACT: Many dismissed churches are currently in a fairly advanced state of decay, and integrated restorations covering not only the preservation of their authenticities but also the structural repairs and functional adaptations of their spaces are needed. The former parish complex of San Giovanni Battista in Carpineto, hamlet of Fisciano in the province of Salerno, Southern Italy, is an agglomeration of completely abandoned buildings, whose state of material and structural decay is very serious. A path of knowledge and a proposed rehabilitation for this forgotten monument are here reported: in the almost total absence of written sources a careful historical, geometric and material analysis of the walls of the parish has reconstructed the building evolution of the complex and revealed a really singular stratification; a comparison with other local churches has highlighted some typical architectural features to be preserved in the area; a crack pattern interpretation has identified the collapse mechanisms triggered by recent earthquakes; an adaptive reuse has been identified as a result of a feasibility study.
Restoration project of the Punta of Guardia lighthouse on the Ponza Island, Italy

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ABSTRACT: The study concerns the restoration project of the Punta of Guardia lighthouse on the Ponza Island, Italy. Only in this last period, the Italian government considered these buildings for the purpose of the retrieval, both for their great charm, that for the evocative panoramic frame context in which they are. The lighthouse in question was built in 1886, on a sea stack near the Tyrrhenian Sea. The study is supported by the historical research about the building, execution of metric and photographic surveys and the study of materials and construction techniques as result of the analysis of the degradation and restoration work. All these operations were the prelude for the project about the conservation of surfaces and the renovation of the structure, with particular attention to humidity problems in all its forms. Architectural object has been assigned a tourist connotation in full respect of the attitude of the lighthouse itself.
The Restoration site of an house in Monopoli, Largo Castello, N. 5

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ABSTRACT: The subject of this contribution is the restoration area of a communal building "Galanto House", located in the historical centre of Monopoli. This city has ancient origins and it's overlooking the Adriatic Sea, in the province of Bari (Fig. 1). The location of this house is privileged and for its proximity to Castle of Charles V and overlooking the old fishing harbor. The latter, in turn, is characterized by a fragment of the ancient walls of the XVI century town house with its vaulted embrasure, still legible. The abandoned building for several years, despite its proximity to the sea, while still maintaining its structure. Preliminary investigations in the project have established two important phases of construction of the building: the first (XVI-XVIII century) - service environment of the Castle, characterized by a section of walls with vaulted embrasure and a leaning environment for housing the cannon. The second (XIX-XXI century) - home. The new morphological arrangement of Largo Castle next to the realization of the docks of the Port works (1866), determines the redevelopment of the building into a dwelling. The artifact inside runs a backfill of about 2 m of leaning environments to the ancient walls and simultaneously proceed with the emptying of the same at the new internal quota, to allow the house to enjoy the picturesque view of the Port. The goal of this restoration project is to extend also to goods not bound technical methods and practices of restoration and conservation through a process of renovation in order to return the house to its historical value, through measures designed to reading, there where possible, the stratigraphy of the building. The removal of the backfill in the home will shed light on the ancient masonry and embrasure, which will reintegrate in an area privileged environment. The project also provides for the use of dry stratified technologies such as steel structures which allow a fair reversibility; recovery techniques of the local tradition and use of innovative processes in technological solutions.
Conservation at all costs? The case of Les Arenes in Barcelona

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ABSTRACT: In March 2011, a new shopping centre, Les Arenes, opened in the heart of one of the tourism and business centres of the city of Barcelona. The name and a disfigured façade were the only items conserved of the former bullring saved from demolition in this business operation. The disaffection shown by the Catalan public to bullfighting forced the closure of Les Arenes bullring in the late nineteen-seventies and from that time onwards its future (conservation, demolition or new use) was a matter of public debate. The new century brought with it a dazzling project that promised to guarantee both the much sought-after conservation of the building and the project’s sustainability. It was such a dazzling project for the city as it involved the arrival in Barcelona of a celebrity of world architecture, the British architect Richard Rogers. After more than eight years of construction work and an expenditure of over 200 million euros, Barcelona proudly displayed one of the worst examples of façadism, an approach often used in the restoration of twentieth century architecture. Once again, the building’s historical memory was sacrificed on behalf of the project’s sustainability.
Dialog between contemporary perspectives and conservation principles

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ABSTRACT: The aim of this research is to advance knowledge and methods in the protection and rehabilitation of the cultural monuments, as well as any other historic/historical building. The research is conducted on the selected case studies and it debates a number of questions and solutions faced in any rehabilitation process and rises some principal questions. How to judge, define or classify values of the building in objective manner? How to find a balance between the requests of the contemporary trends and modern architectural perspectives vs. strict conservation principles for preserving monument values? How to overcome conflicts that emerges from affronting projected tasks and goals vs. clear structural limitations? How the rehabilitation of a building affects the rehabilitation of the surrounding area? Contribution of this paper is in advancing methodological approach in the attempt to define a sustainable theoretical model of the modern conservation and rehabilitation of the cultural heritage.
Contributions for the implementation of preventive conservation and maintenance strategies in the Faculty of Architecture of the University of Porto

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ABSTRACT: The sharp decrease in economic and ecological resources calls for a paradigm shift in order to ensure their more sustainable management. This means moving from an exclusively reactive and interventionist approach (post-damage) to preventive conservation (pre-damage) and continued care over time. The paper will include an introductory background on preventive conservation and maintenance, followed by the implementation of strategies applied to specific case studies. Special emphasis will be made on the contributions for the implementation of maintenance strategies and user’s empowerment in the buildings of the Faculty of Architecture of the University of Porto, designed by Alvaro Siza and built between 1985 and 1992. These strategies provide for a better management of resources, guaranteeing good performance levels and the preservation of the building’s authenticity, as well as its more sustainable transmission to the future generations.
ABSTRACT: The Golgi College is one of the ten student dormitories in Pavia managed by the University. It consists of six buildings with common services and offices at the ground floors and single independent rooms with bathroom on the five floors above. Each floor has a shared kitchen where the students can prepare breakfast, lunch and dinner. These concrete buildings constructed between 1975-1977 display advanced technical systems for their time. EDISU, the special agency established by the University of Pavia that manages the dormitories and canteens in Pavia, is interested in improving the quality of the common spaces and increasing the energy efficiency of Golgi College. To complete these intentions, several projects were developed with the Department of Civil Engineering and Architecture and the Master Degree Course in Building Engineering-Architecture. The paper shows one solution developed in a final project thesis for the Master, expression of a methodology to approach the problems to rehabilitation of a students’ accommodation building that can be applied also to other buildings, not only in Golgi.
Oteiza Museum Foundation, Alzuza, Navarra.
A good practice’s case in rehabilitation

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ABSTRACT: In this paper we want to present a case in which, through a cultural infrastructure, first level in terms of excellence in the field of contemporary art, they have managed not only to preserve but to restore, to update and to project an urban nucleus threatened by the growing city. With this action we emphasize the material heritage in construction, and immaterial in the living and in the customs. As a consequence, it is possible to develop in each of its permanent inhabitants and their occasional visitors: sensitivity towards the custodial role, which prevents them from succumbing to decontextualized forms when developing.
Conservation as the careful management of change to the historic urban fabric: implementing the transition from vision to reality

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ABSTRACT: This paper explores how a framework for securing physical changes to urban fabric set out by Switzer in 1978 has been modified with regard to heritage assets by the need to take account of their significance and meaning as a foundation for effective conservation and management. This is particularly important where the assets are different in nature to those that until recently would have been regarded as the natural candidates for scheduling and subsequent conservation. The way that the need to carefully manage change influences Switzer’s sequence of stages between the conceptual vision and the execution of the activities required to achieve it is discussed in respect of a single group of structures in unified ownership (the Bletchley Park WW2 code-breaking centre) and of a particular type of smaller urban area in the UK (the coastal holiday resort), which has a larger range of stakeholders with an interest in the outcome. Heritage Action Zones, a newly-established initiative by the UK Government for driving physical, economic and cultural rehabilitation of both individual groups of heritage assets and more extensive urban districts, are examined regarding their potential for facilitating the most challenging aspect of promoting change – being able to cross the divide between vision and realisation.
The deformations of the Valle de Aran’s vaults in Spain. The formation of anti-funicular arches

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ABSTRACT: There are a set of Romanesque churches at Val d’Aran, with basilical plan, which were built between the 11th and the 13th centuries. They have great deformations over 7% its initial geometry. These deformations have caused joints on the vaults due to active thrusts that, together with the passive thrusts caused by the buttresses, have defined anti-funicular shapes. The paper exposes a general revision of the masonry theory at Val d’Aran, systematizing the deformational mechanisms and through a specific assessment of the equilibrium of an anti-funicular vault at Santa Maria de Arties.
How to define a design methodology able to achieve anti-seismic and functional upgrades of building heritage

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ABSTRACT: Starting from an analysis with in-depth numerical analysis methods available today, the load-bearing masonry and wooden floors buildings that are typical of the architectural heritage of the southern Italy prove to be characterized by insufficient seismic resistance, as well as also the centuries-old history of these cities test: they were repeatedly destroyed by earthquakes, and each time rebuilt, almost always with the same materials and the same construction methods. New structural intervention models have been developed: they now allow to define purpose-made interventions for each single building and for each of its parts and make it possible to achieve the desired resilience, in the respect of retrofitability and sustainability of materials and components interventions, designed and executed with reusable, recyclable and renewable, locally produced. New reliable and tested materials for the inside and outside insulation allow to treat the buildings of historical heritage with objectives of energy efficiency and sustainability that are not far from those that belong to the design of new buildings, making it near the goal of reducing the use of the land and the growth of the cities, and to focus on their refurbishment.
Daylight in the Choirs of the Monastic Church of São Bento de Cástris in Évora and the research Project ORFEUS

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ABSTRACT: The Cistercian Monastery of São Bento de Cástris (13th-19th centuries), in Évora, Portugal, includes a church, at the south-eastern corner. Its unchanged exterior walls are made of solid masonry. Although the function of the walls is primarily structural, the windows allow the daylight to penetrate the space of the church. The church has two external façades facing northeast and southeast. The Church of the Monastery presents an unusual space setting with two choirs which seems to favour different positions for coral groups supporting liturgical and musical expression activities within the research scope of the Project ORFEUS. The natural light in the Cistercian churches is closely linked not only with the liturgical requirements at the officium but also with the canonical hours based on the "ora et labora" dictated by the Rule of St. Benedict. Time is cyclical, as is the Cistercian cloister life, following summer and winter as well as the play of light and shadow that gives value to the monastic architectural space, making it perfect for a contemplative experience following the Rule of St. Benedict. Some of the Cistercian monasteries denote the importance given to the light in its own title: Clairvaux, Vaucclair, Clairmarais. As the light in the Cistercian Monasteries, mainly, in their churches, is mostly related to the fulfilment of liturgical needs, this paper analyses the relationship between daylight conditions within the monastic choirs located within the monastic church. The chant was a very important way of oration thus of the liturgy. These two unusual locations of the choirs (an higher choir and a lateral choir) which worked as one and the levels of daylight are compared with the requirements needs of the modern world.
Adaptive reuse of civic buildings

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ABSTRACT: Adaptive reuse of buildings is a growing field of activity and discussion within the Adaptive Architecture and the sustainability debate. Much of this activity and debate relates to private commercial buildings where economic performance is a strong driver for adaptation. The literature provides little information about adaptive reuse of civic buildings, especially city and town halls. City halls are important landmarks which are significant culturally, helping to define the city visually, socially and symbolically, whilst also providing functional services. This paper discusses different types of adaptive reuse of buildings to position thinking about suitable types which apply to city halls. Case studies add further understanding about approaches taken in the adaption of city halls for contemporary purposes. Consideration is given to prioritizing between cultural considerations or functional change for new purposes and technical upgrade of buildings.
The Incurables Hospital complex in the Ancient Center of Naples: a project between layers

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ABSTRACT: The Incurables Hospital complex, defined as “the most articulated complex of the ancient center of Naples”, is an exemplary case of how signs of time can accumulate on themselves, creating unitary spaces. Bombings, which in 1943 destroyed some parts of the complex, led to operations of demolitions and re-construction that permanently altered its relation with the ancient city walls. The traces of the walls, the “wound” of the ruined front, the new configurations brought by post-war re-construction are all pieces of a hardly transformable space, but a space of great interest for a contemporary architectural project. The proposed design strategy provides a spatial re-interpretation of different “layers” that characterize the complex stratified architectural “mass”: the underground level, the level of gardens and the level of terraces. In overlapped layers of historic city lies the opportunity to recover a continuity of connections, “re-discovering” significant forgotten spaces and creating a continuous path.
Museums renewals: rehabilitations and urban interactions

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**ABSTRACT:** This research focuses on the role that museums develop in their cities. As part of a research on 25 buildings in Europe and America, that were originally conceived as museums, it was intended to evaluate the scope of their recent rehabilitations, developed generally from the 70s and intensified from the new millennium. The revalorisation of the museums as heritage buildings far from their collections importance, in addition to a series of exemplar interventions on them, transforms the idea of historical museums into renovated urban icons, attending to contemporary imperatives. The rehabilitation of their spaces and original elements, under the conception of expansion, as well as providing modern infrastructures, entries, etc., create new material and spatial realities that constitute powerful images of new architecture that contribute to modernisation of all museums in terms of cultural and functional achievements.
Rafael Arévalo and the other scale: social housing neighbourhoods in medium-sized cities of Andalusia

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ABSTRACT: As chief-architect of the Obra Sindical del Hogar since 1963, Rafael Arevalo Camacho (1925-2010) was in charge of the construction of a vast number of public housing in Andalusia. Although many of these developments have been studied, recognized and disseminated, this research shows that is pending an in-depth analysis of his work in cities of intermediate scale. These cities present a lower number of promotions. However, its strategic position within the territorial structure of its region also placed them as recipients of transfer of rural-urban population. Cases such as the neighbourhood Jesus Nazareno in Sanlucar de Barrameda (Cádiz) are excellent representative examples of his residential architecture in this other scale. Its significance lies not only in the fact that they are the most significant operations of architecture of the modern movement in their respective cities, but are especially noteworthy the values derived from its strategic location within the urban structure of these intermediate scale cities. Being near to city centre, they have been constituted as transition pieces between historic sites, new peripheral developments, and even, their nearest territory. The research proposes an approach to these neighbourhoods from the concept of traceability, understood as the registration of interventions carried out on the building. It is intended to show that, compared with complexes built in large municipalities, the studied cases have suffered significant modifications carried out directly by its inhabitants. Changes that arise as necessary response to supervening construction problems or to the needs of typological adaptation that naturally arise in its own evolution as a living whole and that demonstrate the potential that can have a community to regenerate and renew their spaces and damaged goods.
Retail-reuse of historic buildings: an inquiry into opportunities and threats

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ABSTRACT: In many historic towns, heritage buildings and sites have lost their original function and are currently used for retail and other commercial activities. This phenomenon, which we called retail-reuse, can be seen as an opportunity for the heritage sector-the commercial (re)use of heritage places generates funds for its maintenance and restoration, and the heritage often stays accessible for a large audience-as well as for the retail-sector—historical buildings are often centrally located, are spacious and have a unique and authentic character that might be appealing to customers. On the other hand, involved stakeholders may have various or even conflicting interests in the project which might generate tension, and eventually a loss in quality in conservation or retail design. The aim of our study is to investigate the opportunities and threats of retail-reuse in order to be able to better anticipate such problems in future retail-reuse projects. We did so for six different building types: industrial buildings, religious buildings, (semi-)public buildings, residential buildings, military buildings and retail buildings. As existing studies on adaptive reuse into retail are scarce, we have to work with realised examples: 33 projects of retail-reuse were analysed out of which 10 projects were studied more in-depth as case studies. Our findings are summarized in a matrix, indicating for each typology the particular threats and opportunities for reuse into a retail function. We also formulated 7 aspects that are most frequent or most decisive in the suitability of historic buildings for retail-reuse: (1) location, (2) size, (3) adaptability, (4) characteristics of the façade, (5) character and atmosphere, (6) public support, and (7) afterlife. We conclude with stating the implications for practice, and we formulate policy guidelines as to retail-reuse of historic buildings.
Abandoned mining Heritage in Southwest Sardinia, a valuable site to be preserved: the Delaunay Hospital in Monteponi mine

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ABSTRACT: The paper focuses on the Monteponi Mine in Sardinia, that played an important role in the evolution of mining exploitation: it was interested by modern implementations and infrastructure since the mid of 19th Century, when the Monteponi Company improved mining facilities with modern shafts, foundries and factories, which were featured by an Eclectic and Neoclassical language. From 1850s to 1920s there was a total transformation of this site thanks to the modernization of buildings’ features and to innovative technical and formal approaches. The case study is the Delaunay Hospital, built before 1860s to treat workers and staff: today, despite a severe degradation, the Delaunay Hospital is still recognizable. The aim of this work is to present both the Construction History of the Hospital and its present conditions in order to propose a possible reuse to protect it as an evocative exemplar of the 19th Century mining heritage.
ABSTRACT: The Eveleigh Railway Workshops are in inner Sydney. The workshops were built from 1880 to 1887, closed in the 1980s and have been adapted for new uses. The Locomotive Workshops are a Technology Park and the Carriage Workshops are a Contemporary Performing Arts Centre that opened in January 2007. The locomotive and carriage yards were arranged on either side of the main line. This paper concentrates on the former Carriage Workshops within the context of the larger railyards group. The Carriage Workshops main building is 90m by 180m divided into 10 bays and is of brick, stone and iron with surviving traveling cranes, sections of line shafting and drive wheels. It is now a centre for contemporary theatre with adaptable seating and performing areas. The adaptive reuse philosophy was to retain the heritage values including the external form of the building, the relationship to the surroundings and as much as possible of the internal spaces. Key aspects were the retention of all of the remaining lineshafts and fly wheels, the patina of age and evidence of industry, rail level as the floor, remnants of industrial processes and to have regard for sustainability principles. The new work is designed so that the theatres are evident as new buildings within the old and so that the scale of old spaces can be seen. In the design the rows of columns are free of new structures, the foyer is one large space allowing long views, the new entry reopens an early traverser entry, materials and details are industrial in character, old light fittings are reused, the new work respects the old and the history is interpreted. The large performance space required removal of part of the building but this change has minimal impact on significant exterior views with the shape of the new roof derived from the old. New structures are located to avoid lineshafts and flywheels, to be distinguishable as a building within a building and removed trusses and columns are reused.
Moinho Fluminense: an experience of rehabilitation of a historic centre in Rio de Janeiro

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ABSTRACT: Moinho Fluminense, a former milling factory, is an architecture complex of four buildings, located at the port area of Rio de Janeiro. By the end of the 19th century, Moinho initiated the milling activity in Brazil. Due to the renewal of the port area, the milling factory was transferred to another part of the city, and the Moinho complex, which is part of the city heritage, is expected to receive new uses and therefore play new roles within the city. This paper looks at this process of transformation that is still in course, highlighting the role of landscape as one of the guidelines of this process.
Muradiye tombs restoration process

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ABSTRACT: Muradiye Kulliye, which is one of the 8 serial components in Bursa inscribed on UNESCO World Heritage List in 2014, consists of 13 tombs where dynasty members of Ottoman Empire were buried. Restoration and environmental planning of Muradiye tombs were completed by Bursa Metropolitan Municipality in 2015. As a result of foundation walls' isolation, tiles (çini) conservation, renewal of lead coatings, repairs of windows, restoration of wooden kündekâri door and window lids, recovery of hand-drawn ornaments performed on the tombs, tombs were re-opened, and expertness on conservation on local scale was improved. And it was also understood that, with the classical period hand-drawn ornaments revealed as a result of scrapes performed on tomb domes during restoration, buildings were not damaged during the earthquake in 1855.
Colonial revival comparison

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ABSTRACT: In the recent years, within Colombo (Sri Lanka) there has been a visible increase in the revival of colonial structures, especially colonial bungalows. The revival of many colonial bungalows, of similar style, neighborhood, history, and ownership has taken very diverse paths in reaching a similar overarching goal: the boutique hotel. This paper will compare two boutique hotels, in order to analyse the paths taken during the process of revival from a colonial bungalow. The comparison will occur between Maniumpathy boutique hotel and Tintagel Colombo. How do the revival processes of these bungalows account for the preservation of the colonial architecture and the era evoked by such forms?
Case study: the application of Khorasan mortar in Tsakonia region, Greece

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ABSTRACT: The heritage of stone-built houses and infrastructure at the villages of Tsakonia, a region of Peloponnese in Greece is well preserved until today. The majority of these structures, houses and urban infrastructures, have been built at the 18th century, the prosperity period. At the first stage of a long-term study, Prastos, the ancient capital of the region is chosen as the initial point of the investigation due to rich construction activity. The study provides the historic background of Prastos structures and their evolution through time. The manor residences, popular housing solutions, shepherds' houses, water tanks and aqueducts built at Prastos, the capital of Tsakonia region is the topic of this study. The majority of structures remains intact due to use of a structural mortars with superb mechanical properties and durability. The composition of mortars is unknown to the local society since the recipes have not survived the centuries. Series of samples is analysed and the physical, chemical and mechanical properties of the mortar are determined. The study aims to correlate the mortars composition to the Khorashan mortar, a commonly used mortar at the period of the Ottoman Empire (15th 19th century).
Community engagement; emerging players in monuments’ rescue

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ABSTRACT: Conservation charters started already in the 1970s to underline the necessity of communities as potentially powerful guardians of heritage but experiences vary significantly across Europe. The discussion is using some very successful initiatives in Scotland as springboard. The case studies were selected according to the degree of communities' initiative for their monuments' preservation (Balmerino Abbey) and management (Tarberth Castles). Insight was gathered through site visits and interviewing the community groups, like Tarbert Castle Trust and Balmerino History Group. The former consolidated the ruins and opened the castle to the public and the latter accommodated a Conservation Working Party which undertook some conservation preservation works. The discussion extends to examples from Italy (Rocca Albornoziana) and Greece (Pyrgos Moutzinon). This paper explores what makes successful community engagement (policy, private initiative, funding) and assesses the impact of conservation cultures on this emerging trend to create a sustainable future of monuments.
Architecture and landscape. Studies for preservation and enhancement of the mills’ valley in Gragnano (Na)

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ABSTRACT: The mills’ valley represent a complex system made up by productive characteristics, natural environment and infrastructure, related into virtuous mix which led itself development. Starting from the reconstruction of the mills’ network into Gragnano’s territory, the research has focused on a cataloguing and census of the preindustrial architectural heritage based on the 1784 Quiroga cartography. This contribution wants to define a recovering and enhancement program for the analysed buildings throughout the knowledge of their constructive and functional features and the relationship with the environmental and cultural context. The valley’s mills framework, with the old aqueduct and infrastructures, give the opportunity to create a linear park whose goal is to promote cultural and research activities for the community. Buildings would become the instrument to re-appropriate the cultural heritage and discovering the natural, cultural and productive resources of these sites related to water energy.
The study and conservation of reinforced concrete architecture: still a challenge?

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ABSTRACT: The study of historic, modern and contemporary architecture in concrete is an interesting research field, still in progress, which requires multidisciplinary awareness and specific expertise but also new methodological insights. Their preservation rests on the recognition of their peculiarities and values by the collectivity. It also depends on the establishment of specific processes of critical knowledge aimed at decoding these architectural works in order to respect without tamper them. However, too often in the past, the temporal proximity of the construction period - and then the lack of relationships with history - has driven to operate renovation work to the detriment of their authenticity and integrity. Interventions, which have privileged the image and not the effective survival of the buildings. Focusing on two emblematic architectures of XX and XXI centuries, this paper intends to highlight the technical and operative difficulties related to their conservation, which still is a great challenge for the architects of our time.
The conservation of the Seven Dolls Temple at Dzibilchaltún: a multifactorial challenge

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ABSTRACT: The conservation of the Seven Dolls Temple (SDT), at the Maya site of Dzibilchaltún, is challenged by several agents of deterioration, which include the geophysical characteristics of the ground, the construction techniques of its ancient builders, a long process of usage and abandonment, and its archaeological restoration in the 1950s. Several techniques of remote sensing — especially, laser scanning, electric tomography, and electromagnetic penetrating radar — have been employed to understand how these agents of deterioration interact. Given the karstic nature of the Yucatan Peninsula, the ground’s heterogeneity produced a subsiding that nearly every architectural component has been able to translate into complex structural problems. A careful understanding of how each component becomes a factor of deterioration is the foundation to develop a conservation proposal that will guarantee the structural stability of the SDT. A summary of the current level of understanding achieved by INAH’s specialists, as well as a preliminary proposal of conservation will be presented in full.
From knowledge to management. Methods and tools for the planned conservation of university built heritage. A case study.

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ABSTRACT: The paper will present the intermediate results of a research ongoing at the University of Pavia whose object is the analysis of geometry, morphology, materials and degradation of the central building of the university, with the aim of drawing up a comprehensive program of planned conservation. The University of Pavia is an ancient foundation University (1361) and as such now it has a vast building stock composed of buildings whose construction dates back to various periods. The subject of this study is the central building, currently hosting the rectory and some university departments, which in its present form is the result of a long and complex historical stratification. At the same time the demand of planning not only technical but also financial investment with the purpose of preservation and enhancement of the built heritage now make it increasingly necessary to develop an integrated approach to planned conservation. In the current approach to protection of built heritage the importance of conservation of more easily degradable constructive and technological elements is recognized, therefore in this context, planned maintenance has taken on a peculiar character, and scientific community preferred to name it planned conservation. Punctual repair and conservation works were therefore opposed to the systematic and periodic replacement of elements which are damaged, degraded or (on the basis of theory of planned obsolescence) considered next to meeting these conditions. Given their specificity, such conservation works cannot disregard the careful knowledge of building elements on which it must operate and their composition in the building technology system. The drafting of a planned conservation plan therefore requires a careful preliminary study phase which might lead to the breakdown of the entire building technology system (or one of its sub-system) in the individual technical elements that compose it. On this basis, researchers have developed a test on one of the most significant historic courtyards of the central building complex: the Volta Court. During the research the survey of the geometry and of the current state of preservation have been carried out. The set of acquired information has been translated into an user friendly GIS system designed to provide the information base for defining the future monitoring and intervention strategy.
Chapter 4

Preservation and rehabilitation of historic centres
Urban revitalization of historical centres: through cultural and heritage assets ‘case of historical medina of Algiers’

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ABSTRACT: The massive implication of modern pattern in developing countries led to apply new realities mostly incompatible with local dimension and leading to change and interrupt its consistency; for instance historical centers today are scatted over the metropole like spots with no clear layout of insertion and integration. In the case of North African region the tendency of conserving and crystallizing Medina centers for touristic purposes and the lack of a clear integrative strategy led to increase its isolation, segregation and degradation, a situation that requires a new development strategy to face the decrease in the quality and the value of Medina; a strategy that aims to reconnect and revitalize instead of conserve through reconfirming its values to feet and chase the dynamism of the city with its reproduced realities. This paper proposes a self organized and continuous strategy for rebinding and revitalizing the historical centre within the metropole of Algiers through a process of integration based on the concept of space hierarchy. The strategy for central Medina not only has a formal value because of its historical dimension and layout, but also has potential to recover city identity through tangible and intangible value that are located within it, an integrative layout that aims to re-evaluate the Medina based on its cultural and heritage assets.
Earthquake safety in historic city centres: how to plan evacuation routes by considering environmental and behavioural factors

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ABSTRACT: As shown by recent Italian earthquakes, historic city centers placed in earthquake prone areas are critical scenarios for the inhabitants’ safety. They are characterized by complex and compact urban fabric and also by significant population presence (including tourists who are generally not familiar with the urban layout). The most important role in case of earthquake emergency is assigned to streets and public spaces, that are used as evacuation paths and safety areas. Current emergency management procedures are generally based on outcomes of geometrical aspects (ratio between buildings heights and street width) or on built environment vulnerability analysis, but completely overlook the human factor. On the contrary, in case of earthquake evacuation, the population has to face with the post-event environment, including modifications due to the earthquake (debris, ruins, possibility to use certain paths): people should gain assembly points by preferring the less dangerous conditions in terms of damaged buildings and bottlenecks due to pedestrians’ evacuation flows. Starting from this point of view, this work provides bases for the definition a novel risk index for streets in earthquake emergency scenarios based on environmental risk level for the possible paths, positions and possible choices of evacuating population and related possible presence of slowing down in the motion process (especially in urban scenarios characterized by high population density or presence of tourists, who can be foreign with the city map). For each street along each possible evacuation path, the evaluation algorithm combines: \( V_p \) as the vulnerability of buildings; \( C_p \) as the estimation of buildings damages and ruins presence along the street, in function of the earthquake intensity; \( P_p \) as the presence of risks with possible fatalities (e.g.: explosion risk); \( LOS_p \) as level of service [m²/person] for evacuation speeds estimation and prediction of possible bottlenecks. Each factor is associated to a weight according to MCDM criteria. Capabilities of the algorithm are evaluated on a case study (the historic city center of Civitanova Marche, MC, Italy) through the application of an Earthquake Pedestrians’ Evacuation Simulator (EPES). Results shows how the proposed evaluation method underlines critical environmental conditions for man-environment interactions and suggest the definition of a map for priority interventions on building heritage in order to reduce these hazardous conditions for population.
The re-design of the urban connective: historic towns accessible

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ABSTRACT: Notion of accessibility focuses on space’s quality from the point of view of the movement; linking together the two notions, accessibility and quality, means removing from the design themes all the functionalist excesses contained in the idea of widespread mobility. To regulate citizens transfer, it is necessary to think about a rule of use of the places rather than a flow in a road planned route. Historical city’s and territory’s need of spatial accessibility and services and places availability referred to needs expressed by citizens, according to the different ages and social categories, is nowadays indispensable to make real nationality rights of all people. These themes, moreover, are, nowadays, of significant relevance referred to: - technological changes revolutionizing the statutes of temporal and spatial relations of the collective life of the people; - new lifestyles needing accessibility to all types of services in different periods and times for all social categories. Topics related to accessibility and availability of services and places referred in general to the city and particularly to historical ones, become part of wider remarks on city design, and in particular referring to the urban quality and sustainable development and specifically to topics related to sustainable mobility. In the complex process of safeguard, requalification and valorization of the historical European city, one of the principal aims results to be the reconstruction of the city effect, understood as the capacity of this specific urban portion to ensure an high access level to the city’s system functions and services. Incompatibility between private vehicular moving and historical city is evident.
Developing awareness about industrial heritage: experiences from a Graduation Architectural Design Studio

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ABSTRACT: Cities are transforming, the issue of preserving and reusing industrial buildings is becoming an important part of the agenda of urban debate. However the contextual background of architectural education is not ready to create scientifically adequate implementations. For this reason, between 2013-2015 the themes of architectural design studio in Yıldız Technical University in Istanbul were selected to implement a consciousness about industrial heritage. For three semesters, six buildings/sites from Istanbul were examined and the problems and potentials of possible scenarios and preservation methods were discussed. In this paper, with the evaluation of the final architectural products along with the outline of the process that was conducted, pedagogical approaches that can develop within the design studio will be discussed. With the results of the analysis that is going to be presented, opportunities and challenges of the studio culture with regard to the industrial heritage will be outlined.
The Concelho de Vinhais as an historic centre

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ABSTRACT: In Trás os Montes province, the small town of Vinhais and its surrounding villages are a unitary ‘low-density settlement’ preserved through geographic and economic isolation for about 200 years, until the 1990s. Both the town and the surrounding villages have retained substantial built environment of the 18th century. Churches originally in Jesuit ownership (to 1759) were maintained and embellished by their new owners, the University of Coimbra while some new ones were built by the diocese of Bragança in the 1780s. There are some fine mansions built by families whose wealth came from the Indies, where several held high office, including the Governorship. These people built both in the town and on their village estates, endowed churches and funded public works. To that extent the whole concelho is a cohesive entity, as it has been since its creation in 1253. The northern half of the concelho is within the Parque Natural de Montesinho, which preserves rural buildings such as farmhouses and watermills. Outside the Parque’s jurisdiction, are many significant heritage items, churches, mansions and municipal buildings all of which pertain to “mainstream” history. This paper argues that there are additional stories to be told and will give some examples.
The protection of historic centers. The analysis of the perturbation pressure system to mitigate wear and failure phenomena

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ABSTRACT: The systemic structure of processes and weared agents have effects on the physical and perceptual structure of the built heritage of city centers. Phenomena related to the settlement of historical usage patterns, phenomena related to tourism phenomena related to the environment, (Gasparoli, Trovò 2014) are now critical issues that can affect the fragility of the sites, impacting on the integrity and authenticity of characters, altering the identity and recognition. The aim of this paper is to construct the cognitive framework of the built heritage of historic places to be used in environmental and anthropic pressures that have been impacted, focusing attention on the processes of obsolescence, wear and failure as transitions caused by perturbation systems, for the good orientation of the correct maintenance operations. The goal is taken an opportunity to understand the attitude of the built system while withstand stress and at the same time promoting preventive actions to prevent and/or mitigate the onset of degenerative processes. To safeguard the identity of city centers means to preserve the historic features, materials and constructive characteristics, inherited and acquired over time, through the recognition of common constraints (Viola et al, 2008). It also means to analyze and evaluate behavior offered by the urban components through the survey of the status conditions and to ensure the maintenance operations with the realignment of the quality performances held for its proper functioning. Research focuses attention on anthropic pressures of the historic center of Salerno. The demonstrator case was identified in the urban space defined by Palazzo Fruscione. It is the most significant architectural landmark in the history of Salerno while at the same time showing the most obvious track in the continuous changes and compromises made in the past centuries.
Integrated planning of urban “common” heritage: objectives and enhancement strategies

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**ABSTRACT:** The criteria to be taken when designing new interventions must respond to the enhancement of the historical sites in a wide conceptual context that could include a renewed role of the good as part of the “common heritage” (new category than the private good and public welfare introduced by S. Rodotà) to create scenarios more responsive in terms of urban space to make more recognizable urban landscapes that characterize the city. Methods to valorize the historical sites require an integrated view of materials (elements) of historical sites and new contemporary symbols, architecture or urban spaces, and of the mechanisms that regulate the good functioning of the city, in terms of mobility and accessibility: in a broad sense, of course, not only a physical accessibility to goods and services of the city. An integrated view that it may be possible from being a fundamental part of any planning process, which is expressed through plans and programs of action and that points to the revitalization of the urban parts that may have lost their central role in the overall body of the city. The project of historical city is central in the urban planning because it represents the search for an optimal interpretation between the documentary value and the set of the urban heritage, with a view of balanced coexistence, where the relationship with the historical and archaeological preexistence can be considered qualifying element of urban living.
Urban upgrading policies for the historical center of Campinas/Brasil

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ABSTRACT: The central areas of Campinas, a city in the interior of the State of São Paulo, Brazil have undergone an experience of decline and renewal in the last few years, with measures being taken to help preserve the value of its cultural heritage and stimulate its *patrimonialização* [heritage retrieval]. This article analyzes some of the projects designed for the center of Campinas that emerged during the 1970s, with the aim of showing what they involved and their guiding principles. The research showed that the aim of the projects in the 1970s, 1980s, and 1990s was to maximize their consumer potential and preserve their commercial traditions so that could become competitive with the spaces used for the shopping centers and the new central districts for consumer goods and leisure activities. However, after 2006 there was a shift in the focus of the plans which now sought for new urban purposes by recognizing the value of the flow of people in the area and concentrating on urban mobility.
Small historic centers: from abandonment to new ways of living. Tools for the preservation of ancient “marginal” villages

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ABSTRACT: The gradual abandonment of small historic centers is a long lasting event, closely related to the development of new economic and communicative network that has produced more and more marginal areas. This process, diffused in Italy and common to many other European bordering areas, has lead not only to the progressive disappearance of the local architectural heritage but also the inevitable destruction of the surrounding cultural landscape and of its agricultural vocation, making them more vulnerable in relation to natural events such as floods, landslides and earthquakes. Is it possible to develop revitalization strategies for these villages while respecting their historical, morphological and material character? The paper analyzes some of the latest experiences carried out in Italy, comparing them for effectiveness, positive issues and problematic aspects, with the purpose to outline strategies of study, planning and enhancement, able to give to the marginal historic centers a new driving force in the contemporary society.
The use of GIS in the preservation of a historic center of a town in southern Brazil

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ABSTRACT: This paper aims to address the preservation of the existing heritage in Laguna, Santa Catarina, southern Brazil, from the perspective of Geographic Information System (GIS), and using it as a tool for information organization and for monitoring, planning and management of future interventions in areas listed as National Heritage by the National Heritage Institute, IPHAN. This may lead to further discussions on the subject, and also emphasize the various elements that should be considered for the preparation of a cadastral survey, that intends to manage the built heritage. The objectives were to implement GIS techniques for vectorization of lots, buildings, and blocks using the aero photogrammetric survey of Santa Catarina, identify spatial trends, and analyze the state of conservation of buildings, in order to allow the use by students and public institutions. Literature review, fieldwork, mapping, and a Multi-Criteria Decision Making method based the analysis and results. The results showed that GIS can bring contributions to make the management of cultural heritage more efficient.
ABSTRACT: The dynamic development of metropolises causes economically strong businesses to relocate outside the area of city centres. This process affects the city centres of historical cities in particular - those, whose local governments (in most countries), are forced to counteract the negative consequences of the emergence of polycentric metropolitan sub-centres, which negatively impact the old, historical centres. This negative influence appears on multiple levels - ranging from the economic, to the social level. The process of the aging of society results in the economic weakening of the residents of city centres and their depopulation. We are currently observing strong trends which are conducive to the splitting of young families - especially those who reside within historical city centres - which are a result of the worsening of their living standards. This manifests itself in a crisis of the institution of marriage itself. The statement that marriage and the family have found themselves in a state of deep recession in Europe is nothing new. The causes of this phenomenon are complex. One of the more important include: the more and more common disintegration of personality, the lowering of the level of responsibility for another person, a greater degree of the laicisation of society, a lesser importance of religious motivations in the process of overcoming marital difficulties, as well as a person's socio-economic situation. The social order is also undergoing changes. Socialisation has introduced new interpersonal relations, which do not necessarily positively affect harmonious human relationships. It seems obvious that a "divorce mentality" has become characteristic of the modern man, and our current times are threatened by an atrophy of sorts, an atrophy of sensitivity that allows us to perceive marriage and the family as stable institutions that have their source and foundation in natural law. The paper constitutes an invitation to discuss the research problem that it describes in reference to the centres of historical cities, as well as formulates certain theses that may or may not be proven over the course of future research.
From intangible to tangible. Urban evolution in two Mediterranean villages through popular traditions

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ABSTRACT: This work focuses on the study of the historical centres of Culla and Les Useres, two villages in the inlands of Castellón (Spain) whose medieval pilgrimages have recently been declared of Regional Cultural Interest. These pilgrimages ramble 29 and 35 kilometres respectively, beyond the towns’ limits, until the peak of Penyagolosa mountain. The declaration of Cultural Interest not only comprises the intangible but the built environment surrounding the pathway and the streets where these pilgrimages run inside the villages. In order to effectively implement this protection, a first approximation to the evolution of the urban setting has been done. This work studies the incidence of pilgrimages in the evolution of both case studies analysing whether those pilgrimages have had a positive impact on them or not. Thus, for each one of the towns a first approach to their historical, geographical and legislative context is made, studying both planning and heritage legislation which affects them and the evolution of their urban scene. After this first part the research evolves towards a detailed fieldwork based on understanding the historical morphology and contemporary layout of the urban setting in those streets where the pilgrimages pass by. The results of the study are focused on relating the transformations of the built environment together with their social function, symbolisms and rites, which will provide the appropriate approach to establish a series of guidelines for the conservation of these public and sacred places.
A cultural evaluation of the contemporary experiences of urban space regeneration in historic cities of Iran

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ABSTRACT: A brief review of contemporary urban regeneration literature reveals different approaches in which culture led regeneration has a substantial compatibility to the situation of historic cities of Iran. This article tries to have an analysis on contemporary experiences of urban regeneration in historic cities of Iran in which urban spaces and culture are key factors. As a research method four case studies of urban spaces regeneration in different cities of Iran have been selected. Some results demonstrate successful experiences of Isfahan because of new generation of urban culture in relation to nightlife and also in Gorgan because of flexible use of squares as places for religious ceremonies. As unsuccessful experiences, in Busherhrthe new plans have changed a historical square with cultural ceremony function to a playground. Also in the historic center of Shiraz for new development of The Holly Shrine a huge amount of public spaces has been demolished.
Revisiting the city, augmented with digital technologies: the SeeARch tool

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ABSTRACT: This paper presents a digital tool that enables the city inhabitants or visitors to acquire in real time, relevant information about several aspects of a given city, augmenting their real experience of the place. We used digital technologies, particularly an in-house developed Augmented Reality (AR) tool referred to as SeeARch, that augments in situ the city exploration experience. This tablet-based AR tool, enables mobile users to recognize the facade of specific buildings and, in real-time, superimpose relevant associated 3D and multimedia information, while visiting the city. The aim of this app is to provide customized information to visitors suiting their own interests and time to visit the city. User satisfaction evaluation tests were performed with a sample of the potential users. The outcomes of such user studies, showed that participants considered that our approach delivers a more detailed knowledge about the city, and is more informative, when compared with the normal sight-seeing visits in the city, performed by the same participants.
The Palacio de las Cigüeñas façade through five centuries of historical documents analysis

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ABSTRACT: Cáceres is characterized for having a medieval precinct that holds a mankind’s patrimony title. This feature makes the city subject to researcher investigation. The interesting researches for the present project are the ones whose goals are the study of the evolution of palaces. However, most of these projects are done from an historical point of view, so we decided to make the research study from a technical point of view. But we all also highlighting the lack of research studies associated with the palace of Capitán Diego of Ovando in Cáceres, better known as Palacio de las Cigüeñas (Storks Palace). Therefore, we decided to make an evolution research of this palace from a technical point of view and this information is translated in a vector format in two dimensions, and in a more realistic three dimensions format. Of course, the façade is the architectural element that has suffered more changes over the centuries. The graphic documentation is focused on the 20th century. To know the historical evolution from the 15th century we had to use written sources. The first document that we found was the Municipal Ordenances of Queen Isabel la Católica. Once we had all the information collected we made a graphic restitution where the evolution of spaces is shown, as well as balconies, battlements, chimneys and details of façade stonework. To make this graphic representation possible, it was necessary to rely on a planned draft of the current state, because we needed documentation used as a basis for the different modifications carried out in the palace. As a result, it was necessary to study different methods to make this work possible, choosing the rectification, the direct measurement with the laser distance, and the triangulations as our procedures. Finally, we have catalogued the “Storks Palace”, and we have obtained a twodimensional representation showing the palace changes that is shown as arranged by alterations and by periods. We have also made a hypothetical reconstruction, achieved by a construction study. The visual accessibility is obtained with the representation of the Palace in three dimensions.
Infill development and heritage: the case of Raciborz old town, Poland

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ABSTRACT: Raciborz is one of a large group of medium-sized cities that suffered severe damage in WW II and has never completely been rebuilt. The city has a rich history dating back to medieval times with the basic layout still evident today. The city’s historical remnants are under Heritage Office protection. Residents generally know only the contemporary layout, but are aware, nevertheless, of its past elegance from school courses, print media, books and the Internet. They believe that strict restoration of the pre-war urban layout is the key to improve the city quality, especially its central core. But the citizenry also appreciates the empty spaces within the Old Town that serve as parking areas and green spaces as well as providing air and light. Hence, they enhance living conditions in the inner city. This paper will identify spatial and social problems for projects that seek to integrate remnant heritage layout with planned infill development. Using the elaborated method, it will examine how empty spaces within the old city can be developed in ways that satisfy citizen expectations relating to heritage restoration and the services theses spaces provide that contribute to the quality of inner city living. To achieve this aim three empty spaces will be selected and analysed using both remnant empirical data contained in the city’s layout and data available in the municipal archival record. The paper will also present possible uses for these spaces together with urban density and traffic management solutions. Social expectations with respect to this area will be examined. The results will allow significant insights into ways of not only retaining the heritage value of historic cities, but also how to develop empty spaces within such cities without losing the urban and social amenity these spaces provide.
Soft mobility in city planning

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ABSTRACT: The paper aims to illustrate how the new spatial planning tools can integrate a system of mobility enhancement of historical, environmental heritage and landscape of cities in Calabria, a region of the south of Italy. Today, under the pressure of innovative territory government tools and thanks to a different cultural approach, we are in the condition to recovery and restore the territory through the identification of strategies and projects that are able to introduce quality of connective space and cultural kind of services based mainly on soft mobility and the fruition of this asset. The goal is to enhance and to promote a cultural and social use of the resources present in the territory and flows from new instances of a quality tourism require a careful search of new cultural desires with new destinations, which lead to the discovery of products full of meaning and content, of authenticity, of identity. All above in order to promote a strategy that seeks the tools to activate the process of valorization of the urban asset of the Calabrian cities, seems like a winning project.
ABSTRACT: As in many other cities, there is an almost exact match of what has been the city of Guadalajara until mid-twentieth century with what is now the Historic Center. This correspondence has made despite changes in the functions of the city, wars, confiscations, religious persecution, the most questionable "modernizations" and even lack of sensitivity, its architectural heritage and urban fabric determine that Guadalajara continue to maintain its identity features that differentiate it from other cities. As a result of development emerged in recent years, the Center has gone on to become one of its districts, exercising a function of centrality on the rest of the city that has slowly been losing, which among other things has determined its progressive deterioration. The preservation and rehabilitation of the historic center of Guadalajara should start its revitalization. It must begin with the protection and recovery of its still important architectural heritage and urban fabric also battered, both defining elements of their identity. It is essential to ensure that the Center to recover its functions, including Centrality. It is also essential to recover the residential function. Today, as a result of the deterioration occurred, it has been abandoned. On trade, the city, it has been replaced by other neighborhood character.
Urban utility tunnels as a key tool in the sustainable revitalization of historic centres: the case study of Pamplona

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ABSTRACT: The revitalization of historic centres faces the responsibility to protect the historical and cultural heritage of the cities and in turn to adapt to the needs of an ever changing society taking into account the new social and functional needs. Citizens are increasingly demanding quality of its services. The quality of life in cities depends largely on the quality of their infrastructures. Therefore, one of the great challenges to revitalize the historic urban centres is to get the renewal of their utilities networks so that their inhabitants can enjoy the same benefits and opportunities as citizens of new urban developments. This paper will attempt to expose, through the case study of the city of Pamplona, the benefits of employ a system of urban utility tunnels for the smart and sustainable regeneration of historic centres. An optimal system thinking of the future because it facilitates maintenance, renovation or expansion of utility networks, while reduces visual pollution produced by cabling and inconvenience to residents and visitors by reducing the works on public space.
Single and Double Step Joints Design: overview of European standard approaches compared to experimentation

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ABSTRACT: In the field of Built Heritage Restoration, Engineers have to work with old timber trusses made of badly preserved joints, by figuring out how the carpentry connections fail, which geometrical parameters of the joint influence the failure modes and how the internal forces are distributed inside the joint. The present paper overviews two common traditional connections: Single Step Joint (SSJ), and Double Step Joint (DSJ). For both connections, some recommendations about the geometrical parameters and design models are defined by European standards and authors of works. But no one details how to design both Step Joints against the shear crack in the tie beam and the compressive crushing at the front-notch surface. Therefore, the design equations with respect to both failure modes must properly be determined. The reliability of SSJ design equations and the failure modes have been checked by performing several SSJ specimens under monotonic compression test.
A diagnostic process to involve users in built environment maintenance. The Metrics Project for the historic center of Naples

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ABSTRACT: The cultural coordinates for maintenance, at the urban scale have been marked, over the last decades, by attributing to experts the inspection and monitoring activities. In the perspective of the ISO 37120:2014 Sustainable development of communities, this paper deals with the idea of involving users in the built environment management process. Referring to vulnerable settlements, a prosumer perspective informs the approach for maintenance. The paper introduces and discusses the results achieved by an interdisciplinary team, managed by the Regional High Technology District for Sustainable Buildings, Stress. Within a wide research experience devoted to city centers – Metrics Project, 2013-2016 - , the proposal founds on a concept of built environment as commons, tying its conservation and management to the activation of a wide community. The maintenance processes are redesigned, on the assumption that any user is the more receptive privileged observer for the possible deviations from expected behavior in work; processes of care for the built can be arranged depending on the community attitude in sharing visions. Case study is in the Avvocata district, in Salita Tarsia. A gradual strategy informs the hypothesis that people who benefit from the block continuously, can recognize the onset of the fault signals according to a learning-by-doing perspective. A database of the states according to which any fault event can evolve, supports users in the identification of significant conditions, in order to prevent any cessation of the ability of an entity to perform the requested function. Built for functional areas, it groups the sensitive maintenance sets and details how and when to make the observation with respect to the life cycle of the asset. Taking into account the loss of settlements qualities with the alteration of original condition between the physical, social and economic components, the scientific contribution comes to a foreshadowing of new commitment scenarios for a maintenance coordination service.
From a medieval town to a stratified urban centre. Archaeological and architectural analyses for the rehabilitation of the old town of Marignane

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ABSTRACT: The town of Marignane, near Marseille, presents a stratified urban structure and is the result of gradual enlargements of the original village, which was presumably based on a medieval parcelling out. In 2009, in order to recover substandard housing, the French legislation passed a Programme National de Requalification des Quartiers Anciens Dégradés (PNRQAD) granted by the State, the Regions and several private and public subjects. Marignane was included among the cities that were eligible for such funding. The collaboration between the National Institute of Preventive Archaeological Research and the Universities of Catania allowed us to carry out this research project and to conduct a thorough survey of nine blocks of the historical centre. The study combined the archaeological and the architectural approaches: the former encompassed stratigraphic relationships, chronology of materials and constructional elements, the latter covered the analysis of the building type and of the internal layout. Above all, this preventive investigation provided important criteria for the restoration and regeneration plans. Previous plans would have resulted in the demolition of entire blocks, which was irreconcilable with our aim to safeguard the historical town. Therefore, this study provides alternative ideas for the rehabilitation of Marignane, which would contribute to improve the preservation of the architectural heritage within urban planning.
Visible or not? A comparison of historic areas conservations in colonial Chinese cities

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ABSTRACT: Colonial towns and ports are important urban landscapes for their pivotal role in the colonial enterprise. The colonial origin, that may make these places contested, as well as additional difficulties for conservation, affect the visibility of the former historic landscape and ports. This paper compares the historic port areas of four former colonial cities in a Chinese cultural context: Hong Kong, Macao, Qingdao and Taipei. These four cities share a background of East - meets - West colonization, but have followed different trajectories, both historically and administratively. Fieldwork and interviews with professionals were used to shed light on obstacles for conserving the colonial remains in general and the colonial port in particular. All four cities have policies in place that guarantee heritage conservation, both of individual buildings and historic areas. Whether this is applied to the colonial port depends on the position of the port in the global network and on appreciation of non-elite heritage.
Chapter 5

Authenticity and built heritage
The Crichton Estate: a cultural built heritage perspective

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ABSTRACT: Purpose: The purpose of this paper is to review the history and development of the Crichton Estates and the subsequent contribution of stakeholders’ perceptions to the cultural significance of the town of Dumfries and Galloway. Approach: An in-depth literature review was conducted to establish the historical planning and development of the Crichton Estate. This was followed by a site visit and a face-to-face interview with the Estate Surveyor to allow a broad and deep discussion of the legacy of the Crichton Estate and its impacts at the local, national and international levels. Finding: In the field of sustainable development, the promotion of private owners’ values and aspirations of creating better communities on the built environment plays an important role in generating positive social, economic, environment and cultural outcomes. In the longterm, a legacy evolves with a heritage perspective in terms of how the Crichton Estate affected not just the evolution of local planning and development frameworks but also the well-being of people in local, national and international communities. Practical implication: This paper argues the diverse perceptions of stakeholders concerning the interests and values of the Crichton Estate have influenced the planning and development of the Crichton Estate over the last 185 years. Therefore, understating stakeholders is vital for harmonising the challenges involved in the decision-making process within the context of heritage conservation. Originality/value: The original contribution of this paper is providing insight about stakeholders’ roles in the construction of the significant values and their perceptions in the conservation of the Crichton Estate.
New Co⁺: new sustainable life for summer camps

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ABSTRACT: The summer camps are social and architecture models of the early 20th century. The phenomenon has been developed over a century by leaving historical and cultural high value facilities on the Italian coast. The large number of these buildings, their outstanding dimensions, their privileged position make these buildings as flag ship of public assets while having highly potentiality which makes the reuse strategically. Nowadays, in most of the cases, this heritage is facing poor conditions. This study aims to denounce the current situation of the Italian summer camps. It focuses on the buildings constructed during the Fascism since this period has been considered as the golden age of phenomena. The analysis explains the “current status” of the summer camps in order to propose a common intervention strategy along the entire territory without harming the features of each facility. The investigation was performed on 45 summer camps. They are mainly located in the north-central part of peninsula as it represents the core area of the phenomena. It was drawn up a common analytical catalogue through a critical and synthetic analysis in order to describe each element. The sample reading shows that a set of issues hinders the restoring of these buildings. Strict economic interests guided many interventions of restoration in the past while 40% of them lie unused. The research tries to define an intervention strategy by using the concept of the “sharing economy”. It provides a chance to reuse the structures by following two principles: sustainability and social responsibility while opposing to current methods. What's more important, the approach allows these locations to regain their original role by promoting an example of social development and cooperation. The case study, the "Colonia Rosa Maltoni Mussolini", is located in Giulianova (TE) and it has been abandoned since 1991. The main objective of the rehabilitation and reuse of the building is to establish a new form of sustainable and socially responsible tourism, a community inside the city of Giulianova. In this direction, it was arranged a survey addressed to citizens and to external public to test the topic and to verify their needs oriented.
Bucharest, the little Paris?

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ABSTRACT: Initiated in 2010, as a comparative urban analysis through photographic techniques, the project emerged into a transdisciplinary methodology in order to create a strong documented support for a deep research on local cultural identity. The innovative nature of the work results from the complex approach on the issued matter, the mix between a rather technical and urban study and an artistic vision, free and even playful at once. Built on a systematic and structured analysis, the results to be shown are presented in a formal way, graphic and of complex composition. The mirrored hypostases are designed to attract the viewer's attention without guiding him towards a predetermined conclusion, aiming not to offer answers, but to intrigue in asking questions. Based on the case study of Bucharest versus Paris, the aim of the paper is to support a critical debate on the limits of cultural transfers and their power to change ideas at urban scale and to make room for a better understanding of the cross-border dimension of heritage and the role of cultural particularisation in the globalisation process.
On value conflicts: negotiating difference in the renovation of historic buildings

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ABSTRACT: This paper examines the “value conflicts” played out between multiple participants involved in the restoration of Newcastle University’s Armstrong Building. Constructed between 1887 and 1906, the Armstrong Building has witnessed a number of transformations and alterations in the century it has been occupied. The paper will focus on describing the design proposals developed in the most recent transformation, ongoing since 2010, for which the authors are appointed ‘concept architects’. These renovation works have involved collaborations between a number of stakeholders, each with their own value systems and approaches to the conservation and rehabilitation of the building. As such, numerous “value conflicts” have occurred throughout the project. This paper sets out to narrate examples of these conflicts, accounting for the design approach we adopted for the renovation of the building in relation to the opposing values of other project protagonists, and the challenges and opportunities these conflicts enabled.
Consumption and authenticity: relationships between built heritage and local society

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ABSTRACT: There is a growing demand for authenticity and for the experience of past in postmodern societies. Built heritage is one of the main driver of tourist’s choice for destinations, thus place based development initiatives in many cases are based on the built heritages of places. Heritage tourism is more and more important in the economic and social development of Hungarian regions and settlements too. Scholars mostly focus on demands and authenticity perceptions of tourists, however the tourism development and also the perceived authenticity have significant impact on the changes of local societies. This paper presents two Hungarian case studies on how local societies perceive and use their built heritage and how their authenticity perception and local identity are changed by the local tourism development. The paper analyses an urban and a local case characterized by the high importance of built heritage in tourism development. The first case study analyses the temporary use and tourism based perceptions of the 19th century housing stocks in the 7th District of Budapest. While the rural case study presents the touristic use and image of the 19th century peasant buildings in Őrség micro region in the Western part of Hungary. Case studies focus perceptions of authenticity of locals and their interests toward their built heritage. The analysis purpose to explore how local’s perceptions and identity are shaped by the tourism destination’s public relations efforts to construct and convey local image. Case study present the key actors of local heritage tourism and their interests and attitudes towards local built heritage. We examine the conflicts connected to the different perceptions and uses of built heritage. Our findings show that important differences in perceived authenticity were observed among various groups of locals. Various dimensions of interests and contested use of built heritages are found both in urban and rural places.
Which authenticity for Fascist regime architecture? The case of the Santarelli Kindergarten in Forlì (Italy)

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ABSTRACT: The Nara Document on Authenticity (1994) recommends to consider all «original and subsequent characteristics of the cultural heritage». Built during the Fascist regime, the Santarelli Kindergarten in Forlì (1934-1937) represents a significant example of the deep changes that a building is destined to undergo in the course of time. In fact, its original aspect inspired by Rationalism has been affected by many transformations that altered not only the architecture but also the emotional effect of the complex balance between form and matter. Moreover, this "metamorphosis" can also be seen as a slow tendency to efface the building's very presence in the historic city to dissimulate its origin linked to the Fascist regime. As the paper will highlight, all these aspects prompt a reflection on the concept of authenticity in relation to the interventions on this case study and, in a wider perspective, on the theme of authenticity connected to Fascist regime architecture.
Urban typology and sense of place: Port Said’s heritage authenticity between challenges and protection

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ABSTRACT: Heritage is a broad concept that includes our natural, indigenous and historic or cultural inheritance. Thus, heritage can be a medium of communication that is related not only to the tangible and intangible heritage but also to the virtual to satisfy various contemporary needs. Authenticity represents a crucial aspect in defining, assessing, and monitoring cultural heritage. The concept of authenticity; as the transmitter of values and significance of cultural built heritage, is considered as the key component in the process of cultural heritage conservation. However, the role of authenticity within the domain of conservation of cultural heritage has received little attention. Port Said, an important Egyptian coastal city located at the edge between the Mediterranean Sea and the Suez Canal at the north coast of Egypt; its considered unique in its outstanding value, due to the combination between the city’s cultural landscape, and the Suez Canal, where Port Said represents an outstanding international monument, signifying the historic abilities of Egypt. The former colonial city, Port Said, is struggling between new urban development and urban heritage preservation; where a fight between “sentimental memories and fear of losing urban identity” and “modern life style dreams and aimed economic benefit” takes place. This research is identifying the threatened urban heritage of Port Said, its current conditions and the reasons behind its uncontrolled growth. Moreover, the study illustrates the implications of authenticity about cultural heritage in Port Said. The research methodology will take place through demonstrating the authenticity principles based on international charters; then, defining the ongoing development process of Port Said’s historic urban landscape which is mainly confined in the Afrang, the Arab and Port Fouad Quarter, showing the effect of this development on both the context of city and community. Finally, formulating urban regeneration procedures based on bottom-up and top down chart to be implemented on the historic part of Port Said based on its heritage authenticity, respecting its inhabitants’ traditions and prevents threats resulted from the ongoing urbanization processes and increasing influences of globalization.
Transforming to Preserve: the dimension of time and materiality in cultural heritage

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ABSTRACT: This paper will be founded on the certainty that, in general terms, in order to preserve it is necessary to transform, without depriving the artifact from its nature. It is centered on the relations both materials and materiality keep with preservation. It addresses the tangible support of both cultural nature and heritage value artifacts, which possess the dimension of time – relative in its own nature/essence – as one of the main references and criteria for safeguard, preservation, conservation, as well as for restoration interventions and reintegration of these artifacts into daily life. The paper lays foundation in the increasing presence, relevance and meaning of the heritage issue, as well as the extensions of its conceptual and geographical basis before the great transformations of the human environment, especially the constructed one. It highlights the ways relationships and feelings are established with tangible cultural artifacts and their dimensions as monuments and documents. It identifies the prevalence and relativization of the criteria for authenticity, in comparison to identity, and their expressions in the current recommended fundaments in the area. The paper defends an active and imaginative conservationist attitude, opposed to a nostalgic approach, as a beacon for actions of systematic preservation of the heritage artifacts, which form the memory and identity of communities. It concludes that some things should change over time, whereas others should remain the same in their substance and essence, in spite of having been transformed.
ABSTRACT: Mexican tourism has witnessed a turning point towards the revaluation of traditions (oral expressions, rituals, festive acts, etc.) as "symbolic attributes" located in less urbanized areas and the so-called Magic Towns, through a syncretic perspective that exalts both pre-Hispanic and colonial values. The example of the Magic Towns Program (2001) serves to illustrate the potential of vernacular architecture in rural tourism and other tourist circuits that do not necessarily target the place itself but in what the place produces. In this context, thematic routes have become a tourism variant based on the consumption of differentiated sites. In the Tequila Route, in Jalisco, many of the effects of the implementation of of the Magic Towns Program are manifested, among which the coexistence of both religious and vernacular architecture (the haciendas of the tequila cellars, for example) and neocolonial architecture, which simulates some elements belonging to other periods in an attempt to exalt the aesthetic values of "Mexican". While the Wine Route incorporates to its architectural discourse values associated with the frontier culture incorporating waste materials of second use in a quest to define a proper and coherent architecture.
Registration and rehabilitation of abandoned municipal property in mountain regions. A key for a local culture - oriented development

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ABSTRACT: Mountain regions in Greece hold very important amount of historic buildings and settlements. They could be described as an ark of vernacular architecture since they are the main reservoirs of the majority of this type of architecture. However, as a result of the severe depopulation of these areas, since the decade of 1950s, many historic buildings remain derelict and of no use, today. There are two main reasons leading to their further decay and destruction; construction of new buildings that are in discontinuity with local history and culture and lack of necessary data able to provide local Municipalities with effective tools in order to manage and preserve them. In this paper, we argue that preservation and rehabilitation of these buildings is fundamental for a site-specific revival and development of mountain settlements. Vernacular buildings are vehicles of local identity, cultural tradition, collective memory and local place's and people's history. Incorporation of new uses with the protection of authentic structural forms is essential in order to avoid the gap in the local social continuity. Monitoring of evolving land ownership rights and registration of every abandoned Municipal building provide an important tool for local authorities in order to reengage historical buildings in the current living needs of local communities. In this paper, we document all the necessary data-fields and field-work for the creation of a tool able to bridge the gap between "Municipal property" - "Buildings' identity" - "Rehabilitation means". We use the mountain region of Epirus, as a case study aiming to establish a pilot-project for the cultural and historic preservation oriented, "bottom-up", local development.
Contemporary architecture in ancient buildings. About authenticity

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ABSTRACT: The paper questions if is it possible to recompose the gap existing between innovation and conservation in architecture and if authenticity is a matter to be considered. Some examples, works of distinguished contemporary architects, are reminded in order to collect a set of approaches towards the past which are often quoted and appreciated both by critics and public. The sensibility of some masters for a lasting architecture which is able to sincerely record changes will be underlined. It will also be pointed out the increasing interest of the public for these kinds of experiences. These topics allow deepening the attributes of ‘authenticity’ in order to enhance material evidences instead of metaphysical concepts as a practicable guideline for innovation into preservation.
Effect of Colonial British Architecture in the Iraqi Modern Architecture

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ABSTRACT: Architecture can be considered as an integral live document for the cultural life of communities. So from reading the story of a building we can draw a clear picture for that community in a certain period when that building was created. One of the important buildings stories we would like to read in Baghdad is the Colonial British Architecture Style. In 1900's, the period of declining the Ottomans Empire in the east, and rising the Western control on the area, life style in Iraq has changed in different ways. One of these system that were effected was local architecture. This research attempts to identify the effect of British style on the local architecture in Baghdad as well as how this style was modified by local conditions. The CBA (Colonial British Architecture) concentrated in main cities in Iraq such as Baghdad, the capital, and Basra, the main port on the Gulf. Merging local and foreign styles reflects the strength of local architectural elements and the resilience of the local architecture to adapted new concepts, elements, and styles. The research aims to discuss several buildings that belong to this period. Some of these buildings were demolished for many reasons and others still active until now. Also, we explore and trace the effect of these new styles on the local building style after 1940's.
Sylvestro-Benedictine Churches in Sri Lanka: as an alternative tropical model

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ABSTRACT: The advent of the Benedictine monks of Sylvestrine congregation in Sri Lanka is a historically significant event since it is their first mission extension outside Europe in the mid-19th century. The influx of these Italian monks set the beginning of a new architectural tradition in the country. Therefore, the Sylvestro-Benedictine churches in Sri Lanka can be considered as the original Italian influenced masterpieces. It is observed that these churches mainly follow the unique Italian precedents which were later intermingled with the preceding ecclesiastic architectural traditions of the country. Literature survey on colonial influenced architecture in Sri Lanka reveals that this trajectory of church architecture is scarce; and that no systematic study has yet been done on the subject. Thus, this paper explores the development of Sylvestro-Benedictines church models and its variations, created as a substitute to the tropical Sri Lankan church which shaped Catholic church architecture of the country till the reforms of second Vatican.
The Rocks, Sydney: conservation and interpretation of the site of Australia's initial European settlement

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**ABSTRACT:** In 1786 the Government of Great Britain hastily gathered together 11 ships, 800 unwilling colonists from its prisons, and 200 equally unwilling administrators and gaolers and sent them to the other side of the world to form the first colony in Australia; largely in order to secure a base in the Pacific against their long-term enemy the Spanish, as well as other nations with colonial interests. In January 1788, the colony was established at what became Sydney. This paper examines the colonial core of the settlement, known from its earliest days as "The Rocks" due to the hostile topography which the initial colonists, and subsequent arrivals, cut and terraced to create a vision of Europe hitherto unknown on the Australian continent. In 1901 the government of the State of New South Wales resumed ownership of over 50 hectares that made up the original town centre of Sydney, with plans to demolish the 19th century buildings and construct model worker's housing. The plan was partially commenced when the First World War diverted resources from the project. It would not be until the late 1950s that attention returned to redevelopment, by which time concern for heritage conservation had gained popular attention. Since the 1970s The Rocks has been a prime focus for heritage conservation; redeveloped to ensure authenticity and adaptive reuse while providing an economic return to the State. A "Place Management" model, supported by statutory controls, ensures the ongoing management, conservation, interpretation, and integrity of The Rocks as part of a vibrant and otherwise high-rise, international city.
Urbicide, an approach to the birth of a contemporary concept

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ABSTRACT: The purpose of this working paper is to give a general shape to the concept of Urbicide, with the aim of developing the first theoretical principles and chronological limits for the project “Restitution of Memory after Urbicide: criteria for European cities destroyed during the 20th Century”. Along with the approach to this context, the paper first brings an international evolution of its terminology, including uses from the 1960s in different countries and drafting some of its current trends in both Academia and professional communities. It addresses then the relationship of Urbicide as a sub-category of Genocide showing also other sub-categories -The Categories of killing- and explaining one possible framework for Urbicide: the Identicide. As a final point, some examples of destruction of cities and relevant Urbicidal events are putting together in order to generate a brief chronologic narrative. In this manner, the following document favours the better understanding of uncertain terms (e.g. Urbicide vs Urbanicide), justifies the time-context of the project Restitution of Memory after Urbicide and gives, with its conclusions, a guidance for further approaches and contributions to the field.
Affordable 20th century housing in Porto. The transformation processes under scope

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ABSTRACT: In Portugal, as in other countries, multifamily housing in the urban context is prevalent in large and important cities such as Lisbon and Porto. Although this housing type in Lisbon dates back to the 17th century, in Porto the first examples appear only in the first half of the 20th century. Between the early 1920s and the late 1960s, this reality brought about the emergence of multiple types of housing buildings, carried out by different types of promoters, such as private individuals, real estate developers, and public and cooperative housing initiatives, the latter being more constrained at an economic level. This paper focuses specifically on state-subsidized and municipal housing initiatives and proposes the analysis of a set of buildings constructed in these decades in Porto: the Rainha D. Leonor Housing Complex, the Housing Block at Duque de Saldanha, and the Ramalde Residential Unit. The aim is to identify types and levels of architectural interventions in the common areas of the buildings and, simultaneously, to establish the relationship between the ownership of the buildings and its levels of transformation in the present day. The methodology to achieve these objectives is based on archival research (primary sources), bibliographic survey (secondary sources) and terrain research (visits to case studies). Thus, this study will focus on a comparative analysis of the original architectural project and the recent interventions. More than a reflection on strategies for valorisation, rehabilitation or reuse, this paper aims to discuss the ongoing social, economic and environmental transformations and their effects on the preservation of the originality/identity of these buildings.
Teaching continuity: new modes for developing architectural design in historic settlements

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ABSTRACT: Architecture that is enacted within the core of the historic city faces unprecedented tensions. It is stretched between the demand for technical improvements, which is in some part driven by climate change, and the determination to develop expressive set-piece architectural solutions. Continuity in Architecture is a studio for post-graduate teaching, research and practice at the Manchester School of Architecture. Within the atelier, we seek to find ways of equipping students to derive delightful, rigorous, and measured responses to historically-sensitive contexts. This work seeks to lay new foundations for the next generation of architectural contextualism. It develops an appreciation across a wide spectrum of theorists and approaches. Through this research, we will present principles and methodologies for structuring teaching in urban and architectural design, using philosophical-theoretical frameworks as a backdrop to successful case studies and teaching outcomes. For over twenty years, Continuity in Architecture has been promoting a particular approach to the development of architectural solutions; one with profound integrity and which is contextual, expressive, pragmatic, visionary, and environmentally appropriate.
Reconstructing bridges. A cultural operation

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**ABSTRACT:** Building bridges has always been one of the most inspiring technological and engineering challenges for the constructors of our cities, but its role in connecting physically divided places has immediately become a metaphor for the building of deep relationships between different contexts or even cultures. Over the centuries, the opportunity to deny the passage to enemy troops has made the destruction of this element a “privileged” instrument of war, but the ability in creating a cultural *caesura* in communities has significantly increased its power. Therefore, the destruction of a bridge, especially if deliberate, does not represent a mere break, but it can be regarded as an inner wound that needs to be healed. It can turn out to be a symbol of rebirth, a strong possibility to re-establish the thread of continuity between different peoples and, broadly speaking, also between the past and the future.
Collective dwelling of cooperative promotion, defining authenticity criteria

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ABSTRACT: The collective dwelling is a typology that goes back centuries. Its origin is the building to let. The growth of the dwellings’ acquisitions since the 1970s determined the end of the building to let, but the collective dwelling typology evolved and was used in the collective dwelling of cooperative promotion. The post 1974 production constitutes a heritage with strong features of identity, which must be preserved. Given the current Portuguese context, many of these buildings will not be preserved and will degrade. It is necessary to define authenticity criteria for their conservation and rehabilitation. Grounded on buildings referenced by INH/IHRU, a pre-test case study was chosen. The achieved criteria were applied to other case studies, evaluated in three levels of authenticity: low, medium, and high. The criteria were fine-tuned through the Delphi method and tested by two final case studies, validating their applicability to similar buildings, referenced or not.
Landscapes of ruins: authenticity and invention. A case study of the restorations of the Banditaccia necropolis of Cerveteri, initiating from the World Heritage evaluation

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ABSTRACT: Over the years spanning around 1910 to the 1930s, Raniero Mengarelli, then Director of Excavations at Cerveteri, transformed an area of the Etruscan necropolis, previously perfectly integrated in the agricultural landscape of the Banditaccia plain, as an evocative and picturesque garden furnished with reconstructed archaeological monuments. The current paper begins from the comments in the "Authenticity and integrity" section of the ICOMOS evaluation of the Cerveteri and Tarquinia necropolises, prepared during the course of the 2004 nomination to the World Heritage List. A first part of our analysis illustrates the main elements of non-authenticity now present within the part of the monument open to visitation. In particular, these are the systemisation of vegetation and the monumental structures excavated, restored and reconstructed by Mengarelli. These two aspects have jointly developed the current "flora-ruins combination" that over time has in itself become one of the most qualifying and identifying features of the site. The current paper then deals with the specific issue of the "ruins" aspect, providing a summary analysis of the architectural restorations. Adequately prepared studies on these matters, including the choices concerning vegetation, have never been published in the extensive scientific literature on Cerveteri.
The relationship between authenticity and worship space

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ABSTRACT: The concept of authenticity, defined as a medium to the real, non copied truth, characterizes restoration culture in Europe. The nineteenth century research on the formal authenticity of monuments is the first result of this conception. Afterwards the same conception develops almost to coincide with the built heritage physically: the intervention is applied to the conservation of the authentic architectural material. This last idea does not seem consistent with the needs of change that concern churches over all, which are direct to adapt the internal distribution to the liturgical reforms, and which seem to be compatible with the definition of authenticity explained in Nara +20 Document. The paper examine some case-studies of adapted churches in Italy seeking solutions to keep together the authenticity of the forms, and their liturgical meaning, with the material authenticity; while allowing the cultural tradition to evolve, continuing to evoke collective identity.
Scattered architectonic heritage in the Municipality of Cáceres

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ABSTRACT: The aim of this research work is to catalogue the scattered architectonic heritage composed of the existing hermitages and chapels in the Municipality of Cáceres following a specific methodology. The methodology consists in creating an inventory and a catalogue of the buildings. The results firstly secure an ordered relation of the shrines around Cáceres, to subsequently realise an analysis of each of them following the scheme: “Firmness, Commodity and Delight” enunciated by Vitruvius (construction, function and form). Following the analysis of the catalogue of shrines, the following conclusions are reached: It was proved that is possible to create an adequate catalogue of patrimonial elements scattered across the municipality. The Municipality of Cáceres does not have such a catalogue. The Municipality of Cáceres does not comply with the Law of Spanish Historical Heritage. The inventory and cataloguing must encompass the different fields of study (function, form and construction). Studies carried out from the perspective of isolated fields of study, which do not deal with essential aspects of the construction, or without graphical documentation such as maps, are inoperative for purposes of heritage management. For the study of the architecture scattered across a municipality it is fundamental to study the territory in context, because this defines the localisation and shapes the articulation of the architecture.
The ruin and the creative scenography of the urban heritage

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ABSTRACT: The ruins (re)construction is a heritage valuation method to highlight a cultural and identity memory, in space and time, both in the restitution of a lost artefact or in the creation of a new one. The purpose of this study is to understand the genesis of the urban heritage and its true origin, starting from the idea that the ruins meaning and symbol attributed today may have been created and not given over time. Methodologically, intends to analyse several cases of the ruins creation in Portugal to demonstrate them as a valid process in the composition of the urban heritage. Construction is an imposition of tradition, inventing heritage as a method of identity production.
ABSTRACT: The places that lead us to understand the concept of architectural space, which better have shown us the soul of space and the true luxury of architecture, are those that are not described from the outside, those who have not been shown so clearly, that have required some exploration, those who remain in silent and in darkness, because the light reaches them timid, dense and filtered. When something weakens one of our senses, others are lit with intelligence, offsetting and leading to a state of greater attention. These spaces require activation of all of them, turning off one to accentuate the others. Blindness has been with us in many of them, forcing us to learn new ways of moving in the space. Touch, hearing and smell have become, many times, in the eyes that have guided our dives, becoming on forms of perception more objective and scientific than our own view. Somehow this research has taught us new ways of learning the space, opening doors that have been closed throughout history, revealing events that belong to the deepest intimacy of architecture.
The archaeological landscape as common good. Knowledge, preservation, enhancement and fruition

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ABSTRACT: The theme we intend to discuss deals with the archaeological landscapes; we propose to investigate a method of intervention, starting from both acquiring knowledge about the history of archaeological landscapes and setting a theoretical frame to point out the relationship between the archaeology fragments and the landscape as a whole, and its changing during the time. According with Farinelli (1991), “landscape” isn’t a summary of things, but it’s a way to represent and look at the things in the world, when only through the landscape the things of the world stay together and it’s possible perceive them in their entirety. The local archaeological heritage in Italy is an element that strongly characterize the landscape; It is going to be analyzed in its dual character, defined by Humboldt (2008) as “double sense with allusion”, meaning that a some world has two senses: its aesthetic nature and scientific meaning. Starting from these two different points of view, our paper intends to deal with the coast of Vesuvian territory, a very complex built environment which is very rich in terms of archaeological fragments. The different tracks can be read and understood not only as historical ruins, but in their entirety and completeness in our nowadays landscape; to this aim we need a reformulation of new interpreting and designing items on this palimpsest, that need to communicate to future generations the ruins’ significance in the contemporary landscape and city. Archaeological landscape as common good could be the key-word to synthesize our point of view.
Chapter 6

Inclusivity of historic sites and buildings
ABSTRACT: Every building has its own story. In the case of conservation we have to find a new function to keep the building alive, but it’s observed that, some new functions given to the buildings can never fit the existing building. The facades can be perfect in details but the problem is with the harmony of planning and the programme of the existing building and the additions. It should has been questioned that ‘why do we conserve the historical buildings?’ So we have to turn back to the beginning of the conservation. The other important question is based on to remember the principles of the conservation, ‘How shall we conserve?’ With all the answers of the questions above, in the paper two examples of conserved buildings from Istanbul, are compared with each other and the selected buildings are examined due to the functions given to them.
The modern approach in designing the inclusivity of historic sites and buildings

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ABSTRACT: The enhancement of the sites and historic buildings includes, in addition to aspects of physical preservation, also essential quality aspects, such as accessibility, usability, environmental comfort, safety, expecting several users, to achieve inclusive spaces for everyone. The restoration project, according to the principles of Universal Design, must be finalized to get an easy use of the building and sites of interest, by the largest number of visitors possible, including those with disabilities: a new user perception, a global type, without distinction of classes or types. In Rome, in particular, there are several examples of successful adaptation of sites and historic buildings: Colosseum, the Campidoglio, Traiano Markets, Villa d'Este, etc.. Recently, moreover, innovative approaches have been tested for the use of sites of archaeological and architectural interest. Innovative technological solutions promote, in particular, the inclusiveness of people with sensory disabilities.
An elevator for an historical college: how to improve accessibility respecting the existing building

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ABSTRACT: The aim to improve accessibility of historical buildings is one of the most important when developing a re-using project. It is not easy to combine solutions satisfying the needs of weak users (elderly, people with disabilities, children, etc.) with the instances of conservation and restoration, but it is important to reach the right balance in order to increase the value, social and cultural of the project. According with the UN Declaration for the Rights of the Persons with disabilities and the Italian building codes to ensure accessibility and valorisation of the cultural heritage, in 2014 a new elevator was set in the Collegio Cairoli, the oldest students’ accommodation managed by EDiSU (a special agency established by the University of Pavia and under its direct control). The solution is the synthesis of the ideas developed during several years of researches (both at urban and building scale) about the accessibility of the cultural heritage.
How many (hi)stories can we save? Piccini in Vienna

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ABSTRACT: Often the (hi)story of a business and its premises depend on the life of a person, filling the space with their mind and thoughts. Hence, the loss of this person would almost mean the loss of the place or at least a great change for the remaining. This shows how crucial the relationship between humans and buildings are and how strong their mutual existence is. The former grocery store and traditional restaurant ‘Piccini’ in Vienna with its authentic Italian food reflects this phenomenon since 1856. It is also one of the last remaining modern Viennese shop buildings; which was designed by the well-known Viennese architect Otto Prutscher in 1934. Following the death of the owners and the insolvency of their successors last year, ‘Piccini’ had been vacant for some time. Assumedly, it was taken over by a steakhouse chain from Hamburg. This paper presents the process for the new transformation of ‘Piccini’, several suggested versions and the final selection.
Accessibility to archaeological sites. From the accessibility dimensions to an access strategy

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ABSTRACT: The paper highlights one of the crucial topics of contemporary culture: the notion of cultural heritage as a 'common asset'. An asset, in order to be truly “common”, must be accessible to the greatest possible number of people. This is the reason why some scholars underline the fact that if a place is not fully accessible and usable, it loses its quality as a common asset. The focus of the paper is on accessibility dimensions of archaeological sites, and the tool described in it is both a planning strategy and an action plan - called Accessibility Plan - aimed at improving the accessibility degree of places and services by means of a set of coherent actions and interventions scheduled on the basis of shared priorities. The Accessibility Plan, in order to fulfil its predetermined objectives, must not be understood – sic et simpliciter – as a technical tool, but rather as an instrument for the valorisation of the individual and as a resource for the community.
ABSTRACT: The identification of the methods to analyze the environmental characteristics of the empty spaces and, therefore, the criteria to improve the comfort conditions of the users who live in them, is the aim of this research. The survey follows the branch of research that studies the methods of intervention in historic centers. The need to carry out project interventions in historic urban fabrics pushes the researchers to develop the methods to introduce the comfort levels of contemporary users while respecting the values to pass on to our posterity. The choice of a strategy rather than another one, involving a certain degree of invasiveness and reversibility, depends on the designer's knowledge of the specific context of the intervention. For this reason, the project carried out in a context having important values as it is a minor centre requires an accurate cognitive analysis that, inevitably, will limit the designer's freedom.
ABSTRACT: The recent focus on the analysis of historic sites through communicational mobile devices (digital processes) put emphasis on collaborative participation of local population within its transformation, through up-to-date design processes. This is the main subject of the paper. Concerning this framework, it will be argue that artistic practices, complemented with new historic sites analysis methods, will have a deepen relevance to approach historic sites’ memories in a multi-operative and flexible methodology. Accepting the huge development known regarding digital processes towards the understanding of the role of historic sites and buildings within cities profile in a globalized urban world, it will be revealed a hybrid method that will target a multidimensional comprehension of historic sites. Based on a renewed theoretical set of concepts and digital systems, the literature revision will include subject areas like locative media art, historic sites morphological analysis and dynamic maps. Furthermore, a case study will be showed – the historical centre of Vila de Caminha (in Minho region, at the North of Portugal) – where were developed two main artefacts that implied different stages to their development: i) pre-production; ii) production; iii) post-production. On the first, the artefacts were conceptualized, defining criteria and specifying analysis parameters. The programs/software used were taken into consideration, as well as the selection of local actors that participated in space experiences associated to the research. During its development, several appropriation and apprehension’s procedures were engaged within the local historic centre using walking techniques mediated by digital technology. On the final stage, the information obtained was structured, analysed, compared and systematized. Memories and people’s appropriations of Caminha’ historic centre were identified and, later on, integrated in locative media art approaches, urban morphology methods and digital technologies and tools. Combining this mixed methodology, the results of the research add knowledge about inclusivity into historic sites and buildings, suppressing the gap between new interventions (and its inhabitants), remaining local, individual and subjective memories and the corresponding persistence of a collective historic site image and role – in terms of local identity and community engagement. The generation continuity and private refreshment will happen assuring that efforts will be set in order to narrow the lack of inclusivity that – frequently – one can find in proposals and plans to the preservation and rehabilitation of historic centres. The paper will conclude that it is important to take in to account the operative convergence between historic sites apprehension and its informational and communicational fluxes in order to reveal everyday memory-space experiences (past and present) that still takes place in historic sites and buildings. The overall idea of the paper is that one should have in consideration, when structuring strategies towards the preservation and rehabilitation of historical centres, artistic practices derived from locative media art that expresses (in dynamic maps and through enlarged reality, for instance) the collective “devir” of historical sites’ legacy and space experiences to a city with a living pulse, that will add stories to citizens memories and to local urban history – turning historical sites and buildings more inclusive.
Chapter 7

New materials and products
for the rehabilitation of historic buildings and structures
Textile reinforced mortars for strengthening of historical stone buildings in Oman

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ABSTRACT: Most historical buildings and structures in Oman were built using unreinforced stone masonry. Such structures are prone to damage from seismic activity as these structures have negligible resistance to tensile stresses. This paper presents the results of experiments with a new strengthening technique using textile-reinforced mortar. Limestone and Sarooj were the main building materials used historically in these buildings. Sarooj is a local Omani term for artificial pozzolana produced by calcining clays. Two mortar mixes were developed, one as the jointing mortar and the second as the matrix mortar. The second part of the study consisted of the construction of three masonry walls and two columns of 0.35 x 0.25 x 1.2m (width x depth x height). The three walls were strengthened using externally bonded textiles using three different combinations of mortar and textile. One column specimen was kept as a control and the other was fully wrapped with carbon textile reinforced mortar. The walls were tested under out-of-plane four-point bending. All the wall specimens showed a significant improvement in strength up to three times its self-weight and reasonable deformation before failure. The column specimens were tested under axial compression. The failure load and displacement of the strengthened columns increased by seven and three times, respectively, compared to the control column.
Maintenance and recovery of plasters: a decision-making process for the selection of compatible products and technologies

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ABSTRACT: The historical heritage is characterized by evident problems of degradation that determine a growing increase of the physical vulnerability, in particular in terms of failures and obsolescence with a resulting continuous loss of cultural value. The reduction of the physical vulnerability can only happen through the proper maintenance of the heritage, but the absence of a new technical compatibility analysis phase can compromise the durability in time and consequently the reliability and functioning of the built. The specific object of this work is the structuring of a decision-making process for the selection of products and technologies compatible to the maintenance of plasters and facades of historical buildings exposed to particular environmental conditions and usage. The present work applies the decision framework to a specific explanatory case study and highlights the process complexity for the selection of compatible interventions with the existing buildings.
Innovative materials for the conservation of built heritage. An overview

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ABSTRACT: The development of science and technology in the field of conservation of cultural heritage in recent decades point to some major lines of action: the development of techniques for non-invasive diagnostics, introducing new materials, measurements and environmental controls for preventive conservation and digital techniques for documentation and graphical representation. International guidelines for the safeguarding of cultural heritage, since the first Athens restoration letter 1931, evaluate as positive the use of new technologies and materials in the field of conservation as long as they are applied respecting the integrity of the cultural goods, their documentary value, the principles of minimal intervention, distinctness, reversibility and the compatibility of the materials used. However, despite these recommendations it was not possible to avoid the accomplishment of interventions using innovative materials that in the medium-term proved not only to be incompatible with the original support but also aggravated its conservation condition. With the currently available knowledge and the development of increasingly specialized and effective materials; can we avoid the consequent adverse impacts of using inappropriate material in architectural surfaces conservation work? The main objective of the research is to gather the innovative and last generation materials used in conservation of built heritage, specifically in surface treatments, and assess their long term performance and sustainability. The present review will includes the latest study cases found in specialized literature to summarize the different nano-materials used and give a whole overview of the technical and commercial state of the art. The research will provide an analytical framework that would facilitate the role played by the architects when implementing conservation-restoration materials, considering that these are crucial for more sustainable interventions in architectural heritage. Furthermore, will give arguments to respond appropriately and responsibly to the desires of environmental preservation, increasingly present in contemporary society.
Rehabilitation of “tabique” walls using a sustainable solution

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ABSTRACT: Timber frame structural systems can be often found in Portuguese buildings constructed before the XIX century. One of this type of structural systems is called “Tabique” and it is constituted by a timber frame structure filled with mortar (e.g. earth-based or lime) and used as self-supporting internal partition walls. “Tabique” walls were part of the building system called “Gaiolas Pombalinas” used for the reconstruction of Lisbon after the earthquake of 1755. Although these walls performed as non-structural elements in some cases, due mainly to the deterioration of structural elements, they can have at some moment a significant contribution to the structural stability of the building. The aim of the paper was to evaluate the enhancement of the capacity of “Tabique” to perform as shear walls by applying a simple and sustainable strengthening solution based on the application of wood-based panels to their surfaces.
Experimental investigation of masonry columns strengthening using basalt fibres ropes: first results

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ABSTRACT: Confining existing masonry columns is an effective method for enhancing the structural elements performance. This paper presents the first results of an experimental campaign aimed to investigate the effectiveness of a confinement technique based on the use of a flexible continuous element: a basalt fiber (BF) rope. Several disposal of the BF rope are proposed, following the idea of a dry reinforcing technique or in any case effective through a very limited use of resins. The system respects most of the rules governing the interventions on the historical buildings and the technique is characterized by an extremely simple, quick way of application, and it means that it is also a low-cost intervention. The first results show that the proposed technique could become a promising confining solution to overcome some limitations related to the typically used epoxy resin.
From arazzo to textile based innovative system for energy efficiency of listed buildings

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ABSTRACT: The paper shows the study and experiments on a contemporary tapestry that mitigates the effect of the cold surface of the wall. The proposed update of the traditional tapestry is the use of innovative textile to apply on the interior side of ancient masonry. The originality of the research approach is to integrate the best practices of our past to the advanced technical solution designed for new buildings, and to evaluate their application for the preservation of Cultural Heritage. Performative technical textiles were used as waterproof membranes and traditional tensile wallpapers for many years. Recently, they are becoming the key component of innovative textile façades, shading systems and even components for the aesthetic and thermal retrofitting, thanks to their flexibility, lightness, thinness and aesthetic qualities. The paper shows the evaluation of the effectiveness of traditional tapestry and of the innovative one, by means of the measurements of the surface temperatures on two study cases representative of the ancient buildings and the contemporary ones.
The assessment of soft capping as a new material and approach for ruin wall protection by experiment on two test walls in Shanghai, China

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ABSTRACT: Soft Capping is popular way for relics wall protection in England and Scotland and well recognized in central and Northern Europe, which meets the need for relics park protection and construction in China. According to the research report of Scotland, soft capping protection technology is suitable for natural and cultural conditions in the coastal fringe of China. This experimental study of soft capping for the ruin wall protection is carried out in Shanghai and lasts for one year, and the purpose of the research is to evaluate the possibility of soft capping for the ruin wall protection of Guangjiao Temple in Xuan Cheng, An Hui. Two testing walls are established using old bricks to simulate the relic walls of Guangjiao Temple, and they are separated into four parts, with A) the wall head is totally exposed to the environment; B) the wall head capping with compound planting soil and crassulaceae plants; C) the wall head capping with sterile soil and Agrostisstolonifera with water proof layer beneath; D) the wall head capping with sterile soil and Zoysiamatrella, to simulate hard capping and soft capping respectively. Four temperature data loggers (SSN-11) are installed just beneath the soil / top wall head, and with one data logger in the environment to record the change of temperature and humidity in a year. Sensor Moisture (HF SENSOR MOIST210B) is used monthly to collect the humidity datas of two walls and digital camera is used to record the appearance changes of two walls and the statues of plants every month. Through one-year experimental study, the results show that soft capping can be worked as a thermal blanket, but mainly under extreme climate conditions. Meanwhile, walls under soft capping are drier than hard capping in summer, and almost as wet as hard capping in other seasons. The research also finds that the choice of grass and earth are very important for the performance of soft capping, thus it is necessary to do the further study in this direction.
Chapter 8

Sustainability principles and practices
in the rehabilitation of historic buildings and structures
Operational energy advantages

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ABSTRACT: This paper discusses the topic of sustainability and heritage, in particular the concept of operational energy advantages that can be gained from rehabilitating an existing building. Developing an understanding as to how a building was designed to operate in terms of climate control, natural ventilation and daylighting is a useful tool when planning for its upgrading or adaptive reuse. To illustrate this paper some recent highly successful Australian examples of the retrofitting of historic buildings to meet modern standards will be examined, examples in which the original design was carefully researched to determine how the building worked in terms of daylighting and ventilation.
Maintenance-focused conservation plan of modern heritage buildings, an Australian overview

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ABSTRACT: The effect of the industrial and technological revolution have benefitted and changed the lives and ways of the people. The period after Industrial Revolution despite being characterised as the age of abundance that dramatically increased the life expectancy of the human being, have ironically decreased the durability of everything that was built because it encouraged highly commercialised production. The architectural and engineering structure during this era was radically affected by the minimalist approach and maximising output. This has been the defining era in the period called ‘modernity’.

Most of the ‘modern buildings’ constructed during the modern period are now frail and have already reached its user-by-date. Some of it had become historical that imposed important connections to the community that contributed tremendously to the enrichment of the lives and history of its populace; thus some of these buildings have been listed. The necessity to extend the life of these structures became a great challenge to the stakeholders, professional practitioners and policy makers. As opposed to ancient heritage building, modern heritage structures are more complicated in terms of repair and maintenance. Currently, in the international stage, the UNESCO World Heritage List indicated that for every one hundred ‘ancient heritage’ there were about four ‘modern heritage’ structures and the numbers are continually growing. Society promotes keeping these heritage buildings considering its frail characteristics. This paper outline the Australian experienced to bring upfront preventive maintenance strategy in order to sustain the structural integrity and original fabric of the modern heritage building while managing the change.
Networks for the sustainable development of cultural heritage: the case of Palazzolo Acreide

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ABSTRACT: The widespread presence of heritage buildings in the Italian territory is a valuable opportunity to search for new paths of socio-economic sustainable development. Much of this heritage is often excluded from the traditional circuits of cultural consumption and is progressively abandoned. The international scientific community has long discussed strategies for supporting sustainable forms of tourist enjoyment, based on safeguarding and enhancement goals, to improve local populations’ quality of life. The study analyses the Palazzolo Acreide area, characterized by sites with high landscape value, natural resources, values, traditions still widely recognized by the local community. The architectural heritage testifies past rural activities, customs and local construction culture. The research proposes an integrated development model of natural and building heritage, by setting up a network able to implement the relationships between existing resources, in order to encourage their sustainable use. The network can power development trends compatible with the characteristics of the area and able to ensure the socio-economic sustainability of preservation projects. The results call for a reflection on the role of formal and informal cultural heritage in improving social wellbeing, looking for a new balance of safeguarding needs and economic growth objectives.
Sustainable strategies applied to built heritage rehabilitation

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ABSTRACT: Today the renewed interest in the theme of recovery of historical buildings has drawn attention to the built heritage of minor historical centers and its relationship with the environmental issue. This topic has offered the opportunity to carry out a study to discover the elements of environmental sustainability and propose the integration with new forms of energy and functional efficiency. It is, then, the result of a careful process of compatibility between the solutions identified and the specific case, in order to obtain a high performance building. Intervention strategies must be adapted, therefore, to the object of study, using more or less conservative approaches, aimed at the introduction of new forms of energy efficiency and the use of sustainable materials. This paper aims to apply the above mentioned approach to two case studies in the village of San Pio di Fontecchio (AQ), using dry technologies and taking into account climate and energy aspects as well.
State of the Art survey for energy-efficient retrofit of historic residential buildings in both the EU an Turkey

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ABSTRACT: The construction sector in Europe is the topmost energy consumer with the rate of approximately 40% of the total. Thereby, the EC has been concerning the extant buildings’ energy efficiency through retrofitting while reducing energy use. Even if numerous attempts including scientific study, project, directive, and action plans undertaken for the European energy efficiency policy prominently address the existing building stock, there is still no common directive about energy improvements of historic ones. Historic buildings require the special interest for determination of retrofit principles considering heritage and aesthetical values of the period they constructed, together with energy efficiency. Many European countries have been focusing on local energy retrofit solutions for their historic stock through research projects. Building regulations in Turkey have also been accredited within the EU regulations. However, specific attention needs to be paid to historic building stock, especially for residential areas, due to having a very limited number of research and initiative leading energy topic in Turkish historic dwellings. This paper presents the survey about research projects and publications on energy efficiency and building retrofit for historic residential buildings in the EU and Turkey. Consequently, it underlines that albeit uncertainties and gaps on policy level, research projects and academic works keep alive the emphasis on the retrofitting of historic residential buildings in an energy-efficient way.
Chapter 9

Special chapter: earthen buildings
Traditional construction techniques in northern Mozambique

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ABSTRACT: Mozambique is a country located in southwestern Africa bathed by the Indian Ocean. Despite the increase in the rate of economic growth, this country still has indicators that identify it as one of the least developed countries in the world. With an area of about 802 thousand square kilometers, it has a low population density of about 25.6 hab./km², of which the great majority is located in rural areas. The response to the basic need for shelter is thus strongly conditioned by the socioeconomic status of the population and by the fact that Mozambique is a country with great technological and technical limitations, which imports most of the construction materials and equipment. Rural population lives in traditional dwellings built with local, natural and low-cost raw materials such as earth, stone, matope, sugar cane and macuti. With a climate characterized by high temperatures throughout the year, with the heavy rains during the rainy season, the dwellings follow the principles of sustainable construction, adapting to the region and the climate. The present work describes and illustrates the materials and techniques used in traditional constructions in the north of Mozambique.
Build and re-build with earth, a building material paradigm of sustainability’s culture

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ABSTRACT: Building with raw earth stands for self-construction, participation, social integration and responsibility. The proposed research was inspired by Le Corbusier’s project presented in 1944 and called “Logis provisoires transitoires a la libération”, that were temporary lodgings for the French people in the aftermath of World War II. The great architect saw that raw earth was a very common material, ready to use and widely available: a means to give an immediate response to the basic needs of people who had lost everything due to the war. Similarly, taking into consideration the constant migration flows now affecting Sicily, the largest island in the Mediterranean, a lodging unit has been conceived: made with materials such as wood and raw earth, and the same migrants would be involved in the building process, since they often come from regions where local buildings are made with these materials.
Climate-responsive strategies of vernacular architecture in Albania and Portugal

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ABSTRACT: The influence of climate on vernacular architecture is widely recognised. In the case of the Mediterranean Sea, its influence on climate ranges a wide variety of territories and cultures. Therefore, it is relevant to study how the climatic factor has modelled vernacular architecture in those territories and if there are common features. In this exploratory study are qualitatively compared the climate-responsive strategies of vernacular architecture from two countries located on opposite sides of the Mediterranean basin, namely, Portugal and Albania. The pragmatism of these strategies, developed on the need of adaptation to a specific climate and territory, may contribute to reduce energy consumption and waste. The study allowed showing points of similarity between strategies used in the two countries and, understanding how these strategies influence indoor comfort conditions. The results of the study can be used to develop and integrate these strategies in the current construction context, contributing to its sustainability.
The conservation of Hakka earthen building. Conceptual tool and technical notes

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ABSTRACT: The architecture of the Hakka people in Huizhou (Guangdong Province - China) is a precious and irreplaceable cultural heritage, unique evidence of the traditional way of living. The relationship with the place and the family community are expressed by an architecture in which the residential and religious worship spaces dialogue each other. Hakka villages, enclosed within high walls, are the result of a clever interplay between architecture and landscape. The paper illustrates a research about Hakka villages in Huizhou: a complex project for the preservation and development of these ancient complexes inside an urban grid of future expansion. The research has defined the tools and the techniques of preservation of Hakka villages in the area: specific guidelines that would be useful not only to experienced staff but also, and above all, to the inhabitants, first people have to engage to the safeguard of these important heritage of the past.
Past, present and future of earthen buildings in Sahrawi refugee camps

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ABSTRACT: The Sahrawi refugee population has lived in exile for the last four decades around Tindouf, on the edge of the Hamada desert (Algeria). The camps where they are established are subjected to extreme weather conditions, reaching up to 50-60°C in summer, and affected by frequent strong winds and sandstorms. Their short building tradition and lack of training are the reasons why their self-built adobe houses have very poor quality, with structural stability problems and insufficient ventilation, lighting or insulation. To make it worse, heavy rain and flood periods, destroy every year fragile dwellings and leave thousands of families unsheltered. Currently, NGOs working in the field make efforts to create less vulnerable buildings, preserving earthen building tradition and improving construction techniques. This is the case of AAPSS(NGO), where 22 houses were built for landmine victims with improved construction techniques such as the combination of traditional and stabilized adobe, or cyclopean concrete foundations to reinforce critical aspects of the buildings. The positive results have been proven after a new period of rains in October 2015, when dwellings remained stable and without damages. The knowledge of Sahrawi people has been improved due to the implementation of training workshop using these techniques. They are aware now of the good results obtained, and they are able to replicate them into other buildings. This research is focused on the study of earthen construction techniques: "appropriate" and "appropriable". Appropriate because they have to be suitable to local weather conditions and available resources in the surrounding desert. And appropriable because they have to be easily learned and replicable by local population. This will contribute to create more durable buildings, with better habitability conditions, and to ensure safer homes for Sahrawi families.
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REHAB 2017
3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures

REHAB 2017 - 3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures aims to proceed with the discussion on built heritage and the preservation of its legacy, that was established in the previous editions of the event. The importance of conservation of historical constructions (built landscape, urban fabrics, buildings, and engineering works) are of utmost importance to preserve the cultural references of a community and was deeply discussed on March 2014, in Tomar, and July 2015, in Porto.

Under the main topics of discussion, subjects of preservation and rehabilitation methodologies and technologies, as well the importance of the economic and social impacts of preservation practices are here covered as the main leading guidelines for the conference debate.

Furthermore, different communities' scales (local, regional national or even worldwide) and authenticity interpretation raise different questions and approaches, and therefore different solutions that are worthy to study, to compare and to experience.

The sustainability approach is again covered, highlighting the importance of the commitment between heritage preservation and technical requirements related to its occupancy and use, such as energy efficiency or materials recovery.

Inclusivity is also an important aspect to be discussed as public historical sites and buildings need to be adapted to receive different kind of visitors (children, elderly or handicapped persons) and to establish an adequacy with the perceiving of the physical environment and information contents.

As a Special Chapter, Earthen Buildings are brought into a particular approach highlighting the complexity of their preservation, maintenance and rehabilitation. Earthen buildings techniques are in many cases of a great importance for local economics and access to housing.

The Editors