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O1 INTELLECTUAL OUTPUT
Output type: Studies / analysis –
Best practice guidelines / report

REVIEW



BEST PRACTICES

In Educating Sustainability
and Heritage

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**Enhancing of Heritage Awareness and
Sustainability of Built Environment in
Architectural and Urban Design Higher Education**



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REVIEW: Best Practices In Educating Sustainability and Heritage

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In current time, as a society, we face multiple challenges and dualities: enable growth yet prevent disruption of the existing urban structure, give a response to the needs of the present without compromising the ability of future generations to meet their own needs, preserve the unique architectural and urban heritage that testifies about our past yet innovate within the architectural and urban design for our present.

With the architectural profession's ongoing stratification between architectural theory and praxis, future architects must take both critical and constructive positions regarding future spatial development. A contemporary built environment will have to balance heritage awareness and sustainable approaches while creating new shapes and conditions for new realities. In this complex scenario, a profile of future architects is under question, along with the institutions' structures and programs that are educating them.

Bearing this in mind, HERSUS partners strive to reassess these dualities in the educational process, hence enhancing and testing innovative and creative teaching practices in the field of sustainability of the built heritage. The project strives to improve educators' and researchers' competence and motivation to include curricula elements that will have tangible results, preparing architectural students and educators to become real actors of the environmental change.

Previously mentioned challenges require vital research and continuous improvement of curricular and extracurricular activities in higher education. To have a successful outcome, they must be transnationally carried out and need to achieve a balance between theory (research and education) and practice (institutional and professional). Both locally and globally alternative practices are developed parallel to institutional architectural education, creating

different methodologies and built structures. Within this arena, HERSUS research project is striving to explore new perspectives and challenges regarding the teaching-learning of heritage awareness and sustainability.

This publication presents the results of the first four months of the project and is structured in three main parts:

- Built Architectural and Urban projects (20 projects, four from each of the five partner organizations)
- Pedagogical and Educational Models (20 courses, four from each of the five partner organizations)
- Influence of National Policies on the Sustainability of Heritage (one report per each partner organization)

The applied approach balanced between different geographies, cultures, and scales provides new insight into the complexity of the definition of heritage in the contemporary context, testifying that heritage transposes from an urban artifact to the urban landscape. It confirms the increasing complexity of thinking about urban and architectural heritage, representing a growing challenge for both researchers and educators to implement such topics in curricula.

The prepared publication's quality was contributed by architectural offices and individuals from five different countries, public bodies, and students whose works were used to illustrate the specific course methodologies.

Vladan Djokić, HERSUS project leader

EDITORS PERSPECTIVES

THE UNIVERSITY OF BELGRADE -
FACULTY OF ARCHITECTURE



The work on IO1 was mainly shaped by the contributors' endeavour to interconnect often opposed notions of theory and practice, academic and professional institutions.

When considering sustainability and heritage in the regional context, the University of Belgrade – Faculty of Architecture (UB-FA) continuously tends to enhance and test innovative teaching practices in the field of education. This includes various types of courses from lectures to workshops, from design projects to written thesis and research methodology courses, from compulsory to elective courses, including all study levels: undergraduate, graduate, and doctoral. In the Review, UB-FA (Serbia) will present the courses (1) *Green Construction- Lessons of the past*, (2) *Among Scales: Programming the New Modernity of Belgrade*, (3) *Design Studio 06U*, and (4) *Energy Rehabilitation and certification of existing buildings – case study*. The course types vary from lectures and theoretical projects to workshops, studio design, and seminars. The courses were selected with the intention to present the competence and motivation of educators and researchers to include curricula elements that will have tangible results and a very environmentally sensitive relationship with built heritage and sustainability concepts. In this context, such an approach aims to spread the importance of built heritage within the new generation of students while considering the entire environment, humans, and society in general, preparing students and educators to become real actors of the environmental change. In regard to case studies of built projects, UB-FA presented projects that reflect the development of new intercultural approaches to heritage and the exceptional strength and will of the architects and urban planners to preserve and enhance architectural and urban heritage qualities on different scales. The selected case

studies are (1) *Conservation and Reuse of the Nebojsa Tower in the City of Belgrade and Founding of a Museum and a Cultural Centre*, (2) *Office Building Bulevar 79*, (3) *Museum of Coal Mining and Centre of Industrial Heritage*, and (4) *Detailed Regulation Plan for the Old core of Zemun*. The case studies are located in urban (2) and historical centres (1,4) in Belgrade or mountain areas in Serbia (3). The current use varies between cultural (1, 3), office (2), and mix-use with central activities (4). Sustainability issues, such as effective re-use and enabled social activity, upgrading energy efficiency, and traditional materials, are involved in the projects. Evaluation of energy efficiency and public competition were used as tools for the implementation of the new uses. The projects were rewarded and nominated on several occasions and were disseminated through exhibitions, presentations, publications, and workshops.

In the review of the current state concerned with heritage in national and sectoral policies, UBFA particularly highlighted the lack of (1) representation (regarding lack of guidelines, evaluation, and research methods, recognition of various urban heritage types (industrial, vernacular, modernistic, intangible)), and (2) mechanisms for financing the revitalization and funding in general (a national budget that decreases in time)), identified within *Strategy of Sustainable Urban Development of the Republic of Serbia Until 2030*. The abovementioned problems were identified as the leading causes for continuous and evident devastation of cultural heritage. Additional issues are perceived in unbalanced and fragmented spatial interventions, often illegal, affecting the loss of unique spatial patterns and relations.

UNIVERSITÀ IUAV DI VENEZIA



The current analysis of the educational programmes and courses in IUAV highlights how Sustainability and Cultural Heritage are enhanced by architectural and urban master degrees and postgraduate programmes. IUAV programmes and courses offer

different and complementary approaches regarding the themes of Sustainability. IUAV offers broad programmes, such as Master Degree Programme in Architecture (thought in Italian), Master Degree Programme in Architecture (thought in English), City and Environment: Planning and Policies and IUAV - Specialisation School in Architectural and Landscape Heritage, postgraduate program, IUAV-SSIBAP

The detailed examination of the specific courses highlights how Heritage awareness has been traditionally present in the IUAV approach to the training and design process (research, documentation, values assessment, design strategies, and proposal). IUAV educational offer presents two different kinds of courses, focused on Sustainability and Cultural Heritage: the monodisciplinary courses and the integrated workshops. The monodisciplinary courses aim to give the students the tools to approach architectural problems with the autonomy of judgment improved by the knowledge of the historical and theoretical frame. The integrated workshops offer learning opportunities and work experience under the direct supervision of high-profile professionals and teachers. The master's degree thesis provides a turning point to the students' educational path, where all the main issues related to Heritage and Sustainability could be managed and detailed. Accordingly, IUAV presented courses (1) *Integrated Design Lab – Focus 3: Regeneration and Conservation of Historic Buildings and Environments*, (2) *Studio 2: Sustainable City Project, City, and Environment: Planning and Policies in Italian*, (3) *Restoration Theories and Techniques*, and (4) *Elements of applied petrography: Deterioration of stone and lithoid materials*. This list expresses the different IUAV approaches on Sustainability, dealing not only with environmental or technological issues but also with social, economic, and cultural aspects. For example, specific design proposals on cultural Heritage express Sustainability in terms of re-use and improvement of a part of a city or a building. The team's four local case studies are adherent to the IUAV approach towards Heritage and Sustainability. The choice aims to underline the idea of Sustainability

concerning environmental or technological issues and social, economic, and cultural aspects. All the case studies are in historical contexts and/or areas with high cultural value (Venice, Verona urban area, Venzone, Treviso Sile River natural park). The re-use of ancient buildings to create new social and cultural values is coherent to the European Commission's argument about the recent years' soil thematic strategy. Accordingly, IUAV decided to present (1) *Punta della Dogana, Venezia (VE)*, (2) *Ex-bakery of Santa Marta area, Verona (VR)*, (3) *Rebuilding program of Venzone, Venzone (UD)*, and (4) *H-Farm project, Roncade (TV)*. Having in mind the long tradition of architecture and urban design in Italy and its relation to the regulatory framework, IUAV presented the timeline of the leading national urban, landscape, and environmental legal provisions regarding cultural / built heritage and sustainable development. The report focuses on the period from 1860 to 2020, highlighting the primary laws, establishing key institutions, adopting the main Charters and Decrees that strongly influenced the interlink between heritage and Sustainability.

THE UNIVERSITY OF CYPRUS



The University of Cyprus (UCY) starts from the premise that teaching sustainability issues in the context of heritage architecture courses require a multidisciplinary approach, highlighting the challenge to find a balance between addressing architectural heritage for future societies while covering contemporary socio-economic needs and sustainable requirements.

This is the general concept of the postgraduate programs *Conservation and Restoration of Historic Buildings and Sites* and *Energy Technologies and Sustainable Design* at the University of Cyprus.

These two programs provide necessary knowledge and expertise in conserving built heritage and building energy performance, respectively. They both address, to a lesser or greater extent, issues of social, economic, environmental, and cultural

sustainability associated with the built environment, and they also promote the enhancement of digital competences and skills for supporting a competent work profile, as an emerging demand of our society. The challenge for the two programs' future development is to further address the connection between cultural heritage and sustainable development. This will develop critical thinking on how current and future practitioners may preserve, use and develop architectural, cultural heritage in a sustainable way and how cultural heritage may be used as a driving force for sustainable development.

As an integral segment of above mention programs, UCY (Cyprus) presented the courses (1) *Architecture and the Critical History of Ecology*, (2) *History and Critical Theory of Conservation*, (3) *Special Topics on Recording and Documenting Buildings and Sites*, and (4) *Capstone Design Project*. The selected courses types include lectures, theoretical projects, workshops, studio design, compulsory and elective. The courses' purposes and objectives are related to both sustainability and cultural heritage, while learning outcomes are related to the theory and practice, providing students with the necessary knowledge and expertise in building energy performance and the conservation of built heritage, respectively. The selected courses address aspects of sustainability and promote cultural heritage as a base for environmental development.

UCY (Cyprus) presented the case studies (1) *Urban Landscape Rehabilitation in Lefkara*, (2) *HYBUILD Aglantzia Case Study*, (3) *Restoration of Alexandros Dimitriou Tower*, and (4) *Restoration of a vernacular dwelling in Kapedes*. All the buildings selected are listed, predominantly with residential use. Selected case studies were used as a basis to address specific sustainability issues, such as the rehabilitation of traditional rural settlements, the use of traditional materials and techniques, the incorporation of renewable energy systems in the structures, and the upgrading of the energy efficiency of the buildings. UCY has shown tremendous effort both to select relevant cases and explain in detail tools and technologies used in the project documentation, design,

and construction, such as data loggers for monitoring temperature and moisture, weather stations for monitoring external and internal environmental conditions.

In the report on the Influence of national policies on the sustainability of heritage from the architectural and urban design perspective, UCY highlighted the efforts in Cyprus in the previous 40 years regarding architectural heritage preservation and documentation through the implementation of the Laws, Acts, Inventories, and Programs.

The UCY specifically emphasizes the efforts in protecting and improving vernacular architecture. The current philosophy and practice in the field of architectural conservation aim to establish a balance between necessary functional modification and improvements of energy efficiency (retrofitting) while safeguarding the special architectural and historical aspects of heritage buildings or sites.

THE ARISTOTLE UNIVERSITY OF THESSALONIKI



This introvert examination focused on sustainability and cultural heritage themes, allowing mapping of curricula and course structures of the educational methodologies and material employed.

AUTH's contribution analyzed three programs of study offered at the school that are relevant to the themes of sustainability and cultural heritage, such as (1) *the 5yr Integrated M.Arch Program*, (2) *the Program of Postgraduate Studies Environmental Architectural and Urban Design*, and (3) *Interdepartmental Postgraduate Studies Program, Protection, Conservation and Restoration of Cultural Monuments*. The first one is the result of School professors' long-term effort, perceivable in the discussion of General Staff Assemblies, numerous meetings of the Study Committees, open presentations and discussions with teachers and students, and a two-day conference entitled "Architecture Studies: Continuity and Change". The other two

programs offer specialist knowledge at the postgraduate level. From 1998, the Interdepartmental Postgraduate Studies Program deals with the conservation and restoration of historical buildings, traditional materials, and techniques, digital methodologies for surveying historic buildings, and environmental aspects of heritage structures. On the other hand, the Postgraduate program of Studies EAAD was only recently introduced (2015-16), reflecting the emersion of environmental studies in a national context and is one of only two programs that deal with environmental urban and architectural design in Greece.

A thorough examination of the aforementioned programs was also carried out through detailed analysis of specific courses contained within the respective curricula (1) *Design Studio 7 - Architectural Design In Historical Context*, (2) *Architectural Design Studio II*, (3) *Urban Design Studio I & II* and (4) *Interdisciplinary Studio Course*. In the context of this review, the above selection reflects the ethos of architectural educational practices that prevail at the school, whereby specialized knowledge is introduced through theoretical courses and seminars, is supported through technical teaching and practice, and is ultimately consolidated through interdisciplinary design studios. These do not only focus on a singular approach to the design project's evolution but integrate theoretical approaches, supported by lectures (tutors) and presentations/submissions of small thesis/studies (students), practical exercises, software tutorials, etc.

The review of educational practices is followed by four case studies of realized projects that reflect the issues, practices, and open questions that prevail in the discussion of sustainability and cultural heritage at the local level. All case studies focus on the historic urban context and reflect multifaceted approaches in designing for sustainability, conservation, reuse, resilience. The studies are representative of different scales of intervention: (1) *Bioclimatic upgrade of the greater area of Hrimatistiriou Square* at the historical Centre of Thessaloniki, (2) *Creative reuse of the*

barracks at the Pavlos Melas Metropolitan Park (former military camp), Municipality of Pavlos Melas, Thessaloniki, (3) *Restoration and environmental upgrade of Vernacular Residence at Ano Poli* (Upper/Old city) of Thessaloniki, and (4) *Restoration and creative reuse of a building block consisting of 13+ historic structures, in Plaka, Athens, to house the State Museum of Modern Greek Culture*.

The above case studies are followed by a report on the National legal and regulatory framework under which the projects were developed, which makes further references to the practical context, the initiatives, and national and international programs that instigate and support such initiatives, programs, designs, and applications.

THE UNIVERSITY OF SEVILLE



In this Review, the University of Seville (USE) focused its pedagogical and educational models at the School of Architecture, University of Seville, while the framework of best practices in Sustainability and Built heritage is regarded in the scope of Andalusia. The decentralized character of Spanish geopolitics and the transference of power to the different autonomous governments in terms of heritage management and architectural and urban policies, in general, make one autonomous region the proper framework for this study. Starting from the historical relevance of heritage in Andalusia, established interlink between the architects involved in the professional practice to teach at the university, intensive research on the field, and strong collaboration with public institutions, USE has presented the endeavor to translate this context into education. It has been done through an integral presence of heritage training in the School of Architecture curricula, especially within programs *Fundamentos de Arquitectura*, *The Máster Universitario en Arquitectura y Patrimonio Histórico (MARPH)* /Master's degree in Architecture and Historical Heritage, and *The Máster Universitario en*

Ciudad y Arquitectura Sostenibles (MCAS) / Master degree in Sustainable Architecture and Cities.

For the purpose of the selection of case studies of best practices, the following has been taken into account: (1) focus both on contents and on innovative methods, (2) focus both monographic and those cases where heritage and sustainability appear as a transversal, although essential vector, (3) both compulsory and optional courses, (4) show courses of the last three semesters of the main program on architecture, the semester 8 focused on heritage being 9 and 10 the specialization semesters of the degree.

Accordingly, four case studies were selected (1) *Landscape, City and Architecture in Andalusia*, (2) *Architectural History, Theory and Composition 3*, (3) *Architectural History, Theory and Composition 4: City*, and (4) *Architecture and Heritage*. In this sense, USE highlights that courses in the postgraduate programs are traditionally structured in a set of lectures and/or workshops offered by different professors. This is why innovative methods and coherent curricula is best shown within these last three semesters of the degree on architecture.

In the field of practice, specially built projects, USE applied specific criteria for case studies selection: territorial balance; notions of scales and ownership; diverse aspects and contributions from the professional practice in the context of built heritage and sustainability; awards and acknowledgments while focusing on the less recognized heritage both for institutions and society; temporality, focusing on case studies of the 21st century, as representative of the mature phase of Andalusian practice.

Accordingly, USE presented the case studies of (1) *Rehabilitation of Casa Diáñez (Diáñez House) as administrative building*, Alcalá de los Gazules historic center, Cádiz; (2) *Recovery of King's Path*, Gaitanes Gorge, Service Road of the hydroelectric dam of The Gaitanejo, Paraje Natural Desfiladero Natural de los Gaitanes (Álora, Antequera, Ardales), Málaga; (3) *Recovery of the Cerro*

de San Miguel and the Darro river area. Rehabilitation of the Nasrid wall of San Miguel Alto and its surroundings, Upper Albayzin, Granada, and (4) *Rehabilitation of Santa Ana Ceramic Factory as the Public Museum of Ceramics*, Triana historic neighborhood, Sevilla.

USE completed the diagnosis with a report on urban policies that regulate heritage protection, conservation, and management, offering an insight into Andalusian policies in the Spanish context. USE specifically highlights the regulative framework on all three levels: national, regional, and municipal, while providing an in-depth review of the international context, charters, and recommendations.

Built Architectural & Urban Projects



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)



SERBIA

×

Vladan Djokić
Aleksandra Milovanović
Aleksandra Đorđević

project

01

Nebojša Tower, Kalemegdan Fortress

Conservation and Reuse of the Nebojša Tower in the City of Belgrade and Founding of a Museum and Cultural Center

IDENTIFICATION

Information about the location

✗ Historic centre

Address

✗ Bulevar Vojvode Bojovića
11 000 Belgrade, Serbia

Country/Region

✗ Serbia / Belgrade Metropolitan Region

Coordinates

(GIS: ETRS89/Google Maps: WGS84)

✗ Long= 20.44784020 °
Lat= 44.82733520 °

City size

✗ The Capital

Website

✗ <https://kulanebojsa.rs>

Accessibility

✗ Public building

Public visits

✗ Yes

Category

✗ Architectural project
Reuse (adaptive)
Restoration / Reconstruction

Deliberative and participatory planning

✗ No

Current use

✗ Museum and Cultural Center

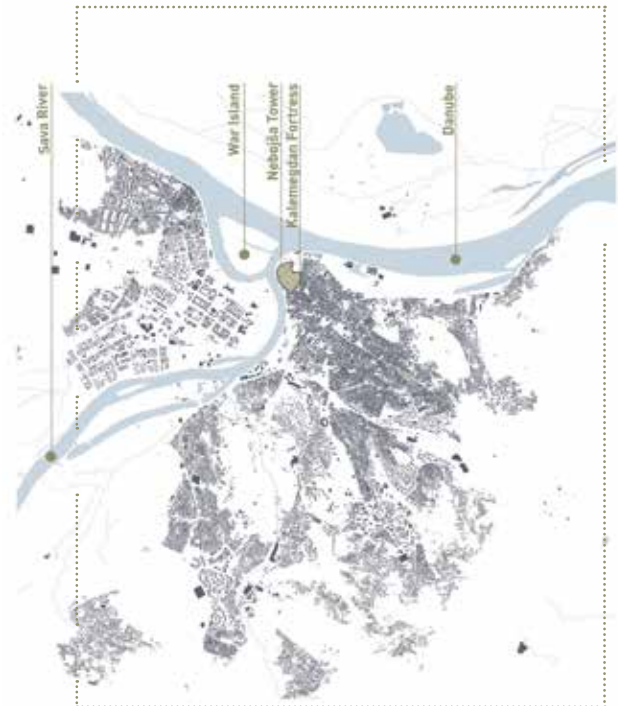


Figure 1. Location map
Authors of the case study report



Figure 2. Nebojša Tower
Aleksandra Milovanović

Year (period) of the project renovation/
restoration

✗ 2011

Area of the building (m²)

✗ 800m²

Current owner

✗ public: City of Belgrade

Architects

✗ Dejan Miljković. Jovan Mitrović
mr Branko Pavić

Other designers / engineers

✗ Representatives from the Faculty of
Architecture - University of Belgrade
and Institute for the Protection of
Cultural Monuments of Serbia

Other agents

✗ The city of Belgrade, Secretariat for
Culture, Republic of Serbia - Ministry
of Culture, Institute for the Protection
of Cultural Heritage of Belgrade,
Archaeological Institute, Project for
Belgrade Fortress, History Museum
of Serbia, Construction Company
"KOTO", Nature Protection of Serbia,
Institute for Nature Protection,
Institute of Water Management
"Jaroslav Černi", PE "Zelenilo -
Belgrade", Public Water Management
Company "Srbijavode", Secretariat
for Traffic, Traffic Institute CIP, PE
Electric power industry of Serbia,
"PMC Inženjering d.o.o., LOPICIC &
LOPICIC architectural office

Developer

✗ The project was realized with the co-
funding of important bodies of the
Greek Republic and the Republic of
Serbia and it was carried out under
the responsibility of the European
Centre for Byzantine and Post
Byzantine Monuments, and the city
of Belgrade.

Building contractor

✗ Supervision: Public Body "Belgrade
Fortress, consultants: Alpha MENTOR
Ltd.

Cost of the project/execution time

✗ 2.694.193,93€ (2007-2011, second
phase not completed)

Previous studies (Ex. Archaeological,
historical, structural, materials, etc.)

✗ Archaeological excavations,
restoration, and conservation
projects

KEY FEATURES



Remarkable attributes/
Singularities/Specific Values

- strategically important position and
relation to the historical monument of the
Belgrade Fortress
- a significant monument and witness of
history, both in cultural (multicultural) and
archeological manner
- authentic built structure and typology

Scope of application/necessity of
the project:

- Conservation-restoration works and
construction of new parts in order to
provide conditions for accommodation of
visitors
- Landscape design of the environment
- Development of infrastructure for a
permanent exhibition in the Tower

HISTORY OF THE BUILDING/SITE



Original use

✕ Military

HISTORIC USES

The Nebojša Tower (Tower) is a part of a wider monumental complex - the Belgrade Fortress - built on the strategically important position on the confluence of European rivers Sava and Danube in Belgrade city which represents a unique museum of Belgrade's past. The Tower is one of the few better preserved medieval buildings within Belgrade Fortress. It was built in 1456 within the framework of extensive fortifications construction, which was undertaken to rebuild the destroyed and damaged city fortifications. It belongs to the oldest type of early artillery cannon towers which represents a significant architectural and construction achievement of that period on the territory of the city of Belgrade. It was built for the purpose of the city defense and, in a broader sense, was part of the defense system - the wall of Christianity - which successfully stopped Osman empire incursions towards the center of Europe for decades. Centuries later, when it lost its former military significance, it was turned into a dungeon.

CONSTRUCTION PERIOD

Initially built in 1456 (destroyed and rebuilt several times throughout history 1521, 1690, 1717-1739, 1960-1961)

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Activities on the restoration of the Tower began in June 2009 including: (1) Conservation and restoration activities and construction of new infrastructure in order to provide conditions for accommodation of visitors, (2) landscaping for visitors'

access, (3) development of infrastructure for a permanent exhibition in Tower, and (4) preparation of full information material for the Tower promotion as a new center of cultural tourism in the wider Balkans.

ARCHITECTS / AGENTS

Anonym

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Although the Tower was destroyed and reconstructed throughout history, it was in well-preserved physical condition before restoration, with smaller cracks at the exterior level and severe mechanical damages and material obsolescence at the interior level. The adjoining Riverside rampart and Fortress Water Gate were physically endangered and exposed to flooding and sloughing.



Figure 3. Nebojša Tower before the interventions <https://commons.wikimedia.org/w/index.php?curid=730518>

STATUS OF PROTECTION

The Belgrade Fortress has been listed for the first time in 1946 (Decision no. 1108), under the jurisdiction of the Department for the Protection of Cultural Monuments of the National Republic of Serbia which was a part of the Art Museum. The next decision has been provided by the Institute for the Protection of Cultural Monuments of the City of Belgrade in 1965 (Decision no. 290/4), while the highest level of protection was declared in 1979 when the Belgrade Fortress became cultural monument of outstanding value at the national level (Official Gazette of Republic of Serbia, no. 17/79).

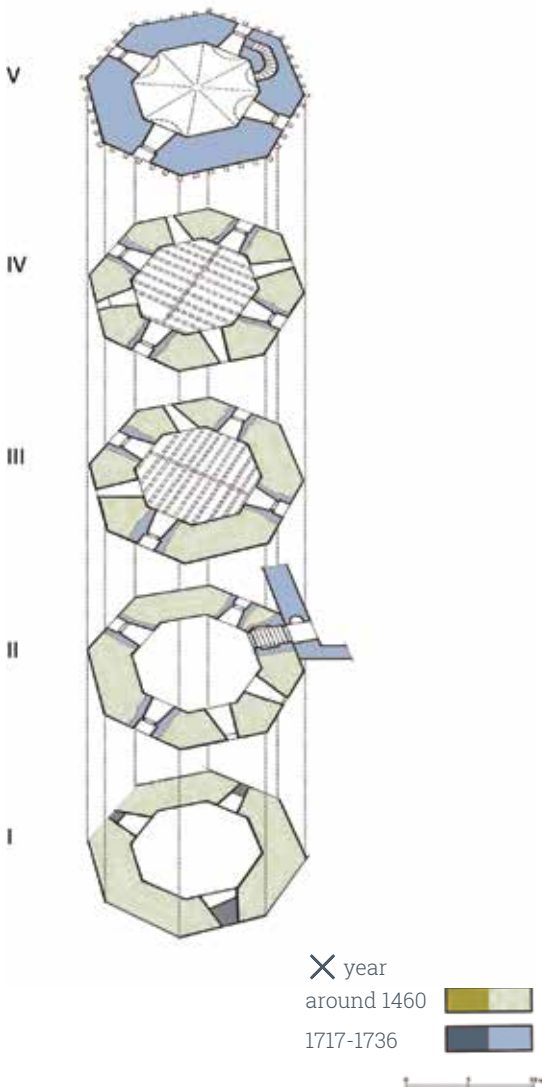


Figure 4. Surway drawings
Based on Popović, M. (2007).

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION/ RESTORATION

The previous conservational and archaeological research [1-2] allowed insight into Tower original appearance (25m high, a regular eight-angular bases with a diameter of about 8.5 m, wall thickness 2.90 - 3 m). The outer envelope was built of relatively regular carvings of locally available soft limestone. The Tower interior walls were built of broken, hewn stone with brick fragments, while their face was drawn. The Tower foundation is based on a massive compact square slab (14.50x14.50 m, about 2 m thick). The Tower was divided by wooden mezzanine structures including ground floor and four additional floors (or probably originally five). The floor height was 4–4.30 m. The Tower belongs to the oldest type of early artillery high towers.

PROJECT DESCRIPTION

DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The project aimed to include the monumental heritage into contemporary living, which means not only the restoration of the monuments themselves but also the adaptive reuse through introduction of new contents that are appropriate to the significance of the Belgrade Fortress.

The initial design goals were [3]: (1) preservation of an abandoned Tower and partially destroyed Tower complex in the historical center of Belgrade, at the Belgrade Fortress, (2) prevention of even more serious damage of this important medieval building, and (3) setting up adequate space for a memorial to the Greek patriot Riga of Fere.

The restoration was carried out through three design perspectives: (1) to provide a logical connection of the Tower with

the immediate environment and give an access plateau in order to attract visitors, (2) to provide technical and technological conditions for the building to be resilient to external influencing factors, and (3) to reuse the Tower and to design extension in the form of a multifunctional hall, envisioned as a new functional benchmark on the city map. The restoration and adaptive reuse of the Tower complex meant primarily securing the physical structure stability protecting it from the external influencing factors, and reprogramming the space into a spatial framework for organizing different cultural programs and projects.

According to the initial plan for the project realization, in addition to the restoration and adaptive reuse of the Tower, the formation of the extension of the Tower within Riverside rampart was also planned, in two phases. At the first phase, the design envisioned additional content indispensable for the functioning of the Tower: entrance hall, information point, visitors wardrobe and sanitary block (cca. 150m²). The second phase saw the formation of the Riverside rampart's interior with temporary exhibition space and event hall (cca. 650m²). However, up to date, only the first phase of the Tower extension has been realized.

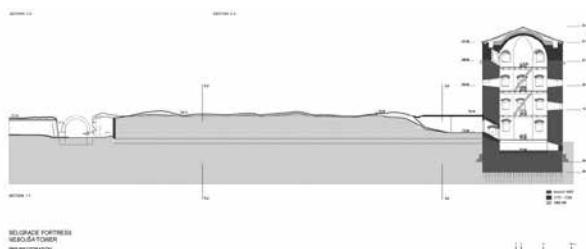
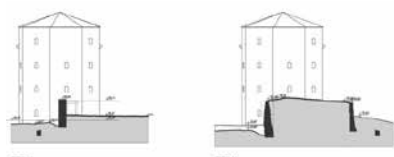
DESCRIPTION OF THE CHANGES AND ADDITIONS

Restoration (spatial rehabilitation) and adaptive reuse (functional reprogramming) of the Tower were carried out according to the previously stated design perspectives both on the urban and architectural level. The explanation of the suggested changes and additions will be presented only about the built phase of the project.

Urban level – Restoration and extension of Nebojša Tower towards reconnecting it in an overall urban silhouettes of the Belgrade Fortress.

Within the initial stage of the design process, the authors of the project recognized that it is necessary to provide an access plateau and an entrance hall with an information desk for entering into the museum exhibition space in order to provide effectiveness in the future functioning of the Tower. The restoration of the entrance hall was planned for the section of the Riverside rampart immediately next to the Tower. By testing different solutions based primarily on the technical and technological aspects, it was recognized that it is impossible to provide the rampart's stability and enable access to the Tower by partial reconstruction.

✗ Before



✗ After

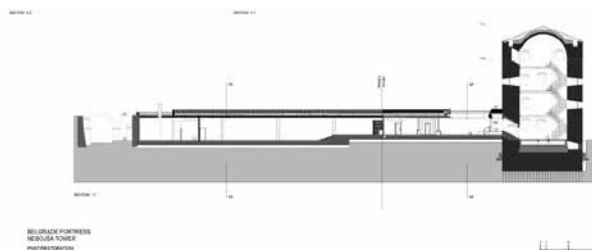
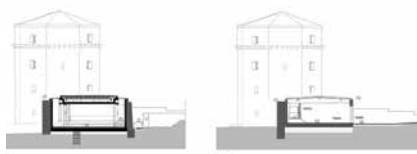


Figure 5. Sections before and after the interventions.
<https://dejanmilkovic.rs/sr/>

Accordingly, the removal of the entire soil fill between the walls of the rampart was realized. In this way, construction of a continual river channel made of impervious concrete has been realized, which has been contributed to neutralizing the external negative factors, stabilizing the walls of the Riverside rampart, and forming a new space for the purpose of the multifunctional hall. The construction of the multifunctional entrance hall enabled a direct link to the Tower. The general design approach was based on an intention to preserve the authentic appearance of the Tower and rampart in a comprehensive silhouette of Belgrade Fortress. In that sense, the intervention in the form of longitudinal lanterns based on mimicry was implemented on the roof of the multifunctional hall that enabled natural insolation and airing of the interior. Architectural level - Adaptive reuse of Tower as a new city exhibition space

The space of the Tower in those spatial contours and capacities that have been inherited throughout history has been functionally converted into an exhibition space. Exhibitions are organized on four levels with several themes: History of Tower, Riga of Fere Memorial, First Serbian Uprising, and Serbia and Greece as newly liberated European countries. In the architectural programming of the exhibition concept, the authors proposed the construction of four platforms connected by a staircase. Design of space and construction solution treated the space of the Tower as a monument of extraordinary cultural and historical importance and in accordance with the conditions of conservation.

BUILDING MATERIALS

The general idea was to use concrete and glass, as materials whose neutrality will least endanger the authentic elements of the Tower and Riverside rampart both in color and in texture. A concrete-steel structure was built inside the Riverside rampart and a concrete slab was poured below the floor level inside the Tower. The levels of the floors on the steel structure were re-installed in the Tower, and a new staircase was designed. Underfloor heating has been

installed on the ground floor of the building, enabling the use of the building throughout the year. A steel ship door was installed at the building entrance in a new concrete structure, which should provide its complete protection in case of large flood waters.

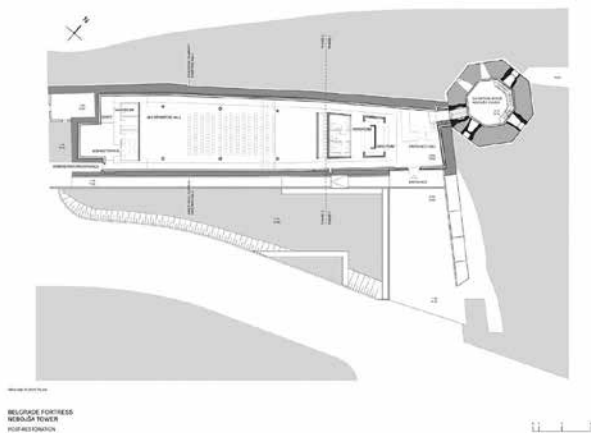


Figure 6. Plan Tower complex with entrance zone, multifunctional hall and exhibition space in Tower. <https://dejanmiljkovic.rs/sr/>



Figure 7. Interior of the Entrance Hall and Exhibition Tower. *Authors of the case study*



Figure 8. Interior of the Entrance Hall and Exhibition Tower.
Authors of the case study

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

It is particularly important to single out the program aspect of the solution to reuse space in its original capacities and spatial frameworks and its conversion into a public function, which enriches the cultural offer at the city level without the construction of new facilities.

Economic aspect:

It is worth mentioning that the project was financed from various funds from different countries. However, the various socio-political contextual factors affected the realization of the second phase.

Environmental aspect:

The use of in-situ materials such as stone and brick and its coherent combination with contemporary materials such as concrete

and glass have enabled the optimization of environmental impacts of building materials, but also contributed to the positive aspects when it comes to the energy efficiency of building in terms of insulation, insolation, and ventilation of building. One of the project's leading challenges is its resilience in relation to possible flooding, which was achieved by building a specific system of funding and a specific solution of the entrance zone.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

Institutional aspect - the cooperation of professionals in different domains (architectural design, structural engineering, archaeology, restoration, protection of monuments and history) is positively evaluated as well as the cooperation of public and private sector, which contributed to the integral perception of problems and potentials in the design process and realization of the final design.

Technical-technological aspect - intensive conservation-restoration activities have enabled maximum preservation of the existing condition, as well as the implementation of authentic materials and their combination with modern materials that contribute to the energy efficiency of the building.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

✗ N/A

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

✗ N/A



Figure 9. Guest lectures in organization of UB-FA
Authors of the case study

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Nominations:

2013 Nomination for the European Union Prize for Contemporary Architecture – Mies van der Rohe Award, authors Miljković, D., Mitrović, J., Pavić, B.

Awards:

2012. Grand Prix for the constructed building (Kula Nebojša at the Belgrade Fortress, Belgrade) at the XXXIV Salon of Architecture in Belgrade, authors Miljković, D., Mitrović, J., Pavić, B.

2011. Award of the Society of Belgrade Architects for the Architectural Event of the Year (Nebojsa Tower at the Belgrade Fortress, Belgrade) authors Miljković, D., Mitrović, J., Pavić, B.

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- [1] Popović, M. (2007). Kula Nebojša da delom priobalnog bedema i vodenom kapijom II. *Nasleđe* 8: 9-28.
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- [3] Lučić Todosić, I. (2020). Proizvodnja zajedničkog kulturnog nasleđa: Kula Nebojša. *Beograd - novi simboli u srednjovekovnoj kuli. Anthropology Magazine* 20 (1): 299-318.

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

✕ N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

Gianluca Gelmini's Attentive Restoration of the Medieval Torre Del Borgo
Via Vittorio Villa, 24040 Canonica d'Adda BG, Italy
Completed in 2015

REFERENCE TO WORLDWIDE EXAMPLES

A parallel can be made in the approach to allocate public funds to restore and reuse the desolated medieval building and to engage native architects for the renovation and extension. Additionally, regarding materialization, both architects decided not to compete with the original structure, but to implement necessary conservation works on stability carefully, upgrade infrastructure and use contemporary materials as a method for preserving the structural and visual integrity of the original buildings and walls. Last, but not least, both projects introduce new uses (museum and cultural centre, and public library) with rich public space, hence, providing visitors a unique experience of the historical times and events.

For more information visit

<https://projects.archiexpo.com/project-27637.html>



SERBIA

×

Milica Milojević
Mladen Pešić

project

02

Senjski Rudnik - Town of Miners

Regional Centre of Industrial Heritage - Museum of Coal Mining

IDENTIFICATION

Information about the location

✗ Mountain

Address

✗ Senjski rudnik bb,
35234 Senjski rudnik

Country/Region

✗ Serbia / Despotovac Municipality

Coordinates

(GIS: ETRS89/Google Maps: WGS84)

✗ Long= 21.57081287 °
Lat= 43.99437657 °

City size

✗ 18.76 km²

Website

✗ <http://muzejuglarstva.rs/>

Accessibility

✗ Public site

Public visits

✗ Yes

Category

- ✗ Architectural project
 - Reuse (Adaptive)
 - Restoration / Reconstruction
- ✗ Urban Project
 - Urban revitalization
- ✗ Environmental planning
- ✗ Cultural planning

Deliberative and participatory planning

✗ Yes

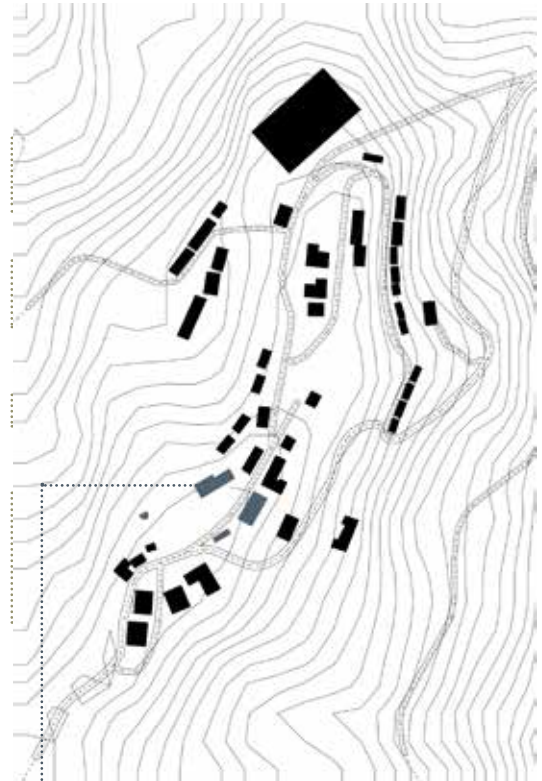


Figure 1. Location map
Authors of the case study report



Figure 2. Senjski rudnik, under construction
source Aleksandra Đorđević

Current use

✗ Museum of Coal Mining and Centre of Industrial Heritage

Year (period) of the project renovation/restoration

✗ 2014

Area of the building (m²)

✗ size of the buildings:
830 m² + 560 m² + 30 m²
size of the site 6.500 m²
area 1990 m²

Current owner

✗ public: State property
✗ private: some individual buildings though, are privately owned

Architects

✗ Mihailo Timotijevic (1949 Serbia);
Miroslava Petrovic-Balubdzic (1956 Serbia)

Other designers/engineers

✗ Building technology: Nenad Sekularac
Coordination: Nastas Andric
Collaborator (external): Silvia Cravero
Collaborators: Dejan Mitov, Marina Popović, Marija Kočović

Other agents

✗ Institute for the Protection of Cultural Monuments, Kragujevac; Institute for the Protection of Cultural Monuments; Museum of Science and Technology; Municipality of Despotovac; the University of Belgrade – Faculty of Architecture; Coal Mining Museum, Senjski Rudnik;

Developer

✗ The reconstruction process was executed within the participation of the Republic of Serbia in the “Ljubljana Process II – Rehabilitation of Common Heritage” (“Regional Program for Cultural and Natural Heritage of

South-East Europe, Council of Europe”)

Building contractor

✗ Delegation of the European Union to the Republic of Serbia and Ministry of Culture, Republic of Serbia

Cost of the project / execution time

✗ No available data

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The mine of Senjski Rudnik is located in the Resava-Morava brown coal basin. The area is characterized by a combination of coal production with the historic mining artifacts, machinery, and infrastructure, buildings and facilities for site management and workers’ housing within the exceptional natural landscape.

Scope of application / necessity of the project:

The mine complex with the management buildings and mining infrastructure is part of an urban ensemble that also includes residential houses, a school, cultural centre, church, museum and a hospital. Keeping in mind a holistic approach to site conservation and regeneration and the exceptional values of the site as a cultural and natural landscape, a group of twenty buildings and structures of particular interest has been identified and mapped within the site analysis conducted for present and future site action and planning. The entire site should be preserved and develop as an urban complex along with surrounding cultural and natural environment.

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ - A conceptual project of the Rehabilitation of the urban area and restoration of buildings of historical importance, 1973. documentation in IPM Kragujevac. (Partly realized).
- The main (executive) Project of the Museum, workshop, and Alexander's Shaft.
- There were previous projects for i. e. the Workshop restoration, near Alexander's Shaft dating from the seventies and the eighties, which, due to political unrest and shortage of funds, have never been executed.

HISTORY OF THE BUILDING/SITE



Original use

- ✗ Industrial

HISTORIC USES

Senjski Rudnik is the oldest mining complex in Serbia, established between 1853 and 1860, during the rule of Prince Aleksandar Karadjordjević. It is located 150 km south-east of Belgrade, in the natural landscape of a low-populated area, significant for its natural beauty and medieval cultural heritage. Senjski rudnik represents a town of miners, located in eastern Serbia, all industrial settlements' attributes. The exploitation of coal started in 1853, and today, until recently, it was still active, although in a significantly decreased capacity. This area is Serbia's oldest coal mine and colliery, complete with shafts, administration buildings, storages, and workshops. The mine is surrounded by an old, well-preserved village community, typical for 19th – 20th-century industrial communities. Some typical stages of

urban development and technological changes are clearly evident.

CONSTRUCTION PERIOD

First construction activities within the complex started after 1853, after the mine was opened. The urban matrix indicates a rich social life, technological transformations and economic challenges. A habitat has been developed around two historically important points: Alexander's Shaft (1853 the first shaft in the history of coal mining in Serbia), and the Main Shaft (1927), the latter equipped with an excellently preserved head gear and a steam engine from the 19th century (still in function). Within this study two buildings will be examined in detail having in mind that there are the only ones reconstructed in previous decades and years: Museum of coal Mining (1930) and Mechanical workshop (1922).

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Situated in a picturesque and -preserved natural environment, shaping a cultural landscape unique in Serbia, despite a deep economic decline, this is a strong symbol and centre of regional identity, and furthermore, of the identity of miners and workers elsewhere in Serbia. The place is available for various branches of tourism, mainly cultural. Surrounded by other mining areas (Ravna Reka, Resavica, Sisevac), also interesting but evidently of smaller historical significance. It could be a regional heritage and tourist centre, a place of economic regeneration and a powerful element of social cohesion. It is planned to develop the site as Regional Centre of Industrial Heritage and Ecomuseum.

ARCHITECTS / AGENTS

Anonym

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Considered as an area, it is in a bad state. Most of the buildings are in a condition from very bad to bad. The surrounding landscape is in a rather good condition at the moment but it is threatened by a landslide. Mine buildings and machinery, as well as the town as a whole show many signs of neglect and decline.

STATUS OF PROTECTION

The legal protection is limited only to the oldest shaft, Alexander's Shaft, Workshop and Museum in neighbouring area, and dates from 1975. They are protected as individual monuments. Under the Protection of the Republic of Serbia as a "property of great importance", 1979. (monitoring of the RIPM of Serbia). The recent candidacy of this area for the UNESCO list of industrial heritage and the entrance to the European mining roads map will undoubtedly strengthen the local community's economic base and development potential.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

Museum of coal Mining
Main building; built in 1930, today it hosts the central exhibition which on two levels presents mining history in the region, from the 3rd century until today

Mechanical workshop
Engineering workshop; it consists of four rooms, displaying the everyday life of the miners and their families; documents show that women worked as miners even decades before World War I, but especially during the war when men were drafted.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

Design and reuse of the building complex into a specific open-museum site, aims to establish a lasting image of this authentic space of the oldest industrial complex in Serbia.

Intervention on the ground floor revives the images of production processes that ensured the coal distribution: industrial rails, station and wagons. Existing buildings will be reconstructed to have an authentic initial appearance, while ruined parts of the complex are being complemented by contemporary interpreting their initial forms and using materials such as glass and steel.

Interior design brings back the working space authentic ambien with carefully selected objects that illustrate the atmosphere of everyday life in the mine. Reconstruction and reuse demanded interventions on two levels:

1. Bringing back authentic heritage elements in form and materialization
2. Interpretation of the heritage through introduction elements of contemporary design to support new museum aspect, applying archaeologically neutral materials.



Figure 3. The coal museum

Autor: DjordjeMarkovic - Sopstveno delo, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=57429692>

DESCRIPTION OF THE CHANGES AND ADDITIONS

Restoration works include, inter alia: new floors, new thermal insulations, reparation of doors, windows, roofs, painting of internal and external walls, new heating, water and sewerage system, construction of a new aluminium-glass construction entrance hall of 76 m² for the Workshop building and new addition to the Museum building of 160 m², new electricity and IT systems. Infrastructural works will include a new pipeline for water supply with fire fighting protection and a new heating pipeline connected to the existing boiler room.



Figure 4. The model of Senjski rudnik
Autor: DjordjeMarkovic - Sopstveno delo, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=57429714>

BUILDING MATERIALS

The reconstruction design project aims for the harmonious coexistence between the existing and the new. Authenticity, as a fundamental value in design, is achieved by using materials that are already present on site. Interventions preserve the identity of place primarily through the form and function including a landscape as an inseparable part of an entity. Annex of the future museum was built on a concrete structure with a facade coated in 5mm thick corrugated steel. The choice of the façade material resulted from the idea to emphasize the contrast of the newly reconstructed parts. The area around the building was enhanced with the carefully positioned artifacts - pieces of the former mine equipment.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

In order to find the most optimal development strategy – shutting down the mine, while mitigating the social risk of increased unemployment - the Government of Serbia and EU Delegation conceptualized reconstruction of the mine complex in order to preserve it as industrial heritage and engage the former miners in its new activities.

Economic aspect:

Ending the coal mine operation will create conditions that allow tourists to visit selected parts of the coal mine underground and use the elevator which daily transports the miners. These features will gradually widen the tourist offer, serviced by the former miners and their entrepreneurial successor. The recent candidacy of this area for the UNESCO list of industrial heritage and the entrance to the European mining roads map, will undoubtedly strengthen the economic base and the development potential of the local community.

Environmental aspect:

Important information regarding sustainability is the process of the institutional organization during the revitalization and reconstruction process within natural environments and soil regeneration.



Figure 5. The coal museum
Autor: DjordjeMarkovic - Sopstveno delo, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=57429726>

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The idea was to use local materials and materials that are resembling the mining industry in general.



Figure 6. Mechanical workshop / Workshop space
Source: Aleksandra Đorđević

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

✗ No data

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

✗ No data

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

The project was nominated in 2015 as a national representative for Mies van der Rohe Award.

- <https://www.erih.net/i-want-to-go-there/site/senje-coal-mine>

- <https://miesarch.com/work/571>

- <http://www.rudnicikulture.com/en/category/mines/senje-mine/>

- <https://www.archdaily.com/tag/senjiski-rudnik>

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- Keča Lj., Bogojević M., Marčeta M. (2011): Trend of the total purchasing volume of Non-Timber Forest products in the area of the municipality of Ivanjica. Forestry, Journal of Forestry processing wood, the horticulture and landscape architecture and environmental engineering and protection of land and water resources 3-4 (87- 97).

OTHER SIMILAR PROJECTS AS A REFERENCE

Labin Mine / Istrian coalmines Raša - Labin

Underground City XXI Labin is a project of protection for the ex-coal mine in Labin and Raša (region of Istria, Republic of Croatia), its industrial and architectural heritage, part of which has been already recognized as a national cultural monument, by the construction of a real futuristic underground town, with streets, bars, galleries, swimming pool, shops, restaurants, children playgrounds, Museum of Coal Mining, as well as all other contents any modern town must have, including own Government,

Statute, Mayor, police, laws and regulations, etc., relying on the historical pattern of the Republic of Labin, in 1921. The leading idea of the project was to provide ample and true testimony of the almost 400 years old tradition of mining, transforming historical patterns and industrial heritage into an avant-garde art project with a strong economic and social impact (national/regional cultural and tourist attraction, generator of future local development), by the construction of the first underground town in the world.

More information available at:

<https://platforma981.hr/2019/08/28/novi-svjetionici-hrvatskog-jadrana-labin-podzemni-grad/>

REFERENCE TO WORLDWIDE EXAMPLES

Zollverein Coal Mine Industrial Complex, Germany

The Zollverein Coal Mine Industrial Complex (German Zeche Zollverein) is a large former industrial site in the city of Essen, North Rhine-Westphalia, Germany. It has been inscribed into the UNESCO list of World Heritage Sites since December 14, 2001, and is one of the anchor points of the European Route of Industrial Heritage. The Zollverein industrial complex in Land Nordrhein-Westfalen consists of a historical coal-mining site's complete infrastructure, with some 20th-century buildings of outstanding architectural merit. It constitutes remarkable material evidence of the evolution and decline of an essential industry over the past 150 years.

More information available at:

<https://whc.unesco.org/en/list/975/gallery/>



SERBIA

X

Nataša Ćuković Ignjatović
Nevena Lukić

project

03

Office building BULEVAR 79



Office building BULEVAR 79

IDENTIFICATION



Information about the location

✗ Urban centre

Address

✗ Bulevar kralja Aleksandra 79,
11 000 Belgrade, Serbia

Country/Region

✗ Serbia/Belgrade Metropolitan Region

Coordinates

(GIS: ETRS89/Google Maps: WGS84)

✗ Long= 20.48135360 °
Lat= 44.80316170 °

City size

✗ National capital population over
1.600.000

Website

✗ <https://www.remorker.rs/bulevar79>

Accessibility

✗ Public building

Public visits

✗ No

Category

✗ Architectural project
Restoration / Reconstruction

Deliberative and participatory planning

✗ No

Current use

✗ Office building

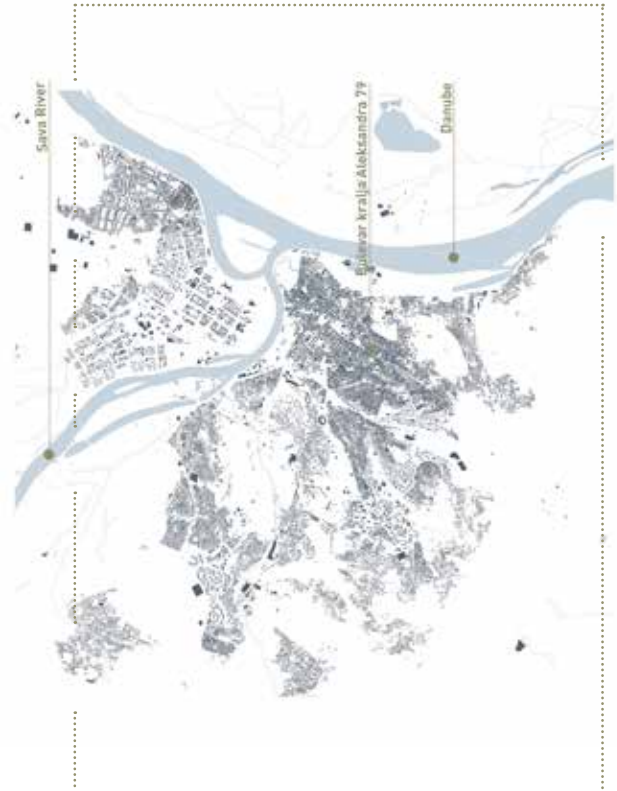


Figure 1: Location map

Authors of the case study report



Figure 2: The office building

source Aleksandra Đorđević

Year (period) of the project renovation/
restoration

✗ 2018

Area of the building (m²)

✗ 3600 m²

Current owner

✗ private: Marera Properties d.o.o.

Architects

✗ Remorker architects

Other designers/engineers

✗ ARMONT SP d.o.o. (Facade
construction)

Other agents

✗ N/A

Developer

✗ Marera Properties d.o.o

Building contractor

✗ Multiple building contractors

Cost of the project/execution time

✗ N/A

Previous studies (Ex. Archaeological,
historical, structural, materials, etc.)

✗ No previous studies have been done

KEY FEATURES



Remarkable attributes/
Singularities/Specific Values

- N/A

Scope of application/necessity of
the project:

Trudbenik office building is a building positioned in a wider city center in one of the busiest streets in the city of Belgrade. The building has been outdated with a depleted facade and interior of the building. New investors recognised the potential to renovate this building and create a new landmark in that part of the town.

HISTORY OF THE BUILDING/SITE



Original use

✕ Commercial

HISTORIC USES

The office building of “Trudbenik” (one of the major building companies in former Yugoslavia)

CONSTRUCTION PERIOD

1964

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

No previous restoration has been done

ARCHITECTS / AGENTS

I. Bezetyky, A. Stojanović

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The building has been outdated with a depleted facade and interior of the building.

STATUS OF PROTECTION

The building is not under protection.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The building is formed of two connected parts: The main building (Gf + 7 floors) facing the street and the annex (Gf + 1) in the back. The higher part has a flat roof, while the lower part has a sloping roof. The walls are made of solid brick and the building has

a glass facade. Interior of the building - the ground floor has an open plan concept, while on the upper floors there is a central corridor with offices on both sides. Vertical communications are separated and located in the corner of the building.

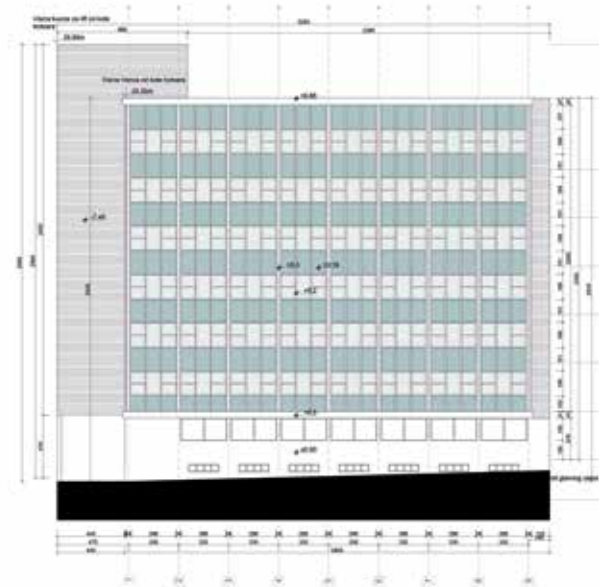


Figure 3. The original building facade - before restoration

source Remorker architects

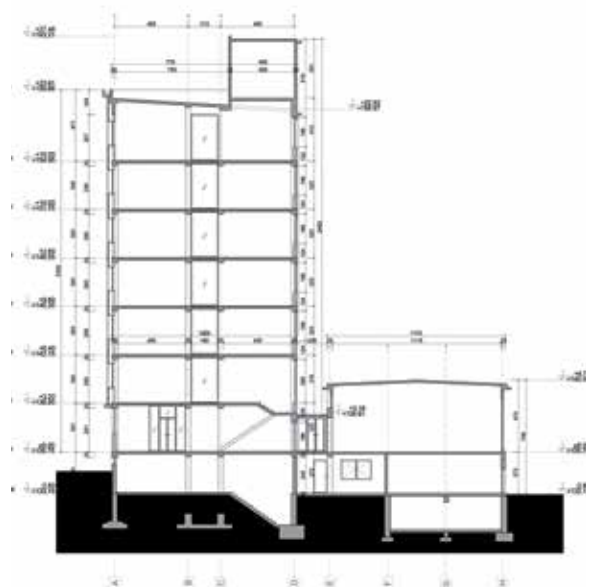


Figure 4. The original layout of the building before restoration - section

source Remorker architects

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The existing facility has good integration into the environment, and it is a well-designed facility. The main restoration idea was to improve the building by respecting the environment. The authors decided to keep the original construction, and renovate the building's facade and interior. The main entrance on the ground floor has been completely changed, opened and emphasized. The entire existing facade was removed, as well as the parapets and windows from the ground floor. The ground floor facade has been replaced with a curtain wall facade that gives the illusion that the object is floating. The upper floors' facade is a double skin facade - triple-glazed windows in one layer and a shading aluminum structure in the other layer. On some of the glazed parts, the second layer of the facade is perforated. The new facade has provided both solar shading and additional sun protection as well as interesting shadows in the interior of the building.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The building kept the same form and function. The main intervention was the reorganization of the main entrance and lobby orientation towards the main street instead of the side and the car access to the inner courtyard. The ground floor has been opened - new floor-to-ceiling openings have been introduced on the facade to give more light throughout the ground floor and the lobby. Also partition walls have been replaced with glass partitions to give an open plan feel and provide natural lighting to the corridors. Top floors remained in the same layout - central corridor with offices on both sides. Interior walls have been replaced with glass partitions giving the illusion of the open space.

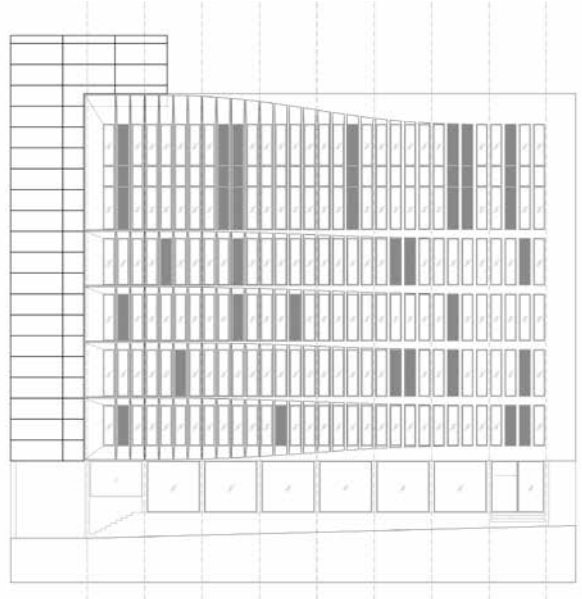


Figure 5. The building facade - after the restoration
source Remorker architects

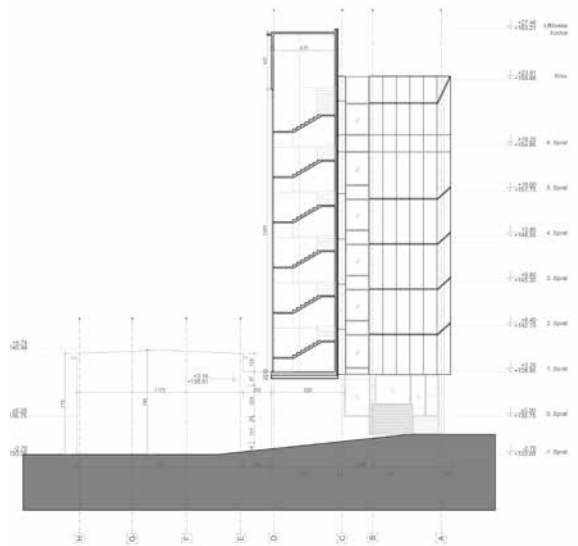


Figure 6. The new layout of the building after restoration - section
source Remorker architects

BUILDING MATERIALS

The original facade was a curtain wall facade that has been replaced with 800m² of double skin facade system - triple-glazed curtain wall system with 3mm aluminium panels some of them perforated, and 150m² of ventilated facade with fiber-cement cladding. Floors of the main entrance lobby and corridor were of natural stone but in poor condition and with major damages, so the existing floor has been removed and granite ceramics were installed. In the office space, the parquet was also in poor condition, so it was replaced with high fire resistance carpets that also act as a good sound absorber. The original walls were plastered with MDF coatings on some parts and all have been removed and replaced with glass partitions.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

Added value to the local cityscape, new design features.

Economic aspect:

N/A

Environmental aspect:

Renovation aiming to preserve the most of the existing structure instead of the demolition of a damaged and depleted building; improved energy efficiency (EPC rating B, while code demand is C); improved soundproofing and indoor acoustics; providing indoor environmental comfort parameters above standard practice and national standards.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

- Use of high efficient triple-glazed curtain wall system and use of insulation layers in the reconstruction of the facade and roofs in order to improve the energy efficiency of the building, according to building regulations in RS



Figure 7. The building facade - after the restoration
source Aleksandra Đorđević



Figure 8. The building facade - after the restoration
source Aleksandra Đorđević



Figure 9. The office building after restoration
source Aleksandra Dorđević

- Including passive environmental strategies such as ventilated facade and roof systems, solar shading, etc.
- Materials used in both interior (triple-glazed facade) and interior (carpets) provide additional sound absorption
- Usage of the glass partitions provides more light in the interior

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

No digital data has been collected. The evaluation of energy efficiency measurements applied has been done by the certified engineer according to national regulations, and it demonstrated that the renovated building is EPC class B regarding its energy demands.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

Table 1. Energy efficiency rating

Energy efficiency rating	Commercial	New	Existing ones
	$Q_{H,nd}$ [%]	$Q_{H,nd}$ [kWh/(m ² a)]	$Q_{H,nd}$ [kWh/(m ² a)]
A*	≤ 15	≤ 8	≤ 10
A	≤ 25	≤ 14	≤ 16
B	≤ 50	≤ 29	≤ 33
C	≤ 100	dozv	dozv
D	≤ 150	≤ 83	≤ 98
E	≤ 200	≤ 110	≤ 130
F	≤ 250	≤ 138	≤ 163
G	> 250	> 138	> 163

$Q_{H,nd}$	90843	kWh/a
qH _{nd}	28.82	kWh/m ² a
$Q_{H,nd}$	44.34	%
Plaznost	B	

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Awards:

- Award of the City of Belgrade in 2018
- The project was exhibited at the 41st Salon of architecture in Belgrade in 2019
- The project has been presented in multiple articles and lectures

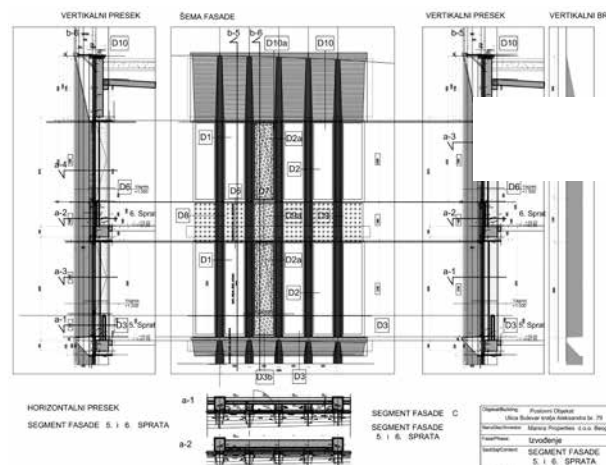


Figure 10. The office building after restoration
source Remorker architects

REFERENCES

× N/A

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

× N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

- office building - RESAVSKA 31 -
Remorker architects

For more information about the project visit
<https://www.remorker.rs/resavska31>

-office building - MAKEDONSKA 44 -
Remorker architects

For more information about the project visit
<https://www.remorker.rs/makedonska44>

REFERENCE TO WORLDWIDE EXAMPLES

× N/A



SERBIA

×

Jelena Živković
Tamara Popović

project

04

The Old Core of Zemun

Detailed regulation plan for the Old core of Zemun (OCZ DR Plan)

IDENTIFICATION

Designations

- ✗ The spatial cultural and historic ensemble of great value

Information about the location

- ✗ Historic centre
- ✗ Urban centre

Address

- ✗ The urban municipality of Zemun
City of Belgrade

Country/Region

- ✗ Serbia

Coordinates

(GIS: ETRS89/Google Maps: WGS84)

- ✗ 44°50'42.7"N
20°24'46.8"E

City size

- ✗ Urban area 99,42 km² / Zemun is an urban municipality of Belgrade, the capital of Serbia

Website

- ✗ <http://zemun.rs/>

Accessibility

- ✗ Public

Public visits

- ✗ Yes

Category

- ✗ Urban project
Urban planning

Deliberative and participatory planning

- ✗ No



Figure 1. Location of the Old Core of Zemun
source: authors of the case study, Snazzy maps



Figure 2. a) Borders of the Detailed Regulation Plan for the Old Core of Zemun (source: authors), b) Implementation of OCZ DR Plan – public projects and areas of intervention during 2004-2020.
source: Authors of the case study



Figure 3. Panoramic view of Zemun from Gardoš fortress
source: Authors of the case study

Current use

✗ The old downtown of Zemun is one of the two historical cores and an integral part of Belgrade's main center. The downtown area is divided into five zones that slightly vary in predominant use. Lower Zemun is a typical central mixed-use area (commercial activities, culture, education, health, administration, variety of housing types,...). Gardoš and Čukovac are two hills with extraordinary panoramic views, and were historically mainly housing areas. Recently, Gardoš became a popular tourist area due to the attractive Millennium tower and Zemun fortress, picturesque streets and improved connections with Lower Zemun and waterfront area. Main educational institutions and schools, recreational center, a hospital, and other public buildings are concentrated in the City Park area, while the Waterfront area is used predominantly for tourism, recreation and sport (figure 3).

Year (period) of the project renovation/restoration

✗ "The Detailed regulation plan for the Historic core of Zemun" has been adopted in 2003. The implementation of OCZ DR Plan through public sector investments from 2004 – 2020 focused on five main areas of urban renewal, where different projects were designed and delivered:

- Zemun fortress (2018-2019, project 2016) and Millennium tower (2011) reconstruction and restoration; including staircases towards Zemun fortress (2019);
- Reconstruction and re-connection of public squares in Lower Zemun eastern area (2011 – 2017). Establishment of the pedestrian zone. Project 2009;

- Reconstruction of historical streets in Gardoš and Lower Zemun eastern area (2017-2020);
- Façade restoration in main streets (2019);
- Reconstruction of the Danube riverbank (2007-2010).

KEY FEATURES



Remarkable attributes/ Singularities/Specific Values

Built in the 18th century, the old downtown of Zemun has an orthogonal street network, an interior zone division, and the main street that divides the town into east and west parts. The preserved architecture documents variety of building techniques and a diversity of architectural forms, styles, and cultural influences. The symbol of Zemun is the Millennium Tower on Gardoš Hill.

Scope of application/necessity of the project:

The last decade of the 20th century witnessed a general decay of the Old Core of Zemun. Unplanned structures of inappropriate architectural and building quality occurred within the area of exceptional architectural, cultural and historical value, threatening to obliterate its heritage value. Besides that, degradation of public spaces and their inappropriate use, as well as the neglect and devastation of protected buildings and structures, additionally lowered its heritage quality. Another problem was a fragmented treatment of the segments that form the Old core, in previous urban plans. Therefore, the purpose of the OCZ DR Plan was to form the basis for the integrated and sustainable development, use and conservation of The Old Core area.

Area of the building (m²)

- ✗ The surface area of the Old core of Zemun is 80 ha. It occupies the area between the Đure Đakovića, Nikolaja Ostrovs kog, Vrtlarska, Senski trg, Ugrinovačka streets, and encompasses Ćukovac and Gardoš hills on the north, descending towards Danube river as a natural border (figure 2).

Current owner

- ✗ Public and private: the city of Belgrade, Municipality of Zemun, private owners

Architects

- ✗ "The Detailed regulation plan for the Old core of Zemun" (OCZ DR Plan) has been developed by The Urban Planning Institute of Belgrade in cooperation with Belgrade City Institute for the Protection of Cultural Monuments. The plan Coordinator and the responsible urban planner was Milica Grozdanić, dipl. inž. arh, working together with Bojana Stefanović, arh. teh.

Other designers/engineers

- ✗ Available information on designers of OCZ DR Plan public sector projects:
 - Zemun fortress reconstruction and restoration - Belgrade City Institute for the Protection of Cultural Monuments: Authors: Ivana Konta, dipl. inž. arh and Rade Mrlješ dipl. inž. arh;
 - Reconstruction and pedestrian connection of public squares in Lower Zemun eastern area - The Institute of Transportation CIP;
 - Reconstruction of the Danube riverbank - PIM Ivan Milutinovic Beograd;

Other agents

- ✗ Private donations for the reconstruction of Millennium Tower Plateau

Developer

- ✗ N/A

Building contractor

- ✗ The OCZ DR plan was financed by the City of Belgrade. Different building contractors/investors were engaged for different projects:
 - For Zemun fortress reconstruction and restoration: City of Belgrade, City of Belgrade, Ministry of Justice, Ministry of trade, tourism and telecommunications;
 - For reconstruction and re-connection of public squares in Lower Zemun eastern area - City of Belgrade
 - For reconstruction of historical streets in Gardoš and Lower Zemun eastern area, Reconstruction of staircases towards Zemun fortress, and Façade restoration in main streets
 - Municipality of Zemun
 - For reconstruction of the Danube riverbank - National investment plan of the Republic of Serbia

Cost of the project/execution time

- ✗ No information is available on the cost of the OCZ DR plan. Available information on cost of some OCZ DR Plan public sector projects:
 - Zemun fortress reconstruction and restoration (2018-2019) - 34.000.000 din (288.135 Eur)
 - Staircases towards Zemun fortress reconstruction – 15.000.000 din (127.118 Eur)
 - Reconstruction of public squares in Lower Zemun eastern area (2011 – 2017)- Available information for 3rd phase (Gospodska and Lagumska street and Magistrat square) - 155 000.000.din (1.313.560 Eur).

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ - Belgrade City Institute for the Protection of Cultural Monuments (2002) "Conditions for storage,

maintenance and use and measures of technical protection of the spatial cultural-historical whole of the Old Town of Zemun for the regulatory plan of the Old Town of Zemun”

- Škalamera Ž, (1966) Staro jezgro Zemuna, knjiga I, Istorijski razvoj, Zavod za zaštitu spomenika kulture grada Beograda, Beograd,
- Škalamera Ž (1967) Staro jezgro Zemuna, knjiga II, Arhitektonsko nasleđe, Zavod za zaštitu spomenika kulture grada Beograda, Beograd

of Cultural Monuments. <https://beogradskonasledje.rs/kd/zavod/zemun/staro-jezgro-zemuna.html>)

CONSTRUCTION PERIOD

OCZ DR Plan Implementation started in 2004 and is still going on.

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

OCZ DR Plan formed the basis for integrated and sustainable development of the area and supported qualitative instead of quantitative transformations (2004 -2020). It aimed to affirm the historical and high-quality urban ambience of the Old Core of Zemun as both a good place for living and for tourism. Based on traditional use, culture and heritage values, actions towards

HISTORY OF THE BUILDING/SITE

Original use

- Civil
- Residential
- Religious
- Military
- Commercial
- Leisure

HISTORIC USES

“The existing agglomeration grew on the ruins of a Turkish village that preserved the continuity of human settlements at the same place since the Roman Taurunum. In the eighteenth century the old downtown of Zemun was transformed into a town.....The architecture of old downtown Zemun keeps the continuity of urban institutions, economic circumstances, and social tendencies; the development of military, sanitary, educational, religious and traffic institutions and the various types of commercial and artisan shops, the development of residential culture. Old terraces and street names, groups of houses, ambiances and atmosphere are the constitutive elements of spatial relations and the living framework created from the early eighteenth century to the present day” (figure 7).
(Belgrade City Institute for the Protection



Figure 4. Zemun fortress with the staircase before the reconstruction

Source a) Miljan Simonović – own work, CC BY-SA 4.0, https://commons.wikimedia.org/wiki/File:Gardoš_kula_Zemun_09.jpg, b) Nicolo – own work, CC-BY-3.0-RS, [https://commons.wikimedia.org/wiki/File:Gardoš_\(26\).JPG](https://commons.wikimedia.org/wiki/File:Gardoš_(26).JPG)



Figure 5. Urban Squares before the reconstruction

Author: a) Nicolo – own work, CC BY-SA 3.0 [https://commons.wikimedia.org/wiki/File:Magistratski_trg_\(1\).JPG](https://commons.wikimedia.org/wiki/File:Magistratski_trg_(1).JPG), b) Author: Nicolo – own work, CC BY-SA 3.0 [https://commons.wikimedia.org/wiki/File:Magistratski_trg_\(18\).JPG](https://commons.wikimedia.org/wiki/File:Magistratski_trg_(18).JPG)



Figure 6. Urban streets and facades before the reconstruction

Source a) Author: Matija – own work, CC BY-SA 3.0 https://commons.wikimedia.org/wiki/File:Franjo_Jenc_8.jpg b) Author: Pinki at Serbian Wikipedia, public domain https://commons.wikimedia.org/wiki/File:Glavna_zemun.JPG, c) Author: Miomir Magdevski – own work, CC BY-SA 4. https://commons.wikimedia.org/wiki/File:Krovovi_Srbije_31.jpg, d) Author: Julian Nyča – own work, CC BY-SA 3.0 https://commons.wikimedia.org/wiki/File:Zemun_Sindelićeva_Street.JPG

implementation of the plan were different for different areas. In the Lower Zemun area, the main goal was to re-establish traditional uses and connections between main urban squares. For that purpose, the open-air market area was reduced to provide a place for public gathering and diversity of uses on Big Square (Veliki trg/Omladinski trg). At the same time, the street network was reorganized and reconstructed in order to support the pedestrianization of the area. With Zemun Fortress, staircases and streets reconstruction, mainly the housing area of Gardoš became better connected with the Waterfront zone. Therefore, tourism-oriented activities, which were due to the widening of the riverbank intensified in the waterfront area, started to occur in many houses and courtyards on the Gardoš hill.

ARCHITECTS / AGENTS

OCZ DR Plan Coordinator and the responsible urban planner was Milica Grozdanić, dipl. ing. Arh, working together with Bojana Stefanović, arh. tech. Different architects designed different segments of plan implementation.

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

There were many problems related to the physical condition of buildings and public spaces: a) Illegal, unplanned buildings and structures were built; b) Public squares were disconnected, neglected, degraded by illegal structures, and over-used for parking and market, c) Protected buildings and structures were neglected and devastated, d) Street pavements and building facades were in bad condition; e) Parts of the riverbank were threatened to flooding.

STATUS OF PROTECTION

Due to the intensive documentation and valorization activities of the Belgrade City Institute for the Protection of Cultural Monuments during 1967 to 1970, that were based on the Decision "Spatial cultural and historic ensemble, Old core of Zemun" (Prostorna kulturno istorijska celina, Staro jezgro Zemun, (Rešenje Zavoda br. 949/2 od 1.11.1966), the Old Core of Zemun has been designated as "Spatial cultural and historic ensemble of great value" in 1979. (Kulturno dobro od velikog značaja, (Odluka, „Sl. glasnik SRS“ br. 14/79). Before that, the ruins of the Zemun fortress are the oldest surviving structural remains in the historic core of Zemun. The fortress was designated as a cultural monument in 1948 (Decision no-963/48 of the Institute for the Protection and Scientific Study of Cultural Monuments of the People's Republic of Serbia of 17/6/1948).

Based on valorization, within the boundaries of the protected spatial cultural-historical Old Core of Zemun area, there is a large number of buildings that have the status of individual cultural monuments, many sub-units of special urban-architectural and ambient values, large number of archaeological sites (Taurunum), as well as natural assets that enjoy prior protection.

More information about cultural monuments, urban space valorization, valorization of buildings, and technical protection measures for the old core of Zemun available at: https://beogradskonasledje.rs/wp-content/uploads/2013/nasledje4/10_aleksandra_dabizic.pdf

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The Old Core of Zemun has a shape of an irregular square with an orthogonal urban matrix in the Lower Zemun and City Park area, and an organic street network on Gardoš and Ćukovac hills. Architectural typology reflects diversity of architectural forms, styles, cultural influences. Four main building types exist: modified Pannonian (rural), small-town, high-ground floor and single-storey mixed-use types. Large public buildings (schools, faculty, sports centre, churches) are located in the City Park area. The main street divides the area into the east and west part, while main commercial streets connect the western part with eastern Zemun's system of urban squares and with a green promenade on the Danube riverbank. The city's landmark is Millenium tower on Gardoš hill.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

"The Plan defines the concept and scope of regulating and upgrading the Old Core of Zemun, with the purpose of preserving its tradition, identity, cultural, historical and natural setting, and upgrading public spaces and functions. The interdisciplinary approach to the Core, seen as a multilayered urban organism, is conceived of as a conservation and planning strategy of revitalization and reconstruction on a limited scale, aimed at resolving contradictions between heritage and real-life needs" (Grozđanić, 2010).

OCZ DR Plan recommends the protection of the existing urban fabric, the preservation and improvement of public spaces, the preservation of the plot patterns, horizontal and vertical regulation, and traditional architecture. It promotes the revitalization of the existing and introduction of new uses

for buildings and spaces of exceptional cultural, historical, architectural, and townscape value, as well as the preservation of vistas, skyline and townscape. The Plan suggests re-integration of the system of urban squares as well as the development of new pedestrian and pedestrian-friendly streets that link Zemun core with Gardoš hill and Danube river. It also sets guidelines for architectural design and construction in the future, in accordance with the "Study and valorization of buildings and urban spaces", and defines spaces with the different regime (degree) and conditions of protection. More information about Detailed regulation plan - division into urban blocks and land-use plan, is available at: <http://mapa.urbel.com/Silverlight/1083/1083-tekst.pdf>; <http://mapa.urbel.com/Silverlight/1083/> More information about the Detailed regulation plan – proposed physical structure improvements is available at: <https://scindeks-clanci.ceon.rs/data/pdf/1450-605X/2010/1450-605X1011149G.pdf>

DESCRIPTION OF THE CHANGES AND ADDITIONS

OCZ DR Plan aimed to enable the sustainable development of the area through revitalization and urban renewal of urban spaces and



Figure 7. Zemun fortress and staircase after reconstruction

source: authors of the case study

buildings. Through implementation projects, that were mainly focused on main streets, Gardoš, waterfront and eastern part of Lower Zemun areas, protected buildings and urban spaces were restored and reconstructed, thus fulfilling the Plan's goal of enabling simultaneously protection and presentation of cultural and natural urban heritage, tourism development, and higher quality of life. The urban renewal projects, as presented in this document's gallery (figures 4-6, 8-10) encompassed:

- a) Zemun fortress and Millennium tower reconstruction and restoration, including reconstruction of staircases towards Zemun fortress;
- b) Reconstruction and re-connection of public squares in Lower Zemun eastern area and the establishment of pedestrian zone included re-design of Big square for multifunctional use (festivals, gathering, temporary markets), greening, re-design and equipment of Masarikov and Magistratski square and their integration with Gospodska street.
- c) Reconstruction of historical streets in Gardoš and Lower Zemun eastern area, included new traffic organization, greening, new pavement based on the use of traditional methods and materials; new street furniture and façade restoration in main streets and squares.

Besides that, in the waterfront area a new Danube riverbank was formed for flood protection purposes, and more intensive social and commercial use.

More information about Conceptual Project for the pedestrian zone in Zemun available at: <http://beobuild.rs/rekonstrukcija-pešacke-zone-u-zemunu-p2658.html>

BUILDING MATERIALS

OCZ DR Plan recommends the use of materials for different interventions. Revitalization and renovation of the existing building stock require the use of traditional materials such as brick, plastered or drawn, artificial stone, and wood and iron for construction. Roofs should be covered with flat tiles, and mansard roofs with copper, painted sheets or other modern materials. The wall canvas should dominate in relation to the glazed surfaces and the use of pastel tones (yellow, gray, pink...) is suggested.

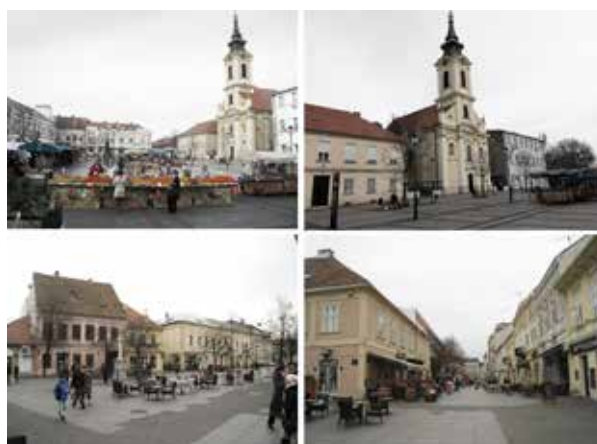


Figure 8. Urban Squares after reconstruction
source: authors of the case study



Figure 9. Urban Streets and facades after reconstruction
source: authors of the case study



Figure 10. Details of streets and facades after reconstruction
source: authors of the case study

For paving floor surfaces (sidewalks, squares), use granite cubes, clinker tiles, bricks, stone, wood and other natural materials. When building new facilities, the use of new techniques and materials is free, while respecting the context (figure 10).

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The Plan set out that the existing social setting is to be retained under upgraded ecological and adapted functional conditions. Through implementation projects, the whole area became better integrated, pedestrian-friendly, and presented as a valuable urban heritage: pedestrian zone has been formed; public squares were interlinked; the Big square converted from market to social gathering and festivity place; widening of the riverbank enabled more social activity; protected buildings were restored and reconstructed; street pavements and facades have been upgraded.

Economic aspect:

Renewal and reconstruction were conceived in OCZ DR as a process unfolding in a way and at a pace permitted by the financial, cultural and, above all, organizational capacities of the community.

Environmental aspect:

Public spaces were re-connected between themselves, and with the Danube river; better ventilated by removal of unplanned structures, and upgraded by the greening of streets. Flooding problems were solved with new riverbank formation.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

OCZ DR Plan's methodological approach to sustainable urban development is based on the concept of urban renewal, conceived as "an adaptation of spaces and structures to the changed social, cultural and economic setting, without substantially altering their physical properties, with the purpose of preserving the tradition, identity and visual integrity of the historic whole".

A sustainable approach to design is also reflected in OCZ DR Plan implementation projects since for paving street floor surfaces (sidewalks, squares, staircase) traditional materials were used (granite cubes, clinker

tiles, bricks) and traditional techniques were implemented in their delivery.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

× N/A

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

"The OCZ DR PLAN methodology proposed a public competition for the improvement of public spaces and facilities in Zemun as a tool and basis for developing the Plan. This tool aimed to check the offered solutions in the phase of preparing the spatial-program concept of the Plan, and to collect new ideas on possible ways of arranging space." Information: OCZ DR PLAN (arch. number 350-3457/96/03)

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Awards:

2003. I award in the Category of Regulation Plans on the XII International urban planners exhibition in Niš

Nominations:

2003. The Plan was nominated for the City of Belgrade Award for 2003 in the field of architecture and urbanism

Publications:

2010. Grozdanić, M. Prikaz metodologije planiranja u zaštićenim kulturno-istorijskim područjima na primeru starog jezgra Zemuna. Nasleđe, (11), 149-181.

Exhibition:

2003. Exhibition of the public anonymous survey-program competition for the concept of arranging public spaces and buildings of the Old Town of Zemun, accompanied by the Catalog from the exhibition of competition works.

Workshops:

The survey "To build and work according to you" of the Municipality of Zemun, based on which the citizens chose the arrangement of streets in the Old core of Zemun as a priority action.

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ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

Milica Grozdanić – Kontekstualni uslovi i uticaji na Staro jezgro Zemuna sa posebnim osvrtom na nasleđenu i buduću izgradnju. Magistarski rad, Arhitektonski fakultet Univerziteta u Beogradu. (unpublished MSc thesis, UBFA)

Elective course "Urban recreation" (2009/10) topic Belgrades' waterfronts

OTHER SIMILAR PROJECTS AS A REFERENCE

The Revitalization of Vilnius Old Town, 1995 – 2005, Lithuania
Potsdam downtown revitalization project, Germany

REFERENCE TO WORLDWIDE EXAMPLES

The first similarity of all three examples is reflected at the level of the existing physical structure. They are spatial historic wholes of great significance that combine various natural and human-made structures of different dates and values and are.

In this regard, another similarity is in the approach to their modernization through the process of urban renewal as a methodological approach for space enhancement and the promotion of an exquisite ambience.

In all three cases, it was understood and implemented as the adaptation of spaces and structures to the changed social, cultural, and economic setting without substantially altering their physical properties, all in order to preserve the tradition, identity, and visual integrity.

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Emanuela Sorbo
Sofia Tonello

project

01

IDENTIFICATION

Designations

- ✗ Contemporary Art Museum and Private Foundation

Information about the location

- ✗ Historic centre
- ✗ Coastal

Address

- ✗ Dorsoduro, 2, 30123 Venezia VE

Country / Region

- ✗ Italy

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

- ✗ 45.432012038799826,
12.335707615341548

City size

- ✗ Urban area 414,6 km² / Venice is the regional capital of Veneto, North-east of Italy

Website

- ✗ <https://www.palazzograssi.it/en/about/sites/punta-della-dogana/>

Accessibility

- ✗ Private with public Access

Public visits

- ✗ Yes

Category

- ✗ Architectural project
Reuse (Adaptive)
Restoration / Reconstruction
- ✗ Preservation
- ✗ Installations & Structures
- ✗ Cultural planning

Deliberative and participatory planning

- ✗ Yes

The building of “Punta della Dogana” had been empty for decades before François Pinault’s cultural project started. Some investors had expressed their interest in the building to convert it into a hotel or an apartment building. However, it was not an acceptable reuse for the people.



Figure 1. Location map
Orthophoto extract from Map 2012-2018 by Apple Inc



Figure 2. View from Bacino San Marco
source: Photo by the author

Current use

- × Contemporary Art Museum - François Pinault Foundation in Punta della Dogana

Year (period) of the project renovation / restoration

- × 2007: project
2008-09: building

Area of the building (m²)

- × space exhibition area: 3750 m²

Current owner

- × public: State Property – grant to François Pinault Foundation

Architects

- × Tadao Ando (chief architect) with Kazuya Okano and Antoine Muller Moriya;
- × Equilibri srl. Eugenio Tranquilli (general coordinator);
- × Verdiana Durand de la Penne (project contact);
- × Nicolò Vistosi (project assistant)

Other designers / engineers

- × A. Lagrecacolonna (construction management and system design) with S. Rigato. R. Garavello, G. Bianchin;
- × Tecnobrevetti, G. Cocco (structural design and construction supervision);
- × L. Cocco (executive project and construction supervision) with N. Bernardi, A. Simioni, A. Anseimi, M. Frighi, A. Guida, M. Maschio;
- × Ferrara, Palladino srl, P. Palladino e C. Ferrara (lighting design) with P. Spotti

Other agents

- × Marc Desportes; Raimondo Ferrara; Venezia Ingegneria, F. Frezza (technical consultant and tester);
- × C. Fulin (safety coordinator) with S. Semenzato and M. Chinellato;

- × F. Merizzi (functional project) and F. De Marchi;
- × G. Orsoni and M.G. Romeo (legal consultant);
- × A. Mazzucato (geological consultant)
- × Fiel srl (electrical systems);
- × Fiorin srl (mechanical systems);
- × Sat Survey srl (geometric and topographic surveys);

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The Punta della Dogana restoration project involved urban and landscape aspect. The historical building is located in “Bacino di San Marco” and is part of Venice's culture and economic network.

Scope of application / necessity of the project:

The architectural and restoration project consisted in a 4-steps path::

- 1) the assumption of control of Palazzo Grassi by François Pinault, favored in 2005 by the mayor of Venice at the time, Paolo Costa, and by the Director of the Venetian Civic Museums, Giandomenico Romanelli.
- 2) the agreement between the Venetian Municipal Administration and the State Property granted new uses to the warehouses of “Punta della Dogana” that had long been abandoned.
- 3) the partnership agreement between the mayor, at the time Massimo Cacciari, and François Pinault was signed in 2007. It aimed to create an Art Center where was once the “Dogana da Mar”;
- 4) in 2009 the restoration work ended.

- ✗ Geotecnica Veneta srl (geognostic surveys);
- ✗ G. Driussi (non-destructive surveys);
- ✗ Ismes Cesi spa (monitoring);
- ✗ M. Bortoletto (archaeological consultant);
- ✗ A. De Spirt (restoration consultant).

Developer

- ✗ Palazzo Grassi - Pinault Collection

Building contractor

- ✗ Dottor Group spa

Cost of the project / execution time

- ✗ 2007-2009

Previous studies (Ex. Archaeological, historic, structural, materials, etc.)

- ✗ All studies and analysis were mainly done between 2007-2009
- ✗ The “Università di Architettura Venezia: Istituto di Rilievo e Restauro” (University of Architecture Venice: Survey and Restoration Institute) did in 1975 the survey of the ground floor, from the tip of the “Dogana da Mar” to the Rialto Island.

HISTORY OF THE BUILDING/SITE



Original use

- ✗ Civil
- ✗ Industrial
- ✗ Commercial

HISTORIC USES

Warehouse

CONSTRUCTION PERIOD

Early 15th century

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

- Early 15th century: “Magazzini del Sale” was built (Sea Customs House);
- 1450s: construction of Dogana da Mar;
- 1677: refurbishment of “Punta della Dogana”;
- 18th-19th century: additions and renovations “Magazzini del Sale” for new industrial uses;
- 2007-2009: the opening of the restoration and exhibition areas “Punta della Dogana” (Pinault Collection)

ARCHITECTS / AGENTS

Arch. Giovanni Alvisè Pigazzi

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Before the restoration project, the historic building was in bad conservation state. The external stone surfaces showed a poor state of conservation attributable to the abandonment and materials aging. Concerning the static issue, the ancient building before the restoration was characterized by the presence of differential subsidence of the foundations and the truss and roof system's materials were damaged.

STATUS OF PROTECTION

Historic Architecture of Declared Cultural Interest

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The complex was built on a triangular-shaped island in the Dorsoduro insula. The interior space consisted of 8 «Tesoni» (warehouse) arranged on two floors. The tower was crowned by “The Palla de Oro” (The Gold ball) on the top of the insula.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

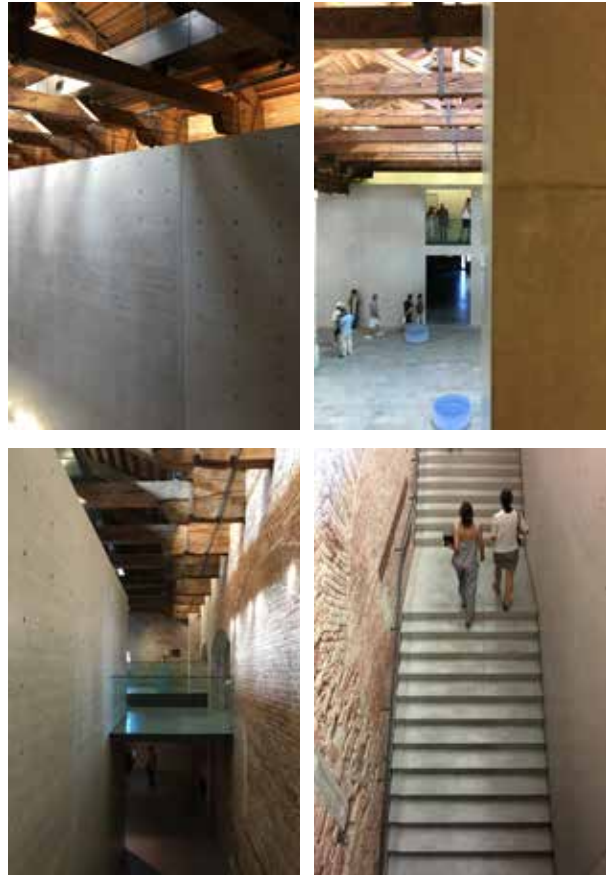
The building's architecture has been restored. The surface imperfections and stucco had been repaired, and the damaged parts of the facade had been reinforced with stainless steel brackets.

The interior masonry was repaired using 'cuci-scuci' techniques and treated on a bare surface. The architectural additions were enhanced using concrete, typical for Tadao Ando's work. The concrete walls disguised the technological equipment necessary for a modern exhibition space. They changed the building's circulation, focusing on the large square room in the centre of the building. The truss system was restored, and a similar one replaced the roof with new skylights.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The restoration design by architect Tadao Ando included different types of intervention:

- high water protection;
- structural consolidation and restoration of masonry works;
- new technological and electrical systems;
- new architectural concrete elements;
- flooring consolidation and reconstruction;



Figures 5, 6, 7 and 8. The new architectural addition by Tadao Ando, stairs and concrete walls.

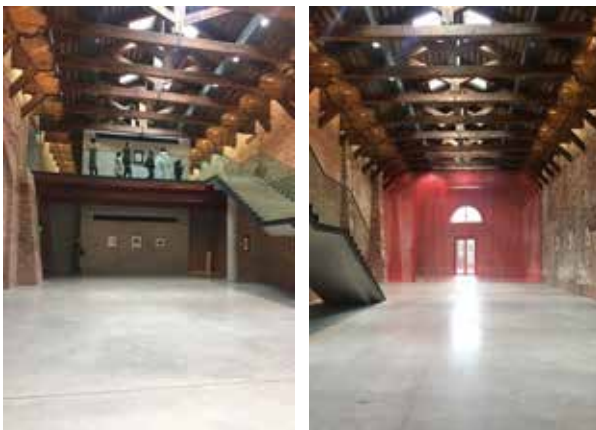
Credit: Photos by Francesco Bianchi

- new external opening frames;
- consolidation and addition on the roofing system.

BUILDING MATERIALS

Along with other industrial buildings in Venice, "Punta della Dogana" is an example, of using common construction techniques and traditional materials. These materials and techniques are the brickwork for foundations and masonries, Istrian stone with iron for punctual resistant elements in the façade or the floorings, and wood for floors and roofs built as light as possible.

The restoration project maintained and enhanced the Venetian construction techniques in an idea of sustainability of materials and cultural transmission. The architectural and restoration design added new materials and modern building techniques to ensure the museum system's smooth operations.



Figures 3 and 4. Tesa 1: The new architecture addition by Tadao Ando from the entrance and controcampo.

Source: Photo by the author



Figure 9. Exterior: evidence of cuci-scuci techniques
Source: Photo by the author



Figure 10. Interior: evidence of cuci-scuci techniques
Source: Photo by the author



Figure 11. Restoration of the wooden trusses and evidence of cuci-scuci techniques.
Credit: Photos by Francesco Bianchi



Figure 12. Exterior: surface imperfections and stuccos repaired.
Source: Photo by the author

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The "Punta della Dogana" project was designed according to a participative process. The Venetian community played an essential role in identifying the most suitable proposal for the city and place. The building's position in a relevant part of the city, such as the "Bacino di San Marco", asked for adaptive reuses aimed to create new cultural values to the local cityscape.

Economic aspect:

François Pinault Foundation's cultural project began in 2005 with the restoration and museum design of Palazzo Grassi. The owner's main purpose (Municipality of Venice) and François Pinault Foundation was to create a new cultural and economic pole in Venice.

Environmental aspect:

Tadao Ando and his team have sought to give the old building a new life that meets the values of sustainability, gentle mobility, and the relationship with the city.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The special techniques used in the project aimed to protect the historic building from humidity and high tides. The protection of the site against rising groundwater, a phenomenon concomitant with the sea level rise, was also part of the "aqua Alta" system's design. The mezzanines' restoration required the implementation of the floor's strength by using compatible materials as a technique of double-crossed wood boards.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

✗ No data



Figure 13. The Tadao Ando concrete box in the center of the project.

Credit: Photo by Francesco Bianchi



Figure 14. The Tadao Ando concrete box in the center of the project.

Credit: Photo by Francesco Bianchi.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

The project for "Punta della Dogana" used different technologies for the implementation of the new use adaptive reuse, such as:

- the work of waterproofing and water containment tank to prevent high water from coming into the building;
- the use of micropile to consolidate the foundation system;
- the scuci-cuci technique to reinforce the damaged masonry;
- the new wooden additions and iron elements to implement the strengthening of the 130 wooden trusses;
- the architectural additions were planned to contain and improve technological facilities.

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

- Promotion activities:
- "Punta della Dogana" and François Pinault Foundation have a regular calendar of cultural activities (exhibition, workshops, conferences, and courses). <https://www.palazzograssi.it/en/events/archive/>
- 2015-ongoing : The "Gallerie dell'Accademia", the "Galleria di Palazzo Cini", the "Peggy Guggenheim Collection", and "Palazzo Grassi – "Punta della Dogana" District" are connected in the "Dorsoduro Museum Mile" project. <https://www.palazzograssi.it/en/visit/tickets-and-hours/dorsoduro-museum-mile/>
- Prizes:
- 2012 – Equal Gold Medal at "Premio Domus Restauro e Conservazione – Fassa Bortolo" <https://www.premiorestauro.it/en/opere-realizzate>

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- D. Longhi, Novecento. Architetture e Città del Veneto. (20th Century. Veneto Architectures and Cities), Il Poligrafo, Padua, p. 309, 2012

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- F. Dal Co, Tadao Ando, volume 2, 1995-2010, Electa, Milan, pp. 530-543, 2010

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Tadao Ando, Punta della Dogana, Venice (Italy), in "AV Monografias" n. 139, pp. 56-63, 2009

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- F. Dal Co, Tadao Ando e l'eredità del tempo (Tadao Ando and the time heritage), in "Casa-bella" n. 778, pp. 16-35, 2009

- T. Ando, Aura-Tadao Ando Architect & Associates, in "Lotus International" n. 134, pp. 32-47, 2008 for a better understanding of the project:

for a better understanding of the project:

http://architetturecontemporanee.beniculturali.it/architetture/architettura_dettaglio_per.php?idArchitettura=%2029904

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

The project of restoration of "Punta della Dogana" is an architectural reference for IUAV students. Specifically, this project by Tadao Ando and the building itself was critically analysed within the courses of "Restoration Theory and History" (2019/2020), "Integrated Design Lab – Focus 3: Regeneration and Conservation of Historic Buildings and Environments" (2020/2021), "Restoration Studio" (2019/2020), and "Restoration theories and techniques" (2019/2021 - 2020/2021) led by Professor Emanuela Sorbo.

OTHER SIMILAR PROJECTS AS A REFERENCE

✕ N/A

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A

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Emanuela Sorbo
Sofia Tonello

project

02

IDENTIFICATION

Designations

X Start-up and educational incubator

X Installations and structure

X Cultural planning

Information about the location

X Rural

X Other: Natural Regional Park

Deliberative and participatory planning

X No

Address

X Via Adriano Olivetti 1, 31056 Roncade (TV)

Country / Region

X Italy

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

X 45.56529224798999

12.407202513524782

City size

X Roncade is a rural country area in the urban municipality of Treviso, North-east of Italy

Website

X <https://www.h-farm.com/en/ecosystem/campus/project/>

Accessibility

X Private with public Access

Public visits

X Yes

Category

X Architectural project
Reuse (Adaptive)

Restoration / Reconstruction

X Landscape
Intervention

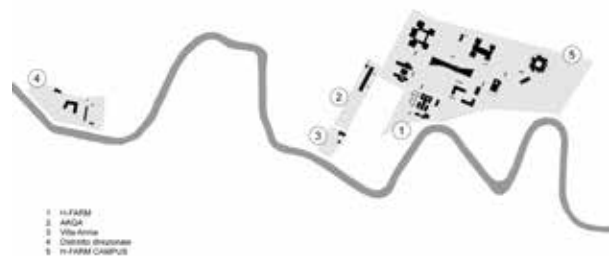


Figure 1. Location map
Source ZanonAssociati Firm



Figure 2. H-Farm spaces' flexibility (from 2003 to 2020)
Source ZanonAssociati Firm



Figure 3. Location map
Orthophoto extract from Map 2012-2018 by Apple Inc

Current use

- ✗ education and research, hospitality, office, restaurant, culture

Year (period) of the project renovation / restoration

- ✗ H-Farm: 2004-2013
- ✗ H-Campus: 2016-2020

Area of the building (m²)

- ✗ H-Farm: area: 37.500m²
- ✗ H-Campus: 30 ha territorial area – 27.000 m² gross floor area – 94.000 m³ volume

Current owner

- ✗ Private: Ca' Tron Real Estate

Architects

- ✗ Zanonarchitettiassociati
- ✗ RSHP Rogers Stirk Harbour + Partners

Other designers / engineers

- ✗ general contractor: Carron Cav. Angelo S.p.A.
- ✗ structural engineer: Studio di ingegneria RS S.r.l.
- ✗ services engineer: Manens-Tifs S.p.A. – DBA progetti S.p.A.
- ✗ environmental impact assessment: ALIA ss
- ✗ hydraulic compatibility assessment: Aequa Engineering S.r.l.
- ✗ infrastructure: Sinergo S.p.A.
- ✗ acoustic engineer: Manens-Tifs S.p.A.
- ✗ BIM: DVA DVisionArchitecture

Other agents

- ✗ RSHP Rogers Stirk Harbour + Partners work team: Richard Rogers, Stephen Spence, Ed Hiscock, Jo Murtagh, Joseph Park, Mariana Garza, Richard Black, Yuting Cheng

Developer

- ✗ Fund "Ca' Tron H-Campus" - International Financial Investments
- ✗ Investments Management Company S.p.A.

Building contractor

- ✗ DBA progetti S.p.A.

Cost of the project / execution time

- ✗ N/A

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ N/A

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The project interrelated the architectural and landscape design to enhance rural and ancient buildings and landscapes. The project area is a sensitive landscape located at the border of the Unesco Site "Venezia e la sua Laguna" and within the "Parco Regionale del Sile". According to the main idea of the "zero volume purpose", the team's attitude toward built heritage has integrated the conservation and new buildings design.

Scope of application / necessity of the project:

Starting from 2005, the two companies H-Art and H-Care, founded the actual H-Farm. They established in the Ca' Tron Estate buildings. The restored abandoned farm was the base for the first venture incubator in the world. So, starting from 2016 and up to 2020, H-Farm based its high educational campus in restored rural abandoned buildings in Treviso countryside.

HISTORY OF THE BUILDING/SITE



Original use

- ✗ House
- ✗ Residential
- ✗ Other: buildings with agricultural uses

HISTORIC USES

Residential and buildings with agricultural uses

CONSTRUCTION PERIOD

Starting from the 16th century until 2020

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Cà Tron estate consisted of a set of buildings that resulted from a construction process developed over the years. The typological aspects and cultural values of the building complex have determined different design approaches by the architects. They used an evaluation method that considered the original form as expression of the rural activities and the historical period's built techniques.

ARCHITECTS / AGENTS

The name of the architect who built the Ca' Tron Villa isn't known.

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

There is not enough information for a description of the state prior to the restoration.

STATUS OF PROTECTION

The building doesn't have any declaration of public interest. Nevertheless, it is located in a sensitive area according to the "Codice

dei Beni Culturali e del Paesaggio" (Cultural Heritage and Landscape Code, Legislative Decree 42/2004) because the area of intervention is within the "Parco Regionale del Sile" (Regional Park of the Sile) and on the border of the UNESCO Site "Venezia e la sua laguna".

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

There is not enough information for a description of the state prior to the restoration.



Figures 4,5 and 6. Ca' Tron estate before the intervention.
Credit: ZanonAssociati Firm

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The first part of the project was the conservation of the abandoned farm buildings. The second phase started in 2016 and provided the construction of new buildings with the “zero volume purpose” to reduce the soil's exploitation. The design project involved a 30-hectare sized park designed for sports services and slow mobility.



Figure 7. Aerial view of H-Farm buildings.
Credit: ZanonAssociati Firm



Figures 8 and 9. H-Farm ancient building conservation and transformation.
Credit: Marco Zanta



Figures 10. H-Campus new H-School Building.
Credit: Marco Zanta



Figures 11. H-Campus the Students House and the Bistrò.
Credit: Marco Zanta

DESCRIPTION OF THE CHANGES AND ADDITIONS

The architects' purpose was the main rural building's conservation design and the enhancement of the identity and the cultural values of rural Veneto buildings. In the design process, as the architects stated, the approach toward the buildings with no evident cultural or historic values allowed a high level of transformation of the forms. The design project gave a new shape to the buildings and integrated the use of sustainable and reversible technologies with the conservation of the places' cultural identity. The alternative forms of mobility and green energy supplies were the most crucial design choices to minimize the environment's impact.

BUILDING MATERIALS

The traditional rural materials (such as brick and timber) and the recent agricultural-industry ones (such as the metal of the silos) have been preserved and integrated with modern materials. The introduction of sustainable and reversible technologies is related to the project's aim including sustainability, space flexibility and reversibility as architectural values.



Figures 12. a) H-Campus new H-School Building, and b) H-Farm Sport Center
 Credit: Marco Zanta

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The idea of the H-Campus project was “a campus on a human scale”. The main architectural purpose was the introduction of new space for H-farm cultural events, sport and green areas and open services to the citizen and the territory.

Economic aspect:

The creation of digital projects that could make life easier for people and companies is an H-Farm goal. The start-up spaces, the educational areas and the cultural event rooms answer the H-Farm needs.

Environmental aspect:

H-farm and H-campus are based on the “zero volume purpose”. The new buildings originated from the renovation or reconstruction of the original ones, and the green area continued to be destined for woods, meadows and vegetable gardens. The energetic renewable sources, including photovoltaic, geothermal and other green technologies, were the main tools to design a self-sufficient campus from the energy point of view.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The architectural design project used renewable energy, the spaces' flexibility, and enhancing the cultural landscape as the main

expression of environmental, economic, and social sustainability.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

✕ N/A

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

✕ N/A

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Promotion activities:

- H-farm is a place of culture and innovation, it has a regular calendar of activities (workshops, conferences, and courses).

Prizes:

- 2020: the project H-CAMPUS was awarded in 2020 with Architetto Italiano Award.
- 2016: the project was elected as case study at the exhibition "TAKING CARE - Designing for the Common Good": 2016 Architecture Biennale

REFERENCES

- <https://zanonassociati.com/en/project/h-campus>
- <https://www.h-farm.com/en>

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

✕ N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

✕ N/A

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A

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Sofia Tonello

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03

Ex-Panificio Santa Marta Area

Restoration of the military bakery of Santa Marta at the university in Verona

IDENTIFICATION

Designations

✕ Santa Marta University Center

Information about the location

✕ Urban centre

Address

✕ Via Cantarane, 24, 37129 Verona VR

Country / Region

✕ Italy

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✕ 45.43986993807477,
11.012683415112326

City size

✕ Urban area 206,6 km² / Verona is an urban municipality of Veneto, North-east of Italy

Website

✕ <https://www.univr.it/main?ent=biblio&id=247>

Accessibility

✕ Public building with public Access

Public visits

✕ Yes

Category

✕ Architectural project
Reuse (Adaptive)
Restoration / Reconstruction
✕ Preservation
✕ Urban revitalization
✕ Installations & Structures
✕ Cultural planning



Figure 1. Intervention location of the former military Bakery of Santa Marta - Università di Verona

Source: <http://www.carmassiarchitecture.com>



Figure 2. The former military Bakery of Santa Marta University Center. 2021

Credit: Photo by the author.



Figure 3. Location map

Orthophoto extract from Map 2012-2018 by Apple Inc

Deliberative and participatory planning

✗ No

Current use

✗ University center

Year (period) of the project renovation / restoration

✗ 2006-2014

Area of the building (m²)

✗ 25.000 m²

Current owner

✗ public: State Property – grant to Università degli Studi di Verona

Architects

- ✗ IUAV STUDI E PROGETTI - [ISP] composed by:
 - ✗ scientific coordinator: Marino Folin,
 - ✗ architectural project: Massimo Carmassi with Gabriella Ioli Carmassi;
 - ✗ consolidation project: Paolo Faccio with Paola Scaramuzza and Alvise Miozzo
 - ✗ structural design: Roberto Di Marco with Gianluca Mannucci
 - ✗ plant design: Mauro Strada with Andrea Crivellaro, Marco Gradizzi, Marco Dianin, Marco Donnola, Dario Turolla

Other designers / engineers

- contract managers:
 - ✗ Marco Scanferlin (architectural project, engineering and fire protection plan);
 - ✗ Stefano Giorgetti (conservation and structural consolidation project);
 - ✗ with Massimo Marchetti (responsibility of general documents);
 - ✗ Enrica Coppo and Sara Di Resta (investigations on decay and project conservation);
 - ✗ Cristina De Nardi (investigations on the instability and consolidation project);
 - ✗ Guido Ometto and Matteo Disarò (structural drawings);

- ✗ Giuliana Fassari (engineering plant); Silvia Fontana (metric calculation);
- ✗ Luca Borsa and Jacopo Gaspari
- ✗ (modeling three-dimensional); Barbara Rossi (calculations);
- ✗ Marjan Sokota, Giulia Sartore, Valentina Apollonio;
- ✗ coordination for safety in the design phase: Domenico Ferro Milone;

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The project team aimed to design a new architecture in close relationship with the existing structures. The project team developed different solutions to preserve the building from degradation and "musealization", such as recovering original materials, preserving the original spaces' cultural values, and approaching new adaptive reuses with a respectful purpose.

Scope of application / necessity of the project:

The necessity of a strategy of reuse and conservation project of the two Austrian military artefacts of the "Santa Marta" compendium in Verona started from the need for transformation of the former military buildings in a strategic opportunity for historical, architectural, and urban enhancement for Verona City. The design of new spaces for the Università di Verona Faculty of Economics in a cultural-historical building was the architectural project's goal by IUAV STUDIO E PROGETTI. The former military complex's adaptation to a modern university structure, as professor Alberto Farlenga stated, guaranteed to enhance the historical building and was the opportunity to return a part of Verona City to the citizens.

- ✗ geothermal plant consultant: FadiS-alvatore Onza.

Other agents

- ✗ foundation work investigations and design: Alberto Mazzucato, with Massimiliano Maron
- ✗ geometric survey: IUAV - CIRCE photogrammetry laboratory (Francesco Guerra, with Caterina Balletti (coord.), Giovanni Auditore, Luciano Comacchio, Silvia Dandria, Francesco Gerbaudi, Marco Gnesutta, Silvia Mander, Marco Mason, Fausto Randazzo, Cecilia Stevanin
- ✗ environmental study: Giovanni Campeoi with Sandra Carello
- ✗ technical director: Mario Spinelli
- ✗ technical coordination: Maria Rosaria Pastor

Developer

- ✗ Università degli Studi di Verona

Building contractor

- ✗ Construction Cooperative S.c., Modena (main company);
- ✗ Gelmini Cav. Nello Spa, San Martino Buon Albergo, Verona (mechanical systems);
- ✗ ITI Impresa Generale Spa, Modena (electrical systems);
- ✗ Cooperativa Archeologia S.c., Florence (restoration);
- ✗ Resin Proget Srl, Rovigo (structural consolidation);
- ✗ CO. FER Srl, Verona (metal structures); Siro Marin Costruzioni Metalliche,
- ✗ Correzzola, Padua (metal frames and structures);
- ✗ MOGS Srl, Treviso (FerroFinestra profiles for fixtures);
- ✗ Virgo Srl, Lippo, Bologna (stained glass).

Cost of the project / execution time

- ✗ N/A

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ 2001-2012: research by the group IUAV STUDI E PROGETTI

HISTORY OF THE BUILDING/SITE

////////////////////////////////////

Original use

- ✗ Military
- ✗ Industrial

HISTORIC USES

The silos and the bakery belong to an ensemble built shortly after the mid-nineteenth century by the Austro-Hungarian army near Verona's urban center.

CONSTRUCTION PERIOD

1863 – 1865



Figure 4 and 5. Northern façade, before the intervention. Nothen wing slab demolition. 2011-2012
Credit: Prof.ssa Emanuela Sorbo

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

1863: the original project (two silos and a bakery) was drawn up by Lieutenant Colonel Andreas Ritter Tunkler von Treuimfeld (collaborator Anton Naredi-Reiner and Ferdinand Artmann).

1865-1989: The area was military complex and used as a warehouse for food, storage, milling of grain, packaging, and baking of bread and cakes (the bakery activities stopped in 1945).

1989: The entire area from the military property passed to the Municipality of Verona.

2014: the Municipality of Verona granted the area to Università di Verona, Faculty of Economics.

ARCHITECTS / AGENTS

1863-1865: Lieutenant Colonel Andreas Ritter Tunkler von Treuimfeld (collaborator Anton Naredi-Reiner and Ferdinand Artmann)
2001-2014: group IUAV STUDI E PROGETTI

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The building suffered random creation of no compatible additions inside and outside the courtyards when it was a general warehouse.

On the inside:

- the damage of some floors for excessive loads;
- the addition of numerous partition walls;
- the reconstruction of the original wooden structure of the roof (east wing) after the damage suffered by the building in the last war;
- the layers of whitewashing hide the original internal plaster.

On the outside:

- Incompatible additions filled the courtyards;
- the external plasters were mostly incomplete due to decay.



Figure 6 and 7. Basement, diamond blade enlargement of the opening, 2011-2012, before the intervention.

Credit: Prof.ssa Emanuela Sorbo



Figure 8. Attic trusses system before the intervention, 2011-2012.

Credit: Prof.ssa Emanuela Sorbo

STATUS OF PROTECTION

Historical Architecture of Declared Cultural Interest

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The former Bakery is composed of the main body with a central courtyard flanked by two transversal wings. Two C-shaped bodies define two courtyards. The internal spatial structure is made up of square cells measuring 5 x 5 meters, covered by rib vaults. Barrel vaults with lateral lunettes the sleeves cover of the ovens. The attic is characterized by the complex mesh of the wooden roof structure, with large trusses and rafters protected by bricks in "terracotta" and tiles

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The introduction of new architectural elements expressed the necessary new adaptive reuses. The design thought is based on the acknowledgement of the values of the ancient building and the idea of constant adaptation to contemporary uses.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The need to introduce new uses for collective activities (such as classrooms for teaching, laboratories, library, etc.) modified the former Bakery building system. The general unitary and coherent changes in the environments were the design aims. The opening systems in the basement and attic were inappropriate for the new uses, and then new wider openings were proposed to solve the lighting and ventilation problems. The distribution system changed, according to the new uses. New stairs, a new circulation system, and elevators were inserted in courts or other parts of the building. The new design for the former Silos attempted to enhance the unitary perception of space.

BUILDING MATERIALS

The “Ex-Panificio Santa Marta” complex was built by the Austro-Hungarian army. The materials and construction techniques belong to the military tradition and are aimed for inexpensive and long-lasting buildings. The materials used were local, as the Adige’s stones and brick masonry, and cheap, such as the iron tie rods instead of wooden ones in the truss system.

During the years (the buildings were used until the 1960s), partition elements, demolition, and changes passed. The purpose of the design is to preserve the idea of the layering of history, including the present. It has preserved traces and used new distinctive materials in architectural additions (brushed steel and glass). Moreover, all structures have been enhanced by innovative and traditional technologies



Figure 9 and 10. Interiors of Silos. Office boxes, study spaces and stair systems. 2012
Credit: Prof.ssa Emanuela Sorbo

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The “ex-Panificio Santa Marta” project considered the building complex as a new potential area open to the community. The cultural destinations, such as the University center and library, created new values in an urban dismissed area and to the local cityscape.

Economic aspect:

The plan of the area creates a new economy for the Center of Verona, for example the new student’s income in Verona and new social and cultural events related to the city.

Environmental aspect:

The project guarantees a new life to the building in compliance with the values linked to sustainability, soft mobility, and the coexistence of city and architecture.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The project re-organized the former industrial building adding new uses and implemented new technological systems and constructive solutions. Generally, all the interventions involved the relationship between sustainability, new uses, and cultural heritage preservation.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

✗ No data

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

✗ No data



Figure 11 and 12. “Silos di Ponente” exteriors emergency exit system. 2021.

Credit: Photo by the author.



Figure 13 and 14. Former Bakery interior: ground floor. 2021.

Credit: Photo by the author.

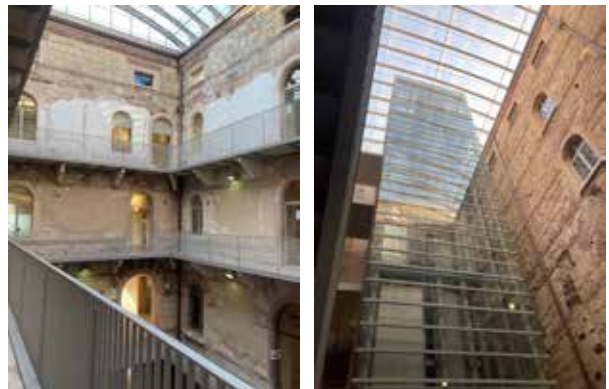


Figure 15 and 16. Former Bakery interior stairs systems. 2021.

Credit: Photo by the author.

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Promotion activities:

- Polo Universitario Santa Marta has a regular calendar of cultural activities (workshops, conferences, and courses). (<http://comunicazione.univr.it/santamarta/index.html>)

Prizes:

- 2015: "Medaglia d'Oro all'Architettura" (<https://ilgiornaledellarchitettura.com/2015/12/12/un-restauro-doro/>)

Publications:

- Massimo Carmassi with IUAV STUDI E PROGETTI – [ISP] srl, Recupero del Panificio di Santa Marta a sede universitaria, Verona (The renovation of the Santa Marta bakery as a University Center, Verona), in "Casabella" 858 p. 4, 2016
- Marco Mulazzani, L'architettura mostra il trascorrere del tempo, in "Casabella" 858 p. 5, 2016
- Mulazzani, Marco, L'architettura di Massimo Carmassi: la nuova sede dell'università di Verona: restauro e riuso (Massimo Carmassi's architecture: the new University Center of Verona: conservation and reuse), Electa Architettura, Milan 2016
- Massimo Carmassi, Gabriella Ioli, Silos di Ponente, ex Caserma Santa Marta Verona, in "Casabella" 794 p. 58, 2010
- Massimo Carmassi: conservazione e architettura : progetto per il campus universitario di Verona, Carmassi, Massimo, 2007

REFERENCES

Massimo Carmassi with IUAV STUDI E PROGETTI – [ISP] srl, Recupero del Panificio di Santa Marta a sede universitaria, Verona (The renovation of the Santa Marta bakery as a University Center, Verona), in "Casabella" 858 p. 4, 2016

Marco Mulazzani, L'architettura mostra il trascorrere del tempo, in "Casabella" 858 p. 5, 2016

Maria Luisa Ferrari, Santa Marta, Past and present, Cierre Edizioni, 2016

Valerio Terraroli, Santa Marta, Dalla Provianda al Campus universitario (Santa Marta, From Provianda to University campus), 2016

- Mulazzani, Marco, L'architettura di Massimo

Carmassi: la nuova sede dell'università di Verona: restauro e riuso (Massimo Carmassi's architecture: the new University Center of Verona: conservation and reuse), Electa Architettura, Milan 2016

- Scimemi Maddalena, Un restauro per Verona. Massimo Carmassi: la nuova sede universitaria di Santa Marta. (A restoration for Verona. Massimo Carmassi: The new university center of Santa Marta), Electa Architettura, Milan 2011

- Massimo Carmassi, Gabriella Ioli, Silos di Ponente, ex Caserma Santa Marta Verona, in "Casabella" 794 p. 58, 2010

- Mario Spineli e Maria Rosaria Pastore, Dal master plan per la città agli spazi per la didattica, pp. 25-30 in Architetiverona 85, 2010

- Massimo Carmassi: conservazione e architettura : progetto per il campus universitario di Verona, Carmassi, Massimo, 2007

<http://www.carmassiarchitecture.com>

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

2002 - 2004, the Iuav Studi e Progetti carried out surveys and preliminary studies on the distribution hypotheses and intervention methods for the western silos and the bakery.

2012: Master's thesis in "Architettura per la conservazione" (Architecture for conservation) by Brichese, De Rossi, Tenti.

2011 – 2012: The building was assigned as case study at the Workshop of restoration led by Massimo Carmassi at "Laboratorio di Recupero" (Recovery Lab) at the IUAV Master degree.

Dicembre 2010: MASSIMO CARMASSI, didactic journal (<http://www.iuav.it/Ateneo1/chi-siamo/pubblicazi1/Catalogo-G/pdf-giorno/Giornale-luav-97.pdf>)

OTHER SIMILAR PROJECTS AS A REFERENCE

× N/A

REFERENCE TO WORLDWIDE EXAMPLES

× N/A

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Università Iuav
di Venezia

ITALY

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Emanuela Sorbo
Sofia Tonello

project

04

The reconstruction of the Centre of Venzone

IDENTIFICATION

Designations

✗ The fortified town of the 14th century

Information about the location

✗ Historic centre

Address

✗ Venzone, Udine

Country / Region

✗ Italy

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ 46.33420000725397,
13.139841551983675

City size

✗ Urban area 54,6 km² /230 m s.l.m.
/ Venzone is a municipality in the Province of Udine – Friuli-Venezia Giulia, North-east of Italy

Website

✗ <http://www.venzoneturismo.it/it/>

Accessibility

✗ Historical Centre

Public visits

✗ Yes

Category

- ✗ Restoration / Reconstruction
Urban project
- ✗ Urban revitalization
- ✗ Cultural planning

Deliberative and participatory planning

✗ Yes

After the two main earthquakes in Friuli-Venezia Giulia between May and September 1976, the city of Venzone was reduced to ruins. Reconstruction had been challenging and expensive, and governments had proposed a new site for reconstruction. At the beginning of 1977, citizens joined in the "Comitato del 19 Marzo" (March 19th Committee) to reconstruct the city and became spokespersons for the desire to preserve the "material data", expression of the memory and history of Venzone.

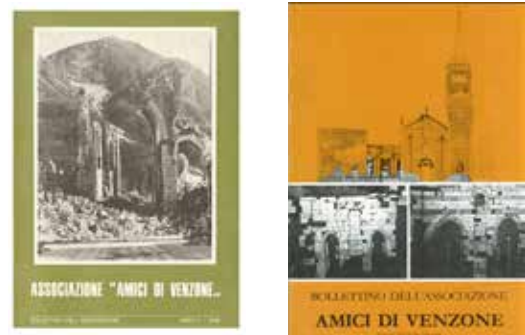


Figure 1. The Publication express the awareness of the extent of the loss and the need for reconstruction.
Credit: Associazione "Amici di Venzone"



Figure 2. Location map
Orthophoto extract from Map 2012-2018 by Apple Inc

Current use

- ✗ The rebuilt Historic Centre of Venzone included all the uses of the former city: Residential, Civic, Religious, Military, Industrial, Commercial, Leisure

Year (period) of the project renovation / restoration

- ✗ Starting from 1977: the Italian Ministry of Cultural and Environmental Heritage, the Archaeological Superintendence of Trieste and ICOMOS funded a "critical historical research for the reconstruction and restoration of the centre of Venzone"

Area of the building (m²)

- ✗ N/A

Current owner

- ✗ Public

Architects

- ✗ arch. Francesca Sartogo,
- ✗ prof. Gianfranco Caniggia,
- ✗ prof. Romeo Ballardini,
- ✗ arch. Francesco Doglioni

Other designers / engineers

- ✗ N/A

Other agents

- ✗ N/A

Developer

- ✗ N/A

Building contractor

- ✗ N/A

Cost of the project / execution time

- ✗ Law n. 546 of 8 August 1977 allocated 300 billion lire to be spent in 5 years.

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ Plans and final design were founded on the in-depth knowledge coming from the analysis by arch. Francesca Sartogo - prof. Gianfranco Caniggia and the photogrammetric surveys by Ing. Hans Forammitti (from the Wien photogrammetric Lab) and the ICCROM of Rome during August-September 1976.

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

Venzone has been a national monument since 1965, but the specific values we recognize today after the 1976 earthquakes changed. The process that allowed the rebuilding of the entire city "as it was and where it was" is unique. The population was aware of the extent of the loss and the need for reconstruction. The stones of the ancient Venzone were re-used in the reconstruction of the new city. This action had been possible thanks to the census and storage of all the stones by the "Committee for the Recovery of Cultural Heritage" and the extensive photographic documentation by Ing. Hans Forammitti (from the Wien photogrammetric Lab) and the ICCROM of Rome.

Scope of application / necessity of the project:

In 1979 the "Office for the historical centre" led by Romeo Ballardini started to work on the "Detailed plan for the Historic Centre of Venzone", adopted in 1980. The loss of the Historical Centre and the identity-building was considered "unsustainable".

HISTORY OF THE BUILDING/SITE

Original use

- ✗ Other: the Historic Centre of Venzone included all the city's uses: Residential, Civic, Religious, Military, Industrial, Commercial, Leisure.

HISTORIC USES

Venzone has been a national monument since 1965. It was composed of medieval stone buildings destroyed by the 1976 Friuli earthquakes. It was rebuilt after a long debate and a long process of design and execution. Today Venzone is considered an example of successful post-seismic reconstruction. In 2017, Venzone was elected "Borgo Dei Borghi 2017" despite the fact that it was completely rebuilt.

CONSTRUCTION PERIOD

Venzone was located along an ancient Roman road (Via Julia Augusta), and the first



Figure 3. The Historical Centre of Venzone from the former state before earthquakes to the reconstruction. (1975 - 1976 - 1995)

Credit: Associazione "Amici di Venzone"

records date back to 932 AD. The town had a fortified system dated back to 1258. It is one of the few fortified towns in Friuli.

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

1977, 1979-1980: Historical-critical research for the reconstruction and restoration of the Historic Centre of Venzone;
1979-1980: detailed plans for the reconstruction of the Historic Centre of Venzone;
1984: executive design of the Insulas in the Historic Centre;
1980-1985: Restoration and "recomposition" project of the Cathedral of Venzone Conservation project of the ruin of San Giovanni's Church

ARCHITECTS / AGENTS

Arch. Francesca Sartogo - Prof. Gianfranco Caniggia: The historical-critical research for the reconstruction and restoration of the Historic Centre of Venzone.
Prof. Romeo Ballardini: The detailed plan for the reconstruction of the Historic Centre of Venzone
Prof. Romeo Ballardini and others: The executive design of the Insulas in the historic centre
Arch. Francesco Doglioni: The restoration and "recomposition" project of the Venzone Cathedral
Prof. Romeo Ballardini: The conservation project of the ruin of San Giovanni's Church.

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

From May 6, 1976, to September 15, 1976, a sequence of earthquakes progressively caused the collapse of the Centre of Venzone and the main monuments. The "Committee for the Recovery of Cultural Heritage" immediately reported the damages and started a campaign to recover movable pieces of art (sculptures, paintings, furnishings) and then shore the damaged buildings.



Foto 2 - Un altro caso degli errori denunciati nella Foto 1.

Figure 4. Historical Centre ruins after the earthquakes. 1976.

Credit: Associazione "Amici di Venzone"



Figure 5 and 6. The Dome of Venzone after the earthquakes (May and September 1976).

Credit: Associazione "Amici di Venzone"

STATUS OF PROTECTION

1965: Venzone city and its monuments were declared as places of cultural interest. The title of declared cultural interest was maintained after the reconstruction plan. Today, its value changed as one of "the best practices in post-seismic reconstruction".

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The first days after the earthquake, two entire insulae's ruins were removed and destroyed before they were catalogued. To remedy these actions, the "Committee for the Recovery of Cultural Heritage" (set up for the occasion) began the safety control of the unsafe facades; and the recovery of stone material and works of art.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The estimation of the rebuilt of Venzone as a "cultural project" passes through the collaboration between institutions, the welding of the population, and a group of academics, teachers of various disciplines in Italian universities. The detailed plans and anti-seismic techniques were the main tools for rebuilding the city "how it was and where it was".

DESCRIPTION OF THE CHANGES AND ADDITIONS

The methodology was based on the graduation of various interventions, such as the building types analysis, the reconstruction by anastylosis for the main monuments, the reconstruction of the urban buildings, and anti-seismic technology. In addition to the surveys conducted after the destruction and analysis of the remains of the wall and the recovered stone, the design process was based on historical sources, such as land-registers, and pre-earthquake documentation

BUILDING MATERIALS

The integration with seismic safety criteria of historical buildings added new materials such as reinforced concrete to meet earthquake resistance.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspects:

The citizens strongly desired the reconstruction of Venzone. They were aware of the cultural, historical, and artistic value of the place.

Economic/ Environmental aspects:

Venzone city was rebuilt as a part of the post-seismic reconstruction program of Friuli-Venezia Giulia.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The "design guidelines' results", written for reconstructing monuments and insulae, identified eligible and ineligible interventions. The innovative aspect of the Venzone reconstruction plan can be recognized through the process of achieving the design guidelines.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

× N/A

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

× N/A



Figure 7. The recovery of stone material and works of art by the "Committee for the Recovery of Cultural Heritage" and the anastylosis reconstruction.

Credit: Associazione "Amici di Venzone"

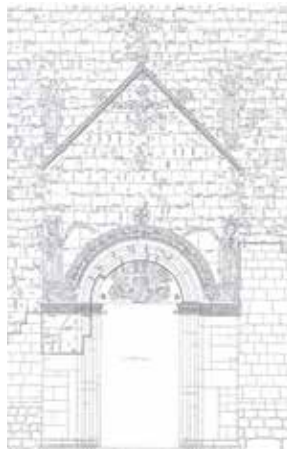


Figure 8 and 9. The anastylosis project of the Dome.

Credit: Associazione "Amici di Venzone"

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Promotion activities:

- 2016: Serm Academy (Seismic emergency response management)
http://sprint.uniud.it/formazione/alta_formation/serm_academy
- The Cultural Association, "Amici di Venzone", promotes and disseminates the historical and cultural value of Venzone Historic Center since 1971.

Prizes:

- 2017: Venzone was elected "Borgo Dei Borghi 2017" despite being completely rebuilt directly from the rubble.
- 2002: Gold Medal of Civil Merit
- 1991: the European Community declared Venzone "Ideal Town of Italy".

REFERENCES

- Venzone, the "Most Beautiful Italian Village", Rebuilt from the Ruins, Alessandra Ferrighi, in *Un Paese di Vuole*, 2018
- Exhibition catalog - Ricostruzioni: architettura, città, paesaggio nell'epoca delle distruzioni (Reconstructions: architecture, city, landscape in the age of destruction), by Alberto Ferlenga, Nina Bassoli, Silvana Editoriale S.p.A., Triennale Milano, Mostre 2018
- Udine e Venzone: lettura critica per una storia operante del territorio friulano (Udine and Venzone: critical analysis for an operating Friuli territory history), Sartogo Francesca, Alinea, 2008
- Fotogrammetria e recupero nei centri storici terremotati del Friuli: Gemona, Venzone, Artegna (Photogrammetry and recovery in the after-earthquake Friuli historic centers: Gemona, Venzone, Artegna), by Sandro De Luca, "Amici di Venzone" Association, Udine 1988
- Bollettini dell'Associazione Amici di Venzone (Bulletins of "Amici di Venzone" Association), "Amici di Venzone" Association, Udine 1981 – 2007



Figure 10. The reconstruction of the Historical Center: the different scales of intervention.

Credit: Bela REMAK and Ferenc TAKSIC - Associazione "Amici di Venzone"



Figure 11. The rebuilt fortify system..

Credit: Pietro Bellina - Associazione "Amici di Venzone"



Figure 12. The rebuilt Marpillero - Marzona House..

Credit: Pietro Bellina - Associazione "Amici di Venzone"

Exhibition catalog - Venzone: un centro storico nel Friuli dopo il terremoto. (Venzone: a Friuli historic center after the earthquake) Bologna, Sala d'Accursio, 5-24 maggio 1979: exhibition promoted by the Institute for Cultural Heritage of the Emilia-Romagna Region, by the Municipalities of Bologna and Venzone, organized by the "Comitato 19 marzo".

For a better understanding of the project:
<http://pkp.unirc.it/ojs/index.php/archistor/article/view/657/560>
<http://openarchive.icomos.org/id/eprint/1889/>
<http://amicidivenzone-s.blogspot.com/p/catalogo.html>

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

- Ricostruzioni: architettura, città, paesaggio nell'epoca delle distruzioni (Reconstructions: architecture, city, landscape in the age of destruction), organized by Alberto Ferlenga, Nina Bassoli, Silvana Editoriale S.p.A., Triennale Milano, Mostre 2018
- Iuav Territori della ricostruzione (The Reconstruction Territories), 26.6 > 15.9.2017 Università Iuav di Venezia Tolentini, organized by Alessandra Ferrighi, with Alessandro Del Corso e Sara Pezzutti
<https://iuav-labgis.maps.arcgis.com/apps/Cascade/index.html?appid=2e492ec0e93e4495be00a86f94ea8626>
- Venzone: un centro storico nel Friuli dopo il terremoto. (Venzone: a Friuli historic center after the earthquake) Bologna, Sala d'Accursio, 5-24 maggio 1979: exhibition promoted by the Institute for Cultural Heritage of the Emilia-Romagna Region, by the Municipalities of Bologna and Venzone, organized by the "Comitato 19 marzo"..

OTHER SIMILAR PROJECTS AS A REFERENCE

× N/A

REFERENCE TO WORLDWIDE EXAMPLES

× N/A



Figure 13. The rebuilt Dome of Venzone (1995).
Credit: Associazione "Amici di Venzone"



CYPRUS

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Theodora Hadjipetrou
Maria Nodaraki

project

01

Urban landscape rehabilitation in Lefkara / Cyprus, Larnaca

Urban landscape rehabilitation in Lefkara

IDENTIFICATION

Designations

✗ Urban landscape rehabilitation in Lefkara

Deliberative and participatory planning

✗ Yes

Information about the location

✗ Rural

Address

✗ Timiou Stavrou, Pano Lefkara

Country / Region

✗ Cyprus, Larnaca

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ 34.865582
33.307977

City size

✗ village

Website

✗ <https://lefkara.org.cy/el/>

Accessibility

✗ public site

Public visits

✗ Yes

Category

✗ Architectural project
Restoration / Reconstruction
✗ Urban project
Urban Design
Urban revitalization
Installations & Structures



Figure 1. Situation after works

Credits: <https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>



Figure 2. Location

Source <https://www.bing.com/maps?osid=fa-1ca52b-864b-44da-8810-65898ec326ca&cp=34.865988~33.307969&lvl=19&style=h&v=2&sV=2&form=S00027>

Current use

X The pilot Operation site occupies the last 60 metres of Timios Stavros street and Church square. On both sides of the street and the two sides of the square are 27 buildings of various uses: two churches, one hotel, residences and shops

Year (period) of the project renovation / restoration

X Project Start date:12/2005 (Project) - 07/2006 (Works)
Project Completion date: 01/2007

Area of the building (m²)

X The pilot Operation site: 60 metres of Timios Stavros street and the Church square. On both sides of the street and the two sides of the square are 27 buildings

Current owner

X public: Lefkara Municipality

Architects

X Department of Antiquities: Lena Pissaridou, architect.
Department of Town Planning and Housing: Irene Hadjisavva, architect-urbanist.
Vassilis Ierides Associates: Vassilis Ierides, architect and David Castrillo, architect

Other designers / engineers

X N/A

Other agents

X Department of Antiquities: Evi Fiouri, Archaeological Officer

Developer

X N/A

Building contractor

X MELFICA CONSTRUCTION CO. LTD.
Carpenters: George Roussos & Savvas Ptochos, Pano Lefkara

Cost of the project / execution time

X 145.000 (co-funded by the European Union in the framework of the Euromed Heritage Program. Spanish Cooperation (AECl), and the Republic of Cyprus) / 2 years

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

X 2005: the Oxford Brookes University carried out a workshop on the traditional architecture and its contribution to the development of the village of Lefkara.

2006: Workshop on Cultural Heritage was organized by the Department of Antiquities in Lefkara.

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

- Traditional materials
- Traditional techniques
- Communal value (Commemorative and symbolic values).

Scope of application / necessity of the project:

The scope of the project was the preservation and rehabilitation of the urban landscape of the village.

HISTORY OF THE BUILDING/SITE



Original use

- ✗ Residential
- ✗ Religious
- ✗ Commercial

HISTORIC USES

No

CONSTRUCTION PERIOD

Buildings belong to the late 19th or the early 20th century.

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

✗ N/A

ARCHITECTS / AGENTS

Anonymous (vernacular dwellings)

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Most of the facades were in fairly good structural condition before restoration, but had undergone various interventions that affected the openings, balconies, renderings, and colours.

Replacement of traditional renderings with 'more solid' cement ones.

Removal of the plaster from the façades, in order to reveal the stone masonry.

Changes regarding the size, form and materials of the openings (for example: replacement of the wooden doors and windows with iron or aluminium ones).

Maintenance of the street by adding a new layer of premix at intervals.

STATUS OF PROTECTION

The Holy Cross church, located in the pilot operation site, is a monument of Schedule B.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The selected site is a part of the main artery relaying the village's two squares and ends up at an important focal point – the village's main church. The buildings, located in the selected site, have different typologies and styles (vernacular architectural style, urban neo-classical influences) and are mostly two-storied, with inclined tiled roofs. The buildings follow a continuous attached building system common in traditional settlements, creating a continuous and uniform front of stone masonry. The dwellings usually consisted of the following main spaces: the semi-outdoor iliakos (portico) from where the entrance to the house is achieved, the main space of the house called dichoro palati and the sospito which was the storage area of the house.



Figure 3. Situation before restoration works
<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>



Figure 4. Situation before restoration works
<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION:

Through the proposal, a holistic approach was followed for the selected site and its various elements. The project included the rehabilitation of 19 facades, the infrastructure for future implementation of the underground electrical network, the improvement of the present external electrical network, the repair and reconstruction of a small surface of pavements and the placement of some urban furniture and signs.

DESCRIPTION OF THE CHANGES AND ADDITIONS

- Removal of the additional elements that weren't compatible with local architecture character (additions of the last 30 years). For example, cement renderings and pseudo-traditional stone cladding had to be removed.
- Restoration of the traditional elements that had been a significant part of the buildings
- Recovery of missing elements, such as the colour palette and traditional pavement.
- Restoration of openings in their original form (dimensions and type).



Figure 5. Elevation before restoration

<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>

BUILDING MATERIALS

Original materials: limestone for the walls, timber as a roofing material and openings. Maintenance of the original materials and addition of new compatible materials where necessary.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The proposal aims to restore the essential traditional elements of the selected site and deliver a revitalised area to the local community. In addition, the objective of the project is to achieve rehabilitation and enhancement of the urban landscape.

Economic aspect:

In the project, traditional materials and techniques were used helping towards the continuity of using traditional techniques today

Environmental aspect:

recycling of materials, reduction of the use of new materials, therefore saving energy for their processing and transportation.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The destroyed or disturbed parts of masonry were repaired using the same material and following the traditional techniques. Use of traditional techniques for the preparation and the application of the



Figure 6. Elevation after restoration

<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>

colours for the facades. Through the gathering of information and field study the type of used authentic colour was found (blue loulaki, ochre, white, deep red and pink) The colour pigments were diluted in water and lime, according to the traditional technique of painting. Colours were applied either on the rendered surface or directly on the apparent stone masonry, depending on each facade's architectural style. Pavements were constructed using dry soil (traditional technique).



Figure 7. Photographs of the current state
<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>



Figure 8. Photographs of the current state
<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

✕ N/A

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

✕ N/A

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

[Urban landscape rehabilitation in Lefkara, Cyprus. The recuperation of a modern past – RehabiMed](#)

REFERENCES

N/A

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

[Urban landscape rehabilitation in Lefkara, Cyprus. The recuperation of a modern past – RehabiMed](#)

OTHER SIMILAR PROJECTS AS A REFERENCE

Urban Regeneration Projects in Nicosia

- revitalisation projects on the historic core of Kaimakli: <https://www.nicosia.org.cy/el-GR/municipality/projects/Completed/12845/>
- revitalisation projects on Nicosia old town: <https://www.nicosia.org.cy/el-GR/municipality/projects/Completed/12846/>
- Housing revitalisation programs Chrysaliniotissa: http://library.tee.gr/digital/del/del_m685/del_m685_papadopoulou.pdf

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A



CYPRUS

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Chryso Herakleous
Theodora Hadjipetrou
Maria Nodaraki

project

02

Multifunctional center / Cyprus, Nicosia, Aglantzia

HYBUILD - Aglantzia case study

IDENTIFICATION

Designations

✗ Mpakaliko stin Palia Aglantzia

Information about the location

✗ Urban centre

Address

✗ Andrea Demetriou 3, Aglantzia, 2108

Country / Region

✗ Cyprus, Nicosia, Aglantzia

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ 35.152979
33.396734

City size

✗ municipality

Website

✗ <https://aglantzia.org.cy/archiki-selida/i-drastiriotites-ekdilosis-mas/evropaika-programmata/programmata-se-ekseliksi/>

Accessibility

✗ public building

Public visits

✗ Yes

Category

✗ Architectural project
Reuse (Adaptive)
Restoration / Reconstruction

Deliberative and participatory planning

✗ No

Current use

✗ Multifunctional center

Year (period) of the project renovation / restoration

✗ 2001 (renovation from Ioakim & Loizas)
2017-2021

Area of the building (m²)

✗ 140 m²

Current owner

✗ public: Aglantzia Municipality

Architects

✗ FOSS Research Centre for Sustainable Energy, University of Cyprus:
Aimilios Michael, Chryso Heracleous,
Maria Xenophontos

Other designers / engineers

✗ Andreas Demosthenous (Civil Engineer), Petros Christodoulides (Electrical Engineer), N. Leonidou (Mechanical Engineer)



Figure 1. Location

Source <https://www.bing.com/maps?osid=e3c7e735-0ef8-40f6-bb9e-89e4471b08c2&cp=35.153039~33.395885&vl=19&style=h&v=2&sV=2&form=S00027>

Other agents

✗ N/A

Developer

✗ N/A

Building contractor

✗ Alto stile construction ltd.

Cost of the project / execution time

✗ €364.375 / 4 years

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

✗ N/A

HISTORY OF THE BUILDING/SITE

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Original use

✗ Commercial

HISTORIC USES

No

CONSTRUCTION PERIOD

1920

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Internal changes of auxiliary spaces, i.e. WC and kitchen (2020-2021), and creation of mechanical room for the project's needs. Improvement of the energy performance of the building inserting 12cm extruded polysterene on the roof

ARCHITECTS / AGENTS

Anonymous (vernacular dwelling)

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Moderate structural condition before restoration (2001)

Good structural condition before restoration (2020-2021)

STATUS OF PROTECTION

Listed building

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The building plan is "I"-shaped as a more compact and simple form of linear placement of the individual spaces. The interior arrangement of the central part of the building volume is divided to the double bay (dichoro). The traditional building is

KEY FEATURES

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Remarkable attributes / Singularities / Specific Values

- Traditional materials
- Traditional techniques
- Communal value (Commemorative and symbolic values)

Scope of application / necessity of the project:

The project's scope was the restoration of the entire building, its reuse and sustainable energy refurbishment in accordance with current needs and conservation principles.

characterized by main spaces with a high ceiling of approximately 3.5-4.5m. This building has a 50-55cm thick stone masonry wall with rubble infill providing high thermal inertia. The roof is slightly inclined and originally was comprised of a thick layer of beaten earth laid on matting. Timber beams supported the roof layers.



Figure 2. Situation before restoration works
https://photos.google.com/share/AF1QipNNc-71FeXSWnUkSvUikfWWhaUR8NLURS_y9WCOc0xWyictDpC-gHdSz8JzWatki9vA?key=WDQtNGRObVpPc3JOSmY4R29ZSVgzcDQ2QXNaeTJn

PROJECT DESCRIPTION

DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The dwelling was restored and conserved using traditional material and techniques. The proposal aims to create a multifunctional space where besides the promotion of contemporary technologies, it will have the possibility to host events, seminars, artistic performances etc. It will also function as a reading room - a digital library for young citizens and students. The traditional building was selected to be an example where a hybrid electrical-thermal storage system will be installed in the Mediterranean region as part of an ongoing research programme i.e. HYBUILD, funded by the European Union through HORIZON 2020.

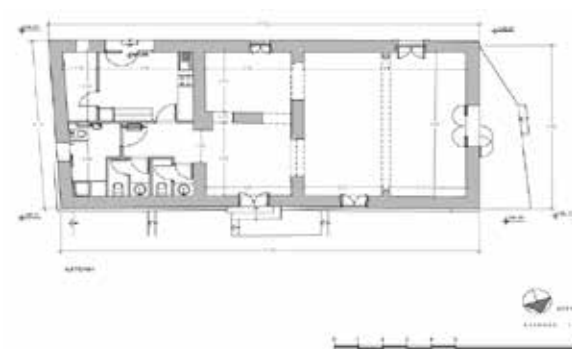


Figure 3. Survey Drawings (Original layout of the building before conservation)
 Credits: FOSS Research Centre for Sustainable Energy, University of Cyprus _ Aimilios Michael, Chryso Heracleous, Maria Xenophontos

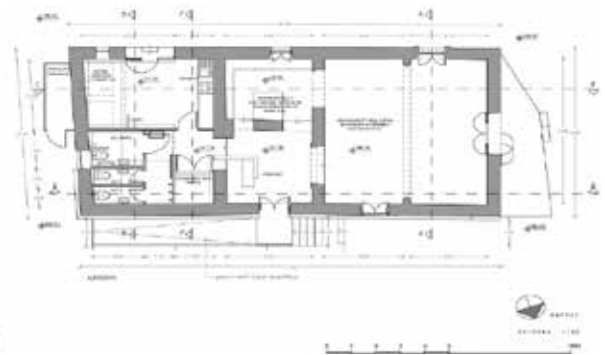


Figure 4. Drawings of the intervention
 Credits: FOSS Research Centre for Sustainable Energy, University of Cyprus _ Aimilios Michael, Chryso Heracleous, Maria Xenophontos

The selection aims to rehabilitate vernacular buildings and promote both bioclimatic features incorporated in vernacular architecture and new technologies that can be adapted in such buildings. This study focuses on the environmental assessment of these spaces by monitoring air temperature and relative humidity.

DESCRIPTION OF THE CHANGES AND ADDITIONS

Maintenance of the original typology of the building.

Internal changes of auxiliary spaces (i.e. WC and Kitchen) and creation of a mechanical room for the European Programme's needs.

At the retrofitting stage the beaten earth was replaced with OSB and thermal insulation of 12cm extruded polystyrene.

HYBUILD's hybrid storage system will be installed on the vernacular dwelling. The hybrid storage concept for Continental Climate is based on a thermal PCM latent storage for DHW and electrical storage.

The place for the hybrid systems, as an independent metallic shelter, that will be placed in the square (as part of a comprehensive landscape design), while on the roof of the building it is proposed to install photovoltaic panels which offer increased integration possibilities.



Figure 5. Drawings of the intervention

Credits: FOSS Research Centre for Sustainable Energy, University of Cyprus _ Aimilios Michael, Chryso Heracleous, Maria Xenophontos

BUILDING MATERIALS

Original materials: limestone for the walls, timber as the roofing material

Maintenance of the original materials and addition of contemporary materials for insulation.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The proposal aims to redefine the traditional core to develop a destination that will be a cornerstone of social interaction and creative employment.

Economic aspect:

For the conservation of the building traditional materials and techniques were used helping towards the continuity of using traditional techniques today

Environmental aspect:

The building has been selected to become a hands-on technology exhibition area of renewable energy systems complemented by the visual means to enhance the visitors' experience. The RES systems will be enhanced by enabling technologies offering the benefits of smart digitalised home solutions that can seamlessly be integrated into the neighbouring community/ district to form energy communities. The effort is to increase the environmental awareness of the community for sustainable energy supply and sustainable growth.



Figure 6. Elevation after restoration

<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

Use of stones for the reconstructed parts of the structure following the same traditional method.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

Data loggers for monitoring temperature and humidity, weather station for monitoring external environmental conditions

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

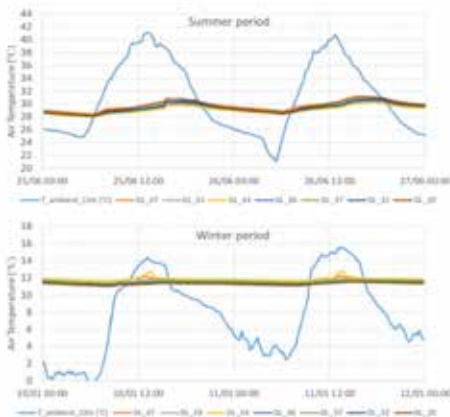


Figure 7. a) Plan of the building with positions of measurement equipment, b) Indoor temperature evolution during the warmest and coldest week of the year

[Evaluation of thermal comfort and energy performance of a case study in vernacular architecture of Cyprus – Heracleous, Chryso, Michael, Aimilios, Charalambous, Chrysanthos, Efthymiou, Venizelos – PLEA 2020 conference – <https://www.plea2020.org>](#)

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Conference papers
[Evaluation of thermal comfort and energy performance of a case study in vernacular architecture of Cyprus – Heracleous, Chryso, Michael, Aimilios, Charalambous, Chrysanthos, Efthymiou, Venizelos – PLEA 2020 conference – <https://www.plea2020.org>](#)
[Development of an innovative compact hybrid electrical-thermal storage system for historic building integrated applications in the Mediterranean climate – C. Heracleous, C. Charalambous, A. Michael, A. Yiannaka, V. Efthymiou – 2019 – Comfort at the Extremes \(CATE\)](#)

REFERENCES

[Evaluation of thermal comfort and energy performance of a case study in vernacular architecture of Cyprus – Heracleous, Chryso, Michael, Aimilios, Charalambous, Chrysanthos, Efthymiou, Venizelos – PLEA 2020 conference – <https://www.plea2020.org>](#)
[Development of an innovative compact hybrid electrical-thermal storage system for historic building integrated applications in the Mediterranean climate – C. Heracleous, C. Charalambous, A. Michael, A. Yiannaka, V. Efthymiou – 2019 – Comfort at the Extremes \(CATE\)](#)

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

✗ N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

✗ N/A

REFERENCE TO WORLDWIDE EXAMPLES

✗ N/A



CYPRUS

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Aimilios Michael
Theodora Hadjipetrou
Maria Nodaraki

project

03

Alexandrou Demetriou Tower / Cyprus, Nicosia

Restoration of Alexandrou Demetriou Tower

IDENTIFICATION

Designations

✗ Alexandrou Demetriou Tower

Year (period) of the project renovation / restoration

✗ 2009-2012

Information about the location

✗ Urban
✗ Urban centre

Area of the building (m²)

✗ 1150 m²

Address

✗ Stasinou & Salaminos Str.

Current owner

✗ private

Country / Region

✗ Cyprus, Agios Antonios, Nicosia

Architects

✗ Aimilios Michael, Vasilis Ierides, Stavroula Christofilopoulou, David Castrillo, Maria Xenofontos (architects)

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ 33.370050
35.169963

Other designers / engineers

✗ Giannis Mitsides (electrical mechanical engineer)
Michalis Nikolaidis (electrical mechanical engineer)
Maria Sinapi (civil engineer)
Costas Meletiou (civil engineer)

City size

✗ city

Other agents

✗ N/A

Website

✗ N/A

Accessibility

✗ Private building

Public visits

✗ No

Category

✗ Architectural project
Reuse (Adaptive)
Restoration / Reconstruction

Deliberative and participatory planning

✗ No

Current use:

✗ Offices, Apartments



Figure 1. Location

Source <https://eservices.dls.moi.gov.cy/#/national/geoportalmapviewer>

Developer

X General Constructions Cyprus Company GCC

Building contractor

X General Constructions Cyprus Company GCC

Cost of the project / execution time

X 2.100.000 Euros

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

X Environmental Study (Thermal and Visual Assessment) Structural Study

HISTORY OF THE BUILDING/SITE



Original use

X Residential
X Commercial

HISTORIC USES

Residential and commercial

CONSTRUCTION PERIOD

1957-59

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

The proposal seeks to redesign the building without altering its original character and accurate outline. For this reason, the design is strictly bounded to the existing structural grid. The plan is re-organised based on the conceptual view and the bioclimatic approach of the original design. In all seven storeys, the initial use -housing- is restored, but altered, unifying the three separate apartments (the two apartments and the studio) in one. Another housing unit is added in the covered terrace of the

8th floor, a feature included in the initial design but was never realised. Its facade is kept at a distance from the structural elements, aiming to preserve the initially "empty" eighth-floor concept. The ground floor shop is restored to its initial design. The entertainment space is proposed for the semi-basement, in order to function as a recreation space of the inhabitants and the visitors of the building, and enforce the commercial character of the wider area. The building facades are carefully redesigned and receive the minimum interventions: the openings of the western and the eastern facade are increased based on the initial module of the openings. In this way, the new openings are similar to the existing ones, but at the same time can be discerned from them.

The restoration works took place during the years 2009 to 2012.

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

- It is a representative Example of International Modern Style in Cyprus
- It was built by the renowned Modern architect Neoptolemos Michaelides
- It has an environmentally sensitive and climatically rational design.
- Its architecture is of high aesthetic quality.
- It is considered one of the most important efforts of the period to design a high-rise building.

Scope of application / necessity of the project:

The project's scope was the restoration of the entire building, its reuse and sustainable energy refurbishment in accordance to current needs and conservation principles.

ARCHITECTS / AGENTS

Neoptolemos Michaelides



Figure 5. Survey Drawings

Credits: FOSS Research Centre for Sustainable Energy, University of Cyprus _ Aimilios Michael, Chryso Heracleous, Maria Xenophontos



Figure 2, 3 and 4. Visual Records before the interventions
credits: Aimilios Michael, Vasilis Ierides, Stavroula Christofilopoulou

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

In 2006, after a period of decline and abandonment, the building was listed as a characteristic building of modern architecture and during the years 2006 to 2008, the study for its restoration was initialised and completed. The building was in a good structural condition before restoration.

STATUS OF PROTECTION

Listed degree Number: 342/2006

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The building has a rectangular plan, with its main axis running from SE to NW. Its total height is 34.50 metres. The ground floor is raised from the ground and includes a large showroom. The main entrance to the building is placed on its northern side to

preserve the continuity of the SX-YY glazed surface of the showroom. The vertical movement towards the upper storeys is achieved through a circular staircase and a lift, while the horizontal movement on each level through a northern corridor, which provides access to the separate apartments. Each of the seven storeys consists of two 2- bedroom apartments and a studio. On the 8th floor, there is a covered terrace with an unobstructed, 360-degrees-wide view. At the semi-basement a second store and a parking space are placed, while the basement houses secondary spaces.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The proposal seeks to redesign the building without altering its original character and accurate outline. The plan is reorganized based on the conceptual view and the bioclimatic approach of the original design. There was an aim to improve thermal and visual comfort conditions.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The plan is reorganised based on the conceptual view and the bioclimatic approach of the original design. In all seven storeys, the initial use -housing- is restored, but altered, unifying the three separate apartments (the 2 apartments and the studio) in one. Another

er housing unit is added in the place of the covered terrace of the 8th floor. Its façade is kept at a distance from the structural elements, aiming to preserve the initially “empty” eighth floor concept. The ground floor shop is restored to its initial design. The entertainment space is proposed for the



Figure 6. Elevation after restoration

<https://www.rehabimed.net/2015/11/urban-landscape-rehabilitation-in-lefkara-cyprus-the-recuperation-of-a-modern-past/>

Figure 7, 8, 9 and 10. Drawings and photographs of the current condition of the building

credits: Aimilios Michael, Vasilis Ierides, Stavroula Christofilopoulou

semi-basement. The facades of the building are carefully redesigned and receive the minimum interventions.

BUILDING MATERIALS

The construction of the building is a reinforced concrete structure, with visible frames on the two narrow facades. The interior walls are filled with bricks. Interior flooring is made of marble and ceramic tiles. Exterior flooring is made of stone tiles or soil. The restoration aimed to the preservation of the original materials and the upgrade of the sensitive construction components.

PROJECT IN RELATION TO THE SUSTAINABILITY

The functional upgrade of the building reinforces the commercial character of the wider area.

The passive heating (southern orientation) and cooling (various shading devices, efficient cross ventilation) systems are preserved and reinforced.

The thermal insulation of the building envelope is enhanced.

Vegetation and water elements are added to improve the microclimate conditions.

Appropriate active heating and cooling systems are installed to ensure increased thermal comfort during the climatically extreme periods of the year.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The Alexandros Demetriou building design incorporates simple passive heating and cooling strategies, namely exploitation of direct solar gains, shading and natural ventilation, as well as daylighting features. The above features are architecturally integrated into the new design and contribute to the improvement of the bioclimatic behaviour of the building, especially during the under-heated and over-heated period of the year.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

Data loggers for monitoring temperature and moisture, weather station for monitoring external environmental conditions, temperature probes installed on the interior of brick walls.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

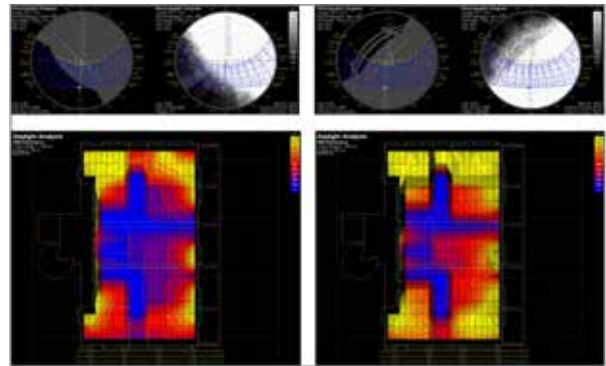


Figure 11. Shading Mask for overshadowing for the main façade. Daylight analysis of the initial design of the floor (winter & summer)

credits: Aimilios Michael, Vasilis Ierides, Stavroula Christofilopoulou)

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Michael A., Constantinou C. (2009). Conservation of Modern Architectural Heritage: The vision of Evolution Theory. In Architects & Engineers, i.85, Cyprus Association of Civil Engineers, Nicosia: Response Publications, pp.19-24

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1. Special issue on Cypriot architecture, J. Architektoniki, 55 (1966) 65-66.
2. J. Architektonikes kai Michanikoi, 28 (1993).
3. J. Architekton, 23 (1993)
4. A. Michael, Architect Neoptolemos Michaelides, the bioclimatic dimension in his work, National Technical University of Athens, Athens, 2003.

5.M. Economides, The relationship between modern and traditional in the work of the architect Neoptolemos Michaelides, London, 1992.
6.N. Michaelides, Earth architecture. Cypriot folk art, Pierides Foundation, Nicosia, 1993.
7.A. Michael, A. Papanikolaou, Neoptolemos Michaelides, with thought and dream, National Technical University of Athens, Athens, 2002.

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

Student Project on the Critical analysis of the conservation of the building in the framework of the Graduate Course ARH 516/517 History and Critical Theory of Conservation.

Publications:

1. Michael, A., Christofilopoulou, S., Ierides, V., Conservation of Modern-Movement Architecture: The Alexandros Demetriou Building Case. The Challenge of Change X2, 1st Docomomo Cyprus Scientific Meeting, 5.11 – 6.11.08, University of Cyprus, Nicosia, Cyprus, Nicosia, December 2008 (10 p.), in Greek
2. Michael, A., Ierides, V., (2009) Building Restoration and Bioclimatic Design Considerations, Alexandros Demetriou Building in Nicosia, Neoptolemos Michaelides, 1959. IHT-IST (ed.), Proc. of the 9th National Conference on Renewable Energy Sources, 26.03 - 28.03.09, Paphos, Cyprus, ISSN 1108-3603, pp. 233-242, Giahoudis Publications, Thessaloniki, March 2009 (10 p.), in Greek and extended abstract in English
3. Michael, A., Ierides, V., (2013) Conservation and Modern Architecture Reserves: The Alexander Demetriou Building Case, Nicosia, Cyprus. Proc. of the 12th Int. Con. on The Survival of Modern, from Coffee Cup to General Plan, Docomomo Conference, 07.08 – 10.08.12, ISBN 978-952-93-2300-5, Espoo, Finland, pp. 258-264
4. Michael, A., Christofilopoulou, S., Ierides, V., (2009) Conservation of Modern-Movement Architecture: The Case of the Alexandros Demetriou Building. Archive Architectural Journal, 6 (2009), 78 - 84, CAA, ISBN: 1450-3441, in Greek

5. Michael, A., Constantinou, Ch., (2009) The Conservation of Modern Heritage and the Theory of Evolution. Architects + Civil Engineers, 85 (2009), CCEAA, Response Publications, 19 - 24, in Greek

OTHER SIMILAR PROJECTS AS A REFERENCE

Polikatikia Geo. Pavlides, Ayiou Andreou
Client: Spyros and Michalis Pavlides
Location: St. Andrews, Street, Limassol
Completion Date: 2006
<https://akisarchitects.com.cy/en/Polikatikia+Geo.+Pavlides%2C+Ayiou+Andreou-p307.html>

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A

Vernacular dwelling in Kapedes / Cyprus, Nicosia district, Kapedes

Restoration of a vernacular dwelling in Kapedes

IDENTIFICATION

Designations

✗ N/A

Information about the location

✗ Rural

Address

✗ 1st of April, number 12.

Country / Region

✗ Cyprus, Nicosia district, Kapedes

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ 34.976980
33.255676

City size

✗ village

Website

✗ <http://www.kapedes.org/history.html>

Accessibility

✗ Private building

Public visits

✗ No

Category

✗ Architectural project
Reuse (Adaptive)
Restoration / Reconstruction

Deliberative and participatory planning

✗ No

Current use

✗ House

Year (period) of the project renovation / restoration

✗ 2010 -2011

Area of the building (m²)

✗ 200 m²

Current owner

✗ private: Maria Philokyprou

Architects

✗ Maria Philokyprou

Other designers / engineers

✗ Lefteris Hadjiloukas (Civil Engineer)



Figure 1. Location
credits: Maria Philokyprou



Figure 2. Location
Source <https://www.bing.com/maps?o-sid=80d3e217-915f-41b9-8feb-b7db5a5b9e92&cp=34.977056~33.255628&lvl=19&style=h&v=2&sV=2&form=S00027>

Other agents

X N/A

Developer

X N/A

Building contractor

X Takis

Cost of the project / execution time

X 150000 euro / 2010-11

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

X Preparation of an index template by the Town Planning and Housing Department in order to include the building into the listed vernacular dwellings of the settlement

HISTORY OF THE BUILDING/SITE

////////////////////////////////////

Original use

X House

HISTORIC USES

Residential

CONSTRUCTION PERIOD

Beginning of the 20th century

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Two small-scale extensions were erected, one for achieving internal communication between different rooms, and the other for creating an additional area with a view towards the forest.
year of intervention: 2010

ARCHITECTS / AGENTS

Anonymous (vernacular dwelling)

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Poor structural condition before restoration

STATUS OF PROTECTION

It is a listed building (declared by the Department of Town Planning and Housing after the application of the previous owner of the house)

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The house consisted of a central semi-open space leading from the road to the courtyard, a large main double-space room (*dichoro*), and a number of small rooms at the ground level as well as two rooms (probably bedrooms) on the first floor. The rooms are arranged in an L shape on the two sides of an elongated courtyard.

KEY FEATURES

////////////////////////////////////

Remarkable attributes / Singularities / Specific Values

- Typical rural vernacular dwelling with some special characteristics (*dichoro*, semi-open entrance in the form of *dichoro*, balconies with a triangular shape)
- Traditional materials
- Traditional techniques
- Communal value (Commemorative and symbolic values)

Scope of application / necessity of the project:

Restoration and reuse of the entire building and addition of new constructions, to serve contemporary needs, without compromising the character and uniqueness of the space.



Figure 3. Visual Records before the interventions
Credits: Maria Philokyprou

PROJECT DESCRIPTION

DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The house was restored and conserved using traditional material and techniques. Two new structures were erected, one small corridor to connect two separate parts of the house and another small extension with a view towards the forest

DESCRIPTION OF THE CHANGES AND ADDITIONS

- The extensions were small-scale, and of lightweight materials (metal and glass)
- Maintenance of the original typology of the house
- Transmission of a semi-open space into a closed area with the use of glass surfaces

BUILDING MATERIALS

- Original materials: Stone of igneous rocks for the lower part of the structure and adobes for the superstructure, timber as the roofing material
- Maintenance of the original materials and conservation using traditional materials.
- Use of lightweight materials such as glass and metal for the additions

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The house preserves its original use and thus helps towards the revival of the traditional settlement of Kapedes

Economic aspect:

For the conservation of the house, traditional materials and techniques were used by traditional craftsmen. Adobes were prepared following the traditional techniques. Local materials and techniques were entirely used, helping towards the continuity of using traditional techniques today.

Environmental aspect:

- Use of traditional materials in the conservation – stones and adobes, traditional mortars, and plasters (gypsum and lime) with minimal energy demands for their preparation.
- Use of insulation layers in the reconstruction of the roofs to improve the energy efficiency of the house
- Maintenance of the passive environmental strategies incorporated in the dwelling (cross ventilation, the high thermal mass of the structure etc.).

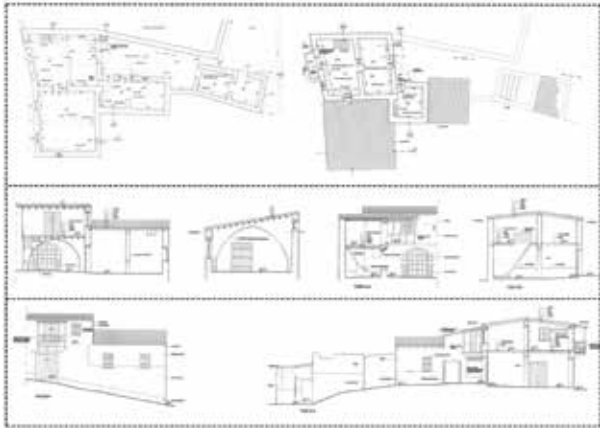


Figure 4. Survey Drawings - before restoration
Credits: Maria Philokyprou

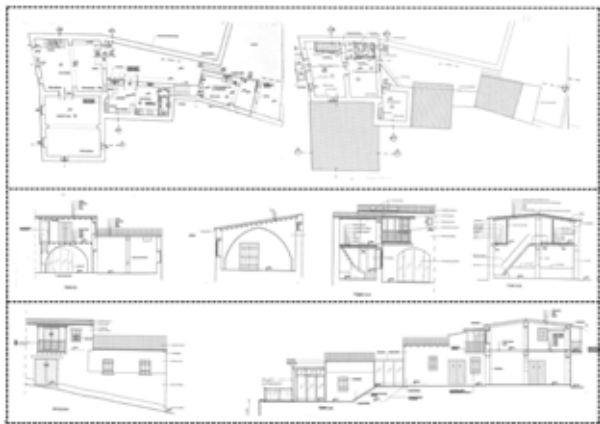


Figure 5. Drawings of the intervention
Credits: Maria Philokyprou



Figure 6. Photographs of the current condition of the building
Credits: Maria Philokyprou

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

- Use of adobes for the reconstructed parts of the structure using the same traditional method for their preparation
- Use of lime hydraulic mortars prepared with the addition of ceramics (not cement)

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

Data loggers for monitoring temperature and moisture, weather station for monitoring external environmental conditions, temperature probes installed on the interior of adobe walls

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

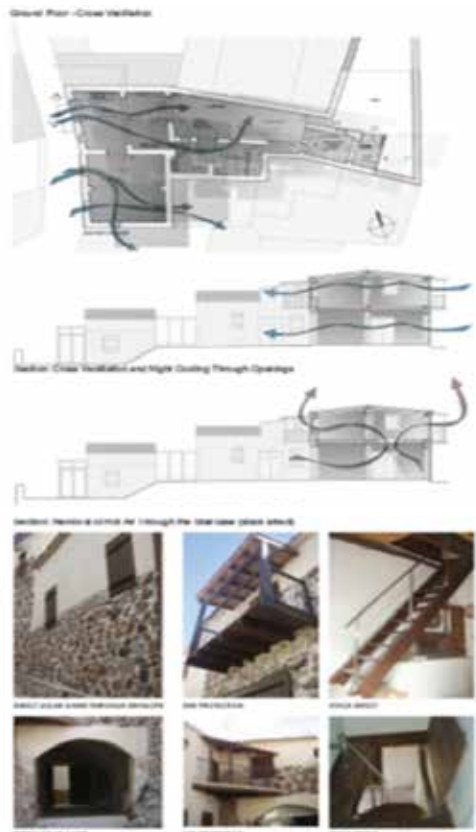
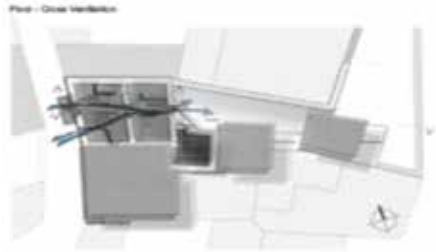


Figure 7. Photographs of the current condition of the building
Credits: Maria Philokyprou



**DISSEMINATION / PROMOTION
ACTIVITIES (WORKSHOPS, CONGRESS,
PUBLICATIONS, PRIZES)**

Michael, A., Demosthenous D. and Philokyprou, M. 2017, "Natural Ventilation for Cooling in Mediterranean Climate: A Case Study in Vernacular Architecture of Cyprus", *Energy and Buildings* (Elsevier) 144, pp.333-345 (DOI: 10.1016/j.enbuild.2017.03.040).
<https://www.sciencedirect.com/science/article/abs/pii/S0378778816308519>

Michael, A., Philokyprou, M. and Argyrou, Chr. 2014 "Documentation and Evaluation of the Positive Contribution of Natural Ventilation in the Rural Vernacular Architecture of Cyprus", *Proceedings of the International Conference on Cultural Heritage. Digital Heritage. Progress in Cultural Heritage Documentation, Preservation and Protection* (Euromed 2014), Limassol, Cyprus, 3-8 November, pp.310-319.

Philokyprou, M. and Michael, A. 2012 "Evaluation of the Environmental Features of Vernacular Architecture. A Case Study in Cyprus", *Proceedings of the 4th International Euro-Mediterranean Conference on Cultural Heritage* (EuroMed 2012), Limassol, Cyprus, 29 October – 3 November, pp.349-354.

REFERENCES

Michael, A., Demosthenous D. and Philokyprou, M. 2017, "Natural Ventilation for Cooling in Mediterranean Climate: A Case Study in Vernacular Architecture of Cyprus", *Energy and Buildings* (Elsevier) 144, pp.333-345 (DOI: 10.1016/j.enbuild.2017.03.040).

Michael, A., Philokyprou, M. and Argyrou, Chr. 2014 "Documentation and Evaluation of the Positive Contribution of Natural Ventilation in the Rural Vernacular Architecture of Cyprus", *Proceedings of the International Conference on Cultural Heritage. Digital Heritage. Progress in Cultural Heritage Documentation, Preservation and Protection* (Euromed 2014), Limassol, Cyprus, 3-8 November, pp.310-319.

**ACADEMIC WORKS / STUDENTS
RELATED PROJECTS / PUBLICATIONS**

2013 Independent graduate study on the Bioclimatic elements of traditional houses. The Case of Kapedes, Student: E. Panayiotou
2014 Graduate study on the night ventilation of the case study building, Student: C. Argyrou
2017 MSc Thesis on the ventilation of the case study building, Student: D. Demosthenous

**OTHER SIMILAR PROJECTS AS A
REFERENCE**

<https://akisarchitects.com.cy/en/Tassos+Ioannou+Residence+%28Arsos%29-p538.html>

<https://akisarchitects.com.cy/en/Y.+Michaelides+Residence%2C+Ayios+Tychonas-p453.html>

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

×

Angelliki Chatzidimitriou

project

01

Area of Hrimatistiriou Square

Bioclimatic upgrade of the greater area of Hrimatistiriou Square

IDENTIFICATION

Designations

✗ Historic Centre of Thessaloniki

Information about the location

- ✗ Urban
- ✗ Historic centre
- ✗ Urban centre

Address

✗ Hrimatistiriou Square

Country / Region

✗ Greece, Thessaloniki

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ 40.637036
22.938597

City size:

✗ 1,2m inhabitants

Website

- ✗ <https://cool4thess.thessaloniki.gr/>
- ✗ https://www.covenantofmayors.eu/about/covenant-community/signatories/key-actions.html?scity_id=14872

Accessibility

✗ Public Space including a network of small squares and narrow roads in a part of the historic centre of the city.

Public visits

✗ Yes

Category

- ✗ Resilience
- Reuse (Adaptive)
- Intervention
- Urban project
- Urban Design
- Urban revitalization
- Installations & Structures
- Environmental planning
- Infrastructure planning

Deliberative and participatory planning

✗ No



Figure 1. View of the project site (Agiou Mina street and Emporiou square)

Source: Authors



Figure 2. Location of the project site in the city of Thessaloniki

Source Google Earth, ©2021 Google

Current use

- ✗ Commercial, Leisure, Residential

Year (period) of the project renovation / restoration

- ✗ 2011-2016

Area of the building (m²)

- ✗ 110000 m²

Current owner

- ✗ public: Municipality of Thessaloniki

Architects

- ✗ Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki.
- ✗ L.Topli, architect (design proposal stage),
- ✗ A.Spiliotopoulos, architect (implementation stage),
- ✗ K. Mpletsa, architect (implementation stage)

Other designers / engineers

- ✗ Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki.
- ✗ Design proposal stage team
 - K. Arvanitidou, civil engineer
 - K. Minadis, electrical engineer
 - M. Gatzioni, electrical engineer
 - K. Andreopoulou, agriculturist - landscape architect
- ✗ Implementation stage team
 - K. Papageorgiou, civil engineer
 - D. Rotas, mechanical engineer
 - V. Blitsios, electrical engineer
 - S. Paraskeva, agriculturist

Other agents

- ✗ Consultants for bioclimatic design and microclimate improvement evaluation: Bioclimatic Energy Efficient Buildings (design proposal stage), Diopsis consultants, A. Chatzidimitriou (implementation stage).

Developer

- ✗ Joint venture: AS Build SA - M & K Technical Projects SA

Building contractor

- ✗ N/A

Cost of the project / execution time

- ✗ 5522152 Euros / design proposal 2011-2012, project implementation 2014-2016

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The project is implemented in the framework of a national-level plan for urban areas' refurbishment, the "Bioclimatic improvement program for public open spaces", aiming at urban microclimate improvement, pedestrian comfort and building energy savings. The call for proposals required reaching specific targets for air and surface temperature reductions and thermal comfort enhancement in the summer period.

Scope of application / necessity of the project:

The study area is a large mixed use commercial and residential district located in the city's historic centre. The area used to be a significant multicultural commercial and financial centre of the city hence contains a large amount of historically noteworthy building stock of the city's last two centuries. However before the redevelopment most of the commercial activity as well as the majority of the old buildings had been abandoned leaving a downgraded area lacking identity and quality regarding the built environment.

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

X Survey of listed buildings

HISTORY OF THE BUILDING/SITE

////////////////////////////////////

Original use

- X Civil
- X Residential
- X Religious
- X Commercial
- X Leisure

HISTORIC USES

Mixed-use: commercial and residential / significant multicultural commercial and financial centre

CONSTRUCTION PERIOD

2014-2016

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

- street layout adjustments with mild circulation streets
- car parking limitation along streets
- increase of the pedestrian areas and accessibility enhancement
- increase of vegetation
- urban squares redevelopment

ARCHITECTS / AGENTS

Directorate of Urban Planning and Architectural Studies / Municipality of Thessaloniki

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

Before the redevelopment the urban district was downgraded, a large part of the building stock was neglected and several buildings

were vacant, the streets and pavements were damaged, and street trees were neglected. Heavy traffic was common in the narrow street of the district and the open areas were used as car parking spaces.

STATUS OF PROTECTION

Listed Buildings, historic urban centre



Figure 3. View of Emporiou square before the intervention
Source: Authors



Figure 4. View of Hrimatistiriou square before the intervention
Source: Authors

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The project site extends to several blocks and contains various open spaces such as street canyons, courtyards, arcades, parking spaces, and two small urban squares. Most of the



Figure 5. Map of the project area with indication of listed buildings

Architectural study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

open spaces are narrow canyons between buildings that are insolated for short periods during the day. Two of the major deficiencies of the site are the obstructed airflow and the absence of vegetation in most places. Low wind speed in combination with high surface temperatures of hard pavements and building walls induce pedestrian discomfort especially in the narrow canyons where the low sky view factor reduces the potential for heat dissipation.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

- urban regeneration through open space revitalization
- vehicle circulation network modifications
- cultural pedestrian paths and promotion of historical buildings
- microclimate development for bioclimatic - upgrade and pedestrian comfort

DESCRIPTION OF THE CHANGES AND ADDITIONS

- street layout adjustments with mild circulation streets



Figure 6. Map of the project site with indication of material replacement on streets and pavements

Architectural study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

- car parking limitation along streets
- increase of the pedestrian areas and accessibility enhancement
- increase of vegetation
- urban squares redevelopment

BUILDING MATERIALS

- original materials on streets and pavements: asphalt and concrete tiles
- new materials on streets: "cool" asphalt surfaces with a photocatalytic coating
- new materials on pavements: "cool" concrete blocks (i.e. materials with a high albedo and high emissivity), cobble stones
- enhancement of existing street trees and addition of new trees
- new lighting equipment, urban furniture and waste collection system.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

Accessible, "cool", quiet places within the city centre, well served by public transport that encourage active mobility. Improvement of pedestrian circulation and safety. Integration of a cultural route for the promotion of the preserved monuments.



Figure 7. Map of the project site with indication of additional trees

Source: Chatzidimitriou, A., P. Liveris, M. Bruse and L. Topli (2013).



Figure 8. Map of the project site with indication of the location of water elements

Source: Chatzidimitriou, A., P. Liveris, M. Bruse and L. Topli (2013).



Figure 9. Map of the project site with indication of the location of external fans

Source: Chatzidimitriou, A., P. Liveris, M. Bruse and L. Topli (2013).

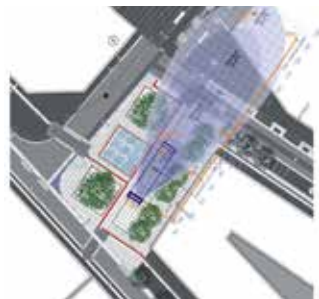


Figure 10. Plan of Hrimatistiriou square with indication of the influence of a vertical fan on airflow velocity.

Source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

Economic aspect:

Regeneration of the commercial area and financial upgrade, preservation and support of commercial activity, Building Reuse, Building Energy Savings, Incentives for building stock upgrade.

Environmental aspect:

- Goals for specific microclimate improvements: air and surface temperature reduction, pedestrian comfort improvement and building energy savings.
- Replacement of the concrete pavements and asphalt streets with similar 'cool' materials i.e. materials with high albedo and high emissivity
- Increase of the number of trees and addition of vegetation in the form of shading canopies
- Addition of water elements at pedestrian level in the form of fountains and water curtains, and above ground level as sprinklers for cooling by evaporation and for the enhancement of visual and acoustic quality of the open space
- Outdoor fans in assorted sizes and types as a measure to increase the wind velocity and improve pedestrian comfort in the summer under very warm conditions at a place where airflow is negligible.



Figure 11. Plan of Emporio square with indication of horizontal fan structure.

Source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki



Figure 12. View of Emporio square after the intervention

Source Authors

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

Preliminary evaluation of the project through simulation results indicates the extent of microclimate and comfort improvement that can be achieved by implementing the proposed interventions. After construction microclimate evaluation with short term and long-term on site monitoring (short-term monitoring with portable instrumentation in the entire area, long term monitoring with two permanent monitoring stations in the two squares)

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)



Figure 13. Digital map of sky view factor values in the project site (envimet software results)
source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki



Figure 14. Digital models of the project site for microclimate simulations (envimet input file) (a) before interventions and (b) after interventions
source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

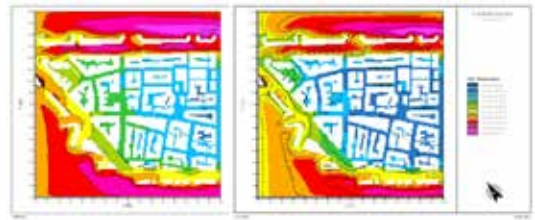


Figure 15. Digital maps of summer midday air temperature values in the project site before and after interventions
source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

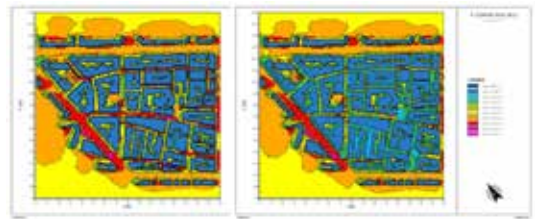


Figure 16. Digital maps of summer midday surface temperature values in the project site before and after interventions
source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

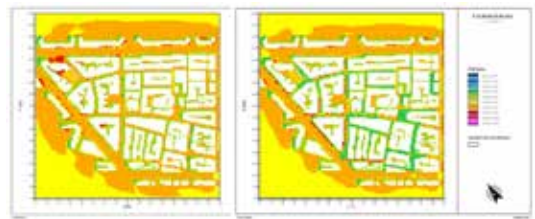


Figure 17. Digital maps of thermal comfort indices in the project site before and after interventions
source: Bioclimatic Study, Directorate of Urban Planning and Architectural Studies, Municipality of Thessaloniki

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE



Figure 18. Microclimate monitoring equipment: a. portable devices on streets and b.c. permanent meteorological stations in Emporion sq and Hrimatistiriou sq
Source: Chatzidimitriou, A., S. Kanouras, L. Topli and M. Bruse (2017).



Figure 19. Map of the area with indication of microclimate monitoring spots and location of meteorological stations Chatzidimitriou, A., S. Kanouras, L. Topli and M. Bruse (2017).

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Dissemination of the project is done through the campaign “you too, get in the climate” <https://cool4thess.thessaloniki.gr/>

REFERENCES

Chatzidimitriou, A., P. Liveris, M. Bruse and L. Topli (2013). Urban redevelopment and microclimate improvement: A design project in Thessaloniki, Greece. In Proceedings of the 29th PLEA Conference, Sustainable Architecture for a Renewable Future. September 2013, Munich, Germany. (<http://plea-arch.org/plea-proceedings/>, <https://mediatum.ub.tum.de/doc/1169396/file.pdf>)

Chatzidimitriou, A., S. Kanouras, L. Topli and M. Bruse (2017). Evaluation of a sustainable urban redevelopment project in terms of microclimate improvement. In Proceedings of the 33rd International PLEA Conference, Design to Thrive. July 2017, Edinburgh, U.K. (<http://plea-arch.org/plea-proceedings/>, https://www.researchgate.net/profile/Angeliki_Chatzidimitriou/publication/318404396_Evaluation_of_a_sustainable_urban_redevelopment_project_in_terms_of_microclimate_improvement/links/596b196da6fdcc18ea769b30/Evaluation-of-a-sustainable-urban-redevelopment-project-in-terms-of-microclimate-improvement.pdf)

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

× N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

Other similar projects have been implemented in many urban areas in Greece within the framework of the “Bioclimatic improvement program for public open spaces” (http://www.cres.gr/epperaa/bioclimat_anavathm.htm). Some of them are the bioclimatic redevelopment in the urban centre of Serres, in the Municipality of Marousi in Athens, in the Municipality of Pavlos Melas in Thessaloniki etc. The complete list of the approved projects can be found in http://www.cres.gr/epperaa/bioclimat_anavathm_entagmenes_apofaseis.htm

Publications of similar projects:

I. Karakounos, A. Dimoudi, S. Zoras (2018). The influence of bioclimatic urban redevelopment on outdoor thermal comfort. Energy and Buildings, Volume 158, Pages 1266-1274, ISSN 0378-7788, <https://doi.org/10.1016/j.enbuild.2017.11.035>.
M. Santamouris, N. Gaitani, A. Spanou, M. Saliari, K. Giannopoulou, K. Vasilakopoulou, T. Kardomateas (2012). Using cool paving materials to improve microclimate of urban areas – Design realization and results of the flisvos project. Building and Environment, Volume 53, Pages 128-136, ISSN 0360-1323, <https://doi.org/10.1016/j.buildenv.2012.01.022>.

REFERENCE TO WORLDWIDE EXAMPLES

Breathe Austria Pavilion (2015), Institute for Architecture and Landscape LandLab & Transollar, EXPO 2015 Milan, Italy <https://transsolar.com/projects/expo-pavillon-2015-breathe-austria>

Avenida de Europa White Towers (1992), Expo 1992 Seville, Spain <https://archiseek.com/2009/1992-europa-pavilion-universal-exposition-of-seville-expo-92/>

Miroir d'eau (2006), Michel Corajoud, Bordeaux, France <https://www.bordeaux.fr/l10812/miroir-d-eau>

High line (2009-2014), Corner Field Operations Diller Scofidio + Renfro & Piet Oudolf, New York, USA, <https://dsrny.com/project/the-high-line>, <https://www.thehighline.org/design/>



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

X

Maria Doussi
Sofoklis Kotsopoulos

project

02

Kleious 24 / Upper city of Thessaloniki



Restoration of a timber framed traditional building.

IDENTIFICATION



Designations

- ✗ Traditional building of the 19th century in the historic area of Thessaloniki's Upper city

Information about the location

- ✗ Historic centre

Address

- ✗ Kleious 24

Country / Region

- ✗ Greece / Central Macedonia

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

- ✗ 40.64290
22.94760

City size

- ✗ 110000m2 / 1,2 m inhabitants

Website

- ✗ N/A

Accessibility

- ✗ Private residence.

Public visits

- ✗ No

Category

- ✗ Architectural project
Resilience
Restoration
Environment planning
Cultural planning

Deliberative and participatory planning

- ✗ No

Current use

- ✗ Residence

Year (period) of the project renovation / restoration

- ✗ 2013-2014

Area of the building (m²)

- ✗ 160 m² residence,
80 m² auxiliary uses

Current owner

- ✗ private: Mazounis family



Figure 1. View of the historic building

source: Authors



Figure 2. Location of the project site in the Upper city of Thessaloniki

Source Google Earth, ©2021 Google

Architects

X Maria Dousi, Michael Nomikos

Other designers / engineers

X Structural Engineer: Nikos Tzimopoulos
Electrical and Mechanical Engineer: Dimitris Karnoutsos

Other agents

X N/A

Developer

X N/A

Building contractor

X The construction was made by the owner, under the supervision of the project team

Cost of the project / execution time

X 100.000 €

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

X There were no previous studies for this building. Architects were based on their experience on similar projects and all the engineers are specialised in postgraduate restoration studies of the AUTH.

HISTORY OF THE BUILDING/SITE



Original use

X House

HISTORIC USES

Residence

CONSTRUCTION PERIOD

The second half of the 19th century

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

All the necessary new reinforcement is made with the same materials and techniques as the original structure while new architectural elements and technological equipment have a contemporary form as to be distinguishable from the original elements of the building. There were no functional changes, the original typology of the historic building was revived with the demolition of later non appropriate additions. Preserving the retained original features of historic buildings; dealing with the cases where original features have been destroyed,

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The building is neither an extraordinary monument, nor an example of distinctive architectural value. However, it is one of hundreds of historic buildings that constituted the historic identity and character of the city during the 19th century, buildings that would have helped us understand the values and qualities of Balkan Architecture if they had been preserved.

Scope of application / necessity of the project:

The key objective of the inter-scientific collaboration was the design of the interventions to facilitate the preservation and promotion of the typological, morphological and structural elements of the building, as well as to accomplish all the contemporary living conditions. The project scope was also the energy upgrade of the building, according to the standards.

but where information exists about their original configuration, and coping with integrating new facilities required to meet modern requirements. Modern structural adequacy regulations and earthquake protection, and building regulations along with the necessary installations further complicate solving the problems involved in re-using these buildings. The multidisciplinary approach to the analysis and documentation of this historic building brought to the surface important aspects of its construction technology.

ARCHITECTS / AGENTS

It is a traditional building of vernacular – anonymous architecture.

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The physical condition of the building before restoration was very bad. The timber frame of the building had suffered severe damage, as well as other architectural elements. Part of the timber frame had been moved from the vertical axis, resulting in the relevant slope of the floors. This pathology in addition to the above mentioned damages was evident with cracks.

STATUS OF PROTECTION

The listed building (I category of maximum protection) of the Ministry of Environment and Energy / Ministry of the Interior - Department of Macedonia and Thrace.
http://www.mathra.gr/?page_id=18431

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The building is organized on three levels: semi-basement and two floors. It is a two-storey flat-fronted house with a semi-basement and a clear symmetrical organization on all levels, where two rooms are organized left-right of the main hall, which projects forming

a *sachnisi* on the main facade. Also the eastern room on the first floor facing the street, is orthogonalized with the creation of a second *sachnisi*. The access to the elevated ground floor is made through the courtyard with two stairs symmetrically arranged on either side of the building's central projection, which is a special typological element. From the preserved morphological characteristics of the building, we conclude that it is a relatively simply decorated building.



Figure 3. The building before the restoration (view from the street).
Source:



Figure 4. The building before the restoration (detail of the main facade).
Source:



Figure 5. The building before the restoration (detail of the interior).
Source:



Figure 6. Drawings of the analysis and documentation of the historic building.

Source

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

- Preservation of typology and integrating the needs of contemporary living.
- Restoration of morphological characteristics.
- Restoration of the construction materials and systems and at the same time strengthening the building against the earthquake.
- Enhancing energy behavior.
- Upgrading the whole neighborhood with the restoration of the building and its surroundings.

DESCRIPTION OF THE CHANGES AND ADDITIONS

No changes and additions were made to the original form of the building. Demolition of the later non appropriate additions.

BUILDING MATERIALS

Stone foundation and stone masonry (first level).
 Timber frame for the construction of floors and interior walls.
 Wooden roof, covered with ceramic tiles.
 All the works are implemented with the restoration or partial reconstruction of the original elements of the construction.
 The damaged frames were replaced with similar new ones with energy specifications.
 Embodied into the timber frame, thermal insulation was added, while outside, a 5 cm thermal insulation plaster was added, without altering the building morphological characteristics.



Figure 7. First floor plan – proposal drawing.

Source



Figure 8. Section – proposal drawing.

Source

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

Serving the living needs of the owners.
Stimulation of housing in the historic area of Upper city. It served as a model for the restoration of historic buildings in the area.

Economic aspect:

Building Reuse, Building Restoration, Building Energy Savings, Budget Savings (the cost was approximately 80% less in comparison with a construction of a new building of the same volume).

Environmental aspect:

Improving the quality of housing through energy upgrades.
Preserving the historic character of the neighborhood.
Saving resources as much as possible during construction by reusing original constructions

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

All the necessary new reinforcements were made using the same materials and techniques employed in the original structure, while new architectural elements and technological equipment have a contemporary form so as to be distinguishable from the original elements of the building. Specifically, embodied into the timber frame, thermal insulation was placed, while outside the building, a thermal insulation plaster was applied. The result was the energy upgrade of the building, without significantly affecting its original features. Finally, thermal insulation and waterproofing were applied to the roof.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

× N/A



Figure 9. View of the main facade after the restoration.

Source

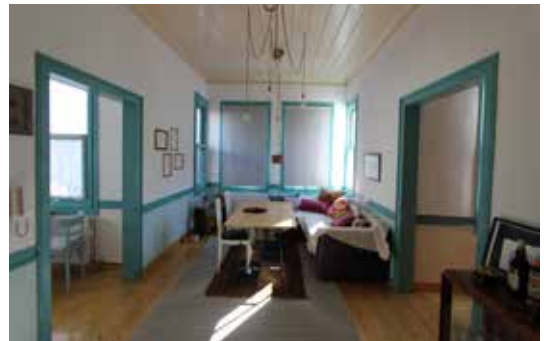


Figure 10. Interior view after the restoration.

Source



Figure 11. Detail of the restoration.

Source

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

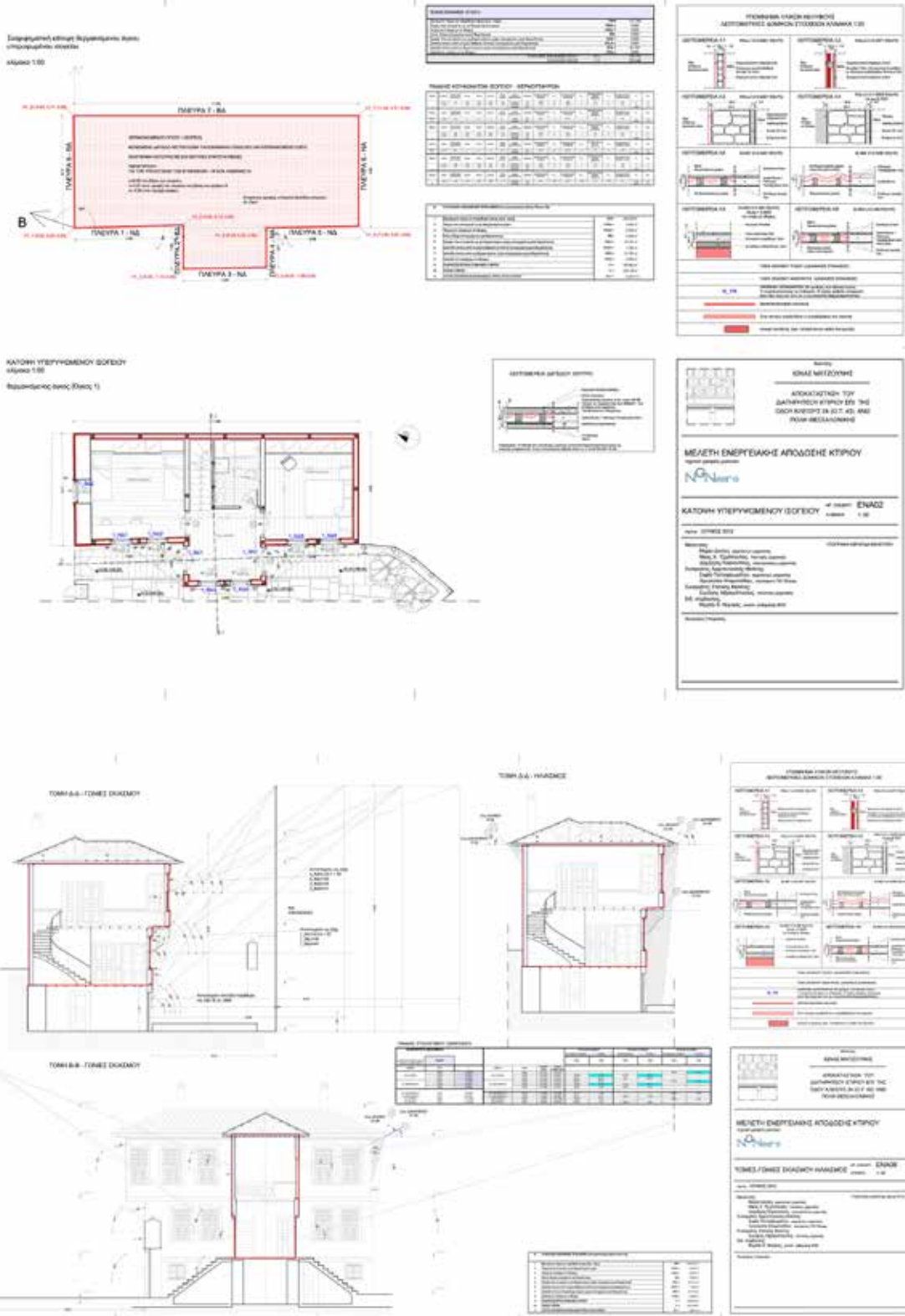


Figure 12. The energy upgrade study
Source

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

✕ N/A

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"Methodological approach for the restoration of historic buildings in Greece. The case of Daniel's Mansion in Xanthi – Thrace", at Proceedings of the 1rst Euro-Mediterranean Regional Conference Traditional Mediterranean Architecture. Present and Future, Rehabilitation EU, ICOMOS, Barcelona 2007, σελ. 601-603.
<http://www.rehabimed.net/Publicacions/Conferencia/1a%20Conferencia%20regional%20Euromediterranea.pdf>

Restoration of Benizelon mansion
<https://archontiko-mpenizelon.gr/el/%CE%BF%CE%B9-%CE%B1%CE%B-D%CE%B1%CF%83%CF%84%CE%B7%CE%B-B%CF%89%CF%84%CE%B9%CE%BA%CE%AD%CF%82-%CE%B5%CF%81%CE%B3%CE%B1%CF%83%CE%AF%CE%B5%CF%82/>

REFERENCE TO WORLDWIDE EXAMPLES

Timber-Framed Buildings and Structural Restoration of a Historic Timber Pavilion in Turkey

<https://www.tandfonline.com/doi/abs/10.1080/15583058.2011.640738?fbclid=IwAR3s7ZDQyDbnI58XRCaX7wXcDgIO n4hW-T0ROPrX0355o8jfTbMUQ9zajsU&>



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

×

Alkmini Paka

project

03

Building block, defined by Adrianou, Vrissakiou, Kladou and Areos streets

Restoration and creative reuse of a building block consisting of 13+ historic structures, in Plaka, Athens, to house the State Museum of Modern Greek Culture plus two more buildings on Kladou street, opposite to the building block.

IDENTIFICATION

Designations:

- ✗ The historical district of Plaka, Athens, opposite the Athenian Roman Forum

Information about the location

- ✗ Urban
- ✗ Historic centre
- ✗ Urban centre

Address

- ✗ Adrianou, Vrissakiou, Kladou and Areos streets

Country / Region

- ✗ Greece / Athens, Plaka

Coordinates

- (GIS: ETRS89 / Google Maps: WGS84)
- ✗ 37.971472372125994
23.72977629217491

City size

- ✗ ca 4000m² built space

Website

- ✗ <http://www.mnep.gr/en>

Accessibility

- ✗ Museum, public building

Public visits:

- ✗ Yes

Category

- ✗ Architectural project
- Resilience
- Reuse (Adaptive)
- Restoration

✗ Landscape

Intervention
Preservation

✗ Urban project

Urban design
Urban revitalization

✗ Infrastructure planning

✗ Cultural planning

Deliberative and participatory planning

- ✗ No

Current use

- ✗ State Museum of Modern Greek Culture

Year (period) of the project renovation / restoration

- ✗ first phase: 2007-2013 / second phase: 2014-2020



Figure 1. Location of the project site in the Upper city of Thessaloniki

Source Google Earth, ©2021 Google

Area of the building (m²)

✗ 3000 m²

Current owner

✗ Public: Museum of Modern Greek Culture / Greek Ministry of Culture

Architects

✗ The restoration and rehabilitation project was carried out by the architecture office BETAPLAN / Ventourakis-Tavaniotis Associates / Gr under the supervision of the Ministry of Culture Directorate of Anastylosis, Museums and Technical Works.

Other designers / engineers

✗ Pagonis – Chroneas – Kinatos LP / Structural Design Project
✗ P.-I. Zannis and Partners AEM / Electro Mechanical Design Project

Other agents

✗ N/A

Developer

✗ Public project

Building contractor

✗ AKTOR SA

Cost of the project / execution time

✗ Total: 12.423.100 euros (European Funding 9.938.480 euros) / 2005 - 2020

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

✗ There was continuous supervision of all reconstruction / restoration works by the Greek Ministry of Culture for recuperating ancient sculptural and architectural parts incorporated in the walls of the existing buildings. There was documentation of the revealed parts of the late roman Athenian walls. The entire site was thoroughly documented and

surveyed before carrying out the restoration projects. All buildings, -including the church of Saint Thomas (belonging to the Benizelos family), the church of Saint Elyseos (of the Logothetis family), the mansion of Chomatianos-Logothetis family, dating from the late Ottoman period- were conserved and reused according to a comprehensive study based on their structural, morphological and historical elements.

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

The building block consists of 13 plus historical structures built around an open courtyard, dating from the late 18th century until the end of the 20th century. Buildings of the late Ottoman period, traditional vernacular town houses and neoclassical buildings compose a unique example of unobstructed continuity in the urban fabric of Athens in close proximity to the Acropolis.

Scope of application / necessity of the project:

The building block will house the main part of the premises of the Museum of Modern Greek Culture. The Museum also comprises three more buildings opposite to the building block, on Kladou street, the early ottoman Tzisdaraki Mosque on Monastiraki square, the Bath House of the Winds (1453-1669) and a house mansion on Panos street, all in close proximity to the central building block. All buildings have been expropriated by the Greek Ministry of Culture.

HISTORY OF THE BUILDING/SITE ////////////////////////////////////

Original use

- ✗ House
- ✗ Residential
- ✗ Religious
- ✗ Commercial

HISTORIC USES

All of the above

CONSTRUCTION PERIOD

first phase: 2007-2013 / second phase:
2014-2020

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

The restoration, reuse and enhancement of this heritage site preserve a building complex together with its open and green spaces, while all new additions - for facilitating the accessibility of the new museum- reflect a contemporary architecture design approach, with a critical stance regarding the historic structures. For the restoration of the buildings, extensive reconstruction work was carried out mainly because: a) of the long period of time these structures have remained derelict, b) of the poor quality of the original materials and c) of the need for accommodating new functions, visitors' safety and new electro-mechanical infrastructure. Extensive reconstruction resulted in a considerable loss of the integrity of the buildings' structural and construction components.

ARCHITECTS / AGENTS

Unknown

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The building block consisted mostly of vacant and partly derelict buildings before the intervention. Some of the structures had already collapsed and had to be reconstructed.

STATUS OF PROTECTION

Some buildings were listed by the Greek Ministry of the Environment. The late Roman Wall, religious and residential buildings dating before 1830 were catalogued under their respective ephorates. The building block is located within the limits of the protected area of Plaka, Athens.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The residential buildings were typical of their respective historic periods conserving their original layouts and typologies. The two religious buildings were in ruins. The St Thomas Basilica was conserved as an archaeological site, while the chapel of St Elyseos was reconstructed according to its original form. The layout of the open spaces was conserved and made accessible at all levels.



Figure 2. General Layout, Scale 1:500
Credits: BETAPLAN / MNEP

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The main concept of the restoration and reuse of a historic building block (of residential, religious and commercial buildings) for accommodating a folklore museum was presenting its collections in context. The museum's permanent exhibition will be housed in nine of these buildings, while the rest will comprise other functions such as storage areas, laboratories, temporary exhibitions, offices and seminar rooms. The building block is well integrated in the townscape of Athens' historic center, functioning unobtrusively as an element of its historical identity and as a landmark.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The layout of the building block was totally conserved. Concerning the exterior facades of all buildings, they were restored with respect

to their original and authentic characteristics while preserving and highlighting their aesthetic, historical and architectural values. There were alterations in the layout and typology of buildings' plans that house the exhibition halls of the museum.

BUILDING MATERIALS

- Original material reuse, to the fullest possible extent
- Extensive reconstruction of timber frames and wooden parts
- Sparring use of new materials (metal frames and structures, reinforced concrete) mainly for accommodating visitors' accessibility and safety
- Use of regional materials of low embodied energy at the open public spaces
- Use of permeable materials at the courtyard and exterior yards/spaces



Figure 3. General layout of the Building Block
copyright: BETAPLAN / MNEP



Figure 4. Facade of Building K
copyright: BETAPLAN / MNEP



Figure 5. Facade of Building D1.
copyright: BETAPLAN / MNEP

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

In an entire building block in the centre of old Athens, the centuries-long history of the city unfolds in a mosaic of building structures dating from the Roman period to the present day. Modern Greek culture is promoted comprehensively through its tangible and intangible cultural heritage while folk art objects dating from the mid-18th century until the 1970s highlight the lifestyle, perceptions, aesthetic standards, know-how and art of the modern Greek culture in context.

Economic aspect:

The function of the new museum will be a pivotal element for the enhancement and further development of the surrounding urban fabric. Effective reuse of existing buildings contributes to a more sustainable development model.

Environmental aspect:

The reuse of existing building materials (mainly stone) recuperates a major part of the embodied energy of the existing structures. The conservation of all open green and public spaces within the building block is a positive environmental goal of the project. Extensive reconstruction of timber-framed walls, roofs, windows, doors, staircases and interior walls do not respond to sustainable goals and standards.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

Due to the nature of the listed buildings' restoration project and the public operation of the complex as a Museum the design had to comply with safety regulations for public buildings but not respond to specific environmental goals/standards

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

× N/A



Figure 6. Aerial view of the entire building block_MNEP
copyright: MNEP + Nikos Daniilidis



Figure 7. Bird's eye view of the building block looking towards the Library of Hadrian and the Roman Forum
copyright: MNEP + Nikos Daniilidis



Figure 8. General view of the complex with the archaeological site of St Thomas Basilica
copyright: MNEP + Nikos Daniilidis



Figure 9. View of the inner courtyard with building D
copyright: MNEP + Nikos Daniilidis

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

✕ N/A

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

The museum promotes the dissemination of cultural heritage values within the restored complex. It regularly organizes workshops, music events, public lectures and temporary exhibitions.

It has received, in 2020, one of the prizes of the competition "EU in my Region 2020" organized among projects co-funded by the EU.

REFERENCES

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ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

✕ N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

✕ N/A

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

X

Maria Doussi
Sofoklis Kotsopoulos

project

04

Historic barracks in the Pavlos Melas metropolitan park (former military camp)

Creative reuse of the barracks in the Pavlos Melas metropolitan park

IDENTIFICATION

Designations

✗ Municipality of Pavlos Melas

✗ Infrastructure planning

✗ Cultural planning

Information about the location

✗ Urban

✗ Historic centre

✗ Urban centre

Deliberative and participatory planning

✗ No

Address

✗ Pavlos Melas former military camp
(Lagada street), 56429 Thessaloniki

Current use

✗ Abandoned

Country / Region

✗ Greece / Central Macedonia

Year (period) of the project renovation /
restoration

✗ 2019-2020

Coordinates

(GIS: ETRS89 / Google Maps: WGS84):

✗ 40.659902

22.935408

City size

✗ 3.300m², 99.245 inhabitants

Website

✗ N/A

Accessibility

✗ Public building / Townhall

Public visits

✗ Yes

Category

✗ Architectural project

Resilience

Reuse

Restoration

✗ Landscape

Preservation



Figure 1. View of the project site

source



Figure 2. Location of the project site in the city of
Thessaloniki

Source Google Earth, ©2021 Google

Area of the building (m²)

✗ 3.300m²

Current owner

✗ Public: Municipality of P.M

Architects

✗ Municipality of Pavlos Melas
 Consultants: Major Development Agency Thessaloniki S.A.
 Asimina Papadiamanti, Head of Technical Service
 Stavros Apotsos, architect MSc Protection, Conservation & Restoration of Cultural Monuments A.U.Th.
 Jordan Sinamides, architect MSc Protection, Conservation & Restoration of Cultural Monuments A.U.Th.
 Stella Psylaki, architect MSc Protection, Conservation & Restoration of Cultural Monuments A.U.Th.

✗ Consultant:
 Michael Nomikos, Emeritus Professor, School of Architecture A.U.Th.

Other designers / engineers

✗ Dimitris Gatzonis, architect, project manager
 Dimitris Angelou, civil engineer
 Vasilis Karavasilis, civil engineer
 George Sourlas, civil engineer
 Aris Valtadoros, civil engineer
 Nikos Xirofotos, electrical & mechanical engineer

Other agents

✗ Major Development Agency Thessaloniki s.a.
 Paraskevi Kourti, Director of Strategic Planning, Urban Development and Funding of Pavlos Melas Municipality.

Developer

✗ N/A

Building contractor

✗ N/A

Cost of the project / execution time

✗ 2,4M€ / 2021-2023

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- Archaeological excavation that revealed the original foundation of the building.
 - Historical research on the recent history of the camp during the Ger-

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

It is a historic building that was built between 1890 and 1905 by the then Ottoman administration. The original design was implemented by German engineers and included, in addition to the perimeter load-bearing masonry, an internal wooden frame. The camp in which it is located was a place of execution during the German occupation in the 1940s.

Scope of application / necessity of the project:

Currently abandoned, the former military building will host the new town hall of the Municipality of Pavlos Melas. The services of the Municipality are currently housed in several private buildings. The new town hall of the municipality was decided to be housed in one of the most imposing buildings of the newly redesigned park. The restoration of a historic building integrated in a Metropolitan Park that would be open to the public and accessible to all social and age groups was the project's main goal.

man occupation based on archives, documents, photographs and oral testimonies.

- Structural analysis by the team of civil engineers.
- Laboratory analyses of materials sampled from the historic building.

HISTORY OF THE BUILDING/SITE



Original use

X Military

HISTORIC USES

Ottoman Barracks (initially - 1912), Greek Barracks (1912-1990)

CONSTRUCTION PERIOD

1890-1905

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

After its construction, the most important intervention that the building underwent was in the '30s, when the original wooden frame was replaced by reinforced concrete slabs, beams and columns. In addition, over the years, the interior layouts violated the original typology.

ARCHITECTS / AGENTS

Unknown German engineers

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The building's physical condition before restoration was poor, except for the perimeter load-bearing masonry, which is well structured and strong enough. The reinforced concrete elements were

weakened by the oxidation of the steel, the reconstructed roof in many places was flooded, most of the windows were missing, as well as the interior walls were in poor condition and irregularly placed.

STATUS OF PROTECTION

By decision of the Ministry of Culture from 2003, it was listed along with the identical building next to it. Therefore both buildings are protected in terms of their masonries and their morphological characteristics, as their architectural, social, technical, historical and scientific values were considered significant. In addition, part of the metropolitan park was designated as a historic site and place of martyrdom.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

It is a two-storey building 150m long, 11m wide and 10m high. Its central part is wider,



Figure 3. View of the historic buildings before the intervention

Source: All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.



Figure 4 and 5. View of the historic buildings before the intervention

Source: All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.

dividing it into two elongated wings. On the central longitudinal axis of each of them, a pair of wooden columns defined an elongated corridor 2,4m wide on either side of which the soldiers' beds were lined up.

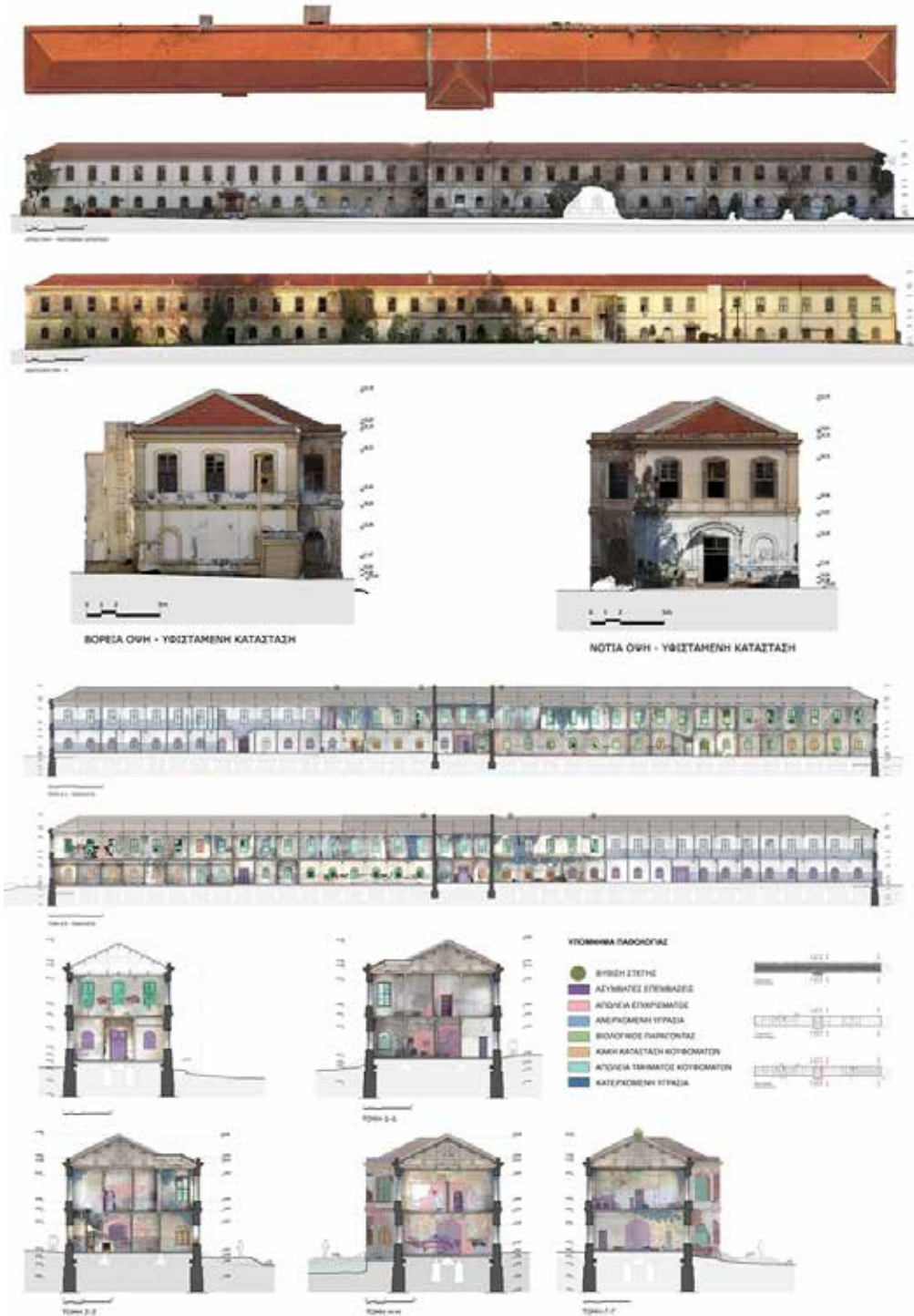


Figure 6. rawings of the analysis and documentation of the historic building.

Source All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION:

The design project idea for the restoration study was to preserve the historical memory of the site and to connect it with the daily life of the citizens. For this reason it was decided to highlight the original structural system, typology and morphological characteristics of the building. The new redesign interventions fit harmoniously into the historic shell and show their modern character, while new materials compatible with the original construction technology are used. The new electromechanical installations upgrade the building energetically without offending it.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The most important change in the building is the removal of all subsequent incompatible interventions and especially those of reinforced concrete. Then the addition of the original building system restores the original typology. New uses are introduced so that the original organization is followed and understood.

BUILDING MATERIALS

Composite glued timber replaces the original wooden frame. After the laboratory analyses of the original building mortars and coatings, the new ones that will be used are selected to be compatible with the old ones, to allow the air permeability through the masonry as well as to strengthen it. The masonry and the roof are insulated internally, to leave the original morphology unchanged. The new wooden frames are designed to meet the old ones with modern technical characteristics.

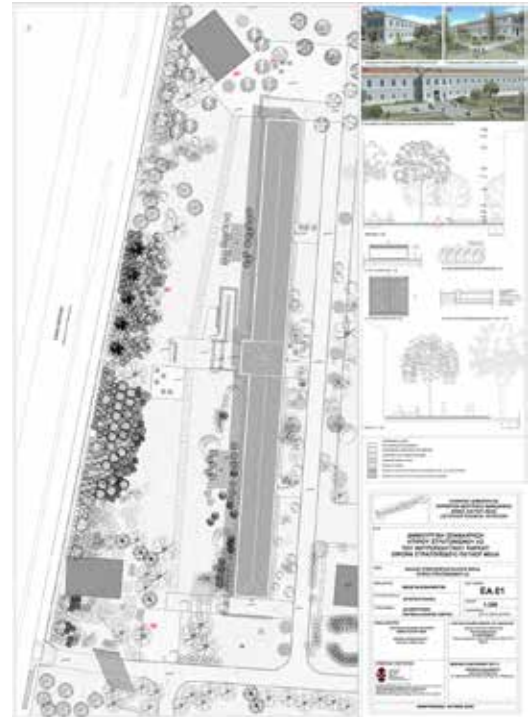


Figure 7. Masterplan of the project.

Source: All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.



Figure 8. Interior view of office layout.

Source: All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.



Figure 9. Interior view of the main entrance.

Source: All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The project contributes significantly to the preservation of memory with activation of the historic site and the reuse of a historic building as it opens to the public. The citizens become familiar with the qualities of the historical construction, while the abandoned shell acquires life. The surrounding area's redesign provides ramps and paths, allowing access for the building and the park to the disabled.

Economic aspect:

With the installation of the new town hall in the historic building, the wider area will be developed and regenerated economically. Resources will be saved by reusing the building stock as they will not be wasted in the construction of a new one.

Environmental aspect:

Maintaining heavy stone masonry saves a considerable amount of accumulated energy. The new materials used are environmentally friendly while they replace reinforced concrete interventions. The new plantings and the integration of the new use in the park upgrade the citizens' quality of life.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

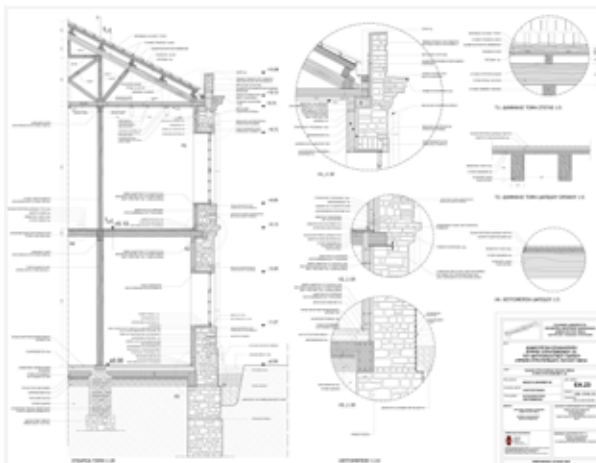


Figure 10. Detail of the intervention.

Source All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.

The construction materials used are fully compatible with the character of the original building. This is the case with both masonry materials such as mortar and the use of wood for floor, roof and window frames. At the same time, the historic building is upgraded energetically using new technologies and aesthetically with modern and distinct elements. The services scattered until yesterday are concentrated in a historic, redesigned, imposing building, saving resources from building materials and energy from unnecessary transportation.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)



Figure 11. Digital data

Source All images and drawings are part of the project and belong to Major Development Agency Thessaloniki s.a.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

× N/A

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

× N/A

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(GR) Λαζαρίδης, Σ., Η μοναξιά του Ζειτενλικ. Η μακράιωνη κυοφορία των Δυτικών Συνοικιών της Θεσσαλονίκης μέχρι το 1920, Εκδόσεις Ζήτρος: Thessaloniki 2012.

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

The building was studied in the Interdisciplinary Collaboration Studio, key element of the Interdisciplinary Program of Postgraduate Studies “Protection, Conservation and Restoration of Cultural Monuments”, Faculty of Engineering, Aristotle University of Thessaloniki, during the academic period 2010-2012. The postgraduate students’ team consisted of archaeologists, architects, civil engineers, rural and surveying engineers, mechanical engineers and electrical and computer engineers. The project covers a series of studies on historical research and documentation, surveying, architectural and structural analysis, reuse proposal and structural reinforcement.

Postgraduate students who studied the building in the context of the interdepartmental program were also members of the project design team.

The building was also studied in the school of architecture as an undergraduate design studio.

OTHER SIMILAR PROJECTS AS A REFERENCE

Restoration of the Medieval fortification of Rhodes

<https://eclass.uop.gr/modules/document/file.php/656/%CE%A1%CF%8C%CE%B4%CE%B-F%CF%82%20-%20%CF%86%CF%81%CE%B-F%CF%8D%CF%81%CE%B9%CE%BF%20>

REFERENCE TO WORLDWIDE EXAMPLES

The old Barracks Restoration

<https://www.barracks.org/barracks-restoration.html>

Neues Museum

<https://davidchipperfield.com/project/neues-museum>



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SPAIN

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Marta García-Casasola

Daniel Pinzón-Ayala

* Information, text, images, drawings
and plans provided by
Francisco Reina Fernández-Trujillo

project

01

Casa Diáñez (Diáñez House)

Rehabilitation of Casa Diáñez. Alcalá de los Gazules

IDENTIFICATION

Designations

✕ Casa Familia Estrada

Information about the location

✕ Historic centre

Address

✕ Plaza San Jorge, 4. Alcalá de los Gazules

Country / Region

✕ España / Cádiz

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✕ 255938.08, 4038743.70
36°27'46.50"N, 5°43'25.19"W

City size

✕ 5226 hab. (2020)

Website

✕ <https://www.reina-asociados.com/work/casa-dianez/>
<http://www.fernandoalda.com/es/trabajos/arquitectura/444/rehabilitacion-de-la-casa-dianez>

Accessibility

✕ Public

Public visits:

✕ Yes

Category

Architectural project

✕ Reuse (Adaptive)



Figure 1. Location map and panoramic view of Alcalá de los Gazules

Author: Elaborated on © Google Maps image by Francisco Reina Fernández-Trujillo.

Source: Document provided for the restricted proposal competition by Consejería de Obras Públicas y Transportes, Junta de Andalucía, 2005



Figure 2. Casa Diáñez (Diáñez House), Plaza San Jorge

Author: © Fernando Alda, 2009.

Source: Francisco Reina Fernández-Trujillo.

Deliberative and participatory planning

✗ Yes

First prize in the restricted proposal competition (2005):

> Title of the proposal: "Mírala" by Francisco Reina Fernández-Trujillo, María Jesús Carmona Salas and José Vázquez Mora.

Current use:

✗ Administrative building.

It was the Technical Office of the Area de Rehabilitación Concertada (Concerted Rehabilitation Area) of the Historic Center of Alcalá de los Gazules and the Historical and Ethnographic Interpretation Centre for the city of Alcalá de los Gazules and its territorial surroundings. The town council is considering using it as a museum.

Year (period) of the project renovation / restoration

✗ 2005/2006: Project and Public Competition
2006/2009: Execution

Area of the building (m²)

✗ 508,85 m²

Current owner

✗ Public: Junta de Andalucía

Architects

✗ Francisco Reina Fernández-Trujillo

Other designers / engineers

✗ Collaborators:
María Jesús Carmona Salas, José Vázquez Mora, Amanda Martín Mariscal, Mercedes Sánchez González, Olga Valderas Grisalvo, José Allona Rosendo (Architects).
✗ Structure:
Pedro Lobato Vida (Architect).
✗ Building Services:
ASTER Consultores.

Other agents

✗ Direction of execution: Francisco Alcoba González (Quantity Surveyor)

Developer

✗ Empresa Pública de Suelo de Andalucía (EPSA).
Oficina Técnica del Área de Rehabilitación Concertada del Centro Histórico de Alcalá de los Gazules.
Dirección General de Rehabilitación y Arquitectura, Consejería de Obras Públicas y Vivienda, Junta de Andalucía.

Building contractor

✗ BEYFLOR, S.L.

Cost of the project / execution time

✗ 652.121,66 €

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

Its powerful tectonics and spatial simplicity: four bays built with thick masonry walls and slabs with tight spans delimit a courtyard of reduced dimensions; on the smaller sides of the courtyard, a system of galleries supported by double arcades intermeddle in the relationship between the void and the rooms, blurring the massive and closed character of the interior space.

Scope of application / necessity of the project:

The façade bay, protected by urban planning policy, and the load-bearing walls of the rest of the building, consolidated and freed of additions or actions lack of value, have been preserved. The adaptation of the new spaces is entrusted to light and unitary structure that is introduced into the building, transforming its section and intertwining naturally with the pre-existing.

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ Historical: The historical study was included in the restricted ideas competition.
- Archaeological: Provincial Delegation of Culture.

HISTORY OF THE BUILDING/SITE



Original use

- ✗ House
- ✗ Religious

HISTORIC USES

Pre-existing conditions: Manor house (15th-16th century) / Cloistered Convent and Episcopal Palace (16th/17th century) Estrada family house / Inn / multi-family housing

CONSTRUCTION PERIOD

17th century

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

18th century: remodeling of the façade. Adaptation of the single-family housing into a multi-family housing. Alterations from different periods can be recognised in the original configuration of the house. These include contemporary modifications to the left lateral bay - rebuilt with concrete slabs - and the insertion of a third gallery on the first floor parallel to the rear bay, supported by two square-section pilasters.

ARCHITECTS / AGENTS

Unknown

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The building was in a poor state of general repair and underwent shoring and structural consolidation work in 2005. The most significant damages affected roofs and floor slabs, mainly due to the poor condition of the wooden load-bearing elements - both beams and boards - which led to the fall of entire sections in some areas of the building, the appearance of deformations and the loss of tile pieces in the gables with the consequent general lack of water tightness of the roofing system. However, the load-bearing structure of the masonry walls remained solid and showed no significant damage, except for occasional pathologies due to the absence of cladding material.



Figure 3. Exterior view before the intervention. Source: Document provided for the restricted proposal competition by Consejería de Obras Públicas y Transportes, Junta de Andalucía, 2005.



Figure 4. View of the arcades before the intervention and Figure 5. Interior view before the intervention. Source: Document provided for the restricted proposal competition by Consejería de Obras Públicas y Transportes, Junta de Andalucía, 2005.

STATUS OF PROTECTION

The house is included in the Revision of the Normas Subsidiarias Municipales de planeamiento (Municipal Urban Planning Subsidiary Rules) of Alcalá de los Gazules. Specifically, it is included in the Catálogo de Bienes Inmuebles Protegidos (Catalogue of Protected Immovable assets) numbered as T-2 with a typological degree of protection. The Plan Especial de Protección para el Centro Histórico (Special Plan for the Protection of the Historic Centre) of Alcalá de los Gazules protects the first bay of the building, facing the Plaza de San Jorge.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The house stands on a plot with a geometry similar to a rectangle of 15x12 m, structured around a central courtyard of 5.5 x 4.5 m with four perimeter bays. The clear interior spans are approximately 3 m in the outer bays and 2.50 m in the inner bays. On the two smaller fronts of the courtyard, arcades are built to support galleries at the first-floor level. The arcades are made up of a double carpanel arch with a brick masonry column as an intermediate support. Functionally, the manor house was structured by levels; ground floor for service activities, offices, storerooms, or stables; first floor for housing and second floor for storing foodstuffs or household goods.



Figure 6. Ground floor before restoration
Author: Francisco Reina Fernández-Trujillo.

PROJECT DESCRIPTION

DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The project works under the following premise: to highlight the essential aspects of the original house once it has been consolidated and freed from additions or previous actions. To conserve the values of the domestic/palatial architecture and make them compatible with the new administrative use, giving it a public and institutional character.

The adaptation of the new spaces is entrusted to light and unitary structure that is introduced into the building, transforming its section and intertwining naturally with the pre-existing. The courtyard, the new axis of routes and circulations, becomes the backbone of the house. Its treatment with wooden lattices combined with glass elements nuances the relationship between the void, the rooms, and the circulation spaces, diluting its limits to make the house lighter as we ascend. Transparencies, glazing, permeability, brightness and reflections give the building a public and institutional character, compatible with the more domestic image of the original house.

DESCRIPTION OF THE CHANGES AND ADDITIONS

Recovery of the typology through the consolidation of the structure and the potential character of the courtyard.
Elimination of the stairs to relocate them next to the rear party wall.
Suppression of internal partitions in certain bays.
Replacement of the contemporary sloping roofs with terraces.

BUILDING MATERIALS

The building is built with thick load-bearing walls made of masonry clad with lime mortar. The original floor slabs were made up of wooden beams or timber beams with a

continuous wooden board. The floor was laid directly with a layer of bonding mortar on top of the board. The roofs are pitched tile roofs, with a wooden structure made up of pairs supported by stirrups embedded in the walls and upper row.

The adaptation of the new spaces is entrusted to light and unitary structure that is introduced into the building, transforming its section and intertwining naturally with the pre-existence, eliminating additions and other inappropriate reforms.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The proposal values the powerful tectonics and the spatial and material simplicity of the original house, preserving its protected elements: the main doorway towards the Plaza de San Jorge (as the main place where the main activities of the population took place: economic, political and religious), the courtyard galleries and the façades.

The intervention aims to convert the house into a significant building in the historic centre of Alcalá with the idea of serving as a stimulus for the urban fabric in which it is inserted.

Economic aspect:

Public funding



Figure 7. Longitudinal section

Author: Francisco Reina Fernández-Trujillo.



Figure 8. View through wooden lattices after the intervention.

Author: © Fernando Alda, 2009.

Source: Francisco Reina Fernández-Trujillo.

Environmental aspect:

The proposal transcends the conservation of the building that is the object of the intervention to “recover the urban and natural (cultural) landscape” in which it is inserted. In this way, the intervention in the courtyard, in addition to “capturing the light”, seeks to establish visual relations with other heritage elements in the surroundings, such as the tower of the church of San Jorge (to the east), the tower of the convent of Santa Clara (to the west) and the castle tower of tribute from the north terrace.

We understand that the typological recovery based on the recognition of the cultural values of the pre-existences, the recycling of spaces, the incorporation of the courtyard into the interior space (capturing the light and connecting with the heritage of the place and with the landscape through new visuals) as well as the use of traditional materials, especially in the façades that remain, show a sustainable attitude in the heritage action. But above all, we are interested in the intervention in the heritage as an intervention that recognises the value of the building, beyond the immediate urban environment, emphasising the capacity of these objects as transmitters of knowledge, in this case of the municipality of Alcalá de los Gazules, and their necessary relationship with the territory through the establishment of relationships with other elements that coexist in the landscape.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

On the technical side, energy efficiency interventions are proposed through passive actions (such as the treatment of light through the courtyard or the control of orientations). A decentralised air-conditioning system was incorporated to make each floor independent. Finally, photovoltaic solar energy panels were not installed due to the use of the building. From a functional point of view, it is proposed to flexibly adapt the uses demanded, allowing for other future occupancy alternatives.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

No digital data was used.



Figure 9. a) View of the interpretation room and b) View of the courtyard from second floor.

Author: © Fernando Alda, 2009.

Source: Francisco Reina Fernández-Trujillo.



Figure 10. View of the courtyard after the intervention.

Author: © Fernando Alda, 2009.

Source: Francisco Reina Fernández-Trujillo.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

No tools/technologies were used.

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Prizes:

- > Finalist. Spanish Architectural Heritage Intervention Award 2009 Consejo Superior de Arquitectos de España.
- > Finalist Work. I Architecture Awards 2006-2010. Official College of Architects of Seville. 2015.

Publications and websites:

- > "Concursos de arquitectura con participación de jurado 2002/2006". Edited by Consejería de Obras Públicas y Transportes. ISBN 978-84-8095-537-9. 2008.

> <https://www.metalocus.es/es/noticias/luz-y-ligereza-en-la-rehabilitacion-de-casa-dianez-por-reina-asociados>

> www.divisare.com/projects/307047-francisco-reina-fernando-alda-www-fernando-alda-com-dianez-house
 > www.archilovers.com/projects/168130/dianez-house-restoration.html
 > <https://morewithlessdesign.com/casa-dianez/>
 > <http://www.fernandoalda.com/es/trabajos/arquitectura/444/rehabilitacion-de-la-casa-dianez>

Conferences:

> "Rehabilitación de dos casas en Cádiz". XV Edición Jornadas REhabilita. Colegio Oficial de Arquitectos de Extremadura, Ayuntamiento de Plasencia y Fundación Pymecon. Plasencia, 8 de octubre de 2020.
 > "Construir entre las cosas". Ciclo: "NOON. Miércoles mediodía. Conferencias sobre arquitectura contemporánea". Escuela Técnica Superior de Arquitectura, Universidad de Sevilla. Sevilla, 2 de junio 2010.

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Almagro Montes de Oca, G. y Guerra Martínez, J. (1991) Alcalá de los Gazules: el medio físico y humano. Alcalá de los Gazules: Ayuntamiento de Alcalá de los Gazules. Cuaderno de Temas Alcalaínos.

Navarro Ariza, María Rosa (1998). El conjunto urbano de Alcalá de los Gazules en apuntes históricos y de nuestro patrimonio, 1997-98. Alcalá de los Gazules: Edición Municipal, pp. 63 y ss.

Navarro Ariza, María Rosa (Inédita). Caracterización, definición y delimitación del conjunto histórico de Alcalá de los Gazules para la Consejería de Cultura.

Ramos Romero, Marcos (1983). Alcalá de los Gazules. Jerez: Diputación de Cádiz. Historia de los Pueblos de la Provincia de Cádiz. Toscano de Puelles, Fernando (1990). Iglesia parroquial de San Jorge en Alcalá de los Gazules. Guía breve. Cádiz: Ayuntamiento de Alcalá de los Gazules. Cuaderno de Temas Alcalaínos.

Toscano de Puelles, Fernando (1988). Historia de la congregación beaterio de Jesús, María y José. Cádiz: Diputación Provincial.

Toscano de Puelles, Fernando (1985). Las escuelas profesionales de la Sagrada Familia en Alcalá de los Gazules. Chiclana: Asociación de AA. AA. SAFA.

Toscano de Puelles, Fernando (1987). Sainz de Andino el Hacedor de Leyes. Cádiz: Diputación de Cádiz.

VV.AA. (1988-2003). Apuntes históricos y de nuestro patrimonio. Cuaderno de Temas Alcalaínos, varios números. Alcalá de los Gazules: Ayuntamiento de Alcalá de los Gazules.

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

Other proposals in the restricted competition (2005):

"Nueva Vida" by Francisco Javier Terrados Cepeda

"Jerash" by José Ignacio Fernández-Pujol Cabrera

"No es lo mismo" by Ignacio Rubiño Chacón, Pura García Márquez and Luis Rubiño Chacón

"Pathio3" by José Manuel Morales, Andrés Pérez Sánchez-Romate and Eva Escribano Montero

OTHER SIMILAR PROJECTS AS A REFERENCE

- Dwellings in Vírgenes street, Sevilla by Francisco Reina Fernández-Trujillo (2007-2011)
 - Pinillos House, extension of the Museum of Cádiz by Francisco Reina Fernández-Trujillo (2009-2011)

REFERENCE TO WORLDWIDE EXAMPLES

✕ N/A



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SPAIN

✕

Marta García-Casasola

Daniel Pinzón-Ayala

* Information, text, images, drawings
and plans provided by
Antonio Jiménez Torrecillas Studio

project

02

Muralla nazari, Alto Albayzín (Nasrid Wall, Upper Albayzin)

////////////////////////////////////
(Recovery of the Cerro de San Miguel and the Darro river area. Rehabilitation of the wall of San Miguel Alto and its surroundings)

IDENTIFICATION

////////////////////////////////////

Designations

- ✕ Muralla de San Miguel (San Miguel Wall)

Information about the location

- ✕ Peri-urban Mountain

Address

- ✕ Albayzin, Granada

Country / Region

- ✕ Spain / Granada

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

- ✕ 447729.67, 4115576.55
37°11'6.61"N, 3°35'20.02"W

City size

- ✕ 10 463 hab. (2017) Albayzín Neighborhood

Website

- ✕ N/A

Accessibility

- ✕ Public

Public visits

- ✕ Yes

Category

- ✕ Architectural project
Resilience
Restoration / Reconstruction
- ✕ Landscape Intervention
Preservation



Figure 1. Muralla Nazari (Nasrid Wall)
Authors: David Arredondo and Alberto García, 2006.
Source: Antonio Jiménez Torrecillas Studio.



Figure 2. Location map of Upper Albayzín and the Alhambra.
Author: Elaborated on @ Google Maps image by Antonio Jiménez Torrecillas, 2008.
Source: Antonio Jiménez Torrecillas Studio.

- ✗ Environmental planning
- ✗ Infrastructure planning

Deliberative and participatory planning
✗ No

Current use
✗ Public space

Year (period) of the project renovation / restoration
✗ 2002 / 2005: Project
2005 / 2006: Construction

Area of the building (m²)
✗ 56,7 m² (constructed area) / 49 358 m² (area involved) / 40 m (wall)

Current owner
✗ Public: Ministerio de Cultura y Deporte, Gobierno de España (Ministry of Culture and Sport, Spanish Government)

Architects
✗ Antonio Jiménez Torrecillas

Other designers / engineers
✗ Collaborators:
Michele Panella, Aberto García Moreno, David Arredondo Garrillo, Michele Loiacono, Miguel Dumont Mingorance, Miguel Rodríguez López, Gustavo Romera Clavero, Erwan Blanchard and Maylis Vignau (Architects)
Miguel Ángel Ramos Puertollano and María Jesús Conde Sánchez (Quality Surveyor)
Manuel Guzmán Castaños (Engineer)

Other agents
✗ Nicolás Torices Abarca (Art Historian)
Emilia García Martínez (Geographer)
Carlos Misó Esclapés (Sculptor)
Daniel Campos López and Eusebio Alegra Paricio (Archaeologists)

Developer
✗ Albaicín Foundation, Granada City Council

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

Opposite the hill of the Alhambra and the Generalife, the San Miguel hill frames the last stretch of the Darro Valley, and its Vega. It is a landscape that is very closed and linked to the city, natural and wild at the same time, but converted into a residual, almost marginal space, where all kinds of rubbish and debris accumulated: in the midst of its disorder, the incomplete, fractured remains of the Nasrid wall, with the marked landscape, historical and constructive values.

Scope of application / necessity of the project:

- > The hill: to preserve this landscape, which is necessary for the understanding of the city in the mountainous structure that determines it, by undertaking a conceptual and physical cleaning of its surroundings, as well as the accesses to it. This will prevent it from being developed.
- > The wall: re-establish the linear continuity of the wall and restore the primitive protection of its interior with the erection of a new wall, a boundary that characterises a landscape associated with the urban periphery with important heritage connotations, to prevent the passage of road traffic although allowing pedestrian communication established over the last century and a half between the two areas of the city separated by the wall.
- > The construction of this new section of the wall conceals a newly built residential area that distorts the landscape.

Building contractor

✗ Entorno y Vegetación

Cost of the project / execution time

✗ 1 mill. € from European Regional Development Fund (ERDF), Local Operational Programme (2000-2006)

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

✗ Intervention to consolidate the walls in the 1950s, by Francisco Prieto-Moreno Pardo (architect).
Archaeological work was carried out at the same time as work on the walls and the surrounding area, although several investigations had already been carried out beforehand on the walls, their history and materials.

HISTORY OF THE BUILDING/SITE
////////////////////////////////////

Original use

✗ Military

HISTORIC USES

The wall was built as a means of defending the city. Later, with the absence of invasion threats, the wall lost its function and began its slow and steady deterioration. It is now a tourist attraction in the city.

Figure 3. Photomontage of the wall before the intervention

Author: Antonio Jiménez Torrecillas, 2005.
Source: Antonio Jiménez Torrecillas Studio.



CONSTRUCTION PERIOD

14th Century (Developer: Yusuf I)

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

> Destruction of 40 meters of the wall by an earthquake (19th century).
> Brick walls to consolidate the walls (ca. 1950) by Francisco Prieto-Moreno Pardo (architect).

ARCHITECTS / AGENTS

Unknown

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The surroundings, the accesses, and the wall itself were in a high state of abandonment



Figure 4. View of the breakage of the wall.

Author: Antonio Jiménez Torrecillas, 2008.
Source: Antonio Jiménez Torrecillas Studio.

and deterioration. The San Miguel hill had become an illegal rubbish dump. The wall was in a high state of abandonment, deteriorated and altered by acts of vandalism.

STATUS OF PROTECTION

Bien de Interés Cultural (Property of Cultural Interest). Category: Monument (Gaceta de Madrid, 12/07/1922).

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The wall was built at the beginning of the 14th century. It was built with rammed earth, made of sand, mortar, and lime. Part of the wall has been lost. The adjoining walls were consolidated with brick masonry elements to provide stability and prevent further degradation of the ends of the walls. The area, although it retains a low degree of urbanisation, was very degraded

PROJECT DESCRIPTION



DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION:

- To carry out a reversible intervention, clearly differentiated from the pre-existing construction, and from a contemporary conception, reinterpreting the materiality of the existing wall.
- To achieve, from a distant perspective, chromatic nuances similar to those existing in the wall. An integrating proposal from the landscape point of view.
- From a close-up view, establish the physical and constructive difference between the old wall and the newly built wall. Reversibility and discernibility characterise the proposed intervention.
- Respect the pre-existing construction respecting space between both constructions. Intervention is compatible with the pre-existence as it is physically separated.



Figure 5. Section.
 Author: Antonio Jiménez Torrecillas, 2006.
 Source: Antonio Jiménez Torrecillas Studio.

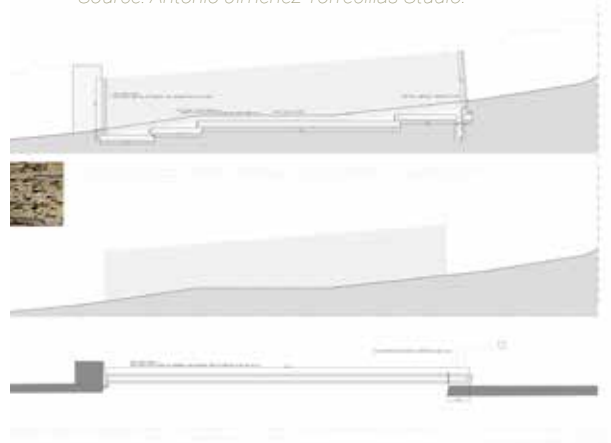


Figure 6. Wall enclosure wall of the wall opening. Section, elevation and plan.
 Author: Antonio Jiménez Torrecillas, 2004.
 Source: Antonio Jiménez Torrecillas Studio.

DESCRIPTION OF THE CHANGES AND ADDITIONS

In order to re-establish the linear continuity of the wall and restore the original protection of its interior, a new wall was built on the missing section. Attached to the historic element, it is distanced from it as far as necessary to avoid contact with the Monument and thus guarantee the conservation of the original walls and foundations. A new wall, in the manner of a “dressing”, is attached to the open wound. In a later intervention, a gap was made to allow people to pass from one side of the wall to the other, a route that had been consolidated since the loss of part of the wall in the 19th century. The rubble and rubbish on the hill were replaced by planting of pitas and prickly pear cactus.

.BUILDING MATERIALS

- Pink Porriño granite slabs for the new wall.
- Restoration of the cobblestones in the sections where they existed; soft tamped earth paving in the areas lacking paving and stone steps for the steeper sections.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

It prevents the damaging passage of vehicles through the wall, but allows pedestrian traffic between the area outside the walls and the Intramuros area. Initially, the passage was made in a bend, but later it was made with a direct passage. The accesses to the area were also adapted, facilitating communication and relations between the inhabitants of both parts of the wall.

Economic aspect:

Public funding

Environmental aspect:

The compact image of the wall and the Cerro de San Miguel is restored, hiding the presence of a modern urban development from the view of the Alhambra.

In addition, vegetation is introduced to recover the idea of a garden in keeping with the Generalife's distant gardens and as a natural backdrop to the Alhambra and the final perspective of the city of Granada itself.

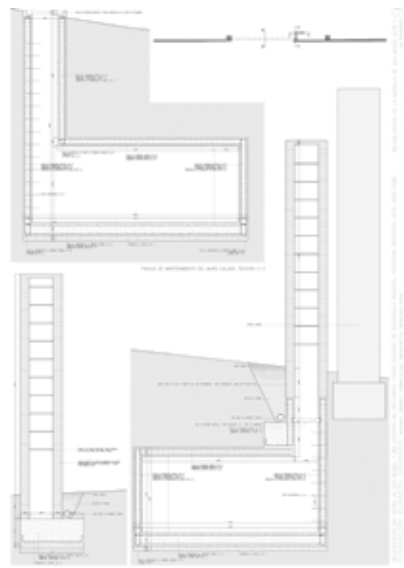


Figure 8. Openwork wall and maintenance passage. Sections.

Author: Antonio Jiménez Torrecillas, 2004.

Source: Antonio Jiménez Torrecillas Studio.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

- The works were carried out manually, especially those related to the wall's construction and the subsequent work to open a space for pedestrians to pass through.
- A green intervention was carried out in the area next to the stepped path with plantations typical of the area, such as pitas and prickly pears.

Figure 7. Photomontage of the intramural elevation.

Author: Antonio Jiménez Torrecillas, 2006.

Source: Antonio Jiménez Torrecillas Studio.



DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

No digital data was used.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

The work of building the new wall, as well as the subsequent opening of the opening, was carried out by hand, trying to alter as little as possible the remains of the foundations of the old fallen wall, and the surroundings.

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Prizes:

- > IV European Prize for Urban Public Space (2006). Finalist.
- > FAD Awards of City and Landscape, Barcelona (2006)
- > Premio Arquitectura Piedra, Madrid (2006)
- > X Premio Internazionale Architettura in Pietra, Verona (2007).
- > The Barbara Cappochin International Architecture Prize. Sustainable urban regeneration / eco-districts. Padua (2007). Honourable Mention.
- > Premio Mies van der Rohe (2007). Selected.
- > IX Bienal Española de Arquitectura y Urbanismo (2007). Finalist.
- > XI Bienal Internacional de Arquitectura. Venezia (2008). Selected.
- > Premio Andalucía de Arquitectura 08.



Figure 9. Sunset in Granada.

Author: Jesús Torres, 2006.

Source: Antonio Jiménez Torrecillas Studio.

Constructed work.

Congress:

- > Jiménez Torrecillas, Antonio (2006). "La muralla nazarí en el alto albaicín". In 16th International Meeting on Heritage Conservation. València: Universitat Politècnica de València, pp. 149-157.

Publications:

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ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

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OTHER SIMILAR PROJECTS AS A REFERENCE

- Centro José Guerrero, Granada, by Antonio Jiménez Torrecillas (2002).
- Torre del Homenaje en Huéscar, Granada by

Antonio Jiménez Torrecillas (2002-2003).
- Pósito de Huéscar, Granada by Antonio Jiménez Torrecillas (2007/2008).

REFERENCE TO WORLDWIDE EXAMPLES

Alhambra of Granada (13th / 14th century).



Figure 10. Pekin Wall (5th / 16th century).
Author: Antonio Jiménez Torrecillas, 2005.
Source: Antonio Jiménez Torrecillas Studio.



Figure 11. Gorgoracha Tunnel, Granada (1848).
Author: Antonio Jiménez Torrecillas, 2005.
Source: Antonio Jiménez Torrecillas Studio.



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✕

Marta García-Casasola

Daniel Pinzón-Ayala

* Information, text, images, drawings
and plans provided by
Luis Machuca Santa-Cruz

project

03

El Caminito del Rey (King's Path)

Recovery of King's Path, Gaitanes Gorge

IDENTIFICATION

Designations

- ✗ Los balconillos (The little balconies)
- El Chorro
- Service Road of the hydroelectric dam of The Gaitanejo

Information about the location

- ✗ Rural
- ✗ Mountain

Address

- ✗ Paraje Natural Desfiladero Natural de los Gaitanes (Álora, Antequera, Ardales).

Country / Region

- ✗ Spain / Málaga

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

- ✗ 342083.01, 4087033.13
- 36°54'57.97"N, 4°46'22.08"W

City size

- ✗ N/A

Website

- ✗ <http://www.caminitodelrey.info/es>
- <http://luismachuca.com/proyectos/recuperacion-del-caminito-del-rey-desfiladero-de-los-gaitanes-3/>
- <http://luismachuca.com/proyectos/centro-de-recepcion-de-visitantes-caminito-del-rey/>
- <http://luismachuca.com/proyectos/control-de-entrada-caminito-del-rey/>



Figure 1. View of the bridge into The Gaitanes Gorge.
Author: © Duccio Malagamba, 2015.
Source: Luis Machuca y Asociados, S.L.P.

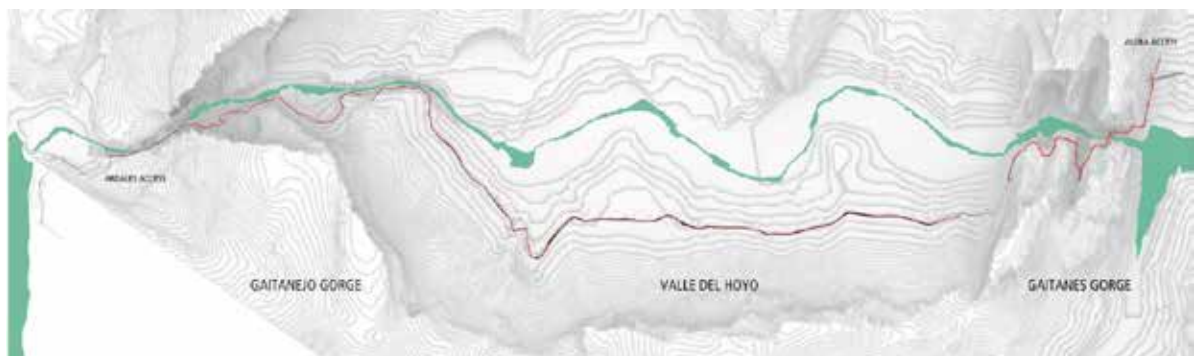


Figure 2. Location Map. Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey".
Author: Luis Machuca y Asociados, S.L.P.
Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: *Arquitectura Viva*.

Accessibility

X Public

Public visits

X Yes

Category

X Architectural project
Reuse (Adaptive)
Other

X Landscape
Intervention
Preservation

X Infrastructure planning
X Cultural planning

Deliberative and participatory planning

X No

Current use

X Turistic Path

Year (period) of the project renovation / restoration

X 2014-2015: El Caminito del Rey

Area of the building (m²)

X The total length of the route is 7.7 km, divided into 4.8 km of dirt tracks and access roads and 1.9 km of footbridges anchored in the vertical walls of the gorges.

Current owner

X Public: Diputación de Málaga

Architects

X Luis Machuca y Asociados, S.L.P.

Other designers / engineers

X Collaborators:
María Luisa Escudier Vega, Manuel José Rodríguez Ruiz, Borja Peñalosa Bejarano (Architects).
José Luis Escola (Civil Engineer)
José Ángel Mata (Industrial Engineer)
José Luis Juanas (Quantity Surveyor)
Juan Schwarzmann Fernández (Quantity Surveyor)

Other agents

X Encarna León (Geographer)
Aurora Quesada (Biologist)
Carlos Vasserot (Economist)
Amor Oliveira (Legal Advice)

Developer

X Diputación de Málaga; Municipalities of Álora, Antequera y Ardales; Junta de Andalucía

KEY FEATURES



Remarkable attributes / Singularities / Specific Values

- > It maintains the current landscape and does not damage the environment, as it is natural heritage.
- > It preserves the memory of the old path as industrial archaeology.
- > Restores accessibility to a natural and cultural landscape. It foresees the human impact on the surrounding area with the opening of the path.
- > Solves the complexity of the project with a moderate budget and a simple design.

Scope of application / necessity of the project:

The recovery of the path is not only relevant as a tourist attraction but also involves the vindication of the history and heritage of the Gaitanes.

The aim of the project has been achieved through a mimetic construction system with the escarpment, reinterpreting previous obsolete structures, and which adapts to the vertical topography as if it were a living being that adheres to the rock, and therefore organic: the idea was to create something new but to make it look as if it had always been there.

Building contractor

✗ Grupo SANDO and Hermanos Campano, S.L.

Cost of the project / execution time

✗ 2.240.000 € / 10 months

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

✗ There was no documentation of vertical topography, and so some tests were carried out on the rocks. Historical, Archaeological and characterisation studies were carried out, the results of which were compiled in several publications.

HISTORY OF THE BUILDING/SITE



Original use

- ✗ Industrial
✗ Commercial
✗ Other

HISTORIC USES

Service road: The path was built at the beginning of the last century in 1901-1905 with the intention of having control and maintenance of the canal and also to give access to the workers from the Conde de Guadalhorce dam to the hydroelectric power station of El Chorro. Thus, the workers and their families living in the settlement El Chorro avoid the long way through the sierra. Communication path: The Caminito del Rey was of great help to the local inhabitants. Children could go to the nearby school, women could buy essential products and it allowed them to keep in touch with other nearby villages in the surrounding mountains (cave houses).

CONSTRUCTION PERIOD

1904: Aqueduct bridge
1901 / 1905: El Caminito del Rey



Figure 3. Previous state of the footbridge. Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey".

Author: Luis Machuca y Asociados, S.L.P. Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: Arquitectura Viva.

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Once it lost its industrial relevance at the end of the 20th century, it has remained in ruins due to the action of nature itself, the passing of time, and vandalism.

ARCHITECTS / AGENTS

Aqueduct bridge: Eugenio Ribera (Engineer)

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The old trail died when it became unusable, obsolete for the local people. The trail was described as one of the most terrifying hikes in the world, closed for 20 years.

STATUS OF PROTECTION

The Caminito del Rey is located in the Desfiladero de los Gaitanes Natural Park, declared by the Junta de Andalucía. Furthermore, this site belongs to Natura 2000: European ecological network of biodiversity conservation areas, as evidenced

by its declaration as a Special Area of Conservation (SAC) and Special Protection Area for Birds (SPA). Since 2019, the Caminito del Rey is preparing its candidacy to become a UNESCO World Heritage Site.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The hanging walkways were originally built with metal squares embedded in the rocks supporting wooden planks. Basically the structure consisted of corbels embedded in the rock, the joint with beams are tied together with plenty of wire, the beams support vaults and solid wooden planks joined together with lime mortar. The metal beams were actually railway rails.

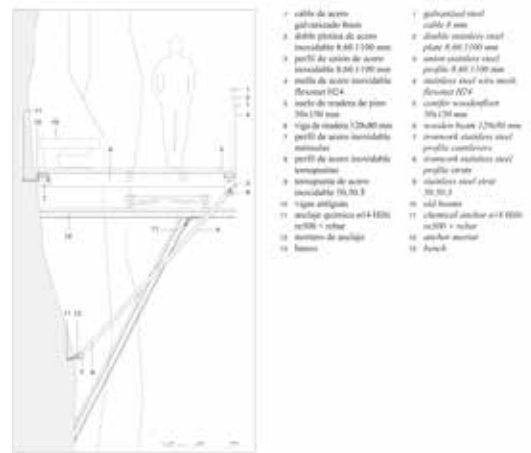


Figure 4. Construcción detail of the new footbridge over the older one

Author: Luis Machuca y Asociados, S.L.P.
Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: *Arquitectura Viva*.

PROJECT DESCRIPTION

DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The design solution of each piece is useful, and everything has a purpose, no useless ornaments. Nothing is superfluous. The design is an organic body, really a centipede-like mecano that has adapted to the escarpment walls.

There are seven parts of the route:

- Visitor Reception Area Shuttle bus stop and a car park El Kiosko Restaurant
- Two access areas: the path and Gaitanejo way (2.7 km or 1.5 km long route, depending on your choice).
- Visitor Reception Centre and Gaitanejo Reservoir.
- First Canyon: Gaitanejo Gorge (2.9 km from the entrance to the exit)
- Second Canyon: Las Palomas Cliff
- Hoyo Valley
- Third Canyon: Gaitanes Gorge (Desfiladero de los Gaitanes)
- Last Stretch Boardwalk to the exit
- Downwards path to the El Chorro Train Station, called Avenue Caminito del Rey (2.1 km).

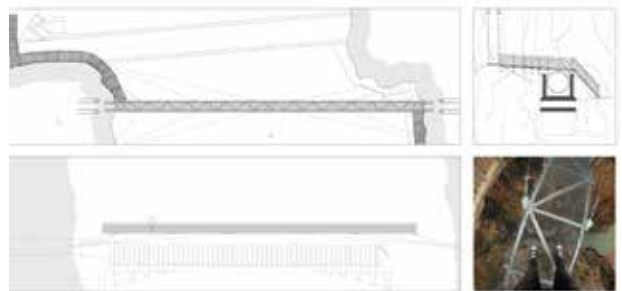


Figure 5. New bridge next to aqueduct bridge: floor plan, elevation, section and image of the footbridge. Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey".

Author: Luis Machuca y Asociados, S.L.P.
Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: *Arquitectura Viva*.

DESCRIPTION OF THE CHANGES AND ADDITIONS

> Footbridges: The decision to keep the old footbridges allowed us to appreciate how it was built, the human resources materials and the management of the workforce a hundred years ago. Today it is impossible to reform it completely, because it does not comply with current regulations.

> Hoyo Valley: The walkway has been preserved in its natural state, only cleaned on both sides for fire prevention and reinforced with quicklime mixed with the natural earth.

> Tunnel: An alternative path was found that can avoid the most dangerous place depending on the weather, when it rains and strong wind rocks fall on the path, so visitors can run into the old tunnel channel, which is 285 m long.

BUILDING MATERIALS

As for the footbridges, they had to have the least impact on the surroundings and the system should be very affordable and cost-effective to maintain. Materials such as stainless steel (anchors, brackets and braces) and wood (beams and walkway) are used.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The Caminito del Rey and the bridge are in the memory of those who lived there, as they were of great help. It was necessary to recover this element as part of the collective memory of the area's inhabitants.

Economic aspect:

El Caminito del Rey's opening has brought significant improvement and economic growth to the area with the attendance of an increasing but controlled number of tourists.

Environmental aspect:

The site is an important archaeological industrial settlement, a wildlife area of botanical, geological and anthropological interest. At the midpoint of the route, a small pond has been created to protect the habitat of the common horned toad.

Tourist access is limited to a maximum number per year.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

- The intervention is reversible. If the footbridges were removed, the environment would remain unchanged.
- The wooden floor and beams are cut according to the state of the rock at each



Figure 6. View of the old and the new Caminito del Rey.

Author: © Duccio Malagamba, 2015.

Source: Luis Machuca y Asociados, S.L.P.



Figure 7. Aerial view of the two footbridges.

Author: Juan María.

Source: Luis Machuca y Asociados, S.L.P.



Figure 8. View of the tunnel.

Author: Jesús Ponce.

Source: Luis Machuca y Asociados, S.L.P.

point, as are the supports and ball joints, resulting in excellent adaptability and making the panels easy to replace.

- The wooden structure blends in with its surroundings. As the material comes from nature, it turns grey and thus blends in with the environment. All materials are recyclable.

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

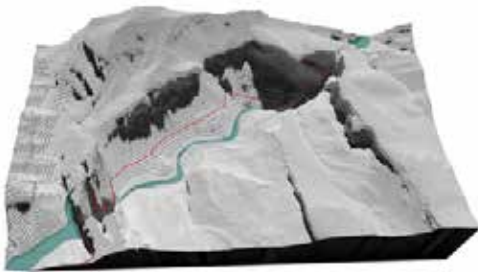


Figure 9. Digital Topography: Los Gaitanes Gorge.

Author: Luis Machuca y Asociados, S.L.P.

Source: Luis Machuca y Asociados, S.L.P.



Figure 10. 3D Software: Design of the footbridge, balcony and enclosed footbridge.

Author: Luis Machuca y Asociados, S.L.P.

Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: *Arquitectura Viva*.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE



Figure 11. Vertical working systems with technical specialists

Author: Luis Machuca y Asociados, S.L.P.

Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: *Arquitectura Viva*.



Figure 12. Helicopter delivery of materials and waste management for greater precision and efficiency.

Author: Luis Machuca y Asociados, S.L.P.

Source: Machuca Santa-Cruz, Luis (2016). "Recuperación del Caminito del Rey". In: *Arquitectura Viva*.

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Prizes:

> ASTER Marketing iAwards, Escuela de Negocios ESIC.

> III National Awards: 'Ciudad y Territorio Albert Serratosá'. Colegio de Ingenieros de Caminos, Canales y Puertos y la Fundación Caminos.

> XIII Bienal Española de Arquitectura y Urbanismo: Prize Category: "Urbanismo: paisaje y ciudad" (2015). Ministerio de Fomento, CSCAE, Fundación Caja de Arquitectos y Unión de Agrupaciones de Arquitectos Urbanistas.

> "Andalucía del Turismo" Awards (2016).

Category: "Buenas prácticas". Secretaría General para el Turismo, Junta de Andalucía.

> Placa al Mérito Turístico. Category: "Destinos Emergentes" (2015). Consejo de Ministros del Gobierno de España.

> "El Caminante" Awards: Producto Turístico del Año. Periódico El Mundo.

> Architectural Awards of Archmarathon, Milán. Category: "Landscape Design & Open Space" (2016).

> X Bienal Iberoamericana de Arquitectura y Urbanismo, São Paulo (Brazil).

> The Europa Nostra Awards. Project "Grand Prix" and "Premio del Público" (2016).

> Certificate "Biosphere". Instituto de Turismo Responsable.

Publications:

> Machuca Santa-Cruz, Luis (2016).

"Recuperación del Caminito del Rey". AV, 2016.

Link: <https://arquitecturaviva.com/obras/recuperacion-del-caminito-del-rey>.

- > Machuca Santa-Cruz, Luis (2017). "La recuperación del Caminito del Rey. La singularidad de un proyecto". Málaga: SANDO, S.A.
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Martín Gaité, C. (1983). "El Conde de Guadalhorce, su época y su valor". Madrid: Colegio de Ingenieros de Caminos, Canales y Puertos.

Olmedo Checa, M. (1992). "El primer camino de hierro". *Revista Péndulo*, n. 3-4.

ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

To complete the restoration of the infrastructure, it has been necessary to combine an environmental project, an urban and territorial planning project (Special Plan for the Caminito del Rey and its surroundings), and a technical execution project for the construction of the walkways and footbridges, control cabins and visitor reception centres.

OTHER SIMILAR PROJECTS AS A REFERENCE

N/A

REFERENCE TO WORLDWIDE EXAMPLES

Path in the Pinar de la Algaida, Natural Park of Cadiz Bay, El Puerto de Santa María (Cádiz) by Ramón Pico and Javier López (2002).



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Marta García-Casasola

Daniel Pinzón-Ayala

* Information, text, images, drawings

and plans provided by

AF6 ARQUITECTURA

project

04

Antigua fábrica de Cerámica / Centro de la Cerámica de Triana



Rehabilitation of the Antigua fábrica de Cerámica (Former Pottery complex Santa Ana) as the Centro de la Cerámica de Triana (Pottery center of Triana)

IDENTIFICATION



Information about the location

✗ Historic centre

Address

✗ Antillano Campos 2, 4 y 6 y C/ San Jorge 31. Sevilla.
Actual C/ Callao, 16

Country / Region

✗ España / Sevilla

Coordinates

(GIS: ETRS89 / Google Maps: WGS84)

✗ -6.004630, 37.385586
37°23'08"N, 6°00'17"N

City size

691.395 hab. (2020)

Website

✗ <https://www.af6.es/centro-ceramica-triana/>
<https://www.jesusgranada.com/museo-ceramica-triana-sevilla-af6-arquitectos>
<https://www.visitasevilla.es/mas-lugares-de-interes/centro-ceramica-triana>

Accessibility

✗ Public

Public visits

✗ Yes

Category

✗ Architectural project
Reuse (Adaptive)
Restoration / Reconstruction

Deliberative and participatory planning

✗ Yes, First prize in the restricted proposal competition 2009

Current use

✗ Centro de la Cerámica de Triana: Museum / Cultural building

Year (period) of the project renovation / restoration

✗ 2009/2010: Project and Public Competition
2012/2014: Execution

Area of the building (m²)

✗ Plot area: 1510 m²
Floor area: 2241 m²

Current owner

✗ Public: Consorcio Turismo de Sevilla



Figure 1. Location map near to Triana Bridge.

Author: Elaborated on aerial image by AF6

ARQUITECTURA

Source: AF6 ARQUITECTURA

Architects

- ✗ AF6 ARQUITECTURA
Miguel Hernández Valencia
Esther López Martín
Juliane Potter
Francisco José Domínguez Saborido
Ángel González Aguilar

Other designers / engineers

- ✗ Collaborators in the competition:
Ana Blanco Campe, Angélica Cortés Sanguino, Rubén Ingelmo Crespo
- ✗ Collaborators in the project:
Angélica Cortés Sanguino, Elías Pérez Lema
- ✗ Consultants: DiMarq, S.L.
Instalaciones.
- ✗ Production Ceramic pieces façade:
METIS Conservación y Restauración S.L

Other agents

- ✗ Direction of execution: Rafael Esteve González and Reyes López Martín (Quantity Surveyors)

Developer

- ✗ Consorcio Turismo de Sevilla

Building contractor

- ✗ UTE CONDISA ALEA GLOBAL
Museum installation: Espai Visual.

Cost of the project / execution time

- ✗ Budget for the material execution of the works: 3.065.000,65 €
- ✗ Budget for the material execution of the museography: 367.794,27€

Previous studies (Ex. Archaeological, historical, structural, materials, etc.)

- ✗ Miguel Ángel García García (Archaeologist)
Restoration of furnaces: Dédalo Bienes Culturales S.L.U.
Others collaborators:
Paula Felizón (Anthropologist)
Antonio Libroero (Art historian)
Alfonso Pleguezuelo (Professor.

Department of Sculpture and History of Plastic Arts, USE, who drew up the preliminary museological plan and selected the ceramic pieces for the exhibition).

HISTORY OF THE BUILDING/SITE

////////////////////////////////////

Original use

- ✗ House
- ✗ Industrial
- ✗ Commercial

HISTORIC USES

Pottery complex, dwellings, shops.

KEY FEATURES

////////////////////////////////////

Remarkable attributes / Singularities / Specific Values

The heterogenous exterior image of the complex tells a story linked to the culture of Triana (pottery industry, commerce, housing). There are two interconnected plots where there are three semi-detached buildings with different façades facing the street.

Scope of application / necessity of the project:

The project rehabilitates an ancient pottery complex as a center for exhibitions of Triana, a museographic space, which includes the touristic itineraries of Triana, commercial and productive areas for Santa Ana Pottery Factory.

CONSTRUCTION PERIOD

Active pottery from the Middle Ages to the end of the 20th century.

SUMMARY OF MAJOR FUNCTIONAL AND STRUCTURAL CHANGES / YEAR OF INTERVENTION

Triana is a historic neighbourhood characterized by a small domestic scale layout. It is an urban complex that intermingles corrales de vecinos (historic collective housing), craft workshops, traditional housing and modern residential growth from the mid-20th century. In Triana there is a coexistence of traditional craft and everyday activities (pottery, flamenco...) strongly identified with the place and clearly reflected in the street, full of activity and bustle. Triana is a place where you can discover the pleasure of the everyday.

ARCHITECTS / AGENTS

Unknown

PHYSICAL CONDITION BEFORE RESTORATION / RENOVATION

The fact that the former Cerámicas Santa Ana factory remained active until the end of the 20th century has kept the historical elements of the Pottery Ensemble mostly complete, and their uses located in their original place: seven kilns for firing ceramics, water wells, mills and pigment deposits, workshops, and warehouses. During the archaeological excavations carried out, the remains of a further eighth kilns were found, the oldest of which was found to have been used until the end of the 16th century, and their activity can be dated back to no later than the 15th century.

STATUS OF PROTECTION

Catalogued in the Special Plan for the Protection of Sector 14 "Triana" of the Historical Complex of Seville of 1999. The



Figure 2. State prior to the intervention

Author: AF6 ARQUITECTURA.

Source: AF6 ARQUITECTURA.



Figure 3. State prior to the intervention

Author: AF6 ARQUITECTURA.

Source: AF6 ARQUITECTURA.



Figure 4. State prior to the intervention

Author: AF6 ARQUITECTURA.

Source: AF6 ARQUITECTURA.

Plan identifies the Pottery Assemblies of Triana as “buildings of typological interest.” Therefore the typological aspects should be the object of specific protection. It defines the “Santa Ana Pottery Complex” as one of the three major pottery complexes in Triana, together with Cerámicas Montalván and Cerámicas Santa Isabel. The Special Plan protects the façades, ceramic decorations, first bay, types of houses that can be protected, and all the elements related to the pottery industry, especially the kilns if they are historical. The Special Plan also gives a precise definition of Pottery Ensembles: “These are groups of buildings or houses characterised by being associated with traditional pottery activity from the 18th century and even earlier. They are based on the use of the blocks' interior for the kilns and are gradually filled with buildings from different periods, either for housing the craftsmen themselves, warehouses, or exhibition and sales points”. In addition, the Special Plan establishes archaeological precautions for the whole complex, which imply that the archaeological analysis of the emerging structures must be carried out in coordination with the works. The IAPH drew up a technical report on the valuation and appraisal of ceramic pieces just before the intervention.

GENERAL DESCRIPTION OF THE BUILDING BEFORE ITS RENOVATION / RESTORATION

The old factory remained in use until the end of the 20th century. This situation has allowed the elements that make it up to be found mostly complete and located in their original context: seven ceramic firing kilns, water wells, mills and pigment deposits, workshops and storerooms. During the archaeological excavations carried out, the remains of another eight kilns were found, the oldest of which was used until the end of the 16th century. Two of them have been integrated into the project. The old factory cannot be seen from the street, and it is hidden behind the buildings that make up its urban image.

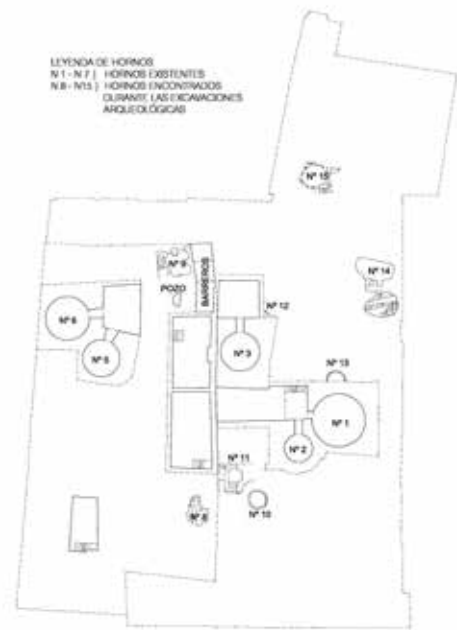


Figure 5. Previous state and archaeological excavations
 Author: AF6 ARQUITECTURA

PROJECT DESCRIPTION

DESIGN PROJECT IDEA FOR THE RENOVATION / RESTORATION

The heterogeneous exterior image of the complex tells a story linked to the culture of Triana (pottery industry, commerce, housing). There are two interconnected plots with three semi-detached buildings with different façades facing the street.

The first serves as the complex entrance and is clad with unique advertising tiles from Cerámica Santa Ana, forming the corner facing the Plaza del Altozano from where the Triana Bridge starts. The second building, which is lower in height, has a more austere, factory-like appearance. The third building was a three-storey block of flats with independent access from the street.

DESCRIPTION OF THE CHANGES AND ADDITIONS

The complex is the result of a historical process in which the colonisation of the

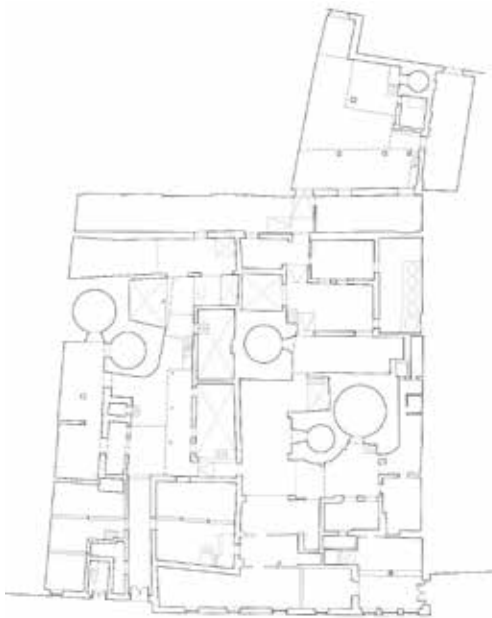


Figure 6. Ground floor before the reconstruction.
 Author: AF6 ARQUITECTURA

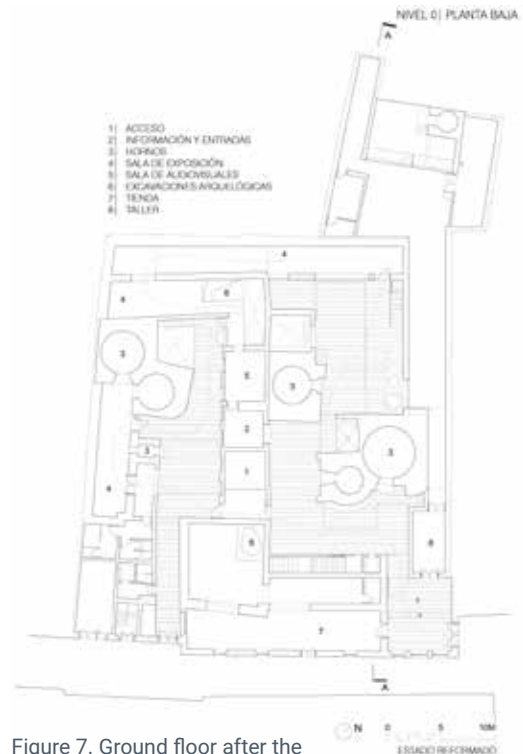


Figure 7. Ground floor after the reconstruction.
 Author: AF6 ARQUITECTURA

interior space is based on resolving the needs that have arisen: manufacturing, extending, housing, storing, modernising. The project is conceived as another process, from a contemporary point of view, which highlights this coexistence.

The Triana Ceramics Centre intertwines with the complex fabric of the Triana suburb, generating an inner urban landscape of great spatial richness. The new constructions adapt their height and shape to that of the existing buildings in the complex. The project is not intended to be a visual reference point from the outside that alters the profile of Triana. There is no façade. The complex will be like a gift, which is discovered when we enter it.

The building is organised on the ground floor as a continuous route, like a walk between the kilns of the pottery complex. The pottery production process is narrated using original elements from this pottery kiln inserted in their original context. A labyrinthine route is proposed between the pottery kilns and the old spaces of the factory that tell the visitor how pottery was produced in Triana. We work through an archaeological methodology without erasing temporary traces of the small



Figure 8. Image of the courtyard.
 Author: © Jesús Granada, 2013.
 Source: AF6 ARQUITECTURA.



Figure 9. Interior, exhibition space: musealised tiles
 Author: © Jesús Granada, 2013.
 Source: AF6 ARQUITECTURA.

memory of the spaces (smoke, disorder, chance, bricks, wood, ashes) that form part of the heritage.

BUILDING MATERIALS

The intervention strategy conserves and recovers original materials, making use of new ones that are always compatible with the existing ones.

The enclosure of the façades of the first floor reinforces the concept of the process of accumulation of the project. A galvanised steel substructure in the form of a large shelf serves as a support for the apparently disorderly stacking of hollow ceramic pieces of four different sizes. This solution allows for solar protection depending on the orientation and the different views of the pottery ensemble.

PROJECT IN RELATION TO THE SUSTAINABILITY

Social aspect:

The idea of sustainability is part of the criterion of minimal intervention on the existing elements (ovens, pigment deposits, etc.), preserved in their original position, which can be visited from outside spaces (courtyards).

Economic aspect:

The project preserves elements that were not included in the catalogue of the Special Plan, such as the central brick building that separates the two plots. This approach responds to criteria of conservation of the character of the "pottery landscape" - the title of the project entry for the competition. At the same time introduces the idea of minimum energy consumed during the construction process. The spaces and the constructive elements that constitute them are reused as far as possible.

Environmental aspect:

The artificially conditioned interior spaces are only those that are strictly necessary, and a large part of the visit takes place through intermediate spaces between the exterior and interior, crossing three courtyards, in sections that are sometimes covered from the rain and the sun. This minimisation of the spaces to be conditioned implies a reduction in the energy demand of the whole.



Figure 10. Organisation of the different volumes that make up the ensemble

Author: © Jesús Granada, 2013.

Source: AF6 ARQUITECTURA.

SPECIAL METHODS OR TECHNIQUES USED IN THE PROJECT WHICH REFLECT THE SUSTAINABLE DESIGN

The intervention complies with all energy efficiency standards for its ventilation and air conditioning installations. The space between the heterogeneous ground floor roof and the first floor is used to locate the air conditioning systems and ducts, attached to the party walls, thus avoiding the appearance of machines on the roof.

From the social point of view, a network of informants linked to the old factory was created, which gave rise to the document we call "life stories", in which these people are interviewed and which forms part of the exhibition on the ground floor dedicated to the factory.

The Triana neighbourhood actively participated by contributing documents that were used to put together an exhibition called "Aquí Triana" (Here Triana).

DIGITAL DATA EMPLOYED FOR THE DOCUMENTATION (3D SCANNING, PHOTOGRAMMETRY, ETC.)

The development of the interior enclosure towards the courtyards, with the ceramic lattice made up of extruded hollow pieces, is understood as an innovative technological resource. Specifically, no digital resources were used for its design, but it is particularly interesting to note the use of models at different scales, including a 1:1 scale model of the lattice.

TOOLS/TECHNOLOGIES USED FOR THE IMPLEMENTATION OF THE NEW USE

They were not used in the development of the intervention project, but were used as support material for the development of the museographic project.

DISSEMINATION / PROMOTION ACTIVITIES (WORKSHOPS, CONGRESS, PUBLICATIONS, PRIZES)

Prizes:

- > Concurso de ideas con jurado, 1º Premio. 2009
- > Obra del Año 2015 en Plataforma Arquitectura. Finalista.
- > Premios THE PLAN AWARD 2015. Finalista en la categoría Old & New. Italia 2015
- II Premios de Arquitectura Colegio Oficial de Arquitectos de Sevilla (2011-2015). Finalista en la categoría de Rehabilitación de Promoción Pública

Papers:

- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2013). "Triana Ceramic Museum". *C3 Magazine*, 346, pp. 132-143.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2013). "Museo Della Ceramica di Triana". *The Plan: Architecture & Technologies in Detail*, 68, pp. 80-86.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2013). "Centre de Céramique de Triana, Séville, AF6 Arquitectos". *Architecture intérieure. CREE*, 361/362, p. 214.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2013). "Musée de la Céramique". *NDA New Design d'Architecture et d'Amenagement*, 15, pp. 80-83.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2014). "Ornament. Schöner Stapeln". *DB (Deutsche Bauzeitung)*, 6, pp. 106-109.

- > Hernández-Valencia, Miguel, and López Martín, Esther (2014). "Centro Cerámica Triana, intervención en un conjunto alfarero". *PH: Boletín del Instituto Andaluz del Patrimonio Histórico* 22 (85), pp. 100–123. <https://dialnet.unirioja.es/servlet/articulo?codigo=5207986&orden=0&info=link>
- > Hernández-Valencia, Miguel; López Martín, Esther (2014). "Centro Cerámica Triana". *Ciudad y Territorio: Estudios Territoriales*, 180, pp. 359–364. https://dialnet.unirioja.es/servlet/ejemplar?codigo=369336&info=open_link_ejemplar.
- > Hernández-Valencia, Miguel and López Martín, Esther (2015). "Identity Kept in Place: Triana Pottery Centre, Seville, Spain". *Metszet*, 3, pp. 24–27.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2014). "Centro Cerámica Triana. Sevilla". *ConArquitectura: Arquitectura Con Arcilla Cocida*, 49, pp. 21–30.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2014). *AV Monografías. España*, 165-166. Madrid: Ed. Arquitectura Viva.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2015). "Triana Keramil Museum, Sevilla". *Architektur Aktuell*, 426, pp. 70-79.
- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2015). "Centro Cerámica Triana. Sevilla". *On Diseño*, 349.

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- > Hernández-Valencia, Miguel; López Martín, Esther; Pötter, Juliane; Domínguez Saborido, Francisco José; and González Aguilar, Ángel (2011). "Centro de la Cerámica de Triana". In: *37o23N 5o59W: Sevilla Contemporánea, Arquitectura 2000-2010*, pp. 93–96. Sevilla: Accesit; Lugadero; PiPo.
- > Ruiz Fernández, Rogelio, ed. (2020). *RutARQ de la Plata Nuevos conquistadores del espacio*. Madrid: Conarquitectura ediciones.

Press:

- > *Diario El País* (30/05/2013) by Anatxu Zabaleascoa.

- > Diario ABC (06/07/2013) by Fredy Massad.
- > La Vanguardia (07/05/2014) by Alicia Guerrero Yeste.

Expositions:

- > "De obra. Cerámica aplicada a la arquitectura". Museu del Disseny de Barcelona, 15/09/2016 - 29/01/2017.

Conferences:

- > Estudio AF6. Taller de Arquitectura en proceso. Escuela Técnica Superior de Arquitectura de Sevilla. 16/12/2009
- > Arquitecturas en construcción. Colegio Mayor Universitario Hernando Colón. 16/04/2012
- > AF6 Arquitectura. Colegio Oficial de Arquitectos de Huelva. 17/03/2014
- > AF6 Arquitectura: en construcción. Escuela Técnica Superior de Arquitectura de Sevilla. 07/01/2014
- > El Centro Cerámica Triana como espacio cultural y turístico urbano. Universidad Internacional Menéndez Pelayo. Sevilla, 31/03/2016
- > Cerámica sobre Cerámica. II Ciclo TRANS-HUMANCIAS. Universidad de Sevilla. Grupo de Investigación HUM 965. 16/07/2016
- > Cerámica + Arquitectura. Paisaje Alfar. LXXXVI Exposición de alfarería y cerámica de La Rambla. Ayuntamiento de La Rambla. Diputación de Córdoba. 03/08/2016
- > Acciones. Escuela de Arte de Almería. 08/02/2016
- > Sobre Cerámica: procesando fragmentos. Escuela Técnica Superior de Arquitectura de Granada. 15/01/2018
- > Jornadas Patrimonio Industrial. Los retos del siglo XXI. Diputación de Córdoba. 27/03/2019
- > Ceramics, Handcraft and Technology. VIII Congress on Ceramics and Architecture. Escuela Técnica Superior de Arquitectura. Cátedra Cerámica. Madrid 26/02/2019.
- > La recuperación de espacios industriales de la cerámica para la sociedad de hoy. Seminario: Los paisajes de la cerámica. Instituto del Patrimonio Cultural de España. Madrid 19/11/2019
- > AF6 Arquitectura. Cátedra Cerámica. Universidad Internacional de Cataluña. Barcelona. 6/10/2020

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ACADEMIC WORKS / STUDENTS RELATED PROJECTS / PUBLICATIONS

✕ N/A

OTHER SIMILAR PROJECTS AS A REFERENCE

Restoration of the old Pottery Complex of Cerámicas Montalván for Restaurant and Hotel (2013-2018) by AF6 Arquitectura.

REFERENCE TO WORLDWIDE EXAMPLES



Figure 11. Rehabilitation of the Antigua fábrica de Montalván, Triana, Sevilla (Former Pottery complex Montalván) as Triana Montalván Hotel and Restaurant. Catalogation process of tiles

Author: AF6 ARQUITECTURA
Source: AF6 ARQUITECTURA



Pedagogical and Educational Models



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)



SERBIA

×

Vladan Djokić
Milica Milojević
Mladen Pešić

course

01

UNIVERSITY LEVEL COURSE
DETAILS

Institution

✗ University of Belgrade

Type of Institution

✗ Higher Education Institution

District

✗ Belgrade, Serbia

Department

✗ Department for Urbanism

Faculty

✗ Faculty of Architecture

Study program to which this course
belongs

✗ Single-Cycle 5-Year Study
Programme in Architecture

		BACHELOR STUDIES / 3 YEARS / 180 ECTS				
		INTEGRATED STUDIES, Single-cycle 5-year studies / 5 YEARS / 300 ECTS				
		Bachelor of Architecture – B.Arch.			Master of Architecture – M.Arch.	
		FIRST YEAR B-I	SECOND YEAR B-II	THIRD YEAR B-III	FOURTH YEAR I	FIFTH YEAR I
FIRST SEMESTER		STUDY UNIT SPACE AND SHAPE	HOUSING	ARCHITECTURAL DESIGN METHODOLOGY	URBAN SOCIOLOGY	URBAN ECONOMY
		STUDY UNIT INTRODUCTION TO ARCHITECTURE AND ARTS	HISTORY OF ARCHITECTURE – SHAPING OF SPACE AND STYLE	INDUSTRY AND COMMERCE BUILDINGS	STUDIO M01 A – Design project	STUDIO M03 A – Design project
		THE CITY: FORMS AND PROCESSES	STUDY UNIT URBAN DESIGN I	ARCHITECTURAL HERITAGE IN SERBIA	STUDIO M01 A – Seminar	STUDIO M03 A – Seminar
		ARCHITECTURAL STRUCTURES I: Elements of buildings' materialisation	ARCHITECTURAL STRUCTURES I	URBAN ANALYSIS AND PLANNING	STUDIO M01 A – Workshop	STUDIO M03 A – Workshop
		MATERIALS AND BUILDINGS' PHYSICS	STRUCTURAL PRINCIPLES OF ARCHITECTURAL BUILDINGS	ARCHITECTURAL UTILITIES		
		MATHEMATICS IN ARCHITECTURE	STUDIO 01-a FAMILY HOUSING	DESIGN AND CALCULATION OF ARCHITECTURAL STRUCTURES 2	Elective course: HISTORY AND THEORY 1	Elective course: HISTORY AND THEORY 2
		ARCHITECTURAL GEOMETRY I	STUDIO 01-b URBAN DESIGN OF RESIDENTIAL ASSEMBLIES	STUDIO 01-a – ARCHITECTURAL TECHNOLOGIES – Project	Elective course 1: ARCHITECTURE	Elective course 2: ARCHITECTURE
		TRANSFORMATION OF GRAPHICAL FORM	VISUAL REPRESENTATION IN ARCHITECTURE	Development STUDIO 01-b – MULTIFAMILY HOUSING (B)	Elective course 1: URBANISM	Elective course 2: URBANISM
				STUDIO 01-b – ARCHITECTURE AND NATURE (B)	Elective course 1: ARCHITECTURAL TECHNOLOGIES	Elective course 2: ARCHITECTURAL TECHNOLOGIES
		STUDY UNIT ELEMENTS OF ARCHITECTURAL DESIGN	EDUCATION AND SPACE	ARCHITECTURAL DESIGN PROCESS	PHILOSOPHY	PROFESSIONAL INTERNSHIP – A
		HISTORY OF MODERN ARCHITECTURE AND URBANISM	ADMINISTRATION BUILDINGS	URBAN RENEWAL	STUDIO M02 U – Design project	MASTER THESIS – A
		HISTORY OF MODERN ART AND DESIGN	HISTORY OF ARTS	CONSTRUCTION MANAGEMENT	STUDIO M02 U – Seminar	MASTER PROJECT – A
	SECOND SEMESTER		URBAN MORPHOLOGY	STUDY UNIT URBAN DESIGN 2	STRUCTURAL SYSTEMS	STUDIO M02 U – Workshop
		ARCHITECTURAL STRUCTURES 2	ARCHITECTURAL STRUCTURES 4	LEGISLATION		
		SYNTHESIS OF ELEMENTS AND ASSEMBLIES – MASSIVE STRUCTURE DESIGN	DESIGN AND CALCULATION OF ARCHITECTURAL STRUCTURES 3	PROFESSIONAL INTERNSHIP	Elective course: HISTORY AND THEORY 2	
		MECHANICS AND STRENGTH OF MATERIALS	STUDIO 02-a – SUSTAINABLE URBAN COMMUNITIES (B)	ELECTIVE COURSE	Elective course 2: ARCHITECTURE	
		ARCHITECTURAL GEOMETRY 2	STUDIO 02-a – MULTIFAMILY HOUSING (B)	STUDIO 02-a – SYNTHESIS	Elective course 2: URBANISM	
			STUDIO 02-b ARCHITECTURAL STRUCTURES: COLOUR AND VISUAL CONCEPTION	STUDIO 02-a – SYNTHESIS OF BASIC LEVEL	Elective course 2: ARCHITECTURAL TECHNOLOGIES	
				STUDIO 02-b – URBAN DEVELOPMENT AND RENEWAL		

A diagram that illustrates the position of the course in the structure of the study program:

Level

X Postgraduate (Integrated studies)

Year/Semester

X 4th Year, 8th Semester

Course Type

X Studio design

X Seminar

X Workshop

Elective or Compulsory Course

X Compulsory

ECTS

X 20 (Studio design - 15, Seminar - 4, Workshop - 1)

Lectures/week (hours)

X 15 (30)

Studios/labs/week

X 15 (150)

Academic/ Teaching Personnel

X Prof.Vladan Đokić, Ph.D.

Ass. Prof. Milica Milojević, Ph.D.

Teaching ass. Mladen Pešić, Ph.D.

Program of Study Content

X Design Project

COURSE CONTENT AND STRUCTURE

A Design Studio course is always site-specific and contextually based. Within the studio, urban morphology, both as a theoretical framework and a practical tool, is used for site-specific design and context-sensitive research. Within the Design studio, the teaching process is organized so that it is intensely devoted to fostering individual approaches of students and a culture of communication, both verbal and visual. The course consists of three independent parts – Seminar, Workshop, and Design Studio. Each mentor/ teacher within the course can organize it according to his own methods. According to this, a specific methodological approach was

developed within the Design Studio by teachers in question.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course aims to develop applied research methods, techniques and sensibilities towards spatial aspects of ambient values. The students recognize the topic of intervention during the field work - in direct contact with the real space and environment, real actors, and current processes, in their own conceived research action. The course purpose is to achieve innovation in context, while developing skills and tools for innovative design of contextual forms suitable for activating the development processes of reconstruction of urban centers.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

After finishing this course students should have knowledge and ability to:

- understand the application of appropriate theoretical concepts during design in the Studio, showing thoughtful and critical access;
- apply theories of urban design, planning, urban renewal, and revitalisation;
- understand the influences of the design and development of cities in the past and present on the contemporary environment;
- understand current planning policies and legislation regarding the built environment, including social, economic and aspects of environmental protection and their importance for urban development planning;

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

The seminar is run through the semester parallel with Workshop and Design Studio. The workshop is organized at the beginning of the semester as a week-long study trip and at the end of the semester in the form of an exhibition on the site. Workshop results are used as inputs for the Design Studio, deciding the theme, programme and character of the future spatial interventions. The main result of Seminar is the verbalization of student's unique ideas and research tactics. Design Studio is emphasizing the role of the research. In this process, divergent thinking in order to generate individual themes and spatial interventions is promoted. Critical thinking is fostered as a way of self-evaluation at the end and during the design process.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

The Design Studio 06U course is comprised of two parts: the research part (including field work on a specific spatial polygon, research of theoretical sources, current expert studies and relevant documents) and the design part (intervention ideas and designs within the city center and designing spatial concepts of different types of use of square space). Studio methodology comprises of joint work in the studio through lectures and interactive forms of teaching and individual research projects and designs that are structured in three independent parts – Seminar, Workshop and Design Studio.

OBSTACLES, IMPEDIMENTS, PROBLEMS, AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, in Sustainability

Keeping in mind that Design tasks within the Studio are connected with specific sites and locations with particular forms of cultural heritage it is difficult to explain and present all the aspects of sustainability to the students. Also, the Studio's intention is to foster individual approaches of each student to the issue of urban and architectural design and theory. Because of that, it is challenging to teach sustainability principles that will be implemented in student designs. Aspects and principles of sustainability are detectable within the functional aspect of designs. Very often they stay hidden within the design presentation and because of that it is important to emphasize the importance of Studio Seminar as a tool for the development of issues and aspects of design sustainability and to make this part of the work within Studio more visible and recognizable.

**PRACTITIONERS/PROFESSIONALS/
EXPERTS INVOLVED IN THE
EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE
AND THEIR ROLE IN THE COURSE**

Yes

Each year various representatives of local municipalities and experts from different fields are included within the different phases of joint work within the Design Studio. They are included in the preparation phase when Design Brief is developed as consultants, within the phase of workshop and site survey as guest lectures and in the several design reviews as guest critics.

**EXTERNAL PARTICIPANTS, VISITORS
GUEST LECTURERS, ETC, INVOLVED IN
THE EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE
AND THEIR ROLE TO THE PROGRAM OF
STUDY**

Yes

Depending on the Studio theme through the years within the Studio different actors in the role of quest critics were involved – tourism experts, local experts from urban planning offices, representatives of cultural institutions, etc.

**RELATIONSHIP BETWEEN THE COURSE
AND THE CURRENT LOCAL NEEDS/
REQUIREMENTS OF LABOUR MARKET
IN THE FIELD OF ARCHITECTURAL
AND URBAN DESIGN IN RELATION TO
SUSTAINABILITY AND HERITAGE**

At this moment there is not a direct connection between the course and the labour market in the field of architectural and urban design concerning sustainability and heritage.

**TO WHOM IT IS ADDRESSED (TARGET
AUDIENCE)**

To students of Single-cycle 5-year Study Programme in Architecture

Workload/weekly study hours

15 hours weekly

Language

Serbian

Evaluation Methods

Project

Project presentation

Grading System

Numerical

Employment influence evaluation

(alumni feedback about employability)

N/A

RESULTS



Figure 1 and 2. Student design project 2017/2018
Topola
Student: Erna Vasiljević



Figure 3. Student design project 2018/2019 Trebinje
 Student: Tamara Vićović

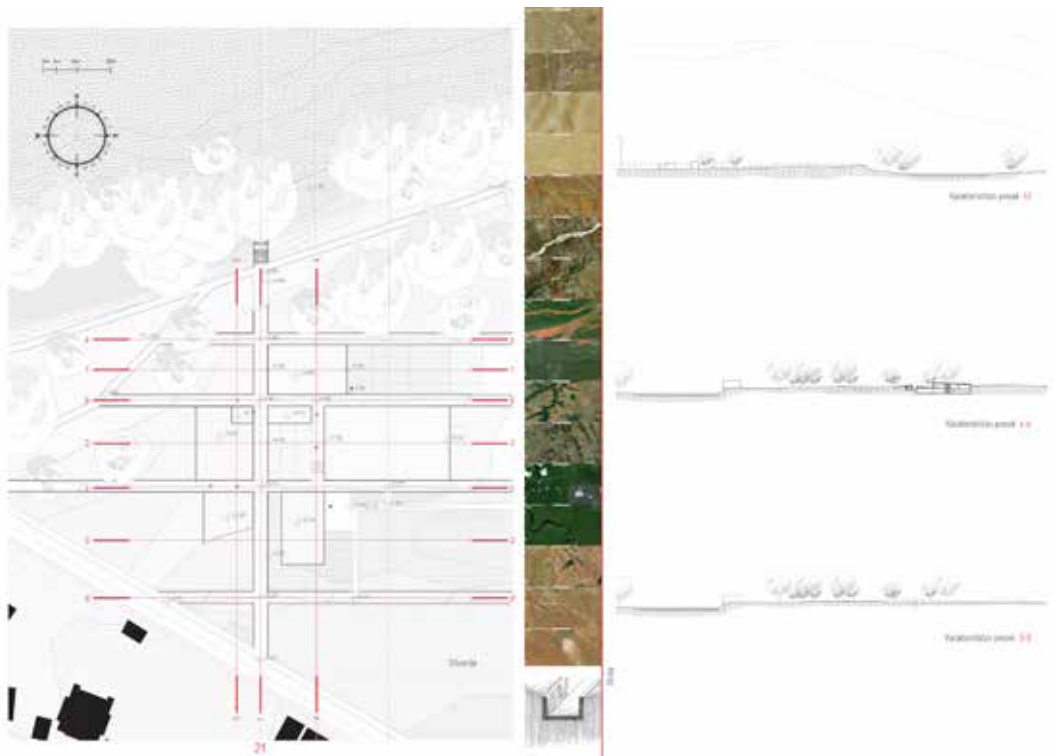


Figure 4. Student design project 2019/2020 Trstenik
 Student: Ivana Janošev



SERBIA

x

Ana Radivojević

course

02

Green Construction – Lessons of the Past

MASA12050-04 [Zelena gradnja - Pouke prošlosti]

UNIVERSITY LEVEL COURSE DETAILS

Institution
 X University of Belgrade

Type of Institution
 X Higher Education Institution

District
 X Belgrade, Serbia

Department
 X Department of Architectural Technologies

Faculty
 X Faculty of Architecture

Study program to which this course belongs
 X Master studies in Architecture

This course belongs to the group of elective courses and is one of the elective courses offered by teachers from the Department of Architectural Technologies and which is taught in the second semester of the Master study programme

A diagram that illustrates the position of the course in the structure of the study program:

Level

X Postgraduate

Year/Semester

X 1st Year, 2nd Semester

Course Type

X Lecture, Theoretical project

Elective or Compulsory Course

X Elective

ECTS

X 2 ECTS

Lectures/week (hours)

X 2 (1.5 hours)

Studios/labs/week

X N/A

Academic/ Teaching Personnel

X Prof. Ana Radivojević, Phd

Program of Study Content

X Written Thesis

COURSE CONTENT AND STRUCTURE

The content of teaching consists of three basic problem-thematic units:

1. principles, strategies and methods of sustainable architecture; 2. lessons of the past - examples of the use of green materials and construction concepts on buildings from past times; 3. reinterpretation of traditional concepts and building materials on modern examples of green architecture;

In the teaching process, it is envisaged that, during the presentation of each of the thematic units' basic settings, through discussion during the class, keywords are defined that can become topics for independent research of students. The students present the results of their research in the form of class seminars during the semester, as well as the final seminar papers.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course's purpose is to provide an introduction to the basics of modern construction which can be defined as green architecture and their latter identification on the buildings from the past. Starting from the premise that certain concepts and strategies of green construction (primarily a question of choice of materials and building techniques in the context of care towards resources, energy, and environmental pollution) were in the past incorporated into the process of designing and constructing buildings, by analysis of selected examples of buildings and construction principles of historical and/or traditional, the students make connections between traditional principles to the modern ones which we today finds as an inseparable part of green architecture.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

- Understanding of the green building concept.
- Establishment of a historical framework of this construction method.
- Acquisition of knowledge for conducting the analysis of historical and traditional architecture elements through the prism of modern concepts of design and construction, such as is the green architecture concept.
- Sensibilisation of students towards the formulation of more careful standing and a higher level of respect and appreciation of architectural heritage.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Ex cathedra lectures combined with overview and analysis of case studies, as well as with seminars, i.e. students' presentations, followed with discussion and active participation of students. This type of students' engagement that is conducted during the semester represents the teamwork of a group of students, while the final seminar paper is done by each student individually.

In this way, students develop their critical thinking and understanding of the roots of green building.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

In order to master the planned program, students are referred to lecture excerpts, selected scientific and professional papers, and other available literature relevant to the topics covered. Preparation of final seminar paper often requires field work, or use of original plans and documentation from the archives.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Both in Sustainability and Heritage

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ No

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

Due to the limited fund of classes, there are no external participants involved in the educational process. Still, during classes, students are referred to experts, as well as professional organizations and institutions in the country and abroad that deal with topics covered by the course content.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

There is no direct relationship between this course and the current local needs of the labour market in the field of architectural and urban design. However, the course's main purpose is to enable students to gain knowledge and understanding of sustainability and architectural heritage as such and their correlations. This means that, as future professionals, they will be more prepared for a more caring attitude towards heritage, as well as a better understanding of the concept of green architecture.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Graduate students with a first degree in architecture.

Workload/weekly study hours

✗ 1,5 hours teaching and 1 hour of studying weekly

Language

✗ Serbian

Evaluation Methods

✗ Written Exam

✗ Project Presentation

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

✗ N/A



Sustainability of houses in the Zlatibor region - then and now

GREEN FEATURES		
MANUFACTURING PROCESS (MP) • WASTE REDUCTION (WR) • POLLUTION PREVENTION (PP) • RECYCLED (RC) • EMBEDDED ENERGY REDUCTION (EER) • NATURAL MATERIALS (NM)	BUILDING OPERATIONS (BO) • ENERGY EFFICIENCY (EE) • WASTE TREATMENT & CONSERVATION (WTC) • AEROSTATIC (AT) • RENEWABLE ENERGY SOURCE (RES) • LONGER LIFE (L)	WASTE MANAGEMENT (WM) • BIODEGRADABLE (B) • RECYCLABLE (R) • REUSABLE (RU) • OTHERS (O)
PRESENCE OF GREEN FEATURES ON ANALYZED HOUSES		
FOUNDATION: • WR, PP, RC • EER, NM • EE, WTC, AT • B, RU	WALL: • PP, EER, NM • WTC, AT • B, RU	ROOF: • WR, NM • WTC, AT • B, R
FOUNDATION: • RC • WTC, L • B	WALL: • EE	ROOF: • WR, NM • WTC, L • B, RU

Figure 1. Collage based on student seminar paper. Student Luka Rajšić (2019/20 academic year)

Renewable energy and zero carbon buildings



RESULTS

Representative examples of student projects

Figure 2. Collage based on student seminar paper Student Aleksandar Majstorović (2018/19 academic year)

Traditional architecture of the Bay of Kotor Bokeška kuća, Risan



Figure 3. Collage based on student seminar paper.
Student Milica Stanković (2018/19 academic year)

Analysis of the cultural landscape of traditional villages of Stara Planina

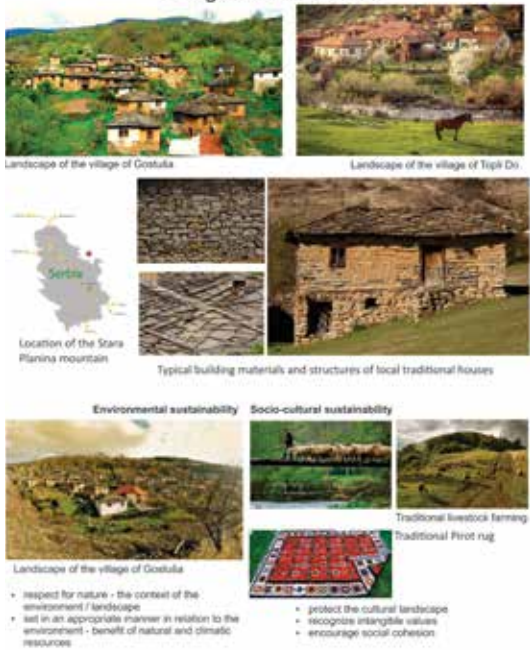


Figure 4. Collage based on student seminar paper.
Student Jelena Stanisavljević (2019/20 academic year)



SERBIA

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Ana Nikezić
Jelena Ristić Trajković
Aleksandra Milovanović

course

03

Among Scales: Programming the New Modernity of Belgrade



Workshop, N/A [“Among Scales” Programiranje predeone ekologije – nove modernosti Beograda]

UNIVERSITY LEVEL COURSE
DETAILS



Institution

✗ University of Belgrade

Type of Institution

✗ Higher Education Institution

District

✗ Belgrade, Serbia

Department

✗ Department of Architecture (A),
Department of Urbanism (U),
and Department of Architectural
Technologies (AT)

Faculty

✗ Faculty of Architecture

Study program to which this course
belongs

✗ Extracurricular activity open
for all study programmes at
faculty (Undergraduate Studies
in Architecture, Master Studies in
Architecture, Master Studies in
Interior Architecture, Master Studies
in Integral Urbanism, Single-cycle-5-
year studies in Architecture)

The position of the course in the
structure of the study program:

✗ The course type is a workshop as
a type of extracurricular, elective
activity that is not formally provided
by the study program.

Level

✗ Undergraduate
✗ Postgraduate

Year/Semester

✗ N/A

Course Type

✗ Workshop

Elective or Compulsory Course

✗ Elective

ECTS

✗ 2 ECTS

Lectures/week (hours)

✗ 2

Studios/labs/week

✗ 19

Academic/ Teaching Personnel

✗ Mentor:
Associate Professor Ana Nikezić, PhD.
✗ Tutors:
Research Assistant Aleksandra
Milovanović, Teaching Assistants
Aleksandra Đorđević and Jelena Basta
✗ Critics:
Assistant Professors Milica Milojević,
PhD, Danijela Milovanović Rodić, PhD,
and Jelena Ristić Trajković, PhD.
✗ Coordinator: Research Associate
Anđelka Bnin-Bninski, PhD.

Program of Study Content

Research Methodology Course

COURSE CONTENT AND STRUCTURE

The main subject of research challenged within the workshop relates to the exploration of landscape as a heritage construct. Recognizing changes in natural conditions within the landscape and diversity in nature as a reflection of social, cultural and economic circumstances, the workshop examines the development of new analytical strategies towards establishing (1) integrated research of landscape patterns and (2) understanding of city morphogenesis. The workshop subject is the research of the relationship between urban and rural landscape, as well as the transformation of the natural into the cultural landscape. Workshop employed case study-based research through multiscale approach that are structured in several phases from phenomenon identification to their graphical interpretation.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The main objective Workshop was to look at current relational flows and gaps between urban and rural, architecture and nature, global flows and everyday life at the relevant spatial levels: scale XXL: territory - drawing an urban gradient, scale XL: morphology – mapping morphological character, scale L: typology - typological classification of housing patterns, scale M: program - programming of architectural structure, and scale S: ambience - collage sequences. Workshop research was approached primarily from the aspect of environmental changes within society, and the way those aspects affect the development of city's morphology, and also transformations of natural conditions.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

The workshop includes a combination of several approaches to learning and

research, and accordingly different modes of communication and knowledge outcomes. These outcomes differ in relation to the realization phase of the workshop: (1) Thematic introductory lecture on chronological and historical-interpretative research through which the student gained basic methodological inputs for research, (2) PechaKucha presentations on recognized phenomena related to modernity-rurality, industrialization-sociology of housing, and harmonization of urban planning-social and economic problems of housing, (3) Transferring of historical material into digital drawings in various scales, and (4) Critical presentation of environmental aspects of housing landscape.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



**THE EDUCATIONAL /TEACHING
METHODOLOGY (GENERAL PRINCIPLES,
PEDAGOGY AND MANAGEMENT
STRATEGIES USED FOR CLASSROOM
INSTRUCTION)**

Several methodological perspectives are distinguished: (1) Dialogical – conversations at an appropriate level and changing communication modes: one-to-one, one-to-many, many to one, many-to-many, (2) Teamwork – focuses especially on collaborative practice generating 'think back' approach, (3) Knowing in action – reflective activity from different perspectives descriptive, interactive, critical, creative, etc., (4) Social Narrative – understanding the complex problems of contemporary society and the urban environment, and their narrative implementation in the conceptual framework of architectural design. This systematic approach allows generating creative values as an interface between context, framing and narrative.

**TEACHING/LEARNING MATERIALS
(DIDACTIC MATERIALS, RESOURCES,
SOFTWARE, ETC.)**

The case study-based research covers 9 different large-scale housing settlements in Belgrade that were planned and implemented in socialist conditions (1963-1988). This means that each of these settlements has different design principles and a programming framework, which requires students to recognize the phenomena of modernity and rurality at assigned spatial levels and accordingly develop methods for their systematization through drawing. In that sense, the primary research material is historical material - original plans and projects of all nine residential settlements, as well as periodicals in the field of architecture and urbanism from the period of planning and construction of the settlements (Architecture Urbanism, Urbanism of Belgrade). The transfer of historical material to digital was carried out using CAD software and graphic design software.

**OBSTACLES, IMPEDIMENTS, PROBLEMS
AND CHALLENGES REGARDING
TEACHING SUSTAINABILITY OR/
AND CULTURAL HERITAGE IN THIS COURSE (IF
ANY). PLEASE MENTION THEM BRIEFLY**

✕ Both in Sustainability and Heritage

The workshop results indicate that students autonomously perceive environmental aspects, through partial overlap with social aspects, which is why it is necessary to develop additional educational strategies for the integrated study of sustainability aspects. In the process of anticipation of recognized phenomena within the corresponding scales, insufficiently developed awareness of different spatial levels of urban and architectural heritage (from the level of the landscape to the level of one spatial unit) is recognized.

**PRACTITIONERS/PROFESSIONALS/
EXPERTS INVOLVED IN THE
EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE
AND THEIR ROLE IN THE COURSE**

✕ No

The workshop was organized as an integral part of the International Symposium "Metro-Milieu: (Alter) Rurality As A Relational Gap Between Inhabiting Scales" and was followed by the organization of a thematic Seminar with the participation of educators and practitioners in the field of architecture, urbanism, protection of architectural heritage, and specifically rural heritage. Three keynote lectures in line with three scientific areas were organized with the aim of being a theoretical basis for research within the workshop: (a) Assembling Rurality in The Metro-Milieu (Professor Michael Woods, Human Geography), (b) Alter-Digital – Presence and The Role of Digital Art in Rural Environment (Professor Nataša Teofilović, Media and communication), (c) Entrepreneurship: Commons and Care (Professor Pieter Versteegh, Architecture and the Construction of Identity).

**EXTERNAL PARTICIPANTS, VISITORS
GUEST LECTURERS, ETC, INVOLVED IN
THE EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE AND
THEIR ROLE TO THE PROGRAM OF STUDY**

✗ Yes

External participants were involved through the organization of a Workshop exhibition, as well as through a discussion with the presentations of student results within the Metro-Milieu Symposium.

**RELATIONSHIP BETWEEN THE COURSE
AND THE CURRENT LOCAL NEEDS/
REQUIREMENTS OF LABOUR MARKET
IN THE FIELD OF ARCHITECTURAL
AND URBAN DESIGN IN RELATION TO
SUSTAINABILITY AND HERITAGE**

The contribution of the workshop to the needs/requirements of the labor market in the field of architectural and urban design is especially important from the point of view of digitization of heritage and strengthening the capacity of students to transfer historical material into digital and create systematized reviews for different types of urban and architectural heritage and their further presentation.

**TO WHOM IT IS ADDRESSED (TARGET
AUDIENCE)**

Students of different study programmes in the field of architecture and urbanism (Undergraduate Studies in Architecture, Master Studies in Architecture, Interior Architecture, and Integral Urbanism, Single-cycle-5-year studies in Architecture). The workshop concept would be significantly improved by including students whose interests and research areas are compatible with the assigned thematic framework (students of spatial planning, geography, sociology, etc.).

Workload/weekly study hours

✗ 21 hours (Lecture on Theoretical background and methodological framework (2h), PechaKucha (6h), Active workshop activities (10h), Final presentation for exhibition (3h).

Language

✗ Serbian

Evaluation Methods

✗ Oral Exam

✗ Research Presentation

Grading System

✗ Verbal

**Employment influence evaluation
(alumni feedback about employability)**

✗ N/A

RESULTS

The result of the workshop is recognized on two levels - the first is a systematic chronological review of the residential settlements developed in Belgrade in the period 1963-1988 with the identification of the planning framework and the principal spatial-morphological and functional-conceptual ideas, while the second part of the contribution is reflected in the created "identity cards" of individual residential settlements through the identification of recognized phenomena at the analysed spatial levels. In this sense, the question of modernity was opened through three leading relations (1) modernity - rurality, (2) industrialization - sociology of housing, and (3) harmonization of urban planning - social and economic problems of housing, with the primary aim of housing manifestation as a humanistic and material assumption from the level of the comprehensive territory of the city to the level of the single housing unit, or from the sociological level of the collectivization to individualization of housing space. The results of the synthesis can be traced to three axes (1) a chronological line, that is, a timeline of housing development, (2) a thematic line through which the development and changes in the relationship between housing patterns and ecological processes are monitored, and (3) a scale line through which the distribution of design principles from XXL to S scale.

Representative examples of student projects:

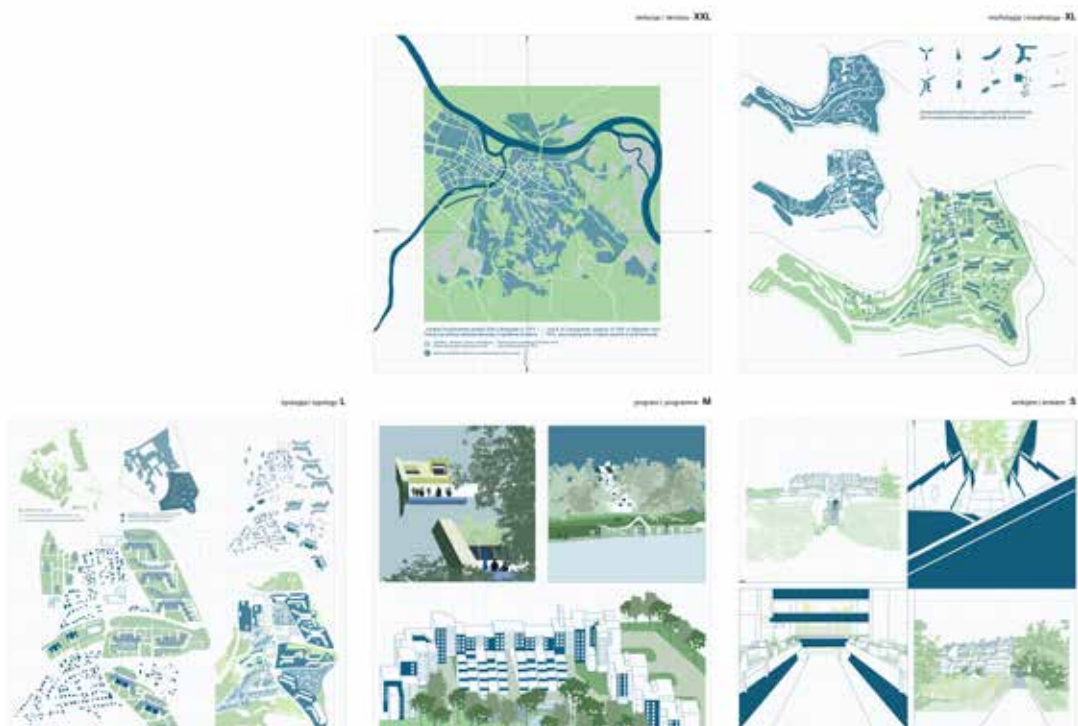


Figure 1. Case study Banjica settlement.
 Students: N. Ašković, M. Stojković, S. Todorović

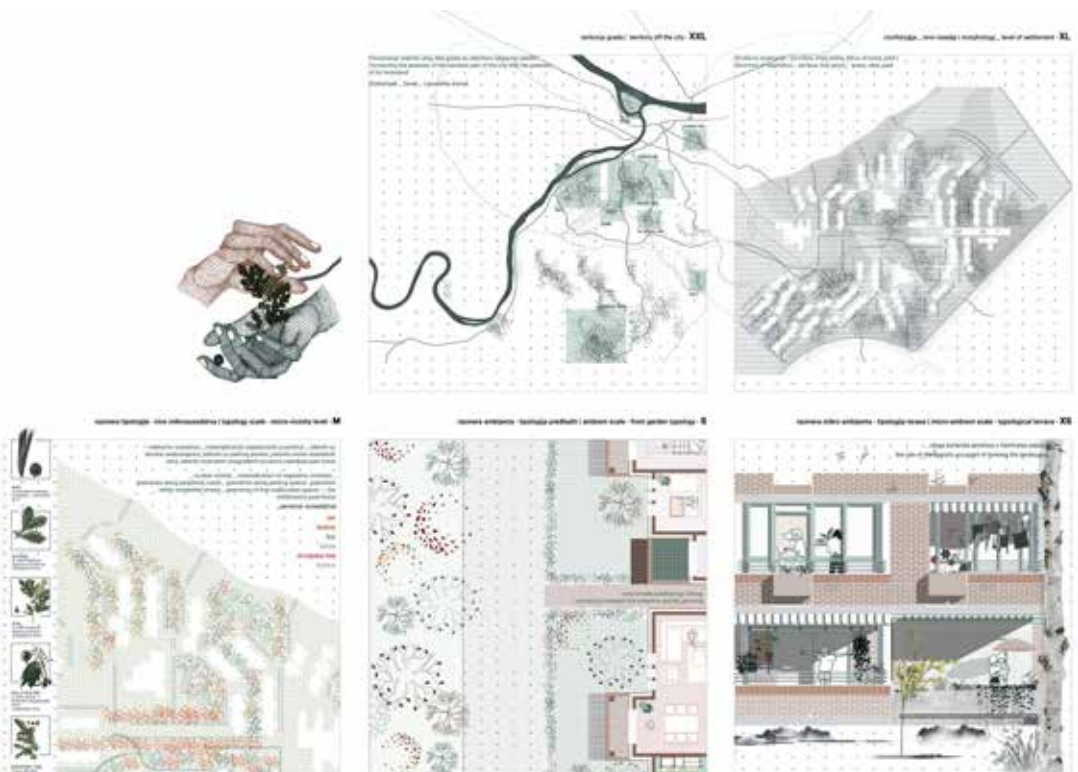


Figure 2. Case study Cerak vinogradi settlement
 Students: A. Anđelković, M. Milošević



SERBIA

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Nataša Ćuković Ignjatović
Bojana Zeković

course

04

Energy rehabilitation and certification of existing buildings – case study



SAS EEZA 1.10. [Energetska rehabilitacija i sertifikacija postojećih zgrada – studija slučaja]

UNIVERSITY LEVEL COURSE DETAILS



Institution

✗ University of Belgrade

Type of Institution

✗ Higher Education Institution

District

✗ Belgrade, Serbia

Department

✗ Technology and Engineering Sciences

Faculty

✗ Faculty of Architecture

Study program to which this course belongs

✗ Specialist academic studies – Energy efficient and green architecture

Specialist academic studies – Energy efficient and green architecture		
SEMESTER 1		SEMESTER 2
SUSTAINABLE ARCHITECTURE / GREEN AND EE BUILDINGS DESIGN PRINCIPLES	ELECTIVE COURSE 1	GREEN BUILDING CERTIFICATION
		GREEN MATERIALS
ELEMENTS OF HEAT TRANSFER SCIENCE	ELECTIVE COURSE 2	WATER AND WASTE MANAGEMENT (REFORMED)
BUILDING PHYSICS		VERIFICATION TOOLS – MEASUREMENTS AND SIMULATIONS (NEW)
THERMAL-TECHNICAL SYSTEMS AND SUSTAINABLE ARCHITECTURE	ELECTIVE COURSE 2	FACILITY MANAGEMENT (NEW)
LIGHTING AND EE		DESIGN AND CERTIFICATION OF EE BUILDINGS – CASE STUDY
EE BUILDING CERTIFICATION – CALCULATION METHODS (REFORMED)	ELECTIVE COURSE 2	DESIGN, ENERGY, REHABILITATION AND CERTIFICATION OF EXISTING BUILDINGS – CASE STUDY
LAWS AND ECONOMIC ASPECTS OF EE BUILDINGS		THESIS PREPARATION
PROFESSIONAL PRACTICE (REFORMED)		THESIS WORK
30 ECTS		30 ECTS
Total number of credits – 60 ECTS		

A diagram that illustrates the position of the course in the structure of the study program:

Level

X Postgraduate

Year/Semester

X 1st year / 2nd semester

Course Type

X Studio design

Elective or Compulsory Course

X Elective

ECTS

X 6 ECTS

Lectures/week (hours)

X 1 (1 hour)

Studios/labs/week

X 1 (4 hours),
Individual research work: 1 hour

Academic/Teaching Personnel

X Associate Professor Dušan
Ignjatović, PhD.
Teaching assistant Bojana Zeković,
PhD.

Program of Study Content

X Design Project

COURSE CONTENT AND STRUCTURE

The course covers theoretical principles of the energy rehabilitation process – its fundamental principles, levels of refurbishment, possibilities and constraints. Analysis of the selected building for the case study covers its urban layout and architectural, constructive, technological and material features in order to determine constraints and potentials in the refurbishment process. As input for energy calculations/simulations, a detailed 3D model is required, where modeling principles are being practiced. Detail energy performance calculations in available software are done and the building's energy class is determined. Design of refurbishment scenarios with variant solutions analysis and calculations for verification.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

Mastering the methodology, theoretical basis and practical knowledge in the field of building energy rehabilitation and certification of existing buildings. Forming the criteria and algorithms of assessment and possible levels of the upgrade of existing buildings, together with calculation/simulation of energy performance and verification of refurbishment and design methodology. Inadequate refurbishment in a technical but as well architectural sense can degrade the quality of existing building stock, while supreme design quality and energy performance achieved through energy rehabilitation can upgrade the material value, cultural identity, comfort and sustainability in numerous ways.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

Mastering the principles and methods for building refurbishment, together with calculation/simulation of building energy performance in the process of designing the best energy rehabilitation scenario. If existing building stock is regarded as one of key values of tangible heritage, consisting mainly out of buildings that do not fall under heritage protection regime and are in quite bad condition, it is clear that the quality of their rehabilitation, not only in energy performance characteristics, will generate new value both in economical and environmental but also in cultural terms.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Design studio methodology, with lectures in the course's theoretical parts and student work (design, calculations, simulations, modelling) supervised by the teaching staff. Theoretical classes: Theoretical settings of the energy renewal process, basic principles, levels of renewal, possibilities and limitations, review of state of the art. Case studies - good practice examples.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

Literature: Giebel G., Krause H., Fisch R., Musso F. 2005.: Refurbishment Manual, Birkhauser,
Douglas J. 2006.: Building adaptation, Butterworth-Heinemann,
Rulebook on energy efficiency. Belgrade: Official Gazette of RS, No. 61/2011
Rulebook on the conditions, content and manner of issuing building energy performance certificates. Belgrade: Official Gazette of RS, No. 69/2012 .
Rajčić A., Ignjatović D.: Design, energy reha-

bilitation and certification of energy efficient buildings; excerpts from lectures and classes with an annex from the handbook
Software: KnaufTerm and KnaufTerm3D, e.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, in sustainability

The course is very challenging for students with no skills in architectural design.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ Yes

Mechanical engineers (practitioners) with high level of expertise in energy modeling and performance simulations. They share their experience and provide an overview of state of the art in the area (tools, methods, good practice, and bad practice examples).

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ No

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

Following several key legislative milestones in the process of building rehabilitation and certification, there is a large need for professionals in this field, especially in energy

performance calculations, simulations, verifications. Experience in energy rehabilitation projects, knowledge of legislation, and design documentation needed for obtaining building permits and applying for grants is valuable.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

The course is available to the students of Specialist studies Energy Efficient and Green Architecture interested in improving their design skills relevant for various upgrades, energy optimisation and decarbonisation of the existing building stock. Specialist studies are addressed to graduate students with a masters degree (300 ECTS) in architecture, civil engineering and mechanical engineering.

Workload/weekly study hours

✗ 12 (1 hour lecture + 4 hours studio + 1 hour individual research + 6 hours study/design/analysis).

Language

✗ Serbian
Although the study program is not formally accredited in English, most courses (including this studio) are available in English.

Evaluation Methods

✗ Project
✗ Project Presentation

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

✗ Employed in Private Sector
✗ Employed in Public Sector

RESULTS

Presentation of the studio work from the school year 2018/2019 can be previewed here: https://issuu.com/aleksandranikolic86/docs/rek_be_anijska_kosa_fin_3.5



Figure 1. Representation of the influence of the north wind on the objects of the subject area
https://issuu.com/aleksandranikolic86/docs/rek_be_anijska_kosa_fin_3.5

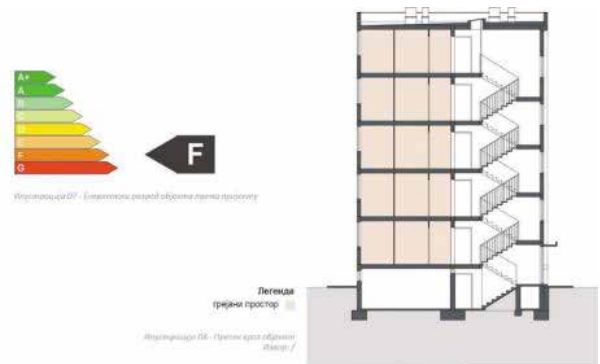
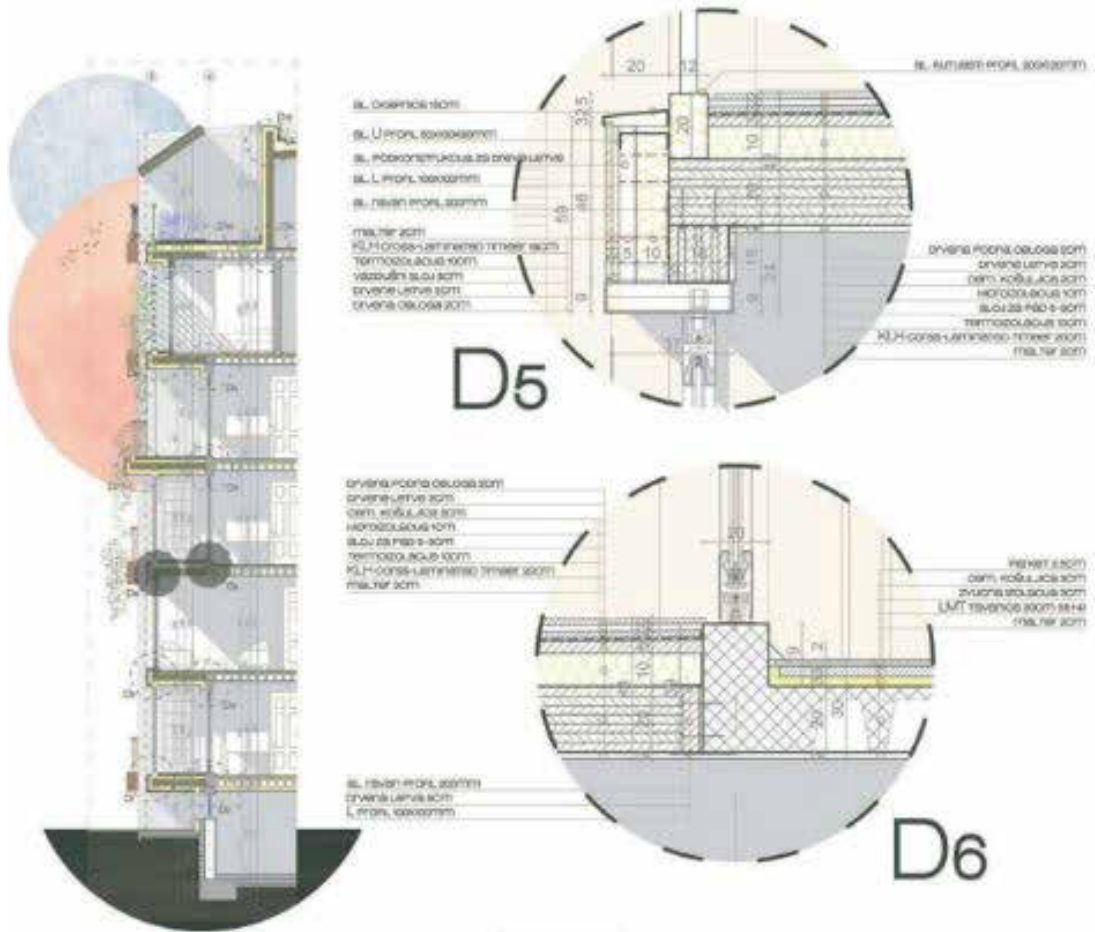


Figure 2. Section
https://issuu.com/aleksandranikolic86/docs/rek_be_anijska_kosa_fin_3.5



Figure 3. A proposal for the architectural improvement of the existing condition
https://issuu.com/aleksandranikolic86/docs/rek_be_anijska_kosa_fin_3.5



Реконструкција / предлог архитектонског unapređenja postojećeg stanja /
 / V.Green / / arhitektonički prikaz /

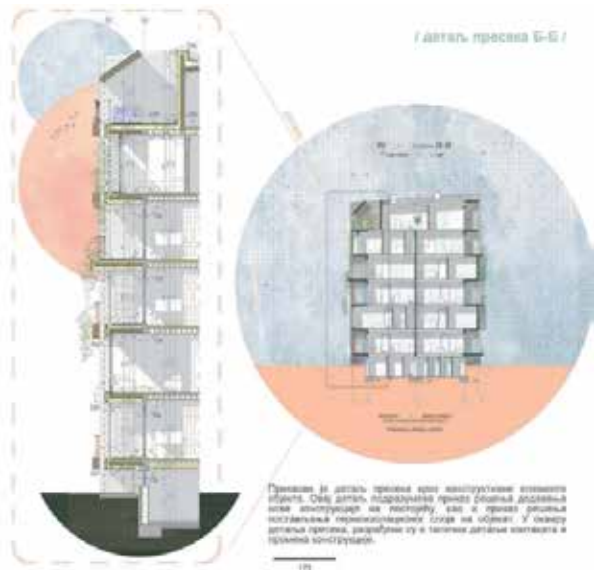


Figure 4. A proposal for the architectural improvement of the existing condition
https://issuu.com/aleksandranikolic86/docs/rek_be_anijnska_kosa_fin_3.5

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Emanuela Sorbo
Sofia Tonello

course

01

Integrated Design Lab – Focus 3 Regeneration and Conservation of Historic Buildings and Environments

B77001

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ Università Iuav di Venezia

Type of Institution

✗ Higher Education Institution

District

✗ Venice, Italy

Department

✗ Department of Architecture and Arts

Faculty

✗ N/A

Study program to which this course belongs

✗ [B77] - Master Degree Program in Architecture (taught in English)

Level

✗ Postgraduate (2nd Cycle)

Year/Semester

✗ Year 2 / Semester 1

Course Type

✗ Lecture

✗ Studio design

✗ Theoretical project

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 18 ECTS

Lectures/week (hours)

✗ 35

Studios/labs/week

✗ N/A

A diagram that illustrates the position of the course in the structure of the study program:

Courses

1st semester FALL/WINTER 2019/20

30 credits
In the first semester students are trained in urban design and its techniques, with a specific focus on the topics of landscape and environmental sustainability.
The two theoretical courses concentrate on:

- the economic and social phenomena which regulate urban settlements
- the introduction of concepts and perspectives for the construction and control of the complex processes of urban growth and its growth in the 21st century
- the analysis of, and theories on, the contemporary city

Integrated Design Lab focus + Sustainable Urban Design & Performance: 8 credits
Architectural and urban design 6 credits
prof. Aldo Agosti
Urban and landscape planning 6 credits
prof. Enrico Fontana
Landscape Architecture 6 credits
prof. Luigi Lubini

Sustainable Property Investment and Valuation

Final-estate appraisal 4 credits
prof. Sergio Caporin

Theory of the city

Urban and landscape planning 6 credits
prof. Maria Chiara Tio

2nd semester
WINTER/SPRING 2020
30 credits + 4 credits internship
The second semester focuses on interior design, with a distinct attention to building innovation. The two theoretical courses aim at developing specific topics that are also central to the programme of the integrated design lab, such as:

- exploring the non-making potential of contemporary drawing through a careful review of both its traditional and contemporary forms;
- the history of contemporary architecture made in Italy as related to 20th century interior design traditions

Students may also be given the opportunity to work at a qualified Italian studio for a training period.

Integrated Design Lab Focus 3 Architecture, Interior and Creative Exhibition Design

10 credits
Interior design and staging 6 credits
seminar visiting professor
Architectural technology 6 credits
prof. Danilo Trabucchi
Building physics and energy systems 4 credits
prof. Massimiliano Scappa

History of contemporary architecture

Architectural history 6 credits
prof. Angelo Maggi

Theory and History of Representational Methods

Drawing 6 credits
prof. Agostino De Rosa

chosen by the student 4 credits internship

3rd semester FALL/WINTER 2020/21

30 credits
The third semester focuses on the restoration and reuse of built heritage through

conservation, construction and interior design. It introduces the theme of structural conservation – a most appropriate one with reference to Italian cities – through calculation and structural design in seismic areas, structural consolidation, etc.
The courses provide advanced theoretical knowledge in the fields of:

- architectural history as related to design, projecting and planning
- themes of contemporary architecture.

Integrated Design Lab Focus 1 Regeneration and Conservation of Historic Buildings and Environments

18 credits
Architectural and Urban design 6 credits
prof. Fernanda De Iacono
Architectural restoration 6 credits
prof. Eleonora Sorlini
Structural engineering 6 credits
prof. Salvatore Russo

Heritage and Project

Architectural history 6 credits
prof. Vitale Zanchetta

Analysis and Theory of Architecture

Architectural and urban design 6 credits
prof. Nikolett Pardo Mosca

4th semester WINTER/SPRING 2020/21

30 credits + 8 (to chosen by the student)

In the last semester, students are tutored to complete their final thesis. The Research Lab provides appropriate methodology to work at the thesis project through research on architectural and urban design and by using the most updated multimedia tools and applications. It also offers a seminar on the field specific languages of architecture, urban planning and design and an writing in academic English.
The courses aim at:

- focusing on the themes related to urban theories and the issues of political and applied economics as related to settlements/urban phenomena
- focusing on the topics of one's master's degree thesis
- planning and writing the thesis.

Research Lab *

Visual and Narrative towards the Thesis Project
12 credits + 6 credits for the final thesis, which is conducted by a tutor professor and an external tutor
Architectural and urban design 4 credits
seminar visiting professor
Drawing 4 credits
guest lectures
English literature 4 credits
prof. Silvia Riccardi

* As an alternative to the Research Lab, students can choose an Erasmus exchange programme of 12 credits (three semesters at a university abroad as research time) + 6 credits for the final thesis, which is co-tutored by a tutor professor and an external tutor.

City Dynamics and Economics
Applied economics 4 credits
prof. Margherita Turvani
chosen by the student (to 1/1)
6 credits

Academic/ Teaching Personnel

- ✕ Full Professor Fernanda de Maio
- Full Professor Salvatore Russo
- Associate Professor Emanuela Sorbo

Program of Study Content

- ✕ Design Project

COURSE CONTENT AND STRUCTURE

The architectural and urban design course aims to convey a method to the new project's definition in an ancient and relevant context. Architectural Restoration Course includes lecture-format lessons, workshop-format review activities, and seminars. The Structural Design Course provides basic knowledge related to the mechanical aptitudes of materials that most connote historical buildings and monumental structures.

The sessions dedicated to the review activities in the educational training contribute the students' independence in the evaluation process for conservation and architectural design.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course's objective is to provide the student with the critical tools to evaluate the need for new construction and a sense of responsibility towards history driven by architectural heritage.

From Architectural Restoration's point of view, the main goal is to achieve a critical awareness and the analytical and planning tools necessary to master the complexity and existing architecture's restoration design. Regarding the Structural design module, the aim is to provide knowledge and essential information useful for the first sizing calculations in the presence of consolidation, recovery, and retrofitting interventions of historical buildings and monument structures, or parts of them.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

The educational path passes through the historical and material dimensions of architecture as the basis of the architectural restoration project. This approach will enable students to deal with (and apply) a broad spectrum of analytical methods. The path's focus will be on describing and analysing the building in its material substance (regarding survey, languages, techniques, materials, and decay mechanisms) and developing conservation strategies and thought in the normative, cultural and theoretical horizon.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL

low	medium	high
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ECONOMIC

low	medium	high
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ENVIRONMENTAL

low	medium	high
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THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

The teaching review activity ensures continuous verification of training and the progress of the design exercise. The exam will consist of an oral test. The student have to illustrate the design choices, the graphics and drawings developed during the training, and the knowledge and skills. Students can work individually or in groups. The clarity, synthesis, and language's properties demonstrated in the conversation will contribute to the final grade.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

The teaching materials (such as slides, study guides, manuals) are available online at the professor's institutional home page. Students can find the theoretical tools as well as a digital copy of the main publications discussed during the course on the same page.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✕ Yes, in sustainability

Sustainability has different definitions. Understanding the main values according to Cultural Heritage issues will be one of the challenges for IUAV teaching.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✕ Yes

During the restoration course, professionals and experts, such as architects from the Ministry of Cultural Heritage of the local Superintendencies, are involved in researches concerning case-studies and preservation strategies.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✕ Yes

Seminars and lectures are organized according to the course's themes and led by visitor/guest professors or professionals to present different aspects and research concerning case-studies and strategies of preservation, conservation and reuse.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

The course aims to concentrate on Venitian historical preserved buildings focusing on strategic urban areas related to Venice to be more adherent with the local needs and requirements.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

- bachelor's degree awarded by the regulations referred to in the Italian Ministerial Decree 270/04 at a course belonging to the L-17 class;
- bachelor's degree in architectural sciences (class 4) according to the Italian Ministerial Decree 509/99 obtained at luav;
- degree or university diploma (also foreign), which allows the recognition of the mandatory 108 ECTS planned for degree programmes related to class L-17.
- B2 proficiency level (or equivalent) in the English language.

Workload/weekly study hours

✗ N/A

Language

✗ English

Evaluation Methods

✗ Project

✗ Project Presentation

Grading System

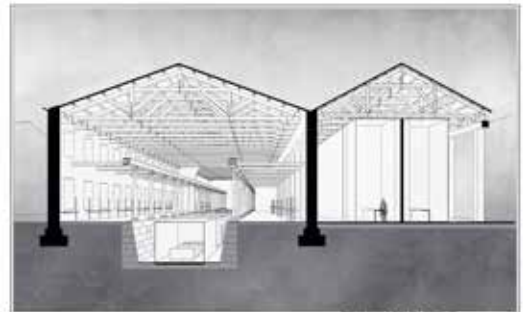
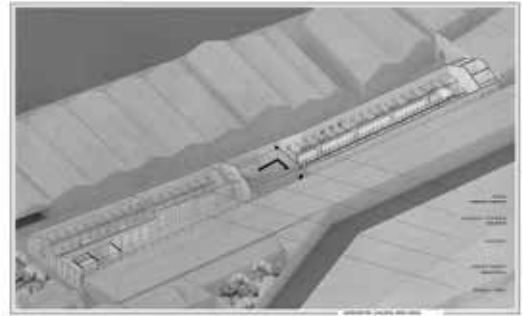
✗ Numerical

Employment influence evaluation
(alumni feedback about employability)

✗ Employed in Private Sector

✗ Employed in Public Sector

✗ Self Employed



RESULTS

The following works of students are the results of the A. Y. 2020/2021 course led by Professor Fernanda de Maio, Professor Salvatore Russo and Professor Emanuela Sorbo.

The course aims to understand the site (The Venetian Arsenal) and enhance it through the design purposes.

The buildings considered for the project are located between the Biennale and the Military Area.

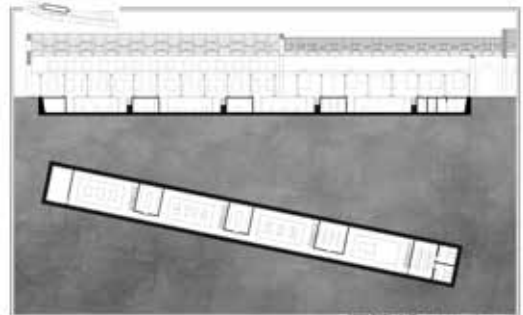


Figure 1 to 4. Educational interdisciplinary path: research, documentation, values assessment, design strategies, and proposal.

Authors: Davidovska, Solano, Joosten

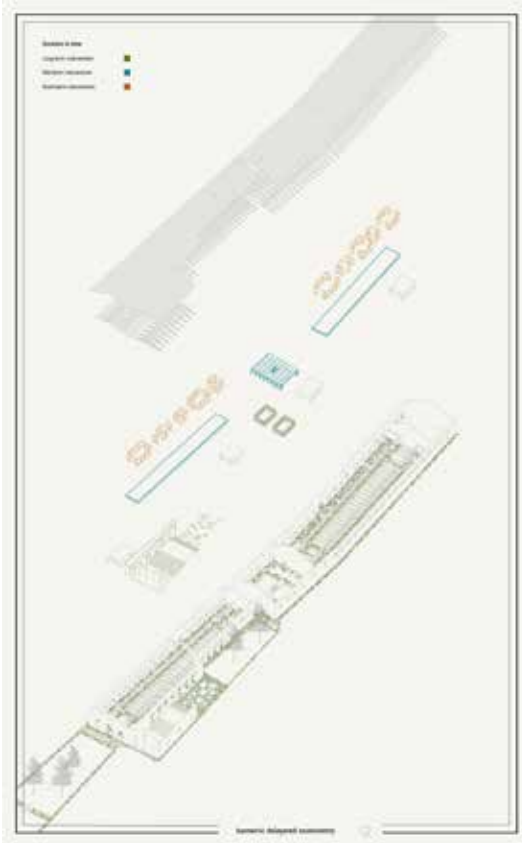


Figure 5 to 11. Educational interdisciplinary path: research, documentation, values assessment, design strategies, and proposal.
Authors: Perotti, Squarcina, Zanin

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Emanuela Sorbo
Sofia Tonello

course

02

Studio 2 Sustainable City Project

B76005 [Laboratorio 2 Il Progetto Sostenibile Per La Citta']

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ Università Iuav di Venezia

Type of Institution

✗ Higher Education Institution

District

✗ Venice, Italy

Department

✗ Department of Architecture and Arts

Faculty

✗ N/A

Study program to which this course belongs

✗ [B76] - Master Degree Program in
Architecture (taught in Italian)

Level

✗ Postgraduate (2nd Cycle)

Year/Semester

✗ Year 1 / Semester 2

Course Type

✗ Lecture

✗ Studio design

✗ Theoretical project

✗ Workshop

Elective or Compulsory Course

✗ Compulsory

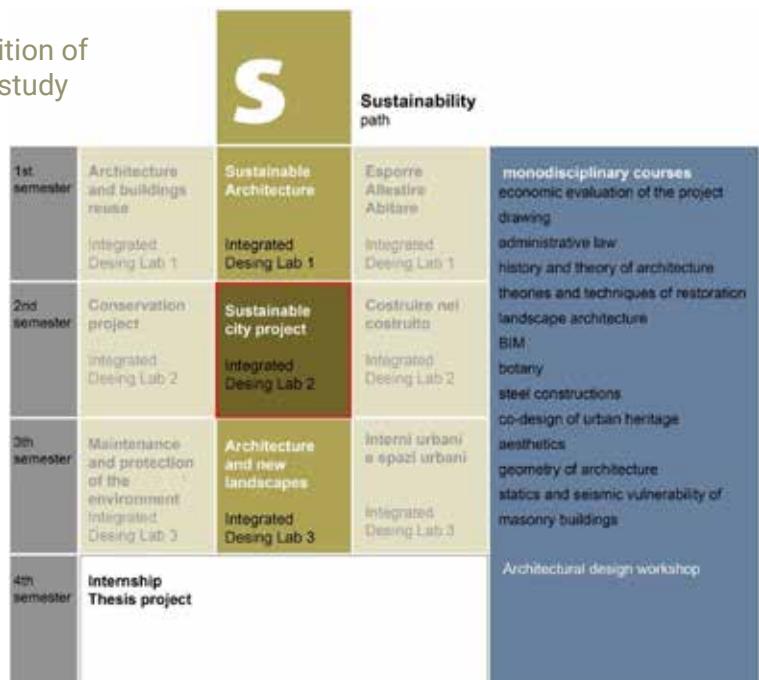
ECTS

✗ 18 ECTS

Lectures/week (hours)

✗ 12

A diagram that illustrates the position of the course in the structure of the study program:



Studios/labs/week

X N/A

Academic/ Teaching Personnel

X Full Professor Benno Albrecht
Associate Professor Federico Rupi
Researcher Olimpia Mazzarella

Program of Study Content

X Design Project

COURSE CONTENT AND STRUCTURE

The students have to analyse the concept of "place attachment" and apply their analysis to a wide range of conditions. (Revitalisation and evolution in Italian historical centres, the fight against abandonment in small rural centres, etc.). The Structural Design module aims to provide students familiarity with materials' mechanical behavior, the structural aspects of architectural analysis and design. The Transport module aims to make students understand the dynamics that govern the mobility processes and the intervention project on the connections between infrastructures and the local context and, in particular, the urban environment, depending on the city object of the project exercises.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course strives to investigate "place attachment" as a multidimensional concept concerning the single person, the psychological process, and the place's dimensions. The meaning of places does not come from individual experiences, rather from the interaction and sharing people. The psychological process consists mainly of three elements: affection, cognition, and behaviour. The places attachment influences individual and collective behaviours and consequently the desire for the maintenance, modernization, or conservation of places.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

The learning awaited outcome is to improve the students' ability and knowledge regarding the identification of cultural values of social and urban decay.

The course aims to analyse the concept of "place attachment". The didactic track starts from the identification of the values and problems of the site as cultural expressions. It ends with the design process of rehabilitation from the urban to the architectural scale according to social, economic, and environmental needs.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



**THE EDUCATIONAL /TEACHING
METHODOLOGY (GENERAL PRINCIPLES,
PEDAGOGY AND MANAGEMENT
STRATEGIES USED FOR CLASSROOM
INSTRUCTION)**

Lectures and weekly reviews with discussion in small groups of the projects.

**TEACHING/LEARNING MATERIALS
(DIDACTIC MATERIALS, RESOURCES,
SOFTWARE, ETC.)**

The students can refer to working files and didactic materials available online at the institutional home page of the professor.

**OBSTACLES, IMPEDIMENTS, PROBLEMS
AND CHALLENGES REGARDING
TEACHING SUSTAINABILITY OR/ AND
CULTURAL HERITAGE IN THIS COURSE (IF
ANY). PLEASE MENTION THEM BRIEFLY**

Yes, in cultural heritage

The course deals with cultural heritage in terms of "sense of place" and "place attachment". But, it does not include the historical-critical and constructional aspects.

**PRACTITIONERS/PROFESSIONALS/
EXPERTS INVOLVED IN THE
EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE
AND THEIR ROLE IN THE COURSE**

Yes

During the course, practitioners, professionals and experts are involved in seminars and lectures to present themes and applied case-studies.

**EXTERNAL PARTICIPANTS, VISITORS
GUEST LECTURERS, ETC, INVOLVED IN
THE EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE AND
THEIR ROLE TO THE PROGRAM OF STUDY**

Yes

Seminars and lectures are organized by the teacher and led by visitor/guest professors to enhance different points of view on the case study.

**RELATIONSHIP BETWEEN THE COURSE
AND THE CURRENT LOCAL NEEDS/
REQUIREMENTS OF LABOUR MARKET
IN THE FIELD OF ARCHITECTURAL
AND URBAN DESIGN IN RELATION TO
SUSTAINABILITY AND HERITAGE**

The course reflects on the concept of place attachment. The analysis can be applied to a wide range of conditions all over the world; for example the revitalization and evolution in Italian historic centers, the fight against abandonment in small rural centers, etc.

**TO WHOM IT IS ADDRESSED (TARGET
AUDIENCE)**

- bachelor's degree awarded by the regulations referred to in the Italian Ministerial Decree 270/04 at a course belonging to the L-17 class;
- bachelor's degree in architectural sciences (class 4) according to the Italian Ministerial Decree 509/99 obtained at luav;
- degree or university diploma (also foreign) which allows the recognition of the mandatory 108 ECTS planned for degree programmes related to class L-17.

Workload/weekly study hours

N/A

Language

Italian

Evaluation Methods

- Project
- Project Presentation

Grading System

Numerical

Employment influence evaluation
(alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS

The following works of students are the results of the previous year course led by BENNO ALBRECHT, ANDREA SARDENA and OLIMPIA MAZZARELLA.

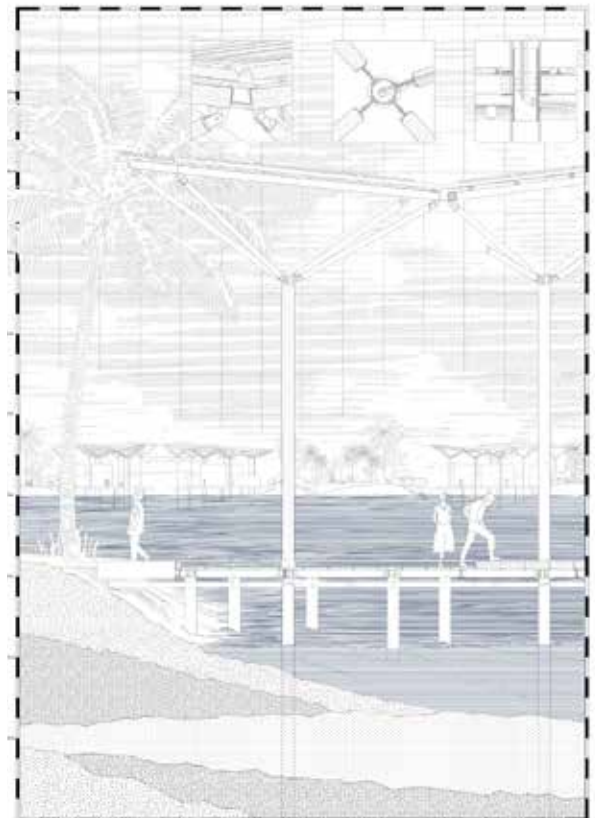
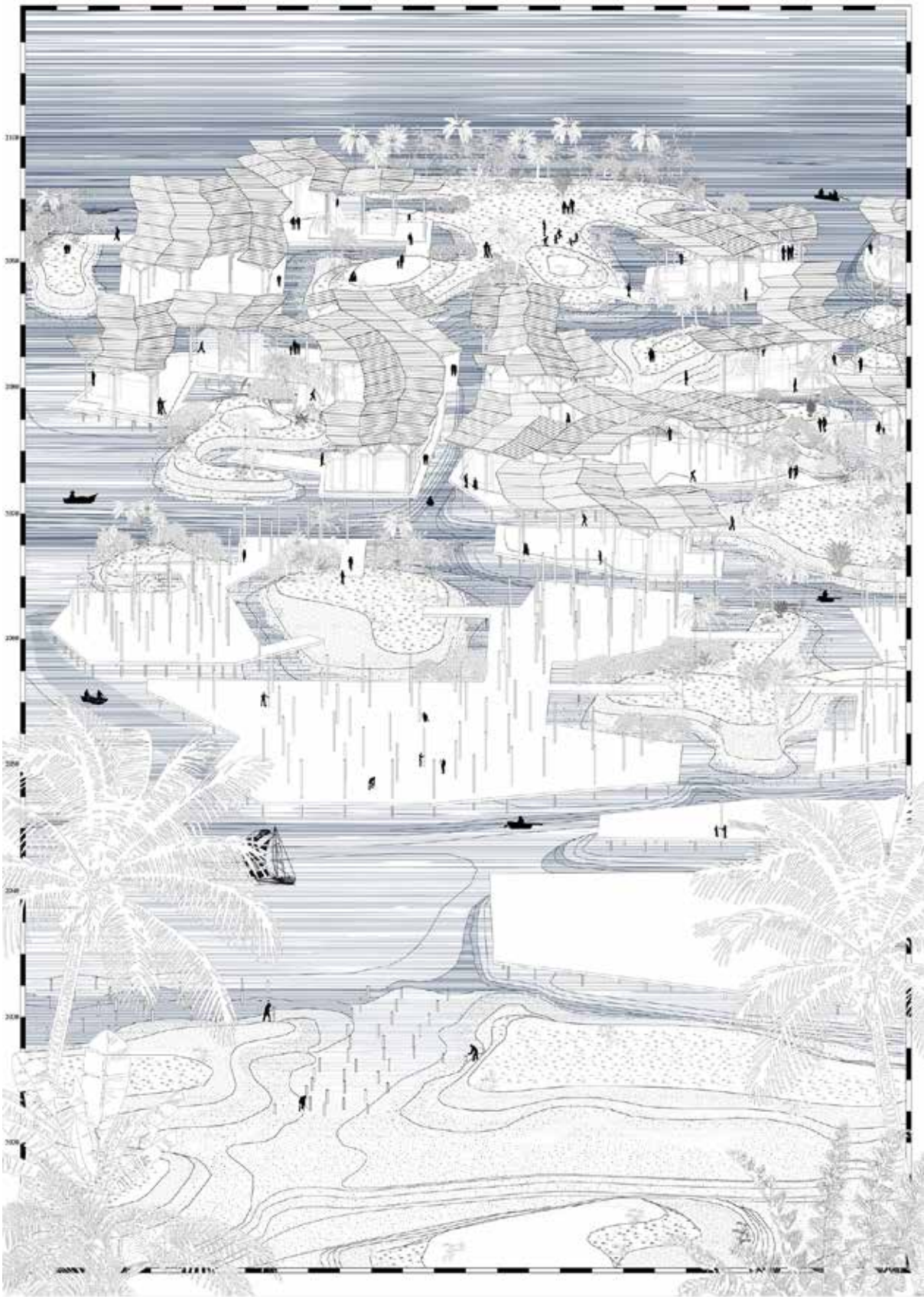


Figure 1, 2 and 3. Student works

Francesca Gallo, Stephanie Marija Krosnjak, Andra Herenciu



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Emanuela Sorbo
Sofia Tonello

course

03

Restoration Theories and Techniques

B76010 [Teorie e tecniche del restauro]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ Università luav di Venezia

Type of Institution

✗ Higher Education Institution

District

✗ Venice, Italy

Department

✗ Department of Architecture and Arts

Faculty

✗ N/A

Study program to which this course belongs

✗ [B76] - Master Degree Program in Architecture (taught in Italian)

Level

✗ Postgraduate (2nd Cycle)

Year/Semester

✗ Year 1 / Semester 2

Course Type

✗ Lecture

✗ Studio design

✗ Theoretical project

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 6 ECTS

A diagram that illustrates the position of the course in the structure of the study program:

		C Conservation path			
1st semester	Architecture and buildings reuse Integrated Desing Lab 1	Sustainable Architecture Integrated Desing Lab 1	Esporre Abitare Integrated Desing Lab 1	monodisciplinary courses economic evaluation of the project drawing administrative law history and theory of architecture	
2nd semester	Conservation project Integrated Desing Lab 2	Sustainable city project Integrated Desing Lab 1	Costruire nel costruito Integrated Desing Lab 2	History and theory of restoration landscape architecture BIM botany steel constructions co-design of urban heritage	
3th semester	Maintenance and protection of the environment Integrated Desing Lab 3	Architecture and new landscapes Integrated Desing Lab 1	Interni urbani e spazi urbani Integrated Desing Lab 3	aesthetics geometry of architecture statics and seismic vulnerability of masonry buildings	
4th semester	Internship Thesis project			workshop intensive Architectural design workshop	

Lectures/week (hours)

✕ 6

Studios/labs/week

✕ N/A

Academic/ Teaching Personnel

✕ Restoration Theories and Techniques is a course with three different divisions led by three different professors. Students can choose the professor with whom they attend the teaching classes. Each professor may deal with the issue by balancing the relationships between preservation, operation, and cultural vision. The following description concern the course led by Professor Emanuela Sorbo.

Program of Study Content

- ✕ Design Project
- ✕ Research Methodology Course

COURSE CONTENT AND STRUCTURE

The course consists of critical, theoretical, and operational components. The theoretical part considers the relationships between preservation, operation, and cultural vision through rules and case studies. The design exercise focuses on the methodologies for assessing the conservation status and the design features of a selected case-study, a historical building in particular conditions of decay and abandonment.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The objective of the Restoration Theories and Techniques course is to acquire knowledge and skills of the methods of analysis and design of the architectural heritage that can interface on different horizons:

- protection guidelines through cultural connections and reference application cases;
- historical architecture understanding,

evaluation, and analysis in the connection between the past stratifications, and the material traces as a preliminary basis of the project;

- conservation and restoration strategies characterized by a contemporary normative, cultural and theoretical horizon;
- elaboration of project outlines.

The course focuses on historical building rehabilitation and restoration according to the theoretical path and the technical tools taught during the lectures. The didactic track starts from identifying the ancient building as part of the cultural heritage through the historical, social, economic, and environmental evaluation. The final goal is the design process of restoration according to social, economic, and environmental needs.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

The exam consists of an interview on the theoretical, critical, and design process with drawings and theories relating to the case study.

The synthetic list of the material required for the exercise consists of:

- historical-constructive analysis in axonometric section;
- evaluation of the state of conservation of the elements being analysed (walls, floors, vaults, pillars, columns);
- project outlines (formal, technological, structural, functional solutions);
- project visions (critical paper, with technique and representation chosen by the student).

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

The course includes introductory ex-cathedra lectures, laboratory-type revision activities, workshop sessions, and seminars with invited lecturers.

There are moments of collective review to develop a critical discussion within the course and monitor students' progress. Students are invited to exhibit and collectively present the drawings derived from the examination path conducted up to that moment. The presentation methods may also include the use of digital media.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

The teaching materials (such as slides, study guides, manuals) are available online at the professor's institutional home page. Students can find the theoretical tools as well as a digital copy of the main publications discussed during the course on the same page.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, in sustainability

Sustainability has different definitions. Understanding the main values according to cultural heritage issues will be one of the challenges for IUAV teaching.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ Yes

During the restoration course, professionals and experts as architects from the Ministry of Cultural Heritage of the local Superintendencies are involved in research concerning the case-studies and preservation strategy.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

The course aims to extend the comprehension of the historical buildings and cultural heritage now dismissed. During the course, external participants, visitors and guests are involved to provide a dialogue between the students and local institutions, such as Municipalities and national institutions as Superintendence.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

According to the course's focus, every year is improved by the collaboration with local institutions, such as Municipalities and national institutions as Superintendence, with the aim to focus the course on applied case-studies.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

- bachelor's degree awarded by the regulations referred to in the Italian Ministerial Decree 270/04 at a course belonging to the L-17 class;
- bachelor's degree in architectural sciences (class 4) according to the Italian Ministerial Decree 509/99 obtained at luav;
- degree or university diploma (also foreign) which allows the recognition of the mandatory 108 ECTS planned for degree programmes related to class L-17.

Workload/weekly study hours

✗ N/A

Language

✗ Italian

Evaluation Methods

- ✗ Oral Exam
- ✗ Project
- ✗ Project Presentation

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS

The following students' works are the results of the previous years (A. Y. 2019/2020) course led by Professor Emanuela Sorbo.

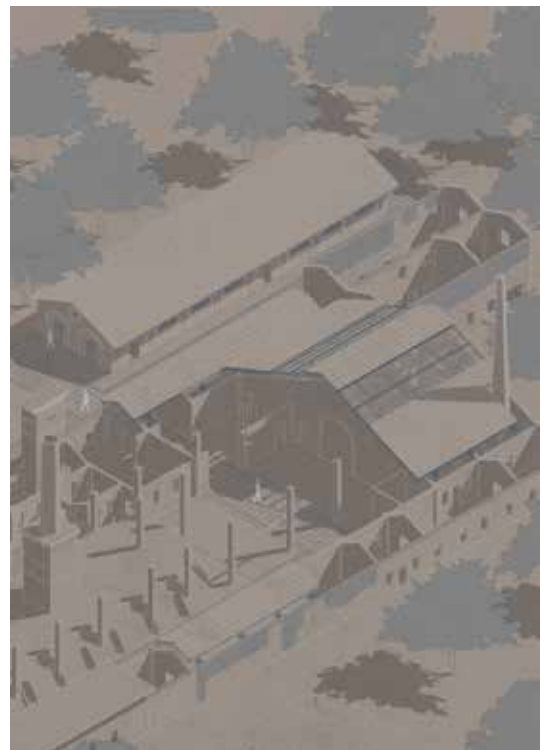
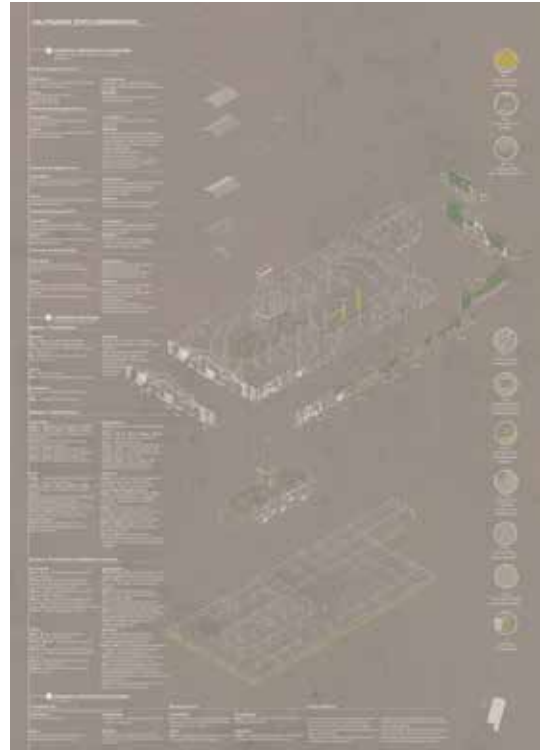
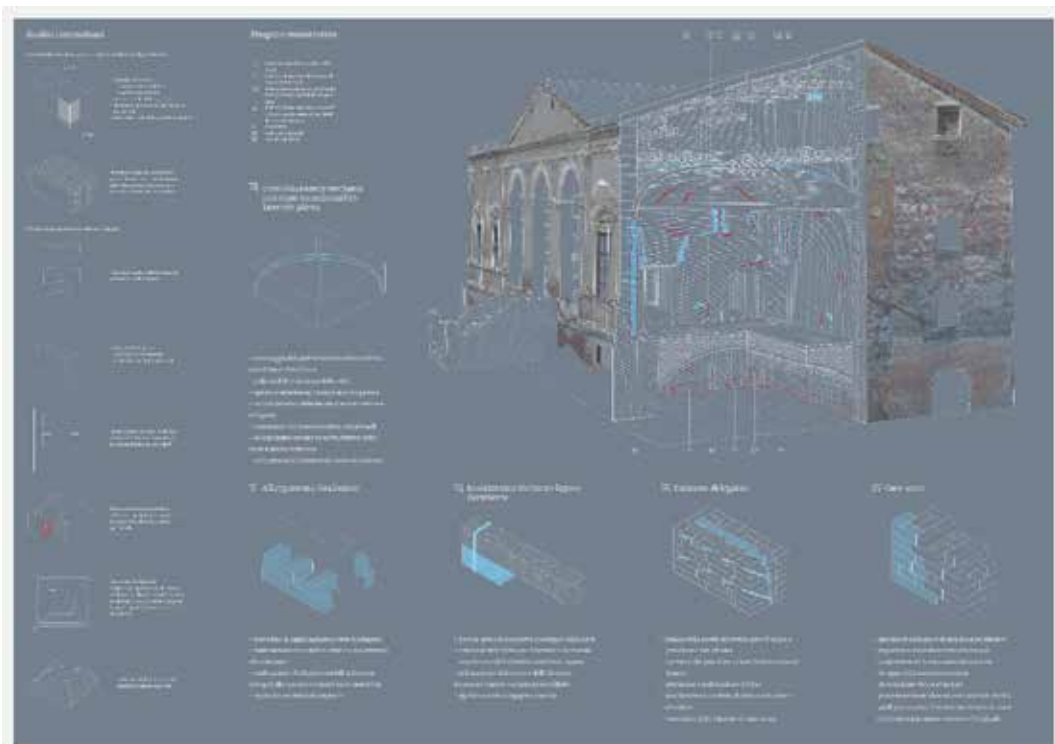
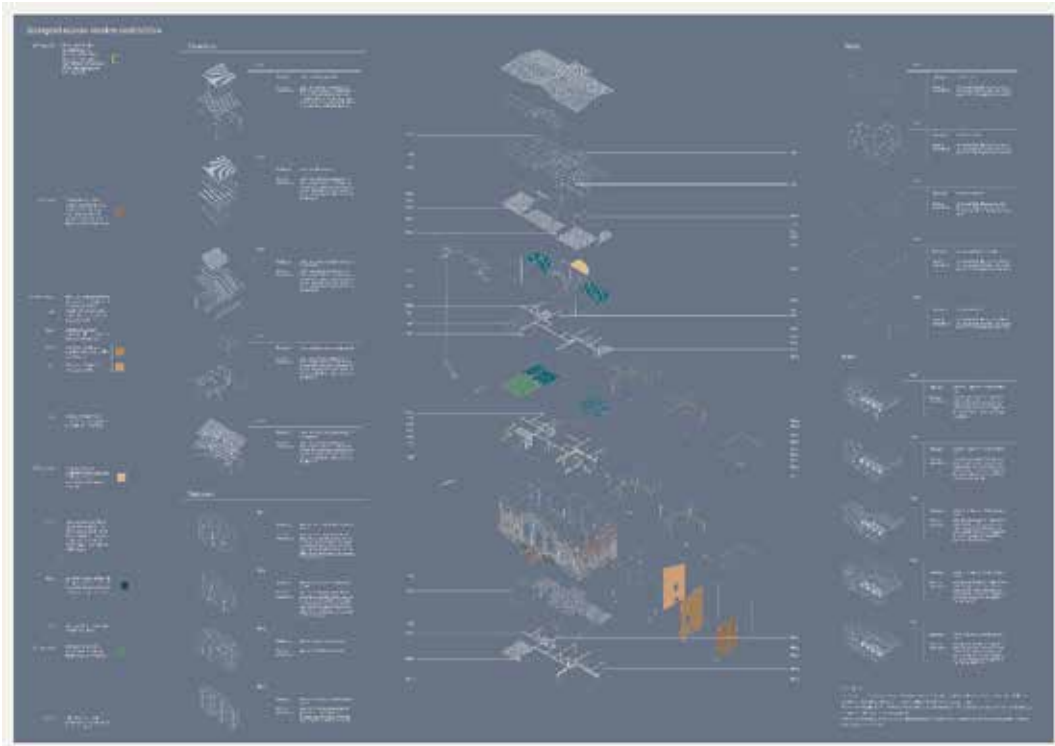


Figure 1-2. Guerra Gregory Klin, Treviso. CDP.
Authors: Calisti, Cane, Kovacic, Longa, Magro

Course path:
 - HTAE - Historical Technical Architectural Evaluation;
 - TCAE - Technical Conservative Architecturale Evaluation;

- CDP - Conservation Design Process | Solutions and Strategy.

Figure 3-4. Villa Gazzotti Grimani (by Andrea Palladio). CDP.
 Authors: Madinelli Pettinà, Vesentini



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Università Iuav
di Venezia

ITALY

X

Emanuela Sorbo
Sofia Tonello
Fabrizio Antonelli

course

04

APPLIED PETROGRAPHY: DETERIORATION OF STONE AND LITHOID BUILDING MATERIALS

SSIBAP [Elementi di petrografia applicata. Degrado dei materiali lapidei e litoidi]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ Università Iuav di Venezia

Type of Institution

✗ Higher Education Institution

District

✗ Venice, Italy

Department

✗ Department of Architecture and Arts

A diagram that illustrates the position of the course in the structure of the study program

Study program to which this course belongs

✗ Scuola di Specializzazione IUAV in Beni Architettonici e Paesaggistici - SSIBAP

Level

✗ Postgraduate (3rd cycle)

Year/Semester

✗ Year 1/ Semester 1

Course Type

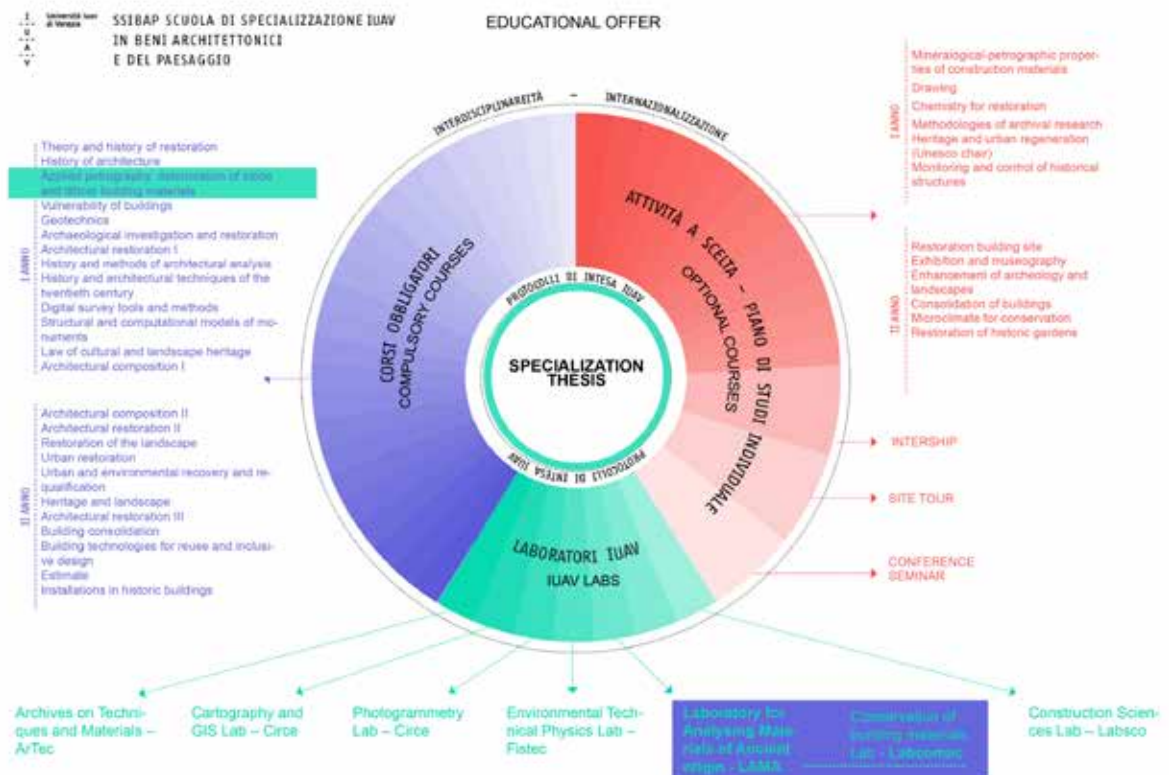
✗ Lecture

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 4 ECTS



Lectures/week (hours)

✕ 4/week

Studios/labs/week

✕ N/A

Academic/ Teaching Personnel

✕ Associate Professor Fabrizio Antonelli

Program of Study Content

✕ Written Thesis

COURSE CONTENT AND STRUCTURE

The course consists of 5 lesson-days, each of them being 4-hours-long.

The topics of the course will be

- the deterioration of stone and lithoid materials in natural and anthropic environments: intrinsic and extrinsic factors. Macro and microscopic morphologies of the deterioration;
- the main forms of physical decay and chemical alteration of stones in place: vocabulary, causes, and mechanisms of deterioration. Conservation issues;
- the impact of atmospheric pollution and biodeteriogens on the materials of historical buildings;
- the technical and scientific investigations preliminary to the restoration work.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course aims to provide students with the indispensable basic knowledge about the main physical decay and chemical weathering processes to which the stone and lithoid materials of the historical buildings undergo, in order to be able to predict possible behaviours and potential suitability and durability of specific materials in function of both expected environmental conditions and intended use.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

The course integrates with and completes the courses “Construction materials and mineralogical-petrographic properties.” and “Chemistry of cultural heritage”. This scientific and methodological path aims to provide the vision of the problem of conservation of materials and the project on ancient building stone decorations and buildings with recognised cultural value. The course provides the student with the basis to develop, with the referent teacher and the LAMA laboratory, part of the specialisation thesis’s research path. In this way, aspects relating to (cultural) sustainability are reflected in the attempt

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



to provide trainees with the tools for the knowledge, analysis, and historical conservation of materials in their multiplicity of historical, cultural, and authenticity values.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

The course counts ex-chair lessons of a technical-theoretical nature with reports relating to case studies.

The course contents are matched with the teacher's research materials and with a visit to the Laboratory for Analysing Materials of Ancient origin (LAMA), allowing students to see the main laboratory instruments mentioned in the course according to the topics covered.

The comparison with research and its application in the field of Cultural Heritage is the opportunity for SSIBAP students to develop an awareness linked not only to the theory of restoration but also to the scientific activities related to the conservation project of ancient surfaces.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

The professor signals a select bibliography at the end of each lesson.

Furthermore, during the lessons, various emblematic cases are presented, both relating to the city of Venice and other architectural and archaeological contexts in the Mediterranean. This method allows students to have a direct perception of the various issues dealt with during the course.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, both in sustainability and heritage

Sustainability has different definitions. Understanding the main values according to cultural heritage issues will be one of the challenges for IUAV teaching.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ Yes

The course organization (20 hours) doesn't consider the possibility of additional lecturers during the course. The SSIBAP educational track aims to involve the students in academic and research activities such as conferences or lectures held by external guests or by School professors.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

The course organization (20 hours) doesn't consider the possibility of additional lecturers during the course. The SSIBAP educational track aims to involve the students in academic and research activities such as conferences or lectures held by external guests or by School professors.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

The LAMA laboratory investigations are currently used for research activities concerning stone and lithoid materials but are also part of the design of built heritage. In the field of conservation, knowledge, and restoration of ancient monuments. The

course aims to introduce specialists in the practical activities concerning restoration.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

- Degree in Architecture – Old order
- Specialisation or Graduate Degree – Degree class "Architettura e Ingegneria edile" (Architecture and Building Engineering) (4/S, LM-4)
- Specialisation or Graduate Degree – Degree classes Archaeology (2/S, LM-2)
- Specialisation or Graduate Degree – Degree classes "Conservazione dei beni architettonici e ambientali" (Conservation of architectural and landscapes heritage) (10/S, LM-10)
- Specialisation or Graduate Degree – Degree classes "Conservazione e restauro del patrimonio storico-artistico" (Conservation and restoration of the historical-artistic heritage) (12/S)
- Specialisation or Graduate Degree – Degree classes "Conservazione e restauro dei beni culturali" (Conservation and restoration of cultural heritage) (LM- 11)
- Specialisation or Graduate Degree – Degree classes in Arts History (95/S, LM -89)
- Italian and foreign citizens with a degree from foreign universities, if deemed fit by the Specialisation School

Workload/weekly study hours

X N/A

Language

X Italian

Evaluation Methods

X Oral Exam

Grading System

X Numerical

Employment influence evaluation (alumni feedback about employability)

- X Employed in Private Sector
- X Employed in Public Sector
- X Self Employed

RESULTS

Students' following works are the master degree thesis path supervised by professors Fabrizio Antonelli, Emanuela Sorbo and Elena Tesser. This work is an example of the possible activities students can do in collaboration with the LAMA LAB. and the experts and professionals involved.

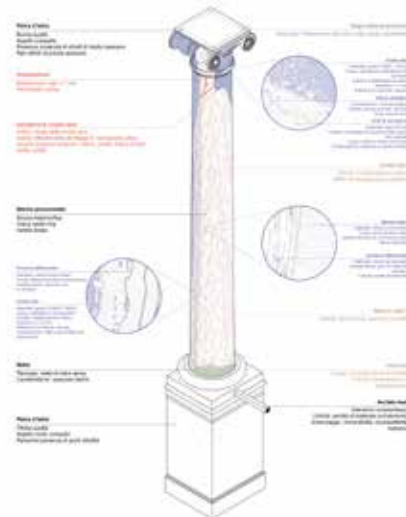
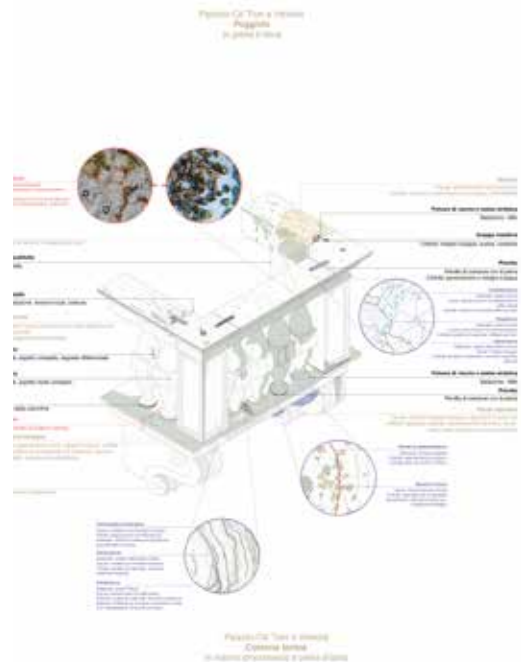
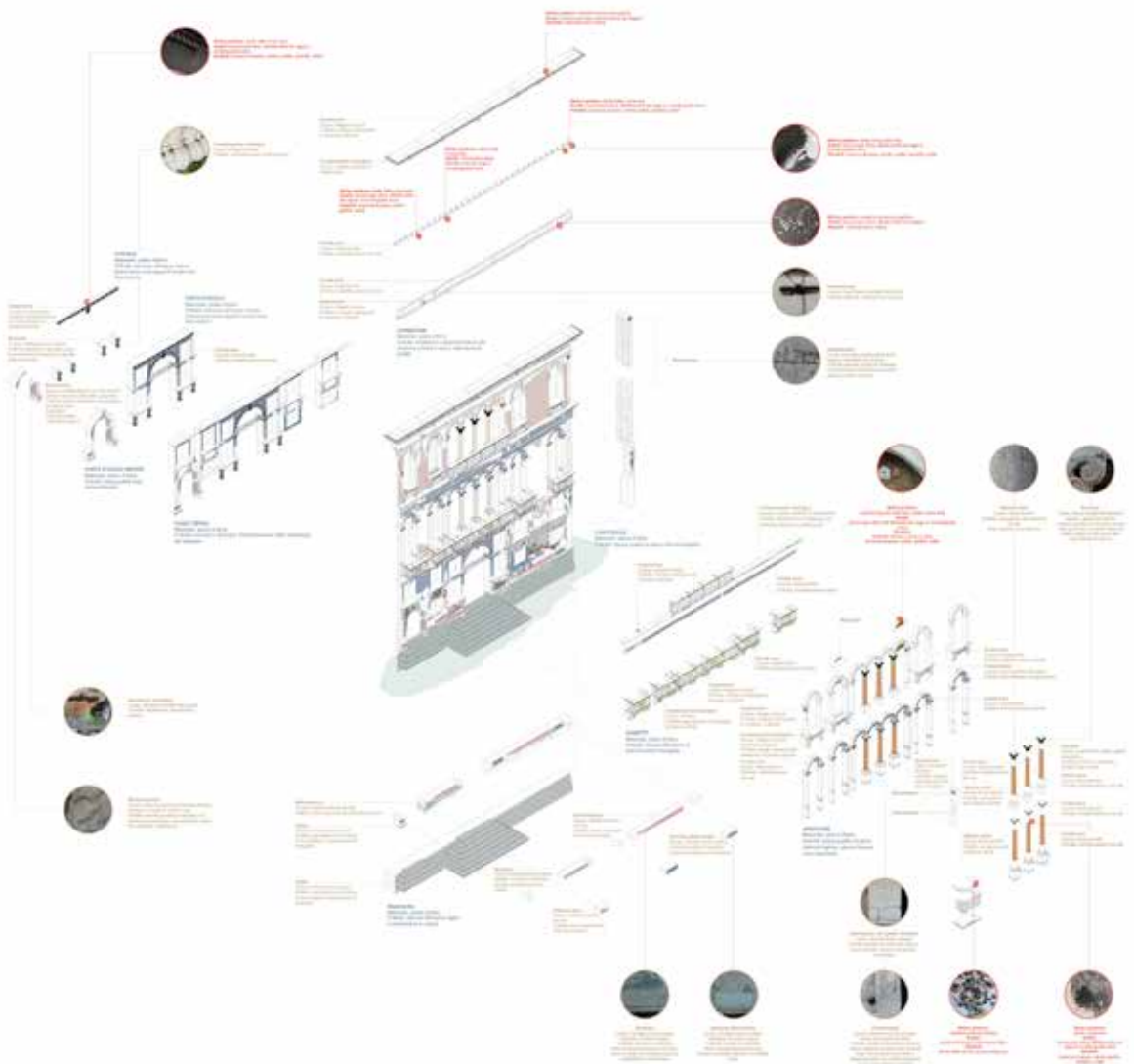


Figure 1-3. Student project.
Authors: Enrico Da Pian, Martina Segafredo

Palazzo Ca' Tron a Venezia
Morfologie del degrado





CYPRUS

✕
Panayiota Pyla

course

01

Architecture and the Critical History of Ecology

ARH 511 [Αρχιτεκτονική και Κριτική Ιστορία Οικολογίας]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ University of Cyprus

Type of Institution

✗ University (Academic, Research, Teaching)

District

✗ Nicosia, Cyprus

Department

✗ Architecture

Faculty

✗ Engineering

Study program to which this course belongs

✗ Interdepartmental graduate program “Energy Technologies and Sustainable Design”

✗ Students can join one of the following Master programs of studies of :

1. [Master of Engineering](#)

(M.Eng.), a Master of professional type, where emphasis is given to courses, seminars and a project targeted mostly on practical applications

2. [Master of Science](#) (M.Sc.), with emphasis in courses, seminars and projects that mainly aim in research directions and innovative design.

A diagram that illustrates the position of the course in the structure of the study program:

6 Specialization Courses	43 ECTS
POL 500: Basic Principles of Interdisciplinary Engineering (1 ECTS)- Prerequisite POL 800: Research Methodology (8 ECTS) ARH 538: Environmental Building Design (8 ECTS) ECE 687: Building Integration of Photovoltaic (PV): Towards nearly zero energy buildings (NZE8) (8 ECTS) MME 516: Renewable Energy Sources Technology (8 ECTS) CEE 536: Energy Efficiency of Buildings (8 ECTS)	
General Elective Courses	8 ECTS
1 Elective Course	
Advanced Project: Capstone Design & Research Project	24 ECTS
Graduate Seminar	1 ECTS
Engagement with practice and industry	1 ECTS
Master Thesis Research	40 ECTS
Total	115 ECTS

List of Specialization Courses (Mandatory)	List of Elective Courses
Department of Architecture <ul style="list-style-type: none"> ARH 538: Environmental Building Design (8 ECTS) 	Department of Architecture <ul style="list-style-type: none"> ARH 539: Advanced Topics in Architectural Technology (8 ECTS) ARH 540: Advanced Topics in Urban Planning (8 ECTS)
Department of Electrical and Computer Engineering <ul style="list-style-type: none"> ECE 687: Building Integration of Photovoltaic (PV): Towards nearly zero energy buildings (NZE8) (8 ECTS) 	Department of Electrical and Computer Engineering <ul style="list-style-type: none"> ECE 680: Power System Analysis (8 ECTS) ECE 681: Power System Operation and Control (8 ECTS) ECE 682: Power System Planning and Operation (8 ECTS) ECE 686: Power System Modeling (8 ECTS)
Department of Mechanical and Manufacturing Engineering <ul style="list-style-type: none"> MME 516: Renewable Energy Sources Technology (8 ECTS) 	Department of Mechanical and Manufacturing Engineering <ul style="list-style-type: none"> MME 512: Advanced Engineering Thermodynamics (8 ECTS) MME 509: Advanced Semiconductor Materials and Nanoelectronics (8 ECTS)
Department of Civil and Environmental Engineering <ul style="list-style-type: none"> CEE 536: Energy Efficiency of Buildings (8 ECTS) 	Department of Civil and Environmental Engineering <ul style="list-style-type: none"> CEE 580: Dynamics of Atmosphere and Air Pollution Dispersion (8 ECTS) CEE 586: Sustainable Built Environment (8 ECTS) CEE 588: Biotechnological production of biofuels and bioenergy (8 ECTS)
Interdepartmental Postgraduate Programme (ITPM) <ul style="list-style-type: none"> POL 500: Basic Principles of Interdisciplinary Engineering (1 ECTS)- Prerequisite POL 800: Research Methodology (8 ECTS) - Only for M.Sc. Students POL 700: Engagement with practice and industry (1 ECTS) POL 601: Graduate Seminar (1 ECTS) POL 606: Advanced Project: Capstone Design & Research Project 1 (8 ECTS) POL 704: Advanced Project: Capstone Design & Research Project 1.9 (8 ECTS) POL 804: Advanced Project: Capstone Design & Research Project 1.9 (8 ECTS) 	Interdepartmental Postgraduate Programme (ITPM) <ul style="list-style-type: none"> POL 800: Research Methodology (8 ECTS) - Only for M. Eng Students

List of Postgraduate and Undergraduate General Elective Courses

Department of Architecture <ul style="list-style-type: none"> ARH 511: Architecture and the Critical History of Ecology
Department of Electrical and Computer Engineering <ul style="list-style-type: none"> ECE 340: Power Engineering ECE 487: Renewable Energy Sources
Department of Mechanical and Manufacturing Engineering <ul style="list-style-type: none"> MME 217: Heat Transfer
Department of Civil and Environmental Engineering <ul style="list-style-type: none"> CEE 483: Transport Processes in Environmental Engineering

Level

X Postgraduate

Year/Semester

X 1st year/1st semester

Course Type

X Lecture

X Seminar

Elective or Compulsory Course

X Elective

ECTS

X 8

Lectures/week (hours)

X 1 (3 hours)

Studios/labs/week

X N/A

Academic/ Teaching Personnel

X Panayiota Pyla

Program of Study Content

X Design Project

X Written Thesis

X Research Methodology Course

COURSE CONTENT AND STRUCTURE

This course analyses the history-theory of environmental issues in architecture in relation to the larger context of architectural theory and practice of the past 50 years. Through critical readings of texts and built projects, it contemplates social and technological experimentations and architectural visions, and their relation to the history of the environment, science and technology. The course also reflects critically and historically on more recent concepts shaping architectural theory and practice, such as eco-development, green architecture, sustainability, eco-branding and greenwashing. A lecture and some student projects are particularly focused on the intersection of sustainability with building conservation.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course's main objective is to develop tools for critical thinking on the socio-political impact of environmental strategies. Definitions like "Nature", "Natural Resources", "Resource Conservation", "Environmental Sensitivity", "Sustainability" and "Sustainable Development" are analyzed critically and their environmental rhetoric is tested against actual design practices on multiple scales.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

By the end of the course, students have a rigorous understanding of various environmental practices. They also learn to distinguish between proclaimed goals and actual outcomes of environmental practices. At the same time students acquire critical reading and writing skills, and they cultivate their abilities in archival, library and field research. They are able to connect theoretical ideas to specific design strategies.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, recently via teams.

Teaching is mainly carried out through lectures as well as seminar discussions (based on assigned readings). Lectures provide comparative perspectives on theories and practices, while the close reading of texts further encourages critical thinking. An important aspect of the course is the students' research project, which asks them to utilize the critical skills gained in the course to analyse a specific project. During the semester, students give presentations of their research projects.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

A. Parr, Hijacking Sustainability, 2009
S. Wheeler and T. Beatley, The Sustainable Urban Development Reader
M. H. Contal and J. Revedin, Sustainable Design
A. Parr and M. Zaretsky, eds., New Directions in Sustainable Design

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, in sustainability

While there is an extensive bibliography on critical readings on sustainability, there are fewer writings on its intersection with conservation issues. However, this also creates an opportunity because: students are asked to examine specific examples of conservation and interrogate them against our readings on sustainability.

Readings are mostly in English, and this requires a learning curve for the students (until they learn terms and concepts), but this is overcome after the first few classes.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ No

Given that there are other courses that cultivate the connection with the practice, this course puts greater emphasis on mastering the bibliography and theoretical concepts

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

Expertise in heritage history and theory; expertise in environmental history.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

There is a close relationship between this course and the current local needs of the labour market in the following sense. Given that there is a lot of rhetoric on environmental protection without necessarily substantial correspondence to real environmental remedies (i.e. there are many practices that are limited to green talk, greenwashing or ecobranding that do not necessarily amount to systematic solutions), there is an important need for a critical understanding of the crucial questions architects need to be asking.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Graduate students with a first degree in architecture, engineering, planning, urban design

Workload/weekly study hours

✗ 3 hours teaching and 12 hours study weekly

Language

✗ Greek

Evaluation Methods

- ✗ Written Exam
- ✗ Project
- ✗ Project Presentation
- ✗ Coursework

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS



Figure 1. Sustainability dilemmas in building preservation

This research project (3000w essay) examines environmental dilemmas related with the preservation and demolition of buildings; particularly, it investigated the demolition of the old Nicosia hospital and its adverse effects on the environment.

*Student group: Raphaella Christodoulou, Christina Panayi
Academic year: 2015-16*



Figure 2. Venice: Victim of nature

This was a poster was made by a student as a critical reflection on weekly readings that discussed environmental dilemmas in heritage practices. It exposes the fragile relationship between humans and nature by depicting how nature negatively impacts the built environment of Venice.

*Student: Barbara Basile
Academic year: 2013-14*



Figure 3. The Green Skyscraper falls short: Ironies of the iHome
This research project (3000w essay) highlights the pitfalls of 'green design' strategies for skyscrapers, and how they impact the larger urban fabric of the city of Limassol.
Student: Danai Zacharia
Academic year: 2020-21



CYPRUS

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Maria Philokyprou
Theodora Hadjipetrou
Maria Nodaraki

course

02

History and Critical Theory of Conservation

ARH 517 [Ιστορία και Κριτική Προσέγγιση στην Αποκατάσταση]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ University of Cyprus

Type of Institution

✗ University (Academic, Research, Teaching)

District

✗ Nicosia, Cyprus

Department

✗ Architecture

Faculty

✗ Engineering

Study program to which this course belongs

✗ Interdepartmental graduate program “Conservation and Restoration of Historic Buildings and Sites”

Level

✗ Postgraduate

Year/Semester

✗ 1st year/1st semester

A diagram that illustrates the position of the course in the structure of the study program:

Core Courses		
<p>CEE 533: Local and Traditional Building Materials (8 ECTS)</p> <p>ARH 517: History and Critical Theory of Conservation (8 ECTS)</p> <p>ARC 652: Introduction to Building Archaeology</p>		
Diploma Courses		
<p>CON 500A-C Advanced Team Project (Capstone Design Project)</p> <p>CON 510 Independent Study</p>		
Specialization Courses		
Department of Civil and Environmental Engineering (8 ECTS)	Department of Architecture (8 ECTS)	Department of History and Archaeology (10 ECTS)
<p>CEE 532: Advanced Technology of Materials</p> <p>CEE 534: Physical Properties and related durability problems of construction materials</p> <p>CEE 537: Restoration and strengthening of structures</p> <p>CEE 538: Experimental Methods in Structural Engineering</p> <p>CEE 547: Masonry structures</p>	<p>ARH 538: Environmental Building Design</p> <p>ARH 540: Mediterranean cities and social phenomena</p> <p>ARH 549: advanced topics in urban planning: territorial transformations urban design and sustainable development</p> <p>ARH 550: Special topics on recording and documenting Buildings and sites</p>	<p>ARC 650: Settlement Analysis and Spatial Archaeology</p> <p>ARC 658: Urban Archaeology</p> <p>ARC 663: Introduction to Cultural Heritage Management</p> <p>ARC 664: Global Issues and Special Cases in Cultural Heritage Management (CHM)</p> <p>ARC 762: Built Environment from Prehistory to Late Antiquity</p>

Course Type

- ✗ Lecture
- ✗ Theoretical project

Elective or Compulsory Course

- ✗ Compulsory

ECTS

- ✗ 8

Lectures/week (hours)

- ✗ 1 (3 hours)

Studios/labs/week

- ✗ N/A

Academic/ Teaching Personnel

- ✗ Maria Philokyprou

Program of Study Content

- ✗ Design Project
- ✗ Written Thesis
- ✗ Research Methodology Course

COURSE CONTENT AND STRUCTURE

The course includes a critical overview of contemporary trends and theories on conservation and reuse of historic buildings and modern movement buildings, providing the general principles and methodology for the overall protection of heritage buildings. In the framework of this course, a critical analysis of international charters and declarations on conservation, including the main theories of conservation, are discussed and important examples of historic conservation projects are analysed. In the framework of this course lectures, theoretical discussions, critical analysis of selected essays, site visits as well as implementation and presentation of projects prepared by students are carried out. Projects include critical analysis of selected buildings after collecting information on their development throughout history (acknowledging the various phases, successive layers and interventions they had undergone), in the socio-political framework of each period, followed by critical analysis on the methods of

rehabilitation. Finally, suggestions and solutions are proposed on how to manage the problems encountered during their analysis.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course aims to develop critical methods of analysis of important architectural works of the past and to provide knowledge and methodological tools for their conservation. One of the course goals is the acquisition of knowledge according to an environmentally sustainable approach towards conservation, through the study of the most recent international charters on conservation, the recent strategies followed as well as through representative case studies.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

- Acquisition of knowledge and development of critical thinking on conservation theories (throughout time) and on contemporary trends that have been recently formed.
- Training in both theory and practice on subjects of conservation and reuse of historic buildings and complexes as well as buildings of the modern movement.
- Understanding of the principles of the overall protection of buildings and complexes
- Understanding the important role that the conservation of existing buildings plays towards a more sustainable attitude for the built environment
- Acquisition of knowledge to recognize the passive environmental strategies incorporated in the design of historical and vernacular structures in order to conserve and reinforce them during the conservation process.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, recently via teams

Teaching is mainly carried out through lectures as well as discussions (after the study of related literature which is handed out to the students), encouraging critical thinking, and visits to historic buildings that have been recently conserved. An important aspect of the course is the project carried out by the students. During the semester, students give presentations of their projects.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

- Karadedou, G. History and Theory of Conservation, Thessaloniki, 2009.
- Brandi C, 'Theory of Restoration I and III', in Historical and Philosophical Issues in the Conservation of Cultural Heritage edited by Nicholas Stanley Price, M. Kirby Talley Jr. and Alessandra Melucco Vaccaro (The Getty

- Conservation Institute, Los Angeles, USA Science Press, Division of the Mark Printing Group (1996) 235, 378-379.
- Philippot P, "Reading 26. Historic Preservation: Philosophy, Criteria, Guidelines, I", in Historical and Philosophical Issues in the Conservation of Cultural Heritage edited by Nicholas Stanley Price, M. Kirby Talley Jr. And Alessandra Melucco Vaccaro, (The Getty Conservation Institute, Los Angeles), USA Science Press, Division of the Mark Printing Group (1996) 268-274.
- Philippot, P., "Reading 21. The emergence of modern conservation theory. Restoration from the perspective of the Humanities", in Pénétrer l'art, Resraurer l'oeuvre: Une vision humaniste: Hommage en forme de florilège, ed. C. Périer-D'leteren (Kortrijk: Groeninghe (1989) 491-500.
- Matero, F.G., 'Loss, Compensation and Authenticity: The contribution of Cesare Brandi to Architectural Conservation in America', Future Anterior 4 (1) (2007) 45-55.
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- H.W. Jandl, 18 Preservation Briefs. Rehabilitating Interiors in Historic Buildings. Identifying and Preserving Character – Defining Elements, 1988.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ N/A

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ No

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

Practitioners architects – give lectures, explain real case studies.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

There is a close relationship between this course and the current local needs of the labour market in the field of architectural conservation that is closely related to sustainability.

More specifically, this course will help students acquire theoretical and practical knowledge in order to fulfill the current local needs for conservation in the private and public sectors, taking into consideration the maintenance of the passive strategies incorporated in the design of heritage buildings. Conservation is very closely related to sustainability.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Graduate students with a first degree in architecture, engineering, archaeology.

Workload/weekly study hours

✗ 3 hours teaching and 12 hours study weekly

Language

✗ Greek

Evaluation Methods

✗ Written Exam
 ✗ Project
 ✗ Project Presentation
 ✗ Coursework

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

✗ Employed in Private Sector
 ✗ Employed in Public Sector
 ✗ Self Employed

RESULTS

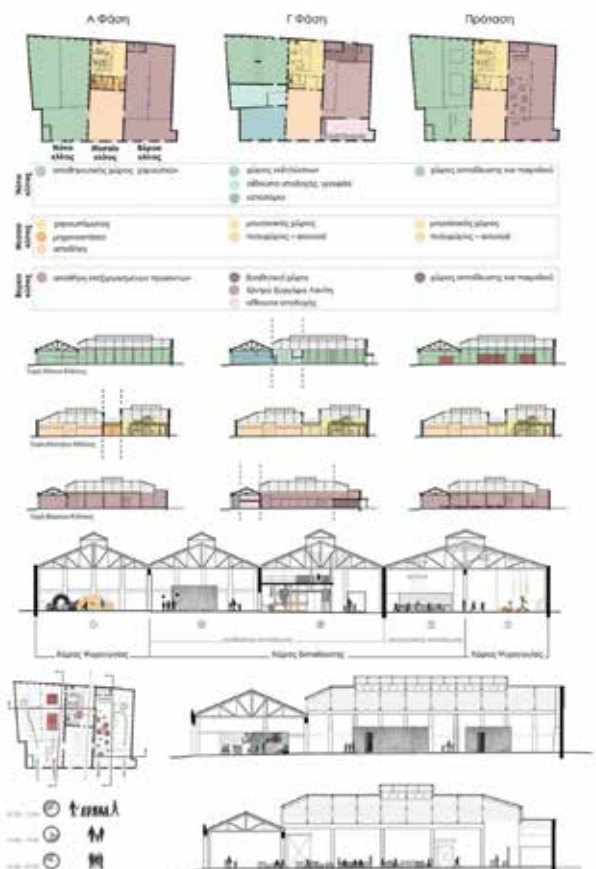


Figure 1. The Old Carob Mill in Limassol. Plan, sections and diagrams. Fall semester 2016-2017

Student group: I. Nicolaou, S. Christoforou, A. Demetriou

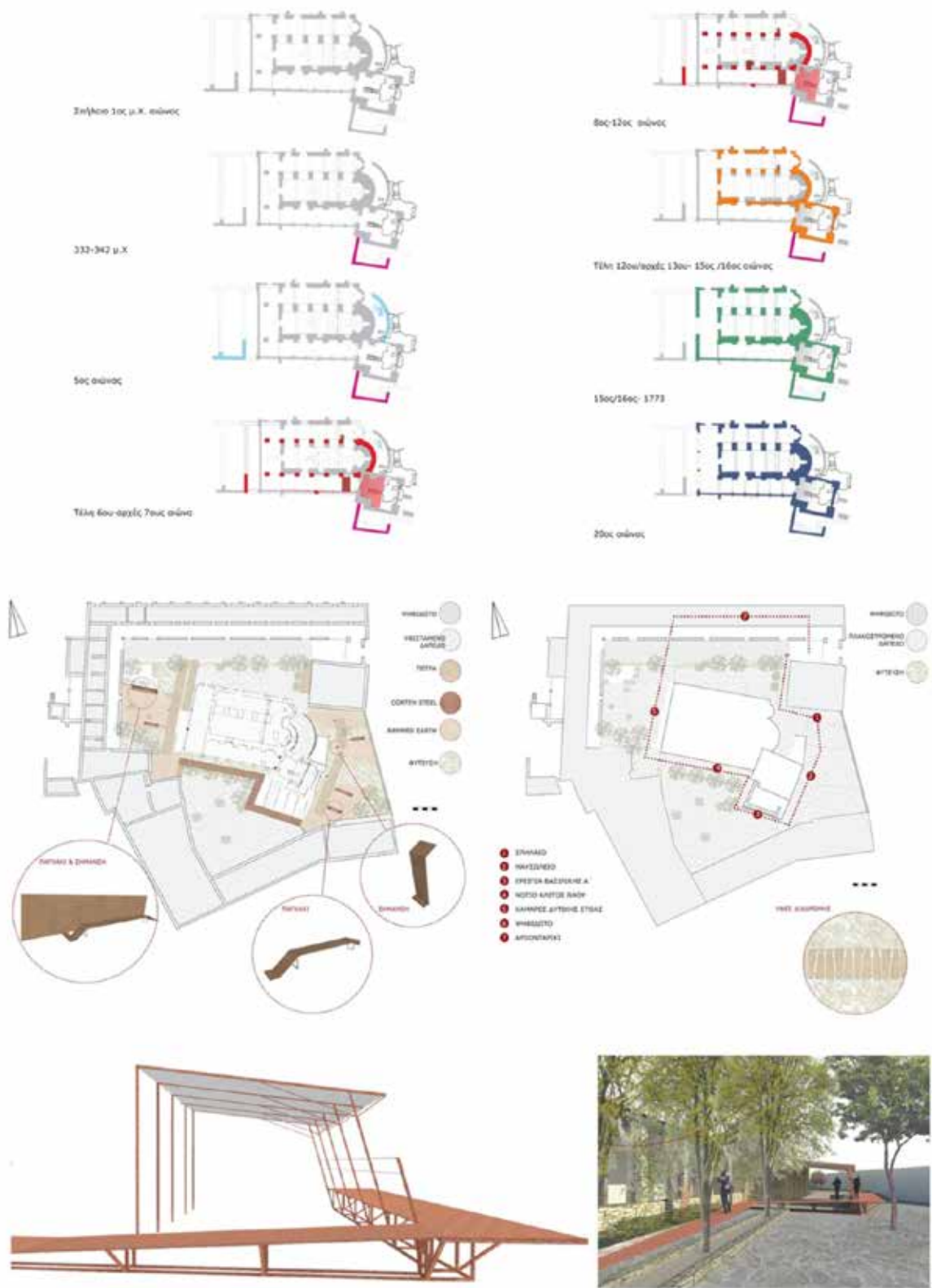


Figure 2. Historic Monastery of Ayios Heraklidios. Plans, diagrams and proposals for new installations. Fall semester 2017-2018

Student group: N.Kotsoni, M. Solomou, T. Hadjipetrou



CYPRUS

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Odysseas Kontovourkis

course

03

Special Topics on Recording and Documenting Buildings and Sites



ARH 550 [Ειδικά Θέματα Καταγραφής και Τεκμηρίωσης Κτηρίων και Συνόλων]

UNIVERSITY LEVEL COURSE DETAILS



Institution

✗ University of Cyprus

Type of Institution

✗ University (Academic, Research, Teaching)

District

✗ Nicosia, Cyprus

Department

✗ Architecture

Faculty

✗ Engineering

Study program to which this course belongs

✗ Interdepartmental graduate program “Conservation and Restoration of Historic Buildings and Sites”

Level

✗ Postgraduate

Year/Semester

✗ 1st year/ 2nd semester

Core Courses		
<p>CEE 533: Local and Traditional Building Materials (8 ECTS)</p> <p>ARH 517: History and Critical Theory of Conservation (8 ECTS)</p> <p>ARC 652: Introduction to Building Archaeology</p>		
Diploma Courses		
<p>CON 500A-C Advanced Team Project (Capstone Design Project)</p> <p>CON 510 Independent Study</p>		
Specialization Courses		
Department of Civil and Environmental Engineering (8 ECTS)	Department of Architecture (8 ECTS)	Department of History and Archaeology (10 ECTS)
<p>CEE 532: Advanced Technology of Materials</p> <p>CEE 534: Physical Properties and related durability problems of construction materials</p> <p>CEE 537: Restoration and strengthening of structures</p> <p>CEE 538: Experimental Methods in Structural Engineering</p> <p>CEE 547: Masonry structures</p>	<p>ARH 538: Environmental Building Design</p> <p>ARH 540: Mediterranean cities and social phenomena</p> <p>ARH 549: advanced topics in urban planning: territorial transformations urban design and sustainable development</p> <p>ARH 550: Special topics on recording and documenting Buildings and sites</p>	<p>ARC 650: Settlement Analysis and Spatial Archaeology</p> <p>ARC 658: Urban Archaeology</p> <p>ARC 663: Introduction to Cultural Heritage Management</p> <p>ARC 664: Global Issues and Special Cases in Cultural Heritage Management (CHM)</p> <p>ARC 762: Built Environment from Prehistory to Late Antiquity</p>

A diagram that illustrates the position of the course in the structure of the study program:

Course Type

- ✗ Lecture
- ✗ Studio design
- ✗ Practical work

Elective or Compulsory Course

- ✗ Elective

ECTS

- ✗ 8

Lectures/week (hours)

- ✗ 1 (3 hours)

Studios/labs/week

- ✗ 0

Academic/ Teaching Personnel

- ✗ Maria Philokyrou, Aimilios Michael, Odysseas Kontovourkis

Program of Study Content

- ✗ Design Project
- ✗ Written Thesis

COURSE CONTENT AND STRUCTURE

The course provides fundamental and specialized knowledge of recording and documenting buildings and building sites through the use of traditional/conventional and contemporary digital methods. It introduces technologies that address issues of spatial organization, morphology and construction of buildings and building sites as well as their 3D scanning, 3D representation and documentation in the digital environment. It also addresses the recording and analysis of comfort conditions and energy efficiency of buildings and the recording of external environmental data. Among others, it addresses the recording of operational characteristics and / or specific comfort requirements of the buildings in question and includes the quantitative recording and analysis of parameters for determining thermal and visual comfort conditions.

In the framework of this course lectures, site visits, fieldwork, as well as implementation and presentation of projects prepared by students are carried out.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course aims at introducing research tools and methodological approaches of in-situ recording and documenting of buildings and urban sites, as well as individual structural and morphological building elements, while it includes methodologies for the classification, evaluation and processing of monitoring data. In relation to sustainability and cultural heritage, the course deals with the recording and documenting of the current form of historic buildings and the recording and analyzing of environmental data.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

- Acquiring background knowledge and developing tools for an in-situ recording of building blocks, buildings and structures.
- Development of a methodology for the study of details of individual constructions with special equipment.
- Acquiring knowledge to record damage and alterations in constructions as well as the processing and evaluating the data.
- Deepening students' knowledge in the subject of buildings environmental design, in recording and analyzing comfort and energy performance conditions of buildings and recording environmental and indoor environment data.
- Deepening in issues of digital processes for recording and documenting buildings and building sites. In particular, the students will understand and investigate advanced computational/digital mechanisms and technologies such as 3D scanning, 3D modeling, 3D printing, etc.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, recently via teams

Teaching is mainly carried out through lectures and presentations by lecturers, as well as text analysis by students, and through visits to historic buildings. An important aspect of the course is the project carried out by the students. During the semester, students give presentations of their projects.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

Recording and documenting of the building: recording in datasheets, use of traditional and contemporary measuring instruments (laser meter, meter, ect.).

Recording of energy performance and comfort of the building: Temperature/ Humidity Indoor Data, Loggers, Temperature/ Humidity/CO2 Indoor, Data Loggers, Environmental Weather Stations, light meters (natural lighting levels)
3D scanning, 3D modeling and 3D printing of the building: 3D scanner, photogrammetry software - photoscan, 3D modeling software, 3D printers

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

× N/A

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

× No

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

× No

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

There is a close relationship between this course and the current local needs of the labour market in the field of architectural conservation that is closely related to sustainability.
More specifically, this course will help students acquire theoretical and practical knowledge in order to fulfill the current local

needs for documentation of historic buildings (form, energy performance and comfort) in the private and public sectors.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Graduate students with a first degree in architecture, engineering, archaeology

Workload/weekly study hours

✗ 3 hours teaching and 12 hours study weekly

Language

✗ Greek

Evaluation Methods

- ✗ Written Exam
- ✗ Project
- ✗ Project Presentation
- ✗ Coursework

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS

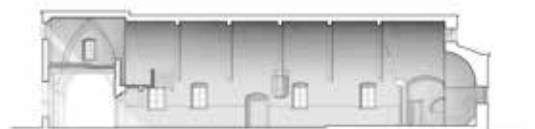
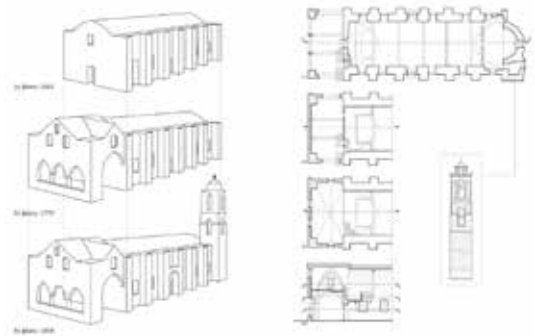


Figure 1 and 2. Ayios Ioannis Church, 2017/2018
Student group: S. Hadjisotiriou, M. Giapa, M. Georgiou, K. Gavalis

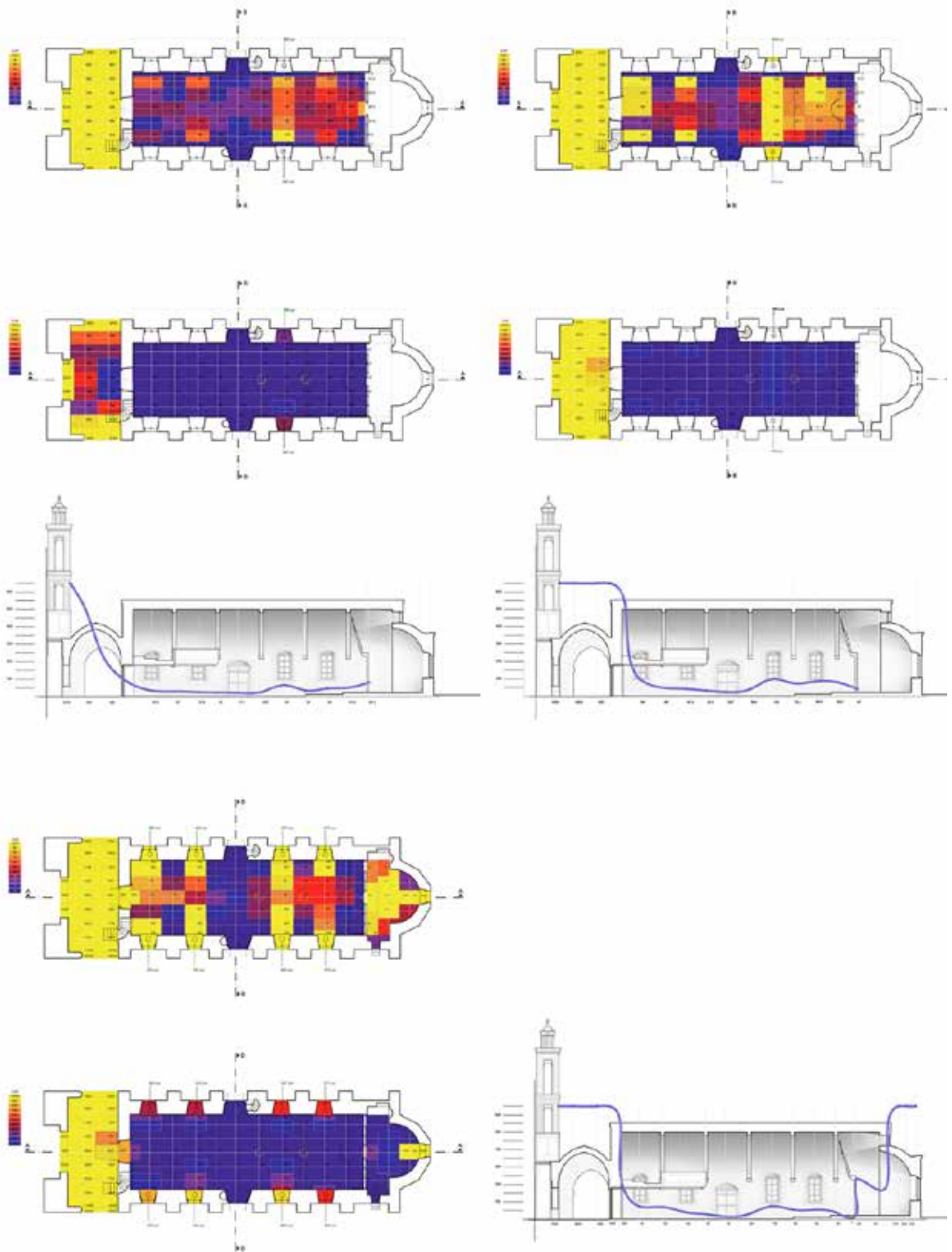


Figure 3. Ayios Antonios Church, 2017/2018

Student group: T. Hadjipetrou, M. Solomou, M. Kounnapi, N. Kotsoni



CYPRUS

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Maria Philokyprou
Theodora Hadjipetrou
Maria Nodaraki

course

04

Capstone Design Project (Advanced Team Project)

CON 500 A-C [Προχωρημένη Ομαδική Εργασία]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ University of Cyprus

Type of Institution

✗ University (Academic, Research, Teaching)

District

✗ Nicosia, Cyprus

Department

✗ Architecture

Faculty

✗ Engineering

Study program to which this course belongs

✗ Interdepartmental graduate program “Conservation and Restoration of Historic Buildings and Sites”

Level

✗ Postgraduate

Year/Semester

✗ 1st - 2nd year/ 2nd semester & summer semester & 3rd semester

Core Courses		
CEE 533: Local and Traditional Building Materials (8 ECTS) ARH 517: History and Critical Theory of Conservation (8 ECTS) ARC 652: Introduction to Building Archaeology (10 ECTS)		
Diploma Courses		
CON 500A-C Advanced Team Project (Capstone Design Project) CON 510 Independent Study		
Specialization Courses		
Department of Civil and Environmental Engineering (8 ECTS)	Department of Architecture (8 ECTS)	Department of History and Archaeology (10 ECTS)
CEE 532: Advanced Technology of Materials CEE 534: Physical Properties and related durability problems of construction materials CEE 537: Restoration and strengthening of structures CEE 538: Experimental Methods in Structural Engineering CEE 547: Masonry structures	ARH 538: Environmental Building Design ARH 540: Mediterranean cities and social phenomena ARH 549: advanced topics in urban planning: territorial transformations urban design and sustainable development ARH 550: Special topics on recording and documenting Buildings and sites	ARC 650: Settlement Analysis and Spatial Archaeology ARC 658: Urban Archaeology ARC 663: Introduction to Cultural Heritage Management ARC 664: Global Issues and Special Cases in Cultural Heritage Management (CHM) ARC 762: Built Environment from Prehistory to Late Antiquity

A diagram that illustrates the position of the course in the structure of the study program:

Course Type

- ✗ Studio design
- ✗ Theoretical work
- ✗ Workshop

Elective or Compulsory Course

- ✗ Compulsory

ECTS

- ✗ 20

Lectures/week (hours)

- ✗ 1 (3 hours)

Studios/labs/week

- ✗ 1 (3 hours) during the summer semester

Academic/ Teaching Personnel

- ✗ Special adjunct faculty scientists (Diomedes Myrianthefs, Dr. Rogiros Illampas, Dr. Doria Nikolaou, Dr. Vasiliki Lysandrou, Dr. Androula Georgiou) under the supervision of the coordinators of the graduate program

Program of Study Content

- ✗ Design Project
- ✗ Written Thesis
- ✗ Research Methodology Course

COURSE CONTENT AND STRUCTURE

The Capstone Design Project consists of three individual courses with a total duration of three semesters. Through the course CON 500A-C, a close collaboration is achieved between the three departments that participate in the program (Architecture, Engineering, Archeology) and their individual fields of specialization, as well as between the students who come from different academic disciplines.

In particular, this course allows students to become trained and acquire the scientific knowledge required in their field, while familiarizing themselves with the tools and methods for conducting historical and archaeological research and excavations, on-site design recording (using traditional and contemporary measuring instruments) and systematic data analysis.

At the same time, students explore issues of digital recording and three-dimensional renderings. In addition, they gain knowledge on recording construction pathology by identifying damage and alterations to building materials and elements, as well as on processing and evaluating field data. Students are also trained in the methodology of sampling and laboratory analysis of building materials. Finally, they become trained in formulating theoretical and design proposals for the conservation and reuse of historic buildings. The Capstone Design Project is essentially a case study that combines analytical and design work and includes theoretical archival research and approach, fieldwork (survey and design), and laboratory experiments.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The goal is the comprehensive interdisciplinary training of students and their cooperation in real-life management issues that cultural heritage is currently facing.

The course aims to help students develop critical thinking and critical and interpretive approach and methodology, as well as to provide them with the practical experience and know-how in dealing with the protection and reuse of architectural units of other periods, through contemporary perceptions in the framework of current needs and challenges. At the same time, it aims to provide interdisciplinary cooperation between group members and to find a common language of communication between interested parties in the conservation of cultural heritage.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

- Development of critical thinking, solid methodology, interpretive approach for the architectural studies of other eras.
- Exercise in the presentation of research findings.
- Collaboration with other sciences.
- Gaining practical experience and expertise in the maintenance and restoration of buildings or complexes.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, recently via teams
Teaching is mainly carried out through lectures and presentations by lecturers, and visits to historic buildings with in-situ measurements, and laboratory experiments. Research in libraries and archives is also carried out. An important aspect of the course is the project carried out by the students. During three semesters, students give presentations of their projects.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

Recording and documenting of the building: recording in datasheets, use of traditional and contemporary measuring instruments (laser meter, meter, ect.).

3D modeling of the building: photogrammetry software - photoscan, 3D modeling software.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✕ N/A

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✕ Yes

The interdepartmental program runs in close collaboration with the Department of Antiquities in order to authorize access to the monuments selected as case studies. In addition, some explanatory lectures are given by employees from the Department of Antiquities.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✕ Yes

The coordination of the work was undertaken during the years 2017-2021 by the program coordinators consisting of Ioannis Ioannou, Associate Professor of the Department of Civil and Environmental Engineering, Maria Philokyprou, Associate Professor of the Department of Architecture and George Papasavvas, Associate Professor of the History and Archeology

Department. The supervision and guidance of the students was undertaken during the years 2017-2021 by Special Teaching Scientists who cover all relevant fields: Diomedes Myrianthefs, Architect-Conservator, Dr. Rogiros Illampas, Civil Engineer, Dr. Doria Nikolaou, Archaeologist and Dr. Vasiliki Lyssandrou, Archaeologist.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

The goal is the comprehensive interdisciplinary training of students and their cooperation in real-life management issues that cultural heritage is currently facing. More specifically, this course helps students acquire theoretical and practical knowledge to fulfill the current local needs for documentation of historic buildings in the private and public sectors.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Graduate students with a first degree in architecture, engineering, archaeology

Workload/weekly study hours

✗ 3 hours teaching and 12 hours study weekly

Language

✗ Greek

Evaluation Methods

- ✗ Project
- ✗ Project Presentation
- ✗ Coursework

Grading System

✗ Verbal

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

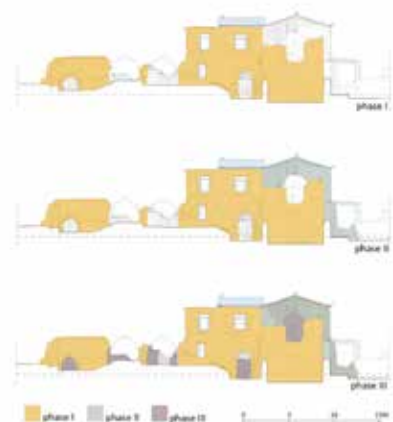
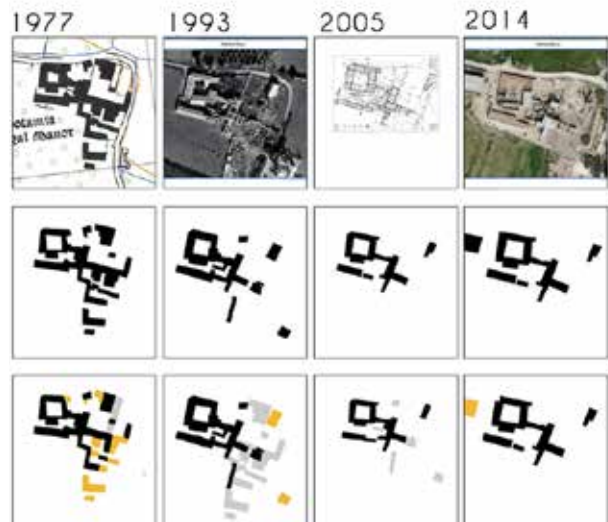


Figure 1. The medieval Manor of Potamia. Historical analysis and different architectural phases of the Manor, 2017- 2018

Student group: M. Georgiou, M. Giapa, K. Gavalis, S. Hadjisotiriou

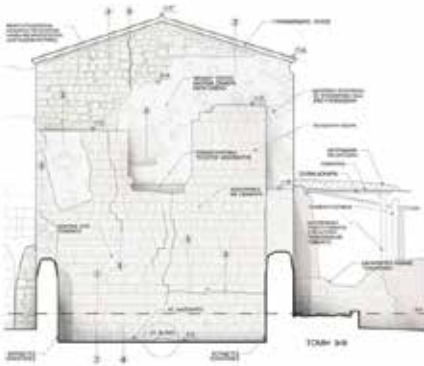
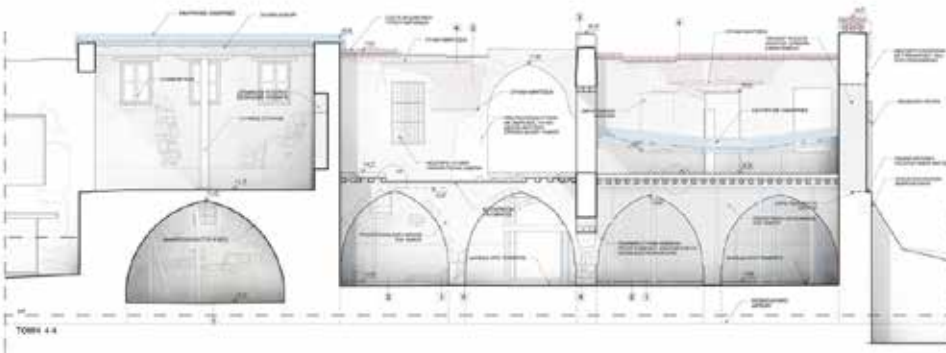
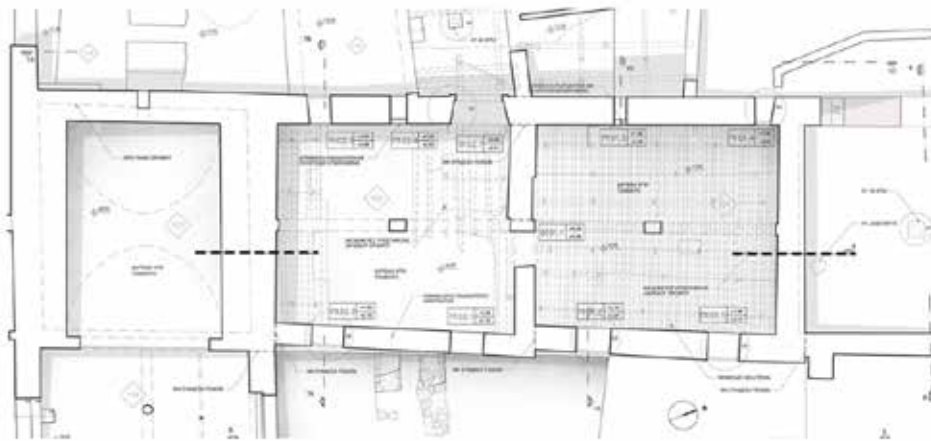
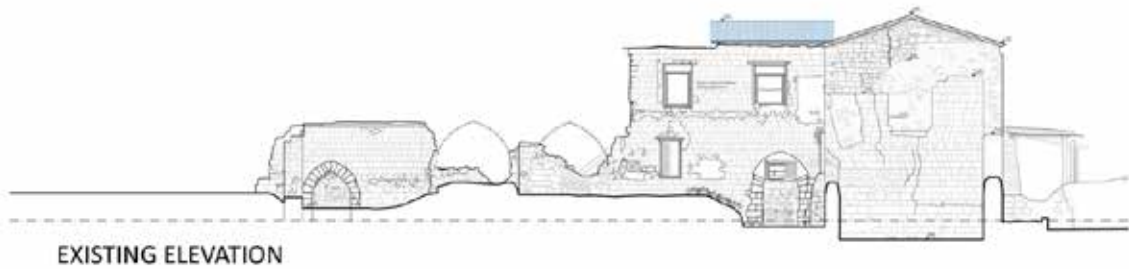


Figure 2. The mediaval Manor of Potamia. Survey drawings (Plan and Sections), 2017- 2018
 Student group: M. Giapa, S. Hadjisotiriou



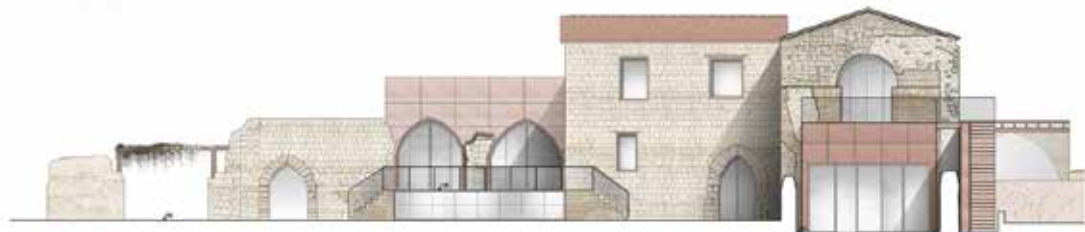
EXISTING ELEVATION



PROPOSAL A



PROPOSAL B



PROPOSAL C



Figure 3. The medieval Manor of Potamia. Existing section and different proposals, 2017- 2018
 Student group: M. Giapa, I. Elia, N. Kotsoni, I. Petrou, T. Hadjipetrou, S. Hadjisoteriou

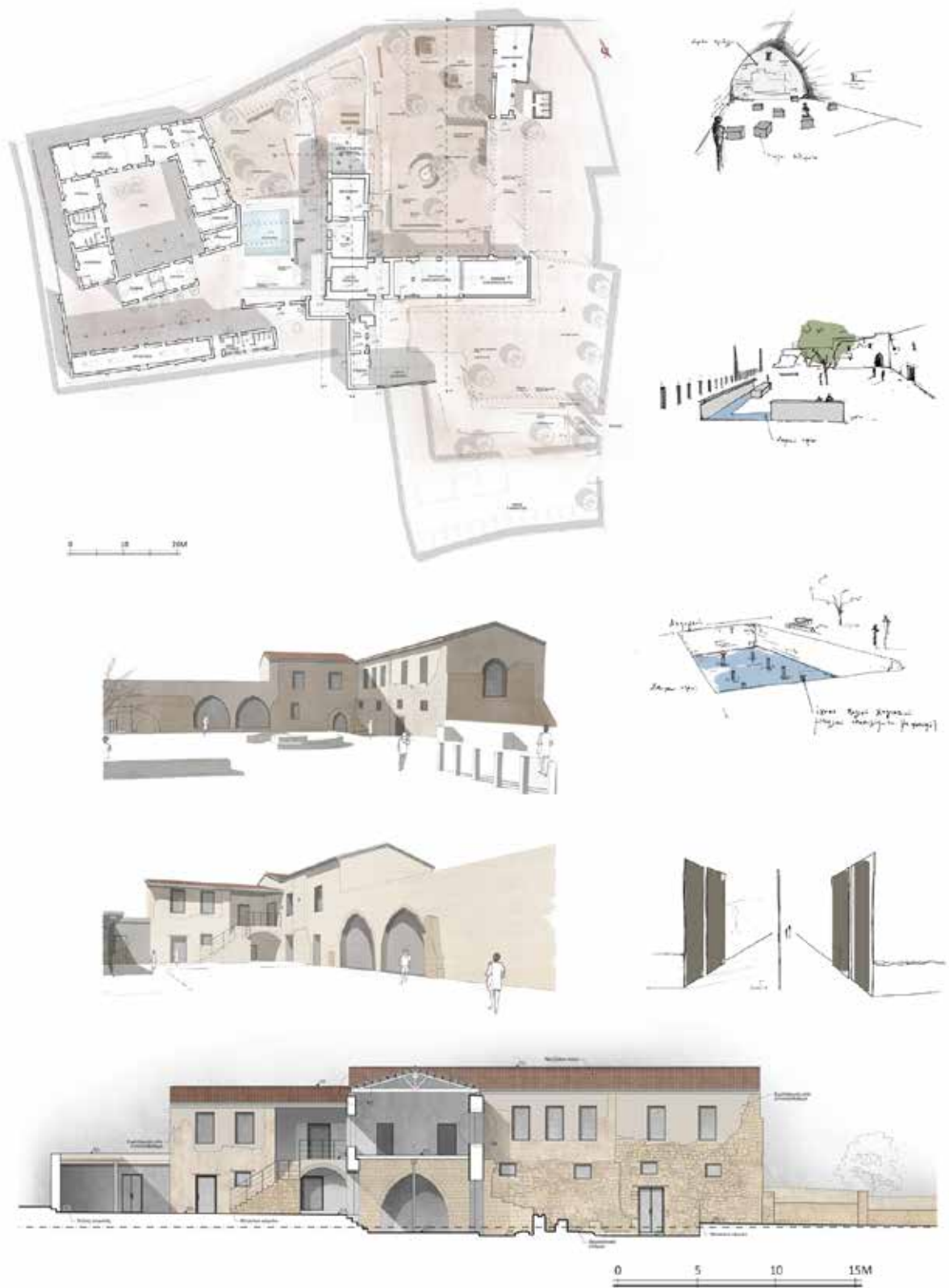


Figure 4. The medieval Manor of Potamia. Proposals for the revival of the Manor (plan, elevations, sections, sketches), 2017- 2018
 Student group: M. Giapa, S. Hadjisotiriou



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

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Angelliki Chatzidimitriou

course

01



02EE02 [N1EE02 Εργαστήριο Αρχιτεκτονικού Σχεδιασμού Ι]

UNIVERSITY LEVEL COURSE
DETAILS



Institution

✗ Aristotle University of Thessaloniki

Type of Institution

✗ Academic (Teaching and Research)

District

✗ Thessaloniki, Greece

Department

✗ School of Architecture

Faculty

✗ Faculty of Engineering

Study program to which this course
belongs

✗ Postgraduate Programme of Studies: Environmental Architectural and Urban Design (PPS EAUD)e

A diagram that illustrates the position of the course in the structure of the study program:

✗ The course develops over three academic semesters, of which the first two comprise of theoretical courses and design studios and the latter for attending support courses, intensive seminars or intensive workshops and/or an educational trip, as well as for the elaboration of the postgraduate diploma work. Design Studios cover both design scales: a) Architectural – building, b) Urban - urban planning. The course reviewed, Architectural Design Studio

II, takes place over semester II and applies an environmental approach to the retrofit and reuse of the existing building fabric of the city.

Level

✗ Postgraduate

Year/Semester

✗ 1st year / 2nd semester

Course Type

✗ Studio design

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 10 ECTS

Lectures/week (hours)

✗ 0.5

Studios/labs/week

✗ 3,5

Academic/ Teaching Personnel

✗ Kleo Axarli, Nikolaos Kalogirou, Eddy Castro, Claudio Connena, Vanessa Tsakalidou, Themis Chatzigiannopoulos, Angeliki Chatzidimitriou

Program of Study Content

✗ Design Project

COURSE CONTENT AND STRUCTURE

The Architectural Design Studio II focuses on the retrofit and reuse of the city's existing building fabric. It emphasizes issues of adaptation to the surrounding environment, i.e., integration in the urban space, volumetric composition/scaling, orientation, building skin surfaces/openings/filters, spaces' layout, indoor climate controls, management and articulation of enclosed/semi-outdoor/open areas, selection of materials and vegetation. Within the design process, the architectural composition utilizes the parameters of sustainable design and energy efficiency as a framework for the adaptive reuse of a specific building envelope in the historical centre of Thessaloniki. The course also includes evaluating and assessing architectural proposal's environmental and energy performance through qualitative and quantitative parameters utilizing analytic tools and thermal simulation software.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

A critical issue in sustainable planning and the resilience of contemporary cities is the revitalization of urban districts, and the adaptive reuse of existing building stock. Retrofitting, which refers to the addition of new technology or features to older systems, characterizes the trend for revitalization of obsolete built stock at all scales. Green Retrofitting further specifies the interventions and adaptations with a focus on improving the environmental response of building stock and urban areas, entailing the use of technical means, such as envelope thermal insulation, replacement of windows/HVAC systems, energy efficient lighting, cool roofs, green roofs, water management, etc., but also extends to the adaptation of the use(s) and the image of the buildings in the urban context. The course focuses on the redesign of an existing multistory building in the historic centre of Thessaloniki aiming at its reintegration into contemporary life.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

Upon successful completion of the course, students have: i) a thorough understanding of design/redesign principles of green building envelopes, ii) acquired architectural composition skills that maximize the environmental and energy performance of buildings, iii) familiarized themselves with the process of quantifying the environmental and energy performance of buildings, within the process of architectural composition, through thermal and energy simulation tools, iv) a thorough understanding of the important role of climate/microclimate/solar geometry towards energy performance of buildings and users' comfort within the surrounding built environment, v) acquired

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL

low	medium	high
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ECONOMIC

low	medium	high
-----	--------	------

ENVIRONMENTAL

low	medium	high
-----	--------	------

knowledge on methods and strategies for minimizing the environmental footprint and improving the energy efficiency of existing buildings in the context of broader structural and functional redevelopments and in compliance with contemporary regulations.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face studio participation, recently via zoom.

Teaching is mainly carried out through short lectures, and assessment and discussion on the development of student projects within the studio. The course encourages creative and innovative thinking in the design process integrating advanced interpretations of taught material and methods in the proposed projects within the framework of sustainable architectural design, built heritage aspects and urban resilience. The application of environmental performance assessment tools and intermediate presentations are also critical phases in the progress of the student projects.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

- Ford, B., R. Schiano-Phan, E. Francis (Eds 2010). The Architecture & Engineering of Draught Cooling. PHDC Press.
- Givoni, B. (1994). Passive and Low Energy Cooling of Buildings. Van Nostrand Reinhold.
- Goulding, J.R., J.O.Lewis and T.C. Steemers (Eds. 1992 and later). Energy in Architecture: the European Passive Solar Handbook. Batsford for Commission of the European Communities.
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- Littlefair, P.J. (2011) Site Layout Planning for Daylight and Sunlight. A Guide to Good Practice. BRE Press University
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- Olgyay (1992), Design with climate. Van Nostrand Reinhold, New York, pp.91-100. Climate consultant <http://www.energy-design-tools.aud.ucla.edu/>

Environmental design applications
<http://andrewmarsh.com/software/>
Design builder
<http://www.designbuilder.co.uk/content/view/14/36/>

During the first and second semesters, students are familiarized with online tools for environmental analysis, climate data management, etc. During the second semester, students receive tutorials –seminars- and have access to the Design Builder software which they use to assess the energy performance of design scenarios and for the final evaluation of the energy efficiency of the proposed building and its presentation.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, both in sustainability and heritage

The challenges in the framework of the studio arise from the necessity to meet current urban resilience and energy efficiency requirements, construction regulations and advanced technologies implementation along with the preservation of existing historical and cultural qualities of built structures and urban characteristics, utilizing the historic and cultural values of the host city and considering cultural heritage as a pillar of sustainable development. The team of tutors covers an array of approaches that exemplify the implications of culture in the context of sustainable design while invited speakers provide specialized introduction to several aspects of the design processes, technical methods and historic background views. A further challenge emerges from the students' interdisciplinarity, which can pose obstacles in achieving a consistent perspective but also enables the merging of viewpoints and experiences, triggers interaction and enriches the perception of varying environmental design parameters.

**PRACTITIONERS/PROFESSIONALS/
EXPERTS INVOLVED IN THE
EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE
AND THEIR ROLE IN THE COURSE**

✗ Yes

Professional architects and engineers with expertise in the environmental design of buildings and open spaces are occasionally invited to give lectures and/or contribute to crits and studio participation

**EXTERNAL PARTICIPANTS, VISITORS
GUEST LECTURERS, ETC, INVOLVED IN
THE EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE AND
THEIR ROLE TO THE PROGRAM OF STUDY**

✗ Yes

The framework that supports the employment of teaching staff – lecturers - on a contractual framework allows for experts (PhDs, Post-doc researchers and professors at schools of Engineering) as well as experienced practitioners to contribute to the studio courses. There exists a strong presence of Emeritus professors who contribute weekly to the studio.

**RELATIONSHIP BETWEEN THE COURSE
AND THE CURRENT LOCAL NEEDS/
REQUIREMENTS OF LABOUR MARKET
IN THE FIELD OF ARCHITECTURAL
AND URBAN DESIGN IN RELATION TO
SUSTAINABILITY AND HERITAGE**

There is a close relationship between this course and the current local needs of the labour market, in the field of environmental design, material and systems management, energy savings and pollutant reduction, closely related to built heritage conservation in the context of urban sustainability. More specifically, this course helps students acquire theoretical and practical knowledge in order to fulfil the current local and international needs for the refurbishment/retrofitting of existing building stock that reflects different historical periods of the city, taking into consideration climatic and microclimate

features, environmental design strategies, material selection for the building envelope, requirements of concurrent regulations for building energy performance and conservation of critical aspects of built heritage.

**TO WHOM IT IS ADDRESSED (TARGET
AUDIENCE)**

Holders of degrees of Higher Institutions, and particularly graduates of Departments and Schools of Architectural Engineering or graduates of other higher education Schools and Departments related to architecture or the built and natural environment (engineering, spatial planning, environmental engineering, landscape design).

Workload/weekly study hours

✗ 4 hours at the studio and 8-12 hours study/design work weekly

Language

✗ Greek

Evaluation Methods

✗ Project
✗ Project Presentation

Grading System

✗ Numerical

**Employment influence evaluation
(alumni feedback about employability)**

✗ Employed in Private Sector
✗ Employed in Public Sector
✗ Self Employed

RESULTS

Architectural Design Studio 2019-20
Retrofitting Thessaloniki | Refurbishment and environmental performance upgrade of an existing building in the historic centre of Thessaloniki

ΠΕΡΙΒΑΛΛΟΝΤΙΚΟΣ ΑΡΧΙΤΕΚΤΟΝΙΚΟΣ & ΑΣΤΙΚΟΣ ΣΧΕΔΙΑΣΜΟΣ
ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΗΣ ΣΠΟΥΔΩΝ

Επιβάλλεται στο κέντρο από πολεοδομικά πλαίσια κλειστά δοχεία, τα οποία χαρακτηρίζονται από χαμηλό ύψος κτίρια στην πλευρά τους. Υπάρχει το κέντρο της κτηριακής πυκνότητας και από διαβόητων ευρωπαϊκών πολεοδομικών σκευών, λατών και μπαρναίων.

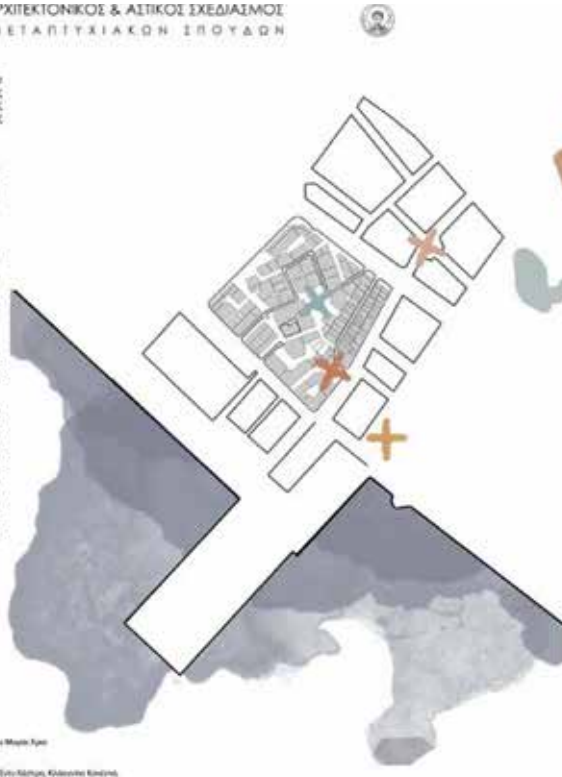
Η πλατεία Πετρούκας & Καπλίου είναι δείγμα νεότερης αρχιτεκτονικής κληρονομιάς και διαφοροποιείται και λόγω αρχιτεκτονικού ύψους και λόγω χρήσεων μιας και φιλοξενεί Τράπεζες, Γραφεία.

Η πλατεία Βασιλείου, από νότια της οδού βρισκόνται η Πύλη του Γαλιού, η μοναδική πύλη που, στα μέσα του 19ου αιώνα, έγινε στη βάση των πυλών συνόλων του λιμανιού (του λιθόβου) με το κομπάρσι της πόλης. Από την πλατεία βρισκόνται (ή απλώνονταν σε αυτή) βασικά δρόμοι της πόλης.

Χαρακτηριστικό είναι ένα μέρος που συνδυάζονται γύρω πολλές χρήσεις, εμφανίζονται και υπηρεσιακοί χαρακτήρες λόγω των κτηριακών δραστηριοτήτων, του λιμανιού αλλά και της παρουσίας των διαφορετικών πολιτισμικών.

Γύρω των νεοκλασικών που συνδυάζονται με τους Εβραϊκούς της διασποράς, στα μέσα δίκλων το σημάδι από όπου το 1912 ο αρχιτεκτονικός στρατός ξεκινά τη δραματική είσοδό του στην πόλη και ο χώρος όπου το 1955 έγινε η πενήντατη επανάσταση του Ελευθερίου Βενιζέλου. Είναι ο χώρος όπου κατασκευάστηκαν πρόγυρας Ελληνικές παραστάσεις το 1917 για τη διασπορά των παριστιανών και το 1922 για τους πρόσφυγες που έφθασαν στη Θεσσαλονίκη μετά τη Μικρασιατική Καταστροφή. Η σημερινή ονομασία της δόχης, όταν και πραγματοποιήθηκαν οι κεντρικές δοδολογίες και η συνένωση του κινήματος των πεδίων.

ΕΝΩΣΗ ΤΟΥ ΥΠΑΙΘΡΟΥ ΧΩΡΟΥ ΣΤΗΝ ΠΟΛΗ



ΕΡΓΑΣΤΗΡΙΟ
ΑΡΧΙΤΕΚΤΟΝΙΚΟΥ
ΣΧΕΔΙΑΣΜΟΥ I

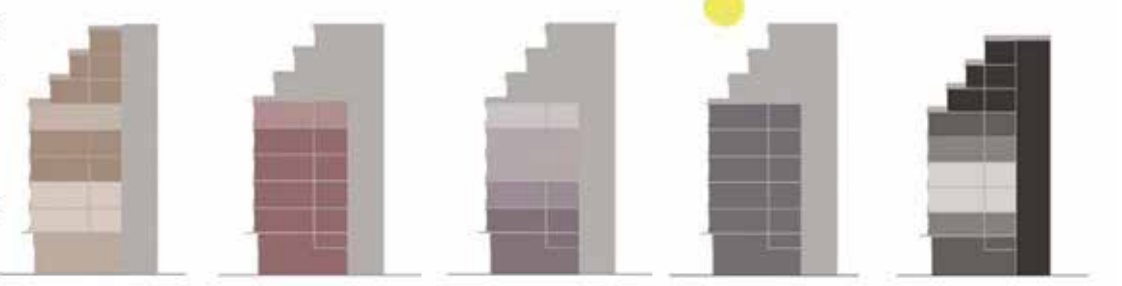
Μεταπτυχιακό εργαστήριο:
Γεωργίου Κοσμάκου, Δημητριάδης Μαρία Χρύση

Διδασκων ομάδα:
Κίμων Αζαράς, Νίκος Βασιλαράς, Έντα Βάτση, Κλεομένη Βασιλάκη, Βασιλική Τσιμαζέλλη (Παύλη), Βελγισσάκη-Μαυροπούλου, Αγγελική Βασιλοδραγατάκη

ΠΕΡΙΒΑΛΛΟΝΤΙΚΟΣ ΑΡΧΙΤΕΚΤΟΝΙΚΟΣ & ΑΣΤΙΚΟΣ ΣΧΕΔΙΑΣΜΟΣ
ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΗΣ ΣΠΟΥΔΩΝ



ΕΠΙΠΛΗΚΤΗ ΠΡΟΒΛΗΤΗ + ΟΥΡΑΝΟΓΡΑΦΙΚΗ ΑΝΑΛΥΣΗ



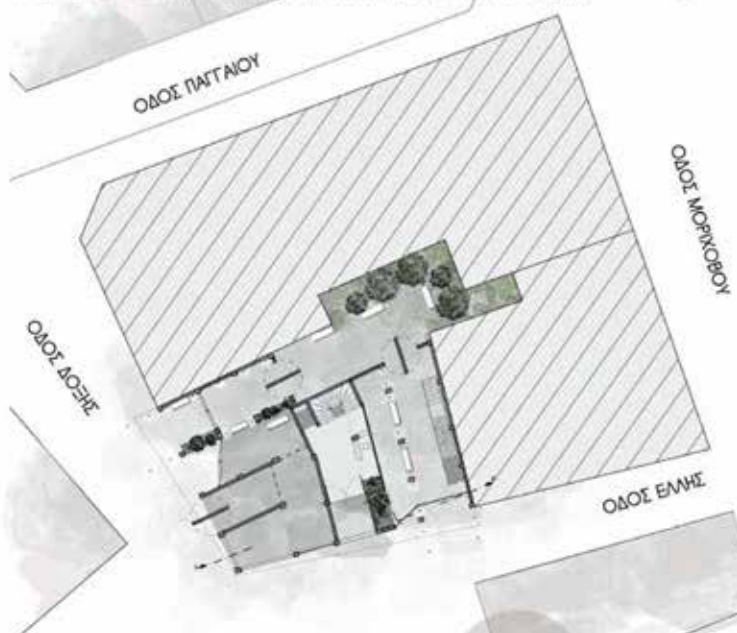
στάθμες φωτισμού	θερμοκρασία	αερισμός	σχετική υγρασία	ώρες λειτουργίας
500lx 300lx 250lx 200lx	20°C 26°C 18°C 23°C 16°C 32°C	18-20 m ³ /h/m ² 10 m ³ /h/m ² 6 m ³ /h/m ² 3 m ³ /h/m ²	35% 50% 40% 70%	24/7 14-15/7 10-12/6 6/6

ΕΡΓΑΣΤΗΡΙΟ
ΑΡΧΙΤΕΚΤΟΝΙΚΟΥ
ΣΧΕΔΙΑΣΜΟΥ I

Μεταπτυχιακό εργαστήριο:
Γεωργίου Κοσμάκου, Δημητριάδης Μαρία Χρύση, Τσιμαζέλλη Παύλη

Διδασκων ομάδα:
Κίμων Αζαράς, Νίκος Βασιλαράς, Έντα Βάτση, Κλεομένη Βασιλάκη, Βασιλική Τσιμαζέλλη (Παύλη), Βελγισσάκη-Μαυροπούλου, Αγγελική Βασιλοδραγατάκη

Figure 1. Retrofitting Thessaloniki | Refurbishment and environmental performance upgrade of an existing building in the historic centre of Thessaloniki - Plates of student project presentation – site and use analysis
Students: Anastasia Gogoglou, Maria Christina Dimitriadou, Anna Konstantini



Στο ισόγειο έχουμε την δημιουργία ενός ενιαίου περασματος το οποίο συνδέει τα δύο ημιόροφα του δόμου με τον υπάρχοντα κύριο του οικοδομικού τετραγώνου.

Το είναι στα όφειτα αυτού του περασματος υπονοείται για να υποδειχθεί τους επισκέπτες. Η υποκατάσταση αυτή δεν είναι μόνο για λειτουργικούς σκοπούς αλλά δημιουργεί ένα κύριο ο οποίος θα προσφέρει προστασία τους κλειστά μέρη και δροσά τους θερμότητα.

Η γυμνασία του ισόγειου είναι κατασκευασμένη από κενά υψηλά ορατά/διαφανή υλικά τα οποία περιτρέφονται σε οριζόντια επίπεδα δημιουργώντας όραση στο κύριο.

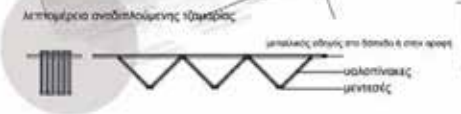
Η μέθοδος αυτή χρησιμοποιείται γενικά στην κίνηση μας με βάση τα οποία στέφονται με οριζόντια ή κατακόρυφα επίπεδα προκειμένου να προσωπαστούν σε περιστασιακές αναζητήσεις.

Για αυτό τα ήλια σε ένα σημαντικό επίπεδο της όψης του ισόγειου οι εξωτερικοί επιπέδους να είναι κλειστά, αναδιπλωμένοι, προκειμένου να μην υπάρχει κίνηση αερίων κινούμενα στην επιφάνεια.

Μια μεγάλη οροφή ενδύεται τοποθετείται στο μπροστά σημείο του κελύφους προκειμένου να υπάρχει διαφάνεια αλλά και να αναζητήσει ο συνολικός.

**ΕΡΓΑΣΤΗΡΙΟ
ΑΡΧΙΤΕΚΤΟΝΙΚΟΥ
ΣΧΕΔΙΑΣΜΟΥ I**

Μεταπτυχιακή ομάδα:
Γεωργία Αναστασία, Σοφία Στάσιος, Κωνσταντίνος Βασιλ
Διευθυντής ομάδας:
Όλγα Κίραλη, Μαρία Νικολαΐδου, Έλενα Νάτσιου, Κλεομένη Κουτίνας,
Βασιλική Τσιανταλίδου, Νάνσυ Καρδινιαννοπούλου, Αγγελική
Βασιλοπούλου



**05
χώρος έκφρασης /**



Creation space



**ΕΡΓΑΣΤΗΡΙΟ
ΑΡΧΙΤΕΚΤΟΝΙΚΟΥ
ΣΧΕΔΙΑΣΜΟΥ I**

Μεταπτυχιακή ομάδα:
Γεωργία Αναστασία, Σοφία Στάσιος, Κωνσταντίνος Βασιλ
Διευθυντής ομάδας:
Όλγα Κίραλη, Μαρία Νικολαΐδου, Έλενα Νάτσιου, Κλεομένη Κουτίνας,
Βασιλική Τσιανταλίδου, Νάνσυ Καρδινιαννοπούλου, Αγγελική
Βασιλοπούλου

Figure 2. Retrofitting Thessaloniki | Refurbishment and environmental performance upgrade of an existing building in the historic centre of Thessaloniki - Plates of student project presentation – building proposal
Students: Anastasia Gogoglou, Maria Christina Dimitriadou, Anna Konstantini



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

×

Maria Doussi
Sofoklis Kotsopoulos

course

02

Extended Design Studio 7: Architectural Design in Historical Context

07EB10 [Σχεδιασμός 7: Αρχιτεκτονικός σχεδιασμός σε ιστορικό περιβάλλον]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✕ Aristotle University of Thessaloniki

Type of Institution

✕ Academic (Teaching and Research)

District

✕ Thessaloniki, Greece

Department

✕ School of Architecture

Faculty

✕ Faculty of Engineering

Study program to which this course belongs

✕ Diploma of Architect Engineer -
5-year Integrated M.Arch (300 ECTS)

A diagram that illustrates the position of
the course in the structure of the study
program:

✕ The 5-year curriculum leading to the
award of the Diploma of Architect
Engineer addresses all levels of scale
in design practice from regional and
urban planning, landscape design,
architecture, interior and industrial
design to building technology and
conservation of buildings and sites.
A series of courses on art, theory
and history of art and architecture,
underpin the design studio courses
promoting students' creativity and
critical thinking while underlying
the historical, cultural, social and
environmental context defining

architectural design and practice.
The gradual - diagonal throughout
the semesters - succession and
expansion of specialized subjects,
within the curriculum, typically
rely on an introductory theoretical
course, that lays out basic principles
and methodologies, which are
further elaborated on through
a specialization design studio
(within the same or subsequent
semester). The specialized themes
then go on to form the/or one of
the main themes of focus for one
or more Extended Design Studios.
The spiral reiteration of themes
within at least three successive
modules that increasingly rely
on the understanding and use
of specialized methodologies, in
design practice, is the main vehicle
for teaching. Therein also lies the
challenge in maintaining this focus
throughout the remaining years
of study. Environmental design
principles are introduced early on
during the studies and are expanded
mainly through the second and third
year of studies. A parallel approach
is followed in teaching cultural
heritage culminating in the Extended
Design Studio 7: Architectural Design
in Historical Context, (part of the 4th
-year curriculum of the integrated
MArch).

Level

✕ Undergraduate

Year/Semester

✕ N/A

Course Type

- ✗ Lecture
- ✗ Studio design

Elective or Compulsory Course

- ✗ N/A

ECTS

- ✗ 12 ECTS

Lectures/week (hours)

- ✗ 1/2 hrs

Studios/labs/week

- ✗ 1/8 hrs

Academic/ Teaching Personnel

- ✗ Maria Arakadaki, Maria Dousi, Stiliani Lefaki, Sofoklis Kotsopoulos

Program of Study Content

- ✗ Design Project

COURSE CONTENT AND STRUCTURE

Design Studio 7 aims to provide students with the knowledge and skills necessary for the synthetic/compositional research and experimentations, by design, on the relationship between old and new and on the factors that affect it, such as historicity, time and memory, culture and identity. The studio utilizes a program of high complexity, building upon the cognitive and compositional knowledge/experience from previous Studios and Courses. The studio design course focuses on architectural design issues in a historical environment such as:

1. New architecture in historical context,
2. Interventions and redesign of historic buildings,
3. Additions to historic buildings,
4. Architectural rehabilitation interventions and reuse of historic buildings and complexes,
5. Rehabilitation interventions and promotion of historical sets and sites.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The purpose and objectives of this studio course are: to familiarize students with the Theory of Material Culture and with the critical approach to the cultural tradition, in other words its interpretation, in the way that this tradition is recorded in the cultural heritage, the architectural ensembles and monuments. It seeks to give them skills for planning and designing new interventions in a sensitive historical context, a task entailing increased demands and complexity, while familiarizing them with the multidimensional and multidisciplinary approach to the historical architectural reserve. The design studio has high complexity and demands synthetic skills, aiming to familiarize the students with the very decisive

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

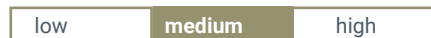
SOCIAL



ECONOMIC



ENVIRONMENTAL



role of the architect: that of redesigning and managing the historical environment, which constitutes an especially important part of today's architectural creation.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

Upon successful completion of this course, students will: i) cultivate their sensitivity in recognizing and reading the environment, the interpretation and post-interpretation of architectural data, ii) be familiar with issues of analysis and evaluation of the historical built environment and have an overall view of this complex field of interventions, their requirements and complexity, iii) be familiar with architectural planning issues, the setting of goals and performance standards for the designed space, iv) be fully aware of the phases of architectural design and of the relationship between architectural composition and construction, v) have practical design experience of integrating new architecture into historically formed complexes in urban or rural environments. These issues aim at restoring historical buildings and integrating new architecture into private and public space, integrating new uses, infrastructures, services, environmental planning and generally all the sectors that shape the contemporary living environment.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, via groups. The course consists of two parts: Theory/lectures - presentations, which are contained in the textbooks and the teaching notes distributed to students at the beginning of the semester, and Practice / Design Studio. There are two phases in the design process. In the first stage (3 weeks), the group elaborates the architectural analysis and documentation. At this stage, the construction - historical

phases of the building, the structural system, as well as the pathology of materials are investigated with field research. In the second stage, which lasts about eleven weeks, the students, divided into groups of two or three, study the proposal to restore and reuse the historic building based on the analysis. This stage aims to study and design the appropriate architectural interventions, which aim at both the restoration of the building and its redesign so that it can serve the new use, based on historical and sustainability issues.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

- Albisini Piero, De Carlo Laura, Roma Biagio, Un disegno per il riuso. Metodi di indagine e di progetto per il recupero del patrimonio edilizio nei centri storici minori, Edizioni Kappa, 1984.
- Carbonara Giovanni, La reintegrazione dell'immagine. Problemi di restauro dei monumenti, Roma, Bulzoni, 1976.
- Cerasi Maurice, La città del Levante: Civiltà urbana e architettura sotto gli Ottomani nei secoli XVIII-XIX, Saggi di architettura, Milano 1988.
- Cramer Johannes, Breitling Stefan, Architecture in Existing Fabric, planning, design, building. Birkhaeuser Verlag A.G. Basel, Boston, Berlin 2007.
- Dousi Maria, The Architecture and the building systems of the historical iron structures. 18th - 20th century, University Studio Press, 2015. (in Greek)
- Feilden Bernard, Conservation of Historic Buildings, Third Edition, 2003
- Johannes Cramer, Stefan Breitling, Architecture in Existing Fabric, Birkhaeuser Verlag, 2007.
- Nomikos Michael, Restoration reuse of historical buildings and sets. Methodology and applications, S. Yiachoudi M. Yiachoudi OE, Thessaloniki, 1997. (in Greek)
- Nomikos Michael, Restoration-Rehabilitation of Monuments and Historical Buildings in Northern Greece, -Vol I, II-, ERGON IV, 2002. (in Greek)
- Plevoets Bie, Van Cleempoel Koenraad, Adaptive Reuse of the Built Heritage. Concepts and Cases of an Emerging Discipline, Routledge, 2019.
- Powell Kenneth, Architecture Reborn: The Conservation and Reconstruction of Old Buildings, Random House Incorporated, 1999.
- Rogers Merlino Kathryn, Building Reuse: Sustainability, Preservation, and the Value of Design, 2018.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, in sustainability

The energy performance of historic buildings could be further expanded – elaborated on with specialized lectures, software, etc.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ Yes

Experts provide lectures, guide on the site of restored buildings and sites and participate in the final presentation, upon invitation. Among the experts there are professionals with recognized work, representatives of organizations such as the Ministry of Culture, etc.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

The framework that supports the employment of teaching staff – lecturers - on a contractual framework allows experts (PhDs and Post-doc researchers) to contribute to the studio courses. There exists a strong presence of Emeritus professors who contribute weekly to the studio.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

In order to achieve the fullest possible simulation with professional practice, we have established collaboration with local authorities, which gives us access to historical buildings or sites. Upon completion of the practical work, presentations are organized for the information of the municipal authorities and the residents.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

4th year Architecture Students – part of the Diploma of Architect Engineer - 5-year Integrated M.Arch

Workload/weekly study hours

✗ 10 hours teaching and 10 hours study weekly

Language

✗ Greek (tutoring in other languages is available for Erasmus Students)

Evaluation Methods

✗ Project
✗ Project Presentation
✗ Coursework

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

✗ Employed in Private Sector
✗ Employed in Public Sector
✗ Self Employed

Νοητικό υπόβαθρο

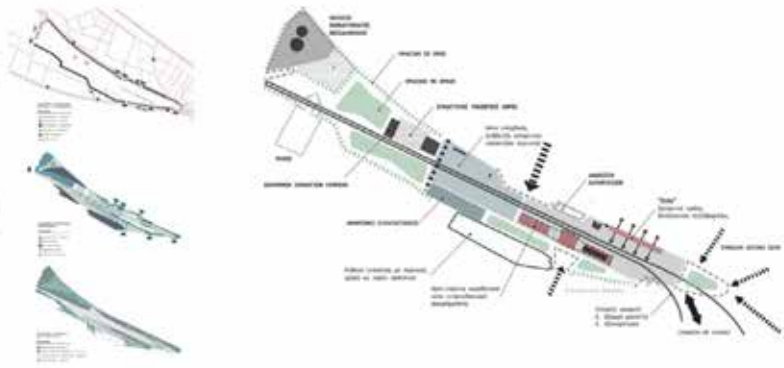
Η κεντρική του πόλη είναι οργανωμένη ορθογώνια και διαθέτει τον κεντρικό δρόμο της, τον Δεσφιό, από τον οποίο η πόλη και η περιοχή της διαθέτουν την οριζόντια οργάνωση της. Η κεντρική της οργάνωση είναι οριζόντια και η κεντρική της οργάνωση είναι οριζόντια. Η κεντρική της οργάνωση είναι οριζόντια και η κεντρική της οργάνωση είναι οριζόντια.

Πόλη

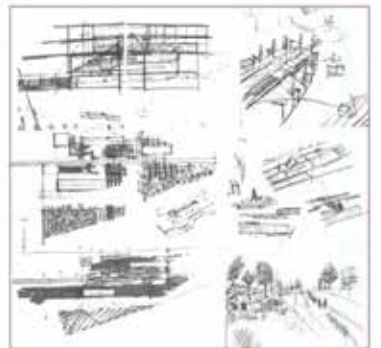
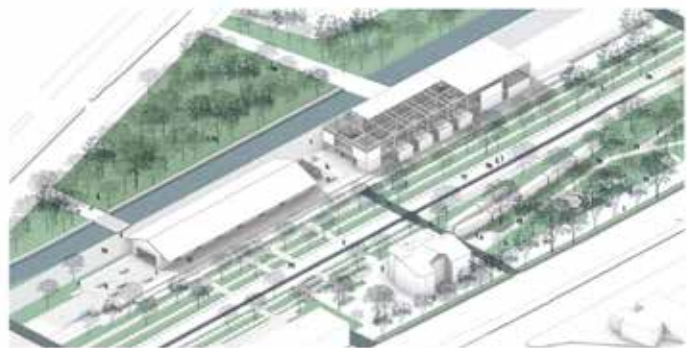
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Κλίμακα: 1:500



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ΜΕΛΕΤΗΤΙΚΟ ΟΜΑΔΑ: ΓΕΩΡΓΙΟΣ ΠΑΠΑΔΟΠΟΥΛΟΣ, ΑΝΔΡΕΑΣ ΕΛΕΦΑΝΤΗΣ, ΑΝΔΡΕΑΣ ΜΑΝΑΝΑΣ
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Figure 2. Restoration and Reuse of the old train station of Thessalonik
 Students: Th. Gountroubis, A. Elefantis, A. Mananas



ΠΕΡΙΟΧΗ ΠΑΛΙΟΥ ΣΙΔΗΡΟΔΡΟΜΙΚΟΥ ΣΤΑΘΜΟΥ | ΕΝΟΤΗΤΑ Α: ΜΗΧΑΝΟΣΤΑΣΙΟ & ΣΥΝΕΡΓΕΙΟ

ΦΩΤΟΓΡΑΦΙΑ ΟΜΑΔΑ: ΒΑΣΙΛΙΚΗ ΒΟΤΣΗ | ΑΡΤΕΜΙΣ ΠΑΠΑΚΟΣΤΑ | ΔΕΣΠΟΙΝΑ ΣΠΑΝΟΥ
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Figure 3. Restoration and Reuse of the old train station of Thessaloniki
Students: Vasiliki Botsi, Artemis Papakosta, Despoina Spanou



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

×

Maria Doussi
Sofoklis Kotsopoulos

course

03

LCIC [ΕΡΓ1, ΕΡΓ2, Εργαστήριο Διεπιστημονικής Συνεργασίας: Αποκατάσταση, Αναστήλωση και Επανάχρηση Ιστορικών Κτιρίων και Συνόλων]

UNIVERSITY LEVEL COURSE
DETAILS

Institution

✗ Aristotle University of Thessaloniki

Type of Institution

✗ Academic (Teaching and Research)

District

✗ Thessaloniki, Greece

Department

✗ School of Architecture (host school), Civil Engineering, Rural and Surveying Engineering, Electrical and Computer Engineering, Mechanical Engineering, Chemical Engineering, School of Spatial Planning and Development

Faculty

✗ Faculty of Engineering

Study program to which this course belongs

✗ Interdepartmental Program of Postgraduate Studies "Protection, Conservation and Restoration of Cultural Monuments"

A diagram that illustrates the position of the course in the structure of the study program:

✗ The program includes three semesters. The first two semesters include theoretical courses, as well as the Interdisciplinary Studio course. During the third semester, students attend: lectures and seminars, visits to actual

case-studies and elaboration of independent final diploma Thesis..

Level

✗ Postgraduate

Year/Semester

✗ 1st year / 1st and 2nd semester

Course Type

✗ Lecture

✗ Studio design

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 9 ECTS

Lectures/week (hours)

✗ 1 (2 hours)

Studios/labs/week

✗ 1 (3 hours)

Academic/ Teaching Personnel

✗ Coordinator: Michael-Konstantinos Nomikos, Teaching staff: Architects: Alexandra Alexopoulou, Maria Dousi, Stilian Lefaki, Sofoklis Kotsopoulos. Civil Engineers: Konstantinos Katalalos, Triantaffilos Makarios, Aaron Avdelas, Ioannis Doudoumis, Christos Ignatakis. Rural and Surveying Engineers: Olga Georgoula, Konstantinos Tokmakidis

Program of Study Content

✗ Design Project

COURSE CONTENT AND STRUCTURE

The studio course includes lectures-presentations and a restoration design project. The lectures reflect the stages of project development. Mostly, they are studies and implemented examples of restoration and reuse of buildings and historical ensembles of different historical periods and structural systems. These examples address theoretical, technical and environmental issues. The design work includes the restoration and reuse of a historic building or complex. The historic buildings and ensembles that are proposed are usually from different eras and it is feasible to visit and study them. They have undergone various interventions and show damage and alterations. The main task is the conservation, restoration and reuse of the historic structures, that will be sustainable while not altering their historical character and identity.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

1. The interdisciplinary cooperation of postgraduate students.
2. The exemplary treatment of a restoration and reuse design study.
3. To carry out all stages of a restoration and reuse design study.
4. The pursuit of postgraduate students on a real issue, which concerns local communities.
5. The practical application of theoretical principles and knowledge.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

- Acquisition of knowledge and development of critical thinking on conservation theories (throughout time) and on contemporary trends that have been recently formed.
- Training in both theory and practice on subjects of conservation and reuse of historic buildings and complexes as well as buildings of the modern movement.
- Understanding of the principles of

the holistic protection of buildings and complexes.

- Understanding the key role that the conservation of existing buildings plays towards a more sustainable attitude toward the built environment.
- Acquisition of knowledge to recognize the passive environmental strategies incorporated in the design of historic and vernacular structures in order to conserve and reinforce them during the conservation process.
- Acquisition of knowledge of historic buildings materials and techniques that embody environmental values.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, via interdisciplinary teams. The work includes three stages. The first stage is the analysis and documentation of the historic buildings, carried out in the field and the procession of research results afterward. The second stage covers the first approach of the restoration and reuse scenarios. Finally, the third stage includes the overall final design study of the restoration and reuse project. Upon completion of each stage, each interdisciplinary team presents the results of the work to all postgraduate students and teachers. For each interdisciplinary group of postgraduate students, an interdisciplinary group of teachers is provided, who monitors the evolution of the practical work at all stages of elaboration.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

- Albisini Piero, De Carlo Laura, Roma Biagio, Un disegno per il riuso. Metodi di indagine e di progetto per il recupero del patrimonio edilizio nei centri storici minori, Edizioni Kappa, 1984.
- Carbonara Giovanni, La reintegrazione dell'immagine. Problemi di restauro dei monumenti, Roma, Bulzoni, 1976.
- Carbonara Giovanni, Restauro Architettonico: principi e metodo, Roma 2012.
- Cerasi Maurice, La città del Levante: Civiltà urbana e architettura sotto gli Ottomani nei secoli XVIII-XIX, Saggi di architettura, Milano 1988.
- Cramer Johannes, Breitling Stefan, Architecture in Existing Fabric, planning, design, building. Birkhaeuser Verlag A.G. Basel, Boston, Berlin 2007.
- Dousi Maria, The Architecture and the building systems of the historical iron structures. 18th - 20th century, University Studio Press, 2015. (in Greek)
- Feilden Bernard, Conservation of Historic Buildings, Third Edition, 2003
- Johannes Cramer, Stefan Breitling, Architecture in Existing Fabric, Birkhaeuser Verlag, 2007.
- Jukka Jokilehto, A History of Architectural Conservation, Bath 2001.
- Karadedos George, History and theory of restoration, Methexis Publications, Thessaloniki 2009. (in Greek)

- Nomikos Michael, Restoration reuse of historical buildings and sets. Methodology and applications, S. Yiachoudi M. Yiachoudi OE, Thessaloniki, 1997. (in Greek)
- Nomikos Michael, Restoration-Rehabilitation of Monuments and Historical Buildings in Northern Greece, -Vol I, II-, ERGON IV, 2002, (in Greek)
- Norberg-Schulz Christian, Genius Loci, Towards a Phenomenology of Architecture, Rizzoli, New York, 1980 13.
- Plevoets Bie, Van Cleempoel Koenraad, Adaptive Reuse of the Built Heritage. Concepts and Cases of an Emerging Discipline, Routledge, 2019.
- Powell Kenneth, Architecture Reborn: The Conservation and Reconstruction of Old Buildings, Random House Incorporated, 1999.
- Rogers Merlino Kathryn, Building Reuse: Sustainability, Preservation, and the Value of Design, 2018.
- Schuller Manfred, Building Archeology (ICOMOS, International Council on Monuments and Sites VII), Munich 2002.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, in sustainability

The energy performance of historic buildings could be further expanded – elaborated on – through the introduction of specialized lectures, software, etc.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ Yes

Experts provide lectures, guide on the site of restored buildings and sites and actively participate in the practical work, upon invitation. Among the experts there will be professionals with recognized work, representatives of organizations such as the Ministry of Culture, etc.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

The framework that supports the employment of teaching staff – lecturers - on a contractual framework allows for experts (PhDs, Post-doc researchers and Adjunct faculties of the University) to contribute to the studio courses. There exists a strong presence of Emeritus professors who contribute weekly to the studio.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

In order to fully simulate professional practice, the course established collaborations with Municipalities, which allow access to historical buildings or sites. Upon completion of the practical work, the presentations organized inform the municipal authorities and the residents. Graduate students come in direct contact with the real problems of the local communities and are informed about the real problems of conservation, restoration and reuse of architectural heritage. In some cases, local authorities decide to implement the outcome of the practical work that has been carried out. In that case, some of our graduates have the opportunity to see their academic work realized. Thus, their postgraduate education meets the reality and needs of local communities.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Graduate students with a first degree in architecture, engineering, archaeology

Workload/weekly study hours

✗ 5 hours teaching and 15 hours study weekly

Language

✗ Greek

Evaluation Methods

- ✗ Project
- ✗ Project Presentation
- ✗ Coursework

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS

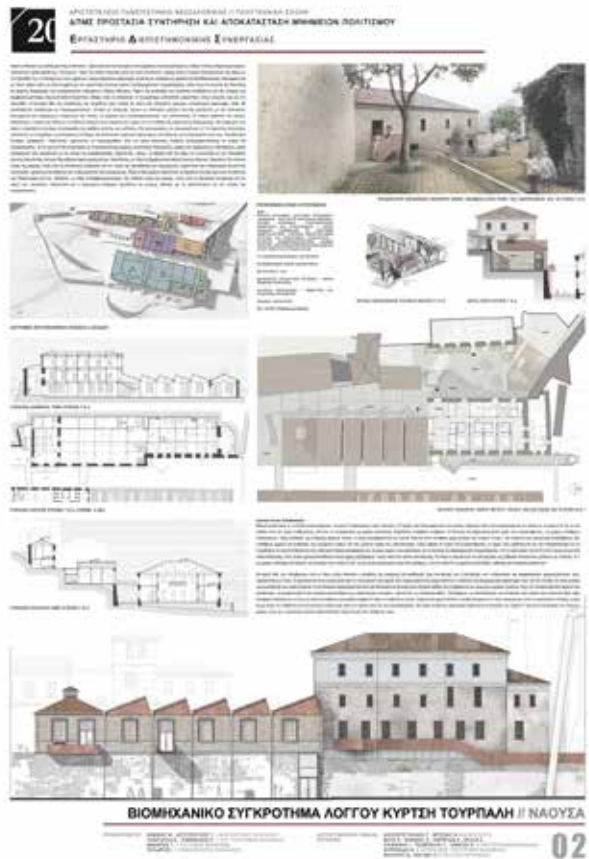
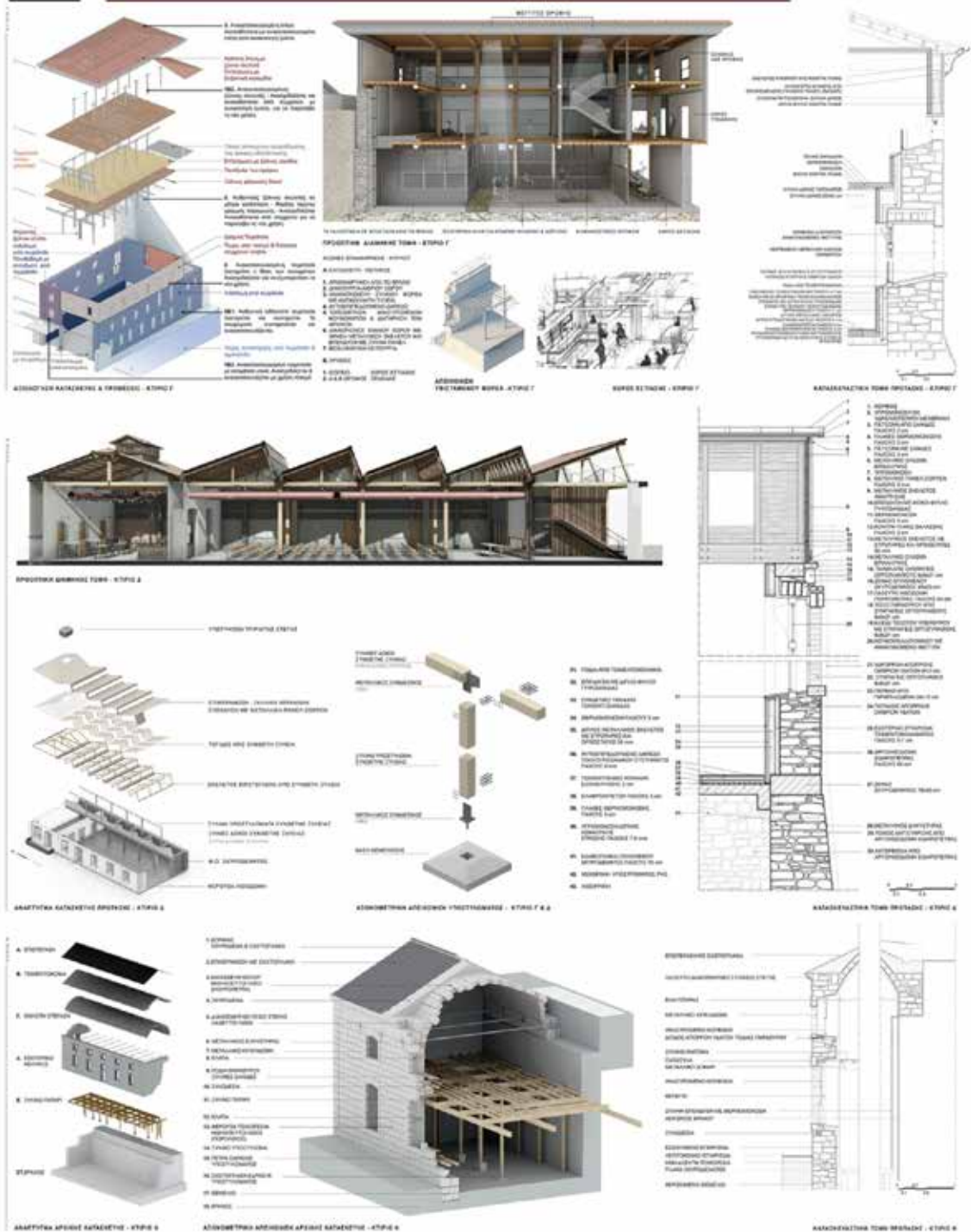


Figure 1. Restoration and Reuse of the industrial complex Longou-Kirtsí-Tourpali at Naoussa
 Students: S. Kalochristianaki, M. Bizaki, K. Vista, A. Kanakis, A. Korbise, S. Palla, I. Sinamidis, L. Tsombolis, E. Chavatza, M. Antoniadis, M. Michalios, P. Pagoni



ΒΙΟΜΗΧΑΝΙΚΟ ΣΥΓΚΡΟΤΗΜΑ ΛΟΓΓΟΥ ΚΥΡΤΣΗ ΤΟΥΡΠΑΛΗ // ΝΑΟΥΣΑ

ΣΥΝΔΡΟΜΟΙ: ΚΩΝΣΤΑΝΤΙΝΟΣ Σ. ΚΑΠΟΔΙΣΤΡΙΑΚΗΣ, ΓΕΩΡΓΙΟΣ Β. ΤΣΟΜΒΟΛΗΣ, Β. ΠΑΛΛΑ, ΠΑΝΑΓΙΩΤΗΣ Σ. ΚΑΡΑΚΩΣΤΑΣ, Α. ΚΑΒΑΤΖΑ, Ε. ΤΣΟΜΒΟΛΗΣ, Μ. ΑΝΤΩΝΙΑΔΗ, Μ. ΜΙΧΑΛΙΟΣ, Π. ΠΑΓΟΝΙ

Figure 2. Restoration and Reuse of the industrial complex Longou-Kirtsis-Tourpali at Naoussa
 Students: S. Kalochristianaki, M. Bizaki, K. Vista, A. Kanakis, A. Korbis, S. Palla, I. Sinamidis, L. Tsombolis, E. Chavatza, M. Antoniad, M. Michalios, P. Pagoni



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

GREECE

x

Konstantinos Sakantamis

course

04

01EE01 (10 ECTS) / 02EE01 (10 ECTS) [N1EE01 Εργαστήριο Αστικού Σχεδιασμού Ι, ΙΙ]

UNIVERSITY LEVEL COURSE
DETAILS

Institution

✗ Aristotle University of Thessaloniki

Type of Institution

✗ Academic (Teaching and Research)

District

✗ Thessaloniki, Greece

Department

✗ School of Architecture

Faculty

✗ Faculty of Engineering

Study program to which this course
belongs

✗ Postgraduate Program of Studies: Environmental Architectural and Urban Design (PPS EAUD)

A diagram that illustrates the position of the course in the structure of the study program:

✗ The program develops over three academic semesters, of which the first two comprise of theoretical courses and design studios and the latter for attending support courses, intensive seminars or intensive workshops and/or an educational trip, as well as for the elaboration of the postgraduate diploma work. Design Studios cover both design scales: a) Architectural – building, b) Urban - urban planning. The course reviewed, Urban Design Studio I/

II, takes place over semesters I & II and applies an environmental approach to urban planning and design practices in the context of the historic city.

Level

✗ Postgraduate

Year/Semester

✗ 1st Year/ 1st & 2nd Semesters

Course Type

✗ Lecture
✗ Studio design
✗ Theoretical project
✗ Seminar

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 10 ECTS

Lectures/week (hours)

✗ 0.5

Studios/labs/week

✗ 3.5

Academic/ Teaching Personnel

✗ E. Athanasiou, Ch. Christodoulou, A. Vitopoulou, D. Zavraka, N. Kalogirou, A. Paka, K. Sakantamis,
Tutors: A. Vartholomeos, A. Syrakoy, A. Tzaka

Program of Study Content

✗ Design Project

COURSE CONTENT AND STRUCTURE

Urban design studio course focuses on multiple scales of the built environment (settlements, building complexes, public and private open urban spaces). The approach regards design principles and tools referring to scales from urban planning to the shaping of city blocks and building volumes, down to the detailed design of street furniture, paving materials, green areas etc of public space. The proposed project can deal either with an existing urban fabric and its rehabilitation or with new urban units and open public spaces emphasizing environmental parameters.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The environmental approach is integrated at all levels of the proposed concept for the given site, while considering the role of place, local culture, natural landscape, climate, orientation, environmentally friendly materials, greenery and sustainable urban mobility. The project site is the same for the two semesters of Urban Design I and II. During the first semester, site analysis and the elaboration of the design strategy for the entire given site are completed. During the second semester the actual proposed urban design project is elaborated on and submitted. The design project evolves under evaluation and control, in terms of its environmental performance standards, energy efficiency and sustainable outcome, as evidenced through qualitative and quantitative analysis (software simulation).

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

Upon successful completion of the course, students have: i) a thorough understanding of the function and the design principles of environmentally friendly city forms and, in particular, urban public spaces, ii) sufficient knowledge of fundamental concepts of sustainable urban form/density, mobility,

energy efficient public space, and building structures, iii) a thorough understanding of the procedures of urban space production and the role of society - users' participation - and culture in environmental urban planning and design processes, and iv) practical experience of the application of the above concepts in physical planning and design within the context offered by the historic urban fabric.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face-to-face studio participation, recently via zoom.
Teaching is mainly carried out through

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL

low	medium	high
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ECONOMIC

low	medium	high
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ENVIRONMENTAL

low	medium	high
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short lectures and crits throughout the development of student projects within the studio. The course encourages creative and innovative thinking in the design process integrating advanced interpretations of taught material and methods in the proposed projects within the framework of sustainable urban design and planning, built heritage aspects, and urban resilience. The application of environmental performance assessment tools and intermediate presentations are also critical phases in the progress of the student projects.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

- Ritchie A. and Randall T. (edited by), (2009), Sustainable Urban Design, An Environmental Approach, London: Taylor and Francis
- Landscape Architecture Europe Foundation Wageningen (edited by): On Site, Birkhauser, 2009
- A. Sanchez Vidiella: The Sourcebook Of Contemporary Landscape Design, Collins/Loft, 2008
- A. Zimmermann (ed.): Constructing Landscape, Birkhauser, 2008
- L. Margolis, A. Robinson: Living Systems, Innovative materials and Technologies for Landscape Architecture, Birkhauser, 2007
- Douglas Farr, Sustainable Urbanism: Urban Design with Nature, John Wiley & Sons, 2008
- Michael Larice, Elizabeth MacDonald (edited by): The Urban Design Reader, Routledge, 2007
- Kim Tanzer, Rafael Langoria (edited by): The Green Braid, Routledge, 2007

During the first and second semesters, students are familiarized with online tools for environmental analysis, GIS mapping, etc. During the second semester, students receive tutorials – seminars- and have access to the Envi-Met software, used for finetuning the microclimatic response of their design proposal and for its final evaluation – presentation.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, both in sustainability and heritage

Challenges stem from theoretical approaches that consider cultural heritage as the fourth pillar for sustainable development, of equal importance and interdependence to society, economy, and environment. The context offered by the city of Thessaloniki, a palimpsest spanning more than 2300 years of existence, serves as a further medium in discussing relations between sustainability, resilience and cultural heritage, in the context of the urban design studio. The expertise of the team of tutors covers an array of approaches that exemplify the implications of culture in the context of sustainable urban design while invited speakers provide specialized introductions to the historic background of the city. A further challenge stems from the interdisciplinarity of students, which can be a hindrance in creating a uniform perspective but also enables a deeper understanding of varying parameters of environmental design.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ Yes

Professional architects and engineers with expertise in environmental design, history and/ or theory are occasionally invited to give lectures and/or contribute to crits and studio participation.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

The framework that supports the employment of teaching staff – lecturers - on a contractual framework allows for experts (PhDs, Post-doc researchers, and professors at schools of Engineering) as well as experienced practitioners to contribute to the studio courses frequently. There exists a strong presence of Emeritus professors who contribute weekly to the studio.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

There is a close relationship between this course and the current local needs of the labor market, in the field of environmental urban planning and design. More specifically, this course helps students acquire theoretical and practical knowledge to fulfil the current local and international needs for sustainable urban design in the context of historic urban centers. The demand for such approaches in the local context has seen a rapid rise during the last few years and is currently becoming the norm in the process of public procurement of plans, projects, and works (architectural and urban design competitions).

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Holders of degrees of Higher Institutions, and particularly graduates of Departments and Schools of Architectural Engineering or graduates of other higher education Schools and Departments related to architecture or the built and natural environment (engineering, spatial planning, environmental engineering, landscape design).

Workload/weekly study hours

✗ 4 hours at the studio and 8-12 hours study/design work weekly

Language

✗ Greek

Evaluation Methods

✗ Project
✗ Project Presentation

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

✗ Employed in Private Sector
✗ Employed in Public Sector
✗ Self Employed

RESULTS



Figure 1. Urban Design Studio 2019-20 Environmental Masterplan and Urban Design Interventions at the Historic Waterfront of the Allatini Complex(kkkk). Student project presentation – site analysis

Students: Stavros Antoniou, Christina Maroudi, Ioanna Zacharaki

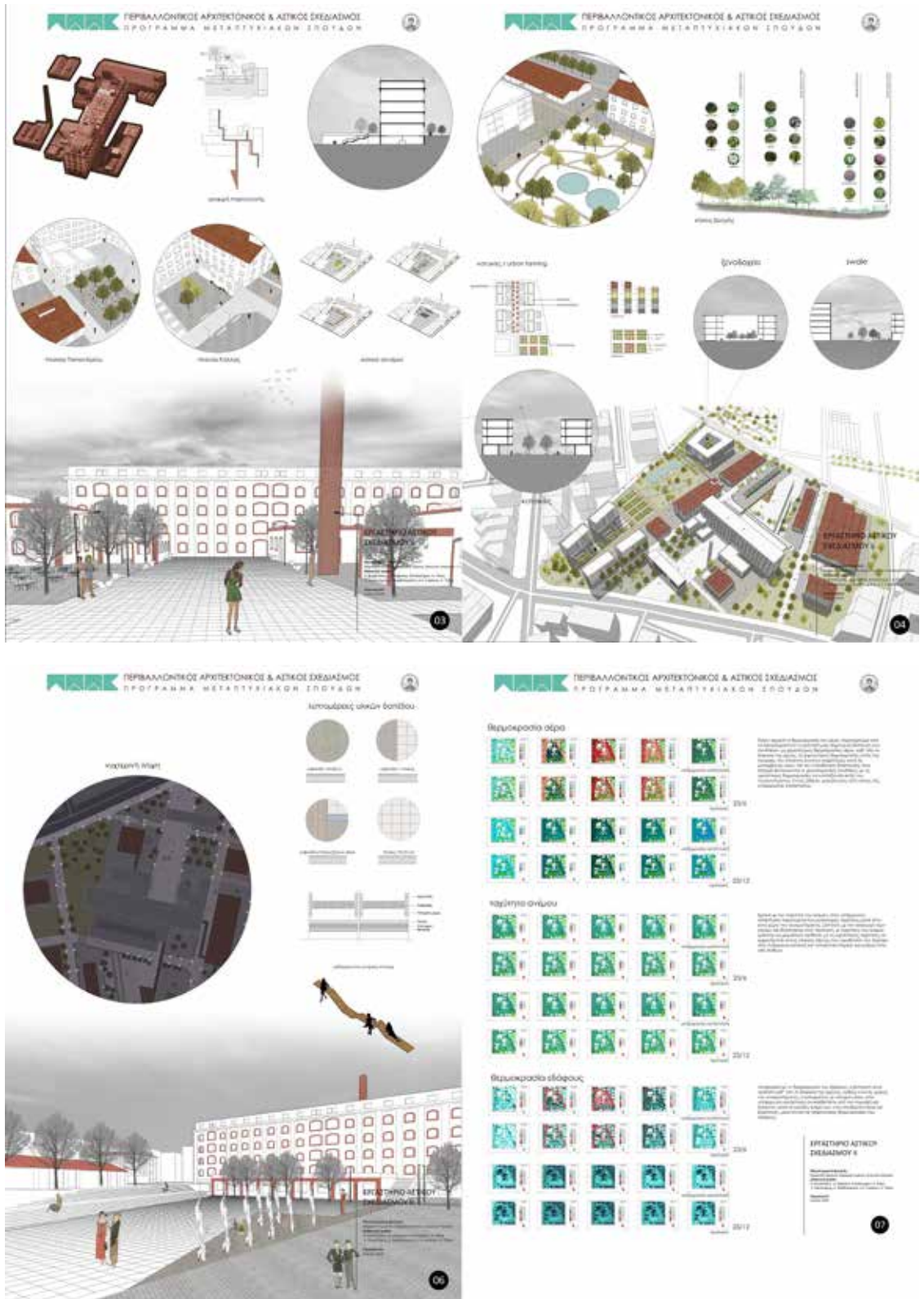


Figure 2. Urban Design Studio 2019-20 Environmental Masterplan and Urban Design Interventions at the Historic Waterfront of the Allatini Complex (kkkk), a) Plates 3,4 of student project presentation – environmental & conservation / intervention strategy, detailed proposal, b) Plates 6,7 of student project presentation – detailed proposal analysis and simulation
 Students: Stavros Antoniou, Christina Maroudi, Ioanna Zacharaki



CREHAR
UNESCO Chair

SPAIN

X

José Peral

course

01

Landscape, City and Architecture in Andalusia

2330051 [Paisaje, Ciudad y Arquitectura en Andalucía]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ University of Seville

Type of Institution

✗ Higher Education Institution

City

✗ Seville

Department

✗ Architectural History, Theory and Composition

Faculty

✗ Higher School of Architecture

Study program to which this course belongs

✗ Grado en Fundamentos de Arquitectura

Level

✗ Undergraduate

Year/Semester

✗ 5th year / 2nd semester (10th Semester)

Course Type

✗ Lecture
✗ Theoretical project
✗ Practical work

Elective or Compulsory Course

✗ Elective

ECTS

✗ 6

A diagram that illustrates the position of the course in the structure of the study program:

1st year (10 compulsory courses)	60 ECTS
2nd year (10 compulsory courses)	60 ECTS
3rd year (10 compulsory courses)	60 ECTS
4th year (10 compulsory courses)	60 ECTS
Specialization year	
Fifth year (6 compulsory courses)	36 ECTS
Second semester	
Landscape, City and Architecture (Paisaje, Ciudad y Arquitectura en Andalucía)	
is one of the elective courses offered in the specialization year	
Elective Courses (the students choose 3)	
Offer of 25 elective courses	
1 Engagement with practice and industry	
Total Elective Credits	18 ECTS
Graduate Thesis Project	6 ECTS
TOTAL Fifth year	60 ECTS
TOTAL	300 ECTS

List of 25 elective courses of the 5th year

Department Architectural Construction 1

- Construcción Medioambiental y Tecnologías Sostenibles (Environmental Construction and Sustainable Technologies)
- Evolución y Concepto de los Sistemas Constructivos. De la tradición a la Innovación.
- Instalaciones y Sistemas para el Diseño de Edificios Eficientes e Inteligentes

Department of Architectural History, Theory and Composition

- Arquitectura y Medioambiente (Architecture and Environment)
- Arquitectura de las Américas
- Paisaje, Ciudad y Arquitectura en Andalucía (Landscape, City and Architecture)

Department of Projects (Design Studio)

- Arquitectura y patrimonio (Architecture and Heritage)
- Arquitectura y Sostenibilidad (Architecture and Sustainability)
- Arquitectura, Paisaje y Territorio
- Fundamentos del Habitar

Department of Architectural Graphic Design

- Dibujo y Máquina
- Dibujo y Patrimonio (Drawing and Heritage)
- Dibujo y Vanguardia

Department of Building Structures and Geotechnical Engineering

- Cimentaciones: Patologías y Recalces
- Complemento de Mecánica del Suelo y Cimentaciones.
- Intervención Estructural en Edificaciones Existentes
- Estructuras especiales en Arquitectura

Department of Applied Physics II

- Acústica Aplicada a la Arquitectura y el Urbanismo
- Energía y Sostenibilidad en Arquitectura (Energy and sustainability in Architecture)

Department of Applied Mathematics I

- Análisis de Datos y Localización de Recursos Urbanos
- Técnicas numéricas para el cálculo y el diseño en Arquitectura

Department of urban and regional Planning

- El espacio público en el planeamiento
- Planeamiento y sostenibilidad (Urban and regional planning and sustainability)
- Patrimonio urbano y planeamiento

Lectures/week (hours)

✕ 2

Studios/labs/week

✕ 2

Academic/ Teaching Personnel

✕ Jose Peral,
Associate Professor

Program of Study Content

✕ Design Project

✕ Written Thesis

COURSE CONTENT AND STRUCTURE

The contents are considered transversal from the theoretical and historiographic framework with regard to the management of heritage issues in Andalusia and their relationship with architecture. From the History of Architecture, the role of the different recognized chronologies is exposed and those timelines allow to structure the course. There is special attention to the use and appropriation of the past and to the relationship between continuity and transformation.

The characterization of the landscape, on different scales, is based on architectural and urban developments throughout history and as a specific manifestation of culture. In Andalusia, the southern European region and bridge between the Mediterranean Sea and the Atlantic Ocean, many of these cultural landscapes are considered to entail valuable cultural heritage.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The main objective is to focus on the importance of cultural heritage on sustainable economic and territorial development. It is considered a good practice to use the cultural heritage as a means of giving the region a distinctive character and making it more attractive and better known. A specific objective is to protect, restore and enhance

cultural heritage making greater use of new technologies. Finally, to explore heritage as a source of knowledge, inspiration and creativity, developing theoretical models to make heritage more accessible.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

To know the general lines of the architectural evolution of Andalusia and its landscape as image and shape of their territory and cities. Based on traditional techniques and the use of new technologies, developing the basis for the formulation of alternative models to historiographic and heritage management definitions. These models are based on qualified

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



elements with an urban dimension. The most important is to articulate factors from the landscape and urban areas aimed at enhancing the contribution of the architecture as a factor of development and innovation for the territory of Andalusia.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Students are organized into mixed groups, with Spaniards and foreigners, the latter making up half of the class. In order to offer a historical and architectural context to the students, and specifically to the foreigners, in the first two hours, a few general lines are provided about Andalusian architectural and territorial culture: Mezquita de Córdoba, Itálica, Parque de Doñana... The second part, 2 hours, goes to practical work on an area of the great heritage value of Andalusia.

Teamwork seeks the involvement of students to achieve high quality results. The methods used are Flipped Learning, and Problem Based Learning and the work is divided into two phases. The first phase is based on observation, and it aims to identify and analyze the heritage values on graphic supports (see results). The second one seeks to generate a real or virtual model as a proposal around the values chosen by each student group.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

The first part of the class is taught with image and video presentations with special attention to historical cartography. For the second part, two visits are made to the territory to be analyzed; the first with the teacher and the second one by each group individually, in order to contrast the identification of heritage values in the middle of the identification and analysis process. This last visit is without the teacher because one of the objectives to be achieved is that the student learns to search, analyze and use the information obtained, facilitating the integration

of the different fields of knowledge. Students use tools such as extended, virtual, and 3D reality, super-expandable images, and digital objects made in Fab Lab (hybrid products) for their final models.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✕ Yes, both in sustainability and heritage

The proposed territorial scale usually generates some confusion and resistance in the initial stage of the exercise, creating moments of confusion in the students, a fact which usually disappears as soon as the dynamics of the face-to-face (when possible) classes are advanced. On the other hand, designing and making conceptual models is a challenge for students who are not used to handling theoretical and practical concepts in the same support.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✕ Yes

The staff of the center of Audiovisual Resource of University; The staff of the Fab Lab / University of Seville.

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✕ Yes

Sometimes the local technicians have been involved in explaining the resources and especially the social components of the population.

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

The possibility of a relationship depends on the territorial topic the course works on each year. For example, in the 2016-2017 academic year, the topic to be studied were small towns in the Andalusian hinterland: a rural landscape in which proposals were made for abandoned cereal warehouses. To achieve this objective, the communication of the final proposal is essential, and for this reason, there is a lot of influence on new technologies and the accessibility of resources.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

The last course of the five-year Program

Workload/weekly study hours

✗ 4 hours

Language

✗ English and Spanish

Evaluation Methods

- ✗ Project
- ✗ Project Presentation
- ✗ Coursework

Grading System

✗ Numerical

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS

According to the course approach, the study site covers three scales: Urban scale, Intermediate scale, and Territory scale. These are

representative examples of three different academic years. The models are accompanied by a text explaining the objective, methodology, and creative process in order to achieve heritage characterization as the final result of the project.

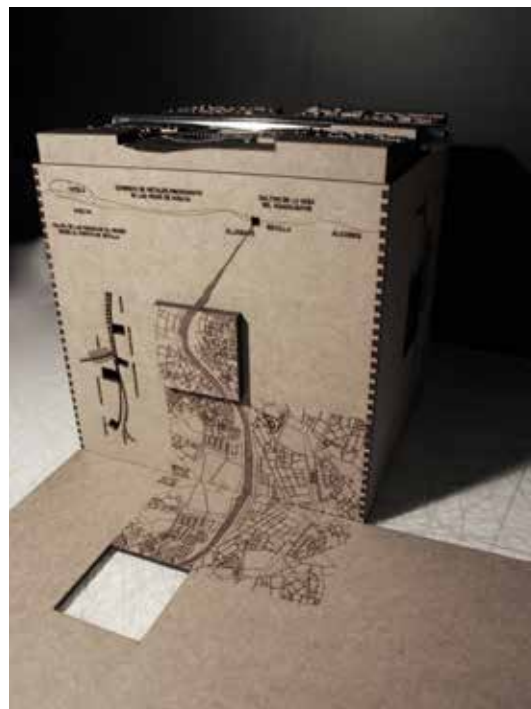


Figure 1. Urban Scale: The proposed itinerary has its limits on two convent foundations on both sides of the Guadalquivir River; San Jacinto on the right bank, and La Magdalena, in the historic city. Academic year: 2015-2016.

Students: C. Girón Velázquez, G. Guisado, Fco J. Guillén, B. Lacchini. Results: A cubic model and cross-sections of the area of study is compared with other cultural heritage units.

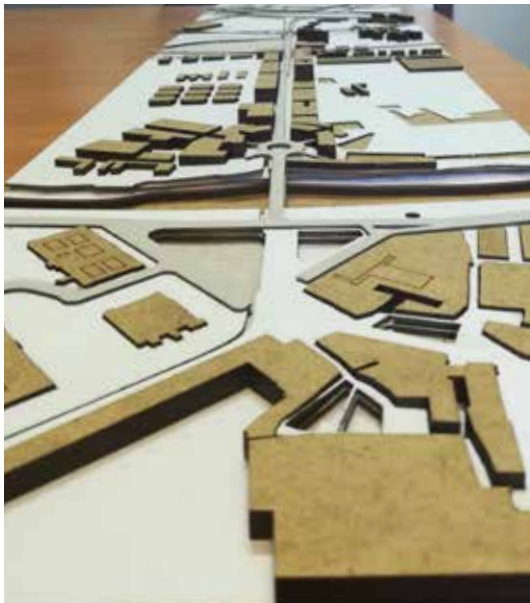
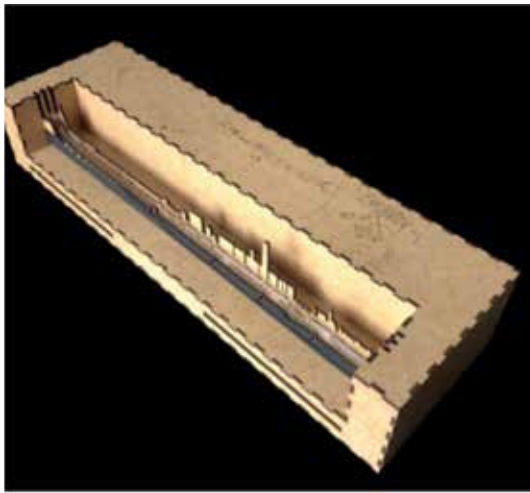


Figure 2: Intermediate Scale: the selected area covers a space that belongs to the metropolitan área of Seville, from the statue of the Sacred Heart of Jesus to the Royal Alcazar in the historic city. Academic year: 2018-2019. Students: J. M. Aguilar, B. Borrero, J. Expósito, C. Navas, A. Torres - G.n Berloni, G. Rincón, J. A. Ruicero, M. A. Sastre, E. Serrano. Results: A model with cross-sections and another one made with historic layers.

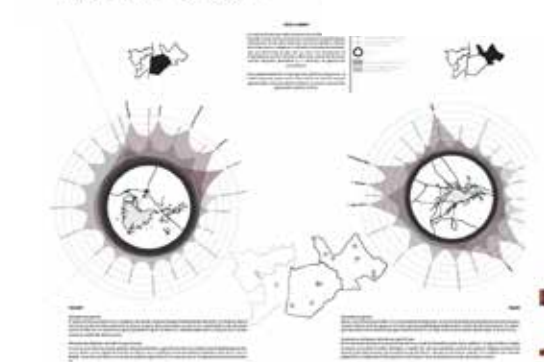


Figure 3. Territorial scale. Small towns in the Andalusian hinterland: a rural landscape. Academic year: 2016-2017. Students: M. Berges, M. Hubin, B. Martínez-Alcalá, J. Mora, D. Pérez - R. Moyano, J. R. Blesa, P. Valcárcel - N. García, M. Martínez, M. I. Romero, Á. Rosa, C. Sánchez, C. Vicente. Results: The incorporation of a social analysis to the territory results in a different model.



CREHAR
UNESCO Chair

SPAIN

X

Julia Rey-Pérez
Marta García-Casasola

course

02

Architectural History, Theory and Composition 3

2330038 [Historia, Teoría y Composición Arquitectónica 3]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ University of Seville

Type of Institution

✗ Higher Education Institution

City

✗ Seville

Department

✗ Architectural History, Theory and Composition

Faculty

✗ Higher School of Architecture

Study program to which this course belongs

✗ Grado en Fundamentos de Arquitectura

Level

✗ Undergraduate

Year/Semester

✗ 4th year / 2nd semester (8th Semester)

Course Type

✗ Lecture
✗ Theoretical project
✗ Practical work

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 6

Lectures/week (hours)

✗ 2

Studios/labs/week

✗ 2

Academic/ Teaching Personnel

✗ Julia Rey-Pérez, Associate Professor,
Marta García-Casasola, Associate Lecturer

Program of Study Content

✗ Design Project
✗ Written Thesis
✗ Research Methodology Course

A diagram that illustrates the position of the course in the structure of the study program:

1st year (10 compulsory courses)	60 ECTS
2nd year (10 compulsory courses)	60 ECTS
3rd year (10 compulsory courses)	60 ECTS
4th year (10 compulsory courses)	60 ECTS
Second Semester. Focus on topic: Rehabilitation and heritage HTC038: Architectural History, Theory and Composition 3. CA036: Construction 5 ST037: Structures 3 PA039: Projects 8 (Design Studio) IC040: Transdisciplinary workshop 6	
Specialization year	
Fifth year (6 compulsory courses)	36 ECTS
Elective Courses (the students choose 3) Offer of 25 elective courses 1 Engagement with practice and industry	
Total Elective Credits	18 ECTS
Graduate Thesis Project	6 ECTS
TOTAL Fifth Course	60 ECTS
TOTAL	300 ECTS

COURSE CONTENT AND STRUCTURE

The contents of the course address the evolution of the concept of heritage throughout the 20th and 21st centuries, incorporating all types of heritage, from monuments to the landscape as a container of heritage. It also reviews the strategies for managing cultural heritage in the 21st century and identifies new models of heritage city management based on urban governance and the heritage-sustainability binomial, as well as the challenges for the 21st century and the 2030 Agenda. The course is structured alternating sessions with a more conceptual and critical vocation with practical sessions where both group work and individual work are developed. In this practical part of the course, the students overturn the contents of the first part of the class. In both cases and on a different scale, students' work deals with a case study - a building with its surroundings, an area of the city or territory- in which they identify heritage values and attributes in order to define strategies and criteria for intervention. Basically, the course aims to introduce the student to methodologies of intervention in heritage, which can be structured in three phases: heritage identification (research and documentation), cultural values and conservation project.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

The course's aim is to ensure that students learn the historical and cultural knowledge necessary for carrying out diagnoses and heritage assessments of architecture, the city and those territorial elements that form part of the landscape. Likewise, students will be able to structure and apply the theoretical, critical and instrumental elements of the preliminary studies required for architectural interventions for the rehabilitation of built heritage. In addition, the course aims to make students aware that heritage and culture are current resources that contribute to local development and the local economy and are therefore considered key elements of urban, economic, and social sustainability.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

The student acquires an important ability in the study of cultural heritage in its multiple facets and dimensions, which fosters their critical capacity in relation to the identification of heritage values and attributes. The overcoming of the heritage object and the study of the context in which it is inserted, as well as its threats and opportunities, generates in the student an ability to relate the values and attributes of this heritage with the needs of the context, being able to identify the benefits and impacts generated in the urban context when using this heritage as a resource. Making this decision also enables him/her to define these intervention strategies in the aforementioned heritage.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

The teaching strategy used is one in which the student is the main character of the learning process, where in addition to acquiring responsibilities and critically approaching the contents provided in the subject, he/she exchanges points of view and experiences with his/her classmates. Derived from this reality, different methods are promoted, which combine: Problem-Based Learning (PBL), Service Learning (SL), Cooperative Learning (CL), lectures / expository method and case studies. This is the framework within which the learning of this programme is proposed, which is the result of combining different methodological strategies, each one is chosen according to the contents, teaching objectives and competencies to be developed. They are given various training activities, combining individual work with group work. Essentially, the phases of the heritage methodology can be summarised as follows: a collection of materials / representation or heritage identification / identification of the heritage problem or diagnosis / values / intervention strategy / lines of action / knowledge transfer. Making use of the following "Tools": documentary management, interpretation, graphic sources (photos, maps, films, among others)

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

The materials provided to students in their learning process consist of an extensive bibliography according to the thematic contents mentioned, a wide range of case studies of heritage interventions (textual, graphic and photographic information), as well as films, videos, or press material that bring the student closer to different heritage areas. Students will usually work with historical images and historical cartography, as well as oral material collected from interviews with users of the heritage in question. This material is complemented

by a study visit to a specific intervention or by attending a seminar or conference. The aim is to read of these materials to become the basis for defining values based on the understanding and interpretation of the heritage problem on which the project is working. We will make recurrent use of the interpretation of texts and images as working tools to achieve sufficient knowledge of study areas. The use of chronologies and interpretative cartographies will also form part of the learning outcomes.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

X Yes, both in sustainability and heritage

The main impediment to teaching concepts as broad as cultural heritage or sustainability is the need to work continuously with different disciplines and different approaches, which is known as an integrated curriculum, which does not occur at the university level. On the other hand, the student is not usually familiar with teaching methodologies that involve a very close connection with real problems. This situation poses the challenge of making students aware of urban needs and how heritage is the way to solve them.

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

X No

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

X Yes

Yes, we usually try to involve a technician from the City Council or architects with heritage interventions in the case studies. Their role in the course is to transfer knowledge from what is known as street work to academia. In addition, researchers and professors from different disciplines are always invited to participate in our courses to bring another point of view to heritage management from the perspective of sustainability. Sociologists, anthropologists, economists, environmentalists... have been invited. The aim is for their interventions to enrich the student's critical capacity

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

The possibility of the relationship depends on the areas of study chosen to work on in the course. Normally, case studies close to the student are selected, such as industrial heritage issues, degraded neighbourhoods with an interesting heritage, cultural and social component; obsolete heritage immersed in the urban context or spaces with an important landscape or intangible component that often goes unnoticed by any administration. Case studies are usually chosen to allow the student to experiment with all facets of cultural heritage. At the same time, research is also carried out on examples of good practice at the European level. From the end of the 20th century to the present day, there are great examples of heritage interventions that students should be aware of.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

Fourth-year students / second semester (8th Semester)

Workload/weekly study hours

✗ 4 hours

Language

✗ English and Spanish

Evaluation Methods

- ✗ Written Exam
- ✗ Project
- ✗ Project Presentation
- ✗ Coursework

Grading System

- ✗ Numerical

Employment influence evaluation (alumni feedback about employability)

- ✗ Employed in Private Sector
- ✗ Employed in Public Sector
- ✗ Self Employed

RESULTS

As has been seen in the teaching methodologies mentioned above, in our case the result is not so much the end product but the learning process in which the student approaches the concept of heritage.

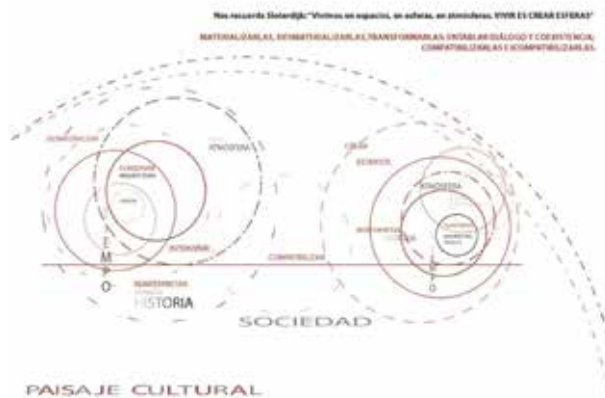


Figure 1. Representation of the definition of cultural landscape: time, society, history... preserve, dematerialise, reinterpret, create new layers, etc. Case study: northern part of the historic centre of Seville. *Students: Javier Miranda Díaz, Silvia Richter Martínez, Cristina Ungur y Geraldine Zúñiga Delgado. Course 2016/2017, group 4.08. Professor: Marta García-Casasola*



CREHAR
UNESCO Chair

SPAIN

×

Mar Loren-Méndez

course

03

Architectural History, Theory and Composition 4: City

2330050 [Historia, Teoría y Composición Arquitectónicas 4: Ciudad]

UNIVERSITY LEVEL COURSE DETAILS

Institution

✗ University of Seville

Type of Institution

✗ Higher Education Institution

City

✗ Seville

Department

✗ Architectural History, Theory and
Composition

Faculty

✗ Higher School of Architecture

Study program to which this course belongs

✗ Grado en Fundamentos de
Arquitectura

Level

✗ Undergraduate

Year/Semester

✗ 5th year / 1st semester (9th Semester)

Course Type

✗ Lecture
✗ Theoretical project
✗ Practical work

Elective or Compulsory Course

✗ Compulsory

ECTS

✗ 6

Lectures/week (hours)

✗ 2

Studios/labs/week

✗ 2

Academic/ Teaching Personnel

✗ Mar Loren-Méndez, Full Professor

Program of Study Content

✗ Design Project

✗ Written Thesis

A diagram that illustrates the position of the course in the structure of the study program:

1st year (10 compulsory courses)	60 ECTS
2nd year (10 compulsory courses)	60 ECTS
3rd year (10 compulsory courses)	60 ECTS
4th year (10 compulsory courses)	60 ECTS
Specialization year	
Fifth year (6 compulsory courses)	36 ECTS
First Semester	
Focus on topic: City.	
HTC400: Architectural History, Theory and Composition 4	
PA009: Projects 9 (Design Studio)	
IC007: Transdisciplinary workshop 7	
URB400: Urban planning 4	
Elective Courses (the students choose 3)	
Offer of 25 elective courses	
1 Engagement with practice and industry	
Total Elective Credits	18 ECTS
Graduate Thesis Project	6 ECTS
TOTAL Fifth Course	60 ECTS
TOTAL	300 ECTS

COURSE CONTENT AND STRUCTURE

The course focuses on critical interdisciplinary knowledge and practice of the contemporary city in the international context, its history, and present. The contemporary city is studied in three periods that witnessed an urban breakthrough, ranging from the birth of the modern city in the second half of the 19th century until the present. Each period offers a historical approach to the city, within the complex and interdisciplinary framework of geopolitical, economic, technological and social transformations; followed by monographic studies of certain cities. Sustainable alternative approaches to the development of the city and the territory are traced in each period and put in dialogue with the predominant historical trends. The practicum is developed in the second part of the class. The first half of the semester is focused on international case studies of theories for the sustainable intervention of the city. The second part is centered in urban heritage local case studies as the framework for creative urban regeneration of the city.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

1. To address architectural history and criticism of the contemporary city as a cultural manifestation, within the complex and interdisciplinary framework of geopolitical, economic, technological, and social transformations (Cultural complexity and interdisciplinarity); 2. To approach the city as a territorial phenomenon, while being able to integrate the architectural and urban scale (multiscalar condition of the city) 3. To develop a critical understanding of the urban theories based on sustainability and being able to apply them (Contemporary city through sustainable urban development) 4. To address urban and architectural heritage assessment and intervention as a key factor for sustainable urban development (Heritage for urban regeneration) 5. To integrate creativity with scientific methods in all the phases – from documentation and historical research to values assessment and design strategies.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

1. To know the history and genealogy of the different urban theories based on sustainability, 2. To develop an interdisciplinary, complex approach to the city and the territory, integrating the various disciplines with architecture 3. To apply international urban strategies locally 4. To work with heritage as a key source for sustainable urban development. 5. In a constantly reformulated field such as heritage studies, creativity allows the student to adapt to emergent heritage and sustainable theories constantly.

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL

low	medium	high
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ECONOMIC

low	medium	high
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ENVIRONMENTAL

low	medium	high
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THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

General principles A) From the teaching to learning perspective: the program is rooted in the central role of the student, proposing a classroom strategy driven by intensive participation and based on a symmetrical dialogue student/teacher. B) Critical and autonomous development of the student C) Creativity and integrity of the architectural design process: documentation and historical research, to values assessment and sustainable regeneration strategies. The method integrates training activities both theoretical and practical. The theoretical part is based on lectures. The students themselves offer the closing lecture. Two practical activities are proposed. The students are organized into teams of 3-4 students. The method is based on the problem based learning, based on case studies. The pedagogy integrates workshops (preparation in dialogue student-professor) and expository-participatory activities, developed and coordinated by the students themselves. 1. International case studies on sustainable urban intervention theories. Each team works on one author and its architectural and urban proposal for sustainable development. The method combines the case study method with gamification for team learning and self-evaluation. Each team designs a participatory creative action in order to assure and evaluate the learning process 2. Local urban heritage case studies. All the teams work on an architectural, urban heritage case study of a local city, such as Seville. Each team develops a documentary research and heritage characterization, which leads to the design of creative strategies for the regeneration of the city.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

In the theoretical part of the course, images to illustrate the architectural and urban

aspects of the contemporary city – photos, cartographies, diagrams, bibliography – are complemented with images to depict the interdisciplinary account of the city as a cultural manifestation – graphical documentation from geographers, historians and anthropologists, among others. For the international case studies on sustainable urban intervention theories, bibliographical references are provided. For their conceptual participatory artifacts students use any type of media, such as digital fabrication. Regarding the heritage characterization and creative strategies, the students are provided with specific bibliography on creativity and creative cities, as well as bibliography on each heritage case study. Design software and video editing software to work on their proposals.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, both in sustainability and heritage

In the first practical activity, the students are not used to develop a learning activity for the rest of the students, conduct the class and make the other students be active by presenting their own proposals. On top of that they are not used to gamification as a learning method. Finally, the difficulty in overturning urban theory and practicing in an architectural, urban artifact that allows testing the acquired knowledge is a real challenge and it becomes a fertile field for healthy competition. In the second one, the proposal of creative regeneration projects is also a new design challenge, in contrast with more traditional design projects. The development of conceptual mapping and videos are also challenges for the students.

**PRACTITIONERS/PROFESSIONALS/
EXPERTS INVOLVED IN THE
EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE
AND THEIR ROLE IN THE COURSE**

Yes

In order to develop the referred intensive participation, the symmetrical dialogue student/teacher other generations of students, ranging from the students of the previous year to those who are already architects or collaborators or assistants. They serve as a generational bridge that facilitates the learning process.

The previous generation is in charge of presenting their experience from the process and methods. Collaborators and honorary assistants are involved in conducting the debates and giving feedback during the workshops.

**EXTERNAL PARTICIPANTS, VISITORS
GUEST LECTURERS, ETC, INVOLVED IN
THE EDUCATIONAL PROCESS? IF YES,
PLEASE MENTION THEIR EXPERTISE AND
THEIR ROLE TO THE PROGRAM OF STUDY**

Yes

Those generations who are already architects are in charge of participating and co-organizing the final session of both practical activities. This normally takes place outside the school, in their architectural studios. Some academic years we have had an opening and close lecture by national and international experts.

**RELATIONSHIP BETWEEN THE COURSE
AND THE CURRENT LOCAL NEEDS/
REQUIREMENTS OF LABOUR MARKET
IN THE FIELD OF ARCHITECTURAL
AND URBAN DESIGN IN RELATION TO
SUSTAINABILITY AND HERITAGE**

The relationship between the course and the local reality is assured with the local urban heritage case studies as the framework for both practical activities. Creative cities

and tactic urbanism constitute an essential way to address the urban regeneration of the city in a sustainable way. For example, the last two years, we have worked on the architectural heritage of Seville as the support for these proposals: Seville is declared a creative city by UNESCO in 2006 in the category of music, with Flamenco Biennale as the event of reference. The course becomes a project in collaboration with the owners of the architectural heritage and the municipal office of Sustainability and Urban Innovation. The projects have been exhibited, the experience of former students explained in online interviews. New technologies are essential to maximize accessibility of all this information.

**TO WHOM IT IS ADDRESSED (TARGET
AUDIENCE)**

The last course of the five-year Program

Workload/weekly study hours

4 hours

Language

English and Spanish

Evaluation Methods

- Written Exam
- Project
- Project Presentation
- Coursework

Grading System

- Verbal
- Numerical

**Employment influence evaluation
(alumni feedback about employability)**

- Employed in Private Sector
- Employed in Public Sector
- Self Employed

RESULTS

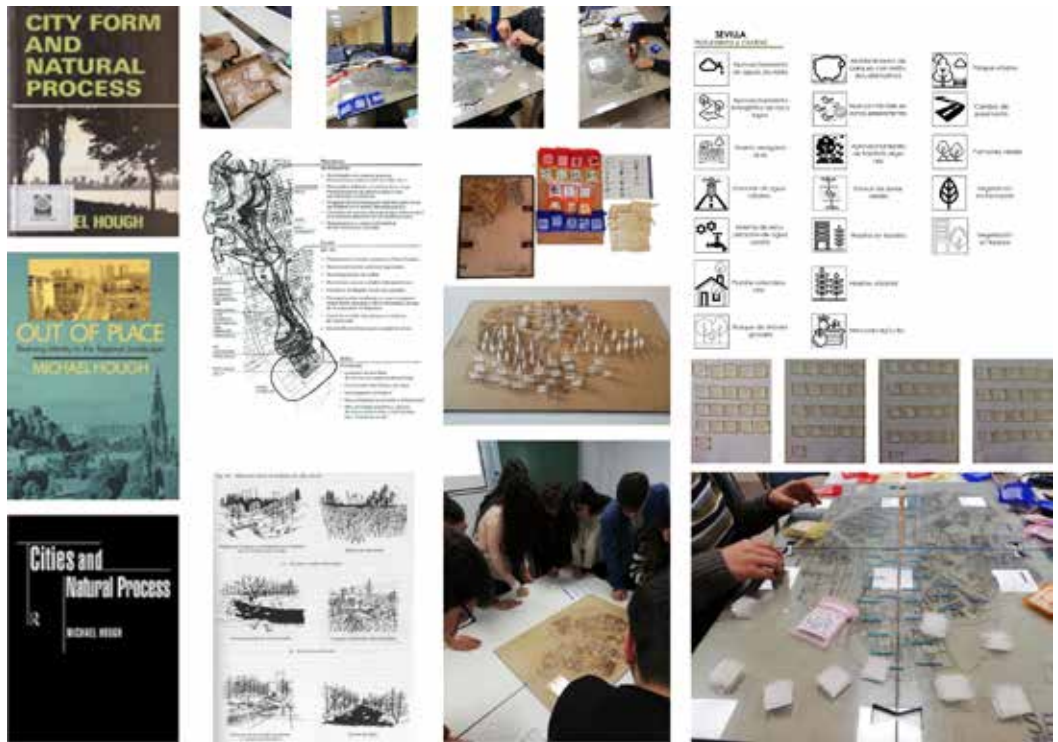


Figure 1. International case studies on sustainable urban intervention theories. The slide shows the learning participatory activity designed and coordinated by a students team. In the format of a game, the team presents Michael Hough's theories and sustainable urban strategies: Michael Hough, *Cities and Natural Process* (London: New York Routledge, 1995). The image shows both the questions kit and the conceptual model of the city of Seville in order to apply the sustainable strategies in the city of Seville.

Academic year: 2019-2020. Students: Muñoz Toledo, Erika Cecilia; Ramírez Ruiz, Carlos; Villegas Lobato, José Antononio. irst semester. Professor, Mar Loren-Méndez. Guest professor, Daniel Pinzón-Ayala, Honorary Assistants: Roberto Alonso-Jiménez and María Alvarez de los Corrales.

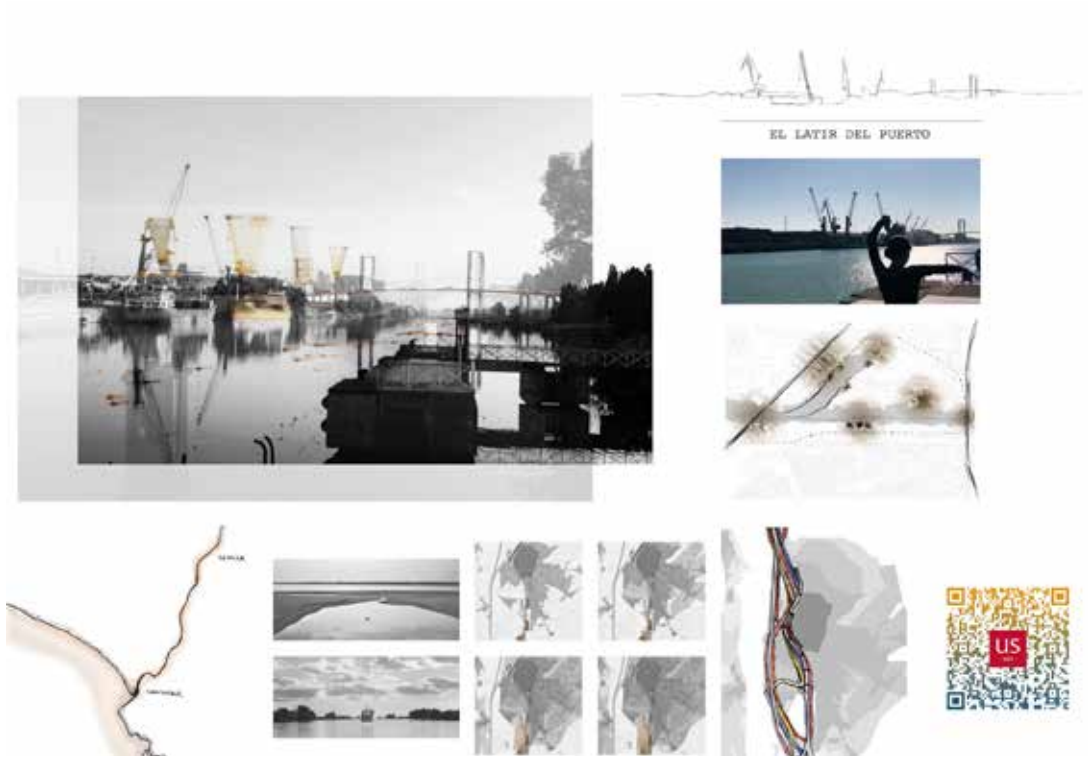


Figure 2. Local urban heritage case studies. The slide shows the case study of Seville port, entitled The heartbeat of the port. The slide shows part of material produced within the process of research and documentation and heritage characterization. Finally, the creative interpretation and creative strategies for its regeneration are developed in the video. QR Code.

Academic year: 2018-2019 first semester. Students: Cárdenas Domínguez, Manuel J.; Cumplido Rodríguez, Celia; Huertas Berro, Antonio; Ruano Herrera, Elena. Professor, Mar Loren-Méndez. Collaborators: Guest professor, Daniel Pinzón-Ayala; Honorary Assistant: Roberto Alonso-Jiménez; Architect: Pedro García Agenjo; Student: María Álvarez de los Corrales.



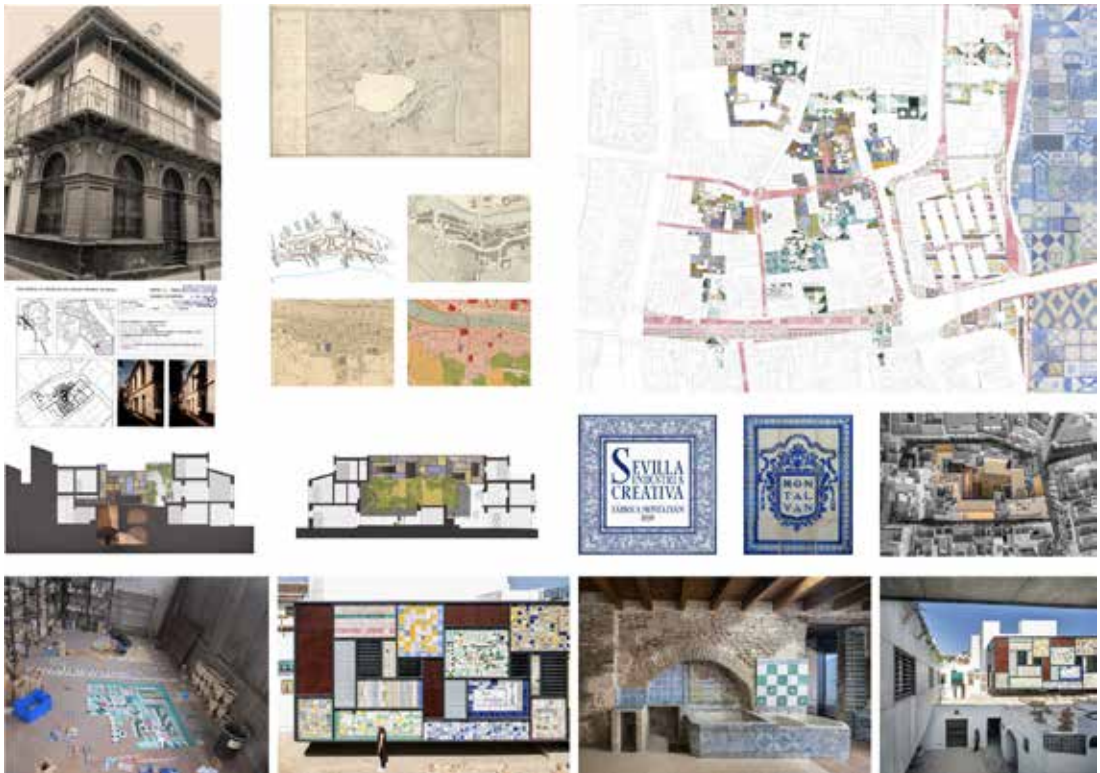


Figure 4. Local urban heritage case studies. The slide shows the case study of the ancient Pottery complex Montalvan, rehabilitation as Triana Montalvan Hotel and Restaurant, in the historic neighbourhood of Triana, Seville. The slide shows part of material produced within the process of research and documentation and heritage characterization.

Academic year: 2018-2019 first semester. Students: Iglesias Sánchez, Ulises; Rincón Panadero, Gabriel; Ruciero Velo, José Agustín; Sastre Uyá, Miguel Angel; Serrano Martín, Enrique. Professor, Mar Loren-Méndez. Collaborators: Guest professor, Daniel Pinzón-Ayala; Honorary Assistant: Roberto Alonso-Jiménez; Architect: Pedro García Agenjo; Student: María Álvarez de los Corrales.

Figure 3. Local urban heritage case studies. The slide shows the case study of Social housing neighbourhood San Pablo, in the periphery of Seville. The slide shows part of material produced within the process of research and documentation and heritage characterization. Finally, the creative interpretation and creative strategies for its regeneration are developed in the video. QR Code.

Academic year: 2017-2018 first semester. Students: Boccardi, Olivia; Fernández Espínola, José Fernando; Muñoz Moyano, Víctor; Quesada Cano, Fernando; Rojas Bejarano, Julia; Silvia Collado, Daniel. Professor, Mar Loren-Méndez. Collaborators: Architect: Carmen Fernández; Students: Roberto Alonso-Jiménez.



CREHAR
UNESCO Chair

SPAIN

×

Mar Loren-Méndez

course

04

**UNIVERSITY LEVEL COURSE
DETAILS**

Institution
 X University of Seville

Type of Institution
 X Higher Education Institution

City
 X Seville

Department
 X Architectural Projects (Architectural Studio)

Faculty
 X Higher School of Architecture

Study program to which this course belongs
 X Grado en Fundamentos de Arquitectura

Level
 X Undergraduate

Year/Semester
 X 5th year / 1st semester (9th Semester)

Course Type
 X Lecture
 X Studio design
 X Theoretical project

Elective or Compulsory Course
 X Elective

ECTS
 X 6

A diagram that illustrates the position of the course in the structure of the study program:

1st year (10 compulsory courses)	60 ECTS
2nd year (10 compulsory courses)	60 ECTS
3rd year (10 compulsory courses)	60 ECTS
4th year (10 compulsory courses)	60 ECTS
Specialization year	
Fifth year (6 compulsory courses)	36 ECTS
First semester	
Architecture and Heritage (Arquitectura y Patrimonio)	
is one of the elective courses offered in the specialization year	
Elective Courses (the students choose 3)	
Offer of 25 elective courses	
1 Engagement with practice and industry	
Total Elective Credits	18 ECTS
Graduate Thesis Project	6 ECTS
TOTAL Fifth year	60 ECTS
TOTAL	300 ECTS

List of 25 elective courses of the 5 th year	
<p>Department Architectural Construction 1</p> <ul style="list-style-type: none"> - Construcción Medioambiental y Tecnologías Sostenibles (Environmental Construction and Sustainable Technologies) - Evolución y Concepto de los Sistemas Constructivos. De la tradición a la Innovación. - Instalaciones y Sistemas para el Diseño de Edificios Eficientes e Inteligentes 	<p>Department of Building Structures and Geotechnical Engineering</p> <ul style="list-style-type: none"> - Cimentaciones: Patologías y Recalces y Cimentaciones. - Intervención Estructural en Edificaciones Existentes - Estructuras especiales en Arquitectura
<p>Department of Architectural History, Theory and Composition</p> <ul style="list-style-type: none"> - Arquitectura y Medioambiente (Architecture and Environment) - Arquitectura de las Américas - Paisaje, Ciudad y Arquitectura en Andalucía (Landscape, City and Architecture) 	<p>Department of Applied Physics II</p> <ul style="list-style-type: none"> - Acústica Aplicada a la Arquitectura y el Urbanismo - Energía y Sostenibilidad en Arquitectura (Energy and sustainability in Architecture)
<p>Department of Projects (Design Studio)</p> <ul style="list-style-type: none"> - Arquitectura y patrimonio (Architecture and Heritage) - Arquitectura y Sostenibilidad (Architecture and Sustainability) - Arquitectura, Paisaje y Territorio - Fundamentos del Habitar 	<p>Department of Applied Mathematics I</p> <ul style="list-style-type: none"> - Análisis de Datos y Localización de Recursos Urbanos - Técnicas numéricas para el cálculo y el diseño en Arquitectura
<p>Department of Architectural Graphic Design</p> <ul style="list-style-type: none"> - Dibujo y Máquina - Dibujo y Patrimonio (Drawing and Heritage) - Dibujo y Vanguardia 	<p>Department of urban and regional Planning</p> <ul style="list-style-type: none"> -El espacio público en el planeamiento -Planeamiento y sostenibilidad (Urban and regional planning and sustainability) - Patrimonio urbano y planeamiento

Lectures/week (hours)

✕ 1,5

Studios/labs/week

✕ 2,5

Academic/ Teaching Personnel

✕ Francisco Reina Fernández-Trujillo

Program of Study Content

✕ Design Project

COURSE CONTENT AND STRUCTURE

The course contents are focused on heritage sites with diverse and heterogeneous heritage values. It focuses on the precise heritage characterization and the definition of the limits and dialogue between the different heritage elements of the site. Theoretical contents include analysis of historic cities; archaeological sites; historical transformations of the different cultural layers of architecture, the city and the territory, theories on heritage intervention, heritage legislation, case studies of best practices on heritage intervention. In the practicum the students work on both international case studies analysis and the intervention proposals for specific local case studies. The bibliographical and critical knowledge and research of these case studies are complemented with critical fieldwork.

THE COURSE PURPOSE AND OBJECTIVES IN GENERAL AS WELL AS IN RELATION TO SUSTAINABILITY AND CULTURAL HERITAGE

- To deepen in the practice and theory of the architectural project on assets with heritage value, attending to inherited situations whose permanence is of interest to the community, reaching an advanced graphic and conceptual definition, with elaborations equivalent to a professional preliminary proposal.
- To underline both the intellectual and experimental value of any architectural heritage intervention, based on concrete

case studies. To support this knowledge in the study and critical review of the most relevant theoretical contributions, as well as in exemplary interventions of the last decades.

THE LEARNING OUTCOMES IN GENERAL (SKILLS, ABILITIES, KNOWLEDGE) WITH REGARD TO SUSTAINABILITY AND CULTURAL HERITAGE

By the end of the course, the student develops an open concept of heritage, which includes not only the architectures traditionally considered monumental but also all those elements that present some typological, constructive, spatial, or even environmental value to be taken into account. The student is also able to identify the tension between the factors of permanence and the factors of change that make up the evolution of

KEY FEATURES



TO WHAT EXTENT DOES THE COURSE ADDRESS ASPECTS OF SUSTAINABILITY AND PROMOTE CULTURAL HERITAGE AS A BASE FOR SOCIAL, ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

SOCIAL



ECONOMIC



ENVIRONMENTAL



a culture in order to be able to insert the heritage project into the historical sequence with some possibility of success. The student is capable of dealing with the concept of scale, discovering the internal logic and the vocation of use, size, and complexity of the proposed site. The student finally gets the ability to develop an integral process, in which construction and economy are also present, both conceptually and instrumentally.

THE EDUCATIONAL /TEACHING METHODOLOGY (GENERAL PRINCIPLES, PEDAGOGY AND MANAGEMENT STRATEGIES USED FOR CLASSROOM INSTRUCTION)

Face to face, recently via Blackboard
Teaching is mainly carried out through lectures as well as design studios, complemented by fieldwork.

The practicum includes three activities, which the student develops individually 1. Best practices projects. The analysis of international and national case studies of best practices on architectural, urban, and territorial heritage interventions. The student has to identify the project, analyze the heritage characterization processes of their authors and discuss the design proposal in this specific framework. 2. Heritage texts. The reading and study of a series of interdisciplinary texts on heritage intervention. A partial glossary of terms will be elaborated to inform about the meticulous readings, ideas, attempts, criteria, reasons, and projects of conservation, intervention and diffusion of the architectural heritage. 3. Intervention proposal. The student chooses among three or four local case studies of heritage sites. They have to develop both the historical and documentation research, the site critical analysis, to finally offer a proposal.

TEACHING/LEARNING MATERIALS (DIDACTIC MATERIALS, RESOURCES, SOFTWARE, ETC.)

Extensive bibliography: theories on heritage intervention, legal framework, best practices case studies, specific references for each of the case studies analyzed by the students.

OBSTACLES, IMPEDIMENTS, PROBLEMS AND CHALLENGES REGARDING TEACHING SUSTAINABILITY OR/ AND CULTURAL HERITAGE IN THIS COURSE (IF ANY). PLEASE MENTION THEM BRIEFLY

✗ Yes, both in sustainability and heritage

PRACTITIONERS/PROFESSIONALS/ EXPERTS INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE IN THE COURSE

✗ No

EXTERNAL PARTICIPANTS, VISITORS GUEST LECTURERS, ETC, INVOLVED IN THE EDUCATIONAL PROCESS? IF YES, PLEASE MENTION THEIR EXPERTISE AND THEIR ROLE TO THE PROGRAM OF STUDY

✗ Yes

Visitors guest lecturers: other professors and students assistants

RELATIONSHIP BETWEEN THE COURSE AND THE CURRENT LOCAL NEEDS/ REQUIREMENTS OF LABOUR MARKET IN THE FIELD OF ARCHITECTURAL AND URBAN DESIGN IN RELATION TO SUSTAINABILITY AND HERITAGE

The relationship is direct, because the intervention proposals are developed in real heritage sites in Andalusia, the student works with its specific legal regulations, and the proposal is similar to a real preliminary proposal.

TO WHOM IT IS ADDRESSED (TARGET AUDIENCE)

The first semester of the fifth year

Workload/weekly study hours

✗ 4 hours

Language

X Spanish

Evaluation Methods

X Project

X Project Presentation

X Coursework

Grading System

X Verbal

X Numerical

Employment influence evaluation (alumni feedback about employability)

X Employed in Private Sector

X Employed in Public Sector

X Self Employed

RESULTS

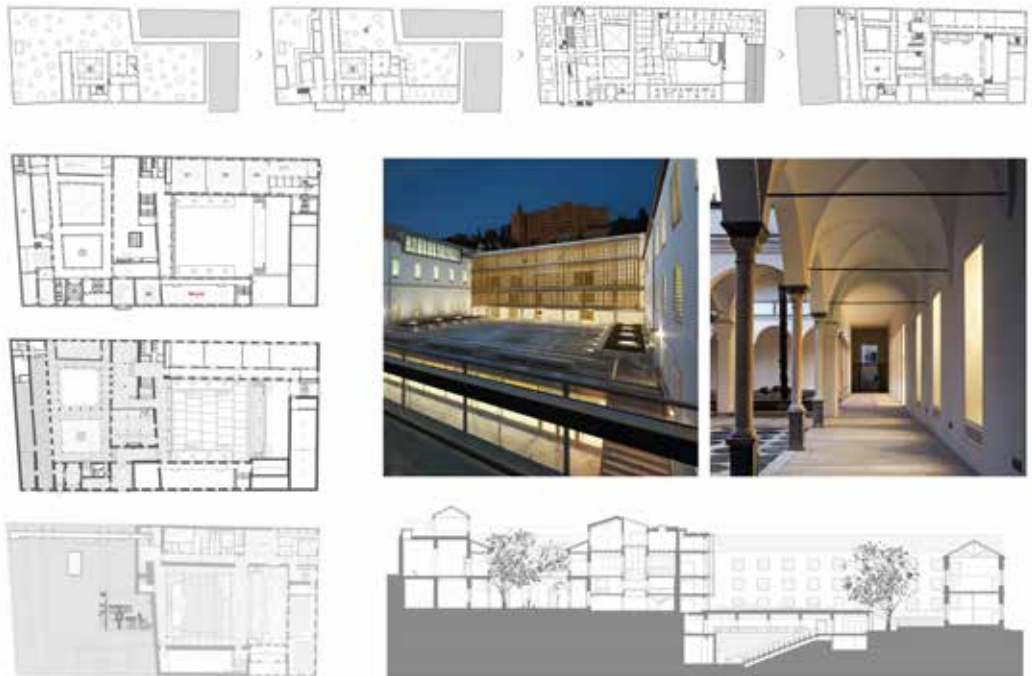


Figure 1. Analysis of international case studies of best practices in architectural and urban heritage. Project: Rehabilitation of the Higher School of Architecture, Granada, Spain.

Architects: Víctor López Cotelo y Carlos Puente Student: Jorge Rodríguez Chinchilla. Professor: Francisco Reina Fernández-Trujillo. Course: Architecture and Heritage. Academic year: 2018-2019.

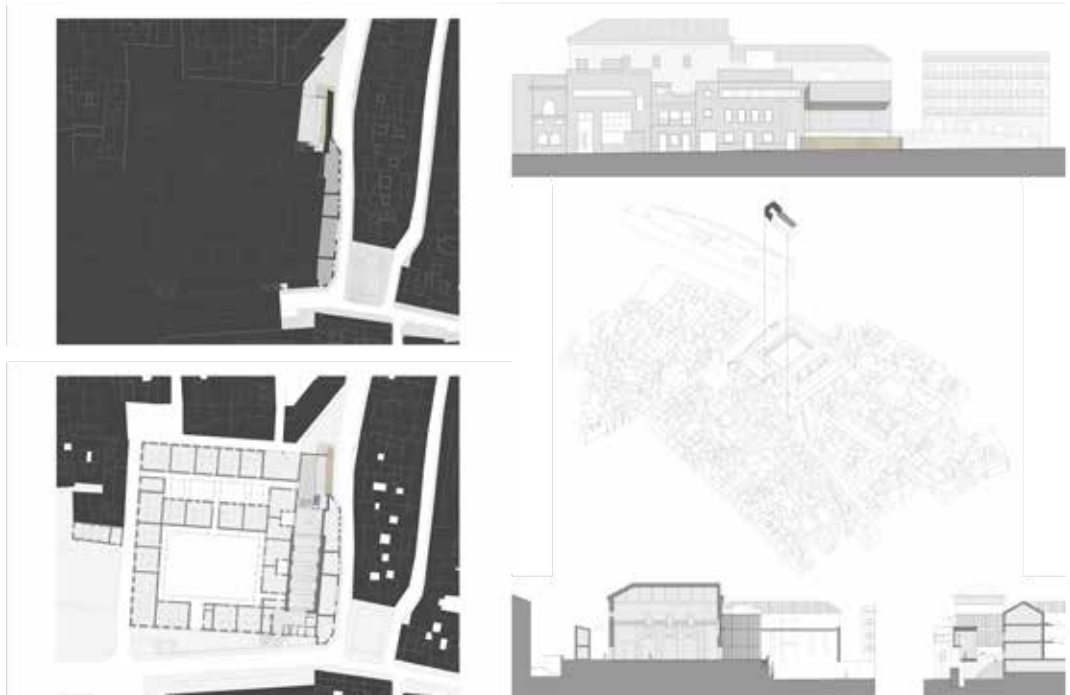


Figure 2. Intervention proposal in local case studies. Project: Intervention on the Sevilla Islamic wall, Section of San. Laureano. Student: Jorge Rodríguez Chinchilla. Professor: Francisco Reina Fernández-Trujillo. Course: Architecture and Heritage. Academic year: 2018-2019.



Figure 3. Intervention proposal in local case studies. Project: Intervention on the minor therms, Roman city of Italica, Santiponce, Sevilla. Student: Marta García Torres. Professor: Francisco Reina Fernández-Trujillo. Course: Architecture and Heritage. Academic year: 2018-2019.

Influence of National Policies on the Sustainability of Heritage



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)



SERBIA

X

Jelena Ristić Trajković
Aleksandra Đorđević
Bojana Zeković

report

Influence of national policies on the sustainability of heritage from the architectural and urban design perspective

When discussing urban policies that tackle the question of sustainability in relation to urban heritage, it is crucial to highlight identified duality. On the one hand - Serbia follows the contemporary paradigms and perspectives concerning sustainability in planning and urban development, as evidenced by the publication of specific strategic documents [1], planning laws [2, 3, 4] and chapters in planning documents [5]. On the other hand, laws in the heritage domain are often obsolete, since the current Law dates from 1995 with a minimal change adopted in 2011 [6]. Consequently, in recent years, efforts have been made to identify various problematic segments of this law that partially disable the sustainability of heritage but also neglects specific types of heritage. These endeavours can be followed in the draft documents produced in the sector of culture [7] and specifically by departments related to the heritage [8, 9], which have not yet been adopted.

LAWS AND STRATEGIES IN PLANNING AND URBAN DEVELOPMENT

In the domain of strategic and planning documents, the Strategy of sustainable urban development [1] was adopted for the first time in the Republic of Serbia in 2019. The Strategy greatly refers to Sustainable Development Goals (SDG), defined with in UN Agenda 2030, including the goal 11.4 that refers to the protection of world's cultural and natural heritage, emphasizing that, in 2015, Serbia appointed specific Action group to be in charge of the implementation of the agenda. The review of current state concerned with heritage in national and sectoral policies testifies about the lack of (1) representation (regarding lack of guidelines, evaluation and research methods, recognition of various urban heritage types (industrial, vernacular, modernistic, intangible)),

and (2) mechanisms for financing the revitalization and funding in general (a national budget that decreases in time)). The abovementioned problems were identified as main causes for continuous and evident devastation of cultural heritage. Additional problems are perceived in unbalanced and fragmented spatial interventions, often illegal, affecting the loss of unique spatial patterns and relations. The Strategy defines two key actions, that are in focus of HERSUS project research:

- 1. Improved and balanced quality of coherence and accessibility of urban space – described in detail in segment 2.2. regarding cultural heritage and culture, suggesting the actions to (1) provide active protection with the need for developing guidelines for the type of activities, (2) revitalization and reconstruction of buildings and areas outside of listed ones (traditional types, vernacular architecture, industrial complexes, post World War II architecture), (3) Protection of cultural diversity, landscape, and cultural tourism, (4) Digitalization and mapping of cultural, urban and architectural heritage, (5) renewal of cultural infrastructure, and (6) providing support for cultural activities.

- 2. Urban development governance, primarily actions regarding (1) support for developing partnership and networks of all governance levels and universities, institutes, research and development, and international organizations aiming to improve quality of work and increase innovation in the governance sector, and (2) permanent education and training in the field of urban development governance, planning evaluation and implementation, participation, feasibility studies, impact assessment, land and infrastructure governance, housing, hazards, protection, and planning and promotion of cultural and built heritage.

The Law on planning system (Official gazette of RS, 30/18) defines principles of governing urban policies, recognizing the financial sustainability and sustainable development and growth, implying that when drafting and implementing planning documents, the requirements that need to be taken into account should be concerned with: environmental protection, mitigating the effects of climate change and adapting to climate change, preventing overuse of natural resources, increasing energy efficiency and the use of renewable energy sources, reducing emissions with the greenhouse effect, protecting specific vulnerable categories, gender equality, as well as the fight against poverty. It can be perceived that aspect of built environment and heritage, in its broadest sense, is not mentioned or taken into account when thinking about sustainable development and growth.

✕ **The Law on Planning and Construction [4] outlines Sustainable development through an integrated approach in planning as the first principle of spatial development and use, while the fifth principle proclaims a commitment to the protection and sustainable use of natural resources and tangible cultural assets. The conditions and protection measures are defined within building rules that are an integral part of all planning documents.**

The Law on the Spatial plan of the Republic of Serbia from 2010 to 2020 [2] highlights that cultural heritage is not recognized as a development resource, while heritage protection is still treated in a sectoral manner, emphasizing the absence of a national strategy, the obsolescence of

the regulatory framework dating back to 1994, and problems arising from UNESCO protection, spatial organization problems (heavy traffic in the surrounding of cultural heritage, illegal construction), organizational and ownership problems, arising as a result of the state of transition. Despite that, the diversity and quality of cultural heritage (dating from prehistory to modern time) and cultural-historic units are recognized as a potential generator of cultural, touristic, and economic activities.

Strategic reflection on heritage in the context of sustainability, but also the first effects of the implementation of the aforementioned strategies and laws are certainly most visible in the recently adopted Spatial plan of the Republic of Serbia from 2021 to 2035 – Conceptual approach to spatial development for early public insight [5]. The plan pinpoints the effort evident in spatial and urban planning documents devoted to promoting an integrative approach to the protection and sustainable use of cultural heritage, which cannot be fully achieved due to an inconsistent legal and institutional framework. It has been noted that the current Law on cultural heritage from 1994 is not in compliance with the international guidelines (such as UNESCO guideline about Historical urban landscape from 2011); hence it doesn't recognize the cultural landscape and urban landscape (townscape). Additional problems identified in the current state concern lack of research for identifying built and urban heritage without institutional protection, re-examining limits of existing listed assets, protecting historical urban units, uncoordinated processes, and ranges of heritage records in different regions, uncoordinated governance, and management processes. The plan follows the Guiding Principles for Sustainable Spatial Development of the European Continent, 12th Session of the European Conference of Ministers responsible for Regional Planning (CEMAT) from 2000, thus including the principle of increasing fundus of cultural heritage as a development factor. Within the Segment titled Protection of heritage and environment, general goal is to protect and sustainably use, develop, and

promote cultural heritage as a sustainable development resource and protect national, regional, urban, and rural identity. The plan also defines specific goal regarding Protection, development, and sustainable use of landscapes (urban, rural and natural) as well as the protecting and improvement of the landscape character (on the national, regional, and local level). The plan makes a step forward in the field protection and sustainable use and development of landscape, basing the general conception on (1) preservation of the landscape pattern based on land use (agricultural, forest, water, construction), the ratio of built and unbuilt space, regulation of development following the character of the landscape (construction tradition and traditional forms of land use) in natural, rural and urban landscapes, (2) improvement of existing and creation of new values in which the landscape value has given special importance for development (tourist, recreational, cultural areas) and/or represent parts of international networks and border areas, (3) connecting landscape values in space (cultural trails, green infrastructure, ecological networks) which promote the natural and cultural values of heritage, and (4) revitalization, restoration and creation of new values in areas that are endangered and degraded.

LAWS AND STRATEGIES IN HERITAGE PROTECTION

The only valid law that directly treats the protection of heritage is the Law on Cultural goods ("Official Gazette of RS", No. 48/95), tangible cultural goods are cultural monuments, spatial cultural-historical units, archeological sites and famous places. Depending on their importance, cultural goods are classified into cultural goods, cultural goods of great importance, and cultural goods of exceptional importance. This Law defines general procedures, while specific conditions for undertaking technical protection measures and other works on tangible cultural goods and cultural goods of great importance, are determined by the competent institute for the protection of cultural monuments,

and cultural goods of exceptional importance by the Republic Institute for the Protection of Cultural Monuments. The technical protection measures are of particular importance for the sustainable use of heritage, since in practice they are elements that can cause a problem, both in the domain of excessive restrictiveness and in inertia and slowness in issuing conditions, which leads to the degradation of heritage. It is worth mentioning, that aside individual methodologies, Institutes are lacking to define substantial elements for the argumentation on the basis of which technical protection measures are issued (professional studies, an excerpt from archival documents, etc.).

LAWS AND STRATEGIES REGARDING TECHNICAL ASPECTS OF HERITAGE PROTECTION

Most important technical aspects regarding heritage protection and sustainability are related to contemporary standards of achieving sustainable use of natural resources, most important being those related to energy efficiency in buildings. These standards are predominantly being made having in mind new construction, but are also very important in refurbishment of existing buildings, some of which fall under heritage protection regimes. The Law on Planning and Construction [4] and the Law on the efficient use of energy [10] make the base for the implementation of measures of energy efficiency in buildings, new ones, as well as the ones being refurbished.

As the Serbian building stock, similar to most of the Europe's building stock is predominantly consisting of old buildings, it can be regarded as a significant resource for achieving quality in built environment and architectural features through its refurbishment. Most of these buildings are not under any heritage protections regimes, which makes the issue of their refurbishment even more prone to inadequate solutions, so the need for professionals in the field of architecture and urban planning specialized for the issues of building refurbishment is emphasized, making it of direct interest of HERSUS project.

The Law on Planning and Construction, and related bylaws (Rulebook on energy efficiency [11] and Rulebook on the conditions, content and manner of issuing building energy performance certificates [12] define the energy performance certificate for buildings, and related infrastructure for its implementation (training and licencing of engineers, database of issued certificates, technical details (models for calculations etc.)). Buildings are graded by achieved energy class into 8 categories (from "A+" to "G", later being the worst). Minimum energy class that a new building needs to achieve is "C". For buildings undergoing refurbishment, energy class after refurbishment needs to be improved for at least one energy class compared to the state before refurbishment. Buildings excluded from these obligations are buildings that are under certain levels of heritage protection regimes, where energy efficiency measures would confront to heritage protection measures. For each of these cases, all technical solutions need to be approved by the Republic Institute for the Protection of Cultural Monuments.

In housing building stock Law on housing and building maintenance [13] brought significant changes in management of this significant part of building stock. Not only that housing building stock accounts for the largest number of buildings, but also the architectural features of these buildings vary significantly, from those under heritage protection regimes to those without status of protection but of significant architectural value, all of which are in very poor condition regarding energy performance [14]. Issue of their refurbishment has waited for too long to be an easy one, in most cases. This law has made sustainable development of housing as one of its main principles, which is defined as improvement of conditions of housing for citizens and preservation and upgrade of housing building stock quality with improvement of its energy efficiency, decrease of negative influences on environment and rational use of resources, that is, harmonizing economical and social development with environmental issues in development of housing sector. It defines models of management of buildings used for housing, predominantly collective housing, their refurbishment implementation and financing.

The state in the housing building stock is similar to the state of public buildings, from the aspect of poor energy performance and various architectural features in buildings, according to latest research [15, 16, 17, 18]. Management of public buildings and their refurbishment is however completely different than in housing sector. The issue of building refurbishment is expected to be further defined in the Long-term Strategy for incitement of investment in building refurbishment of Republic of Serbia, which is under preparation. This Strategy is expected to define the sustainable path for building refurbishment, both housing and public buildings, in terms of expected levels of refurbishment, energy savings and financial instruments.

ANNEX

In recent years, three draft documents were prepared but have not been put in force till today. Nevertheless, since they propose fundamental changes in the field of heritage protection, they will be presented briefly. The first one is the draft document of the Strategy for the development of culture [7].

✘ **In the domain of heritage, the Strategy identifies problems of decentralization of jurisdiction, lack of financial obligations, lack of hierarchical coordination and communication, lack of accurate data, field work analysis, and low level of human resources, especially in archeology and architecture. The strategy identifies the need for continuous training and capacity-building activities, mainly lacking due to financial resources, and the need to find alternative ways of funding.**

In the domain of heritage, the most attention is paid to the institutional and regulatory framework due to the years of neglect of this topic in society and politics. The strategy expresses the aim to create conditions for the formation of a stable and reliable normative framework for adequate care for cultural heritage, its recognition, research, evaluation, protection, presentation, interpretation, and inclusion in modern life. Under this action, the strategy proposes adopting several laws such as Law on cultural heritage, Law on the protection of tangible cultural goods, Law on Museum Activity. Under this goal, additional activities concern the need for reorganization of governance and expert positions in the service of protection of cultural goods, standardization of the process of preservation and conservation, as well as the adoption of management plans for tangible cultural heritage, especially for monuments from the UNESCO World Heritage List. The special activity refers to the formation of a network of institutions for the protection of cultural heritage, as a system of communication, professional exchange, and coordination of activities, in order to systematically improve this area. The strategy also emphasizes the need to interconnect and strengthen cooperation between culture and education and science, recognizing the need to create additional programs in higher education in field of culture and importance of scientifically and evidence-based research for the creation of new policies in the domain of culture.

The draft version of the Law on Cultural Heritage [9] commences on criticizing the current Law on Cultural goods [6], indicating its obsolescence concerning the changed constitution, excessiveness, complexity, and inapplicability. The most significant changes proposed by this Law relate to the introduction of the category of cultural goods in danger, the establishment of Commissions for cultural goods of great importance for the Republic of Serbia and cultural goods from the UNESCO list, but also the establishment of the inspection for protection of cultural heritage. In addition, the meaning of tangible heritage has been extended to - architectural object as well as

their architectural surrounding, vernacular buildings, other immovable buildings, part of building and unit with properties related to a particular environment, work of monumental and decorative painting, sculpture, applied arts and technical culture, urban or rural settlement or its part with associated infrastructure, a group of buildings that are not necessarily spatially connected, but have collective architectural coherence or cultural, historical, archaeological, artistic, scientific, social, functional or technical uniformity, as well as a site that is a product of a unique natural and human activities, partially built, and has a prominent historical, archaeological, artistic, anthropological, scientific, social, cultural, technical or industrial significance. Additionally, this Law recognizes the sustainability on a greater scale, hence including it as one of five main goals ("sustainable development of cultural heritage through management and use in the service of satisfying the cultural, scientific and educational needs of the individual and society and improving the overall quality of life") but also within the basic principles ("cultural heritage protection is a process that meets current needs, without compromising the rights of future generations to meet their needs and is based on economic development, social balance and environmental protection").

Law on the activity of Protection of Tangible Cultural Goods - DRAFT version

This law regulates the system of protection of immovable cultural goods, their significance, types, manner of establishing protection and protection measures, rights and obligations of owners and users of immovable cultural goods, manner and conditions of performing activities of protection of immovable cultural goods, financing protection of immovable cultural goods, as well as other issues of importance for the preservation of immovable cultural property, as part of the cultural heritage. One of the purposes of protection is defined as ensuring the sustainable use of immovable cultural property in accordance with their traditional or new appropriate purposes for human development and quality of life; Within the type of immovable cultural property, a

cultural monument, cultural-historical whole and locality or area stand out. It is interesting to emphasize that the cultural landscape within the category of locality or area is mentioned here for the first time.

Keeping in mind that these documents haven't been put in force, it is yet to be analyzed how interrelation between heritage and sustainability will be approached in preparing and adopting final versions and their implementation in practice.

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[1] Official Gazette of RS, Strategy Sustainable Urban Development of the Republic of Serbia Until 2030, Belgrade: Official Gazette of RS, No.47, 2019.

[2] Official Gazette of RS, Law on the Spatial plan of the Republic of Serbia from 2010 to 2020, Belgrade: Official Gazette of RS, No. 88/2010), 2010.

[3] Official gazette of RS, The Law on planning system, Belgrade: Official gazette of RS, 30/18, 2018.

[4] Official Gazette of RS, Law on Planning and Construction, Belgrade: "Official Gazette of RS", No. 72/2009, 81/2009 - corrigendum, 64/2010 - decision, 24/2011, 121/2012, 42/2013 - decision, 50/2013 - decision, 98/2013 - decision, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019 - other law and 9/2020, 2020.

[5] Ministry of Construction Transport and Infrastructure, Spatial plan of the Republic of Serbia from 2021 to 2035 – Conceptual approach to spatial development for early public insight, Belgrade, 2020.

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[8] Ministry of Culture and Information, Law on the activity of Protection of Tangible Cultural Goods - DRAFT version, Belgrade, 2019.

[9] Ministry of Culture and Information, Law on Cultural Heritage - DRAFT version, Belgrade, 2020.

[10] Ministry of Mining and Energy, Law on the efficient use of energy, Belgrade: Official Gazette of RS, No. 25/2013, 2013.

[11] Ministry of Construction Transport and Infrastructure, Rulebook on energy efficiency, Belgrade: Official Gazette of RS, No. 61/2011, 2011.

[12] Ministry of Construction Transport and Infrastructure, Rulebook on the conditions, content and manner of issuing building energy performance certificates, Belgrade: Official Gazette of RS, No. 69/2012, 2012.

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report

Influence of national policies on the sustainability of heritage from the architectural and urban design perspective

Reasoned (and not exhaustive) chronicle of the main national urban, landscape and environmental legal provisions, with reference to cultural / built heritage and sustainable development. From 1860 to 2020.

1860 - 1870

> 1861 - the Kingdom of Italy is born
The first legislative act with urban-building references was the law of March 20 1865, n. 2248 for the administrative unification of the Kingdom: in Annex A) provided the right for the Municipal Councils to deliberate on the "regulations of hygiene, building and local police".

The subsequent Regulation implementing this law, the R.D. June 8 1865, n. 2321 identified as a fundamental content of the Municipal Building Regulations, aimed above all at the aesthetic and hygienic safeguarding of buildings, "the plans for enlargement and leveling, or for new alignments of streets, squares or promenades".

> Law 25.6.1865, n. 2359 - Discipline of forced expropriations for reasons of public utility (Repealed)

This law constitutes the fundamental discipline in the field of urban planning - construction, until the entry into force of the fundamental law of urban planning of 1942. The law provided for the expropriation for the construction of public works (roads, railways, canals), including the possibility of expropriating monuments belonging to private individuals, if they were ruined for neglect.

It introduced the institution of the "regulatory plan" for municipalities with a population of over 10,000 inhabitants, a building planning document that is not compulsory. It consisted of two parts: a building master plan, the scope of which was the perimeter of the existing city; an expansion plan, the scope of which was the external district.

1900 -1910

> Law 20.6.1909, n. 364 - Rules for the inalienability of antiquities and fine arts (Repealed)

In the last twenty years of the nineteenth century, there was growing attention towards the protection of artistic heritage. The first national protection law is the law of June 12 1902 n. 185 which established the "Single Catalog" of state-owned monuments and works of historical, artistic and archaeological interest; then modified and systematized with the law June 20 1909, n. 364 (Rosadi-Rava law).

The modern discipline on cultural heritage owes to the Rosadi law its founding principles:

- establishes the principle of inalienability of the cultural heritage of the State and of public and private entities;
- affirms the possibility for the public administration to subject privately owned works considered of "important interest" to protection restrictions;
- promotes the systematic practice of archaeological research;
- outlines the organization and administration, both central and peripheral, responsible for the conservation and protection of cultural heritage.

The aim that the Rosadi law proposes is the reconstruction and maintenance of the historical memory of people. That is, of that set of exemplary testimonies, unique and unrepeatable, to which an aesthetic value is previously attributed and which illustrate the culture of people, from its genesis to its recent developments. Therefore, heritage is considered as a means towards a cognitive purpose, of which the State must act as a guarantor, through targeted policies of protection and dissemination of the acquired knowledge.

1930 -1940

> 1930 - the National Institute of Urban Planning (INU) is born

> 1932 – Italian Restoration Charter

The Italian Restoration Charter was drawn up in 1932 by the Higher Council for Antiquities and Fine Arts, taking up the structure and contents of the Athens Charter drawn up the previous year.

> 1938 - Instructions for the Restoration of Monuments

> Law 1.6.1939, n. 1089 - Protection of artistic and historical interest assets (Repealed), and

> Law 29.6.1939, n. 1497 - Protection of natural beauties (Repealed)

In 1939, the main reform of the twentieth century regarding the protection of cultural heritage was established. The Minister of National Education, Giuseppe Bottai, promotes and guarantees it during the fascist government.

In the legislative corpus of the Bottai reform - based on the two aforementioned laws - which remained in force, without variations or adaptations, until the Consolidated Law of 1999, a broad and articulated perspective emerges regarding the role of cultural assets and landscape beauties.

In Bottai's intentions, the historical, artistic, cultural and environmental heritage is the center around which the identity and unity of a people are built and gathered.

Law no. 1497 of 1939 introduces an organic discipline of landscape protection, understood as "beauty belonging to nature".

In art. 5 provides for the formation of Landscape Plans.

Law no. 1089 of 1939, outlines the subject of protection, and focuses on the main key concepts in the field of heritage protection:

- the procedure of the restriction on private assets recognized as of public interest;
- the provisions for the conservation, integrity and safety of assets;
- the "public enjoyment", in terms of access for visitors, both for State and private assets covered by public interest recognition;

Therefore, the basic concepts and terms of today's conservation and protection discipline are therefore acquired in the Bottai reform.

1940 -1950

> Law 17.8.1942, n. 1150 - National Urban Planning Law

The law fully establishes the General Regulatory Plans (PRG), replacing the old law of 1865.

The Law provided that the PRG were implemented primarily through Detailed Plans and listed the contents for the Building Regulations.

> 1948 - the Constitution of the Italian Republic is promulgated

The public function of cultural and environmental heritage protection rises to the highest legislative dignity with the introduction, in the Republican Constitution, of Article 9.

Paragraphs 1 and 2 states that «the Republic promotes the development of culture and scientific research. It protects the landscape and the historical and artistic heritage of the Nation».

With this solemn declaration, the Italian Republic has given itself a "cultural status" and has adopted the specific policy of assuming as essential tasks of the State the promotion, the development and the cultural growth of the community. In this context, the landscape and the historical and artistic heritage protection are considered primary components of this process (going beyond purely and exclusively patrimonial evaluations).

1950 -1960

> Law 27.10.1951, n. 1402 - Reconstruction plans of towns damaged by the war (Repealed)

For the Municipalities included in specific lists, the law provided the obligation to adopt a "reconstruction plan"; through successive extensions, many municipalities were able to benefit from that particular regime until the early 1980s.

> 1951 - Italia Nostra is born with the aim of preserving and protecting historic centers and natural environments.

> 1960 - Gubbio Charter

It recognizes the national importance of the problems affecting historic centers and highlight the urgency to classify the settlements with historical-environmental value and areas that must be protected and restored, as a prerequisite for the development of the modern city. The document provides the safeguarding restrictions and the suspension of any building intervention, pending the preparation of Conservative Recovery Plans. The Charter rejects the criteria of refurbishment and of stylistic additions, of the demolition of even modest buildings, of the thinning of the urban fabric, of isolation of the monuments, of new interventions in the historical built environment not included in an overall picture of urban transformations.

1960 -1970

> Law 6.8.1967, n. 765 - Amendments and additions to the urban planning law of 17.8.1942, n. 1150.

Called "Legge Ponte", its fundamental innovation concerns the "urban standards": the maximum ratios between the spaces for residential settlements and the public spaces reserved for collective activities, school buildings, such as areas for education, areas for equipment of common interest, public greens or car parks. This set of values has been fixed with two successive decrees, respectively the D.M. 1404 and the D.M. 1444 of 1968.

1970 -1980

> Law 22.10.1971, n. 865 - Public housing programs and coordination; rules on expropriation for public utility
The rules on expropriation for public utility and the amendments to the National Urban Planning Law are reinforced. The field of application of the expropriation is very broad: it concerns the acquisition of the areas and buildings necessary for the construction of public housing, of the areas included in the plans, of those necessary for the construction of urbanization works, as well as for the renewal, also conservative, of existing urban areas.

> 1972 – Restoration Charter

The Restoration Charter was drawn up in 1972 taking up the structure and contents of the Venice Charter drawn up in 1964. It emphasizes the importance of the historical aspect of a building, and introduces for the first time the concept of conservation of the urban environment that surrounds the monumental buildings.

> 1975 – the Ministry for Cultural and Environmental Heritage is established The "Antiquities and fine arts" become "Cultural assets" to underline not only the cultural significance of what must be protected but also its patrimonial value.

> Law 1.3.1975, n. 44 - Measures intended to protect the national archaeological, artistic and historical heritage

> Law 5.8.1978, n. 457 – Regulations for residential construction
Title IV provides the identification of Zones and Building Recovery Plans. In article 31, the various building interventions are defined: ordinary and extraordinary maintenance, restoration, rehabilitation, building and urban planning renovations.

1980 -1990

> Law 28.2.1985, n. 47 - Rules on controlling of urban planning-building activity, sanctions, recovery and amnesty of building work. The so-called "building amnesty", created to remedy the deficit of the public treasury by exploiting illegal activities, had the opposite effect (from an investigation by the Ministry of Public Works., it is noted that, only in 1985, there was a production of about 200,000 illegal housing).

> Law 8.8.1985, n. 431 - Urgent provisions for the protection of areas of particular environmental interest (Galasso law)
On November 26, 1984, the Official Gazette published the Decree of the Minister of

Cultural and Environmental Heritage, concerning the Declaration of notable public interest of coastal land, lakes, rivers, streams, waterways, mountains, glaciers, parks, reserves, woods, forests. The Regions managed to invalidate part of the Law Decree.

In this context, Law 431 was released in August 1985, requiring the Regions to submit their territory to specific regulations for use and environmental enhancement through the drafting of Landscape Plans.

> 1986 - the Ministry of the Environment is established

In the environmentalist trend, some decrees of 1988 related to the implementation of EEC directives was promulgated.

They refer to air quality standards (DPR 203) and water (DPR 236) and to environmental impact analysis (VIA) (Law 146/94 and DPR 12.4.96) containing the list of works subject to this evaluation procedure.

Then, the laws on the Basin and Hydrogeological Structure Plans (Law 183/89) and on Energy Saving which provide for the formation of regional and municipal plans to be added to the PRG (Law 10/91). On March 1 1991, the maximum limits for noise exposure in residential and outdoor environments are introduced, followed by the law on noise pollution (n. 447/95). Both provide for Municipal Acoustic Zoning Plans.

The issue of human exposure to magnetic and electric fields enters the attention of governments first with a Presidential Decree of April 23 1992, then with the Decree of the Ministry of the Environment no. 381 of 98 and subsequently with law no. 36 of 2001 which also delegates the regulatory functions to the Municipalities.

The list of unhealthy industries dating back to 1912 is updated (DM 5.9.94), and a law on protected areas is approved (394/91).

In March 1999, the Directive has been adopted for the arrangement of the subsoil technological infrastructures and for the formation of plans to that effect (PUGGS) to be added to the PRG.

1990 - 2000

> Law 19.4.1990, n. 84 - Organic plan for the

inventory, cataloging and processing of the risk map of cultural heritage, in relation to the Single European Act.

In 1990, following the Single European Act (1981), the aforementioned law was approved, concerning the formation of an organic plan for the inventory and cataloging (with uniform criteria) of all assets (artistic-historical, archaeological, historical, scientific, archival, book), public or private, which constitute an important testimony of the history of civilization and culture; as well as the development of a risk charter for cultural heritage.

> Law 6.12.1991, n. 394 - Framework law on protected areas

Establishment of the register of Italian protected areas

> Law 4.12.1993, n. 493, Article 11
Urban Recovery Programs

> 1993 – CIPE Resolution 28.12.1993 - National plan for sustainable development in the implementation of Agenda 21
With the National Plan for Sustainable Development in implementation of Agenda 21 (CIPE resolution 28.12.1993) the objectives and actions most congruent with the environmental condition of our country and with its social and economic characteristics were selected, considering the sectors already identified by the European Community in the Fifth Program. In addition, some urgencies were indicated in the productive sectors (industry, agriculture, tourism), in basic infrastructures (energy and transport) and in the waste problem. The Plan does not give operational indications but identifies a way to start a sustainable development policy at the national level

“Pursuing sustainable development means seeking an improvement in the quality of life while remaining within the limits of environmental susceptibility. Sustainable development does not mean blocking economic growth, also because even in some areas of our country, the environment itself is a victim of poverty and of degradation it causes. An action plan for sustainable development

must not only promote the conservation of resources, but also encourage productive activities compatible with future uses. It follows that the application of the concept of sustainable development is on the one hand dynamic - i.e. linked to knowledge and the actual state of the environment and ecosystems - on the other it recommends a precautionary approach with regard to situations and actions that can compromise environmental balances, activating a continuous process of error correction."

> Law 11.2.1994, n. 109 - "Merloni law"
A framework law on public works.

> Ministerial Decree of 8.10.1998 - Promotion of innovative programs in the urban environment called "urban regeneration and sustainable development of the territory programs" (PRUSST).

PRUSST has two fundamental objectives:

- the construction, upgrade and completion of facilities (both network and punctual, territorial and urban) capable of promoting and guiding opportunities for economic, environmental and social sustainable development. All that, with regard to the protection of environmental value, to the enhancement of the historical, artistic and architectural heritage, and ensuring the population's wealth increase.
- the creation of an integrated system of actions aimed at the expansion and construction works of industrial, commercial and craft production settlements, the promotion of the hospitality industry and the redevelopment of central and peripheral urban areas affected by degradation phenomena.

> 1998 - the Ministry for Cultural and Environmental Heritage changes its name, becoming the Ministry for Cultural Heritage and Activities

The term "activity" indicates those policies aimed at promoting and enhancing national cultural heritage, also in management and economic terms.

The new name reflects the idea that assets have to be "dynamized" in the context of activities and circumscribes the functions of cultural heritage protection. The law n. 368 of 1998 attributes to the Minister of Cultural Heritage and Activities also the competences

on entertainment and sport, that is, on promotion and enhancement activities.

> Legislative Decree 29.10.1999, n. 490 - Consolidated law on cultural and environmental heritage.

Sixty years after the Bottai laws, all the current legislation on cultural heritage comes to the reorganization. In substance the Veltroni-Melandri consolidated law overlaps with the Bottai law, absorbing its norms and definitions and extensively integrating them with other connecting norms.

It consists of two titles, which respectively concern cultural heritage (articles 1-137) and environmental heritage (articles 138-166).

The main issue discussed was the definition of cultural heritage. Two lines of thought are compared:

- the normative conception of cultural heritage, according to which only those assets expressly identifiable on the basis of existing laws can be considered cultural heritage;

- the unitary conception, according to which all the evidence having a civilization value are cultural assets.

Art. 4 incorporates an open definition of cultural heritage and provides new categories of cultural assets "identified by law as cultural assets as a testimony having the value of civilization".

2000 - 2010

> D.P.R. 6.6.2001, n. 380 - Consolidated law of legislative and regulatory provisions on construction

> Law 1.6.2002, n. 120 - Ratification and execution of the Kyoto Protocol to the UN Framework Convention on Climate Change, done in Kyoto on December 11 1997

> Decree of the Ministry of Infrastructure and Transport 27.5.2002 - Programs concerning the economic and social revitalization of cities and adjacent areas in crisis, to promote sustainable urban development. URBAN - ITALIA

> CIPE Resolution 2.8.2002, n. 57 - Environmental action strategy for sustainable development in Italy

> Legislative Decree 22.01.2004, n. 42 - Code of cultural and landscape heritage
The Code replaces the concept of “environmental good” with the notion of “landscape”, related to urban planning. Sustainable development is mentioned as a perspective towards which undertaking actions and transformation interventions of the landscape context.

> Legislative Decree 3.4.2006, n. 152 - Environmental regulations.
States that the “sustainable development principle must make it possible to identify a balanced relationship between inherited resources to be saved and those to be handed down. In this sense the principle of solidarity is included in the dynamics of production and consumption to safeguard and improve the quality of the environment.

Answers to issues involving environmental aspects must be founded in the perspective of guaranteeing sustainable development, in order to safeguard the correct functioning and evolution of natural ecosystems from the negative changes that can be produced by human activities”.

> Ministerial Decree 28.4.2008 - Guidelines for overcoming architectural barriers in places of cultural interest

2010 - 2020

> 2013 - the Ministry for Cultural Heritage and Activities changes its name to become the Ministry of Cultural Heritage and Activities and Tourism

> CIPE Resolution 22.12.2017, n. 108 - National Strategy for Sustainable Development
The Strategy outlines a vision of the future and of the development focused on sustainability, as a shared and essential value for facing global challenges. Starting from the “Environmental action strategy for sustainable development in Italy 2002-2010”, the Strategy offers on a broader perspective and becomes a reference framework for sectoral and territorial policies in Italy, designing an important role for institutions and civil society in the long path

of implementation, which will last until 2030. The Strategy hinges on a renewed global framework, aimed at strengthening the often-fragmented path of sustainable development worldwide. The Strategy represents the first step to outline at the national level the principles and objectives of the UN 2030 Agenda for Sustainable Development, assuming the four guiding principles: integration, universality, transformation and inclusion. In this context, among the strategic choices set out in the document is “Creating resilient communities and territories, safeguarding landscapes and cultural assets” in order to “Ensure the development of resources, sustainable management and safeguarding of territories, landscapes and cultural heritage “.

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report



Influence of national policies on the sustainability of heritage from the architectural and urban design perspective

Over the past few decades, sustainability concerns have become relevant and important to the contemporary debate on the future of cities. In Cyprus, accelerated urbanization and urban sprawl, the intensity of climate change and environmental pollution pose a real challenge in preserving of the historic urban and rural heritage clusters. Creating a set of the protective legislative framework, conservation guidelines and policies as well as incentives is a key factor for enhancing sustainable development.

In Cyprus, heritage preservation and documentation, are regulated by local (regionals) and national planning policies. Significant efforts are made in the field of architectural preservation in the last 40 years, following the implementation of the *Antiquities Law* (1905) and the *Town and Country Planning Act* (1972). The Antiquities Law constituted the earliest (and until 1972 the only) legal protection of heritage buildings and objects and applies until today. According to this law, the Department of Antiquities may recommend any object, building or site to be declared as an "*Ancient Monument*", provided that it is of public interest due to its historical, architectural, traditional, artistic or archaeological value. Through this law, the majority of the archaeological sites, numerous historic buildings and a small number of vernacular buildings were characterised as Ancient Monuments and thus, protected from demolition or alteration of their authentic character.

The Town and Country Act, issued in 1972, focuses mainly on the protection of vernacular architecture. Since its implementation in 1978, many vernacular buildings and a small number of modern structures across Cyprus were declared as "*Listed buildings*". In this way, they have been protected from demolition or severe modifications that would change their original character. A particular section (Conservation of Cultural Heritage) of the *Department of*

Town Planning and Housing (TPH) is in charge of managing permits for restoration works in listed buildings. It enforces national (law of 1972) and internationally-accepted guidelines for conservation and thus, plays a critical role in protecting all the physical and built manifestations of the island's cultural heritage.

There are two main inventories of the island's built heritage. The first is managed by the Department of Antiquities and includes over 1,200 Ancient Monuments (state owned, ecclesiastical and private property). The second inventory derives from the Granada Convention and is managed by the TPH, known as the *Architectural Heritage Inventory of Cyprus*. Additional (small-scale) inventories worth mentioning are: the *Traditional Watermills Inventory* of the *Archaeological Research Unit* of the University of Cyprus and the inventory of *Architectural Documentation Drawings* that contains several historically significant governmental buildings, mostly colonial structures.

✕ A digital inventory including data related to the islands' vernacular architecture has recently been created by the Department of Architecture of the University of Cyprus (Vernarch). The same department also created a research laboratory focusing mainly on the documentation and digitization of archival material of modern architecture in the Eastern Mediterranean region (Mesearch).

The protection of cultural heritage is the first step towards sustainable development, as it promotes the use of traditional, local materials and available resources and encourages the incorporation of bioclimatic features and sustainable building practices. Building restoration that is respectful of the original building's character, the traditional materials and the building techniques, meets emerging principles of sustainability. In Cyprus sustainable development is one of the core agendas of our time. Thus, current philosophy and practice in the field of architectural conservation aim to establish a balance between necessary functional modifications and improvements of energy efficiency (retrofitting) while safeguarding the special architectural and historic aspects of heritage buildings or sites.

Since 2009, the non-profit organization *Cyprus Energy Agency* (CEA) has become an information point for the local society, providing education and vocational training in the field of energy efficiency. Their role is to promote sustainable energy planning, providing technical support for developing and implementing actions to mitigate and adapt to climate change. During the last years, there is a growing interest regarding the need for improved energy usage and reduced carbon emissions, without endangering architectural heritage. An extensive Action Plan describing the policy actions required to improve the energy efficiency of traditional buildings in Cyprus was released in the framework of the VIOLET project (2017-2021). As a result, the Law on the *Regulation of the Energy Efficiency of Buildings* was recently amended (11/2020) and now bounds listed buildings or ancient monuments with the obligation to have an Energy Performance Certificate (EPC), when sold or rented. Exemption from the minimum energy efficiency requirements is only granted if documentation is provided. In the previous legislation, no documentation was needed for these buildings to get an exemption, therefore, in most cases no energy upgrade measures were implemented.

As far as the sustainability of urban planning in Cyprus is concerned, the adoption of

the Council of Europe's Guiding Principles for the *Sustainable Spatial Development of the European Continent* (Hannover, 2000) and their incorporation into the country's spatial development plans' philosophy ensure the sustainable management of spatial planning. During the 2009-2011 spatial plan review process, the *Charter on Sustainable European Cities* (Leipzig, 2007) was adopted as a main strategic reference document to guide the amendment of development plans for the Island's four main urban agglomerations. At the same time the *Reference Document on Integrated Urban Regeneration* and its strategic potential for smarter, more sustainable and socially inclusive urban development (Toledo, 2010) has been used to a lesser extent to guide planning towards a more integrated and holistic approach.

During 2004-2007, the Department of Town Planning and Housing (TPH) led the URBANGUARD project, partly funded by the European Commission with the aim to facilitate the incorporation of urban sustainability indicators into the spatial planning process in Cyprus, through a custom-made GIS tool. The URBANGUARD tool played a key role in assisting planners and planning process stakeholders in evaluating urban development trends and promoting the enforcement of sustainable spatial policies.

According to the International Agenda for *Cultural Sustainable Development* (UNESCO) and the *Cultural Heritage Strategy* (Council Europe), innovation and entrepreneurship are the main drivers of urban regeneration in Historic Urban Areas (HUA). The historic centre of Nicosia has served as a pilot case-study in various European-funded projects aiming to reverse the trend of abandonment and neglect of the historic heritage in a systematic way. Namely, SUSHI project (2018-2020) issued guidelines for urban regeneration through *Nature Based Solutions* (NBS), while the recently initiated project HUB-IN (2020-2024) aims to create new sustainable opportunities for local traditional businesses through environmental and social engagement activities.

To conclude, Cyprus is taking considerable steps towards merging heritage preservation and sustainability, especially in the field of energy. Yet further improvements are necessary in order to support financial and social engagement and coherence.

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report



Influence of national policies on the sustainability of heritage from the architectural and urban design perspective

This part of the report focuses on the legal and regulatory framework under which issues of sustainability and cultural heritage are addressed, with regard to national and international directives that apply to the local context of Greece. Furthermore, the document makes references to practice, the national and international initiatives that instigate and support exemplary programs, designs, and applications that deal with sustainability and cultural heritage. There are limitations to the current report in that it does not examine the evolution of the current framework but rather seeks to describe it briefly [1,2].

The legal framework for the protection of cultural heritage and the natural environment is the result of an evolutionary process that started almost immediately after the constitution of the modern Greek state. Today "the protection of the natural and cultural environment constitutes a duty of the State and a right of every person [3].

PROTECTION OF CULTURAL HERITAGE / ENVIRONMENT

Law 3028/02 "On the Protection of Antiquities and Cultural Heritage in general" forms a comprehensive and detailed system of protection regarding movable and immovable monuments, artifacts, and intangible heritage, enforced by the Ministry of Culture and Sports. According to the above, immovable monuments (including installations, structures, and decorations, other artifacts or components

that form their identity, movable objects, and their immediate environment) are categorized as:

- archeological monuments; Prehistory to 1830 – these are protected under the law without the need for issuing administrative acts,
- monuments dated between 1830 and

100 years before the present; these can be listed, after the issue of an administrative act, because of their architectural, compositional/planning, social, historical, ethnological, folklore, technical, industrial, or their general historic, scientific or artistic importance (all structures dated 100 years before the present are protected from demolition/intervention unless there has been an issue of an administrative act granting it).

- Monuments of the last 100 years; these can be listed after the issue of an administrative act on the grounds of reasoning and documentation pertaining to the previous category.

With regard to the protection of larger environments, the law makes a distinction between archeological sites and historic places, whereby the former are dated before 1830 and the latter after.

The Ministry for the Environment and Energy is also responsible for the protection of cultural heritage, under the law 2831/2000, which allows characterizations to be made for traditional settlements, urban areas, areas of natural beauty, buildings, structures, natural man-made environments, etc. The protection of the above is examined on a case-by-case manner and the degree/extent of protection is regulated accordingly. The General Building Regulation, Law 2508/1997, the New Building Regulation, Law 4067/2012 2012, and the Control and Protection of Built Environment and other provisions, Law 4495/2017 enforce additional measures for urban planning, and building construction activity in proximity to archeological sites. The above framework also intertwines with the ratified International conventions of UNESCO, COUNCIL OF EUROPE and UNIDROIT, pertaining to the protection and conservation of cultural heritage.

This legal framework is supported by an array of stakeholders – public authorities - that represent the two ministries – General

Ephorate of Antiquities – Ephorates – Devolved authorities, etc. Protection entails the phases of identification, investigation, recording, documentation/study, preservation, conservation and restoration, as well as prevention of illicit exporting and the facilitation of public access and public information regarding cultural heritage. The characterization/listing of a monument under the above categories mainly entails the imposition of prohibitions or restrictions upon its use and any intervention/building construction to it or within a specifically delineated area, its immediate/extended context, without prior permission by overseeing bodies. Restrictions can also be applied to extended urban areas that contain monuments in order to preserve their cultural value. Furthermore, the state holds the right of expropriation of monuments.

✕ **Incentives for the preservation and restoration of cultural heritage utilize National and EU funding. These can be administrative (in the form of urban planning/design interventions, the production of specialized developmental planning for protected areas), monetary incentive schemes (loans, tax cuts, the funding of design studies and parts of restoration), or can utilize both tools through the production of special development framework plans for specific areas of created by intervention/monuments, that enable the introduction of new buildings/structures in the historical context under the immediate scrutiny of public bodies and authorities.**

ENVIRONMENTAL DESIGN

The European directive on the energy performance of buildings 2010/31/EU (EPBD) was developed in order to set the requirements for the improvement of the energy efficiency of buildings. However, the regulations that followed the directive have been implemented mainly in new constructions and much less on existing building stock, despite its preservation upgrade and reuse constituting a viable sustainable approach for urban centers.

In Greece, the first Regulation (KENAK) on the energy performance of buildings, which informs the building regulations laws mentioned in the previous section, was adopted in 2010 and was reformed in 2017. The Technical Chamber of Greece has also published relevant technical guidelines, which describe in detail, particular interventions targeted to the characteristics of each construction, specific for each building component, structural system (walls, floors, roofs, openings etc.), and building materials.

The diversity of the existing fabric, in relation to preservation policies and all other interrelated constraints makes decisions upon the accurate intervention measures, a very challenging task. As in other European countries, the directive excluded listed buildings and protected monuments from energy efficient retrofitting. Also, buildings that retain architectural and structural characteristics, owed to local traditions or forming part of traditional settlements, are excluded from energy upgrading with minimum requirements, as their characteristics could be distorted by such interventions (e.g, the introduction of thermal insulation, application of photovoltaics or solar collector, etc).

On the other hand, the diverse existing building stock, in Greece, especially the one built before 1955 (the year of the establishment of the 1st building code), poses a great challenge for energy upgrade interventions. For these buildings, minimum EPBD requirements have to be met when renovations or energy system improvements are made. The bulk of these

buildings have no significant architectural, cultural or historic value and minimum EPBD requirements can be easily met. Nevertheless, there also exist buildings/ structures that are not officially protected by heritage legislation, while retaining heritage significance. These also bear no restrictions and need to conform to EPBD regulations (established for new buildings) upon restoration or energy improvement intervention.

In terms of sustainable and resilient spatial planning practices, the Greek institutional framework is particularly rich, though often inapplicable. As far as urban interventions are concerned, numerous targeted urban planning tools have been introduced to date (active building blocks, zones of active planning), while specific legislation focusing on urban regeneration (N.D 17.7.1923, L.1337 / 1983, Art. 8-16, L. 2508/1997), as well as provisions of legislation (art. 12 and 13 GOK'85, par.5 to 7 art. 10 NOK Law 4064/2012) for the support of regeneration processes, which have had limited or marginal practical application.

Until recently, urban planning was regulated by the law 2508/1997 "Sustainable Housing Development of the country's cities and settlements and other provisions". The Law 4269/2014 (Government Gazette 142 A / 28.6.2014) "Spatial and urban reform - Sustainable Development" currently forms the national spatial planning framework at the different levels of design and constitutes a systematic approach to urban regeneration interventions. This institutes two levels of planning:

1. The first level, which includes two basic legislative tools of strategy design:
 - a. Environmental Protection Regulations and Programs for large urban centers - Athens, Thessaloniki, Patras, Heraklion Larissa, Volos,
 - b. The General Urban Plans and the Spatial and Residential Plans for Open City Organization, the elaboration of which takes place at the level of primary local government.

2. The second level includes specialized urban planning tools for implementation, such as:

- a. Urban Studies, Specially Regulated Urban Planning studies, the studies of Regeneration, etc. and
- b. The Implementing Acts, ie physical design - plans and implementation studies.

According to the degree of intervention, regeneration projects are divided in three categories according to the existing framework:

- Reconstructions of a built area or individual building block, which implies the reconstruction of the majority of building stock and/or public places – constituting the most "active" form of urban intervention.
- Improvements of buildings and public spaces, with interventions applied to uses, the facades or the interior layout of the buildings, with additions to necessary spaces and networks, with re-configurations, the unification of fragmented courtyards/ back alleys of building blocks, the construction of necessary infrastructure or other similar improvements – constituting a milder form of intervention.

- Interventions to public spaces and open public and private spaces – the less intrusive category of the three as it applies only to the public space.

In the context of the aforementioned interventions specific environmental goals and restrictions are usually discussed and introduced on a case-by-case manner and are not regulated or scored against specific criteria unless imposed by specific funding mechanisms that the state employs. Furthermore, it should be noted that the state (including devolved administrations) holds the absolute right to introduce interventions and has the sole responsibility of funding them. Overall, although the spatial planning tools are detailed and comprehensive, their application in the public domain has been problematic and largely focused around specific projects. Sustainable urban regenerations and building renovations, there have been supported by numerous financial instruments (EU 2014-2020 partnership Agreement), measures and programs

established by the Ministry of Environment & Energy and by the Hellenic Ministry of Development and Investments. The most notable of the last decade being two consecutive programs focusing on incentivizing energy savings to private residences/buildings (Exoikonomo kat oikon I, II), numerous programs focusing on introducing energy savings to public buildings and infrastructure (ex. Green Roofs at public buildings program / bioclimatic upgrade of school's open spaces), and programs for sustainable urban design interventions (ex. Bioclimatic Interventions to Urban Open Spaces). Moreover, sustainable bioclimatic design forms an integral prerequisite for most public procurements and architectural/urban design competitions launched by public authorities as well as by major private developers.

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[1] For a retrospective analysis of the evolution of the framework for the protection of cultural heritage in Greece see: COLONAS V., VITOPOULOU A. (2005), « Enjeux et outils de la protection du patrimoine récent en Grèce : de la conservation à la reconversion (= Διακυβεύματα και εργαλεία της προστασίας της νεώτερης πολιτιστικής κληρονομιάς στην Ελλάδα: από τη διατήρηση στην επανάχρηση) », in A. ABRY, R. CARABELLI (eds.), *Reconnaître et protéger l'architecture récente en Méditerranée*, Paris: Ed. Maisonneuve et Larose, pp. 91-127.

[2] For an overview of the legal organizational framework and hierarchy see <https://www.coe.int/en/web/herein-system/greece>

[3] Constitution of Greece, Government Gazette, 85/A/18-4-2001, Art. 24



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report

Influence of national policies on the sustainability of heritage from the architectural and urban design perspective

The aim of this report is to reflect on urban policies and how they affect the issue of sustainability in heritage. The decentralized character of Spanish geopolitics and the transference of power to the different autonomous governments both in terms of heritage management but also architectural and urban policies in general, make one autonomous region the proper framework for this study. Therefore, we have structured the document as follows:

- 1) Andalusia, Spain. National, Regional and municipal policies.
- 2) Regulatory framework
- 3) The international context. International reference texts and charters
- 4) The protection of cultural heritage in Andalusia (Spain). The Andalusian Institute of Historical Heritage (IAPH)
- 5) References

1. ANDALUSIA, SPAIN. NATIONAL, REGIONAL AND MUNICIPAL POLICIES

Urban policies on heritage in Spain are characterized by decentralization, which constituted the main shift in government structure in the democratic government after the end of Franco's 36-year dictatorship in 1975. After the country's centralized control, most of the competencies, including heritage, were transferred to the 19 regional (autonomous) governments (17 autonomous regions, and 2 autonomous cities).

There are some exceptions: exportation of cultural properties and tax exemption in properties, state-owned museums, archives and libraries. Andalusia has an Autonomy Status since 1981 and it was revised in 2007. In this last law the competencies are set forth in article 68: "The protection of historical, artistic, architectural, archaeological and scientific corresponds to the Autonomous Community of Andalusia".

In terms of legislation, this means that in Spain, powers in the field of cultural heritage are transferred to the autonomous governments, such as that of Andalusia, which has developed its own laws in this area under the protection of national legislation.

1.1. National Context: 1985 Spanish Historical Heritage Law

The Spanish Historical Heritage Law of 1985 was the beginning of a new definition of Historical Heritage, notably extending its scope, although always under the nominative of "historical", with a mainly monumental character and a vision of heritage as something to be conserved. It includes the movable and immovable assets that constitute them, the Archaeological and Ethnographic Heritage, the Museums, Archives and Libraries owned by the State, as well as the Documentary and Bibliographic Heritage (ESPAÑA, 1985). However, concepts related to territory, landscape, and intangible heritage are absent in this law. As stated in the first article of this law: Spanish Historical Heritage Law includes immovable property and movable objects of artistic, historical, palaeontological, archaeological, ethnographic, scientific or technical interest. It also includes documentary and bibliographic heritage, archaeological sites and areas, as well as natural sites, gardens, and parks of artistic, historical or anthropological value.

National Law 1985 has two valuable contributions. On the one hand, it took as a reference Theory of Cultural Property, proposed in The Commission Franceschini (1964-1966), that defines cultural property as "all properties that relate to the history of civilization" and called "Bien de Interés Cultural" (BIC) instead Monument. Likewise, the most relevant assets of Spanish Historical Heritage must be inventoried or declared to be of "cultural interest" under the terms provided for in this Law. In short, the categories included in the Law are: Monuments, Historic Garden, Historic Complex, Historic Site and Archaeo-

logical Zone. However, despite the historical and monumental profile of this law, it was a very important starting point for the management of historical heritage at the time. On the other hand, based on the doctrine of divided ownership, the law distinguishes between the private possession of the property, and its collective enjoyment, whose management belongs to the state.

1.2. Regional context. 2007 Andalusian Historical Heritage Law. Its Antecedents

In Andalusia, the current Historical Heritage Law is the Law 14/2007, which, in its article 1, makes clear the change that this law has brought about in terms of identification and management of heritage: "The purpose of the Law is to establish the legal regime of the Historical Heritage of Andalusia in order to guarantee its tutelage, protection, conservation, safeguarding, and dissemination, to promote its enrichment and use as a social asset and factor of sustainable development and to ensure its transmission to future generations", as it considers it to be a factor of sustainable development. Its scope of application is all cultural assets, tangible and intangible, as long as they are located in Andalusia and reveal an artistic, historical, archaeological, ethnological, documentary, bibliographical, scientific or industrial interest for the Autonomous Community, including linguistic particularities. Moreover, the categories are broader than those of the 1985 National Law: monuments, historic sites, Historic Gardens, Historic Sites, Archaeological Sites, Sites of Ethnological Interest, Sites of Industrial Interest, and Heritage Areas. This explicit reference to Sites on Industrial Interest constitutes a national heritage policy reference, transcending its previous ethnographic assessment.

The last figure of Heritage Area is a nod to the patrimonialization of landscapes and all that this entails, covering a wide territory with assets of different chronologies and typologies. As defined in article 26.8: "those territories or spaces that constitute a diverse and complementary set of heritage, made up of diachronic assets representative of human evolution, which have a value of use and enjoyment for the community

and, where appropriate, landscape and environmental values".

The Andalusian Law clearly incorporated the concept of the environment of every BIC, defined in article 28: "The environment of the BIC declared will consist of those buildings and spaces whose alteration could affect the values of the property in question, your appreciation or study, can be formed both by the immediate adjoining properties, such as nonadjacent or distant." There was a previous reference on the national 1985 to the environment of the BIC, in its article 17, in the specific case of the historic cities: "In dealing with the case of Historic City should be considered its relations with the territorial area to which it belongs, and the protection of geographical features and natural landscapes that make up their environment".

Therefore, the concept of cultural heritage has overcome in Andalusia obsolete preconceptions: on the one hand, it already contemplates from the different scales from the building, the city and the territory. On the other, it is already committed with those categories of heritage that are most vulnerable due to their low protection and appreciation by society and institutions and therefore most at risk of disappearance, always open to the protection and conservation of those emergent types of heritage.

2. REGULATORY FRAMEWORK

We list the different Laws which regulate cultural heritage at the national, regional and local level. We are including those laws which are specifically centered on defining the regulatory basis of heritage and on the other, those which regulate both building and urban planning and therefore are applicable to urban and architectural.

2.1. Legislation on heritage

- a. National Level:
 - Ley del Patrimonio Histórico Español (LPHE 16/1985) (Spanish Historical Heritage Law)
- b. Regional Level:
 - Ley del Patrimonio Histórico de Andalucía (LPHA 14/2007) (Andalusian Historical Heritage Law)

- General Catalogue of Andalusian Historical Heritage (CGPHA). In the bellow figure we depict the cataloging system developed in the 2007 Andalusian Historical Heritage Law.

Cataloging system according to the LPHA 14/2007

2.2 General architectural and urban policies

a. National Level:

- Ley Ordenación de la Edificación (LOE

GENERAL CATALOGUE OF THE ANDALUSIAN HISTORICAL HERITAGE	Immovable property	Single or collective	General cataloging	Monuments, Historical Unit, Historical Garden, Historical Site, Archaeological Areas, sites of ethnological interest, sites of industrial interest, Heritages Areas
	Movable property		Property of Cultural Interest (BIC)	
	Activities of cultural interest		General Inventory of Movable Properties of the Spanish Heritage	
Inventory of Properties Recognized of the Andalusian Historical Heritage				
Easement Area Archaeological				

Thus, the LPHE and the LPHA (in Article 30) refer to the necessary cooperation that local councils must provide in the conservation and custody of Spanish historical heritage within their municipal boundaries, adopting the appropriate measures to prevent its deterioration, loss and destruction. At the same time, they must notify the competent Administration of any threat, damage or

38/1999) (Building management Law) (ESPAÑA, 1999)

- Ley 8/2013, de 26 de junio, de rehabilitación, regeneración y renovación urbana (rehabilitation, regeneration and urban renewal Law) (España, 2013)

b. Regional Level:

- Ley de Ordenación Urbanística de Andalucía (LOUA 7/2002) (Andalusian Town Planning Law) (Andalucía, 2002)

c. Municipal Level:

Together with the State and the Autonomous Communities, the local authorities also have important powers over the protection of historical and cultural heritage and over the approval of urban planning for its protection.

disturbance suffered by these assets, as well as the difficulties and needs they have for their care (Junta de Andalucía, 2007). In short, the matter of protection, conservation and promotion of Andalusia’s historical heritage is connected with the urban planning competence on “urban planning, management, execution and discipline” held by the municipalities. The plans are as follows:

- Plan General de Ordenación Urbana (General Urban Development Plans). Heritage elements will be included in the urban catalogue and an archaeological analysis must also be included in unconsolidated urban land, developable land and planned general systems.

- Planes Especiales de Protección (PEP) (Special Protection Plans), applied both to heritage sites and cities.

Both plans incorporate catalogues of heritage protection. Levels of protection: integral, global, typological, environmental.

d. Cultural planification:

Finally, there are some important tools to manage cultural heritage, among others:

- Planes Generales de Bienes Culturales (General Plans for Cultural Heritage)
- Guías del paisaje (Landscape guides)
- Planes directores (Master plans)
- Diagnósticos e informes de valores (Diagnostics and value reports)
- Catalogación (Cataloguing)
- Protección del Patrimonio (Heritage Protection)
- Proyectos de Conservación (Conservation Projects)
- Comisión de Monumentos (Monuments Commissions)
- Planes Nacionales (National Plans)
- Organizaciones no Gubernamentales (Non-Governmental Bodies)

3. THE INTERNATIONAL CONTEXT. INTERNATIONAL CHARTERS, RECOMMENDATIONS. THE ANDALUSIAN URBAN AGENDA

In addition to the legal issues, in the field of heritage, it is crucial to incorporate the different criteria defined in the international charters and recommendations.

3.1. International charters and recommendations

The international charters and texts have undoubtedly conditioned the content of our legislative instruments, as well as the different approaches to heritage management, which, with reference to the PHA law, contemplates figures ranging from the object monument to the heritage-landscape-territory area (Council of Europe, 1975; ICOMOS Australia, 1999; ICOMOS, 2011a, 2011b, 1931, 1964, 1981, 1987, 1994, 1996, 1999, 2008; ICOMOS-Brasil, 1995; *Principios para la Conservación y Restauración del Patrimonio Construido. Carta*

de Cracovia, 2000; UNESCO, 1972, 1976, 2003, 2005). Likewise, the consolidation of the heritage-sustainability-development trinomial and the consideration of culture and heritage as the fourth pillar of sustainable development is beginning to take centre stage in the first decade of the 21st century. Undoubtedly, a relevant role in this was played by the "Recommendation on the Historic Urban Landscape" launched by UNESCO in 2011, with the aim of responding, from a landscape approach to the need to manage all the urban transformations that are altering and deteriorating Historic Urban Landscapes (UNESCO, 2011).

The challenge of this Recommendation lies in establishing an Action Plan where heritage management transcends the notion of the historic centre or ensemble to encompass the general urban context and its geographical setting, as well as considering all the layers that have been shaping the city, the perceptions and visual relationships, the elements of the urban structure, the social and cultural uses and values, the economic processes and the intangible aspects of heritage in its relationship with diversity and identity.

✕ **Furthermore, the Recommendation's approach can support cities in achieving the Sustainable Development Goals proposed by the 2030 Agenda, in particular SDG 11, which consists of making cities and human settlements inclusive, safe, resilient and sustainable and where there is a specific target that refers to the need to strengthen heritage and culture in sustainable urban development processes.**

More and more cities are implementing the Recommendation, but it is a matter of choice for each municipality, as it is not mandatory

and involves the generation of new legislative and financial tools to carry out sustainable urban heritage management of this calibre.

However, it could be said that all these issues and approaches put on the table take shape from the development of the New Urban Agenda generated at the Habitat III conference, organised in October 2016 by the United Nations on Housing and Sustainable Development. This Agenda was approved at the UN General Assembly in December of the same year and published at the beginning of 2017 with the aim of serving as a major global guideline for the implementation of sustainable development criteria in the field of urban planning and housing and, more specifically, Goal 11 (HABITAT III, 2016).

3.2. Andalusian Urban Agenda

This New Urban Agenda developed by UN-Habitat has given rise to the Urban Agenda for the European Union (European Union, 2016), the Spanish Urban Agenda (España, 2019) and, in our case, the Andalusian Urban Agenda (AUA) (Andalucía, 2018), the latter being the first regional agenda to be drawn up and published in Spain in October 2018, even before the Spanish Urban Agenda (Del Espino Hidalgo, 2019). In the case of Andalusia, it could be said that the relationship with urban heritage and the promotion of sustainability practices has an important starting point here. Furthermore, in addition to the need for protection of cultural heritage, opportunities abound for the rehabilitation of existing buildings and urban spaces, opportunities for strengthening the economic system and social conditions, and the potential for increasing social cohesion, incorporating innovative and creative strategies, or drawing on traditional techniques and knowledge to improve the quality of life of the urban population. Cultural heritage, therefore, seems to become an element that not only stands out for being the object of urban and territorial policies as it has traditionally been, but the most recent tools and, on this occasion, the new urban agendas, incorporate it in a decisive manner for its instrumental capacity to promote initiatives and achieve challenges in dimensions such as spatial, environmental, social, economic and governance (Del Espino Hidalgo, 2019).

However, it is a roadmap to be followed until 2030, which is not mandatory.

4. THE PROTECTION OF CULTURAL HERITAGE IN ANDALUSIA (SPAIN). THE ANDALUSIAN INSTITUTE OF HISTORICAL HERITAGE (IAPH)

4.1. The updated approach of heritage concept and management

In Andalusia, heritage protection is approached as a set of mechanisms for research, protection, conservation and dissemination, which have been formulated and reformulated from the end of the 20th century to the present day. It should be emphasized that the integrating perspective has always characterized these cultural policies developed by institutions.

The update of the concept of heritage implies a sustainable management of cultural heritage, emphasizing on its social use as a necessary vector for heritage preservation, giving greater prominence to communities. Consequently, heritage knowledge must be founded in applied research projects; legislative protection has given way to active protection processes and dissemination is now a critical element to complement conservation processes.

- Applied research
- Active protection
- Conservation and valorisation
- Dissemination

4.2 Methodology

The heritage intervention methodology tested by the IAPH is based on the axiom "to know in order to intervene", a specific work methodology based on interdisciplinarity and on the integral consideration of the asset, perfectly aligned with the requirements demanded by the Andalusian Historical Heritage Law 14/2007, article 22 of which defines the minimum contents of the conservation project:

- study of the property and its cultural values;
- diagnosis of its state;
- description of the methodology;
- proposal for action (theoretical, technical and economic);
- impact on the protected values;
- maintenance programme.

Compliance with these methodological processes, together with compliance with the criteria set out in international reference texts and charters, are a guarantee of the quality of the interventions, regardless of whether the property is protected by the cultural administration or simply listed. Conservation actions must be based on criteria of compatibility (material and conceptual), minimum intervention, respect for authenticity (the monument's time as the sum of all its times), and cultural legibility, always from a contemporary temporal consideration that obliges us to work with a discernible language.

Any action on a cultural asset included in the General Catalogue of Andalusian Historical Heritage must follow this working methodology and be authorised by the competent administration in matters of historical heritage. Likewise, these actions must comply with the provisions of the Law on Building Management (LOE), including those specified in terms of sustainability and energy efficiency.

The technical development of conservation work must always be accompanied by the implementation of participation and communication mechanisms so that the final decision-making process is based on consensus.

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Conclusion



Serbia (Belgrade)



Italy (Venice)



Cyprus (Nicosia)



Greece (Thessaloniki)



Spain (Seville)



strengths / weaknesses / aspects that can be improved

RELATE OUTPUTS



The insights to different contexts and Schools of Architecture and Urban design enabled the creation of outputs on three levels:

- The internal output (for the consortium partners): The report presents an intellectual knowledge base that will be used as a starting ground for the generation of further intellectual outputs providing the consortium partners the compelling insight into various methodologies, needs, and specific methods.
- The turnaround output (the external output that may re-enter the project as an input): deriving from the analysis of the built projects and national policies, that provides insight into the best practices, technological advancements, actual needs, and the limitations and challenges that practice brings with it. By allowing insights into the gap between theory and practice, the report presents valuable material for improving higher education.
- The external output (intended for practitioners and researchers): The report can be perceived as a global contribution to education in the field of architecture and urbanism- a sort of an open-source database that other researchers may use to gain insight into state of the art. On the other hand, the research on policies regarding sustainability and heritage testifies about the speed and unpredictability of urban development and socio-political conditions, their influence on policies, and the need for continuous policy updates and constant critical assessment justified by the situation and comparison between different countries.

Having this in mind, we firmly believe that the open-source access type will enable this publication to reach these perceived output levels and to come to readers from all around the world.

CONTEXTUAL IMPLICATIONS



SERBIA / UBFA

When discussing urban policies that tackle the question of sustainability in relation to urban heritage, it is crucial to highlight identified duality. On the one hand - Serbia follows the contemporary paradigms and perspectives concerning sustainability in planning and urban development, as evidenced by the analysed specific strategic documents, planning laws and chapters in planning documents in this publication. On the other hand, laws in the heritage domain are often obsolete, since the current Law dates from 1995 with a minimal change adopted in 2011. Consequently, in recent years, efforts have been made to identify various problematic segments of this law that partially disable the sustainability of heritage but also neglect specific types of heritage.

Specific local case studies of built architectural and urban design projects confirm the focus on the development of new participatory and intercultural approaches to heritage, and the exceptional strength and will of the architects and urban planners to preserve and enhance the qualities of architectural and urban heritage, despite the insufficiently defined regulations. Different scales of presented case studies of built heritage, from urban scale to scale of the single architectural object, confirm the importance of multiscale approach in heritage treatment in practice, but also in education and research.

In the context of education there is evident focus on the constant improvement of existing and the development of new programs and educational approaches. The Faculty's tradition, and keeping up with the trends make it a driver of changes and an institution where innovations, experiments

and research take place. The school also aims at promoting internationalisation and knowledge exchange through different cross-border cooperation between students, researchers and staff, especially in the context of heritage awareness and sustainability of the built environment in architectural and urban design.

ITALY / IUAV

Strengths

Iuav is thought to share roots, methods, experiences and foundational words as multicultural bridges to link Venice and the world. Those elements are connected with some key figures conceived as Masters (like Aldo Rossi, Manfredo Tafuri, Bernardo Secchi, Massimo Cacciari just to mention few). This particular approach towards History reflects the teaching methodologies for which the knowledge in a critical and creative approach towards the existing reality is the School's leading soul. The educational path proposed to the students reflects a willing attitude to connect local and national Institutions with academic activities through all the classes. The analysis reveals transversal experiences of interdisciplinarity, internationalization and intersectorialization in the academic activities to propose to the students a reflective, critical and creative environment, looking at Heritage as a source of inspiration and strong debate.

Sustainability is expressed as a theme in courses as well, with a technical approach linked with the scientific aspects as energetical control (as monitoring) or environmental policy (related to the urgency of the effects of climate change on Venetian materials and environment)

Weakness

The educational path is less conceived to link Heritage with Sustainability according to a different and diverse way to define Sustainability.

A strategic definition of Sustainability from a social, environmental, economic and cultural point of view (as a common shared language among the partners) has to be

considered for a strategical synthesis that would be fundamental to find an operational approach to teaching.

Aspects to be improved

The main challenge is turning into a holistic vision of educational path: relate diverse definition of Heritage (built environment, monuments, historical buildings, historical centers, urban area) with multiple ideas of Sustainability (environmental, social, economic, technical, cultural) overcoming the separation between a critical approach (linked to Heritage) with an applied-based approach (related to Sustainability).

The educational path has to be conceived as training to master the process of competency rather than competences.

CYPRUS / UCY

The overall assessment of the content and the structure of the outlined courses and study programs are deemed adequate to meet the current needs and requirements of the local market in the field of architectural and urban design in relation to sustainability and heritage. Explicit learning outcomes (skills, abilities, knowledge) focus on providing theoretical and practical knowledge in the field of conservation and passive environmental design aspects of listed buildings, thus preparing students for practice in the private or public sector or in applied research.

An additional positive aspect of the aforementioned academic programs is the collaboration of students with public administrators and local legislators, thereby immersing them in the reality of actual professional work. Students may gain access to less accessible listed buildings and monuments and also to governmental archives of the Department of Antiquities and the Department of Town Planning and Housing, which are otherwise not easily accessible to the general public.

Through the study of local case studies the knowledge basis on the architectural cultural heritage of this island-country is further enriched. The engagement with

aspects dealing with the field of vernacular architecture provides insight into local building techniques and the use of local materials and methods of construction. In this way, good practices for maintenance and restoration may be better understood and implemented now and in the future.

At the same time, the interdisciplinarity of the programs ensures the collaboration of students of different backgrounds (architects, archaeologists, engineers) under the guidance of professionals engaged in the maintenance and restoration of monuments and vernacular structures. Consequently, a holistic approach is adopted by the students, thereby allowing them to acquire a deeper understanding of the whole process of a renovation and / or energy retrofit project.

Despite the comparative benefits of the outlined courses, the overall educational model of this academic institution regarding sustainability and cultural heritage may be further improved. Although the content of the courses addresses both cultural heritage and sustainability, cultural heritage in the case of the program “Energy Technologies and Sustainable Design” is not addressed unless a heritage case-study building is selected in the courses. Respectively, environmental aspects related to conservation are addressed in a limited degree in the program “Conservation and Restoration of Historic Buildings and Sites”, leading to the conclusion that while more synergies between sustainability and cultural heritage have been established, further links between the two programs are possible.

GREECE / AUTH

The report reviewed Programs of Study, Courses, Case studies, the national legal and regulatory framework for sustainability and cultural heritage. A synthetic appraisal of the above sections can yield themes to be discussed in the broader context of all the schools of Architecture represented in the HESRUS consortium.

With regard to the programs reviewed, these share an emphasis on the role of the design studio in architectural education. In all three programs, the design studio is the medium for consolidating knowledge, integrating theory and design practice, from an interdisciplinary perspective.

Another common theme of the programs and studios is their focus on the historic context offered by the city of Thessaloniki, a palimpsest spanning 2350 years of existence, which serves as a further medium in discussing relations between sustainability, resilience and the restoration and reuse of cultural heritage. While perspectives may vary in the themes and knowledge discussed in the three curricula, these also share common educational practices/methodologies, including site visits, on-site work, seminars, the involvement of practitioners, etc.

Ultimately, this analysis has been successful in highlighting the potential for further integration between programs of study dealing with sustainability and heritage at the School of Architecture, AUTH, while also providing insight in the complex and interdisciplinary nature of the task at hand. All courses reviewed declare to address aspects of sustainability and promote cultural heritage as a base for social, economic and environmental development and hence have a common objective which could be approached in a more inclusive manner, for example through common research agendas or studio themes/ projects.

Furthermore, the case studies reviewed raise issues of prevalence and priority in dealing with the historical context. They mostly entail robust analysis, yet biased towards the main target of intervention – whether it be the bioclimatic intervention or a restorative/reuse paradigm. There is also indication that the regulatory framework pertaining to environmental upgrades of historic buildings should be supplemented to include processes that take into account the nuances of restorative architectural methodologies, and practices. Finally, the analysis of the regulatory framework, involved stakeholders, incentives and policies provides only a synopsis of

the multiplicity of legal and authoritative overlaps that exist in domains of sustainable cultural heritage and is offered as a means for contextualization of the above findings but also as a case to be discussed in the broader context of all the regulatory frameworks reviewed by the schools of Architecture represented in the HESRUS consortium.

SPAIN / USE

As a first general conclusion, we can confirm that cultural heritage constitutes a central theme in our educational, professional and normative context of Andalusia. Among the four pillars of sustainability -environmental, economic, social and culture- this last one is the main sustainable vector. It is the gate, the node from which we entail the other three. Although we have also identified a substantial development of a more technical approach to sustainability -both in the academic and professional context, we can conclude that culture and heritage as key factors for sustainable development constitute the predominant vector of the architectural projects, educational models and urban policies in Andalusia.

Since the foundation of the Andalusian government, cultural heritage has become a local resource: since the eighties a common practice to reuse architectural heritage for public institutions -such as the main building of the presidency and other ministries buildings; the Center of Contemporary Art or the Andalusian Institute of Historical Heritage. This constant reference to cultural heritage is not only instrumental: cultural heritage is within the actual definition of the image and character of Andalusia.

The decentralized condition of Spanish geopolitics after the rigid centralization of the country under a dictatorship of almost 40 years, derived in the transference of the power of heritage legislation: Andalusian heritage law has become a Spanish reference within the last trends of an international framework. Together with the developed urban policies, both the professional practice and the educational

approach to heritage are, in general, in line with an updated conceptual framework.

The concept of cultural heritage has therefore overcome in Andalusia obsolete preconceptions: on the one hand, it already contemplates a complex, multiscalar condition of heritage: from building, to city to landscape. On the other, complexity also regards to what is considered heritage: it is already committed with those categories of heritage that are most vulnerable due to their low protection and appreciation by society and institutions and therefore most at risk of disappearance, always open to the protection and conservation of those emergent types of heritage. From the monument, to the emergent heritage of our built environment: such as industrial heritage, cultural landscapes or social housing. This has derived in the emphasis of the local value, but within an international context. Intangible heritage has also become critical for an integral heritage assessment.

This connects to the social, the human values associated with a place. A place is for the community, which has witnessed the incorporation of the debate around the need for participation. In this aspect, we have verified its consideration in the pedagogical models, or in some case studies of the professional practice, pointing out the methodological effort of the institutional agents such as the Andalusian Institute of Historical Heritage. Nevertheless, we can conclude that we still have to work on concluding that we have to still work on a more generalized integration, both in education and in the transference to the professional practice.

Finally, this complexity leads us to interdisciplinarity, which is, as we have seen in the case studies, present both in architectural projects, pedagogical models and even in urban policies. However, there is a long way to go in this aspect, still existing resistance in a certain sector of the discipline to accept the role of the architect in this new collaborative paradigm. Even the main trend that accepts and practices interdisciplinarity, needs to transcend mere dialogue and integrate other disciplines' knowledge.

In a more general geopolitical context, there is a real tension between this consolidated commitment with heritage and sustainability with the Spanish and Andalusian speculative pressure on urban development: construction constitutes a key sector on the economy, creating governmental contradictions inside the public organigrams. This is a real challenge for the years to come.

We have also identified a constant dialogue and transference among university, professional practitioners and institutions working on heritage. On the one hand, the architects involved in the professional practice are also at the university and transmit their experience to the university. On the other, the institutional emphasis on heritage has resulted in intensive research on the field, with different research groups working on heritage at the School of Architecture and at Seville University in general, transferring this research experience to teaching processes. Finally, the school of architecture of Seville university has been characterized by the close and fertile collaboration in research and teaching with public institutions, such as the main Andalusian institution on built heritage, the Andalusian Institute of Historical Heritage, a national and international reference in the field.

In terms of educational and pedagogical approach, we can confirm that the presence of heritage in education is transversal and interdisciplinary at the School of Architecture at Seville University. We have analyzed the school curricula, having identified an extensive and generalized reference to heritage and sustainability both in the contents, the goals, the abilities and results of all the courses of the main degree program on Architecture.

As conclusion, and although monographic courses and specialized Master programs are essential, transversal training in heritage awareness and sustainability of our built environment in each and every course constitutes a central issue for any updated graduate program on architecture. On the one hand, this is the place where the student, the future architects, initiates and develops

awareness and conviction. Constant exposition is key for being able to go from heritage and sustainability as one field of expertise in architecture, and becoming the main framework for architects.

Train in creativity is essential in a field in constant change: the key is to train in being ready to create new methods, ways of identifying new values, intervening singular and unique architectures. The tools, the methods, the theory and the regulations are just not enough. Through the analysis of both courses and the specialized programs, we can affirm the commitment with creativity in the context of heritage education, not as opposed to rational knowledge, scientific methods, but complementary to it. Finally, Creative methods training is not only to intervene, but in the processes of heritage knowledge and assessment, position our understanding of design as educators and architects as an integral process within the heritage of our built environment.



HERSUS