RE-ConD'15

Proceedings of the INTERNATIONAL CONFERENCE on

RE- EVALUATING CONTEMPORARY DESIGNS IN HISTORICAL CONTEXT







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YILDIZ TECHNICAL UNIVERSITY

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> Edited by E. Görün ARUN

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PREFACE

Historic environments are sites across a wide range of form and scale including natural or designed spaces, urban, rural and cultural landscapes. Such environments were evolved mixing the old and new leaving the mark of each generation. Introduction of new materials and design concepts and changes of necessities in the beginning of modernization period affected the natural and cultural values and the traditional texture of the historical environments was disrupted with the newly erected constructions and/or additions which were inconsistent with the traditional texture.

In 1970s, with the efforts of ICOMOS, the value and importance of cultural heritage have been appreciated as a resource that must be protected for they symbolize the cultural identity and continuity of a land representing the technological significance with its design, materials and workmanship of the period. Consequently, the studies on relationship between the old and the new has emphasized that the historic environment can add cultural and economic value to the new design placed within it. And the introduction of a successful new building will enhance the historic setting that will add value for current and future generations and contribute to a sense of place.

In the framework of globalization, the entire world is undergoing and continues to experience massive demographic changes that shift populations away from their traditional cultural environments and bring them into close proximity with the heritage of other cultures that is not clearly understood or appreciated. Today resulting economic conditions within the global market exert social and political pressures on intense changes and transformations of the historical environments. These changes happen so fast that they seem out of control, making it difficult to plan for the future. So within this International conference on "Re-Evaluating Contemporary Designs in Historical Context", it is aimed to discuss the current legal aspects and responsibilities in creating innovative designs and projects in historical environments.

The papers presented in this Conference Proceedings have been chosen through the triple blind evaluation method of the Conference Scientific Committee. We wish to acknowledge and express our sincere gratitude to the Scientific Committee for spending their precious time in reviewing; editing and making significant recommendations to the authors. In the papers, there are some interesting observations and questionings on managing to unite past and present styles and tastes which will be discussed during the presentations as well as the breakout sessions. In this spirit, warm thanks to all the authors from different parts of the world that have made considerable scientific contribution from their ongoing research activities and for sharing their commitments to highlighting the importance of good designs that match the quality of the new with the old so that they are respected in historical settings. It is hoped that these contributions may be useful for professionals and researchers engaged in the problems of new designs in historical context.

Dr. Görün Arun On behalf of the RE-ConD'15 Organizing Committee

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CHAPTER I

GENERAL PRINCIPLES PROFESSIONAL RESPONSIBILITY





LIFE-CYCLE ASSESSMENT OF MASONRY CULTURAL HERITAGE BUILDINGS

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Keywords: Life-cycle Assessment, Masonry Constructions, Buildings Maintenance, Built Heritage

Abstract.

Introduction:

The basic starting point of architectural heritage protection is the desire to prevent immediate destruction of the landscape, to preserve the architectural monument in its original environment, and thus the value of its spatial and comprehensive meaning. The concept of sustainable tourism has grown from the concept of sustainable development, the development that meets the needs of today without compromising the ability of future generations to meet their own needs. Sustainable development is an eclectic concept that includes all aspects of human life that affect the maintenance.

Developments:

It also means sustainable development and conflict resolution among various competing objectives and includes the simultaneous performance of economic prosperity, environmental quality and social equity. The best way to protect heritage properties is to ensure that they are kept routinely maintained and inspected. By this we mean that they should be checked to ensure that no cracks have appeared (cracks are invariably a sure sign of adverse changes to the property), that any existing cracks have not become larger, and that there are no signs of falling masonry or other building materials, water penetration and so on. In this regard, maintenance may be classified as preventive and corrective, implying usage of modern measurement and warning aids to assist in early diagnosis of possible changes to the structure, and the mechanical maintenance of existing equipment in the building.

Remarks and Conclusion:

Yet, one must not forget that much of Venice is a 19th century reconstruction. The Campanile dates from 1910, and the Scala di Milano and the Vienna Opera House are even more recent, dating from 1940. Every component of the Eiffel Tower has been replaced at least once.

1 INTRODUCTION - DURABILITY OF MASONRY CONSTRUCTIONS

1.1. Reasons to commence correction and reconstruction of heritage masonry constructions

The bearing construction has to be safe, usable and durable for a period of time. It is also necessary to regularly maintain and possibly correct the construction during this period. However, due to unforeseeable events or inevitable meteorological influences, the construction, regardless of regular maintenance, may be exposed to certain damages that may cause significant problems. For these reasons, it is necessary to undertake certain technological processes or interventions that will prolong the durability of the construction. Despite the legal procedures enforcing regular check-ups of the masonry systems and their elements, these procedures are rarely followed in practice.

Various factors affect the durability of the construction. Apart from age and building elements, constructions are affected by earthquakes, movements and settlements of the terrain, i.e. the formation soil, fire, degradation caused by atmospherilia, cracking of walls caused by roots of trees and plants, etc. In such cases, depending on the degree and cause of the damage, it is necessary to undertake serious measures the aim of which is to maintain a satisfactory condition of the construction.

There are numerous reasons to undertake such measures which will prolong the durability of heritage constructions. When doing so, one should take many elements into consideration before making the final decision on the level and scope of interventions on the construction or one of its parts. Some of the most important reasons when deciding on the scope of interventions are listed as follows:

- design errors in construction and wrong choice of the materials, leading to problems when the construction is put to use, calling for corrections and reconstruction;
- errors when building construction work choosing wrong technological methods, building on unstable terrains (landslides and slopes), building without quality supervision;
- wrong and unprofessional early interventions;
- physical ageing of building materials in the bearing construction, the lining, or the construction equipment or installations;
- inadequate maintenance of constructions over a longer period of time, especially present in the 1990s until present-day due to war, changes in the socio-political system, and unsolved property legal relations, viz. ownership of buildings and apartments;
- life-cycle of architectural constructions which is estimated to last from 80 to 100 years (often used to refer to the primary system as one unit, while other parts of buildings such as the equipment, installations, carpentry, facades, etc. are not as long-lasting and require regular investment);
- functional reasons related to changes in the dispositions of the apartments, business premises, or the whole building in the case a residential building is reconstructed and turned into a commercial property, building extensions, planting new installations and openings;
- depending on the level and scope of reconstruction and correction, it is necessary to raise substantial funds, especially when reconstructing older buildings of great historical, aesthetic and architectural value;
- settlement of the terrain, landslides, changes in groundwater levels, seismic activity, and, more importantly dynamic influences occurring with the development of traffic as such conditions could not have been foreseen when constructing the building;
- aggressive influences of toxic gases¹ in the atmosphere as a consequence of industrial developments over time, which results in degradation and devastation of certain materials susceptible to chemical influences;

¹ Sulphur dioxide, hydrogen sulfide, soot, dust, etc

- aggressive influences of atmospherilia over a longer period of time, especially water in all its states of matter²;
- aggressive influences on the materials susceptible to biological and agricultural pests (such as fungi, mould, insects, larvae, rodents, etc.);
- man-caused damages³ manifested by destructive behaviour (demolishing, robbery, setting a construction on fire, war, etc.) [1] [2].

1.2. Life-cycle of a construction and its building elements

Life-cycle of a construction element, or the construction itself, is possible to describe by referring to three categories: The technical life-cycle, the functional life-cycle and the economic lifecycle.

The **technical life-cycle** of an element ends when the element is no longer able to perform its function within the range of set standards, i.e. when it has to be replaced by a new element [3].



Figure 1: Technical life-cycle of a construction

The **functional life-cycle** of a construction refers to the function and usability of the construction within its life-cycle in terms of its functionality and productivity when fulfilling the users' needs in accordance with the existing regulations and standards. The spatial flexibility of constructions is becoming more important to both investors and users. The majority of constructions designed and built in the last hundred years do not allow for a spatial flexibility or do allow for minimum spatial flexibility on the apartment level. Such interventions need to be conducted with great caution and expertise in order not to endanger the stability of the construction [3].



Figure 2: The functional life-cycle of a construction

² Rain, snow, frost, condensation, vapour, free water, etc.

³ "Man is, and has always been, the single greatest threat of his own creations, whether his actions are purposefully or incidentally destructive." Bernard M. Fielden, "Uvod u konzerviranje kulturnog naslijeđa" (Introduction to Conservation (1979)), Društvo konzervatora Hrvatske, Zagreb, 1981, p.14.

The **economic life-cycle** of an element is the period during which the expenses of its exploitation and maintenance are within the expenses framework [3].

The life-cycle of construction materials is defined as planned exploitation period meeting regular requirements and economical solutions. While being regularly maintained and upgraded, the construction meets new requirements, which makes it possible to prolong its lifecycle. The lifecycle of a building may be understood as the result of maintaining balance between 'offers' (the technical-life cycle) and 'demand' (the functional-economic life-cycle).

The most important factors affecting life-cycle of construction materials and elements are: quality of planning, design quality, quality of built-in materials, quality of construction work, load and usage, the environment, maintenance of the construction and protection of construction elements.

The life-cycle expenses of a construction are related to the overall expenses in time which are, depending on type, found in DIN 18960 – "Expenses of Building Construction". What is important to relate is the mutual dependence between decision-making when choosing the quality of elements in the planning and design phase with further expenses of exploitation and the data listed in the figure below [1] [3].



Figure 3: Technical and service life-cycle of certain construction materials [1] [3]

Life-cycle of certain construction elements and materials depends on numerous factors among which the most important are: quality of the materials, proper installation and regular maintenance of the construction throughout its life-cycle.

2 SERVICE LIFE OF MASONRY CONSTRUCTIONS

After approximately 80 years, heritage masonry constructions reach a certain turning point after which it is necessary to substantially invest in order to meet present-day standards and prolong their service life. As a consequence of there being a lack of regular maintenance, a number of heritage masonry constructions have been neglected to such a degree that they are impossible to use in their present condition. Certain constructions that were completely neglected have been or are being renovated over longer periods of time and substantial financial resources. When it comes to functioning constructions, certain minor corrections, which can be considered routine maintenance, have also been undertaken.

A great number of heritage constructions are masonry constructions with stone or brick walls as their primary vertical bearing structure and inter-floor structures the majority of which have wooden roof beams constructed using different methods. Especially vulnerable bearing elements are the inter-floor structures which are, due to their age, and other influences, completely damaged or in a very bad condition, which endangers stability and service life of the construction. Problems occurring in constructions after long-term exploitation on bearing and nonbearing structures, equipment, installations, etc. are such that they cannot be solved using solely partial or palliative measures. A vast majority of construction structures are dilapidated, some more, some less. What is certain is that inter-floor structures are the most vulnerable category. Problems occur due to the age of the materials built into the roof structures, longterm usage and aggressive influences. This primarily applies to wooden roof structures which are threatened by humidity and insects, which is quite common in vital bearing structures. In the case these structures collapse, the whole construction collapses too [1] [10].

Construction research work implies that it is necessary to inspect the condition of the construction structures, analyse the built-in materials using various methods, as well as implement a corresponding technological procedure depending on the level of the intervention chosen in the analysis, diagnostics and detection procedure. In such cases, it is necessary to conduct scholarly multidisciplinary research where scholars from various fields, especially architects, who should lead the whole reconstruction process in all its phases, would join hands.

2.1. Methods of assessing used property value

In order to make decisions on commencing correction or reconstruction of certain construction structures and the level of intervention, it is necessary to conduct certain economicengineering analyses taking various elements into account, where the most important parameters are those related to the age of the construction and investments necessary to start with the reconstruction work. It is necessary to recall the criteria established for proper construction value assessment when making the decision on reconstruction, and then estimate the postreconstruction service life [1].

The first criterion for such analyses for standard constructions is based on assessing costeffectiveness of reconstructing the constructions where the overall reconstruction expenses are fewer or equal to the cost of building a new construction.

When referring to heritage constructions, the criteria for assessing the cost of reconstruction are different as these constructions should be self-sustainable in the future. Bearing this in mind, we should also consider the following factors that directly affect the value of the analysed construction: the architectural-historical value and the importance of the construction, the type and condition of primary construction and the overall condition of the quality of the materials used when building it, the location of the construction and the existing infrastructure.

2.2. Extending the life-cycle

The life-cycle of a construction element or material is not an exact or measurable feature and depends on numerous inter-dependent elements. The elements that affect the life-cycle of a construction could be defined by evaluating: the quality of the materials, the complexity of construction elements, the construction work, the environment, the usage, the damages and the maintenance.

Apart from corrections and reconstruction, a complete renovation includes a renewal of energy and ecological systems by using more durable materials, elements and structures. A complete passive technology energy-saving renewal with the aim of achieving a more durable energy-saving reconstruction enables: building quality working and living conditions, lowering energy-demands and replacing the existing energy-supplies with those that provide better energy-saving options, applying new technologies, cost-effective and renewable energy resources with the aim of reaching better economic, social, residential and ecological conditions and reconstructing from scratch using energy-saving solutions. For a quality energy-saving reconstruction, it is necessary to use the *green design* principles which will, in the planning and design phase, define ways that ensure that the life-cycle of the construction is extended [1] [10].

3 BUILDING MAINTENANCE

Buildings are constructed as unique an genuine units, and their life-cycle may last for longer than 100 years, including numerous materials of varying life-cycles. The usage and the maintenance phase of the building lasts the longest within the life-cycle and it is extremely important in the case of heritage constructions.

3.1. Possible maintenance scenarios

The Committee on Building Maintenance (1972:20) proposes that the following definition of 'maintenance' be adopted: "Work undertaken in order to keep, restore or improve every facility, i.e. every part of the building, its services and surrounds to a currently acceptable standard and to sustain the utility and value of the facility".

The life-cycle phase pertaining to utilizing and maintaining a facility takes the following functions into account: heating and cooling systems, lighting, water facilities as well as installing later additions and elements such as: paints, floor and wall linings, and other elements of the interior. It is also possible that the facility, in the usage and maintenance phase may be reconstructed, modernized or have its function changed, new elements and systems added, etc.

In building maintenance, it is necessary to have adequate data and information in order to answer the following four key questions: What should be done?; Can it be done?; How is it to be done?; When?

Answers to 'what should be done?' generate building maintenance tasks which further generate answers to questions if it 'can be done, how and when?' in order to successfully complete the set goals [1] [5].

Building maintenance could simply be observed as a periodical deterioration and periodical reconstruction at certain time intervals. Such a life-cycle scenario is simplified and unlikely, which can be seen from the diagram below [1] [6].



Figure 4: Building deterioration and maintenance through time

In an actual building life-cycle, there can be more maintenance scenarios presented in the diagrams below. The figure below shows a life-cycle without maintenance where the built-in elements, as well as the facility itself, completely deteriorated in a relatively short period of time [1] [7].



Figure 5: Building deterioration without maintenance

The diagram below shows a life-cycle scenario when there is one major reconstruction where the majority of construction elements and materials are replaced or corrected, which significantly extends the service and functional life of the building during a certain period of time [1] [7].



Figure 6: Building deterioration and maintenance through time

The scenario which implies regular routine maintenance is rather favourable and practiced regularly. As can be seen from the diagram below, quality and preventive building maintenance significantly extends the life-cycle [1] [7].

The most favourable maintenance scenario is given in the diagram below. It can be seen from the diagram that the facility which is regularly maintained within its life-cycle has at least one major reconstruction which significantly extends its service and functional life-cycle compared to all the other scenarios presented above [1] [7].



Figure 7: Building deterioration and maintenance through time

3.2. Maintenance costs

How long the exploitation costs, i.e. the utilization period, of a building last is a very complex question that still has not been completely answered as it depends on numerous factors. Certainly, the most important factor is the bearing construction of the building and the quality and type of the built-in materials. According to research conducted by Directorate for Economic Planning, for a life-cycle of 100 years, it is necessary to invest 155% of the initial investment in 90 years, whereas a similar survey in Sweden shows that for a life-cycle of 80 years, it is also necessary to invest 155% of the initial investment in 75 years.

If we correlate these values, we conclude that, on average, investment and maintenance costs for the period of 100 years are as follows:

$$\left[\left(\frac{155}{25} + \frac{155}{90}\right) \times 100\right] : \mathbb{Z} = 169\%$$

This finding shows that, on average, it is necessary to invest 189% of the building initial investment value, i.e. almost twice the investment for its construction. Therefore, it follows that long-life buildings, within their life-cycle, spend as much money as necessary for their construction:

C.L.B. = 1+1,89 = 2,89 C.N.B.;

C.L.B. = cost of a long life building

C.N.B. = cost of a new building

From the correlation presented above, it follows that every 35 years a new building could be built from investment and maintenance costs [8] [10].

The research conducted is based on older buildings constructed using older technologies and lower-quality construction materials, which is the reason why maintenance costs are so high and the reason why the percentages do not reflect the actual state. The actual maintenance costs are by 20% lower, i.e. 155% of the initial investment cost for a life-cycle of 100 years. The investment and maintenance costs are the highest between years 50-60 since in this period some of the building components need to be replaced [9] [10].

The diagram below shows which factors affect the building quality and performances, which is to be taken into consideration in the planning and design phase. The more quality the built-in materials and their performances in the phase of building utilization are, the lower the maintenance costs, and the longer the life-cycle when maintenance is conducted professionally and on a regular basis [7] [10].



Figure 8: Factors affecting building quality and performance

Construction materials and elements were often selected based on their price rather than quality. Their durability and inter-particle influences during the building life-cycle were not taken into much consideration, the consequences of which are seen today.

Each material has its durability properties, which is seen from the diagram below. The materials have been grouped according to their life-cycle, showing relations of certain groups within one life-cycle. The existing legislature and tax policy encourages energy-saving measures, whereas a majority of reconstructed buildings are in high demand of energy, which is not always the case with heritage constructions.

When planting high quality materials and elements during construction, it is reasonable to expect that the maintenance costs within the life-cycle will also be high. However, there is usually little need for such interventions, so that the costs can be compensated, which again justifies application of quality materials when designing and constructing [1] [4].

Figure 9 represents the dependence of the construction service when maintaining certain groups of construction materials in relation to the expected building life-cycle [1] [4].



Figure 9: Relation between construction service and life-cycle

Understandably, the cost analysis of the building life-cycle⁴⁴ includes planning and design, construction, corrections, replacements, demolishing and removal, and reuse. To calculate the life-cycle costs is not an easy task since each building is unique when it comes to its environment, individual solutions, and investor-user demands.

One should also take into consideration the difference between the longevity of the construction and varying technical life-cycles of the built-in elements and materials. The first step is to separate costs pertaining to different life-cycle phases. The second step is to show the average value for costs that regularly reoccur over years in order to make them comparable at different time intervals.

According to EU-DIN standards, the costs may be defined as follows:

- Planning, design, construction costs *The total costs which include all the activities - from planning to completion*
- Utilization, maintenance and corrections costs *The total costs which include all the activities during the utilization of the building as well as reconstruction and modernization costs*
- Demolishing and removal costs The total costs which include all the activities performed when demolishing parts of a building, or the whole building, as well as waste removal costs, including the profit arising from its further usage.

The basic formula to calculate life-cycle costs would be:

 $LCC = H + N + A \tag{2}$

LCC: life-cycle costs

H: planning, design, construction costs

N: utilization, maintenance and corrections costs

A: demolishing and removal costs

⁴ Life-cycle costing (LCC) Life-cycle costing analysis (LCCA)

Planning, design and construction costs (H) are estimated in a relatively short period of time and we could say they are predictable and static. Utilization, maintenance and corrections costs (N) are dynamic and constantly changing as the costs are allocated throughout a long period of time and have to, therefore, be represented by an average value in order to be comparable. Demolishing and removal costs (A) are calculated at the end of the building service life and are also static because they are assessed in a relatively short period of time [1] [10].

The diagram below shows the relations of preventive maintenance costs, minor and major corrections depending on the damages within a building life-cycle. It can be seen from the diagram that the preventive maintenance costs are significantly lower compared to those when a construction is neglected, or when minor or major interventions are conducted periodically, which, at the same time, apart from higher costs, causes the construction to deteriorate and shortens its lifecycle [1] [3].



Figure 10: Relations among maintenance costs, repair and damages within the building life-cycle

3.3. FM- Facility Management⁵

Facility Management (FM) is a fast-growing discipline in managing and maintaining constructed buildings in the exploitation phase, a discipline integrating expert fields of architecture, civil engineering and other branches of engineering, economy, information and communication technologies, organizational studies, sociology and aesthetics. The FM effects are seen 'at first sight', both when observing the overall working and living conditions and the financial reports showing significant cost-saving results for building maintenance.

3.4. Managing and maintaining facilities in exploitation

Facility management is a young scientific discipline founded in the USA at the beginning of the 1960s. In the mid-1980s, it grew in the UK, and at the beginning of the 1990s, it started advancing in Europe as well. One of the most important FM rules is adapting to peculiarities of the local surroundings. This principle could be justified by various levels of technical and technological development, different standards, different climates, and many other specific qualities shaping an environment. FM is also settling into developing countries as well, as changes in ownership and stricter rules and usage standards leave new owners with no other choices but to better and in more organized ways maintain their buildings, which is backed up by an economic interest, i.e. higher profit, maintain the value, and longer exploitation of the constructed facilities. Developed EU countries take great care of their constructed environment by saving resources and preserving the value of their constructed facilities through the activities encompassed by FM.

^{5 5}*Facility management; A discipline integrating various professions with the aim of preserving the functionality of the constructed environment by integrating human resources, locations, processes and technologies.* See: IFMA-International Facility Management Association.

This concept of management integrates all the information relevant for the functionality of the facilities and related processes, which, apart from FM managers, may engage engineers and technicians of various profiles, tech and maintenance support staff, etc. Figure 16. shows the relevant relations [1] [10].

3.5. Life-cycle of constructed facilities

In the last decade, facility maintenance and management has been rapidly developing as knowledge are being integrated and due to a faster flow of information and better coordination of all the categories participating in planning and construction (owners, designers, constructors, users, etc.).

Table 1 identifies the prominent phases within a life-cycle of a contemporary facility. It is important to notice that the period of effective exploitation (Phase 5) has been reduced to 30-50 years, whereas the period of defining the needs, planning and design, construction and the moving-in period lasts for about 6 years, which corresponds to 1/10-1/6 of the building life-cycle. Facility management and maintenance is a process that is to be taken into consideration in the very design phase (Phase 1) lasting to the demolition phase (Phase 6) following the exploitation period. Today, FM is considered to be a part of a project that has to be considered and defined by experts in both the phase of preliminary and working drawings and the utilization phase. The final phase has to estimate how a facility whose utilization period or life-cycle has ended is going to be demolished and which materials (and how) may be recycled or destroyed [1] [10].

Facility Ma	magement				
Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Defining needs	Planning and design	Construction	Moving in, utilization	Exploitation	Demolishing, removal.
1 year	2 years	1-2 years	1 year	30-50 years	1 year

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3.6. Historical values and safety

Monuments are precious and must be respected, and altered as little as possible. These observations could lead to contradictory decisions, at times accepting a higher degree of risk in order to avoid or limit changes to the original concept. Therefore, what can be considered "sustainable" in the spaces familiar to us, from everyday living spaces of our homes, villages and towns [1]?

There are two phenomena in our contemporary history that represent an awareness of the reality we are living and, at the same time, a source of uneasiness: The rapidity of changes life imposes on us and the loss of the feeling of distance.

4 CONCLUSIONS

The best way to protect heritage properties is to ensure that they are kept routinely maintained and inspected. By this we mean that they should be checked to ensure that no cracks have appeared (cracks are invariably a sure sign of adverse changes to the property), that any existing cracks have not become larger, and that there are no signs of falling masonry or other building materials, water penetration and so on. In this regard, maintenance may be classified as preventive and corrective, with the use of modern measurement and warning aids to assist in early diagnosis of possible changes to the structure, and the mechanical maintenance of existing equipment in the building. The uniqueness of historic structures, with their complex history, requires the organization of studies in precise steps that are similar to those used in medicine. The main goal of a management plan is to set up the conservation and development dimensions in relation to sustainability. Therapy should address root causes rather than symptoms. The ability of the model to enable rational environmental comparisons and analysis of repair techniques to be made is to be welcomed by practitioners. That said, the prediction of repair must be adjusted to take into consideration factors such as local exposure levels, the building detailing, design form and the quality of repairs undertaken with benefit of stimulating the local economy and repairment of hard-to-maintain buildings (including historic masonry buildings) with, generally speaking, the most "historically accurate" materials available. These materials are also often physically and aesthetically the most compatible. The whole building integration should be tested. This would enable comparability for structures of a similar nature or used in terms of evaluating maintenance work. Considering what we have said so far, a question arises: What kinds of modalities have emerged, from the several cultures of which our civilization is composed?

Conservation does not make any sense, unless it is considered within an evolving idea of Heritage. This evolution is a process in which memory is a vital function: it is necessary to portrait a representation of the past, but it is also a hope for the future. This process seems apparently incompatible with our contemporary perception. We have learned the lesson, but we have also understood that the vital space of daily life represents the first stage of the Heritage formation process, and, moreover, the greatest hope for its own survival. As a matter of fact, we cannot define Heritage, unless we place this concept in a close relation with the conception and the vitality expressed through the spaces of everyday life. The intensity of these factors allows us to understand the role and the function of Cultural Heritage.

REFERENCES

[1] A.Čaušević, N.Rustempašić, "*Rekonstrukcija zidanih objekata visokogradnje*", University of Sarajevo, Faculty of Architecture, Sarajevo, 2014.

[2] Bernard M. Fielden, "Uvod u konzerviranje kulturnog naslijeđa" (Introduction to Conservation (1979)), Društvo konzervatora Hrvatske, Zagreb, 1981.

[3] E. Durmišević, "*Transformable Building Structures, Design for disassembly as a way to introduce sustainable engenieering to building design &construction"*, Doctoral Thesis, Technische Universiteit Delft, 2006.

[4] Group of authors, Institut für Bauforschung e.V. "Lebensdauer der Baustofe und Bauteile zür Harmonisierung der wirtschaftlichen Nutzungsdauer im Wohnungsbau", Fraunhofer IRB Verlag, Hannover, juni 2004

[5] Barrie Chanter, Peter Swallow, "Building Maintenance Management", Second Edition, published by Blackwell Publishing Lt, 2007.

[6] G. Somerville, *"The Design Life of Strustures"*, Blackie and Son Ltd., Taylor & Francis e-Library, Glasgow and London, 2004.

[7] Iselin, Donald G. "The Fourth Dimension in Building: Strategies for Minimizing Obsolescence Studies in Management of Building Technology", National Academies Press, Washington, D.C. 1993.

[8] M.Aganović, "Urban Structure of Residential Neighbourhoods", Institute for Economic Planning, Sarajevo, 1980.

[9] E.Mulavdić, " Compromise Solutions when Choosing Materials, Constructions and Construction Methods by Optimizing Energy upon the Principles of Sustainable Development" (doctoral thesis), University of Sarajevo, Faculty of Civil Engineering, Sarajevo, 2003

[10] N.Rustempašić, "*Defining and modelling the life cycle of the building*", Doctoral Thesis, University of Sarajevo, Faculty of Architecture, Sarajevo, 2011.





EXPLORING THE APPLICABILITY OF INTERNATIONAL VILLAGE DESIGN GUIDELINES IN TURKEY

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Keywords: Historical Rural Settlements, Village Design Guidelines, Adoptability, Sustainability

Abstract.

Introduction:

In terms of geopolitical characteristics of Turkey, rural diversification by region within the boundaries exhibits different properties. The gaps in the legislation on the protection of rural settlements with the natural environment, lead to the difficulties of implementation and rural settlements are facing threat of not only losing their original structure, but also rural characteristics. This study aims to explore the existing conditions of rural settlements from the viewpoint of sustainability within the limitations and barriers in adopting international village design guidelines to Turkey.

Developments:

In order to complement and strengthen the environmental, cultural, historical and social characteristics of existing rural settlements, countries have design guidelines for certain districts. These guidelines intend to provide a basis to assist in the complementary development by focusing on the built characteristics. Although bewildering kinds of characteristic settlements in Turkey, without addressing a specific district, all rural construction conditions are defined with laws and regulations. In order to meet the crucial need for guiding principles for all new developments (minor or major) in these areas, the applicability of international village design guidelines has been explored. The proposed guide provides general design guidance as a convenient checklist for the local authority and the planners.

Remarks and Conclusion:

Existing laws and regulations have been scanned and a theoretical village design guide model has been formed by adopting international design guides to Turkey. The applicability of this model regarding with the current laws and regulations has been discussed.

1 INTRODUCTION

The profound interest towards rural development especially in developing countries for the purpose of sustained improvement in the well-being of people living in less developed areas [1] has exacerbated the demand for an exact definition of rural settlements. The definition of rural settlements changes according to who is asking this question and for what purpose. Each definition emphasizes different geographic criteria such as (i) population size, (ii) population density, (iii) labor market context or settlement context [2]. Because of the hegemony of rural functions Gür et al., [3] described 'rural areas' as places that do not belong to urban areas. In the 8th Five Year Development Plan, Ad Hoc Committee of rural development describes rural areas as those areas, in which economic and life activities are mainly constructed on the use and evaluation of natural resources, the socio-economic and cultural development processes are developed slowly, the reflection of technological development to the life and production takes a lot of time, the social and traditional values are important while structuring the life and face to face relations prolong their value and importance [4,1].

Rural development has great attention in Turkey and the implementation of the rural development projects has been initiated in late 1970s and goes on with the National Rural Development Strategy announced in 2006. Within this context, main goals are defined as increase in the quality of life in rural settlements and improvement of the aesthetic quality, development of sample models for production of standard housing which is compatible with the local ecology and local culture and which responds to the daily requirements of people with proper health conditions [5]. Regarding with the rural development agenda, there is a crucial need to guide all new development and enjoyment of the settlements. Existing laws and regulations don't answer the need to complement and strengthen the environmental, cultural, historical and social continuity. In this study, as a methodology, scanning international village design guidelines and exploring the adoptability has been proposed and limitations and barriers of the applicability of these guides within the framework of laws and registration have been discussed.

2. METHOD

Rural settlements which could still conserve their locality in many regions today include richness of form, rational solutions compatible with regional material and local conditions. With local solutions developed according to regional conditions, rural settlements earn their original identity, their association with natural environment present effective images [6]. These structures which mean meeting of architecture and rural culture which bears traces of past exist with their original identity due to reflecting culture, social relations and habits of ordinary people in daily life, ordinary taste, belief and life priority of landlord and craftsman.

Identity, recognition, authenticity make difference in urban and rural areas. In this sense, various precautions planned would be quite important to preserve, enhance authenticity of settlement and identical elements; to sustain their development in the near future. There is a need for a design guide to enhance local texture of rural settlements by forming a bridge between past and future which enables protection-development and sustainability [7].

For decades, rural settlements have been facing various alterations due to their own dynamics and/or country's dynamics in terms of economics, demographic, social, cultural or spatial changes in Turkey. In rural areas, increase of the population of the settlement, transformations in the family life cycle or the life style changes usually lead to an increase in the building stock which is usually constructed obeying neither a regulation, nor a guide.

In Turkey, different projects have been carried out for different rural settlements by various public organisations which resulted with a little or no success. This is mostly because the projects were carried out without taking into account the local conditions and needs of local people. While designing a rural settlement with today's technology and needs, it is a must to consider the landscape, climate, traditional life and production style of that specific rural settlement other than producing a typical project. In other countries the new constructions in rural settlements are designed according to the "design guidelines" booklet. Regulations, rules and design recommendations appear in these booklets to help the construction of a house or a building. Therefore, in Turkey, there is a need to produce design guidelines specific to the area for continuing evolution and development as mentioned in the Article 6495/73 appended to Law on land development planning and control no. 3194 [8]. Hence, this paper focuses on the applicability of international village design guidelines to Turkey from the viewpoint of sustainability within the limitations and barriers in adopting process. In this context, the existing laws and regulations have been scanned and a theoretical village design guide model has been formed by adopting international design guides to Turkey. The applicability of this model regarding with the current laws and regulations has been discussed.

2.1 Laws and regulations for rural areas

An overview of the state of rural settlements within the scope of the laws and regulations that are currently in force in Turkey indicates that definitions and criteria concerning rural settlements have not been clearly stipulated in the existing laws. The laws and regulations discussed below are directly relevant to issues concerning implementations to be realized in rural areas and regulations affecting the development of rural settlements.

2.1.1 Laws

Law on land development planning and control no. 3194

On 12/07/2013, Article 6495/73 was appended to Turkey's Law on village [8], which is the main law concerning zoning for the whole country. As regards villages, the article states: "Village planning guidelines can be prepared by the related administrative bodies with the participation of the village head with the aim of protecting, developing and maintaining the unique characteristics of villages which have been found to be important in terms of the characteristics of the settlement and structures, as well as in terms of the architectural styles and features of the villages and their potential for development. These village planning guidelines are then to be approved by an administrative council decision whereupon they shall be implemented." The same article states, "Studies and projects concerning buildings in villages and other areas of habitation which are rural in character can be prepared by the architects and engineers of the related administrative unit or the Ministry."

Village law no. 442

Village Law No. 442 [9] was enacted in 1924 and over the years various articles were added to the law. The Village Law defines village settlements in the following terms: "A village consists of common properties such as mosques, schools, pastures and woodlands, and it is a place where people live in clusters of homes or isolated residences around which are located vineyards, gardens and/or fields." The Village Law stipulates the procedures for the administration of villages and states the duties apportioned for administration as they are to be carried out by village heads, councils of elders and village inhabitants.

Law no. 6360

Enacted in 2012, Law No. 6360 [10] is one of the most recent pieces of legislation that affects rural areas. Through this law, foundational changes were made concerning the divisions of administration in the entirety of the country and it envisaged a new structuring at the level of administration and services. Through the law, new metropolitan municipalities were created, and in all metropolises municipal authority was extended to provincial administrative boundaries. In provinces that have metropolises, village settlements were reclassified as districts instead of villages, and town municipalities within metropolitan municipalities were granted the status of districts of the counties in which they are located. Metropolitan municipalities were placed in charge of providing services and meeting the infrastructure needs of these villages. Special provincial administrative offices of metropolitan municipalities were thus eliminated and the authority they held was distributed to related institutions. In provinces existing beyond the borders of metropolitan municipalities which have populations of less than 2000 people, the municipalities were closed down and they were re-categorized as villages.

2.1.2 Regulations

Zoning regulation for unplanned areas

Villages and rural areas also exist in locales deemed to be within the scope of the Zoning Regulation for Unplanned Areas, which stipulates the terms for construction in regions inside and outside of the borders of municipalities and adjacent areas and in locales which do not fall under the jurisdiction of a given plan; the regulation states that such construction must be carried out in a suitable manner in terms of environmental, health and scientific concerns. The regulation is also applicable for the settled areas of villages and hamlets and their outlying areas which are located inside and outside the borders of municipalities and adjacent areas. However, the regulation does not give a single definition of rural areas, while it does state the processes involved in obtaining construction permits and the principles of building that are to be taken into consideration during construction that will impact villages.

Other laws pertaining to rural areas

The other laws in Turkey which bear on the development of rural areas and the usage and protection of natural and cultural values are as follows: firstly, Law No. 5403 (soil preservation and land utilization) [11], as well as Law No. 4342 (Law on Pasture) [12] and Law No. 6831 (Forestry Law) [13], and when necessary Law No. 2863 (Law on the conservation of cultural and natural property) [14], Law No. 3621 (Coastal Law) [15] and Law No. 2634 [16].

2.2 Adoptability of international design guidelines

2.2.1 Purpose of design guidelines

"Design Guidelines" help to provide the spatial and social continuity, to protect the local identity, to identify and characterize the construction of the built environment and to progress according to the vernacular architecture. To provide all the items listed above, it is important to keep in mind that guidelines should be specific to the local settlement but not for the whole region or the country. Design guidelines help to protect the vernacular architecture in addition to enrich it. The purpose of these guidelines is to provide design guidance to assess, promote and achieve appropriate development in Villages (Table 1).

2.2.2 Scope of design guidelines

The scope of the design guidelines that lead the builders in designing and constructing could change. In the same country it is possible to find a design guide that belongs to one village or a county that covers eight to ten villages or a part of a country. A Village Design Guide undertakes the village's visual character; its natural and built environment as a whole.

Village/ Country	Groups Associated	Goals
BELBROOK /US	Property owners, inhabitants, architects, town planning commission	Keep the traditional architectural characteristics
MANHATTAN BEACH/US	Town Planning Commission	Maintain and promote the village character and improve the image of Main Street and surrounding neighbourhoods Emphasize actions that build and maintain the sense of community, and community pride Identify physical improvements and redevelopment oppor- tunities
SPRING LAKE/US	Town Planning Commission	Maintain and promote the village character Maintain the sustainability Create pedestrian friendly small town shopping areas
EAST MEON/GB	Town Planning Commission, two local people, two mem- bers of the district council, publicity commission	Maintain and promote the sustainable village character Protect the nature; Maintain a balance between the nature and the new build- ings and new farms
ESSEX/GB	Essex County Council	Maintain and promote the village character Design sustainable pedestrian friendly and appropriate new spaces and buildings appropriate for the village.
NORTH IRELAND/GB	North Ireland Ministry of Economics and Environment	Increase the quality of the design in the rural area Build in harmony with the nature
ROLLESTON/GB	Rural Environment Commis- sion, Rolleston District Commission, Rolleston Methodist Church, Village people	Maintain and promote the village character Mentor to design contemporary buildings appropriate to the village
BOROUGH/GB	Borough Council Commis- sion	Maintain and promote the village character Identify possible public programs and initiatives to en- hance the Village Build new settlements in the harmony with the village
CLARE/ IRELAND	Department of Planning and Economic Development	Enhance the rural life to develop in quality Build appropriate to the environment
DURIESHILL/ SCOTLAND	Stirling City Council	Maintain and promote the local village character Design pedestrian friendly Enhance the feeling of belonging
BANGLADESH/ Rural	Government of Bangladesh, local authorities, internation- al financial organisations, NGOs, voluntary organisa- tions	Provide flexible design proposals that help to decrease the possible float affect and the users could give their own decisions Decrease the mistakes in the construction Produce diverse projects for different areas

Table 1. Examples of village design guideline	es
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The data collected for the design guidelines are natural and physical affects, village plan, buildings, pedestrian environment, architectural styles, landscaping, signage, changes and possible developments. A design guide is expected to have the strategies for designing according to the characterization of the village, in this context, it is not very appropriate to use a design village guideline for all types of villages. The design guidelines could be used as a basis for another village designs but should be specific to the village.

2.2.2 Status of design guidelines

Village design guidelines present overall strategies for maintaining the village's character and enhancing the village, and outline a set of design guidelines for new development. The plan strategies encompass both public and private improvements. The design guidelines are used in many European and North American cities as a means of design politics that control the local building formation and these guidelines are formed with the participation of different groups. Britain's system is different than other European countries. Central administration permits the local authorities to give their planning decisions and to make the implementation. Through local urban planning politics concerning design is developed. Each local attorney produces design guides, design codes or design brief for its region in order to control and to manage the changes in the area [17].

In Germany, village commissions are obliged to village's characters and values and to present the publicity. Village plans and designs are defined as parts of zoning plans of authorities [18]. In France, the central governance restricts the construction privilege of villages unless they have their urban planning or gives financial aid to villages to have their planning [17]. In European countries, construction inspections are strict in the rural areas. New constructions are permitted according to the identified circumstances. In North America (Canada and the US) design guidelines are included in physical development planning laws and the constructions should obey the guidelines. On the other hand, in Bangladesh, with the participation of different groups such as government, NGOs, local authorities, financial organizations, design guidelines have been produced for local people to use while rebuilding their damaged houses because of flood or other natural disasters.

2.2.3 Participation of stakeholders

The important thing in rural settlements is to express the village characterization that the local differentiation brings out. There are many subjects -such as village characteristics, local/regional discrepancies, changes, buildings, sustainability- to be included in design guide-lines so it needs different stakeholders listed below to realize the goals of the guidelines. Maintaining and promoting the Village character and improve the surrounding neighborhoods, emphasizing actions that build and maintain the sense of community, identifying physical improvements and redevelopment opportunities are some of the goals of the guidelines.

3. THE MODEL OF VILLAGE DESIGN GUIDELINES AND FUNDAMENTAL PRINCIPLES

In Turkey, seven different climate types are observed through the regions. In the same region or in the same city because of height or sea different climate types, different vegetation, flora, landscaping and different production types could be seen. The villages of a city, even the counties of a city differ from each other in many ways. This situation leads to different life styles, different formations and different built environments which make it hard to produce a unique design guideline for all rural settlements. Regarding the diversity of village types, the proposed guide is supposed to be a model guide, rather than a standard guide, which explains the methodology and provides general design guidance as a convenient checklist for the local authority and the planners. It is assumed that detailed scheme proposals will be prepared for each settlement taking the model as the basis.

Preparing a village design guide is a complex work that should be carried out by an interdisciplinary approach. It is relevant to say that, a design team is needed including architects, urban designers, landscape architects, restoration experts, civil engineers, environmental engineers, transport specialists, topographic engineers, geological engineers, agricultural engineers, biologists, sociologists and economists. Survey, documentation and analysis are very important for understanding the local character of the settlement, including both the physical and social issues. A site survey is essential in gathering information about the physical context of the settlement. A survey team of experts acquainted with the general history of the area should work in the field. All documentations should be prepared with essential measurements, some detailed notes, photographs or videos taken in the field. A site survey is also essential for understanding the social context of the settlement. Therefore, surveys should be prepared and several meetings should be held with the village inhabitants individually and collectively in order to understand the problems and needs.

Apart from the village inhabitants there are some other stakeholders such as local authorities, NGOs, contractors and developers, universities and relevant ministries that will participate in the design and application of this guide. Forums and meetings should be organised with that groups for corporation and discussing different aspects of the subject.

This guide sets out a series of design principles. The model of the design guide is composed of four phases (Figure 1) and the content of main and subheadings are as in follows. Basic components of the village design guide are indicated in Table 2.



Figure 1: Phases of proposed village design guide model

Introduction		General Information about the settlement		
PHASE 1 INTRODUCTION & GENERAL INFORMATION	 The goal of the village design guide The scope of the village design guide The status of the village design guide and its relationship with the other plan documents Rural heritage, local identity, sustainability, quality of life, importance of good design as conceptual framework 	 Geographic position Relationship with th Population 	of the settlement e nearby settlements	
	Historical characteristics of the settlement	Socio-economic & cultu ment	aral properties of the settle-	
	 Historical development of the settlement Archaeological ruins Historic landscape character Historic buildings Conservation policies 	 Demographic charace Administrative struct Cultural and ethnic of Sources of income Mosaics of land own 	eteristics ture diversity nership	
	Natural and environmental properties of the settlement	Characteristics of the set	tlement	
	 Topography Climate Natural vegetation Geology and soils Water resources Renewable energy sources Local transportation links Risks of natural disasters Risks of pollution 	 Settlement pattern Village form Routes and street structure, existing movement pattern Boundaries and edges Social and cultural gathering points Key vistas and viewpoints Access points to the settlement Local landmarks Functional zoning 		
	Landscape character (documenting rural landscape)	Architectural properties	of the settlement	
PHASE 2 SURVEY, DOCUMENTATION & ANALYSIS	 Bio diversity Vegetation Street and courtyard landscape Verges Pavements Hard and soft landscape Street furniture Signage 	Site plan properties Orientation Position of the building on the site Road- plot relationship Relationship with the neighbouring plots Building and court- yard/ field relationship Outbuildings (stables for animals, food stor- age, storerooms for machines, tools, etc.)	Spatial properties Plan typologies Façade typologies (height of the buildings, propor- tions, solid and voids, col- our and texture) Structural features (walls, floors, ceilings, roofs, etc.) Locally distinctive build- ing materials and tech- niques Building components (doors, windows, stairs, chimneys, etc.) Ornamental details	

Table 2: The content of village design guide model
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	Stakeholders	Tools		
PHASE 3 PROBLEMS AND NEEDS	 Property owners, village inhabitants, households Local authorities Planning Group (Architects, landscape designers, urban designers, engineers) NGOs Contractors, developers Education organisations, universities Ministry of Environment and Urbanisation Ministry of Culture and Tourism Ministry of Forest and Water Affairs Ministry of Food, Agriculture and Livestock 	 Surveys Walkthrough Site visits Forums and Interviews Meetings 		
	Maj	or decisions		
F DESIGN GUIDE	 Local Identity Protecting the local identity and legibil- ity of the settlement Respecting heritage assets Design compatible with local character Environmental Sustainability Safeguarding the existing ecology and biodiversity and improving the natural habitat Protecting local landscape character (field patterns, green belt, mature trees, rivers, etc) Minimising energy consumption and promoting renewable energy resources Proposing appropriate building physics solutions Conserving water resources and reduc- ing its consumption; using rain water for irrigation Reducing pollution Recycling waste Recycling building materials Using local quarties 	 Economic Sustainability Maintaining the economic structure Proposing facilities that will stimulate the economic life of the settlement without damaging the local character Using local building masters and craftsmen Social Sustainability Maintaining the socio-cultural and demographic structure Preserving local social networks Maximizing proximity to public transport Providing accessibility for old and disabled Developing design devices for safety Providing community facilities such as a school, children's play areas, public open spaces Enhancing health services Improving infrastructure Meeting the needs of its users 		
LES	Building rehabilitation/restoration			
SE 4 DAMENTAL PRINCIP	 Local materials, techniques and details should be used in rehabilitation and restoration of the buildings Plan typology should be conserved and developed to sustain lifestyle while compromising to-day's needs Basic principles for adaptive reuse are; preserving and enhancing the existing social, cultural and architectural values, technical feasibility, maintaining authenticity Donations and promotions can be demanded for the restorations from the local authorities New developments and infills 			
FUL	Responding positively to its site and local context	Responding positively to local buildings		

4. CONCLUSIONS

Rural settlements are the environments which reflect physical conditions of the region, life style of their period to their environment, where public architecture is commonly observed. Rural and/or traditional house has a particular importance due to being historical document of cultural propagation and cultural adaptation, increasing "place" richness of earth altering from place to place. They should be protected and certificated against popular culture which propagates rapidly and totally changes. It is very important that the environmental and sociocultural values which constitute the particular characteristics of rural areas should be properly identified in the administration and guided development of rural areas.

As it stands today, clear definitions of rural areas are not given in the existing laws and regulations; a threshold population of 5000 has been accepted and rural settlements are taken as being the equivalent of villages. An evaluation of rural areas in state Development Plans, which first started being drawn up in 1963 and are prepared every five years, indicates that the eighth Development Plan contained a detailed recommendation, the first of its kind, for the founding of a Specialization Committee concerning rural areas. The Lower Commission Report of the Ninth Development Plan on the Politics of Rural Development [4] defined a rural area as having the following qualities: low population, low income levels (indicative of the level of development), limited access to education and health services, income-generating activities that are focused on natural resources and reliant on the weather, and socio-cultural practices dominated by traditions. However, because of the varying particularities of rural areas and differences of perceptions concerning them, there needs to be greater clarity in defining rural areas, as emphasized in the tenth Development Plan which is now in effect.

With Law 6360 [10], the borders of metropolitan municipalities were expanded through the incorporation of rural areas. But as we all know, the broad geographies of rural areas have particularities that differ from urban settlements and hence they need different kinds of infrastructure and services. Furthermore, this law grants metropolitan municipalities the authority to carry out or hire others to carry out standardization projects and engineering projects for non-commercial buildings in villages that were re-categorized as districts. Architectural design projects should be carried out in a way that will not detract from the originality and authenticity of buildings in rural areas which have evolved into their current state as a result of their particular geographies, histories and natural environments. In Turkey, the village design guidelines could be used as a part of development planning and while constructing buildings guidelines should be obeyed.

In this context, the immediate next step that this research team is going to take is to apply proposed theoretical village design guide for a more efficient guide involving the experience of applicability and required revisions.

REFERENCES

[1] Gülümser A.A., Levent T. B. and Nıjkamp P. Mapping Rurality: Analysis of Rural Structure in Turkey Joint Congress of The European Regional Science Association (47th Congress) And ASRDLF (Association De Science Régionale De Langue Française, 44th Congress) Local Governance and Sustainable Development August 29th - September 2nd, 2007, Paris, France.

[2] Du Plessis V, Beshiri R, Bollman R, Et Al. Definitions Of "Rural." Edited By Ray D. Bollman Rural And Small Town Canada Analysis Bulletin Catalogue No. 21-006-XIE, Vol. 3, No.3 (November 2001) ISSN 1481-0964.

[3] Gür M., Cagdas V. and Demir H., Urban-Rural Interrelationship and Issues in Turkey, 2nd FIG Regional Conference, Marrakech, Morocco, December 2-5, 2003.

[4] State Planning Organization of Turkey, 2000. Rural Development Ad Hoc 2000Ad Hoc Committee of Rural Development's Report in 8th Five Year Development Plan, SPO, Ankara.

[5] Kaya E.M. 2013.Landscape Change And Rural Policy: An Identity Based Approach to Rural Settlements, *ITUA* Z VOL: 10, NO:2, 94-110, 2013-2.

[6] Eminağaoğlu, Z. 2004. Kırsal yerleşmelerde dış mekân organizasyonu-ilgili politikalar ve değerlendirmeler (Outer Space Organisations at Rural Areas, Design Politics and Tools), Karadeniz Technical University, Institue of Natural and Applied Sciences, Doctoral Dissertation, Trabzon.

[7] Kiper, T., 2013. Kentsel ve Kırsal Alanların Planlanmasında Kimliğin Rölü (The Role of Identity in Planning Urban and Rural Areas), *in Turkish, Türk Bilimsel Derlemeler Dergisi*, 6 (2): 73-77.

[8] Law on land Development planning and control No. 3194. Official gazette of the Republic of Turkey no 18749, 03.05.1985.

[9] Law on village No. 442. Official gazette of the Republic of Turkey no 68, 07.04.1924.

[10] Law on Metropolitan Municipality No. 6360. Official gazette of the Republic of Turkey no 28489, 12.11.2012.

[11] Law on Soil preservation and land utilization No. 5403, Official gazette of the Republic of Turkey no 25890, 19.07.2005.

[12] Law on pasture No. 4342 Official gazette of the Republic of Turkey no 23272, 25.02.1998.

[13] Forestry Law No. 6831 Official gazette of the Republic of Turkey no 9402, 31.08.1956.

[14] Law on the conservation of cultural and natural property No. 2863, Official gazette of the Republic of Turkey no 18113, 23.07.1983.

[15] Coastal Law No. 3621 Official gazette of the Republic of Turkey no 20495, 17.04.1990.

[16] Law for the encouragement of tourism No. 2634. Official gazette of the Republic of Turkey no 17635, 16.03.1982.

[17] Ünlü, T. 2006. Kentsel Mekanlarda Değişimin Yönetilmesi, (The management of Change in Urban Space), in Turkish, *Metu Jfa* 2, (23:2) 63-92.

[18] Eminağaoğlu, Z. and Çevik, S. 2007. Kırsal Yerleşmelerde Tasarım Politikaları ve Araçları, (Design Politics and Tools for Rural Areas), in Turkish, *Gazi Univ. Journal of Engineering and Architecture*, Vol. 22, No 1, 157-162.




THE EXPERIENCE OF URBAN SPACE: THE CITY-MIRROR

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Keywords: City-mirror, Image of the Heritage, Heterotopias of Urban Space

Abstract.

Introduction:

This paper examines connections between the image of the heritage and the image of the city and raises the question of the impact of architectural interventions in the experience of (historic) urban space through the hypothesis of a city-mirror. This paper is part of my doctoral research which aims to address the complexities of architectural evolution in historic cities and to deepen dialog between new architectures and cultural heritage, in the context of the precarious architectonic balance of the cityscape.

Developments:

Every city is a passage of culture and memories, experiences of time, translated as series of snapshots which form the current image of the city. Architectural components of different eras, engraved in historic locus, releasing architectural discourses in various frequencies. Historic cities which are losing their identity, dormitory cities trapped in time; the modern heterotopias of urban space. "Sacred" cities, enclosing in one place all times, illusions of urban uniformity and mirrors of past, historic cities which produce architectural heterogeneity.

This analysis aims to go back and forward in time, as series of images of the past and the present which are reflected in the image of the city, under the prism of a mirror. A reflection lost in a mirror translated as heterotopia (Foucault; 1967), a mirror of heritage, where the passenger, the eternal observer of the city, perceive it through collective experiences of time; a city of reflections, where architecture is trapped in the city-mirror.

Remarks and Conclusion:

This paper proposes a hypothesis of experiencing urban space, under the image of the heritage, trapped in the image of the city. This analysis of a historic city''s sense and its unique characteristics is fundamental for the perception of new architectures, the evaluation of their strengths and consequently the identification of factors that affect their existence in historic environments.

1 INTRODUCTION

This paper is part of an ongoing research about new architectures in historic environ-ments. About architectures aging, architectures changing and architectures lost in the image of a "historic" city. In a city-archive which retains its fabric, but also enriches it during the years, so that it can evolve but in the same time preserve its identity. Where memories of previous eras translated as architectural elements (buildings) form the cityscape and where the passenger, the eternal observer of the city, experiences urban space in various ways. As I am interested in identifying this experience, for the better understanding of architecture of the city and therefore the implications of new architectures which introduce a discourse between the past and the present, I will try to present a few thoughts about this general context of architecture and heritage in the city with the intention of visualizing it.

The proposed analysis in this paper aims to introduce an image of heritage, where new architectures, tangible elements of the city that appear through the process of time, will bring new intangible values which, eventually, will converse with the existing ones; new reflections of heritage in a city-mirror. The following analysis will introduce a hypothesis of visualizing the heritage of a historic city, in combination with its existing morphological characteristics, where a more complete image of structure and sense of a place can be revealed. This could step to an evaluation of the existing condition of the historic urban space, to a better understanding of the reasons that historic cities resist to change, and to an identification of the image that is affected, threatened and perhaps, distorted by architectural progress

2 VISUAL FORM OF THE CITY



Figure 1: Panorama: North view to the city of Edinburgh from the Outlook Tower (by the author)

Before starting presenting my hypothesis of the perception of the image of the city and thus, the image of the heritage, I will do a short reference to Kevin Lynch and to Patrick Geddes, as their work had a major impact on the analysis and visual approach of the city's form, essential for the evaluation of the historic environment and for the investigation of the new architectures while appearing.

"Nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences." [1].

Almost 50 years ago, Kevin Lynch introduced the argument of the visual form of the city and its elements. He suggested the concept of *"imageability"* in order to develop a method for eliciting the public image in any given city. Three American cities have been selected as case studies to his research: Boston, Jersey City and Los Angeles. The perception of the image of the environment from different groups of recipients was identified and illustrated through maps, as this study suggested a method to deal with the visual at urban scale. This analysis guided to a general description of the public image and to an evaluation of its visual problems, strengths, possibilities for change and most importantly to a potential negotiation of the image of the city with its design and its adjustment to change [1].

Patrick Geddes, about a hundred years ago, with his book "Cities in evolution" supports that cities are not static but evolving. New forms of expression, following the movement of each period, lead to an overlay of different layers and patterns, all of them combined and adjusted to people's needs [2]. Geddes" influential interest in visualising and reflecting the evolving city can be seen in the example of Camera Obscura at the Outlook Tower in Edinburgh



Figure 2: The Outlook Tower and the Camera Obscura (by the author)

This observatory, where a mirror reflects the whole city on a canvas plate, can be the perfect paradigm of how the city can be observed and understood from one singe perspective. This apparatus projects accurate reflections of the real image of the city in one place; a nonstatic rep-resentation, a movement, a process. The city translated here as "obvious" transforms in everyday life, but it still hides secrets. Thus a new question arises; is this hidden perspective an obvious part of the city"s heritage?

3 HETEROTOPIAS AND THE PROPOSED CITY-MIRROR



Figure 3: Reflections in mirrors. The world of illusions: Outlook Tower (by the author)

From this analysis, I will try to identify the image of the city as series of snapshots that form the urban space, as parts of a collage through time. I will try to assimilate the image of a historic city, a city which contains memories and components of previous eras, as a heterotopia, relating Foucault's third principle with time and history. More specifically, Foucault in "Other spaces" introduces heterotopias as places different from all the sites that they reflect and speak about, these other places that function as mirrors, between utopias and real places, places which enclose in one place all times, places that are reflections of reality [3].

"The heterotopia has the power of juxtaposing in a single real place different spaces and locations that are incompatible with each other." [3].



Figure 4: Sketches; Perception of heterotopia (by the author)

I would like to add here, the relation of time and connect it with architecture as urban artifact [4].

"Heterotopias assume a threshold character, being both present and absent in a different time, existing both as reality and potentiality." [4].

It seems to me that these incompatible sites can be translated into buildings, architectures of different times, gathered in a single place, which in this case is the city. A city which con-

tains traces of previous eras, a city which welcomes new interventions, a city which progress and somehow evolves through time. We can call this place historic, regarding the fact that these in-compatible sites are creating a historic paradox, where history is translated as series of snapshots that form the current image of the city. This is the part where the experience of urban space is trapped in the image of the city. Where the city is unfolding its theatrical existence and the "other" (hetero) is revealed [5].

In this case I will try to do an assimilation of meanings of utopia and reality related to time from Foucault's text, for the better understanding of the image of the city and the image of the heritage that I am talking about. I will translate utopia as the past, as series of moments that do not exist anymore, and reality as the present, the real time, the actual. The past in this case refers to a particular moment in time that is not part of the present time, as a meaning and indicator of past memories and experiences of the city. I would not like to confront it with remaining components of previous eras, because from this sense the past is real, as it exists and can be identified in the city through traces or architectural elements of past years (i.e. monuments, historic buildings). The existence of both times in space is translated as the image of a city, which is reflected in Foucault"s mirror, the joined experience [3]. The mirror reflects a figure of a "kind of space"- the heterotopia, the place that represents these two sides of time which are un-touchable, a real object translated in this case as the "city-mirror"; a reflection of the urban space. Thus, this place is a historic city, because it contains elements of the past translated into architecural components (i.e. buildings), because it is a city which functions as a transitional place of history [6].



Figure 5: Sketches; Perception of mirror related to time and heterotopias (by the author)

In the above description, the past is reflected in the city-mirror as a moment in time and it is juxtaposing with the present. The observer of the city-mirror has the opportunity to experience a particular view of the city, a reflection of the past in the current image of the city. This reflection of the past, I translate it as heritage. (At this point, I would like to clarify that I am investigating the visual element of the city, the experience of the eye, through a reflection which reaches the limits of reality.)



Figure 6: The city-mirror from different perspectives; collage of images (by the author)

It seems to me, that there is a very thin line between the image of the past and the present, especially when I am talking about time and its reflection in the urban space where all these moments are all captured in one place. More specifically, different images of the past are reflected in various ways in the city-mirror. Like an invisible projector that is showing those different moments, the one after the other, as series of snapshots which are always captured in the current image of the present. This is to me, the image of the heritage trapped in the image of the city.

4. THE IMAGE OF THE HERITAGE

There are many ways of defining heritage, depending on the perspective that we examine it, and also on the factors affecting it. In the particular case of heritage and the city, I must quote Ashworth's perspective, which can follow my initial hypothesis of the city-mirror [7].

"Heritage can be viewed as a process whereby objects, events, sites, performances and personalities, derived from the past, are transformed into experiences in and for the present." [7].

This link between the past and the present, which is very clear in Ashworth's essay, implies the notion of process through architectural artifacts and, in addition, is the key point where architecture meets and challenges history and contributes to the transformation of the city through time [8]. Historical changes reveal the stories of the cities, engraved in the urban space through every transformation. Every building leaves a trace, a sign of a previous time and this is translated as development and a step of the evolution of the city. In this preexisting form, where the original layout of the city grows, the "new" of every era introduces itself while reconciling with the old, with the architectural artifacts that have already been there.

"Cities tend to remain on their axes of development, maintaining the position of their original layout and growing according to the direction and meaning of their older artifacts [...]."[6].

As I am investigating the visual element of the city, the experience of the eye through a reflection which reaches the limits of reality, I will try to represent it, introducing pilot imagesperspectives of the city with two collages. I will focus on two cities in Europe that I am interested in using as case studies for my research, Edinburgh (United Kingdom) and Thessaloniki (Greece).



Figure 7: The image of heritage in the city of Edinburgh as a collage (by the author)



Figure 8: The image of heritage in the city of Thessaloniki as a collage (by the author)

There is no coherence in these images; buildings are illustrated here as series of elements captured by the eye, from different and unconnected impressions that a wayfarer experiencing while passing from these places and then a vague connection between them; which in this case might be my perception of urban space, and also the image of the city occurring from my memo-ries. An overload of information from architectural elements, which might confuse the eye and lead to a chaotic image-far from reality and the actual perception of the city as human's experience. But the eye is the main tool of observation and the brain, which controls and processes the visual information, adds the sense of a place that is born through our sentiments. This is the ac-tual perception of the city as a wayfarer experiences it; buildings and passages that stigmatize the memory, topography related to the image of the place, selected monuments and historic buildings that are remembered as landmarks. All of them connected, introducing a multiplicity of tangible and intangible elements, producing an image that is recognizable and similar to the real, but also very far from it too. There is nothing lost and nothing illustrated, as they do not produce a coherent ensemble of the actual space.

And here, I am wondering, are these images reflections of multiple mirrors that form this imaginary space? Perspectives of narratives opposed to the fixed, to the real and perhaps limited images of the city that we already experience, revealing the other side of architectural perception; the imaginary, the invisible, the elements of the city that a wayfarer extracts from its image and creates their own experience, memories and thus, history.

I would like to include here Invisible cities [9]. This book can be a reference to what I am trying to suggest with the reflections of memories. One city containing fifty five in-visible

cities, hidden under the shadows of its sense of invisibility; memories, signs, desires, traces, histories, passions, ideas of continuity and death. All these intangible elements occurring from one place; reflected in the wayfarer's mind and told through a storytelling [9]. But how these senses can be visualized in the city? What is the narrative that can be represented through them and how this can be related to the obvious? Is the mirror the answer?

"Anything we come across could, in principle, be regarded as either an object or a sample of ma-terial" [10].

The main difference between this segregation is that an object has a complete form which is obvious, in contrast to materials that, as Ingold supports, open up a potentiality, introduce the substances of being and import the idea of incomplete- of the unfinished [10]. Perhaps, memories are parts of the unfinished, these parts that incur a continuous formation; the sense of a place that changes according to reflections; reflections of material mirrors of the past that include the histo-ry of all those that have ever passed from the city.

5. THE CITY MIRROR

Visualizing the image of the heritage is intriguing and demanding. It presupposes an overall perspective of spatial understanding and a narrative approach of what can be decoded through imagination. How the intangible elements that exist and emerge from the urban fabric could be represented and obtain form in the city-mirror, as architecture, which forms the image of the city, easily perceived from a first glance.

In order to identify the basic elements of the city, tangible and intangible ones, which contribute to the formation of its character, I propose the hypothesis of the city-mirror analysis. If the image of the city can be represented as a canvas where its composing elements illustrate a specific form, how is the image of the heritage? Heritage as a meaning of what existed, what exists and what will occur eventually, perhaps, can be translated as a reflection of the city. But, the image of the heritage cannot be identified in the eyes of a wayfarer as the current image of the city does. It consists of collective memories, of experiences of urban space, of architecture as a collage-perhaps through time- in their unconscious, and thus, transforms the actual image of the city. If only the image of the city can be reflected in a hypothetical rotating mirror, illustrating a transformed image of the city, where values of heritage can be analyzed and assessed for the better understanding of how architecture progress through time and how new architectures affect historic environments.



Figure 9: Physical model with elements of the city and their representation (by the author)

A city contains buildings, passages, green areas and water elements, a variety of architectural and engineering elements that give form to it; tangible values that are transformed through time, evolved or either preserved, even enhanced. However, it also contains memories, things that are remembered, histories engraved in places, lives of people that have passed from those places- their experiences; intangible elements that cannot be seen, but most importantly, essential for the identification of the significance of a place's identity, character, historicity and of course it's sense [11].

The tangible elements of a city are certainty, the obvious part of this image; the part that human "eye" recognizes and process. However the brain can see beyond it; the imaginary scene, the reflection of the obvious, the invisible treasure that every place hides [10].

The canvas that represents the image of the city contains elements formed through a diachronic process in time, which, at this specific moment in history, represents the actual, the real space. An observer is able to conceive a very consistent and continuous, at the same time, image of the current condition of the city from a particular point of view, while turning around the same spot; collected panoramic views occurring from the visual field that allows him to observe the visual form of the city. However, the point of view changes according to the place that is selected as an observatory. And here comes the manipulation of seeing, which is relevant to the specificity of observation. What do we need to see? What do we expect to see? Why do we choose these perspectives? The results differ from place to place, while producing a multiplicity in the visuality of urban space. Thus, what do we experience?



Figure 10: Physical models-sketches illustrating the proposed city-mirror (by the author)

The imaginary rotating circle that produces these panoramic views, while visualizing the identity of the city, changes from one observatory to another, containing always the tangible elements of the city. In the case of heritage, where values cannot be identified visually, where in-tangible elements that create the character of a place exist, here is where the image of the city is distorted. Here is where the city-mirror begins.

6. CONCLUSION

The above hypothesis of the city-mirror has been suggested in order to identify and visualize the image of the elements that are composing a city; essential step for the evaluation of new architectures and the identification of the factors that affect their existence in historic environments. Cities will always resist to the change and will always need to change. But changes have to respect the city, new architectures have to deepen dialogue with heritage, even heritage is a nonvisible notion. Contemporary design is an issue of great importance for the coherent image of a historic ensemble; it brings new values and perspectives of heritage that belong to the present era. Its assimilation into the historic city manifests the evolutionary process of architecture, where traces of history are captured in one place and therefore authenticity may become a contradictory concept.

History has shown that every epoch produces memories, which accordingly to their importance and uniqueness are engraved in different locus. The architecture of the future will be-come architecture of the past soon. New creations and forms will be conceived, in order to serve a specific purpose – a particular function, with methods, materials and data from their own era. Depending on their design, they can become part of heritage too; standing side-by-side with the architectures of the past, reconfiguring the urban space and negotiating with the image of the city and the image of the heritage. Every city has its own history and progress and needs evaluation; this is the reason that city-mirror exists.

REFERENCES

[1] Lynch, K.1960. The Image of the City. The MIT Press, Cambridge, Ma.

[2] Geddes, P. 1949. Cities in Evolution. Williams & Norgate, London.

[3] Foucault, M. 1993. "Of Other Spaces: Utopias and Heterotopias". In *Architecture Culture, 1943-1968: A Documentary Anthology*. Edited by J. Ockman, E. Eigen. Rizzoli, Columbia University Graduate School of Architecture, Planning, and Preservation.

[4] Stavrides, S. 2007. "Heterotopias and the Experience of Porous Urban Space". In *Loose space: possibility and diversity in urban life*. Edited by K. A. Franck, Q. Stevens. Rout-ledge.

space: possibility and diversity in urban life. Edited by K. A. Franck, Q. Stevens. Rout-ledge.

[5] Stavrides, S. 2010. Towards the City of Thresholds. Professional Dreamers.

[6] Rossi, A.1982. The Architecture of the City. The MIT Press, Cambridge, Ma.

[7] Ashworth, G. 2010. "Preservation, Conservation and Heritage: Approaches to the Past in the Present through the Built Environment". *Asian Anthropology (1683478X) Vol. 10, 2011,* Pp: 2-3.

[8] Rossi, A. 1983. Selected Writings and Projects. Gandon Editions.

[9] Calvino, I. 1997. Invisible Cities. Vintage.

[10] Ingold, T. 2012."Toward an Ecology of Materials". *The Annual Review of Anthropology*, 41, Pp: 425-42.

[11] Nora, P. 1989. "Between Memory And History: Les Lieux De Mémoire". *Representations, Special Issue: Memory and Counter-Memory.* University of California Press. No.26, Pp: 7-24.





ADVANCES IN HERITAGE ENGINEERING

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Keywords: Modern Heritage, Reinforced Concrete, Structural Health Monitoring

Abstract.

Introduction:

From the 19th and 20th century, the effect of the industrial and technological revolution has changed the lives and ways of the people. The decades following these revolutions were characterized as the period of abundance, although the life expectancy of the human dramatically increased, the durability of everything we built have ironically decreased because the economic trend during this era encouraged mass production. This has radically affected the architectural and engineering structure during this period. These two centuries became the defining perimeter era in the period called 'modernity'.

Developments:

As the 20th century unfolded, most of these 'modern buildings' were now frail and have already reached its maximum user-by-date. Some of these structures have such a strong attachment to the community that the society would not let it go. In order to save and protect it from getting demolished the state would list it as 'modern heritage'. Hence, the increasing demand to extend its life and even make it rise from the dead state had become a great challenge to the stakeholders, professional practitioners and policy makers. Currently, in the international stage, the UNESCO World Heritage Centre indicated that for every one hundred 'ancient heritage' there were about four 'modern heritage' structures and continually growing.

Remarks and Conclusion:

In modern heritage preservation, it is important to note that during the recent past the buildings were not constructed like the way it was during the ancient time when structures last past the lives of the pharaohs, emperors, popes, kings and the courtiers. In the current climate of building-for-profit and constructing structures that can easily demolished on its expiration date, the onus is to find new ways to enhance the approach in conserving the 'modern heritage'. To achieve a successful conservation effort, the first prudent step is the application of structural health monitoring systems and devices.

1 INTRODUCTION

The 'modern heritage' buildings relates to those constructed during the 19th and 20th century and mostly took advantage of the usage of synthetic materials such as concrete and steel which were invented and became popular during the same period. [1, 2]. Consequently, most architectural buildings in Australia, Oceania and the Pacific region, which were colonised during that period, were made of these synthetic materi-al and innovative construction method such as the reinforced concrete systems. Unfortunately, these modern heritage buildings has very different characteristics in terms of durability, dete-rioration and restorations requirements than 'ancient heritage' buildings [3, 4, 5].

Many buildings constructed at the turn of the 20th century are challenged to meet the demands of current usage while progressively deteriorating. As most of these heritage buildings are on the stage of advanced deterioration, significant attempts are being made and several innovations are being applied to upgrade these structures to conform to the current standards and building code requirements [1, 2, 6, 7, 8, 9]. This conformity issue posted a great challenge to engineers and architects because aside from the standard laws, restoring these historic buildings should also adapt the International Council on Monuments and Sites (ICOMOS) guidelines not to mention local charters containing policies and restrictions on heritage conservation. This is referred to as the Burra Charter in case of Australia, other countries has their own version like the New Zealand Charter for New Zealand, Hon Ai Protocol for Vietnam and China Principles for China [10].

Reconciling all the stipulations of these restrictive charters and upgrading the building even up to just the minimum standards and requirement of the building codes proves to be very difficult since the objective of the conservation is to retain the historic characteristic and aesthetic of the structure so as to protect its cultural legacy and significance.

1.1 The Brisbane City Hall – Case Study

The call for restoration started when it was suspected that the Brisbane City Hall was subsiding and was threatened to collapse if no mitigating actions will be applied. As a result, the City Hall closed its door to the public from 2009 to April 2013 to accommodate the investigation and the re-strengthening of the building. Extensive testing and analysis revealed the structural capacity and status of the building.



Figure 1: Photograph showing the original condition of the concrete flat roof (Source: Brisbane City Hall)

Based on the study, the major problem started with the ingress of water to the basement of the building due to the leak coming from the roof. It was claimed that there was a subsequent differential settlement of the foundation where the water was ponding [11]. A photograph taken a year after Brisbane City Hall opened in 1930 shows the original flat roof (See Figure 1). Because of its physical characteristic, the water could easily be trapped and the build-ing became vulnerable to maintenance prob-lems. The leak was caused by the failure of the waterproofing system. The major contractor's (ABI Group) project manager, Rod Boxall, stated that they had a problem installing a watertight seal on the surface of the flat roof. The waterproofing system used to protect the floors below from water ingress made use of bitumen membrane that originated from Northern Europe where they have a cooler climate. Prior to installation, this system never tested against the Queensland climate hence, the membrane became relatively brittle once it was subjected to the harsh climate of Queensland.

Cracks also appeared as a result of structural movement so the water found its way below the barrier then to its weakest point until it reached the steel reinforcement of the structure. This proved that the previous repairs were merely cosmetic and lacked thorough problem analysis that could have led to a more effective solution.

Another speculation was raised about the sinking of the Brisbane City Hall was it was caused by an underground stream below the foundation [11]. Further investiga-tion later contradicted that claim that assumption and indicated that most of the excess mois-ture has already been removed via the neighbouring buildings which helped divert the water away. After analysis it was found that the subsidence was restricted to a limited area of the basement floor slab where leaking drains had washed away the sub-base [12].

Furthermore, the challenge of the Brisbane City Hall was extended to finding a strengthening solution that will not only be compliant with the current building codes but will also not compromise the City Hall's historical aesthetics following the guidance of the Burra Charter and the Australia ICOMOS principles. The Burra Charter and the Australia ICOMOS charter for places of cultural significance advocate a cautious approach to change: "do as much as necessary to care for the place and make it usable, but otherwise change it as little as possible so that its cultural significance is retained" [13].

2 RE-STRENGTHENING METHOD

Results of investigations by several preservation consultants exposed serious problems in the Brisbane City Hall's concrete structure. This became the basis of the comprehensive conservation plan for Brisbane City Hall. When it was constructed, the strength and consistency of the hand-batched concrete used in the structural frame of the building was highly variable.

Testing performed by D. Beal and Associates revealed that the characteristic compressive strength was significantly lower than the current minimum standard of 25 MPa required for structural concrete. As a result, the experts were compelled to further assess the main concrete element of the structure. They discovered further that the steel reinforcement of the concrete would eventually collapse under the prevailing severe stresses. Even if the girders which were susceptible to tension and were heavily reinforced, the mode of failure just switch to overstressing the concrete in the compressive zone of the beam and would still gradually lead to a catastrophic disaster.

The results of the tests proved the building was significantly below the current concrete structure requirements; hence, it was imperative that strengthening work should be integrated into the conservation strategy for the building. The Aurecon group devised a design methodology to strengthen the floor structure by increasing its capacity with additional reinforcement on the concrete overlays along the weakened areas. The reinforcement was drilled and was held in place vertically by the beams of the structure. This method was subjected to an assessment test done using the prescribed method in AS 3600 (Concrete Structures).

However, the absence of specific guidance on how to resolve the issue of the existing lowgrade structure that falls more than 20 MPa below the Australian Standard prompted Aurecon to involve Civil Engineering Professor Peter Dux from the University of Queensland to verify and validate concrete overlaying as their proposed strengthening methodology for the City hall.

2.2 Re-strengthening Beams and Girders using Overlays

The Aurecon Group used two methods of strengthening. The first one, an innovative approach, was the provision of an overlay on top of the existing beams and girders. The idea is to increase the strength of the beams by adding additional bending and shear reinforcement in a concrete overlay along the affected length of the beam. The additional steel reinforcement was drilled and epoxied vertically into the existing beams underneath (See Figure 2).



Figure 2: Brisbane City Hall strengthening of beam using concrete overlay

This technique increases the effective depth of the beam at mid-span resulting in a greater rigidity of member that would furthermore decrease the deflection. The vertical dowel bars were drilled into the beams to resist the horizontal shear force between the new and old concrete.

A second method for beam and girder re-strengthening was undertaken by means of installing a series of new steel beams situated beneath, and connected to, the under-strength members.

2.3 Strengthening of Columns

For the strengthening of the columns, two solutions were proposed. The first was simply to provide a high strength concrete jacket around the existing profile. This solution was faster, however, in line with the Burra Charter guidelines, this was unacceptable as it would increase the overall size of the columns.

The second solution was to remove the outer skin of the column and replace it with a high strength concrete, thus preserving the original size. This option was suitable in the columns along corridors and function rooms, where the increase in original dimensions would be unacceptable.

A suggestion to insert a steel column into the middle of the existing concrete column was not economically feasible at the current stage of technology.

3 POST-MONITORING AND VALIDATION OF STRENGTHENING METHOD

3.1 Structural Health Monitoring

Structural Health Monitoring (SHM) is the use of on-structure sensing system to monitor the performance of the structure and evaluate its health status [14]. It is commonly used in bridges and towers to predict failures caused by overloading, aging and other environmental factors. Its application to monitor the health of heritage buildings were beginning to become a popular notion to prevent costly repair in structural restoration, prevent catastrophic failure and to provide quantitative data for engineers and infrastructure owners to design reliable and economical asset management plan.

Structural Health Monitoring (SMH) devices were small gadgets with the size of a normal smart phone which measures the vibrations and sounds coming from the building. These small devices are wired or remotely connected to any PC. By using interrelated algorithms to compare the transmitted vibrations and/or sounds coming from the building, the damage on the structure can be detected, located and even quantified. This will be a very important pre-ventive measure for the Brisbane City Hall (BCH) since the recent restoration only complied with the minimum structural requirements of the Building Code of Australia, in fact, despite the re-strengthening effort, an agreement was made to prohibit the rhythmic activities in the foyer such as dancing and congestion of people [12]. SHM device will be very useful since it will allow round-the-clock monitoring to check if the structural activities will not breach the integrity of the City Hall.

The structural settlement period of any new and recently restored buildings normally happens during the first seven years (7) after the date of completion. During this period the structures undergo adjustments until it reaches its equilibrium state. Cracks or even failures will become evident during this so-called breaking-in period. This time is very critical as it would identify if the structure will still requires fine tuning and adjustment. In the case of the Brisbane City Hall, it is not only about the issue of the efficacy of 'concrete overlay' (i.e. the adhesion of the new and old concrete) but also the integrity of the waterproofing system which mainly initiated and aggravated the concrete cancer on the structure.



Brisbane City Hall Restoration

Figure 3: Proposed validation of the strengthening of Brisbane City Hall (Source: A.Cruz)

During the restoration of the Brisbane City Hall, there were three researchers evaluating the (1) Structural Innovation, (2) Building Pathology and (3) Architectural Significance of the BCH restoration. The researches was completed and was published in local and international journal including the presentation on one of the international conference: Structural Analysis of Historical Construction SAHC2014 [15]. However, the innovation applied re-quired further validation that can only be achieved after years of post-monitoring. Hence, the application, of SHM to BCH is the most logical step towards of the re-strengthening confirmation as shown above in Figure 3.

3.2. Detection of the Presence of corrosion on reinforcing steel using ResiPod - Corrosion Rack Probe for Existing Structures

On recent re-strengthening of the City Hall, evidence of the reinforcement corrosion was noted. If there was no sufficient protection to reverse the corrosion activity there will be possibility that the application of concrete overlay will be rendered useless because of the increased corrosion activity from the older concrete. This item will detect the growth of corrosion and even calculate the Chloride diffusion in the reinforced concrete. This instrument is shown on Figure 4 courtesy of PCTE.



FIGURE 4: CorroMap Corrosion Testing and Corrosion Rate (source: PCTE)

This is an optional permanent installation of measuring device that will monitor the rate of corrosion on the embedded reinforced concrete in the building CorroRisk. That would depend on the budget for this research.

3.3 Monitoring the Integrity of the Concrete Flat Roof Waterproofing Using the Hygropin as a Concrete Moisture Meter

It was revealed in the investigation that the flaw in the waterproofing membrane from the roof top caused the severe concrete deterioration, commonly called now as the 'concrete cancer'. There were also pieces of evidence about numerous repairs on the concrete flat roof. Although the application of the waterproofing membrane called bitumen was a good response, it does not do much against the reality that a flat roof, especially concrete, was very hard to maintain under the tropical climate condition such as in Brisbane. Even the natural material could not last longer because of the effect of ponding of penetrating water. As a popular saying in the industry goes, "the sun will always rise in the east and set in the west, but the flat roof will always leak".



Figure 5: Hygropin Relative Humidity Meter - Concrete Moisture Testing and Waterproofing Integrity (Source: PCTE)

To monitor the integrity of waterproofing, an instrument and a semi-permanent pin will be installed in the roof. The instrument and pin were shown above in Figure 5. This will detect even the slightest breach on the integrity of the waterproofing membrane which if neglected will cause further deterioration.

Vigilant monitoring is the key in the prevention of leaks from the roof. It would be very wise to monitor this problem since it aggravated the concrete cancer that attacked the concrete structure of the Brisbane City Hall. This monitoring will prevent costly damage that was experienced in the last restoration.

3.4 Investigation on the compressive strength of the concrete using Silver Schmidt – Rebound Hammer for Strength Assessment

The compressive strength of the concrete of Brisbane City Hall at 3.4 MPa is inherently low against the 25 MPa requirements. During the investigation it was revealed on core drilling samples the average of 6-12mPa. During the three years' post monitoring stage a Silver Schmidt – Rebound Hammer will use to monitor the compressive strength of the concrete as shown in Figure 6. It will monitor the effect of the recent restoration if it influenced the rate of carbonation or deterioration of the concrete.



Figure 6: Schmidt Hammer - Concrete Quality and Strength Testing

3.5 Measuring Post Deflection on beam using IBIS-S Interferometric Radar – Deflections and Vibrations of Structures.

The advanced IBIS-S Interferometric Radar is intended to monitor the deflection and Vibrations of the structure under normal occupancy during the period of post monitoring investigation as shown in Figure 7.



Figure 7: IBIS-S Interferometric Radar - Deflections and Vibrations of Structures (Source: PCTE)

During the restoration of Brisbane City Hall, similar deflection analysis was done in Balmoral Room by constructing a pool and filling it with water to simulate the loading and then measuring the deflection as shown below in Figure 8. It will be conducted exactly where the initial measurement of deflection during the restoration and structural re-strengthening.



Figure 8: Beam deflection measurements done in Brisbane City after strengthening (Source: BCC)

The post monitoring deflection analysis will be done under the normal condition using IBIS-S Interferometric Radar and would not disrupt the normal operation on the Brisbane City Hall. Alternatively, a theodolite can be used instead should this instrument would not be available.

4.0 CONCLUSION

Traditionally, semi-destructive testing like deflection measurement after the installation of 'concrete overlay' and core drilling of samples is very expensive and laborious in postmonitoring. Structural Health Monitoring is an excellent alternative in evaluating the integrity of the recently restored structure. Brisbane City Hall has recently gone through a major structural re-strengthening which required the use of a very innovative approach called 'concrete overlay'. This procedure is similar to bone grafting operation in case of a human being who suffered cancer. However, this preservation approach has never been tested to any heritage buildings around the globe. This is commonly used only for bridges that suffered structural deterioration. The most prudent action after the restoration was to monitor the status of the structure to confirm if the conservation did not do more harm than good.

REFERENCES

[1] ICOMOS-ISC20C. (2014). Approaches for the Conservation Of Twentieth-Century Architectural Heritage, Madrid Document 2011. Retrieved 30th March, 2014, From Http://Icomos-

Isc20c.Org/Sitebuildercontent/Sitebuilderfiles/Madriddocumentforpublication2012with 2011copyright.Pdf

[2] UNESCO. (2014). Modern Heritage Programme. Retrieved 17th July, 2014, from http://whc.unesco.org/en/modernheritage/.

[3] Langenbach, R. (2003). Intuition from the Past: What We Can Learn from Traditional Construction in Seismic Areas. Paper presented at the US/ICOMOS.

[4] van der Molen, J., & Alsop, P. (2000). Early Reinforced Concrete Structures - a Heritage Issue. Paper presented at the Australasian Conference on Engineering Heritage (2nd: 2000: Auckland, N.Z.), Auckland, N.Z..

[5] Watt, D., Swallow, P., & Macdonald, S. (2003). *Concrete : building pathology. Oxford, UK : Blackwell Science.*

[6] Buntrock, R. (2010). *Structural Performance of Early 20th Century Masonry High rise Buildings*. (Master of Engineering), Massachusetts Institute of Technology, Massachusetts.

[7] Macdonald, S. (2003). ICOMOS:20th Century Heritage: Recognition, Protection and practical challenges, Australia.

[8] Maitland, I. B. (2008). Structural Enhancement of St George's Cathedral, Perth. *Australian Journal of Multi-disciplinary Engineering*, 6(1), 35-43.

[9] Marriott, A. (2011). The performance of heritage buildings in the 2010/2011 Christchurch earthquake swarm. Paper presented at the 16th Engineering Heritage Australia Conference: Conserving Our Heritage - Make a Difference! 13-16 November 2011, Hobart, Tasmania, Barton, A.C.T.

http://search.informit.com.au/documentSummary;dn=896129414650096;res=IELENG.

[10] Normandin, K., & Macdonald, S. (2015). A Colloquium to Advance the Practice of Conserving Modern Architecture. Retrieved 26 January, 2015, from

http://www.getty.edu/conservation/our_projects/field_projects/cmai/cmai_colloquium. html.

[11] Lofthouse, A. J. (Writer). (2011). Documentary of Brisbane City Hall Three Years Restoration Project, *The Soul of Brisbane*

[12] Cartwright, D., & Belperio, R. (2012). Saving Brisbane City Hall. Paper presented at the Australian Structural Engineering Conference 2012, Perth Western Australia.

[13] ICOMOS Australia. (2013). The Burra Charter 2013 Adopted 31.10.2013. Retrieved 27th March, 2014, from http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf

[14] Chan, T. H. T., & Thambiratnam, D. P. (2011). *Structural health monitoring in Australia* New York :: Nova Science Publishers.

[15] Cruz, A. (2014). Re-Strengthening 20th Century Architectural Heritage: A Case Study of Brisbane City Hall Restoration. Paper Presented At The Sahc2014 - 9th International Conference on Structural Analysis of Historical Constructions, Mexico City.





CONCEPTUAL DESIGN OF CONSERVATION OF HISTORIC BUILDINGS

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Keywords: Durability, Plausibility, Reliability, Seismic Joints, Soil-structure Interaction

Abstract.

Introduction:

The paper deals with Romanian historic buildings directly founded on deformable soils and located in seismic prone areas. The oldest monumental buildings preserved in the Carpatho-Danubian–Pontic regions are churches shaped according to the three-lobed plan. The oldest ones are the Trinity Church of Siret in Moldavia, since 1376, and the Church of Cozia Monastery in Wallachia, since 1388. Erected with stone and brick masonry these Eastern Churches of Balkan-Byzantine style are only ground floor buildings supported by continuous foundations under walls. They have been creatively adapted to the regional traditions of the secular architecture. These Orthodox Churches also reflect the foreign influences on the autochthonous art of building [1]. Regarded from the perspective of conservation, Romanian historic buildings encountered in time two major problems, one from soil-structure interactions and another from the strong earthquakes.

Developments:

The conceptual design of conservation historical buildings is based on the existing codes and recommendations [2]. They contain principles of evaluation and guidelines for investigation, diagnosis and therapy that are very useful indeed, but often not easy to be fulfilled. For instance, geotechnical studies, based on local data supplied by boreholes, sometimes can be incomplete and therefore leading to wrong solutions of conservation at high costs. For important buildings additional geo-mechanical and geo-electric studies are helpful. As concerns the masonry works the difference between the old masonry based on lime mortars and the modern masonry based on cement mortars, called "mascrete" should be considered. The compatibility between old masonry and reinforced concrete should be also proved as provided by the article 10 of the Venice Charter 1964. The durability of conservation works, as required by both Eurocode 1, clause 2.5 and ISO 2394:1998(E), clause 4.5, is of high interest. Mathematical Theory of Reliability allows fulfilling this requirement if the risk factors are accurately enough evaluated.

Remarks and Conclusion:

The conceptual design of conservation historic buildings should also include their immediate environment, the neighbor buildings, and specially the seismic or separation joints if they really do exist or the consequences that arise if they do not. The paper concludes that human factor cannot be omitted, and the use of plausibility clause, as provided by ISO 13822:2010, is suggested.

1 INTRODUCTION

All historic buildings have something specific or particular that confers them a distinct personality. This is why it is rather difficult to find descriptive data and proprieties that are appropriate for all of them. In order to simplify the presentation of the two above mentioned problems, caused by soil-structure interaction and earthquakes, a case study was chosen. It refers to the monumental Cashin Church in Bucharest famous for its beauty. The church is located in a residential zone, just in the vicinity of Triumph Arch (Fig. 1).



Figure 1: South-western view of Cashin Church

1.1 Relevant data

The winner of the competition to design the Cashin Church was Dimitrie Ionescu-Berechet, the Chief Architect of Romanian Orthodox Patriarchy in Bucharest. The construction works started on August 23rd, 1937, the structural works were finished on March 15th, 1938 at the very end of winter, and the whole construction was completed on November 15th, 1938. The works of plastering and decoration immediately started, but some of the internal ones are still unfinished. The strong earthquake that occurred on November 10th, 1940 did not damage the structure of the church what enhanced the fame of the architect and his engineers like Aurel A. Beles and Liviu Ciulei. Church floor was uplifted with 2.00m from the level of natural ground so that a monumental stair was built up in front of the main entrance. Church plan has a threelobed imprint with an enlarged narthex and the following dimensions: length L=40,90m, wide B=25,15m, and height H=41,47m. The values of the two ratios, namely L/B=1.626 and H/B=1,648 are very close to the divine or golden ratio φ =1,618 what explains the outstanding beauty of the church. The strongest earthquake of the twenty century that occurred on March 4th, 1977 did not damage the resistance structure of the church, even if some lay-outs of the inclined cracks in masonry curved walls, imperfectly hidden by plaster and painted in white, are still visible. The church proved again that is very well balanced in the gravitational field.

1.2 Structural system

The reinforced concrete was first used to churches in 1924 by Emil Prager to the Cathedral of Alba Iulia as protection against non-uniform settlements that occur in foundations. In his mixt system the structural members of reinforced concrete are not incorporated in the mason-

ry walls. They closely cooperate with masonry, the one based on lime mortars, but are preserving their structural independence. That means the two materials, reinforced concrete and masonry, are not reciprocally bound by Saint Venant principle of deformation continuity like in composite materials. After successfully use to other churches in country side, the mixt system was confidently adopted for Cashin Church. In these conditions the construction consists in a spatial monolithic structure of reinforced concrete cast *in-situ*, composed by elastic columns, beams, arches, rings, floors and shells, kept together by rigid joints, and all located behind massive masonry walls. It is interesting to know that all five steeples are independently supported by 5x4=20 columns and directly discharged in foundations. The vertical axis of Pantokrater steeple falls exactly in the gravity center of church floor. The reinforced concrete floor consists in a plate of 12cm thickness that covers an orthogonal network of beams supported by 16 massive columns. The floor plate is extended outside the church, for supporting the stone steps of monumental stair, without any seismic or separation joint.

1.3 Foundation system

Among the few original preserved documents of the church a sketch with foundation details signed by Luigi Cora, a master of Italian origin was discovered in archive. The thick walls of brick masonry with pure lime mortars of at least 70cm in wide were continuously founded on a concrete base of 30cm in height at a depth of 2.00m from the level of natural ground. The four columns of each small steeple were founded on a single isolated reinforced concrete block, while the four columns of Pantokrator steeple were supported by the four blocks for the small steeples being connected between them by strong steel ties. The 16 floor columns were founded on isolated blocks at -1.00m and -1.50m, the transverse wall between nave and altar at -2.60m while the foundation of monumental stair at only -0.80m with 10 cm over the limit of freezing level. Therefore five different depths of founding were chosen what for a weak and capricious clayish soil is bad. But what is worse the depth/height ratio is only 1/20, while for the Endless Column, built in the same time at Targu-Jiu, is normal, i.e.1/6.

2 DAMAGES

At the end of January 2013, after 75 years of church service, the parish priest asked for technical assistance. Without any apparent cause or warning the intrados of reinforced concrete floor displayed longitudinal cracks that were also extended over some transverse beams and even columns (Figs. 2, 3). The event was not surprising. The north zone of Bucharest has a weak foundation soils, and during the two strong earthquakes of twenty century many buildings were severely damaged. This is why since nineteenth century in that zone the building heights were limited by law to only two floors. A program of inspection was immediately organized followed then by appropriate investigations as an anamnesis requires. It was found that masonry also felt the settlements and some bricks cracked (Fig. 4) while in basement



Figure 2: Cracks in floor



Figure 3: Horizontal crack in column



Figure 4: Crack









Figure 5: Wet bricks

Figure 6: Rebar

Figure 7: Rust

Figure 8: Cover

other bricks were soaked by humidity (Fig. 5). By far the most concerning fault consists in the rusted rebars, and the imprints of rust on concrete surface show the process happen long ago (Figs.6-8). The cracks of floor were also felt by the marble plates that cover it (Figs. 9-11).



Figure 9: Partial crack



Figure 10: Crack crossing joints



Figure 11: Limited crack



Figure 12: Dislocations of stone steps



Figure 13: Permeability of pavement

It is not true that the accident occurred without warning. The dislocated steps of monumental stair displayed from long ago the rebellious nature of foundation soil (Fig.12). Then, the ruble of marble and travertine plates, laid along the perimeter of church, generously allowed the infiltration of pluvial waters in church foundations (Fig. 13). Even the internal canalization, that crosses the southern yard of the church, did not hide its malfunctions during heavy rains.

3 FOUNDATION SOIL

The geotechnical and geo-mechanical studies confirmed the clayish nature of foundation soil, but the idea of uniformly distributed lithological layers was not accepted and then an ad-



Figure 14: Plan of geoelectric map at -2.00m



Figure 15: Longitudinal vertical section

Figure 16: Transverse vertical section

ditional geo-electric study was ordered. Resistivity surveys are common for establishing soil lithology, mapping clay layers or sand deposits, also mapping water table and fracture location. Equipotential lines are suggestive and helpful for understanding the structure of soil. In the case of Cashin Church the foundation soil has a typical infill structure (Figs. 14-16). Geoelectric study confirms that on church location, not too long ago, a swamp did exist. In spite of the available documents about that state of church location, the designer decided a shallow level for foundations. Normally, for such a monumental building and according to the 1/6 ratio, the minimum depth of foundation would have been -7.00m. Now that mistake cannot be corrected any longer, but geo-electric data are helpful in recommending a remedial solution. In addition, Expert's Report is mentioning that during settlements the church body suffered a slight lateral inclination towards south-west direction like rolling around its longitudinal axis with a few degrees [3]. The explanation comes from the above transverse vertical section where under basement a concentration of equipotential lines is displayed. The zone coincides with the place where the massive columns supporting the floor have cracked. Therefore, geo-electric study is an excellent lesson of soil-structure interaction and its limits of analysis.

4 RECOMMENDATIONS

Five immediate actions were proposed on August 21^{st} , 2013, when the Expert's Report was delivered, as follows: 1) Putting the floor under safety by temporarily construction in basement a supporting metallic structure for limiting the damages in case of a brittle collapse. 2) Reinforcing the soil around the church body with polymer geogrids and water proofing the surrounded pavement [4]. 3) Remove the existing canalization on a more distant location. 4) Permanently monitoring the church by controlling the 27 marks installed in the basement by technical expert. 5) According to the Code P100-3/2008 the building was classified on the second class of seismic risk. Consequently, by a written advertisement, displayed at the entrance, the believers should be prevented that visiting the church could be dangerous.

For the conceptual design of strengthening works it was suggested a careful examination of all reinforced concrete structural members in order to establish their real bearing capacity. Then, as an alternative solution to a piled enclosure, to build up around the church body, at elevation level, an L shaped retaining wall of reinforced concrete able to take over and diminish the pressure on foundation ground during earthquakes. This solution was successfully applied to Sf. Mina Church in Bucharest before the strong earthquake that occurred in 1986. Again soil-structure interaction may become very efficient in seismic protection [5].

As concerns the durability of historic buildings it can be probabilistically analyzed at any degree of accuracy with the aid of equation

$$\tau = \int_{0}^{\infty} F(t)dt \tag{1}$$

where in the most general case with one DOF the function of reliability assumes the form

$$F(t) = e^{-\int_{0}^{t} \lambda(t)dt}$$
(2)

and the risc function $\lambda(t)$ is well defined.

5 CONCLUSION

Life is governed by gravity, and Cashin Church is a building perfectly balanced in the gravitational field. As an isolated building the surrounding environment is important for preserving in time its balance. In the conceptual design of conservation historic buildings an individual freedom of thinking is imperiously necessary. A collective conceptual design does not properly work, and democracy cannot be invoked for help. This old puzzle was elegantly solved with the aid of ISO 13822:2010 by plausibility principle. Consequently, it was frankly proclaimed that *The one who pays, decides*.

REFERENCES

[1] Sofronie, R. 1983. "Post-seismic strengthening of Churches". In *Final Report of IABSE Symposium Venezia*, Pp.287-294.

[2] ISCARSAH, 2002. Recommendations for the analysis, conservation and structural restoration of architectural heritage. Editura Universitară "Ion Mincu" București.

[3] Sofronie, R. 2013. Expert's Report No. 250.

[4] Feodorov, V. 2003. Pământ armat cu geosintetice. Editura Academiei Române, București.

[5] Sofronie, R. 2014. "Lessons Learned From Soil-structure Interaction". Univ. of Agronomic Sci. and Vet. Medicine of Bucharest, *Scientific Papers, Series E, Vol. III*, Pp: 67-72.

CHAPTER II

NEW and HISTORIC STRUCTURE / ENVIRONMENT RELATIONSHIP





ANCIENT WALLS AND URBAN CONTEMPORARY PROJECT: ISTANBUL CASE

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Keywords: Contemporary Urban Project, Archaeology, City Walls, Voyage, Istanbul, Marmara Sea Coast.

Abstract.

Introduction:

In many European metropolis, ancient walls do not amount to an archaeological conservation matter but they represent an important contemporary design material. They appear determinant to define a global strategy, able to connect areas and points around their circuit, most of the times partially recognisable. Istanbul appears as an emblematic case, starting point of the study and proper research's theme "inspiration".

Developments:

In Istanbul, the walls' circle is not a defensive line anymore but a proper belt which contains different kind of urban materials. Along walls' perimeter, big and small dimensions of urban tissues establish a continuous comparison, from which the identity of places emerge. A general strategy for Marmara sea coastal area has been elaborated by investigating interaction modalities between historic heritage and other urban elements in order to build an alternative project to current urban way of planning in the Historic Peninsula. The idea is to re-start from city's proper and authentic features being aware of existing interrelations among different scales, considering World Heritage Sites by Unesco for a wider project possibility. Strategy's keystone is ancient walls' system itself: fragments relate themselves directly with urban tissues and that is the place where the "cohabitation" between them and the city can be again reformulated.

Remarks and Conclusion:

The issue about project on historic city emerges with its problematic peculiarity. It has the assignment to keep together, to connect, to open new perspectives. This is particularly evident in ancient walls' case, especially where they survived as fragments: in Istanbul walls can keep together other elements resulting from the city, from daily life and from urban changes. Those trans-formations could be read through a project of relation among layers, levels and scales to be able to interpret imperfect and incomplete spaces where the city recovers a multiple identity as a result of complex stratification.

1 INTRODUCTION

In many European metropolis, ancient walls do not amount just to a historic-archaeological conservation matter but, perhaps more than other ancient city's elements, they potentially represent an important contemporary urban design material. They appear determinant to define a global strategy, able to connect areas, elements and points, inside and outside their circuit, most of the times only partially recognisable. In a research work about some European metropolis, through ancient walls' theme, many issues about the relation between ancient and contemporary have been analysed. The aim is to experiment specific modalities of building the project, based on new gazes and new readings of current urban fabric condition.

Among those metropolis, Istanbul appears as an emblematic case, starting point of the study and proper research's theme "inspiration": a city which contains many other cities inside itself, through "its images", but being able to explicate them always by extremely peculiar features. This possibility to reference other urban realities develops as an immaterial, spiritual attitude, in order to represent somehow the condition in which the traveller finds himself. He does not look for something concrete with which directly relate himself, but something to keep inside, as a real and proper observing experience. Aldo Rossi well illustrated this kind of approach, furthermore talking about Istanbul: "I believe that in my education process, voyage had a big importance / still nowadays walking through a foreign city is one of my biggest pleasure source, because of the interest I have for things and at the same time for feeling detached by them. (...) About voyages, I have always considered going to Constantinople very important. (...) A confusion between feelings and places has often existed for me, and it still exists." [1]

Objects, atmospheres and landscapes become in this way a fundamental part of absolutely original vision of places, in which in different ways ancient walls play an important role. On the other hand in urban analysis studies Aldo Rossi underlined lots of times that: "in the process of transformation, the city walls stand as the most important artefact of the city on which to intervene; even as an element of architectural composition." [2]

This condition happens in Istanbul as well, where the urban frame of Historic Peninsula results morphologically included inside its walls, even if some parts of them disappeared and others still exist, creating a kind of landscape and urban configuration which appear complex and heterogeneous.

Viewpoint from which we have considered the city has been at the same time that of the traveller and architect's one. As couple of years ago Giancarlo De Carlo did by observing the city both with architect's perspicacity and determination and traveller's sensitivity and passion: "attachment and detachment, passion and critical relaxation, indispensable to read with clarity and to design". [3] Through this viewpoint, especially in Istanbul's case, definition by Claudio Magris for preface to Walter Benjamin's work appears absolutely important for its transverse sense about the traveller who wanders as an "archaeologist who goes down through the stony landscape of the city, going across its layers just as Schliemann with Troy's ones." [4]

In fundamental passage from discovering and observation moment to project interpretation, the approach described by Peter Zumthor has been adopted, when he writes in "Thinking architecture" (the use of "thinking" is not casual in this sense): "When I concentrate on a specific site or place for which I am going to design a building, if I try to plum its depths, its form, its history, and its sensuous qualities, images of other places start to invade this process of precise observations." [5]

It deals with a fundamental aspect of design research: on Istanbul an in-depth analysis has been developed by assuming an external gaze, "full" of analogous images, so that specific readings and project interpretations came out also from the comparison among different urban realities.

On the other hand nowadays, probably, studying a reality alone in its context appears quite reducing, so that we feel the necessity of a continuous comparison among many situations, which could appear distant and different from each others, but at the same time full of elements able to refer and intersect, connecting to other places by sudden and unusual ways, opening to new considerations and unexpected project developments.

Among different layers through which it is possible to develop this comparison, traces and, more in general, architecture, stand as means to evoke transverse images to our minds, made of knowledge, experience and places' network. It is the same mechanism that Antonio Tabucchi described, regarding the novel, whose construction in this sense is deeply similar to architectural project: "There are voyages which have been transformed in writing. Those voyages are not here anymore, I forgot them. Or better, they keep on existing because I transformed them in novels." [6]

On the base of these preparations and introductions, a proposal for Istanbul's ancient walls has been elaborated. A kind of proposal which can be considered as a vision more than a project, which starts from a clear assumption: starting again from walls' circle to face with a wider reasoning on the city, as a contemporary metropolis.

2 THE ROLE OF ANCIENT WALLS IN CONTEMPORARY ISTANBUL

2.1 Ancient and contemporary: walls as element of relation

In order to discuss about the relation between ancient and contemporary, in Istanbul understanding what is nowadays walls' circle composed of appeared fundamental. It does not result a defensive line anymore, but a proper belt which contains different urban materials; those elements collaborate together in building the new perimeter of Historic Peninsula, variable in depth and density. Ancient walls, vegetable gardens, public spaces, remarkable architectures, railway stations and piers: they all constitute a visibly compact border but, according to a deeper observation, it presents a lot of filaments through which contemporary parts attach to pre-existing ones, considered as irreplaceable cornerstones. [7]



Figure 1: Urban survey of "materials"

At the same time, it is important to be aware of Istanbul's urban machine as contemporary megalopolis, by meditating on in/out mechanisms from Historic Peninsula to the entire city. Moreover, it appears fundamental to pay attention to external growth filaments, because of impossibility to stop on what Constantinople was in the past. It deals with a very wide issue and for this reason a particular area has been analysed, as an example method: coastal area on Marmara sea, where different characterizing urban mechanisms meet with each others.



Figure 2: Connections with the city

Figure 3: Project area

2.2 Coastal area on Marmara sea

The area represent a very particular part of historic city, where, starting from 1946, different filling up operations of the coast determined a series of urban structures parallel to the Sea walls. Tissues layers shaped among ancient fortification line, historic Orient Express railway, Henri Prost's plan coastal road [8] and the shoreline, which has been again modified during last years by creating a huge square on the sea next to IDO ferryboat station. This operation actually changed the geography of the place.



Figure 4: Coastal area city layers

A kind of horizontal "stratification" has been determined, whose configuration imposed new flows and relations. For this reason different components related to tourism and tertiary, to any kind of residence and big parks, often appear completely autonomous. On the other hand this stratification defines a very interesting articulation both in horizontal and vertical sense, that was caught by Le Corbusier, as Enis Kortan affirms: "If we make an aesthetic analysis of this fascinating, beautiful sight, on top of the horizontal line of the sea there is a continuous horizontal band of city walls and another horizontal effect is the Topkapı Palace on top of the walls. Among all these horizontality suddenly there appears two striking and jetting sculptural works of architecture: the Sultan Ahmet Mosque and St. Sophia successful use of proportions in horizontal and vertical directions, coherent usage of materials." [9] Actually, because of the contemporary city configuration, coastal area on Marmara sea is a significant place from where observing how city has combined itself with the walls' system. While the Land walls represent such a strong landscape infrastructure to be considered as a whole and along the Golden Horn just few fragments of ancient walls are still preserved, on the coast of Marmara sea walls are in direct contact with buildings, open spaces, streets. That is the place where it is meaningful to discuss about layers and levels of the cities, by introducing some logics similar to those which have been used for ancient acropolis in Naples. In southern Italian city, in fact, old fortification ruins are pressed by recent urbanization; instead, they could be included in a network of paths going through the city. [10]

Coming back to Istanbul, that is the place where the "cohabitation" among different materials could be reconsidered and the project could work on a reconnecting mechanism, in which the walls play a clear role.

It is a very complex work, because it deals both with what it is visible today and what will be realized in the future, through some big urban transformation projects in Historic Peninsula. Some of them are very influent on the coastal area, such as Yenikapı Archaeo-Park that creates a system among ancient materials, important archaeological findings and contemporary project, through a strategic and urban reorganization of the area [11]. Moreover, Marmaray metro line, coming from the Asian side of the city, keeping underground until Kazlıçeşme, partially replaced, even if in completely different terms, the ancient Orient Express railway. It absolutely changed some fundamental elements about coastal area setting.

2.3 Big and small dimension of historic city

Recent transformation projects in Istanbul have been characterized by big dimension which influences on historic city urban tissues and links in its complexity. A deeper reading is able to catch multiple relations with small dimension as well, which is represented by ancient urban centres along the coast, where traditional building heritage is preserved, especially timber one. Scale changes from intimate dimension of residential areas to big urban connections appear peculiar in this contemporary urban landscape. Some possible contact areas have been identified in order to build a strategy able to keep together many issues, such as scales, materials, images. That is the role of contemporary project for historic city, isn't it?



Figure 5: Urban strategy: small and big centres

Somehow, this kind of urban and, especially, social conformation evoke some aspects of London, where the quarters look as small autonomous centres. Inside of them, as it happens in

Istanbul as well, people can conform the space as more convenient to daily life, in the deeply complex frame of contemporary metropolis working mechanisms. [12]

Exactly starting from this point, about urban scales twist, in Istanbul it appears necessary to build a urban general strategy based on the idea of supplying a different vision of things, of proposing an alternative to the current way of planning, thanks to which the practice of rereading Historic Peninsula urban spaces could play an important role. In this way it is possible to include World Heritage Sites by Unesco [13] inside of the global strategy, for a wider project possibility to be characterized time by time in relation with specific features. It appears possible, in this way, to proceed with some project suggestions such as: creation of archaeological terraces on Sea walls all around the Seraglio Point; potential reuse of ancient oriental railway which today is out of order; connection with the future Yenikapi Archaeo-Park to the entire system; reinterpretation of big architectures which characterized the walls' path in the past and today appear just ruins (Bucoleon Palace) or not enough enhanced (Yedikule Fortress); exaltation of other kind of paths different from tourist ones. The idea is that the city of big monuments may be in the background for once, to be replaced by a more authentic, some-how more humble, Istanbul.



Figure 6: Urban master plan with World Heritage Sites by Unesco

The strategy moves through the exploration of a proper case records about the relation between contemporary city and ancient walls, by searching in their singularity some recognisable elements. They evoke other places such as Rome, Barcelona, but also Amsterdam and Copenhagen where fortification trace became a very important landscape issue. Through a dynamic and transverse strategy, the vision starts from Seraglio Point to reach Yedikule, where a proper architecture project proposal has been elaborated, by offering a visible alternative in the global reasoning frame.

2.4 Building mechanisms of a contemporary project for historic city

In Yedikule it is possible to identify a very particular project area, contact point between Land walls and Sea walls. The name of the quarter, one of the historic urban centres along the coast, derives from the majestic fortress characterizing the area, Yedikule Hisari, Seven Towers Fortress. It is an extremely fascinating place, setting of the precious comparison between archaeology and industrial past. The Fortress includes the ancient roman Golden Gate, triumphal entrance of roman emperors, that, with its two towers - the only ones to be squared, comparing to other five - is proper part of Land walls, characterized by a triple defensive scheme. They represent the western boundary of Historic Peninsula, going from the Golden Horn in the north until the Marmara sea in the south, where the Marble Tower, in contact with the water in the past, used to be the junction point with the Sea walls, by assuring continuity to the entire defensive line, unlike it happens today.

It looks like a very important area, because of big-scale projects interaction, industrial archaeology presence, small urban centres importance. From this viewpoint, the area becomes a proper survey laboratory on the city and on its potentialities of change, a laboratory open to confrontation with other urban contexts which present analogous conditions from morphological, architectural and materials use and conservation point of view.

Project area, included in Fatih municipality renewal plan as touristic and cultural area [14], is an ex industrial area where three very interesting buildings of industrial archaeology are located: a gasholder, old city-gas deposit, and two rectangular buildings which hosted coal and other combustible materials furnaces. Nowadays the industry, out of order, is used as bus deposit; despite that, the relation with the surrounding landscape, historic and naturalistic, still appears very strong and important.

Design actions move from the identification of clear purposes, such as: to give back visibility to industrial archaeology from the street by operating a direct confrontation with disappeared walls' trace; to dig inside industrial buildings in order to create mediation spaces between industrial archaeology rigidity and dynamic walls' system; to insert a new contemporary element designed in continuity with archaeology, able to activate underground connection system among dug spaces; to introduce archaeological discovering sites directly in contact with relative exposition areas and with naturalist paths along the Land walls; to cross the street barrier and obtain continuity for green spaces and paths, not possible nowadays; to contain inside of industrial archaeology small dimension elements similar to those of historic urban tissues in order to design a landscape familiar to the local people, for shapes and materials.

Re-reading of different elements becomes in this sense the unifying aim. Elements' conservation can be enhanced through contemporary graft, which does not deny its time and it is based on recognisable and reversible parameters: something new which reveals the times of the place, able to breathe new life and new social importance into different material ruins, by letting completely different architectures coexist together in contemporary times.

Because of the "junction point" between small and big dimension for the contemporary project in Istanbul's historic city, the general master plan works to assure the continuity with the Land walls, with the inner and surrounding spaces of the Fortress, whose entrance is located exactly in the centre of the quarter. At the same time, the strategy tries to restore the ancient link, lost because of the construction of the coastal road which isolated the Marble Tower: the aim is to continue the connection to the coast, by designing new project's lines on one side, by retracing existing park paths on the other side. From this viewpoint, it results fundamental to intervene along area's border, starting from the case records study presented above: a concrete image whose intent is to invite to discuss this historic city theme further, through other urban realities.



Figure 7: Contemporary project in relation to walls' system



Figure 8: Project's levels
3 CONCLUSIONS

- "About Istanbul as James wrote about Venice everything has been already said and there is nothing to add. It is useless to talk about its beauty, its mix of Europe and Asia, its architecture in Roman-Byzantine-Turkish passages. For an architect especially Istanbul, like few other cities, should be part of his education and even of his job. Every stone has its history and the city conformation is the history of architecture itself. (...) The project tried to interpret the development and transformation of this urban part without fixing rigid rules and abstract functions but following what the real life in Üsküdar asks for and trying to interpret it in order to obtain from this new reality a new beauty. Some references have been established, particular buildings, old constructions' interpretation, and around these points the city will still be able to develop, through its own life, that kind of beauty which not the architecture but just life and time can give to the city itself." [15] Regarding a historic place of Istanbul on the Asian side, Üsküdar, Aldo Rossi catches project work's main aim that has been developed in Yedikule as well, but many other aspects are still to be underlined in order to define some conclusive elements about ongoing research, which will be fomented by issues observed both in Istanbul and in other cities.
- First of all, from Istanbul's survey, it is important to underline the open and problematic character which emerged and should be assumed by the project on historic city, a kind of project whose assignment is to put together, to connect, to relate, to open new perspectives. A kind of project that should be fomented by a wide knowledge material, in which the specificity of single situations could meet with other realities' references and experiences, for a continuous and profitable exchange.
- This necessity is particularly evident in ancient walls' case, especially where they survived as fragments, by standing as old city's elements that require very clear strategies, through which it results possible for them to play an active role in strengthening of urban changing landscape.
- The walls, as fragments, can keep together other elements of different nature, resulting from the city, from daily life, from urban changes that slowly but inexorably happen right in front of our eyes. Those transformations could be read through a project of relation among layers, levels and scales, able to interpret imperfect and incomplete spaces, where the city recovers a multiple identity as a result of complex stratification.
- These spaces express the maximum level of contemporary age, but also a deep attachment related to proper specificity of walls, that lose their function of separation between inside and outside and become unequivocally a junction element among different parts, assembling the project area.

REFERENCES

[1] Rossi, A. 1999. "Note autobiografiche sulla formazione ecc. Dicembre 1871". In *Aldo Rossi. Tutte le opere*. Edited by A. Ferlenga. Electa, Milano, pp: 23-25.

[2] Rossi, A. 1970. "Caratteri urbani delle città venete. Le mura come fatto urbano" in *La città di Padova. Saggio di analisi urbana*. C. Aymonino (et al.). Officina Edizioni, Roma, p: 444.

[3] De Carlo, G. 1995. Nelle città del mondo. Marsilio, Venezia, p: 208.

[4] Magris, C. 2007. Preface for *Immagini di città, by Walter Benjamin* (Italian edition). Edited by E. Ganni. Einaudi, Torino, p: IX.

[5] Zumthor, P. 1999. *Thinking architecture*. Edited by M. Oberli-Turner. Birkhauser, Basel-Boston-Berlin, p: 36.

[6] Tabucchi, A. 2010. Viaggi e altri viaggi. Feltrinelli, Milano, p: 17.

[7] Muller-Wiener, W. 2002. İstanbul'un Tarihsel Topoğrafyası. Yapı Kredi Yayınları, İstanbul.

[8] Bilsel, C. and Pinon, P. 2010. From the Imperial Capital to the Republican Modern

City: Henry Prost's Planning of Istanbul (1936-1951). Araştimalari Enstitüsü, Istanbul.

[9] Kortan, E. 2013. Le Corbusier gözüyle türk mimarlık ve şehirciliği. Turkish architecture and urbanism through the eyes of Le Corbusier. Boyut, Istanbul, p: 84.

[10] Miano, P. and Aquilar, G. (forthcoming) "Urban spaces and the levels of the historic city". In *Conference proceedings "International conference Architecture, Education and Society – Towards a worldwide dialogical devolution on architectural critical education"* held in Barcelona, June 2014.

[11] Eisenman Architects, Aytaç Architects. 2014. *The Yenikapi Project*. Zuecca Project Space, Venezia.

[12] Urban Age Istanbul. *Istanbul city of intersections*. http://v0.urban-age.net/publications/ newspapers/istanbul/, (2009)

[13] İstanbul Büyük Belediyesi. 2011. *Istanbul Historic Peninsula*. *Site Management Plan*. Istanbul and Gülersoy, N. Z. (et al.). 2008. *Istanbul project. Istanbul Historic Peninsula Conservation Study*. Istanbul Technical University, Istanbul.

[14] Renewal plan of Fatih municipality. https://gis.fatih.bel.tr/webgis/default.aspx, (2012)

[15] Rossi, A. 1999. "Progetto per la piazza di Uskudar a Istanbul". In *Aldo Rossi. Tutte le opere*. Edited by A. Ferlenga, op. cit., pp: 178-179.





PUBLIC OPEN SPACES IN HISTORICAL CONTEXT: CROATIAN EXAMPLES IN-BETWEEN AMBITION AND RESTRAINT

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Keywords: Public Open Space, Historic Environment, Preservation, Contemporary Design, Architectural Competition

Abstract.

Introduction:

Towns along the Adriatic coast (Istria and Dalmatia) are among the most valuable examples of historic architecture and urban planning in Croatia. Public open spaces in these towns remain as important today as they were centuries ago, when they served as a stage for public life and in various ways featured communal identity. Croatian Adriatic coast is nowadays a predominantly tourist region. Large numbers of tourists visit Dalmatian and Istrian historic towns every year, which has prompted municipal administrations to redesign public open spaces located in protected urban areas. Projects for such renovations are often entangled in-between ambitious design briefs, necessary infrastructural upgrades, technical complexity and restrictions imposed by the preservation regulations.

Developments:

The paper presents selected examples of public open space designs in historic towns along the Croatian coast. Examples offer several distinct spatial typologies (square, street, waterfront, archaeological site within pedestrian area, and urban intervention), as well as an overview of criteria and procedures to be followed. Nearly all examples have been selected for execution through open architectural competitions. Procedures existing in Croatia generally produce good results and focus on heritage preservation. Architects designing such projects are required to be licensed through the Ministry of Culture for design in protected historic areas. Design process is usually long, restrictive and often complicated, but safeguards the heritage.

Remarks and Conclusion:

Analysis of the selected projects reveals several persisting strategies that architects regularly use when dealing with such tasks. These include, among others, intricate conceptual and design approaches, contextual sensibility, meticulous detailing and great attention to materials. Examples will present recent practice in redesign of public open spaces in historic urban areas and illustrate procedures that have been developed to ensure adequate interventions in terms of heritage conservation, design quality, ambient identity, infrastructural amenities, and public comfort and safety.

1 INTRODUCTION

Croatia abounds in built heritage. Along Croatian Adriatic coast there are six UNESCO World Heritage Sites: Old City of Dubrovnik, Historical Complex of Split with the Palace of Diocletian, Episcopal Complex of the Euphrasian Basilica in the Historic Centre of Poreč, Historic City of Trogir, St James Cathedral in Šibenik, and Stari Grad Plain on the island of Hvar. Other historical sites of international note include the Zadar Episcopal Complex, historical town-planning ensemble of Ston with Mali Ston, and other historical towns such as Motovun and Korčula – to name just a few. Towns along the eastern Adriatic coast (Istria and Dalmatia) are among the most valuable examples of architectural and urban planning heritage in Croatia. These ancient towns and memorable sites offer local Mediterranean distinctiveness and a sense of place arising from the combination of buildings, landscape, climate and people. Such a mix of physical, social and cultural qualities results in otherwise apparently similar places having quite distinctive characters.

1.1 Public open spaces in historical context

The ability to admire historical buildings in towns across the world is provided by the space that surrounds them, allowing to view them as a whole, or in glimpses along streets and across squares. While buildings might provide a focal point in the view, the quality of space around them is of equal importance to the context of the building and its setting [1]. And yet, streets and spaces in historical towns are not always afforded the same priorities of investment and care as the buildings themselves. "The spaces between buildings are fundamental to our perception of what makes places special; the proportion of time and effort given to the consideration of the public realm in comparison to historic buildings is disproportionate" [2]. Croatia is no exception in this regard, and many architects recognize this connection. The streets and squares of our historic towns and cities, and therefore the spaces surrounding our historic landmarks, are often older than the buildings themselves. More importantly perhaps, they are a constitutive part of public realm.

1.2 Heritage, public realm, and the impact of tourism

It is important to put this problem in context. Croatian Adriatic coast is nowadays a predominantly tourist region. Large numbers of tourists visit coastal historical towns every year, which has prompted many local administrations to redesign public open spaces located in protected urban areas. Municipal authorities, planners and tourism experts all recognize the importance of providing physically attractive, accessible, welcoming and vibrant places which influence tourists to come and, moreover, to return again. Various policy makers acknowledge the important role that the public realm has for economy of the city, regardless of its historical background [3, 4]. Important amount of Croatian architectural heritage still survives, and there is a trend towards rehabilitation of streets and public open spaces in many towns along the Adriatic coast. Historically, streets, squares and other open spaces of our cities have served numerous roles in defining the character and distinctiveness. They are the glue that bound the city together; the places where ceremonies and processions have always been held and the venue for social interaction, rebellion and change. Whether used by local population or tourists, public open spaces remain as important today as they were centuries ago, when they served as a stage for everyday life and in various ways featured communal identity.

1.3 Briefs and requirements for (re)design of public open spaces

Public open spaces are usually, but not necessarily, pedestrian zones. Program requirements generally deal with resolving different types of spatial conflicts, gentrification, pedestrian traffic trajectories, and, perhaps most importantly, with providing space for public and leisure activities. Even though the open space was always an integral part of Mediterranean everyday life, recent years have witnessed a new wave of intensified *mediterraneanization* of public open air environments. Not just coffee shops and restaurants, but an entire range of new activities now take place in the open, spanning from recreation to politics. This process inevitably impacts competition design briefs or, more often, features prominently in programs proposed by architects themselves, and includes a range of non-commercial activities and attractions for local population as well as tourists. Such efforts are especially important given the ever-growing pressure that commercialism inevitably imposes on public realm. Naturally, urban furniture and equipment is always considered and designed with great attention, as are pavement surfaces, street lighting, surface water runoff, and infrastructural improvements. As might be expected, projects for such renovations are often entangled in-between ambitious design briefs, necessary infrastructural upgrades, technical complexity and restrictions imposed by the preservation regulations. Successful examples, however, always make those efforts worthwhile and meaningful.

1.4 Heritage legislation and protection instruments

Built heritage is protected in Croatia through the national Protection and Preservation of Cultural Assets Act of 1999 (and subsequent amendments). Furthermore, all municipalities have adopted master plans which include mandatory sections that deal with heritage protection guidelines and preservation measures. Local heritage conservation authorities maintain a high degree of autonomy in their decisions, even though they are all officially part of the Ministry of Culture's Central Heritage Preservation Authority. Due to the lack of consistent conservation guidelines and implementation principles, this autonomy occasionally proves to be more challenging than one might expect.

There are several levels and types of legal protection of heritage in Croatia. The ones that are relevant for this subject matter include: (1) protection of entire historic cores (areas), and (2) protection of particular landmarks (buildings, sites, etc...). Approval of local heritage conservation authority for any kind of design/intervention is usually a two-step procedure. Preliminary designs receive *Conservation Requirements*. Project design development requires a *Conservation Pre-approval* in order to proceed with the construction works.

2 DESIGN PROCESS

2.1 Architectural competitions

Open architectural competitions are the most desirable and, both publically and professionally, most respected way of obtaining preliminary design proposals for (re)design of public open spaces. It is widely regarded that such competitions are the most successful and most transparent way for obtaining the best design proposals. Competitions are usually organized by local architects' societies or the national Architects' Association. Juries include renowned local and national architects, municipal representatives, and various experts (archaeology, art history, traffic, lightning, water management system, services infrastructure, etc.). Quite regularly, experts of the Heritage Preservation Authority take part in jury deliberations as jury members or as appointed consultants. Conservation Area Appraisals are usually prepared by independent heritage experts prior to competitions and constitute an integral part of competition documents. Once the competition ends, summary of jury deliberations and printed catalog of submitted entries are available; public exhibition or open-access on-line presentation of all submitted projects is a standard practice. Designs for public open spaces in historical contexts are no exemption in this regard and all but two examples (urban interventions) have been selected for realization through architectural competitions.

2.2 Design development and execution issues

In most cases design development is long, strenuous, and quite unpredictable. Many authorities are inevitably involved in the process of issuing various approvals and obtaining the necessary construction permit. Such a procedure is often complicated and restrictive, but does safeguard the heritage. Thereafter follows a public procurement bidding process for selection of the contractor. Both architects and construction contractors who participate in such projects have to be additionally licensed for any activity in protected areas and on protected buildings. Architects are licensed for research, survey and design activities, whereas contractors are licensed for undertaking construction works of any kind. The licensure procedure is administered by the Ministry of Culture and is primarily based on previous experience and positive evaluations from the local Heritage Preservation Authorities. In most cases, architects continue to exercise supervision of the project, usually the so-called architect's design supervision, but sometimes also legally required construction oversight.

3 CASE STUDIES

Examples that follow illustrate the recent practice of public open space designs in historical cities and towns along the Croatian coast over the last two decades. In various ways they all reflect issues and procedures addressed earlier in the paper. Typologically, we have identified five distinct types: squares, waterfronts, streets, archeological sites in connection with pedestrian areas, and urban interventions.



Figure 1: Croatia, UNESCO World Heritage List Sites and Case-study Locations

3.1 Squares

3.1.1 Pag, Petar Krešimir IV Square, competition 1993, completion 1996, Nenad Fabijanić

The town of Pag was founded in 1443 as a newly planned city on the namesake island in the North Adriatic. The construction took five decades after which the entire population of the old Pag solemnly moved to the new town. The main square – a symbolically charged urban stage – defined by public buildings such as the Cathedral, the Bishop's Palace and the Rector's Palace, was formed at the intersection of two principal streets. The new design for the main square of Pag firmly relates to the Mediterranean building tradition but also to island's specific arid landscape, as well as to orthogonal grid of local salt-works and linear networks of traditional drystone walls. This complex and disciplined yet sensual design reveals multiple layers of innovative interventions, successfully synthesized in a contemporary interpretation of an ideal Mediterranean *piazza*.



Figure 2: The Petar Krešimir IV Square, Pag, Croatia, Nenad Fabijanić, 1993

3.1.2 Rijeka, *Pul Vele Crikve* Square, competition 2012, in design phase, Igor Franić (with: T. Derenčinović Jelčić, A. Dodig, S. Franić, P. Reić, S. Sović Štos, H. Turkulin, and Z. Zdjelar)

This intimately proportioned square – located on the edge of Rijeka's historical urban core and always dynamic due to its irregular geometry and intensive pedestrian traffic – represents a public "living room" for this part of the city. The new proposal for the square is characterized by sophisticated design and meticulous conceptual stratification. Square's surface is treated as a homogenous plane to be materialized in a regularly laid structure of equally spaced wooden beams. The beams' interspaces, filled by concrete, wood, metal or glass stripes, suggest spatial order in otherwise irregular geometry of the square. Design proposal thus not only articulates different areas of the square, but also directs pedestrian circulation. "Infill" material clearly defines relationship to existing historical buildings and completely integrates archeological findings. All the layers of this complex historical space are well interpreted and adequately presented.



Figure 3: Pul Vele Crikve Square, Rijeka, Croatia, Igor Franić, 2012

3.1.3 Senj, The Four Squares, competition 2010, NFO Zagreb: K. Marunica, N. Ravnić, with A. Burić, and S. Perić

The historic urban core of the town of Senj is characterized not only by its narrow streets and modest squares, but also by well preserved medieval urban structure. In their proposal, the architects affirm this valuable historical context and use trees as a most logical and most unobtrusive element for articulation and consolidation of various parts of the historic core. These new elements emphasize existing urban features and simultaneously create four different mood areas. The project accentuates movement as a primary characteristic of every pedestrian zone; passers-by will be motivated to walk around and to enjoy different ambiances of the four old Senj *piazzas*.



Figure 4: The Four Squares, Senj, Croatia, NFO, 2010

3.2 Waterfronts

3.2.1 Split, *Riva hrvatskog preporoda*, competition 2005, completion 2007, 3LHD Zagreb: S. Begović, M. Dabrović, T. Grozdanić Begović, S. Novak, and I. Mažer

The waterfront of the city of Split is one of the Mediterranean's most interesting and most amazing sites. With the south elevation of the Diocletian's Palace as its background, the Split waterfront has indeed been a vivid public space throughout its history – a venerable stage for everyday communal life. Much like the modular form of the Roman Palace had been the framework for the later city, so has the modular grid of concrete elements, their dimensions and material, guided the arrangement and position of all the other spatial elements on the *Riva*. The waterfront is a place where city meets sea. In case of Split, it is also the main public square, a space for all kinds of social events – promenades by day and parades by night, the site for political rallies, religious processions, festivals and celebrations. The 3LHD's project articulates space for all these events and harmonizes all activities on one single public surface. All urban elements have been designed as site-specific, with the intent of connecting contemporary with traditional, universal with local.



Figure 5: The Waterfront (Riva), Split, Croatia, 3LHD, 2007

3.2.2 Crikvenica, *Riva*, competition 2011, completion of the 1st phase 2013, NFO Zagreb: K. Marunica, N. Ravnić, D. Pavić, T. Liktar, and T. Marić

The 2011 open architectural competition sought proposals to reconnect the small coastal town of Crikvenica with its waterfront. The main aim was to (re)create a contemporary visual identity of the town, transforming it from one-time weekend destination to highly attractive tourist destination; much like Crikvenica used to be from the very beginning of the modern tourist era. With a fresh and innovative approach, the NFO architects proposed to generate a "field of stone" for new public events. All touristic and urban potential of the area is rehabilitated with sensitive architectural intervention that clearly defines the space between the urban (man-made) and the sea (natural). Meticulous detailing includes designs for various urban elements, and emphasizes contemporary qualities which encourage further development.



Figure 6: The Waterfront (Riva) in Crikvenica, Croatia, NFO, 2013

3.3 Streets

3.3.1 Rovinj, Carera Street, competition 2004, completion 2008, FAI Zagreb: S. Laković, T. Liktar

The Carera Street, situated in the historical core of Rovinj, Istria, is one of the town's most prominent pedestrian and trading streets defined by its curvilinear flux and occasional extensions which yield to small squares. The FAI architects successfully achieved contemporary visual identity as well as refined spatial quality with the highest regard to traditional materials and building techniques. Urban equipment, specially designed for small extension squares of Carera, successfully contributes to the affirmation and rehabilitation of this once neglected part of the city.



Figures 7, 8: Carera Street, Rovinj, Croatia, FAI, 2008

3.4 Archeological sites

3.4.1 Rijeka, *Principia Tarsatica*, competition 2008, completion 2014, Nenad Fabijanić (with: A. Car, B. Krunić, D. Pavlović, Ž. Pavlović, and V. Šojić)

Archeological Park *Principia Tarsatica* is a unique late-Antique monument in the historical core of Rijeka. The *Principia* dates from the mid of the 3rd century. Destroyed and abandoned two centuries later, it was not until the 13th century that the present day Rijeka was founded on the site of the ravaged *Tarsatica*. After systematic archaeological excavations, which included roughly a quarter of the entire historical complex, an architectural competition was held in 2008. Fabijanić's approach attests not only to his sophisticated creativity, design expertise and respect for the heritage, but also bears witness to his uncompromisingly contemporary expression. Layout of the main communications as well as elimination of all ephemeral details and interventions aptly reinforce the spatial authorities and emphasize archeological findings. The use of materials is site-specific, while detailing, structure and texture corresponds to distinctive characters and meanings. Overall, the design of the *Principia* is distinguished by a fine balance between the new and the old, the functional and the symbolic.



Figure 9: Principia Tarsatica, Rijeka, Croatia, Nenad Fabijanić, 2014

3.5 Urban interventions

3.5.1 Zadar, Sea Organ, project 2004, completion 2005, Nikola Bašić (with: I. Stamać, V. Andročec, The Heferer Organ Atelier), *European Prize for Urban Public Space*, 2006

The Sea Organ is a highly acclaimed prize-winning project located at the Zadar waterfront, in a city of Antique origin. This fascinating urban intervention is actually an experimental open-air musical instrument that simultaneously combines design, music and science. Under the stone steps, which disappear into the sea, 35 pipes continuously blow. The organ plays notes of never recorded and ever changing concert: the nature's magnificent music is endlessly performed by the sea's undulations and the ensuing air pressure. The Sea Organ was later complemented with yet another nearby installation by the same author – Greeting to the Sun.



Figure 10: Sea Organ, Zadar, Croatia, Nikola Bašić, 2005, section

3.5.2 Dubrovnik, The *Gornji Ugao* Tower, project 2008, completion 2011, Željko Peković Archaeological excavations around the *Gornji Ugao* Tower in Dubrovnik, carried out from 2005 to 2008, resulted in discovery of an intact medieval metallurgic foundry. All the original structures have been unearthed largely preserved due to the fact that the foundry remains were covered for centuries with the thick debris of the 1667 earthquake. A reinforced concrete slab – now featuring a sports playground – was laid over the archaeological site, while the historic foundry can be visited bellow, from transparent elevated walkways leading to each of its sections. Impeccably presented archeological site thus successfully, albeit somewhat unusually, coexists with a community-oriented facility (playground) on top of the medieval foundry.



Figures 11, 12: Gornji ugao Tower, Dubrovnik, Croatia, Željko Peković, 2011

4 CONCLUSIONS

Analysis of the selected projects reveals several persisting strategies that architects in Croatia regularly employ when dealing with public open spaces in protected historical environments. These include, among others, intricate conceptual and design approaches, high degree of contextual sensibility, programmatic responsiveness and flexibility, meticulous detailing and great attention to materials. New designs generally respond well to existing urban structure and grain, scale, views and landmarks, as well as protected historical environments [5]. If examined in terms of inherent design quality and their conceptual ambitions, all selected projects display values that in various degrees resonate with specific architectural approaches typical of Croatian modern architectural tradition [6]. In general, the projects presented engage in poetic reduction while still maintaining a latent rhetoric charge. They sublimate regional traditions but with decisively contemporary means; creative interaction with the nature and landscape is sought wherever possible, and interventions always reinforce a specific everyday culture and local urban dynamics. All these projects have been invested with considerable efforts in designing public spaces capable of generating human interaction and social activities. Conceptual qualities and pronounced artistic inclinations do not compromise frequently used open-system strategies, and experimental nature of some of these designs does yield itself to wider architectural relevance and lessons to be learned for the future.

REFERENCES

[1] International Charter for the Conservation and Restoration of Monuments and Sites, 2nd International Congress of Architects and Technicians of Historic Monuments, Venice, 1964, Definitions, Article 1.

[2] Dadson, P. 1999. "Joined up conservation: the space between buildings". In *Context* 61, Institute of Historic Buildings,

http://www.ihbc.org.uk/context_archive/61/joined/joinedup.html

[3] Guidelines for Sustainable Cultural Tourism in Historic Towns and Cities, European Association of Historic Towns and Regions, September 2009, Pp: 4-17. http://www.historic-towns.org/documents/downloads/SustainableTourismGuidelines.pdf

[4] Strategija zaštite, očuvanja i održivog gospodarskog korištenja kulturne baštine Republike Hrvatske za razdoblje 2011.–2015. [*Republic of Croatia: The National Strategy for Conservation, Preservation and Sustainable Economic Development of Heritage for the 2011-2015 Period*], Republic of Croatia Ministry of Culture, July 2011, Pp: 41-56. http://www.minkulture.hr/userdocsimages/bastina/STRATEGIJA BASTINE VRH.pdf (2011)

[5] Architectural Policies of the Republic of Croatia 2013–2020, ApolitikA, National Guidelines for Quality and Culture of Building, Pp: 16-19 http://www.mgipu.hr/doc/apolitika/apolitika 2013-2020 en.pdf (2012)

[6] Fitting Abstraction, The Croatian Pavilion at the 14th International Architecture Exhibition – la Biennale di Venezia, 2014. http://www.fittingabstraction.com/ (2014)





PAST AND PRESENT IN THE HISTORICAL CENTER OF BOGOTÁ (COLOMBIA): TRADITION AND CONTEMPORANEITY

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Keywords: Tradition, Contemporaneity, Heritage, Architecture, Historical Center

Abstract.

Introduction:

The insertion of a new architecture in heritage contexts is a phenomenon in a full study that requires processes of conceptualization since the valuation of the patrimony and the definition of criteria in contemporary architecture design to reach its contextualization. Since this, it has been achieved to contextualize experiences and also, generate reflexive and propositive conclusions in the "International Conference on cultural heritage thinking: tradition and contemporaneity -JIRPC 2014" organized every year by the University of La Salle and internationally validated by UNESCO Forum and private and public national entities.

Developments:

For the particular case and based in the conclusions of the JIRPC 2014, it is taken into account the insertion case of a new architecture in the Historical Center of Bogotá (Colombia), topic that deals with the reading of different architectural languages from the 16th to the 21st century, like an evolutive process of the socio-cultural thinking, integrating and contextualizing shapes, activities and materials in different historical buildings, ensembles and sectors considered as cultural patrimony, which harbor modern architecture from the endings of the 20th century and contemporary of the 21 st century.

Remarks and Conclusion:

The results, in the way of observations and conclusions, indicate essentially to preserve the urban and architectural contexts from the past to the construction of a contemporary with belonging, starting with the valuation of physical, social, cultural, economic, commercial and political dynamics, among others, that allow a reading of continuity and let aside the ruptures between perspectives and prospects in the urban evolution of historical contexts; the articulation between the patrimonial surroundings and the generation of contemporary architecture are one alternative to preserve and integrate the past, the present and the future.

1. Introduction:

As an introduction to the topic of study in the historical center of Bogotá - Colombia, it is necessary to develop an approach to understanding concepts that will allow the case studies, research and reflection reason. There are two concepts relevant study: the heritage and contemporary, which are, first time, the research phenomenon of integration and coordination between past, present and future.

What assets can refer to natural resources, goods and cultural events that have particular or exceptional values, where memories, territories and communities have given their characterization. According to the Royal Spanish Academy, heritage comes from the Latin "*patrimonĭum*" and defines it as "*property that someone has inherited from his ancestors*" [1]

In Colombia, according to the cultural legislation, cultural heritage are:

"... All the material goods, intangible manifestations, products and representations of culture which finds expression in Colombia, such as the Spanish language nationality, languages and dialects of indigenous, black and Creole communities, tradition, ancestral knowledge, cultural landscape, customs and habits, as well as material goods furniture and immovable nature to which is attributed, among others, special historical, artistic, scientific, aesthetic or symbolic interests, such as plastic, architectural, urban, archaeological, linguistic, sound, musical, audiovisual, film, testimonial, documentary, literary, literature, museum or anthropological " [2]

As for the contemporary, from evolutionary realities and batch that articulates the past and the future without specific chronology, refers to the current result of human thought according to its historical moment, where his creations are revealed from sociocultural and physical space requirements a community in its territory from its realities or contexts, as a union. The Spanish Royal Academy narrows the contemporary name comes from the Latin "contemporaneus" and defines it as "Existing at the same time as another person or thing / Pertaining to time or era in which we live" [3]. José Gandarilla (Ph.D.), Ramón Ramos (Professor of Sociology) and Guadalupe Valencia (Research in Science and Humanities), in his book "contemporaneity (s)" [4], consolidated from various viewpoints discipline and authors the concept of the contemporary; eg Guadalupe Valencia notes: "Contemporaries are supposed to individuals, groups and societies, by the mere fact of being alive, may feel co-sharers in their own worlds, heirs of pre-existing social worlds, pre-cursors time to come ... "[5]; Now, Juan Carlos Huidrobo (psychologist and sociologist) invites reflection on the contemporary:

"... Has important implications for the development and conceptualization of societies. Such involves not only how the temporal dimension is lived ... but equally how the temporal world is observed and reflected conceptually ... if the function of each present, as now, is to generate time, forge a new past and future, the question today, for the contemporary is, strictly speaking, the beginning of a new, thoughtful story "[6].

Finally, Emma León (Researcher multidisciplinary themes) addresses the issue of contemporaneity as "... a designation of collective belonging and not a particular modality of time, as does happen with the terms present, past or future ... the timing of the contemporary is a human entity with the capacity to adhere to it collectively and, based on that, set membership criteria -for both exclusion and differentiation with respect to the rank of reality in which it is located, whether in relation to those of the same class or for other ... " [7].

Consequently, the patrimonial and contemporary transit in time and space because they contain interact and articulate simultaneously, where preexisting or the "past" called is the starting point of the present in community, ie contemporary arises from experience and is connected to the future. Now, the relationship between pre-existing and to come, has different ways of establishing concepts in the same way: contemporary architecture in historic districts. Fernando González Gortázar makes an interesting reflection on the past and the future compared to the current production:

"In the culture around again and reinvented, and is both new and ancient time; time is circular in which everything revolves ... The time of culture, and therefore of architecture, is like a helix or helix in space, that view angle seems to return to the same site, but from another I always see it is extending and moving forward ... it is interesting the subject of architecture that is built on older or characteristic urban contexts. Given this it is always tempting, especially by certain authorities, to imitate, to reproduce the styles of the past; and by the architects, there is often the opposite temptation: to make an extreme statement that our times are different ... " [8]

If the order is the articulation between experience and the future through architectural creation, any alternative would be viable, but these could be grouped into two major groups, integration architecture affinity or contrast, in both cases, assessing the processes historical, social, natural and cultural as objective preexistences.

Affinity: continuous harmonious relations between their contexts, forms, functions and past proyectual materiality with the new production, which not only takes into account recurring issues that point to the compliance of homogeneity, but uses, activities, crafts and traditions, of course, as a relevant correlation process whose outcome can not generate impacts limelight or author and corporate architectures but evolutionary correspondence that allows the reading of thought and needs of the present historical moment, a more passive and perhaps even neutral creation.

Contrast: discontinuous harmonic or hierarchical relationships that transform contexts, forms, functions and materiality, where despite comply with regulations, we could well generate heterogeneous creations through discontinuity heights, walls and materials in the search for innovative languages, altering and complementing existing uses and activities, location and evolution of thought, highlighting the current historical moment with an accent of asset creation where neutrality would not be his property.

Whatever the alternative to develop affinity or contrast, the two should be characterized by an inescapable concept: the quality and integrity of creation, which undoubtedly will characterize the present and bridge between past and future, ultimately, joint stands for temporal, spatial organization and collective memory. In this regard, a welcome result is based, independent process, as stated in the following:

"That's the key: quality. We must not distort the historical moment, but neither attack the urban context. Do not forget that ancient and modern, if they have quality live perfectly, while the real or fictional always collide. So that an attitude of modesty, to tell the truth, respect and quality, is the only possible approach to contemporary architecture in historical contexts ... also covers the intangible heritage, traditions, ways of being and living (ie ways of using the city), the music played, the name of the people and the streets ... " [9]

Once addressed concepts, case studies and reflection and development of the subject in the case of Bogota Colombia are cited.

2. Past and present in the historical center of Bogotá - Colombia.

Heritage conservation has evolved in local and global contexts, taking as an alternative option to intervene built heritage through new architecture in seeking contextualization, either through new construction, functional adequacy or rehabilitation, forcing reflection of combining and preserving the existing building. The issue has not been exceptional for the Historic Center of Bogotá, whose history, from its founding to the present day center reveals the progressive evolution of thought from the physical-space to sociocultural, which for centuries has been generating architecture in each period, still in its historical moment contemporary creation.

The historic center of Bogotá, from its pre-Hispanic traces, colonial, republican, modernism transition and the current reality, synthesizes an evolution does not necessarily reflect an intension to contextualize or integrate, but a "spontaneous evolution". From normative aspects, specific regulations on inclusion of new architecture in this heritage context, highlighting issues such heights, walls or insulation, but not formal, aesthetic and socio-cultural issues are not evidence.

In the historic area proyectual various exercises that reflect time and place are evident, but it is very interesting to reveal that in the last decade has had a street interventions where reflection to generate new architecture has glimpsed further analysis on previous constructions: 11th Street. He began his process of renovation / reconstruction, starting up the street with the new headquarters of the University of La Salle, rebuilding the Archbishop's Palace, cultural complex of the Bank of the Republic Cultural Center Gabriel García Márquez, Courthouse, Bicentennial Building - Palace Liévano, among others.

Highlighted in the last decade projects architects and Juan Carlos Enrique Triana Iragorri (Exhibit Hall Bank of the Republic), Rogelio Salmona (Centro Cultural Gabriel García Márquez) and Suely Vargas and Manuel Guerrero (Bicentennial Building, Mayor of Bogotá), purpose of description and reflection in this text. The theoretical contribution of this kind of writing descriptively intended to reveal the concepts and practice of projective research study exercises from the Treasury nature spatial (context, form, function and tectonics).

2.1. Building Exhibition Halls, Bank of the Republic.

The Joint Architectural Bank of the Republic is composed of two cultural blocks containing library, auditoriums, museums, exhibition halls and concerts, among others. The new building, author of the Architects Enrique Triana and Juan Carlos Rojas Iragorri, is in a lot of intermediate South city block (lanes 10 and 11 - Race 4 and 5), articulating with its central plaza Botero Museum and Mint (Figure 1).

- Contextual aspect: The south block and two heritage buildings have colonial architectural language, two floors and central courtyard typology. The joint property is solved through a courtyard and exhibit new volume, forcing handle underground floors and patio level to maintain the heights of preexisting (Figure 2).
- Formal aspect: the external composition is basic, white cubic volume functional evidence precedence over formal ... "make a design where what were highlighted were the works of art and not buildings" [10]. His formal reading is introverted in the set, ie, their perception is evident when you enter South city block through the central court-yard where there is a large vain that gives hierarchy to access (to use the hall, but tripling its height) and a series of frames (Figures 3 and 4); on the rear facade Street 10, the raw vain in his front porch on the sequence of square openings smaller proportion. Internally, the spatial reading focuses on a contrast between open and closed space, where the triple height entrance hall and hallways on two floors nest and characterize public or social, while the two large showrooms express privacy and intimacy of art through its architecture, large format rectangular spaces in attention to architectural exhibition program (Figure 5).
- Functional aspect: South city block got a new functional logic, the ratio of income of a sequence of the open to the closed spaces of transition between public and private space, where the hallways became the "hinges" of bodies architectural old and new. Museums have dual access from the street 11 and the inner square, entering the new building (Figure 6). The interior of the new building houses a large triple height entrance hall leading to two lobbies at different levels, an auditorium, restaurant area, area technical work and the protagonists, two large showrooms large format free but modular plant according to the technical and artistic requirements exposures (Figure 7).
- Tectonic aspect: the new building was met with a structural framed system in particular, on the lesser light the shorter dimension of the rectangular, avoiding the location and visibility of columns both within the halls and lobbies and vestibule (Figure 8). Externally, its material is lined with concrete and plastering in white, which subtly glass appears to rank their access and continue the hallway. Internally, the target is used in the exhibition areas as neutral image, but in their lobbies red color on her stairs and ocher and black in their homes by way of contrasting elements is emphasized. Resolution aspects technology as an essential requirement of exposures (Figure 9) is highlighted.

<u>Preliminary Reflection</u>: new architecture in contrast to the pre-existence, retaking the patio and porch as asset type.



Figure 1. Aerial view of downtown culral. Source: www.googleearth.com



Figures 3 and 4. Architectural morphology. Source: Author.



Figure 6. Plant first floor of the assembly. Source: Arq Juan Carlos Rojas.



Figure 8. Building structure. Source: Arq Juan Carlos Rojas.



Figure 2. Context heritage 11th Street. Source: Author. 2014



Figure 5. Inside spatiality. Source: Author. 2014



Figure 7. Functional logic set. Source: Banco de la República.



Figure 9. Structural system not visible. Source: Author. 2014.

2.2. Cultural Center Gabriel García Márquez (CCGGM), Background Economic Culture in México, Bogotá.

The property is located on 11th Street with carrera 6, designed by French architect Rogelio Salmona; their cultural home activities, projected library, auditorium, exhibition halls, shopping and local administrative areas (Figure 10) open and closed environments.

- Contextual aspect: the neighboring buildings are contrasting, from colonial to modern languages of 1-5 floors and different types mostly central patios. The joint projects with their property through a false or translucent facing and floor but not orthogonal circular patios (Figure 11).
- Formal Appearance: compositionally the building is articulated through two circular courtyards where radial and concentric are evident on the outside, playing with heights 1 floor facing the street about 11 and 4 floors above the race 6. Read project is twofold: on the street is limit open and the race is closed and height (Figure 12).

The project has kindly opened to unrestricted public space for pedestrians, creating a new option of spatial appropriation and enjoy the contextual heritage. Inside, or better, in enclosed spaces, its characteristic is the permanent link to the outside, either internal courtyards or public space from areas designated library, exhibition halls or points of administrative work, where light is the protagonist (Figure 13).

- Functional aspect: according to their morphology, the paths in the project are central and peripheral, marking a hierarchy central patios (Figure 14), therefore, work areas are on the perimeter adjacent to existing buildings and Race 6 in order to generate transparency on 11th Street.

The tours are protagonists for access in confined areas, where its simplicity allows to read the whole project from several points and holistically: tectonic context, form, function and (Figure 15).

- Tectonic aspect: the cultural center has concrete structure, from organized porches straight and concentric (Figure 16). Undoubtedly, characterizes the whole its materiality with the use of three identity elements in the architecture of Salmona: baked brick and compositional games, concrete and water (Figures 17-19) mixture that does exalt the senses stiffness user since its soft textures.

<u>Preliminary Reflection</u>: new architecture in contrast to the heritage neighborhoods, where retakes the yard (loop evolution) as typology and ordering principle.



Figure 10. Aerial view of the building. source: www.googleearth.com



Figure 12. Architectural Morphology Source: Author. 2014



Figure 11. Aerial view of the cultural center Source: www.fce.com.co/CCGGM



Figure 13. Courtyard. Source: Author. 2014.



Figure 14. Functional organization of the project. Source: Cultural Center Gabriel García Márquez. 2014



Figure 16. Organization linear structure. Source: Author. 2014



Figure 15. Tour of income. Source: Author. 2014



Figures 17, 18, 19. Materiality. Source: the author (17 and 18) and CCGGM (19). 2014

2.3. Bicentennial Building, Mayor of Bogota.

The architectural ensemble has dual character: Liévano old and new Palace "Bicentennial Building" (lanes 10 and 11 between races 8 and 9), design of Colombian Architects Suely Vargas and Manuel Guerrero, extending to the Mayor of Bogotá. The project has a hierarchical front eastward with the Plaza de Bolivar, the main public space of Colombia (Figure 20).

- Contextual aspect: The project is in the heart of Colombia asset, Plaza de Bolivar, national and district buildings, highlighting the Mayor of Bogotá "Palacio Liévano" (Figure 21). The environment has institutional, religious and residential buildings with courtyards typology. The articulation is achieved with the recovery of central vacuum city block and a clear facing.
- Formal aspect: the proposal preserves the heritage building and the new building takes the compositional concept central courtyard (Figure 22) and facing in its 3 facades (Figure 23 and 24), spatial order is achieved through the extension of the ledge as the horizontal axis and draws limit and translucent as dilation

His formal reading is extroverted and introverted, where a new outer space and inner proposal seeks with the use of compositional devices such as translucent, rhythm, footprint and hierarchy.

- Functional aspect: according to compositional aspects, functional theme is organized around the central courtyard, where the heritage building (east) retains its zoning and building new power plants and generates internal perimeter of driving in their bays (Figure 25).

Internally, the issue of juvenile courts is replicated in line to pre-existing in a heritage building, where the theme of light and ventilation is used. (Figures 26 and 27). The architectural plans are mostly administrative offices, highlighting two important aspects, the auditorium and the living crisis.

- Tectonic Appearance: contemporary building is resolved through a large concrete structural system by the system of gates and walls screen (Figure 28). Materiality is achieved finished retaking present in the buildings of heritage context, where the wrist or Bogota stone is selected for general coating also use glass project not only functional but compositional effects, especially in places of transition between the old and the new.

For the obvious differences in masses of old and new buildings, structures are solved independently with large spatial expansion, solutions of a formal nature (gaps in access) and functional (dilations for lobbies and jumpers) and Comprehensive Response (Figure 29).

<u>Preliminary Reflection</u>: generation of contemporary architecture in contrast to the heritage building, with volumetric draws reversible.



Figure 20. Aerial view of the building Source: www.googleearth.com



Figure 22. General Volumetric. Source: Tectus Ltda.



Figure 25. First floor. Source: Tectus Ltda.



Figure 28. Integration of anti-guos and new materials. Source: Tectus Ltda.



Figure 21. Palace Liévano, Mayor of Bogota. Source: Tectus Ltda.



Figures 23 and 24. Between the old and the new. Source: Tectus Ltda.



Figures 26 and 27. Route between old and new. Source: Tectus Ltda.



Figure 29. Contemporary materials. Source: Tectus Ltda.

3. Conclusion

Today, the new architecture in heritage contexts does not involve either the annihilation of existing assets or exclusivity isolated restoration projects and less nesting of the new over the old, precisely, is the search for balance and contextualization of the materiality in different periods from the valuation of preexisting and creative and appropriate solution of the new architecture, allowing the reading of the evolution of the location and character of architecture over time, as Manuel Guerrero said at a meeting academic in Bogotá (2014): "*The overlap of buildings without erasing the memory of the above has been solved in many historical cases, by assessing the preceding work so that the new structure part of the achievements of the previous*".

The "appearance" of new architecture in heritage environments used to be, in some cases, a planning exercise where the object to insert unaware of their surroundings, resulting in the dismantling and contextualization of old and new; However, today more thought is evident and projective process steps have already pre-analysis of stocks through the study of heritage context, as stated by Paul Vasquez Piombo: "... the need for a methodology establish from knowledge of history, observation of the place, formal inquiry and new needs and contemporary manifestations ... " [12]

In the case of the three properties of comparative reference, whose context is the historical center of Bogotá and 11th Street, are the following aspects:

- From the projective evolution and presence of buildings in different periods, the new architecture integrates resources through the context, form, function and materiality, generating a syncretism that realizes the study of context and objective appropriate response.
- Reading, physical-spatial and socio-cultural historical context as the basis of the analysis process of capital asset and property currently projected. Respect for the heritage asset, and preexisting pretext project processes underpinning the new architecture.
- Volumetric Visibility contextualization and articulation between old and new, preserving virtual and real limits, for example, facing and height. The morphology and typology of heritage buildings partially resume and become compositional application resources (not literally) in contemporary architecture.
- In the case studies, not the creation of architecture affinity but by contrast is evident, alternative that identifies the difference between the old and the new. Articulation points or spatial transition between old and new are identified.
- Symbolic elements, spatial, typological and materials of heritage architectures are reconsidered, as a semiotic application, metaphorical, analogical or actual new projects, as contemporary bet.
- The structural systems and materiality are consistent with the periodicity of his creations, in other words, the new architecture uses contemporary resources utilization in contrast to the traditional materials of the colonial and republican architecture.

The project processes of articulation between the old and new architecture not end, however, are processes that reflect the heritage environments are evolving, changing, different than continuing the timeline in life in the most varied natural and cultural environments ... the time will call it and categorize it, as has happened throughout the history of mankind.

Valuation processes and participation are now standards in creating new architecture in heritage environments, complex by contextual features, formal, functional and tectonic realities that require serious study process from research to the research praxis as part of proyectual exercise.

Finally, the new architecture in the economic contexts of study, show common characteristics versus progressive processes and cyclic method: recognition and analysis of their historical environments, urban and architectural heritage assessment, conceptualization of the design process from pre-existing, compositional criteria in response to the heritage context and highlights typological elements and finally the generation and creation of new spatiality reflecting current realities and prospective footprint areas than elsewhere are not applied and the results are deplorable, where history and place will be responsible for passing the liability account.

REFERENCES

[1] Real Academia de la Lengua Española. 1992. "Diccionario". Madrid, España.

[2] Congreso de Colombia. 2008. "Ley 1185". Bogotá.

[3] Real Academia de la Lengua Española. 1992. "Diccionario". Madrid, España.

[4, 5, 6, 7] Gandarilla, J. Ramos, R. Valencia, G. 2012. "Contemporaneidad(es)". Madrid: Ediciones Sequitur.

[8, 9] González, F. 2014. "Arquitectura: pensamiento y creación". México: Editorial Universidad Nacional Autónoma de México.

[10] Colegio de Arquitectos del Ecuador. 2004. "XIV Bienal Panamericana de Arquitectura de Quito". Quito.

[11] Alcaldía Mayor de Bogotá. 2011. "Edificio Bicentenario, doscientos años de arquitectura institucional". Bogotá.

[12] Vásquez, P. 2009. "Arquitectura contemporánea en contextos patrimoniales: una metodología de integración". Guadalajara, México: ITESO.





THE BADEA CARTAN COVERED MARKET. A CASE STUDY INTO THE EVOLUTION OF A MODERN INFILL PROJECT IN A HISTORIC AREA

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Keywords: Urban Regeneration, High-tech, Tensile Structure, Revival, Unexpected Consequences

Abstract.

Introduction:

Timisoara is an important city situated in the western part of Romania and has a substantial urban heritage dating from the XVIIIth and XIXth century. The historic district of "Fabric" contains an old haymarket which is positioned between the river and a main acces road and is flanked by historic buildings from the XIXth century. In the early 1990s, the City decided to update and cover the market without affecting the existing buildings. It was decided to create a contrasting hightech tensile structure, while preserving the scale and the silhouette of the market ensemble.

Developments:

Today, the caterpillar-like structure is lower than the cornice of the historic buildings and is completely open laterally in order to allow uninterrupted access and views of the surrounding historic facades. In 1996 the structure was also awarded the ECCS European Award. The further evolution of the project highlights the complexities of the process of assimilation of the new building into a historic district. Due to an instant success the market became an urban landmark again and triggered the revival of the whole area. At the request of the locals a church was built in connection to the market. As the status of the place grew, a new quality was expected and a complete remaking took place in 2010-2011: a new membrane replaced the old one and another upgrade, the addition of pavilions, will take place in 2015, without changing the existing outlook.

Remarks and Conclusion:

The choice of a geometrically adapted, well scaled and flexible open structure provided the basis for continual development and adaptation without affecting the layout and substance of the historical market.

1 INTRODUCTION

Timisoara is an important historical city situated in the westernmost part of Romania. It was the main city of an historical province called "Banat". This province was an autonomous part of the medieval kingdom of Hungary, became an turkish ottoman province between 1541-1716, then was integrated into the Habsburgic empire until 1918 and now is divided among Romania (60%) Hungary and Serbia. Banat became a complex multicultural territory and Timisoara displays even today a lively cultural and ethnic diversity [1]



Figure 1: Timisoara's Citadel and its satellite cities



Figure 2: Timisoara map (1893)

Timisoara was completely remodeled during the XVIIIth century using the "ideal city" pattern very common in the "enlightening" era. The city core - the Citadel – containing the main religious, civil and military institutions of the province was surrounded by one of the most complex Vauban fortifications in central-eastern Europe. The remodeling of the city and of its surrounding area was facilitated by the draining of the huge surrounding marshland; followed by an active policy of colonization and resettlement. The core was surrounded by several satellite towns (Figure 1), more than one kilometer apart from the fortification. The main commercial, manufacturing and industrial activities were situated in these areas. The busiest satellite, called "Fabric" was situated in the eastern part of the "Citadel". In Fabric, on a stretch of land oriented north-south between the river Bega and the main eastward land connection of the city, lays the former "Haymarket", supposedly an inheritance from the medieval times

During the late XIXth century, the obsolete fortification went down, and the satellite towns were incorporated into the city following a master plan elaborated by architect Ludwig von Ybl in 1899 [2] (Figure 2).



Figure 3: Old postcard from Fabric, Haymarket area (1890)

The Fabric district was remodeled, including the reconstruction of the houses bordering the Haymarket (Figure 3). The industrial and commercial importance of the area grew during the first half of the the XXth century. During the communist era the market retained its importance, being surrounded by important industrial areas (Figure 4). The historic urban tissue was endangered by aggressive policies of urban renewal.

From the late 1980's, with the decline of the industrial production and the changes brought by E.U. integration, the area entered a phase of accentuated decline and depopulation.

In the mid 1990's the city started to act in order to stop the decline of the area and decided to modernize and cover the "Haymarket" without affecting the general outlook of the



Figure 4: Timisoara Master Plan – Haymarket area and surroundings (1970)

marketplace. The new covered market was intended to function also as a support for community activities.

Several proposals have been submitted; finally an oblong caterpillar like tensile structure proposed by the architectural firm Andreescu & Gaivoronschi was selected.

The steel structure supporting tensile membranes was carefully scaled in order to preserve both the silhouette and the perception of the market ensemble..

2 DEVELOPMENTS

The finished structure covered 90% of the existing market, hovering over the trading surface, kiosks and a new circular market-hall. It was completely open laterally in order to allow uninterrupted access and spectacular views of the surrounding historical facades.



Figure 5: The "Badea Cartan" Covered Market, the former Haymarket (2002)

The blue and yellow tensile steel structure (Figure 5) was in evident contrast with the plaster covered historic brick structures bordering the market area. But the rhythm of the main structure (9 meters between the pillars, 15 meters span of the arcs, and the height of the covering membrane of 6 meters) were carefully balanced in order to insert the new building in its surrounding.

In 1996 the Covered Market "Badea Cartan" was awarded the ECCS European Design for Steel Structures, was published in several books and magazines and was generally considered a successful intervention [3].

The further evolution of the project and its influence on the surrounding area highlights both the complex nature of the process of assimilation of the new structure into an historic district and the equally complex influence it exerts on its surroundings.

The market was an instant success; from a residual transit space it became a hub not only for the local area, but for the entire Fabric district and even for the city as a whole. It attracted a lot of interest and activity, producing both predictable and surprising consequences.



Figure 6: The new church and the Covered Market (2002)

Short after the new market's opening the local community asked the architects to design a new church (Figure 6) in the small plaza adjoining the northern extremity of the market square. The community is now ready to substitute the original finishing materials of the church with new ones, of superior quality and wants a better integration with the surrounding structures.

A rather complex planning operation started in order to substitute existing annexes with carefully designed new ones.

As the market offered a new identity for the area, the considerable industrial estate ILSA (textile industries) situated along the river, west from the market was proposed for



Figure 7: Residential buildings facing the river (nearby ILSA Area)

redevelopment. After several architectural contests, a waterfront residential estate was chosen, and the building was started in the mid 2000's (Figure 7). In order to keep the scale of the intervention comparable to the surroundings, the height of the buildings facing the river was limited to four - six floors, and only the building facing the northern thoroughfare were allowed to climb to ten floors.

The financial crisis starting in 2008 stopped for now the progress of the project.

The revival of the market area had also important planning consequences.

In 2007 an extended workshop resulted in the production of the study "Timisoara 2020 - Overall Vision" coordinated by prof. Massimo Tadi from Milan Polytechnic in collaboration with Skidmore, Owings & Merrill and the Faculty of Architecture from Timisoara.

The main goal of the study was to promote a strategy based on exploiting Timisoara's position and inner network in order to promote the development of the city as an important European hub of communication and economic integration.



Figure 8: Timisoara 2020 Overall Vision- urban nuclei and main ketworks

Figure 9: The river banks

Evaluating the possible nuclei of urban regeneration in connection to existing transit areas (inner city railway, the river), the study emphasized the important position of the Market Square area - in connection with the East Railway Station situated nearby, as a connecting hub between the river and the railway (Figure 8). The study influenced the new City Master Plan, and led to the decision to prolungate the redevelopment of the river banks from the city center to the market banks and beyond, as a part of a continuous green ribbon endowed with vehicular, pietonal and cycling lanes[4].



Figure 10: Rehabilitation of Badea Cartan Market (2010) Photo: © Bumerang SRL



Figure 11: Rehabilitation of Badea Cartan Market (2010)

The city started the implementation of the project (Figure 9) which already integrated the market.

The covered market itself evolved during the years; in 2010, at the Market's Administrations request, a new high quality membrane was provided; two long, transparent stretches of small shops, sustained by a continuous ribbon of concrete, were also built along the edges of the market and the colors were changed from blue and yellow to sobering light grays, in pleasant contrast with the vivid colors of the flowers and fruits (Figure 10).

The very low silhouette of the transparent shops was carefully devised in order to reassure the panoramic transversal view towards the existing historic architecture (Figure 11).



Figure 12: Covered Market project: partial enclosure of retail areas (2015)

In 2015, at the community's request, the Market Administration ordered a feasibility study for the enclosure of areas within the market (Figure 12); if realized the project will transform the market into a global container, but even the new enclosed areas are imagined to preserve a low profile and a certain degree of openness.

The continuous development of the market and of the market area had also unintended side-effects. The benefits of the improved activity and better image - expanded to the north of the site in the direction of the East Railway Station, as prophesized by professor Tadi in 2007, but this time the consequences were less beneficial.



Figure 13: Rehabilitation proposal for the church (2013)

Inside the extended area, nearby the old tram depot (scheduled for reconversion) a new church appeared in the late 2000's, evidently inspired by the market church (Figure 13). The bigger and more assertive church is now accompanied by a massive religious community center out of scale and out of context.



Figure 14: The former "Socks factory" (2015)

Another unwanted consequence of the successful expansion of the market area towards the Railway Station was the "reconversion" (i.e. destruction) of a valuable piece of industrial archeology dating from the late XIXth century, the "Socks factory" (Figure 14), which is to be replaced by a trivial shopping center.

2 CONCLUSIONS

- Producing a well integrated, flexible, spectacular and well scaled project for covering the Haymarket produced several positive effects: it has revigorated a dying urban area, which became a potential development hub. It has challenged the traditional vision about the green areas along the river, triggering a substantial expansion of the limited project of riverbank renewal . It has stopped the social and economic decline of the area, and helped promoting new projects and activities.
- Unfortunately it has not triggered the wholesale restoration / reconversion of the surrounding historic structures, which was an essential target of the initial project. The City preferred to concentrate on the restoration of the central area The Citadel. The covered market, in contrast with the other public spaces of Timisoara didn't become a center of community activities, entertaining, festivals, etc.
- The lack of anticipation about the consequences of enhancing the prospects of a delicate area, made possible the implementation of a massive commercial project which caused loss of of historic substance.
- In our practice as architects operating in historic areas, we rely on accepted theoretical and methodological principles concerning the urban renewal, the aim, the scale and purpose of the intervention. We consider examples of good practice presented in publications and seminars, but finally it is not an exact science.

• The physical, economic and social structure of a city are very complex realities, influenced by many factors over long spans of time, and both positive and unwanted consequences could emerge out of a well balanced professional act.

We could study and model this interactions but they will never repeat identically so we must address this kind of problems with caution, insight and modesty – which are not fashionable professional qualities anymore.

REFERENCES

[1] Neumann, V. 2009. "Identity and Culture – Studies on the History of Banat". Editura Academiei Romane, Bucharest, Pp:10-13.

[2] Opris, M. 1987. "Timisoara". Editura Tehnica, Bucharest, Pp:116-117.

[3] 1995. "Neues Bauen heute: Europäische Architektur der neunziger Jahre". Birkhäuser, Basel, Pp:192-193.

[4] Tadi, M. and Boffino, M. 2007. "Timisoara 2020 Overall Vision: A Case Study". Alinea, Florence




"STAR ARQUITECTURE" IN HISTORIC CITIES, INJURY OR ACHIEVEMENT?

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Keywords: Cities, Historic Center, Contemporary Architecture, Impact

Abstract.

Introduction:

In the past 20 years, during the economic chaos experienced by Spain, after its political transition, the construction of contemporary buildings, immersed in the urban fabric of historic cities, has been a constant. The economic boom had made building activity the symbol of progress. So every mayor wanted to have, among his/her achievements, architectural works that carry the signature of star architects of the time, regardless of whether they were located in the historic center of cities.

Developments:

The last two decades have been the major time of construction of such buildings. Symbolic buildings, in which the design criteria with respect to a powerful and valuable historical context were left behind; in a booming country. Cities like Madrid, Seville, Barcelona or Bilbao were filled with buildings by Foster, Gehry, Moneo, Nouvel, Pelli, Herzog, de Meuron and other architects who were, at that time, the elite of the world architectural.

Remarks and Conclusion:

The paper reviews some examples of significant works of contemporary architecture and how they alter the historic context in which they are located, to establish whether such interventions have helped enrich this context or, on the contrary, have inflicted permanent damage in cities like Madrid, Seville or Bilbao.

1 INTRODUCTION

In the past 20 years, during the economic turmoil experienced by Spain, after its political transition, the construction of contemporary buildings immersed in the urban fabric of historic cities, has been a constant. The economic boom had lived in building activity, the symbol of the country's liberals. So every mayor and every president wanted autonomy among its achievements, architectural works that carry the signature of star architects of the time, regardless of whether it was placed in the center of historic towns same.

2 BACKGROUND

The last two decades, nineties and two thousand, were the major construction period of such buildings. Symbolic buildings in a booming economic country in which the design criteria about the respect to a powerful and valuable historic context were left behind. Cities like Madrid, Seville, Barcelona, Bilbao, etc. received buildings to Foster, Gehry, Moneo, Nouvel, Pelli and other architects, because they were the elite of world architecture. Each Spanish city wanted to have a building from of star architects even within their historic centers.

Today, with the finished maelstrom, it is time to take stock and consider not only whether the economic cost of each of these unique works was justified, besides if they were designed taking into account its coexistence with a very important historical and urban context: the historic cities of Spain. A country that have 44 sites declared world heritage sites, and is ranked as the third country in the world with more World Heritage, behind to Italy and China.

3 ANALISYS

To answer the question that our proposed reflection on this topic, we discuss three architectural interventions in urban areas of greatest symbolism of the city of Madrid, capital of the country: The Shaft Paseo del Prado, which includes the work of Prado Museum extension, by Rafael Moneo, the rehabilitation of the headquarters of Caixa Forum in Madrid, project by Herzog and de Meuron architects and finally the Extending the Museum of Contemporary Art Reina Sofía, a project by the french architect Jean Nouvel.

3.1 Prado Museum Extension by Rafael Moneo

3.1.1. Background

Designed in 1785 by architect Juan de Villanueva as Cabinet of Natural Sciences, by order of King Carlos III. It was not until 1819, under the reign of his grandson, Ferdinand VII, the building was designated to create a Real Museum of Painting and Sculpture, which would soon be renamed National Museum Painting and Sculpture and subsequently Prado Museum. The Prado was systematically growing in the 16th century during the time of Charles V and continued to thrive under the succeeding Habsburg and Bourbon Monarchs.





Figure 1: Prado Museum planes, J. de Villanueva, 1796 Figure 2: Royal Museum, Camarón y Torra, 1.824 [1]

Since then, an extension of the building would be required. It could allow it to will reach the level of use and comfort of its category like Museum. Given that the original building of Juan de Villanueva could not hold more expansions in the 80s, the authorities, began to think of other possibilities for expansion. In 1995, they approved the "Prado Museum Requirement Plan" in which the need to expand its physical space stood out. A parliamentary pact calls the first competition for the extension, with a only point of view: the Prado must to be extended recovering the only vestiges of the "Buen Retiro Palace". Despite of the attendance of over seven hundred architects and the selection of 10 of them in a second round of projects, the contest was declared void unanimously. In 1997, the Museum's Royal Board of Trustees approved a report that established a Museological Plan which opted for the idea of expansion onto adjacent areas. It proposed that the Prado should expand over nearby and if possible contiguous buildings. An agreement signed in July 1998 by the Ministry of Culture and the Archdiocese of Madrid, this decision allowed for the organisation of a new architectural competition. On this occasion, the competition was by invitation and was limited to the ten finalists of the previous one. In 1998 Rafael Moneo's project, entitled BUEN RETIRO, was unanimously selected, albeit with some modifications suggested by the jury, which comprised representatives of the Museum, the Government, the Regional Government of Madrid, the City Council and the Church. Rafael Moneo's project was approved unanimously and definitively ratified by the jury, on 21 March 2000. [2]

3.1.2. The Moneo's Idea

The central idea of Moneo's design for the present project "respects the original building, its surroundings and the unique buildings adjoining it (the church of the Jerónimos and the Academia Española). It links the Museum to a complex comprising a new building and the restored Cloister. This solution, which has allowed the Museum to extend across all the available adjoining space, also frees up the original building, allowing it to be seen as Villanueva originally intended.

From the outside, the link between the new and old buildings is concealed by a planted-out platform of box hedges which evokes 18th-century gardens and creates a landscaped area that joins up with the Botanical Gardens located next to the Museum. In addition, the new brick building constructed around the old Jerónimos Cloister is aligned with the façade of the church of that name, leaving the exterior of the restored and reconstructed arcading of the Cloister visible from the outside. Its façade opens onto the adjacent street area, which has also been remodelled, through a pair of monumental bronze doors commissioned by Moneo from the sculptor Cristina Iglesias.

Inside, the available surface area has been used in a striking and innovative way, with the three floors used for public access connected by a double escalator, and a further five mezzanine floors for internal museum use. The prevailing use of Colmenar stone and bronze creates a visual link with the materials used in Villanueva's original building", as explained by the architect himself on the website of the Museo del Prado. [2]



Figures 3-4: Campus Prado Museum Infographics [2]





Figures 5: Prado Museum Extension Planes [2]

3.1.3. The Project

So, the new building has provided the Museum with the rooms and installations that it needed both for housing one of the greatest collections of art world-wide and for its curatorial activities, as well as for its external functions relating to the public that visits the Museum and uses its services. The extension has also involved the re-opening of the main entrance of the Villanueva building, known as the Velázquez Entrance. This connects to the new area through the great basilical hall, which now functions as a lobby and circulation space for visitors arriving to see the collection. Alongside it, two new entrances lead into a spacious vestibule that connects the two buildings and houses the principal visitor facilities as well as the new shop and cafeteria.

Furthermore, the Museum's exhibition programme and other cultural activities have now greatly expanded due to the addition of new spaces, including new galleries for temporary exhibitions and a new, modern auditorium/lecture theatre. This "second extension" means that more of the permanent collection can be placed on display, while key departments of the Museum, such as the Education Department, will have more adequate facilities.

In meters, the extension has resulted in an increase of 15,715.27 usable square metres, which have been gained through the construction of the new building around the remains of the Cloister of the Jerónimos, and the semi-freestanding construction that connects this building to Villanueva's original one. The surface area gained by the Museo del Prado through this project represents an increase of more than 50% on the 28,600 usable square metres of the Villanueva building. In addition, by moving specific offices and other areas of the Museum into this new space, the Villanueva building has recuperated almost 3,000 usable square metres to display the Prado's permanent collection. This will allow for a reorganisation of the display of the collections that will take place following the opening of the extension. [2]

Table 1: Usable square metres of the main spaces of the extension: [1]	
New spaces	m2 usables
Temporary exhibition galleries	1.389,92 m2
Cloister (sculpture galleries)	524,57 m2
Restoration studios	831,98 m2
Prints and Drawings Area (new)	230,58 m2
Storage area for works of art	1.111,51 m2
Auditorium and lecture hall	457,74 m2
Shop and cafeteria	782, 75 m2
Visitor attention areas (Velázquez circulation area and vestibule of the extension)	1.609,17 m2

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3.1.4. The Execution

The implementation of the expansion project would last from 2001-2007, forming "El Prado Museum Campus". In February 2001, following the necessary studies to evaluate the state of preservation of the Jerónimos Cloister and the preliminary work to consolidate its structural elements, work began on dismantling its arcading in order to restore and subsequently replace it as the starting-point for construction work on the extension project. Dismantling of the Cloister began in March and the restoration work, carried out under the supervision of the Spanish Heritage Institute, took several months. In January 2002 the State Official Journal published the concession of the contract for the building work to the Temporary Business ("El Prado"), comprising ACS and San José Construction Company, awarded by the Ministry of Culture, later joined by Dragados Works and Projects. In November 2003 Parliament passed the Law governing the Museo del Prado with a large majority, resulting in the creation of a public body that would manage the Museum from that point onwards. In October 2004, the Royal Board of Trustees approved the Action Plan for this new body, deciding at this point on the creation of the Museum's new Study Centre [the Prado's School], which would be installed in the Casón del Buen Retiro. This decision marked the definitive acceptance of the plan for the Prado Museum Campus.



Figures 6: Prado Execution: Jerónimos Cloister re-construction [2]

3.1.5. Speaking in numbers

The project was completed in a period of <u>five years and three months</u> at a total cost of <u>152,367,775.87 Euros</u>. The project was conducted by the <u>three largest construction companies</u> in the country. The completed work was handed over to the Ministry of Culture in <u>March 2007</u>. The amount covers a <u>total surface area of 22,513 built square metres</u>, in addition to 13,363 square metres of improvement to the surrounding streets. The building works, located next to the church of the Jerónimos in Madrid, involved <u>1,600 directly employed</u> <u>personnel</u>. An average of 140 people worked on the site every day with numbers rising at times to up to 320, led by a technical team of 18 people. Excluding Sundays and public holidays, this phase of the new Prado project was completed in <u>190,400 working days</u>, without a single accident on site due to the meticulous organisation and control of site safety.

Finally, with the completion of the project by Rafael Moneo around the area of the Jeromemos, the Prado Museum completes the most significant expansion of its nearly two hundred years of existence.

3.2 CaixaForum Madrid by Herzog and de Meuron

CaixaForum is a cultural center devoted mainly to temporary exhibitions, which opened in 2008.

The building is located in the south of the street Paseo del Prado, opposite the Royal Botanical Gardens and the Prado Museum and between two other major museums in the area, the Thyssen-Bornemisza Museum and the Reina Sofia Museum. Its proximity to these museums has helped this center to be remarkably successful, with almost a million visitors in 2014. The center is a space designed for all audiences, with broad cultural, social and educational opportunities, where you can enjoy exhibitions, workshops, lectures, courses and concerts. The architectural plan of the new center formed part of the project to reorganize the axis Recoletos-Prado, an urban initiative of great relevance to Madrid.

La Caixa (a Spanish bank) bought an old brick building from the early twentieth century, the Mediodía power plant, one of the few examples of industrial architecture that persisted in the center of Madrid, and instructed the prestigious Basel team of architects, Jacques Herzog and Pierre de Meuron (winners of the Pritzker Architecture Prize), to carry out the rehabilitation to convert it into a museum and cultural center.





Figure 2: Aereal view of Mediodía Power plant before the fire

The old power plant was designed in 1899, promoted by José Batlle. The project was developed by the architect Jesús Carrasco y Encina and the installation of machinery was commissioned to the engineer José María Hernández. It was a building that generated electricity from coal and it supplied energy to the south of the historic center of Madrid.

The building was in a quarter between narrow streets, calles Gobernador, Alameda, Cenicero and Almaden, with a floor area of 1,934 square meters. It contained the power station and a patio overlooking calle Gobernador. The factory, built of brick, was formed by two parallel buildings with two fold facades in the fronts of the Almaden and Gobernador streets, a characteristic structure of power plants that were built in Madrid in the late nineteenth century and early XX.

The old plant was constructed with walls of solid brick on base of granite blocks. The decks were inclined gable with wooden joists on riveting steel trusses and a skylight in the central part that allowed overhead lighting.

After a fire in summer 2004, of the old factory only the coal and large water tanks were preserved. The first urban intervention, designed to provide a direct access to the Museum from Paseo del Prado street, involved the demolition of an existing oil station on site.

This demolition created a small new square in front of the building, revealing a dividing wall, on which the French landscape architect Patrick Blanc designed a spectacular vertical garden of 460 square meters with 15,000 plants of 250 different species. The plants survive without an earth wall, with only water and nutrients, which are obtained by a hidden irrigation system. The garden frames the main view of the building, from Paseo del Prado.



Figure 3: New museum and vertical garden

The project by Herzog and de Meuron retained the massive facades of the old factory, but to gain a striking image it freed them from their loads, hanging the building from a central core that goes almost unnoticed. In fact, what would be the ground floor of the building is an open space free of pillars that prolongs the outdoor plaza and becomes a public space. The brick building of the old factory seems to float. And the access is from below by a spiral staircase with metal rungs.



Figure 4: Acces to de building

Furthermore, in order to give the building a larger scale, in line with the height of surrounding buildings, the new museum is completed with additional storeys, seen from the outside with a lattice of rusty corten steel that allows discrete views from the cafe upstairs on the square and to Botanical Gardens.



Figure 5: Cafe upstairs indoor

In the square there are two fountains, one under the vertical garden 24 meters high, by Patrick Blanc, and the other in the rear solving the gap between street and plaza. The concrete pavement is generated by a network of triangles that create planes with different inclinations. The roof covering the plaza is designed with the same criteria, triangular inclined planes, but this time they are done with metal plates.

Once inside the building the most notable feature is the main staircase with a well that widens progressively as it ascends. For its construction rubber molds were used.

The guidelines that form the basis of this controversial building rehabilitation are principally the idea of preserving the primary overall impression, maintaining its original geometry, and increasing the surface area from its original 2,000 square meters to a total of approximately 10,000.



Figure 6: Cut and Ground floor



Figure 7: View and cut with the stair case

The most controversial point has been the elimination of the granite base that held the old factory, so that the new building stays suspended in the air, over a new public plaza open on all sides, that an area of over 2,500 square meters.

The memory of the building has been preserved, but it has been subverted.

3.3 The case of the REINA SOFIA MUSEUM by Jean Nouvel

During the last three decades of the 18th century, a series of building works were completed in the south east of the town of Madrid, mainly developed in the reign of Charles III (from 1759-1788). These same works were brought back to life during a very similar period in the last two decades of the twentieth century and the first decade of this century, when they also took on a cultural significance.

These buildings, located in the area mentioned, originated in the 18th century but were refurbished in more recent times. They include the Prado Museum (extended and refurbished by the architect Rafael Moneo) the Botanical Gardens (restored by architect Antonio Fernández Alba) and the Reina Sofia Museum (extended by the architect Jean Nouvel). The purpose of this paper is to comment on the contribution and impact on the urban context in Madrid of the building housing the Reina Sofía Museum.

A map of the *Town of Madrid* dating back to 1769 [3] shows the footprint, as-built, of a large building. It is in fact the *Hospital General y de la Pasión*, a hospital developed by King Ferdinand VI, and commissioned to the architect José de Hermosilla (1715-1776) between 1750 and 1768. Work was continued by Francesco Sabatini until the death of Charles III in 1788. [4]



Figure 8: 18th century and current plans

Only the so-called large courtyard (located to the south west) and one of the wings (the north wing) were built, functioning as a hospital until 1965. The wing, which extended toward the east, later became the Faculty of Medicine (today the Real Conservatorio Superior de Música [Royal School of Music]). [5]



Figure 9: 18th century façade and cut

The building managed to avoid demolition on several occasions, and in 1976 the Ministry of Education took it over, to be used for cultural purposes. It was then declared a Historic Artistic Monument. In 1986 it opened as the Reina Sofia Arts Centre, some of the rooms focusing on temporary exhibitions (architect Antonio Fernández Alba).

The Spanish Museum of Contemporary Art, inaugurated in 1975, was housed in a building located on the University Campus. However, its location, away from the town centre, together with construction defects and an excess of sunlight that was damaging for some of the works of art, advised its relocation. All this culminated in the decision to move the art works to the newly created Reina Sofia Arts Centre, inaugurated in September 1992. In this same year the Thyssen-Bornemisza Museum was opened a little to the north of the Reina Sofia Centre, very near to the Prado Museum, creating what is known as the *triangle of art*.

The architects Antonio Vazquez de Castro and José Luis Iñiguez de Onzoño adapted the building, with the collaboration of the British architect Ian Ritchie. Three singular glass towers are the most visible element of their work, two of which are used for the vertical transfer of visitors, and the third for the transport of works of art and miscellaneous materials. Although these elements came under some criticism, they were very well received by those who used them, and they became an attraction in their own right, since they revealed, and were in themselves, new urban perspectives. [6]

Another event that helped to consolidate the personality of the new museum was the decision to relocate the Pablo Picasso painting *Guernica*, giving it a new home at the Reina Sofia, after being exhibited in the Cason del Buen Retiro since 1981 (having been brought from the MOMA in New York). Thus it was possible to show a work which became the "foundational heart and soul around which the entire Museum revolves". [7]

Guernica, and a sculpture by Alberto Sánchez Pérez representing *"the Spanish people have a path that leads to a star"*, had formed part of the fabled Spanish Pavilion at the 1937 Paris International Exhibition. A copy of the sculpture was placed outside the museum and, together, the two works represented a part of Spain's democratic process.



Figure 10: Glass lift by Vazquez de Castro and Iñiguez de Onzoño

The number of visitors to the centre continued to grow constantly, doubling between 1991 and 2002 to reach a million and a half. A few years after its inauguration more spaces were needed to meet the growing needs.

An international design competition was organised to which about one hundred participants responded. The design by the team AJN Jean Nouvel Architectes was selected as the winner, when the team was also working on the KKL building (Kultur- und Kongresszentrum Luzern) in Switzerland. The name of an architectural celebrity was therefore brought to the scene, becoming one more factor to guarantee the Reina Sofia's path to stardom as a museum.

The winning design not only responded to the needs created by the Museum, but also gave the town spaces that were previously lacking in this district. It created a "public square", which was born out of the arrangement of the new buildings and the west façade of the original Museum. A space of and for the city, which can be used freely by anyone looking for a resting place, inviting people to read, meet their friends, to enjoy themselves, or simply to roam around and stop for a few minutes on their walk through the Atocha area.

The building opened its doors in 2005 and responded to a differentiating strategy that segregates features and spaces but joins them perceptively by a huge roof, a continuation of the existing cornice, hugging and protecting the buildings arranged around the public square. [8]



Figure 11: Jean Nouvel extension

There are three buildings for three main activities: temporary exhibitions, auditorium and library. In addition, there are storerooms for works of art in two basements on two levels, and offices and protocol rooms as well as the headquarters of the Board of Trustees in the penthouse that spans the three buildings.

Thus it establishes a comparative dialogue between the two buildings: the massive, rotund and orthogonal appearance of the Sabatini building compared to the lightness and dematerialization of the new buildings, where the cantilever roof defines the urban limits of the museum. The use of bright red on the underside of the unifying roof is the signature of the author that brings a new value to the institution of the Museum itself.

The temporary exhibition area connects the new buildings with the pre-existing one at a point on alternate floors.

The auditorium has two halls, one for an audience of 400 and another for 200, making it possible to generate a wealth of new activities, including the regularly repeated activities of the Centre for the Dissemination of Contemporary Music. On the same level as the square, there is also a cafeteria and restaurant.

The library building, in addition to containing a library where bibliographic, computer, audio and video resources can be shown and consulted, also has storerooms that can contain up to 250,000 volumes and space for a commercial book shop, one of the most frequented in the city.



Figure 12: Public square and Library building by Jean Nouvel

Today, a few years after the centre has been open as a whole, you can see how this institution satisfies all the conditions of the new type of museum that Jimenez Clavería suggests:

The museum-company. With its exhibitions, musical performances, talks, library, shops, coffee shops, etc.

The museum-star, with the five characteristics cited by the same author: essential for the tourist; a general attraction (today with more than three million visitors per year); home to a masterpiece (Picasso's *Guernica*); a building that enhances the content (the work of Nouvel), while generating income on its own. [9]



Figure 13: Guernica picture

But there is perhaps one design requirement that has not been met, which could not be foreseen and is difficult to explain.

We are talking about the aforementioned "public square" where no one stops. No one uses it unless they are on their way to their intended destination. It fulfils its mission of giving access and interconnecting, but is definitely not a place of "rest or a meeting point". The possible cause of the unconscious rejection is due to the level of noise from the street traffic which is significantly louder inside the square.

4 FUTURE: SITE OF RETIREMENT AND THE PRADO DE MADRID

This whole series of urban layouts, monuments, gardens and buildings form the great monument which is the Royal Site of El Retiro and El Prado in Madrid, are the great iconic symbol that the city needs and wish. For this reason, the importance of these three symbolic buildings in the history of the city of Madrid, currently charges more relevance, because the Madrid City Council will present to the UNESCO the request to get the declaration as world heritage to "The Royal Site del Buen Retiro and El Prado of Madrid". Because this site owns and hosts outstanding universal values noted by UNESCO. Those which may lead to consider this part of Madrid like part of World Heritage. This choice is part of what can be considered as an evolutionary urban and cultural landscape. Underscoring, with this, the importance of the works analyzed.

5 CONCLUSIONS

- All architectural projects carried out in historical contexts, must have considerations that go beyond the architectural fact, they should involve variables regarding urban and land-scape aspects and also adding them symbolic and historical aspects of the cultural context, where it's place of these interventions.
- The analysis of these three works of contemporary architecture in buildings in a historic context, leads us to conclude that these mean an alteration of the context of the historical district in which they are located. There aren't doubts about its architectural quality, but we question their integration in the context. Looking for a correct judgement about them, we found a variety of assessments ranging from positive statements that show them like works that enrich the area, and the city, until very negative statements that qualifying them as interventions lorgnettes, bombastic and misguided in the historical context of Madrid.
- Only the passage of time and a positive aging of such interventions can prove his fitness for the urban context in which they were made. Getting through the judgment of time, to get the proper measure of the quality of their contribution to this historic city.
- However the three examples clearly convey the time they were made, clearly telling madness and constructive vortex of a country in full swing, transcribing the ephemeral nature of this moment, which like champagne bubbles, eventually disappear, leaving finally only the quality of the wines that make the essence of good champagne, and in this case the survival of the good architecture, which then, will pass to the history...

REFERENCES

- [1] Ministerio de Cultura, DRAGADOS. 2007. "Museo del Prado Ampliación". Fundación ACS.
- [2] Website Museo del Prado. Museo Nacional del Prado: https://www.museodelprado.es/
- [3] Antonio Espinosa de los Monteros, Antonio. 1769. "Plano Topográfico de la Villa y Corte de Madrid". [Topographic Map of Madrid]. Real Biblioteca del Patrimonio Nacional.
- [4] Sambricio, Carlos. 1982. "El Hospital General de Atocha en Madrid, un gran edificio en busca de autor" ["Atocha General Hospital in Madrid, a large building in search of an author"]. Issue 239 Architecture.
- [5] Ibañez e Ibañez de Ibero, Carlos. 1872-74. "Plano Parcelario de Madrid, formado y publicado por el Instituto Geográfico y Estadístico". [Map of Plots in Madrid, created and published by the Geographic and Statistical Institute]
- [6] Montoliú, Pedro. 2015 "El Centro de Arte Reina Sofía: arquitectura en dos tiempos (gris y roja)". ["The Reina Sofia Arts Centre: architecture in two beats (gray and red)"] In *Madridiario.is*. March 5.
- [7] Jiménez-Clavería, Luis. 2007. "Museos: de templos del arte a empresas de gestión cultural". ["Museums: from temples of art to cultural management companies"] In *Museo nº 12, Jornadas de Museología*.
- [8] Nacach, Pablo. 2004. "El Madrid de las Estrellas" ("The Madrid of the Stars"). In *La ilusión del progreso.*, November.
- [9] Jiménez-Clavería, Luis. 2007.





HEROES' SQUARE, BUDAPEST: A HISTORIC AREA AND ITS UNSUCCESSFUL MODERNIZATION ATTEMPT

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Keywords: Heroes' Square, National Heroes Monument, Hungarian Fine Art Museum, Millennium Monument, Budapest, World War

Abstract.

Introduction:

Heroes' Square in the capital of Hungary has a vivid more than hundred year long history, through which many attempts of temporary or permanent modifications have happened. These proposed changes clearly express the contemporary needs and views, but most of the time the square's original set-up can be saved. Among others, the square witnessed event related major changes, such as the total clearance of the park area. In this paper, the above mentioned modernizing initiatives are presented as historical background for the main case study.

Developments:

The presentation would concentrate on the Hungarian Fine Arts Museum project to establish a modern construction on the square as its entrance and visitors' area. Both the square with its group of statues and the museum were built in the end of 19th century, and understandably, the new needs and the lack of space required some kind of change in the setting. Many architectural plans were made and heavy discussions were conducted not just within the academic specialists and the museum people, but the debate became political and public as well. At the end, the project of establishing a modern building on the square, similar to the example in Paris, got cancelled.

Remarks and Conclusion:

The long and at the end, unsuccessful project to create a modern adding to the otherwise uniform historical square is not just a success story for heritage management, but also provides a very good representation of the contemporary threats and possibilities of urban heritage management in Central Europe within the scope of UNESCO's Historical Urban Landscape.

1 INTRODUCTION – HISTORICAL OVERVIEW

Heroes' Square is one of the most prestigious public spaces in the Hungarian capital. It is situated between the Fine Arts Museum and the Contemporary Art Gallery, at the end of Andrassy Avenue that is lined by urban palaces on its both sides, and in front of the City Park. There are two major public art pieces at the center of the square the Millennium Monument and the National Heroes' Monument. The Millennium piece contains statues of symbolic figures and Hungarian leaders from the first thousand-year, including the heads of the seven tribes concurring the territory, as well as, the most recent Habsburg kings and queens of that time. It was established at the end of 19th century during the celebrations of the thousand year anniversary of state foundation [1]. The idea behind the National Heroes Monument is dated back in the beginning of 1920s, when a strong voice was formulated among the public, and got verbalized by the contemporary media that the state should establish a central memorial mainly to honor those heroic victims of World War I, who were buried anonymously. It says: "There is no venue in Budapest yet that would remind us to Hungarian soldiers who are buried in the Italian-, the Carpathian Mountains, in Galicia, in the Polish Low Land or in the Rumanian forests [2]." From 1927, the ideal location of the central memorial was specifically this territory, but the message of the new art piece changed. From commemoration and mourning, it became the realization of the motivating, self-conscious national identity and the never again ideology of irredentism that became more and more popular before World War II [3].

The first central memorial (by Róbert Kertész K. and Jenő Lechner) was established officially with a significant ceremony on 26 May, 1929, on Heroes' Day. The event was particularly special, as by that time the whole Millennium Monument became completed with all the parts that had been postponed to finish since the Millennium Celebration Year (1896) due to World War I. Based on the description in Az Est newspaper, leading military, political and religious ac-tors participated on the celebration, which started with a silent memorial [4]. The art piece was a 6.5 meter × 3 meter × 1.3 meter monolith limestone. It had the form of a simple coffin that had the dates of World War I (1914–1918) on its shorter side facing towards Andrassy Avenue and the text "Dedicated to the thousand-year old national boundaries" on its other side. On the top, a sword hilt-like cross was carved. The art piece was under the street level, and surrounded by lawn [5]. After 1929, every year celebrations took place at the National Heroes' Monument, and three years after its establishment, the whole square was renamed to be Heroes' Square. With that final move the war victims' cult and the thousand-year old Hungarian heroes' cult were melted into one general and nationalistic discourse [6].

On the yearly occasions, the speakers did not just commemorate the past, but spoke about contemporary issues, and the upcoming future as well, accordingly, as the time passed, the mood and tone of these occasions changed. Moreover, new rules and regulations were formed in regards the necessary daily routine of honoring the memorials. With these regulations not just the everyday life of the public was defined, but certain messages got also emphasized. The given internal political situation and the economically and emotionally broken society must have supported these regulations [7]. During World War II fights, both the Millennium Monument and the National Heroes' Monument were damaged [8]. Due to the political and ideological changes, the original National Heroes' Monument with its message from 1929 became unacceptable after World War II. Accordingly, during the 1951 reconstructions, the symbolic mass grave was vanished away totally from the square [9].

The second version of the National Heroes' Monument (b Béla Gebhardt) was formed in 1956 spring. The size $(4.5 \text{ m} \times 2.4 \text{ m} \times 0.5 \text{ m})$ and the form of the new monument were similar to the previous one, but it was on a small pediment on the street level [10], which had be-

come covered with stone cladding in 1938 for the Eucharistic World Congress [11] that took place on this square with an open-air ceremonial mass for the whole audience, filled up the square completely. The new, symbolic grave had no allusion to World War I, the only text that was carved on its top said "To the memory of those heroes, who sacrificed their lives for the Hungarians' independence and freedom." One additional decoration was a laurel branch next to the text. The carved statement generalized the subject not just in time, but implicitly, on national level as well. According to the contemporary official ideology, the Allies of World War II, including the Soviet Union, also fought for Hungarians' independence and freedom. This hidden message was underlined by the inauguration day of the new memorial. Instead of Heroes' Day in May, it happened on 4th April, 1956, on the 14th anniversary of the "liberation of Hungary" (by the Soviet army) [12]. Like at the previous celebrations, there were speeches, military parade, enwreathing, but no mass or sanctification of the new National Heroes' Monument. Another parallel between 1929 and 1956 was that the latter occasion was also the celebration of the full reconstruction of the Millennium Monument that meant modification as well on ideological basis [13]. (Some aristocratic former leader got replaced by historic figures with less noble social status to emphasize the con-temporary leading ideology.) The new National Heroes' Monument served protocol venue during the second part of the 20th century as well. Foreign delegations, diplomatic corps had their official enwreathing ceremonies regularly here that also promoted the incorrect understanding of the National Heroes' Monument to be the Hungarian Tomb of the Unknown Soldier [14]. The official events were so general that they became much rather occasions to appreciate the Hungarian past, than to commemorate any heroes. Similarly, Gebhardt's art piece witnessed so many diverse occasions (like mass marches, public meetings, May 1 festivals), but was never used as a part of these occasions [15].

The third, and as of today, the last phase of the history of the central art piece of World War I memorials as well as of the square as an art piece, started their the general reconstruction in between 1996 and 2000 [16]. The inauguration of the newest monument was on a special day again, but like in 1956, it was not in May, but on 20th August. The thousand-year anniversary of Saint Stephen's coronation was celebrated with an eighteen-month long chain of events that was ended with the inauguration of the monument in 2001. Similar to the previous celebrations, that occasion was consisted of enwreathing, military march and speeches. At the end of the ceremony, the Honvéd Folk Ensemble performed, which added cultural aspect to the strictly official pro-grams [17]. The law of 2001 makes the National Heroes' Monument with the Millennium Monument national memorial [18] that provides special protective rights to these art pieces. Another change in the status happened in 2002, when Heroes' Square with all its elements was chosen to be World Cultural Heritage site by UNESCO. It was evaluated as an outstanding universal value, which provided the right for international protection too [19]. Based on this review, the square can be seen as location and context for the inhabitants to form both indirect relations with other Hungarians and personal rootedness within the imagined community. It has become a significant symbolic-political venue for the interaction of the contemporary politics and the masses as well. The commemorations, at different time periods, can be rather seen as the realizations of new political messages, than a remembrance to a given period of the national history without ever initiating major changes in the setup of the area [20]. Similarly, the less political as well as more joyful than commemorative events that have been organized at the same venue still reflect to the long history of the square with the events that took place there.

2 DIVERSIFICATION OF THE EVENTS AND THE ATTEMPT TO MODIFY THE SQUARE

After the political change of 1989, the number and the types of events organized on Heroes Square have increased significantly starting with the Re-burial of Imre Nagy, the appointed prime minister at the time of 1956 revolution in 1989 [21]. This event is evaluated as a major step in the democratization of the country and as an event it is still vividly alive in the public memory. More contemporary examples also play on this heavy history and complex meaning of the square, for example, both the extreme right party and its organizations regularly had meetings and occasions on this spot, as well as, the state party has organized events on national holidays [22]. NGOs choose this venue for their yearly charitable events also, such as the Christmas Present Collection for the Needed Ones or the Walk of Piece for Understanding and Solidarity [23]. The few love parades that were the celebrations of a certain type of music, as well as, of LGBT rights took place on Andrassy Avenue and on the square too [24]. Important classical and pop concerts, open-air, giant poster exhibitions with usually controversial topics and the yearly National Horse Races are among the many, less political, more enjoyment happenings that make this location's status compound and complicated [25]. All in all, it can be stated that since the establishment of the democratic political system in Hungary in 1989, Heroes' Square has hosted more diverse occasions, but as a venue, it has still been heavily influenced by its long tradition and the memory of those special events in the past.

The Hungarian Fine Arts Museum that is situated on the Western end of Heroes' Square, is one of the most successful and prosperous cultural institute of the country. It has growing amount of collections, as well as, increasing number of visitors, events and vivid connections with other alike foreign institutions. The need for modernization and more space has been discussed since the early 1990s; but neither possibility, nor financial based were available. The con-temporary director of the institute, Dr. László Baán, expressed his intention to solve this more and more essential problem, as early as, at his inauguration as the director of the museum in 2004 [26]. He arranged block-buster temporary exhibitions first time ever in Hungary, and involved for-profit companies in the support system of the institution. With these he raised tremendous amount of budget to justify and realize his aim of increasing the territory of the museum. The needs for place and modernization were unquestionable, as there was no space for temporary projects with huge exhibition areas. The museum was also lack of spaces that can host significant amount of visitors at one time, as well as, proper security system. The original 19th century building did not have interactive spaces, such as lecture halls with relevant technical background, or area for relaxation time, such as youth program area, restaurant, tourist support area, just to name a few [27]. Some of these requirements were present in case of Heroes' Square as such too, as being one of the most preferred destinations of the tourists in the capital, it did not have proper service area for the increasing amount of visitors. These dual needs led to the idea for a new, modern architectural landmark that has been a common practice at many other European metropolises. Paris, London, Zurich and Vienna just to name a few of the cities, where a major muse-um's spatial shortage and the lack of modern architectural example formulated a joint need, and led to a fruitful result that turned to be a new tourist attraction as well [28].

As a result of all these aspects and more, the Hungarian Government voted almost four billion Hungarian Forints mainly by using EU support for solving the spatial needs of the Hungarian Fine Arts Museum within the New Hungary State Program in 2007 [29]. This plan was the biggest financial investment since the opening of the museum in the early 19th century, and

based on the aim, it would have resulted not just in the improvement and modernization of the museum, but of the square as well. Not just the museum and the relevant state offices (like the National Cultural Heritage Service Office and the Ministry of Human Capacities), but other professional institutions (like the Architect Chamber of Budapest) were involved in the planning and realization of the process to choose a suitable plan, and realize it by keeping both the budget and the time frame [30]. Such a major project was evoked the interest not just the national and international community of architects [31], but also the public via media [32]. We should not forget that heritage professionals, as well as, fine art artists, who see the museum as an ideal destination of expressing their works [33], follow closely the events as well. All in all, this museum enhancement became a political and an international topic due to the financial sources, and a professional question based on the fact that such important and expensive investment rarely happened in the field. Moreover, due to the special importance of the location and the intensive media coverage, everyday people followed the events on the daily basis too. Accordingly, numerous articles and interviews protests were formed about this question.

The decision makers due to the pressuring time and the increasing attention decided to invite seven prestigious Hungarian architects to propose tenders for the realization of the ongoing project, and also established an artistic committee, who had the task to make the decision. As a result, Sándor Karácsony's tender was chosen who planned to have a mainly underground architectural space that would have contained all the required area, and served all the missing functions of both the museum and the square. Based on his (and his colleagues') plan, there would have been one major glass box entrance at the corner of the square next to the museum, another less significant one, further back to North, and one entrance cut into the existing main staircase [34]. After the announcement of the decision and the details of Karácsony's plan, a huge public rebel has formed. Both professionals and public representatives expressed diverse concerns about the decision. Some sees the chosen plan as an attack on the genius loci, or the original complexity of the museum building and the square [35]. Others expressed concern about the functionality of the plan, if this version would really serve all the existing shortages of the cultural institutions [36]. There were other views that pointed out to the problematic geological composition of the ground. (This area is mainly an artificially formed location used the mud of the Danube river, and accordingly, it is questionable, if such a complex architectural structure underground could be realized [37].) Some sees the proposed realization as an attack on the needs. Due to limited avail-able time, the plan is evaluated as a quick and doable version and not a well-planned operation; accordingly it would have failed to fulfill all the needs of the cultural institution and the major public space. (In short the planned construction would have been an adaptation of the needs to the possibility, and not the other way around [38].) Last, but not least, there have been strong voices that focused on the political aspects of the process, and criticized the almost autocratic decision-making chain of events, when there were no open public debate about the needs and the possibilities, no open, international planning tender or the lack of identification of the real and professional museological needs of the institution [39].

As a result of all these criticism, as well as, due to other factors, which we still do not know, the project got cancelled. The square was saved from such (re-)formation and for many years, it seemed that the idea of expanding the museum and changing the area was dismissed [40]. In the last couple of years these views emerged again, when the whole structure of state and regional museum system got reorganized, and the Hungarian Fine Arts Museum, as the most prosperous and self-financed cultural institution, got joined with numerous other institutions (such as National Galery, Hopp Ferenc Eastern Asian Museum), by which the museum gained more space, employees and artifacts [41]. Also a totally new project called, Liget Budapest, was announced recently that named the neighboring area of Heroes' Square as the tar-

get zone to establish numerous new museum institutions, and to form a kind of museum island within the city [42]. This idea would not just solve the spatial needs of the Hungarian Fine Arts Museum and the lack of service area of the square, but would also create a new cultural center within the capital. However, there are opposing views, which see the establishment of the new center and the reorganization of the existing cultural structure problematic, which marks the beginning of a new public debate again [43]. Hopefully, this time the participants do speak with each other and not just next to each other, and a more meaningful discourse is going to be generated.

By concentrating strictly on the events around 2010, it can be concluded that besides the typical local factors of political and economic interests, and the national missing capability to keep up with the views and services of the time, there are some general mistakes that were con-ducted during the attempt of increasing the area of the Hungarian Fine Arts Museum on Heroes Square. These elements can be pointed out if comparisons of other similar cases are conducted. Either the Zurich example [44] or the Austrian solution for the intention to establish some modern architecture in the neighborhood of some classical landmarks [45] shows that open social and professional discourse with the inclusion of international specialists would lead to fruitful cooperation and elimination of concerns. Also public international tender would have solved many of the realized controversies that made the case fragile and diverse and would narrow the question to a strictly professional and not political decision. The question became so complex that involved too many aspects that would have had to be cleared out. Many said that if such case had been raised at a much less significant area of the city then it would have led to certain consensus more easily like in the case of Albertina. All in all it can be said that without choosing a side in the process or evaluating the winner project, it can be said that enough time, less historically packed location and open, wide, proactive discussion might have led to a more anonymous decision then the experienced case.

3 THEORETICAL ANALYSIS

There are many aspects of the given case that could have been researched on a more theoretical level that would lead to the establishment of more universal results as well as to the possibility to connect to even more similar examples. One possibility is to focus on the long and vivid history of the venue that unquestionably influenced all parties and views involved in the dis-course. The evaluation of recent historical memories especially in Central and Eastern Europe is especially problematic as both World Wars and their consequences have strong and tearful memories on personal, community and national levels as well. Accordingly the memorials and the special locations have special significance and during the last couple of decades, numerous research and publications worldwide have dealt with them too. One of the motivation factors is said to be the influence of the works of Pierre Nora [46]. Through their republications and translations, this series of publications has served as the source of many regional researches and concrete case studies. For instance in the US, the main focus is on the connection of different time phases at and or through these venues [47]. Another, also French, influential historian is Francois Hartog [48], who points out the need to constantly research and rethink the connection of the three classical time phrases. But unquestionably, not just these authors (in case of Nora editor) and their influences directed the attention to memory and memorial venues, but also the fact that many sciences (for instance art history, anthropology, psychology, gender studies) chose them as the major research topic in the same time [49]. Similarly, the events of 20th century increased the importance of memory, the identification of guilt and innocence and their continuous conscious existence in the public discourse partly via the concrete venues. Specialists names this intensive increase of projects of this ic, 'memory boom' [50].

Another group of these projects put emphasis on the establishments of the memorials, their types through time and cultures, as well as, on their expressed symbols and mythologies [51]. Many of these research the contemporary views and trends at the time of the establishment and at later memorial ceremonies too. For example, multiculturalism and the evaluation of different sections of the society influenced the history of the memorials, their interpretations and appraisal [52]. Based on this, the memorials and the memory practices have been researched together with nationalism for decades [53]. Accordingly, Will Kymlicka says that "state decisions about language, national holidays and state symbols unquestionably support certain cultural identities and suppress others [54]." Oppositely, Barry Schwartz calls the attention to the similarly influencing effect of traditions and habits in case of memorial practices [55]. The memory of the fallen soldier and the military cemeteries form unique categories. The former type is connected to both the individual and to the public or official history, like the Tomb of the Unknown Soldier category [56]. While the latter category can be seen as a necessary consequence of fights; since its early examples, there have been numerous expectations and usages about them [57]. At both categories religious symbols and understandings can also be detached [58]. World War I memorials form an identical public art category worldwide too. Significant number of these monuments had been created in the 1920s and 1930s, and they reached importance again in the 1980s and 1990s, when their necessary renovations took place [59]. There are some general features due to the common time and subject of these art pieces that define most of the examples no matter their locations. They are mostly conservative in terms of representation, using classical symbols and allegories. Religious signs and depictions of the glorious past are frequent elements of these monuments, as well as, the soldier himself as the subject of these memorials. The mood of these objects is usually a combination of mourning and noble pride [60].

Heroes' Square in Budapest is not just the location of the originally central memorial of the World War I victims but it can be seen as a historic urban landscape due to the surrounding architectures, the park as well as the other major monument, the Millennium Monument in the middle of the square. The 'Recommendation on the Historic Urban Landscape' by UNESCO in 2011 [61] transformed the notion of preserving urban heritage significantly by emphasizing new aspects of these processes. This proposal has influenced all cultural heritage sites that are located in historic urban settings including those that have been on World Heritage List prior 2011, like Budapest, Hungary. Since then many provisions and specialized institutions (such as the International Committee on Historic Towns and Villages) [62] have been established to research and to provide possible methods and guidelines to protect, conserve and restore this unique group of our tangible heritage sites. Due to their histories and diverse meanings, inhabitants connected to them emotionally, and psychological fulfillment can be reached through them. Another general characteristic of the world heritage sites in urban settings especially is the need to face with constantly new challenges due to historical, social or economic changes. Regional conferences, international congresses and workshops have dealt with among many other threats: with the influence of in-creasing tourism, of pollution or with the lack of proper management [63]. In the given Hungarian example another possible threat emerged besides the modernization need of the museum, the overestimation of local magnitude for instance due to harmful nationalistic ideology [64]. Jukka Jokilehto stated that "globalization from below relies on methods and processes that raise aware-ness of local cultural and economic resources and contexts [65]," but what happens if this raised awareness risks the Outstanding Universal Value principle of a cultural world heritage site. In the researched example the earlier named international similarities like the Paris example was harshly criticized only on nationalistic level at certain media [66]. It has been stated after thorough research and numerous case studies that adaptive reuse of these landscapes (if possible) is a doable solution to keep them in the always changing contemporary surroundings. Although the situation might be different, when inhabitants tend to or are driven to understand these urban sites more from a narrowed perspective, which is many times rather a modified remembrance of the past.

There have been plenty examples for misunderstanding or biased use of memory in case of the central memorial, the square at those cases was reused mainly for fulfilling one interpretation, leaving out other aspects. According to many, numerous critics of Karácsony's plan rejected to admit the needs of contemporary life as well as the international recommendations and trends [67]. Their narrow mindedness froze Hungary's cultural status in its conservative almost half-century fallback state from the rest of the world. This paper is consciously lack of evaluation as it intends to point out the complexity of the question and to focus on the possible effective techniques rather than the concrete answers.

REFERENCES

[1] Hajós, György. 2001. Hősök tere. Városháza Kiadó, Budapest. Pp: 59-78.

[2] Újság. 4 October 1925. Pp: 5.

[3] Nagy, Ildikó. 2001. "Az emlékműszobrászat kezdetei Budapesten: szobrok és szobrászok". *Budapesti negyed*, 9/2/3, Pp: 191–218.

[4] Az Est. 29 MAY 1929. PP: 3.

[5] Gerő, András. 1987. "Az Ezredévi Emlékmű: A Milleniumi Emlékhely Mint Kultuszhely". *Medvetánc*, 7/2, Pp: 3–50

[6] Helgert, Imre; Négyesi, Lajos And Kalavszky, Györgyi (Eds.). 2002. Nemzeti Emlékhely A Hősök Terén. Szaktudás Kiadó, Budapest. Pp: 75-84

[7] Belügyi Közlöny 1896–1953 *Adatbázis* Cd-Rom. 2011. Arcanum Adatbázis Kiadó, Budapest.

[8] Gerő, András. 1990. *Der Heldenplatz Budapest: Als Spiegel Ungarisher Geschichte*. Corvina Kiadó. Budapest. Pp: 37-42.

[9] Gábor, Eszter. 1983. "Az Ezredéves Emlék". Művészettörténeti Értesítő, 4, Pp: 202–217.

[10] Pótó, János. 1996. "'...Állj Az Időknek Végezetéig!': Az Ezredévi Emlékművek Története". *História*, 18/5/6, Pp: 15–18.

[11] Sinkó, Katalin. 1987. "A Millenniumi Emlékmű Mint Kultuszhely." *Medvetánc*, 2, Pp: 29–50.

[12] Boros, Géza. 2001. Emlék–Mű: Művészet–Köztér–Vizualitás A Rendszerváltozástól A Millenniumig. *Enciklopédia Kiadó*, Budapest. Pp: 130-133.

[13] Pótó, János. 1989. "Történelemszemlélet És Propaganda: Budapest Köztéri Szobrai 1945 Után". *Történelmi Szemle*, 29/3/4, Pp: 518–531.

[14] Kilián, Zoltán. 1934. "Hogyan Született Meg Az "Ismeretlen Katona" Eszméje?". *Magyar Katonai Szemle*, 5, Pp: 218–225.

[15] Boros, Géza. 1999. "Köztéri Művészet Magyarországon I-Ii.". *Beszélő: Új Folyam*, 4/6, Pp: 75–89.

[16] Gerő, András. 1995. *Modern Hungarian Society In The Making: The Unfinished Experience*. Central European University Press, Budapest. Pp: 63.

[17] Nemeskürthy, István And Kováts, Flórián (Eds.). 2001. Ünnepel Az Ország A Magyar Millennium Emlékkönyve 2000–2001. Kossuth Kiadó, Budapest. Pp: 69-71.

[18] Magyar Közlöny 2011, 3245.

[19] Jokilehto, Jukka; Cameron, Christina; Parent, Michel And Petzet Michael. 2008. *The World Heritage List What Is OUV? Defining The Outstanding Universal Value of Cultural World Heritage Properties*. Hendrik Bäßler Verlag, Berlin.

[20] Boros, Géza. 2004. "Az Idő Mókuskereke: Őrzött-Védett Műtárgy". Műértő, 7/9, Pp: 12– 13.

[21] György, Péter. 2000. Néma Hagyomány. Kollektív Felejtés És A Kései Múltértelmezés 1956–1989-Ben. (A Régmúlttól Az Örökségig). Magvető Kiadó, Budapest. Pp: 252-257.

[22] Vadas, Ferenc. 1992. "A Place Of Ceremonies (Heroes' Square)". *Magyar Építőművészet*, 83/6, Pp: 26–29.

[23] Sinkó, Katalin. 1993. "A Továbbélő Historizmus: Millenniumi Emlékmű, Mint Szimbolikus Társadalmi Akciók Színtere". *In A Historizmus Művészete Magyarországon: Művészettörténeti Tanulmányok*. Edited By Zádor, Anna. Mta Művtört. Kutint., Budapest. Pp: 277-294.

[24] T. Kiss, Tamás. 2002. Fordulatok – Folyamatok. Fejezetek A Magyarországi Kormányok Kultúrpolitikájáról 1867 – 2000. Új Mandátum Kiadó, Budapest.

[25] Diós, István. 1992. "Pontificial Altar On Heroes' Square 1991". *Magyar Építőművészet*, 83/6, Pp: 30-31.

[26] Szőnyei, Tamás. ""Más A Nézõpont, De A Téma Ugyanaz" (Baán László, A Szépművészeti Múzeum Új Fõigazgatója)". *Magyar Narancs*, 49.

Http://Magyarnarancs.Hu/Belpol/Mas_A_Nezotildepont_De_A_Tema_Ugyanaz_Baan_Laszl o_A_Szepm Ucircveszeti_Muzeum_Uj_Fotildeigazgatoja-60304 (2004).

[27] Balogh, Gyula. 1995. "Ide-Oda Költöző Gyűjtemények. Hol Tart A Szépművészeti Rekon-Strukciója? [Beszélgetés Mojzer Miklóssal]". *Magyar Hírlap*, October 9, Pp: 15.

[28] Építész Fórum. "Tervjavaslatok Versenye A Szépművészeti Múzeumra - Bemutatjuk A Terve-Ket". Http://Epiteszforum.Hu/Tervjavaslatok-Versenye-A-Szepmuveszeti-Muzeumra-Bemutatjuk-A-Terveket4 (2008).

[29] Koós, Miklós. "West-Balkán | A Szépművészeti Bővítése". Http://Koos.Hu/2008/05/22/Westbalkan-Szepmuveszeti/ (2008).

[30] Vargha, Mihály. 2008. "Pozitív Múzeumi Mutyi". Élet És Irodalom, April 19, Pp: 16.

[31] Székely, Miklós; Tóth, Áron; Rozsnyai József. "A Centrart Művészettörténészek Új Műhelye Közhasznú Egyesület Állásfoglalása A Szépművészeti Múzeum Bővítéséről". March 21. Http://Www.Centrart.Hu/Oroksegfigyelo/Allasfoglalas/ (2010).

[32] Ráday, Mihály. "Lék A Épcsőn". *Népszabadság*, Februrary 22. Http://Www.Nol.Hu/Velemeny/20100222-Lek_A_Lepcson-556901 (2010) [4]

[33] Bassa, Lia (ed.). 2009. *Tanulmányok az örökségmenedzsmentről 1. Világörökség és kezelése*. Információs Társadalomért Alapítvány, Budapest.

[34] "Üvegkocka jelzi a Hősök tere alatti komplexumot". *Index*, April 7, http://index.hu/kultur/klassz/szpm0407/ (2008).

[35] Feischmidt, Margit. 2007, "Lehorgonyzott mítoszok. Kőbe vésett sztereotípiák? A lokalizáció jelentősége az aradi vértanúk emlékműve és a millenniumi emlékoszlopok kapcsán". In *Mindennapi előítéletek. Társadalmi távolságok és etnikai sztereotípiák.* MTATKKI, Budapest. Pp: 370-392.

[36] Martinkó, József. 2008. "Nem, nem és nem". Élet és Irodalom. April 18.

[37] Krikovszky, Peter. 1992. "Space under the space deep construction at Heroes' Square and Dózsa Avenue". *Magyar Építőművészet*, 83/6, Pp: 23-25.

[38] "A Szépművészeti Múzeum bővítése - Látogató és Turisztikai Központ a Hősök terén - Látogató és Turisztikai Központ a Hősök terén". *Épülettár.hu*, May 31, http://epulettar.hu/cikk/a-szepmuveszeti-muzeum-bovitese-latogato-es-turisztikai-kozpont-a-hosok-teren (2010).

[39] Haba, Péter. "Vigyázz! Itán "Pihenj!" *Építész Fórum*, April 22 http://Epiteszforum.Hu/Vigyazz-Utan-Pihenj (2008).

[40] Ráday, Mihály. "Ráday Megfúrta A Xxi. Századi Szépművészetit". *Index*, March 17, http://Index.Hu/Kultur/Klassz/2010/03/17/Raday_Mihaly_Megfurta_A_Szepmuveszeti_Bovit eset/ (2010).

[41] Váradi, Júia. "Baán László: "Mindig Meg Kell Próbálni A Jövőre Készülni"". *Mozgó Világ*, http://Www.Mozgovilag.Hu/?P=5258 (2011).

[42] Berényi, Marianna. "Építkezés Helyett Remény Kibővített Szépművészeti Múzeum Helyett múzeumi negyed?". *Magyar Múzeumok.hu* February 16 http://www.magyarmuzeumok.hu/tema/99 epitkezes helyett remeny (2011)

[43] György, Péter. "Kié Itt A Tér?". *Élet És Irodalom*, April 16 http://www.es.hu/?view=doc;25678 (2010).

[44] Kunsthaus Zurich. "*Kunsthaus Extension*", http://www.kunsthaus.ch/en/information/extension/current/?redirect_url=title%3DCommuniq ue%3F%EF%BF%BDs (2015).

[45] De Frantz, Monika. 2005. "From Cultural Regeneration to Discursive Governance: Constructing the Flagship of the 'Museumsquartier Vienna' as a Plural Symbol of Change". *International Journal of Urban and Regional Research*, 29/1, Pp: 50-66.

[46] Nora, Pierre (ed.). 1998. Essais d'ego-histoire. Gallimard, Paris.

[47] Kennon, Donald R., and Somma, Thomas P. Somma (ed.). 2004. American Pantheon: Sculptural and Artistic Decoration of the United States Capitol. Ohio University Press, Athens. and Bodnar, John. 1994. *Remaking America: Public Memory, Commemoration, and Patriotism in the Twentieth Century*. Princeton University Press, Princeton.

[48] Hartog, Francois. 2006. *A történetiség rendjei:Prezentizmus és időtapasztalat.* L'Harmattan-Atelier, Budapest.

[49] Dabakis, Melissa. 1998. *Monuments of Manliness: Visualizing Labor In American Sculpture*, 1880-1935. Cambridge University Press, New York. and Schacter, D.L.; Coyle, J.T.; Fisch-bach, G.D.; Mesulam, M.M.; Sullivan, L.E. (ed.). 1995. Memory distortion: How minds, brains, and societies reconstruct the past. Harvard University Press, Cambridge. [50] Winter, Jay. 2000. "The Generation of Memory: Reflections on the 'Memory Boom' in Contemporary Historical Studies". *Bulletin of the German Historical Institute*.

[51] Best, Geoffrey. 1982. War and Society in Revolutionary Europe, 1770-1870. Fontana Press, London. and Ragon, Michel. 1983. The Space of Death. University Press of Virginia, Char-lottesville. and Etlin, Richard A. 1984. *The Architecture of Death*. Harvard University Press, Cambridge.

[52] Blight, David W. 2001. *Race And Reunion: The Civil War in American Memory*. Harvard University Press, Cambridge.

[53] Megill, Allen. 1998. "History, Memory, Identity". *History Of The Human Sciences*. And Olick, Jeffrey K. And Robbins, Joyce. 1998. "Social Memory Studies: From 'Collective Memory' To The Historical Sociology Of Mnemonic Practices". *American Review of Sociology*.

[54] Kymlicka, Will. 1995. *Multicultural Citizenship: A Liberal Theory of Minority Rights*. Clarendon Press, Oxford. Pp: 120.

[55] Scwartz, Barry. 1987. *George Washington: The Making of An American Symbol*. The Free Press, New York.

[56] Mosse, George. 1990. *Fallen Soldiers: Reshaping The Memory of The World Wars*. Oxford University Press, New York.

[57] Grant, Susan-Mary. 2005. "Raising The Dead: War, Memory and American National Identity". *Nations And Nationalism*.

[58] Kammen, Michael. 1986. A Machine That Would Go of Itself. Knopf, New York.

[59] Sinkó, Katalin. 1983. "A Nemzeti Emlékmű És A Nemzeti Tudat Változásai". *Művészettörténeti Értesítő*, 4, Pp: 185–201.

[60] Boros, Géza. 2003. "Trianon Köztéri Revíziója 1990–2002". *Mozgó Világ*, 29/2, Pp: 3–21.

[61] Unesco. "Recommendation On The Historic Urban Landscape", http://Portal.Unesco.Org/En/Ev.Php-URL ID=48857&URL DO=DO TOPIC&URL SECTION=201.html (2011)

[62] International Committee on Historic Towns And Villages. http://civvih.icomos.org/

[63] Icomos. International Specialised Committee on Cultural Tourism. 1993. "Chapter 2: Es-Tablishing A Management Philosophy". In: *Cultural Tourism: Tourism at World Heritage Cultural Sites: The Site Manager's Hand Book*. ICOMOS, Colomo. And UNESCO. *Revised Plan of Action For International Co-Operation on Tourism Management In Heritage Cities*. http://portal.unesco.org/culture/ev.php?URL_ID=4975&URL_DO=DO_TOPIC&URL_SECT IO N=201&reload=1037721651 (2003).

[64] Dávid, Ferenc. "Hozzászólás Sisa József Homlokzatból – kulissza c. írásához". *Artportal.hu*, March

http://artportal.hu/aktualis/hirek/david_ferenc_hozzaszolas_sisa_jozsef_homlokzatbol_kulissz a_c_irasahoz_velemenyek_a_sz (2010).

[65] Jokilehto, Jukka. 2010. "Reflection on historic urban landscapes as a tool for conservation". *Managing Historic Cities World Heritage Papers*, 27.

[66] Rieder, Gábor. "Dizájnerek Vagy Barbárok". *Artporta.Hu*, March 15 http://artportal.hu/aktualis/hirek/dizajnerek_vagy_barbarok (2010).

[67] Barkóczi, István. "Muzeológusi gondolatok a Szépművészeti Múzeum bővítése kapcsán". *ÉpítészFórum*, March 23, http://epiteszforum.hu/muzeologusi-gondolatok-a-szepmuveszeti-muzeum-bovitese-kapcsan (2010).

CHAPTER III

THE PROBLEMS AFFECTING THE HISTORIC ENVIRONMENT





ABILIO BARRETO HISTORICAL MUSEUM: ASSESSMENT, DIAGNOSIS AND TREATMENT PROPOSAL IN PREVENTIVE CONSERVATION

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Keywords: Historic Environment, Contemporary Design, Preventive Conservation, Guidelines

Abstract

Introduction:

The Historical Museum Abilio Barreto (MHAB) located in Belo Horizonte, state of the Minas Gerais (Brazil). It is open since 1943 in a large house with typical architecture of the first farms in the state. In 1997, due to the need of deep restructuring of the museum, methods of packaging and preservation of the collection, another building, with contemporary style (headquarters) was built in the grounds. It attempted to propose a new architecture that harmonize with the immediate surroundings of preserved farm and at the same time, admit the urban context in which the property falls.

Developments:

This research proposed to assess the various factors that affect the conservation of the headquarters building and its collection, objects of this investigation. We made it through site visits, photographs, literature and interviews with the professional responsible for the museum conservation. Justified by the need for data compilation to support the development of a comprehensive and integrated preventive conservation program, which contemplates both the building as its collection.

Remarks and Conclusion:

A detailed spatial estimation of test objects and surroundings was made in order to present the diagnosis of the conservation status. Finally, the paper presents solution proposals for the main problems identified and guidelines for maintenance and management of the cultural property in order to make it more accessible to the community that has protected it.

1. INTRODUCTION

The extensive knowledge of cultural goods, the environmental characteristics of the building that houses them and the context in which they operate facilitates our understanding of cultural significance of certain assets, and hence of its social function. In this mind, it is essential to monitor the accelerated dynamics of transformation of the scene, materials and even the demands of museum visitants.

This daily and constant monitoring refers to the practice of preventive conservation. It includes procedures to the adequacy of the environmental and physical-chemical conditions in which the goods to fall closer to the ideal required by its constituent materials.

According Castriota (2009), from 1970, the property conservative practices in Brazil have undergone significant changes since kickoff given in 1937. From that time, among other aspects of the evolution of thought, preservation policies have come to accept the idea of innovation and intrinsic change in the material. In this new design, it was assumed that the change was unavoidable and, therefore, should be well managed.

Therefore, it was necessary to adopt joint and organized tasks in the various spheres of government and civil society, to guide conservation practices. These duties are not solidified yet in our community; it takes time, a lot of knowledge and financial resources. Accordingly, it is essential that the population be involved directly in this process, recognizing the actions of constant monitoring as an essential part of the conservation policy.

2. CONTEXTUAL AND CONSTRUCTIVE ANALYSIS OF THE SEAT OF MHAB

2.1. Brief contextual analysis

The Abílio Barreto Historical Museum (MHAB), located in the Cidade Jardim neighborhood, in Belo Horizonte, Minas Gerais (BR), is currently one of the ten institutions with assets, memory and cultural reference of the city of Belo Horizonte Cultural Foundation Office through the Directorate of Museums and reference centers.

Its function is to collect and preserve elements that contribute to the understanding of the history of Belo Horizonte. It is intended to allow the public access to cultural goods and encouraging the partnership of "belorizontino" citizens in strengthening memory of the city.

The museum was founded in 1943, result of a team work within Abílio Barreto, Juscelino Kubitscheck - mayor of Belo Horizonte at the time - and the technical team of the National Historical and Artistic Heritage Service (SPHAN). Then-Historical Museum of Belo Horizonte (MHBH) aimed to count the so-called "ancient history" and "middle history" of the city, referring to the histories of early Arraial do Curral del Rei and the city of Belo Horizonte, respectively. The site chosen to house the museum was the Casarão da Fazenda do Leitão built in 1883, as the only architectural remnant of the old fair. This building (figure 01), then hosting the MHBH, was listed in the decade 1950 by the national heritage organization. Its current name was adopted in 1967, years after the death of Abílio Barreto, as a tribute to the main proponent of the institution.

The 1960s and 1970s include a moment of museum decay. It did not have the appropriate structure for the collection and preservation of the very limited space and divided between administrative activities, exhibition, and technical reserve. The building conservation status seriously jeopardized the materials on display already in a state of deterioration.

The 1990s marked in the museum's history as a time of profound changes that aimed at revitalizing the institution. Projects were developed to adopt a better and adequate infrastructure for its operation. It included hiring of specialized personnel, specific museum project, the mansion restoration and the construction of a new building, including placeholders for various museum needs. At the end of 1998 was inaugurated the new building (figure 02) designed to residence the headquarters of MHAB, on the historic site of Fazenda do Leitão.

Today its collection consists of three-dimensional objects by small, medium and large size, photos, paper documents and paintings, separated by type into five technical reserves. The MHAB own publications of various sorts, from sticker albums for collectors, even books that tell the story of Belo Horizonte and the museum itself.



Figure 01: Main facade of Casarão da Fazenda do Leitão. Source: Bárbara Carmo.



Figure 03: outside area. Source: Bárbara Carmo.



Figure 02: Part of the headquarters building of MHA. Source: Bárbara Carmo.



Figure 04: Garden on the outside area. Source: Bárbara Carmo.

2.2. Quick analysis of the building construction

The modern building, headquarters of MHAB, was the result of a project originally designed and built to dwelling a museum in the capital of the state. The headquarters is deployed on a ground with steep slopes stretch in relation to Av. Prudente de Morais. It has a curved glass facade which creates a counterpoint to the straight lines and the long plans of the side facades. Its construction was made possible with funds raised by the Association of Friends of MHAB (AAMHAB) and represents a significant pillar in the urban area of the city.

On the outside (Figure 03), there are "showcase" for the main parts of the transport assets of the institution's collection: the electric train and steam locomotive. There is also an outdoor stage for various cultural performances and gardens designed as a place for classes and leisure (figure 04). In these gardens are century trees that seem to welcome the visitor. These wins highlight for being well looked after and preserve large trees that provide nice shadows across the ground.

Regarding the big house of Fazenda do Leitão original site of MHAB, expresses the idea of a monument to be preserved since it represents an important exemplary of architecture with colonial features in the capital. It was considered an artistic jewel and witness of local history, living up to the individual bending the SPHAN current IPHAN.

The modern building, object of this article, makes up the physical space of MHAB has a space program that includes reception, bathrooms, administration, exhibition rooms (figure 05), library (figure 06), auditorium, conservation and restoration room (figure 07), shop, restaurant and technical reserves for managing the collection (figure 08).



Figure 05: exhibition room. Source: Bárbara Carmo.



Figure 06: library. Source: Bárbara Carmo.



Figure 07: conservation and restoration room. Source: Bárbara Carmo.



Figure 08: technical reserve for paper documents. Source: Alex Alves.

In the downstairs is located the auditorium MHAB, two technical reserves of threedimensional collection: one small and one medium-sized, and the studio of conservation and restoration. On the second floor is the library, the museum cafe, toilets and circulation area. On the last floor is located the administrative sector and three technical reserves, containing textual collections, iconographic, photographic and art gallery.

The building has mixed construction system, metal frame and lock in brick masonry, plastered and painted internally in white. The cover is made of waterproof flat slab and paving the internal areas in polished granita.



Figure 09: stairway access to the museum from P. de Morais avenue. Source: Bárbara Carmo.



Figure 10: stairway access to reception and exhibition room. Source: Bárbara Carmo.

3. DIAGNOSTIC ANALYSIS

3.1. The building and its collection

The region where the MHAB places is considered "continuous heating core" and low relative humidity, especially in winter. Currently, the overall average temperature in the area is estimated at 21.8 ° C. According to the daily bulletins available thru the State Environmental Foundation (FEAM), the Air Quality Index (IQAr) in January, 2015 at this neighborhood (Central Station Av. do Contorno) was considered "good" although whether adopted densely occupied area.

The average annual rainfall is 1.430mm, with a temperate climate and without the presence of water bodies. The vegetated areas around the MHAB are high density; they are Square Professor Godoy Benthic located at Av. Conde de Linhares and the large garden with small to large trees surrounding the museum complex. Streets around are wooded, and there are also constructions along all these (figure 11).

The factors mentioned above block the airflow/ventilation, the solar incidence/light and contribute to the high humidity percentage in most of the day inside the museum complex. As a result, they promote the proliferation of mold and wood-destroying insects. However, these environmental factors enable protection against ultraviolet rays that can cause stains and loss of color.



Figure 11: aerial view of the museum area, in the neighborhood Cidade Jardim. Source: Google Maps, February 2015.

The stretch of Av. Prudente de Morais, where the headquarters is located, is inclined to flooding caused by rainfalls in the summer and the unfavorable public via configuration. For this reason, the ground floor is a vulnerable sector of the building. The City Hall of Belo Horizonte put signposts on the sidewalks, alerting risk of flood under heavy rain.

The floods occur at Av. Prudente de Morais mainly affect the restoration studio and the auditorium on the ground, causing damage often irreversible in furniture, equipments, materials, and hazard the priceless collection.

The auditorium has carpeted grounds and strong smell. It characterizes the high level of moisture and mold, probably due to lack of windows, sunlight and the presence of air conditioning that only stays on during events. The ground lining and internal walls have damp signals indicating the proliferation of specific molds in some sections.

The conservation and restoration studio (figures 12 and 13), didn't have the air conditioning project and exhaust runs, and has no light source / direct natural ventilation. There is no source of artificial ventilation also. Ventilation ducts that were predicted in the original project should adhere both, the studio and the technical reserves of the ground floor. However, it had only implemented for the assets. These conditions are not suitable for using solvents and materials with high toxicity. Therefore, there are not "invasive" standards implemented even if they are necessary. The activities performed in this place by the MHAB conservation sector, which are behaved by studio room in the form and structure that currently exist, involving the cleaning of objects, performing minor repairs, temporary packaging, preparation for temporary exhibitions, preparation of records activities and monitoring reports of technical reserves. The room has surveillance camera, dehumidifier and heat detector.



Figure 12: studio conservation/restoration, without adequate ventilation. Source: Bárbara Carmo.



Figure 13: dehumidifier used in technical reserves. Source: Bárbara Carmo.

Remain on the ground, the large technical reserve room (figure 14) is accessed by an open fire gate with two sheets. It has a surveillance camera, heat detector with alarm triggers, ventilation ducts (activated system at specific times and days - according to the external air quality and relative humidity), fixed monitoring humidity and temperature and dehumidifier

The humidity and temperature monitor is currently damaged due to an episode of energy overload. The dehumidifier remains switched on only during the museum's opening hours as the machine needs constant supervision to exchange the water tank.

Most of the collection consists of wooden furniture arranged in platforms and sliding shelves of galvanized steel.

The technical reserve room of small and medium size (figure 15) is accessed by a door of two sheets of an open fire. It has a surveillance camera; dehumidifier, activated only in the museum's opening hours, heat detector, ventilation ducts, fixed monitoring humidity and temperature, which is also damaged. The collection is disposed of in sliding shelves of galvanized steel and is separated by type of composition or collection material. The MHAB collections are: Sculpture Collection, Personal Objects Collection, Furniture Collection, Art Gallery Collection, Belo Horizonte Collection, André Cezar Collection, Communication Collection, Work Collection, Ceremonial Objects Collection, Household Equipment Collection and Construction Collection.

There is an excessive moisture problem at certain times of the year at technical reserves in the ground area. It happens due to the spatial section of these environments from the street and the land division taken on the terrain for building deployment.



Figure 14: technical reserve for big objects. Source: Alex Alves.



Figure 15: technical reserve for medium and small objects. Source: Alex Alves.

The exhibition hall of the ground has good ventilation since it is located next to the door of the service access and disabled people, Av. Prudente de Morais. The floors polished granita is in good repair and painted the walls. Currently this space receives two exhibitions, namely: "Blessing the land of Bandeirante" and "PAR - Collection Project Restore".

The first floor, where is located the reception and the store MHAB, has no apparent nor relevant pathologies. By being constantly accessed by the public museum, it receives frequent and proper maintenance which contributes to the conservation of the environment.

On the second floor, textual documentation of technical reserves (figure 16) is accessed by a door leaf to open fire, has surveillance camera, heat detector, air-conditioned environment (between $18 \degree C$ and $20 \degree C$), humidity fixed monitoring and temperature (out of duty).

The textual collection is packed in maps sessions and sliding shelves of galvanized steel, which prevent damage to the acquis. You can see moisture smudges on the walls due to the presence of water from the building's roof. Also notable are several cracks in the walls, which may have been caused by intense infiltration of water, shake the soil due to heavy traffic of heavy vehicles, by movement of the metal structure, or other factors that should be investigated carefully.

The photographic collection room (figure 17) has access door of a sheet of open fire, has surveillance camera, heat detector, room air conditioning (temperature between 18 ° C and 20 ° C) and fixed monitoring humidity and temperature (currently damaged). The photographic material is packed in maps sessions and sliding shelves of galvanized steel. The walls have some cracks with the same characteristics of the environment described above. Here, as in Pinacotheca can be seen PVC pipe throughout the room, besides the exhaust duct



Figure 16: conservative museum, manipulating part of the collection stored in file cabinets. Source: Alex Alves.



Figure 17: packaging of photos in sliding shelves. Source: Alex Alves.

The art gallery is accessed by a door leaf to open fire, has surveillance cameras, heat detector, air-conditioned environment, fixed monitoring humidity and temperature (Thermo hygrometer currently damaged). The collection is contained in sliding panels of galvanized steel. Internal walls have cracks and infiltration.

The largest conservation team's concerns with the reserves of the second floor re-injure the water infiltration from the paved cover, observed in one of the internal stop-des; and the high temperature at which the picture gallery is exposed at a certain time of day, which, due to the low thermal inertia of the envelope, considerably increase the internal temperature. The measures taken to control these problems were putting metal plates with support function to avoid contact of the acquis with water and the constant monitoring temperature and humidity in the art gallery, which is done through a mobile thermo hygrometer.

It has been observed element that deserves attention in these reserves because of the potential to cause major diseases: There is plumbing water in the length of these environments. According to the conservative museum, Natércia Pons, in an interview on February 10th, 2015, the MHAB conservation team frequently call for cleaning the gutters of coverage in order to prevent clogging and leaking of these pipes.

The museum staff structure consists of the Conservation Department (1 Conservative, 1 Conservation and 1 Assistant Maintenance Assistant), Research industry (3 Historians and 1 trainee), Administrative Sector (5 Professionals), Library (1 Librarian) Sector and Museology (1 Museologist). The MHAB also has a team of a third maintenance, performing the cleaning and minor repairs in the building, always follow by the conservative team of the museum.

Since it is a new building, that its uses are appropriate and planned purposes and there are periodic maintenance actions by a specialized team, we observed that, in general, the head-quarters of MHAB is in good conservation.

4. PROPOSED TREATMENT: PREVENTIVE CONSERVATION ACTIONS

4.1. The building

The conditions seen at the museum are directly or indirectly related to the presence of water inside. Among them, moisture stains and cracks in the walls of the top floor - most likely from infiltrating the coverage of paved - and the auditorium strong odor characteristic of colonization by the fungus.

From the survey of the building and found the absence of any definitive or palliative measures to contain the damage that may be caused by known flooding at Av. Prudente de Morais. Such measures are to be essential since it had already been reported flooding of experience on the ground floor of the building, which houses important functions of the museum, as two exhibitions, two technical reserves, the studio of conservation and restoration and the audience.

To contain a possible flood in this floor the initial proposal is to routinely cleaning and maintenance of the "mouths of wolves" near the building. However, since this area is considered risky by the Civil Defense, would be appropriate intervention on the side ramp, with the placement of collecting water channels with guardrails if the flood level exceeds the ride height.

Regarding the reported leaks in the building, it is important that the waterproofing of the roof was made, discarding the metal plates that were adopted as lining in technical reserves, probably to avoid contact with the acquis moisture from the ceiling (figure 20).

If the cracks are related to the weakening of the concrete due to exposure to water, sealing will be sufficient to constrain the evolution of these. However, we observed the presence of a crack that appears at the bottom of the table steel beam and moves toward the floor (figure 21), which indicates a typical problem caused by the difference in behavior of the metal material and the brick system / cement. In order to characterize and solve this problem, it is important that further studies were performed to monitor the development of fissures and cracks, such as hiring an engineering team to perform stabilization and vibration tests.

4.2. The collection

In general were not observed highly relevant conditions in the collection, just being perceived the presence of agents that may cause serious damage and the non-application of techniques considered ideal for preventive conservation. Despite all the study by MHAB in the 1990s in its revival phase, in order to make the architectural and institutional structure appropriate for the operation of a museum, some elements still require attention.

Among the diseases found in the collection and technical reserves, stand out for their frequent occurrence, problems related to the presence of water and/or humidity. Since most of dimensional collection of large technical reserve consists of wooden furniture, it is important that the dehumidifier remain connected throughout the day during periods of high humidity (not only in the museum's opening hours), avoiding problems like spots on the surface of furniture, wood rot and development of bacteria that cause mold and mildew. Therefore, it would be ideal to be provided equipment that did not require constant monitoring and had greater capacity for water storage. The constant operation of the dehumidifier would be important also in the other four reserves, considering the variety of constituent materials, and media is very large and thereby control related pathologies moisture becomes more difficult.

Adds up to this, the non-operation of Thermo hygrometer on fixed reserves (a mobile Thermo hygrometer constantly works in the art gallery), when ideally, temperature and humidity were often and to be prepared charts measures allowing understand the climate changes within rooms.

Regarding the management of technical reserves, it is important that each reservation harbored only one type of material - in small technical reserve, for example, are housed in the same room materials like wood, metal, and porcelain - and that the investigation carried out by conservation and climate team was made individually, respecting the specific behavior of each piece, which is not done by lack of staff.

Another important issue in the management of the collection concerns the niche where is packaged each object. These articles do not have a fixed location on the shelves or platforms may be removed from the premises where they are packaged to be exposed and disassembly of the same exposure, returning to another location. This scenario is not ideal as it hinders the control location and cataloging of objects.

Regarding the collection on display have the most risk of damage are located in the museum's garden. In general the parts are well preserved, but it would be ideal that the tram and the steam engine were also placed in "windows", protecting them from moisture, dirt, vandalism and the entry of small animals. The cleaning and the temperature humidity monitoring within these "windows" are measures that can also be important for the conservation of such property.

It is essential that the technical reserves are kept clean and organized in order to prevent the proliferation of biological agents, and analyze and plan the availability of storage space that is sufficient for current and future collections and allows locomotion in the corridors between the compartments.

As the three-dimensional collection of the outdoor area, it would be interesting that all other collections located inside the headquarters building, especially the ground floor, were stored at a distance of about 20 cm from the floor against moisture.

The large textual collection should be packed in appropriate packaging tubes, and books in other archival enclosures suitable for every size and shape should not remain stacked for prolonged periods. Photographs must be stored, each in appropriate jackets to their size, providing physical support to this collection.

The sliding shelves need to be adjusted periodically to provide stability, strength and safety. It is important that these were padded. Stored objects must be positioned so as to be achieved without major obstacles for the safety of professional staff is guaranteed, as well as the management of these is done properly. It is exceptional that the way the pieces are handled is extremely important for conservation to take effect. We envisage plates and specific
handling instruction manuals for all kinds of collections contained in MHAB, including the team of maintenance and cleaning.

It is worrying the lack of air to move freely, so we considered the implementation of the project of artificial ventilation in technical reserves, as these do not have windows and are air-conditioned. Favors arrange the objects in order to leave vacant spaces between them.

The objects in the small technical reserve such as: collection of pencils, matches, coins, keys, among others, should be placed in exclusive boxes or trays, with space between them and should be monitored frequently. The objects accommodated in the large technical reserves should preferably be positioned horizontally.

It is essential to standardized labeling of all clear acquis and need, with numbers and a brief description without the stickers are placed on objects, but on the shelves or containers that receive them. One should ban the entry of food and beverages or any liquid in technical reserves.

If you identified any pathology, should provide appropriate intervention without delays, by the MHAB Conservation staff. It is indicated that the objects infected by pests should be isolated immediately and further processed. All items must pass inspection and be quarantined upon arrival at the museum, before integrating the technical reserves or showrooms.

The safety professionals MHAB Conservation staff must be guaranteed by adequate legislation for all its activities, including pesticide based treatments and other toxic elements.

The collection of objects that are in transit of any kind must be properly packaged and must be transported by appropriate equipment and properly trained team. Possible damage must be recorded in standardized documentation and filed formally by MHAB.

The professional team of MHAB have be educated for emergencies that may occur and follow the plan drawn up for each type of situation. The museum should be qualified in cases of loss or damage caused by water and fire, biological agents, theft and vandalism.

5. FINAL THOUGHTS

The permanence of heritage consciously into the community that justifies has great potential to produce spaces of creativity and association of cultural realities. Thus, enable the visitors comply with watchful eyes, understand and rethink the collection and the building itself leads to the beginning of a participation - in fact - in building more just and collective spaces.

In this sense, it is extremely important that a museum with a team of conservation that has smaller number of employees than is desirable can raise public awareness of the seriousness of preventive conservation work, seeking support and encourage the work of the Conservatives in the activities "behind the scenes ". These often go unnoticed by visitors and yet are vital to the preservation of the collection and the building, making it possible for the collection items are available and able to enter public activities developed by securely museum.

This work is expected to make a contribution to the practice of preventive conservation becomes less unknown and / or ignored and most common in Brazilian cities, and can change the unfortunate scenario we observe abandonment and subsequent loss of our heritage.

6. **REFERENCES**

ALVES, Célia Regina Araujo et al. *Considerações sobre o acervo do Museu Histórico Abílio Barreto*. In: PIMENTEL, Thaïs Velloso Cougo (org.). Reinventando o MHAB: O museu e seu novo lugar na cidade, 1993-2003. Belo Horizonte: Museu Histórico Abílio Barreto, 2004.

[1] ______Entre preciosidades históricas e retalhos da memórias: a formação do acervo do MHAB. UFMG, 2008. In: Arte, Arquitetura e Religiosidade em Belo Horizonte. (Dissertação de mestrado).

[2] ANDRADE, F.M.R. *A importância da conservação das obras de arte em suporte papel do museu de arte moderna da Bahia*. Bahia: Aerpa editora. Revista brasileira de arqueometria, restauração e conservação: 2011. Vol. 3. (Trabalho de conclusão de curso).

[3] BELO HORIZONTE. PREFEITURA MUNICIPAL. Velhos Horizontes: um ensaio sobre a moradia no Curral Del Rei. Belo Horizonte: Museu Histórico Abílio Barreto, 1997.

[4] _____ *Juscelino prefeito*. Belo Horizonte: Museu Histórico Abílio Barreto, 2002.

[5] _____ De outras terras, de outro mar: experiências de imigrantes estrangeiros em Belo Horizonte. Belo Horizonte: Museu Histórico Abílio Barreto, 2004.

[6] CALDEIRA, Cleide Cristina. *Conservação preventiva em bibliotecas públicas da cidade de São Paulo: estudo de campo.* 2004. Dissertação (Mestrado) – Escola de Comunicações e Artes, Universidade de São Paulo, São Paulo.

[7] CÂNDIDO, Maria Inez; TRINDADE, Silvana Cançado. *O acervo de objetos do MHAB: formação, caracterização e perspectivas*. In: PIMENTEL, Thaïs Velloso Cougo (org.). Reinventando o MHAB: o museu e seu novo lugar na cidade – 1993-2003. Belo Horizonte: Museu Histórico Abílio Barreto, 2004.

[8] CASTRIOTA, Leonardo Barci. *Patrimônio Cultural: conceitos, políticas, instrumentos.* São Paulo: Annablume; Belo Horizonte: IEDS, 2009.

[9] CHOAY, Françoise. A Alegoria do Patrimônio. 3. ed. São Paulo: Estação Liberdade/UNESP, 2006.

[10] IEPHA; Laboratório de Ciência da Conservação da Escola de Belas Artes – EBA. *Conservação Preventiva do Patrimônio Cultural*. Universidade Federal de Minas Gerais – UFMG. Belo Horizonte, 2002.

[11] IPHAN. *Manual de conservação preventiva para edificações*. Grupo Tarefa/Programa Monumenta – BID.

[12] OLIVEIRA, L. José de. *Restaurar a Memória: Procedimentos e técnicas de restauração e conservação do acervo MHAB*. Belo Horizonte, 2010.

[13] SOUZA, Luiz Antônio Cruz, Souza, Yacy-Ara Froner. *Reconhecimento de materiais que compõem acervos*. Belo Horizonte: LACICOR – EBA – UFMG, 2008.





PRESERVING THE SPIRIT OF 20TH CENTURY RESIDENTIAL ZONES: ELMADAĞ-ŞİŞLİ

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Keywords: Urban Transformation, Historic Environment, Modern Heritage, Integrity.

Abstract.

Introduction:

Istanbul, having numerous time levels, contains many historical areas, which are diverse in character while the common problem is the loss of contextual integrity especially through the problems affecting the historical environment. Elmadağ-Şişli axis which have been managed to preserve the integrity of its cultural heritage, is one of these transformation areas facing the problems of density pressure, functional changes and globalization.

Developments:

Although Elmadağ-Şişli axis basically formed in the second half of the 19th century as Pera began to extend its borders, the areas gained its architectural character with the construction of early apartment buildings at the beginning of the 20th century.

The rapid growth of Istanbul supported by international investments in 1950s, is caused a radical increase in the urban population, which resulted in a great demand for housing. Meanwhile the Central Business District was extended towards Şişli. Therefore the areas were affected by intensive human activities, social and economical changes. These extreme social transformations of this period had caused transformations in the physical texture of Elmadağ and Şişli.

Afterward in 1980s as the globalization has been changed the cities in the worldwide, Şişli has been transformed into a crowded urban area consisting of new functions like hotels, multi-storey residential complexes and office blocks which were built by demolishing the registered properties. One of the most striking example of this change is Ramada Hotel in the Halaskargazi Street which was built by demolishing Bath of Pangaltı.

Remarks and Conclusion:

Although the main problem faced in the area is the lack of preservation plan in the urban scale; new designs do represent another problematic aspect. Decisions for the preservation of cultural property buildings are not sufficient to conserve the character of a historical place but should also be accompanied by new designs of high quality and contextual references.

1 INTRODUCTION

Istanbul having numerous time levels, contains many historical areas, which conserved most of their authentic building stock up to now but diverse in character while the common problem is the loss of contextual integrity especially through the problems affecting the historical environment.

Elmadağ and Şişli axis which have been managed to preserve the integrity of its cultural heritage, is one of these transformation zones facing the problems of density pressure, functional changes and globalization.

The aim of the paper is to explain historical and urban development of the area and define the transformations of historical buildings.

2 URBAN DEVELOPMENT OF ELMADAĞ AND ŞİŞLİ

The development of Elmadağ and Şişli was connected to the urban development of Istanbul. As the city was developed and transformed due to the natural, economic, social and political causes, Elmadağ and Şişli were turned into an urban space by the results of this progress.

The physical and social changes in the environment in the first few decades of the 19th century had been contributed to the development of the area. The westernization movement starting from 1839 and the immigration as a result of the law which allows foreign property, the increasingly unhealthy environment as a result of being overcrowded and the fires in the second half of the 19th century were created the necessity of new residential areas. Thus in the second half of the 19th century the settlement in Pera was began to extend towards Elma-dağ following the Galata-Pera axis.

In 1848 a new settlement was decided to set up in Pangalti (Elmadağ) in order to ensure a steady growth in the north side of Golden Horn (Figure 1) [1]. The settlement began around buildings such as Surp Agop Hospital (1831), Artigiana House (1838) and Saint Esprit Church (1846) which were the first buildings in Elmadağ.



Figure 1: The new settlement in Elmadağ [1]

In 1850s despite the progress of the settlement in Elmadağ, the settlement in neighboring regions such as Feriköy had not yet been much increased. The news in the local newspapers and the decisions taken by the municipality confirms this situation. Journal de Constantinople, dated February 6, 1858, was written that "there were wolves around Feriköy for a week and some shepherd dogs and hunters was struggled with them" [2]. On the other hand the municipality was decided to remove the Petit-Champs des Morts to a distant area and create a park instead of it. A similar decision was taken for the Grand-Champs des Morts in Taksim and the decision was to remove this cemetery to Feriköy in order to make some new roads and buildings for the developing area [2]. Shortly after the Grand-Champs was transported to the French Roman Catholic Cemetery and Petit-Champs was transported to the Feriköy Protestant Cemetery, the cemeteries were remained in the middle of a crowded neighborhood which had not be expected when these decisions considering the public health had been taken.

From 1831 until 1870 when the second largest fire in Pera took place, the settlement had continued to enhance its physical development and the social environment integrated with it [3]. The works of municipality such as constructing Pangaltı Street in 1864, and installing a lighting system in Pangaltı Street in the summer of 1864 are the evidence of the evolving and increasing situation of the settlement in Pangaltı [4].

The center in this part of the city had grown and the functions had diversified. Therefore, the public services such as the municipality, the public transport and the public services were spread from Galata and Pera where they were first advanced. For example the first horse-drawn tram that was began to work in 1871 in Galata, moved along to Pangalti in 1881 and then moved along to Şişli in 1883.

In the late 19th century while Elmadağ was a residential area consist of row houses like Surp Agop Houses where Levantine, Armenian Catholics, Jews and the Greeks were inhabited, Şişli was a residential area consist of mansions with the garden where the famous rich foreigners, the minorities from Pera, the high civil cervants and the intellectuals of the era were inhabited [5, 6].

In 1913 the Annuaire Oriental of the year had divided the European side of Istanbul to six settlements; Galata, Pera, Pancaldi, Feriköy, Stamboul and Grand Pazar [7]. The residential area which was described as Pancaldi was the district that starts from the Surp Agop Hospital, following the axis of Büyükdere Street (today's Halaskargazi Street) and expanding both sides, reach the La Paix Hospital [8]. Şişli was started to develop rapidly soon after the electric tram's road was extended all the way to it and made Şişli the last station. Meanwhile the houses along the Halaskargazi Street were became dense and the first apartment blocks were started to show up. Thus in Annuaire Oriental of 1923, Şişli became one of the settlements that mentioned [9].

After 1930s the apartment blocks were increased rapidly in the main axis of Elmadağ and Şişli. In 1938 one of the most important decision that determines the character of the buildings on the main axis were taken. The decision was to build the new apartments in six storey instead of five in order to match with the old ones in Cumhuriyet Street [10]. In 1939 another decision that allowed to build the new apartments in seven storey in Cumhuriyet Street was taken [11]. These two decisions were very important since they gave today's character of Cumhuriyet Street and Halaskargazi Street and Abide-i Hürriyet Street. Between 1930 and 1940, the most luxurious apartments of the period whose some of them remained until today, were built in the two sides of the main streets like Halaskargazi Street.

Between 1940 and 1950 was a period when the buildings with significant role in the area were constructed in Şişli. In addition to Open Air Theatre (1947), Sports and Exhibition Center (1949) and Istanbul Radio House (1949) which were planned in Prost's Master Plan, Telephone Santral Building (1940) and Finance Building (1946) that were published in Arkitekt

were constructed too. Meanwhile in 1940s as the typology of middle-class apartment buildings that played an important role in the physical character of the area had been developed. As a result Şişli became a prestigious residential area. During these years, modernist and undecorated architecture had been effective. Many of them were built masonry structures with carded colored plaster, corbel and small balcony combined with the corbel were built (Figure 2). The apartment blocks were constructed increasingly in Perihan Street and Stracevizler Street which are in the west side of the Abide-i Hürriyet Street in Şişli. As Aslanoğlu mentioned, in that period the features of apartment buildings in Istanbul were horizontal windows divided into equally with vertical pane and large glass surfaces obtained by turning the corners of the building as the examples seen in Şişli [12].



Figure 2: Examples of early modern apartment buildings in Şişli [13]

The investments started in the 1950s led to concentration of industry and population in Istanbul. As Bomonti was declared a industrial area in Industrial Master Plan of 1966, new settlements were began to form in neighboring regions of Şişli. Another striking characteristic of the population was that the population of Istanbul has been began to homogenise during this period. In their study of Elmadağ, Daniş and Kayaalp declared that in the 1950s while the local Armenians were moved to the more prestigious areas like Şişli, the Armenians who migrated from Anatolia were taken their houses [6].

As the Central Business District was extended to Şişli from the beginning of 1950s, the period between 1950 and 1980 was given the Cumhuriyet Street and Halaskargazi Street actual appearance. Hilton Hotel (1955), Divan Hotel (1956) and Harbiye Orduevi (1968) are the examples of modern architecture that were built during this period. In addition the natural texture of Şişli had been transformed due to the density pressure. The apartment blocks without any significant architectural character was built by demolishing the listed buildings.

Since the 1980s the cities in the worldwide had been affected spatially and socially by the effects of globalization. Besides by the opening of Bosphorus Bridge in 1973, the Central Business District was extended from its traditional center and spread towards Zincirlikuyu from Şişli. In this period, international hotels, business, cultural and commercial complexes were built in Taksim and the modern residential buildings in Cumhuriyet Street and Halas-

kargazi Street had been sold or rent to be use for commercial functions. Thus between 1980-2015 some of the cultural properties were damaged by wrong interventions or were lost because of the rapid changes the settlements have been through.

As a result Elmadağ-Şişli axis formed in the second half of the 19th century, transformed into a crowded urban area consisting of multi-storey residential buildings and office blocks. However the historic environment has been facing the problems of density pressure, functional changes and globalization, Elmadağ and Şişli are two of the few settlements in Istanbul have been managed to preserve the integrity of its cultural heritage up to now.

3 THE URBAN TRANSFORMATION OF NEIGHBORING REGIONS

Elmadağ and Şişli has been affected by urban transformations since the second half of the 19th century because of its location connected with the urban centers of Istanbul. There is no doubt that urban development of Istanbul has affected heavily not only Elmadağ and Şişli but also the districts around it.

The rapid growth of Istanbul supported by international investments in 1950s had left many regions in the center of the city which were defined outside of the city previously. Therefore this regions which are located in the center of the city today, was affected by intensive human activities, social and economical changes. This activities and changes have caused transformations in the physical texture of the city.

The aim of this part of the paper is to summarize the transformations which the neighboring regions such as Taksim, Talimhane, Tarlabaşı, Mecidiyeköy and Bomonti has been through (Figure 3).



Figure 3: Neighboring regions of Elmadağ and Şişli

Taksim which is one of the main centers in Istanbul has been playing a significant role since Elmadağ and Şişli was first founded. In 1950s the Central Business District was extended from its traditional district and moved to Taksim and then Elmadağ and Şişli following the axis formed by Cumhuriyet Street and Halaskargazi Street. As a result of this extension the original residential functions of the buildings has been changed into commercial functions.

One of the most significant transformations in the neighboring regions was took place in Congress Valley which is in the east side of Elmadağ. The planning of the region had began with Prost's master city plan. Prost had planned an urban park in this part of the district which he called Park No. 2 and according to this plan a lot of designs had been done and most of them had been carried out in the park. The integrity of the urban park has been began to demolish by some of the decisions taken and some buildings built in it like Hilton hotel and Sheraton hotel in the 1950s. Later on in 1982 with a law to support tourism facilities more buildings such as Swissotel, Gökkafes, Park hotel, Maçka Gmall were built inside the boundary of the park. Today Congress Valley is one of the main reasons creating the need of accommodation in this part of the city.

Talimhane is a district based in 1930s 1930s with lots of modern buildings in the south of Elmadağ. After the district had been declared as a tourism area by local authorities in 1990s, the main functions of the existing buildings began to change. Starting from 1990s the residential buildings were converted to hotels and office blocks. During this period of function changes, the modern buildings that some of them were designed by famous Turkish architects, lost their authenticity and integrity.

One of the major incidents affecting Şişli is the transformation of Bomonti which was began in the recent past. Bomonti was an industrial area starting from the first factory building Bomonti Beer Factory that founded in 1890. After Bomonti was defined as an industrial area in Industrial Master Plan of 1966, large factories were established in this region. One of the break points for Bomonti was the tunnel project constructed in 2007 between Dolmabahçe and Bomonti which makes the region more accessible. Since this industrial buildings was removed from the city center in 1980s, large vacant parcels discharged from these large factories were began to be used for high rise residence.

4 THE URBAN TRANSFORMATION OF ELMADAĞ AND ŞIŞLI

Elmadağ and Şişli are two of the few districts in Istanbul which have been managed to preserve the integrity of its cultural heritage which consist of architectural designs of different eras. Even though the main axis of the areas has been transformed repeatedly through time, the texture of the inner parts of the areas which is formed mostly by low-rise residential buildings has been survived.

Although the areas are close together and do have in common, in reality their particular architectural character varied widely. The areas comprise an integrated complex of various kinds of structures. Elmadağ contains the buildings mainly from the late 19th century, including the first structures of the area such as the Church of Saint-Esprit which was built in 1846 by Gaspare Fossati, the row houses which is considered as a different typological unit came to the city with westernization, a mass house called Sarıca Mason which is an example of a few mass houses in Istanbul and several low-rise art deco buildings. On the other hand Şişli contains the buildings mainly from the 20th century with the exception of some maisons that remained from the late 19th century like Ekrem Bey Maison and Şükrü Bey Maison. The buildings in Şişli consist of the modern public buildings that published in Arkitekt like the Telephone Central Building (1940) and Finance Building (1946) and a large number of early examples of modern apartment buildings which represents twenty percent of the current buildings. The areas which were began to be formed outside the city in the 19th century in order to provide the need for housing, has entered into a period of transformations along with the neighboring regions in 1950s and 1980s. These transformations which had began in the neighboring regions at first, affected the area starting from the main axis like Cumhuriyet Street and Halaskargazi Street.

In 1950s, there was a radical increase in the urban population, which resulted in a great demand for housing. Meanwhile Şişli became a prestigious area with the construction of modern buildings on Cumhuriyet Street. Although the Central Business District was extended towards Şişli, the modern residential buildings which forms the natural texture of the district were constructed outside the axis affected by functional changes

While Şişli became prestigious area, Elmadağ had been through social transformations. In 1950s while the recent habitants were moved to the more prestigious areas of the city like Şişli, the immigrants were settled to their houses in Elmadağ. While the demographic structure of Elmadağ had been changed, the physical structures had been affected too. The structural and material deteriorations in the cultural properties had been occurred due to lack of maintenance caused by some economical and social reasons. As a result of these extreme social transformations of this century some of the historical buildings had been abandoned too (Figure 4). In addition new roads like Dolapdere Street which forms the boundary in the west side of Elmadağ were constructed and already existing ones like Tarlabaşı Street were expanded by demolishing old houses.



Figure 4: Examples of abandoned listed buildings in Şişli and Elmadağ [13]

In 1980s the Central Business District was extended towards Zincirlikuyu from Şişli by the opening of Bosphorus Bridge in 1973. In that era the functions of the existing buildings in the main axis such as Cumhuriyet Street, Halaskargazi Street and Abide-i Hürriyet Street had been changed. The residential buildings in the axis had been sold or rent to be use for commercial uses such as banks, shops and cafes. These functional changes of the buildings had affected them spatially and aspectually because the buildings had not been originally designed for these purposes. Especially the ground floor plans and the facades had been changed in order to create showcases for the shops (Figure 5). Today for some of the buildings it is possible

to recover the damages easily as the original form of the facade or the plan can be seen or guess, but for the other ones more comprehensive studies is needed.



Figure 5: An example of transformation due to the function change, Halaskargazi Street, Şişli [13].

The buildings in Elmadağ and Şişli had been through more functional changes because of the lack of the tourism services in the area. Soon after Congress Valley had been planned, there was an increase need for accommodation function. As a result the modern apartment buildings of Talimhane had been converted to hotels and tourism agencies and the small listed buildings of Elmadağ were collapsed in order to build massive hotel buildings. Defne hotel which is in the corner of Cumhuriyet Street and Nisbet Street is an example of the dangers faced by the listed buildings in the area. The listed building was reconstructed by combines three different parcels in the same unit (Figure 6). Today it is a massive building which is incompatible with the natural texture of the area.



Figure 6: Defne hotel, Nisbet Street, Elmadağ [13]

1980s the globalization has been began to change the cities in the worldwide and Şişli having an important location in the city has been affected too. In that era Taksim was the first district in the neighboring regions where international hotels, business, cultural and commercial complexes were built. Elmadağ and Şişli as it was in the middle of these transformations, the international hotels were built in Cumhuriyet Street with the influence of the Taksim axis. Thus the architectural character of the main axis which contains the modern apartment buildings from the beginning of the 20th century has been changed.. One of the most striking example of this change is Ramada Hotel in the Halaskargazi Street which was built by demolishing Bath of Pangalti (Figure 7).



Figure 7: Ramada Hotel in Halaskargazi Street, in Şişli.

Meanwhile starting from the 1950s Istanbul has grown rapidly and became a center of population growth. While Istanbul became a crowded city, Elmadağ and Şişli which had been surrounded by almost nothing in the 19th century, remained in the middle of a dense urban area in the 20th century. The neighboring regions like Bomonti which was an industrial area in the 19th century and became a residential area with high rise residence buildings, is one of the reasons of the density pressure in the area. Because of the grand demand of housing, a lot of high rise building which is incompatible with the natural texture of the district was built at the empty parcels of the areas or by demolishing old houses. This transformation which was began at the main axis has been extended to the inner texture. Today it is hard to preserve the natural texture of the area that had formed by small parcels during long years. Surp Agop Hospital which was built at the beginning of the 19th century is an example of the transformation that the area has been through. The hospital was collapsed in order to built another complex which is bigger and higher than the old one. Nowadays it is hard to guess if it will be possible to preserve the other cultural properties such as the row houses of Surp Agop which is owned by the same foundation (Figure 8).



Figure 8: Surp Agop row houses, Elmadağ Street, Elmadağ [13]

5 CONCLUSION

Today as Elmadağ and Şişli are one of the most dynamic locations in the city, the change and transformation of the area seems inevitable, which at the same time is a threat. It is apparent that perception and acceptance of the area as a historical site is quite difficult since cultural properties mostly date to 20th century. It is clear that in cities having deep historical layers like Istanbul, it is more hard and delicate to convince the authorities and create public opinion for the need of preserving relatively recent past. But as the areas conserved most of their authentic building stock up to now and managed to preserve the integrity of its cultural heritage, more comprehensive studies must be carry out in order to preserve the spirit of these residential zones

REFERENCES

[1] Çelik, Z. 1998. Değişen İstanbul: 19. Yüzyıl Osmanlı Başkenti. Tarih Vakfi Yurt Yayınları, İstanbul.

[2] Akın, N. 2006. "19. Yüzyılın İkinci Yarısında Notre Dame de Sion Çevresinde Kentsel Yaşam". In Mimar-ist Dergisi, 22, Pp: 34-39, İstanbul.

[3] Özen, S. 2006. Yüz Elli Yılın Tanığı Notre Dame de Sion, Yapı Kredi Yayınları, İstanbul.

[4] Akın, N. 1998. 19. Yüzyılın İkinci Yarısında Galata ve Pera. Literatür Yayınları, İstanbul.

[5] Dikbaş, M. 1996. İstanbul Art Deco Mimarisinde Cephe ve Motif Analizi (Taksim, Cihangir, Nişantaşı, Kurtuluş ve Şişli). Yüksek Lisans Tezi, İTÜ, Fen Bilimleri Enstitüsü. İstanbul.

[6] Daniş, D. ve Kayaalp, E. 2005. "Bir bağlamlandırma denemesi: Elmadağ'da göçmenlik deneyimleri". In *İstanbul'da kentsel ayrışma: mekansal dönüşümde farklı boyutlar*. Edited by H. Kurtuluş. Bağlam Yayınları, İstanbul.

[7] Annuaire Oriental, 1913.

[8] Marmara, R. 2001. Pangaltı: 19. Yüzyılın Levanten semti. Şişli Belediyesi Yayını, İstanbul.

[9] Annuaire Oriental, 1928.

[10] İstanbul Taksim'deki Cumhuriyet Caddesinde yapılacak binaların 6 katlı olarak inşasına izin verilmesi, 1938, Başbakanlık Devlet Arşivleri, Cumhuriyet Arşivi, sayı:88322, dosya:83-71.

[11] İstanbul Taksim'de Cumhuriyet Caddesinde H. Kalaycıoğlu tarafından yaptırılmakta olan binanın 7 kat yaptırılması, 1939, Başbakanlık Devlet Arşivleri, Cumhuriyet Arşivi, sayı:110692, dosya:83-80.

[12] Aslanoğlu, İ. 1980. Erken Cumhuriyet Dönemi Mimarlığı 1923-193, Bilge Kültür Sanat Yayınları, İstanbul.

[13] Şen, Ş. 2011. Elmadağ-Şişli Bölgeleri İçin Kentsel Koruma Önerileri. Yüksek Lisans Tezi, İTÜ, Fen Bilimleri Enstitüsü, İstanbul.