



The Adaptation of Historical Buildings and Sites as Museums

- Case Study in Old Aleppo

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RESUMO

A adaptação dos edifícios históricos para os transformar em museus é um tratamento comum dado o significado e simbolismo desses edifícios. Por conseguinte, novos projectos impoem-se em locais históricos, com percepções contemporâneas que podem ou não ser compatíveis com os regulamentos ou com as expetativas dos habitantes.

A intervenção em contextos históricos tem sido sempre um ponto de controvérsia entre arquitectos de diferentes escolas: Alguns acreditam que o património deve ser protegido e passado entre gerações de forma a que nenhuma alteração ocorra no tecido histórico -tendem a adotar uma abordagem “replicativa”. Outros rejeitam firmemente essa ideia de “saúde”, como a descrevem, acreditando que os edifícios devem sempre reflectir o seu tempo - geralmente recomendam algumas soluções mais arrojadas. Para além destas duas abordagens extremas, a investigação deverá explorar um amplo espectro de possibilidades.

Este assunto reflete-se fortemente nos centros históricos no mundo Árabe, onde está latente o conflito entre identidade e design contemporâneo. Um exemplo deste problema é encontrado no meu projeto de graduação, apresentado na Universidade de Aleppo em 2014, que é um complexo de museus na cidade velha de Aleppo que tinham seguido uma abordagem historicista na sua linguagem arquitectónica, forçada pelo regulamento urbano da área que foi listada pela UNESCO como Património Mundial.

Palavras-chave:

Museus, reabilitação, adaptação, adição, novo edifício, avaliação, intervenção, contextualização, compatibilidade, crítica.

ABSTRACT

The adaptation of historical buildings as museums is a common treatment because of the meaning these buildings add to exhibitions. Therefore, new projects impose themselves in historical sites, with contemporary perceptions that may or may not be compatible with the local legalization or the inhabitants' predictions.

Intervention in historic contexts has always been a point of controversy between architects of different schools: Some believe that heritage must be protected and passed between generations so no changes should occur to the historic fabric so they tend to embrace a replicative approach, while others firmly reject this idea of "nostalgia" as they describe it, believing that buildings should always reflect their age, and those usually recommend some edgier solutions. In addition to these two extreme approaches, the research will explore a wide spectrum of possibilities.

This matter embodies strongly inside Arabic historic centres, where the conflict simmers between identity and contemporary design. An example of this problem is found in my graduation project, presented in Aleppo University 2014, which is a museum complex in the old city of Aleppo that had followed a historicist approach in its architectural language, forced by the urban legalisation of the area that was listed as a World Heritage site.

Keywords:

Museums, rehabilitation, adaptation, addition, new building, evaluation, intervention, contextualisation, compatibility, criticism.

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Chapter 1:

Introduction



The old town hall



Ancient Souks 1



Hotel Dar-Zamaria



Carlton Hotel



Ancient Souks 2



Umayyad Mosque



The Grand Serail



Al Ifta' House



Beroea restaurant



Bab El-Nasr Street



Ancient Souks 3



Ancient Souks 4

Fig.01: Aleppo before and after the war

Chapter 1: Introduction

1.1. Preface

After this comprehensive abstract that summarizes the content of the research, I would like to tell the story behind choosing this complicated theme. After becoming a student at Coimbra University, my graduation project had provoked a number of questions because of the use of old design elements on a new structure and the conservative approach of its architectural language, so I had to explain the circumstances that led to this kind of treatment and realized that it would be an interesting topic to discuss as a thesis.

The originality of the research lies in the uncommon idea of criticizing a personal work, it is an example of how architectural work matures over time which allows the architect to collect more data, to have better judgments and decisions, and to pay attention to small details, because with time, problems become more evident and easier to point out and discuss.

During a year of research I was able to peruse a good number of references about the theme and hence my perceptions and views have developed and became more mature. It is important to state that it was very hard to collect data and to go to the site in person due to the ongoing conflict. The location of the project which is in the perimeter of the citadel of Aleppo is severely destroyed as most of the old city (See Fig. 01) so it was impossible to take photos of the surroundings and of course the main street which is very essential to appreciate, recognize, and consider its typology. All I knew is that it was a commercial axis with arches on the ground level with three residential floors, full of violations and slums. A few pictures of the site that contains the remains of the old Sarail were collected from the faculty and some websites. Recently, I found plan with the shape of the original building that once occupied most of the land before it was partially destroyed by an unfortunate intervention as we will see later on.



Aleppo



Damascus



Beirut



Cairo

Fig.02: Historic centres of Arab cities

The research addresses an important subject, especially the part of new design in historic centres which is a very current issue especially in Arab countries like Syria, Lebanon, Egypt, and others (See Fig. 02). Because historic centres always require major rehabilitation works to revive and preserve their character, to activate the touristic movement and to develop the local economy. Therefore, as Syria is facing a massive destruction of its history with the ongoing conflict, a serious attention is emerging about the need of rehabilitating and reconstructing its historic centres and especially in Aleppo. The problem is that every architect in Aleppo feels the necessity of changing the urban legalization of the old city, for its strict conditions that have been limiting the creativity of new architectural works.

Studying a project like this is an important step and a proactive experiment of a large-scale intervention in the old city of Aleppo, which is going to become the main concern of local and international architects in the near future when the war ends and the reconstruction process proceeds. For the destiny of the old city is still obscured, its actual damage is still unknown and the war is not over yet. Everyone has his own perception for the future of the old city, but no one is sure of what should be done because the destruction is not measurable and still increasing. However, the research as a theoretical study considers the situation of the site as it was before the war because and as we have explained, the existing data of the destruction is outdated and impossible to confirm as mentioned in the latest UNESCO report (See Annex.01).



Bardo National Museum, Tunisia



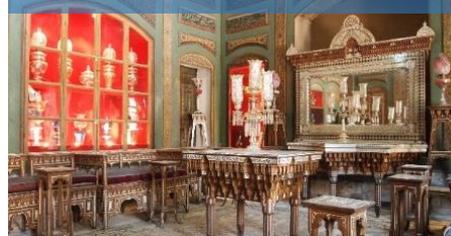
The Louvre, France



The British Museum, London



Museum of Arts and Traditions, Damascus



Prado Museum, Madrid



Metropolitan Museum of Art, NYC



Fig.03: Museums that are held in historic buildings around the world

1.2. Objectives

One of the objectives of this research is to understand the word ‘museum’, and what forms a museum, how to design it, and what are the types of museums. Therefore, it addresses the designing process of museums, their types and objectives.

The research also addresses how to choose the building to transform it into a museum and the theme that is the most compatible with its character, which is important because most of nowadays’ museums are held in historic buildings, especially in the case of national or historical museums for the meaning these buildings add to exhibitions (See Fig. 03).

In other cases museums were originally held in a historic building then an addition was needed, and also we have a lot of examples of new museums in historic centres. Therefore, we need to discuss two main aspects of rehabilitation, which are adapting and new building, we need to explore their guidelines and principles and how they have developed through the years.

Regarding the techniques of new design, we need to clear out that there are some shades between black and white, between replication and contrast. The research will point out these techniques separately as mentioned by a group of authors and then combine them on a graphic scale.

The research will introduce the term ‘compatible design’ and will propose a criteria to evaluate the compatibility of new buildings in historic contexts. This criteria will later be applied on several cases including the graduation project to evaluate its compatibility and to criticize it.

1.2.1. Research questions

The research will attempt in its conclusions to answer the following questions in order to achieve the objective of the research:

- Could a museum join many types in a complex?
- Could a museum mix between old and fabricated in terms of exhibition?
- What does the site impose on a new design in terms of architectural language?
- Does a building have to look old in order to be considered as compatible?
- How should an architect balance the importance between the old and the new building?
- Other than replication and contrast, what are the techniques that are possible to use in new design?
- Does the community acceptance matter when it comes to a new design?
- When would a contrast between the old the new building be considered accepted?
- What should be more dominant: the “sense of time” or the “sense of place”?
- Is it possible to objectively evaluate the compatibility of new design?

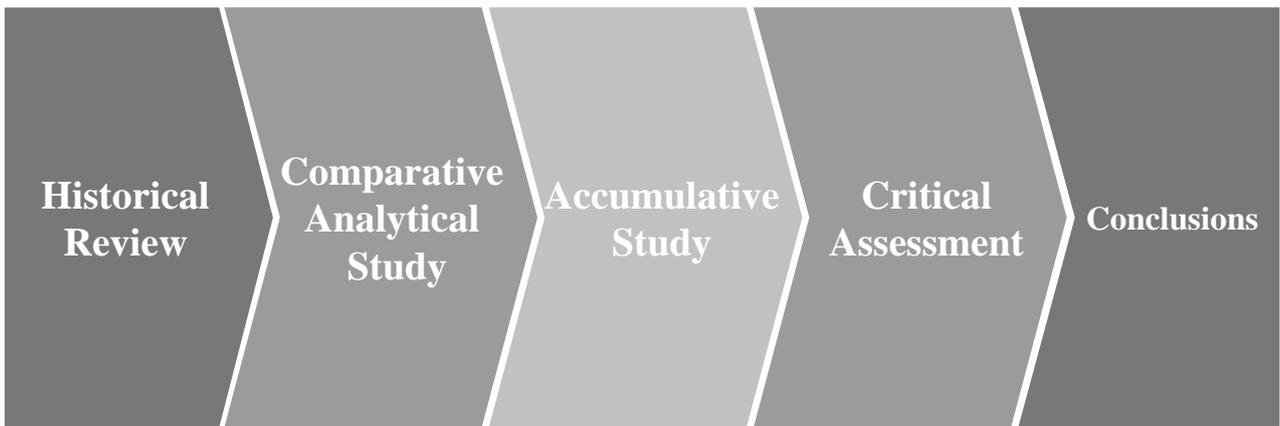


Fig.04: Research methodology and skills

1.3. Methodology

The research follows an **inductive qualitative methodology** to **describe** and **explain** experiences and ideas by searching and **collecting** information from previous studies and approaches to be described and understood subjectively.

The theoretical part of the research exists to support the case study, therefore, an abductive methodology is used by collecting data to reach a conclusion based on the output of both theoretical and practical parts of the research.

The general methodology includes four fundamental research skills:

- **A historical review of techniques of new design in old contexts;**
- **A comparative analytical study between a collection of international examples;**
- **An accumulative study of several cases;**
- **A critical assessment of architectural works.**

Leading to **a set of conclusions** in order to answer the questions of the research (See Fig. 04).

The research includes many **types of resources**:

1. **Primary resources** (original materials), including: interviews, questionnaires, case studies, etc...
2. **Secondary resources** (interpretations and evaluations of primary resources), including: articles (magazines, journals, newspapers, etc...), conferences, reports, publications, commentaries, criticisms, guidebooks, websites, etc...
3. **Tertiary resources** (reference materials), including: dictionaries, encyclopaedias, handbooks, etc...

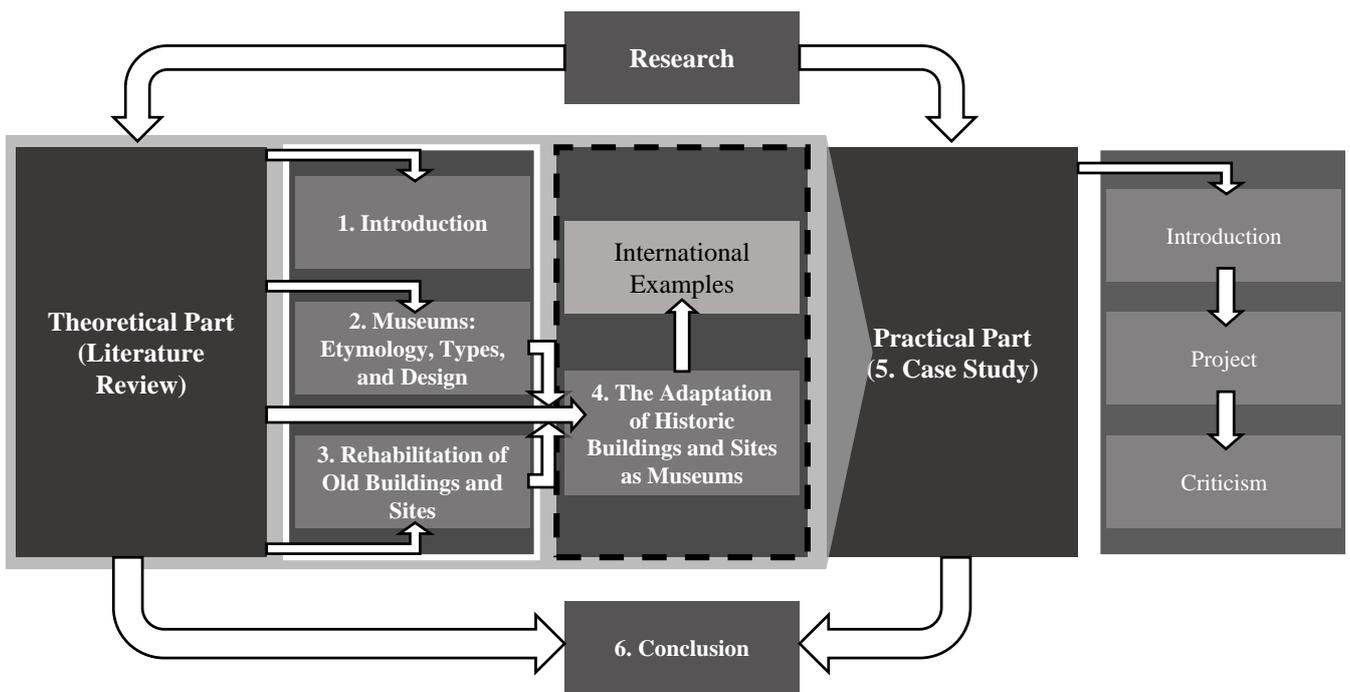


Fig.05: Research structure

1.4. Structure

The research consists of two parts: a theoretical part or a literature review to propose an evaluating criteria based on international charters, governmental guidelines, researchers' studies and treatises, etc... and a **practical part** or a field study that includes an analysis of some international architectural works, and then the case study (See Fig. 05).

- **The first chapter** is an **introduction** of the research, its objectives, methodology and structure.
- **The second chapter** includes an **introduction about museums**, etymology, types and categories according to latest studies, and museum design standards and guidelines as seen in many architectural handbooks.
- **The third chapter** is about **rehabilitation of old buildings and sites**, providing an introduction to new building and adaptation in historic settings, techniques, strategies, principles, and a criteria that evaluates the compatibility of new design to its context.
- **The fourth chapter** is an intersection between the second and the third chapters and the core of the research, because it speaks about the **adaptation of historic buildings and sites as museums**: How to choose the theme of the museum, how to select a reasonable building for this use, the advantages and difficulties of adapting historic buildings as museums, followed by a study of a collection of international examples.
- **The fifth chapter** is the **case study**, where all the previous chapters meet to have a practical meaning. It explores the evolution of Arab architecture, the old city of Aleppo, its past and present, the rehabilitation works and legalization, as an introduction to the project, **to understand the circumstances that led to its architectural solution** then we will attempt to evaluate and criticize the project.
- **Finally, as a conclusion** we will answer the questions of the research.

Chapter 2:

Museums: Etymology,
Types, and Design

Chapter 2: Museums: Etymology, Types, and Design

2.1. Etymology and evolution

The definition of the word museum in Oxford dictionary is “*A building in which objects of historical, scientific, artistic, or cultural interest are stored and exhibited*”¹. The word had developed over the years and changed to cover many meanings. It sure has a classical origin, a Greek one: ‘*mouseion*’, which means the “seat of the muses” and designated a philosophical institution or a place of contemplation as a source of inspiration.

The word was revived in 15th century in Europe to describe the collection of **Lorenzo de’ Medici** in Florence, but the term conveyed the concept of comprehensiveness rather than denoting a building, and by the 17th century it was used in Europe to describe collections of curiosities, like **Ole Worm’s** collection in Copenhagen (See Fig. 06) (Lewis G. D., 2006).

The idea of an institution called a museum and established to preserve and display a collection to the public was well established in the 18th century. The use of the word museum during the 19th and most of the 20th century denoted a building housing cultural material to which the public had access. Later, as museums continued to respond to the societies that created them, the emphasis on the building itself became less dominant, so we have Open-air museums, eco-museums, virtual museums, etc...

In the second half of the 20th century a specific discipline on the museum phenomenon would be structured: ‘*Museology*’. This science studies the history of museums, their specific functional and space organization systems, their collections and manner in which they are exhibited (‘*museography*’), and the relation between these institutions and society (Lewis G. D., 2006).

¹ oxforddictionaries.com/definition/english/museum



Fig.06: Ole Worm's (1588-1654) Cabinet of curiosities

However, the **International Council of Museums (ICOM)**, has stated at the 22nd General Assembly in Vienna 2007 that: “*A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.*”² And the reference emphasizes that his definition is a reference in the international community.

The contemporary museum is identified by Beecham as “*A place with a multiplicity of functions, which has to combine traditional roles of **interpreting** and **conserving** a wide range of artefacts with requirements for large scale retail areas, complex new technologies and the circulation needs of the public.*” Therefore, nowadays the word museum denotes a complex with the architecture and techniques of theme parks: museums now have to be equipped for people wishing to relax, shop or have a meal. They have to be able to accommodate seminars and postgraduate courses. At the same time they are monuments that identify and differentiate cities (Beecham, 2002).

Museum reflect how a society sees itself as well as being a symbol of commercial and cultural achievement for the outside world. A museum or gallery can serve an important function in the context of its location, they can be the focus of urban regeneration in a depressed area, either as a new building or by making use of an existing redundant building (Beecham, 2002).

² icom.museum/the-vision/museum-definition/

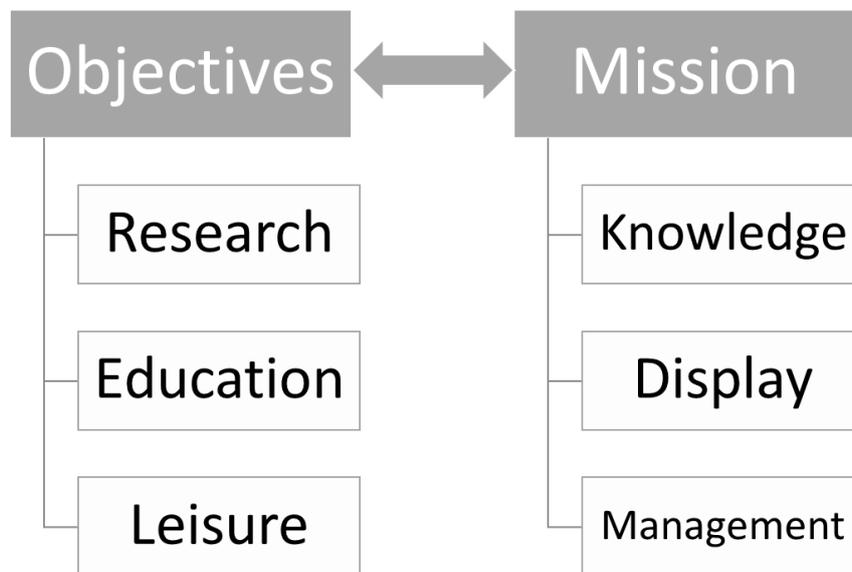


Fig.07: Mission and Objectives of museums

2.2. Mission and objectives

In a museum, accomplishment of **research, education and leisure** objectives depends on the precise definition of its mission and the adequate management of the institution in correspondence with the internationally agreed deontological (ethical) code for museums (See Fig. 07) (Culture and development Magazine, 2012).

The museum's mission defines the **knowledge** to be transmitted and valued. The successful achievement of this mission will depend on **display** of the adequate collection, as well as the correct **management** of collections and means to transmit them. The museum conveys its mission through many ways, namely, research tools, educational activities, organization of exhibition spaces and use of state-of-the-art information and communication technologies (Culture and development Magazine, 2012).

Certainly, there is no single formula to define the museum's mission. However, the following aspects should be taken into account (Culture and development Magazine, 2012), (See Fig. 07):

- Involvement of local **community** in decision-making, creation and development processes in order to identify its needs and interests, thus ensuring that investment devoted to the restoration and further cultural use of the building can contribute to the development of that local population.
- **Support** by authorities and/ or private entities to ensure its sustainability.
- **Organization** of alliances with other cultural institutions.
- Planning of a preservation project, a program of long-term activities and a risk-prevention program ensuring **sustainability**.
- Contribution to the **objectives** of the museum: education, research and leisure.
- Planning and existence of a **collection** before creating the museum.

By size	By format	By time period (era)
Area (large, medium or small), number of exhibits or visitors, or by its income or budget.	By the display type and the scenario of the museum show, galleries, cases of objects, narrative, interactive, dark rides (surprising paths), living museums, historic houses, and virtual museums.	Ancient history, medieval, renaissance, Islamic, contemporary, and future museums.
By locality (scope)	By Governing Body (ownership)	By branch of knowledge (genre)
The targeted area (international, national, regional, town or city, and local).	National, regional, local, military, universities', specialized bodies', and private museums.	Beautiful arts, applied arts, sciences, history, literature, and specialized museums.
By audience type	By response	By subject (theme)
By age (children, youth and adults, and families), by sex, by the scientific background (specialized museums), and for People with special needs.	The wanted reaction, scary and intimidating, inspiring, impressive, enraging and exciting, and educational museums.	Sciences, historical, natural history, arts, human species and races, agricultural, design, war, industrial, and technological museums.

Fig.08: Flude's categorization of museums

2.3. Museum types

It is often convenient to group museums according to type for purposes of description and discussion. However, with their diverse origins, varying philosophies, and differing roles in society, museums do not lend themselves to rigid classification (Lewis, 2006).

Flude had categorized museums into nine categories according to: **size, format, time period (era), locality (scope), governing body (ownership), branch of knowledge (genre), targeted audience, response, and subject (theme)**, (Flude, 2004) (See Fig. 08):

1. **By size:** By the area (large, medium or small), number of exhibits or visitors, or by its income or budget.
2. **By format:** By the display type and the scenario of the museum show, galleries, cases of objects, narrative, interactive, dark rides (surprising paths), living museums, historic houses, and virtual museums.
3. **By time period (era):** Ancient history, medieval, renaissance, Islamic, contemporary, and future museums.
4. **By locality (scope):** The targeted area (international, national, regional, town or city, and local).
5. **By Governing Body (ownership):** National, regional, local, military, universities', specialized bodies', and private museums.
6. **By branch of knowledge (genre):** Beautiful arts, applied arts, sciences, history, literature, and specialized museums.
7. **By targeted audience type:** By **age** (children, youth and adults, and families), by **sex**, by the **scientific background** (specialized museums), and for People with **special needs**.
8. **By response:** The wanted reaction, scary and intimidating, inspiring, impressive, enraging and exciting, and educational museums.
9. **By subject (theme):** Sciences, historical, natural history, arts, human species and races, agricultural, design, war, industrial, and technological museums.

On the other hand, Lewis's classification is more focused and comprehensive, he classifies museums into five basic types: **general, natural history and science, science and technology, history, and art** (Lewis G. D., 2006):

1. General museums (multidisciplinary museums): Hold collections in more than one subject that would qualify them to be grouped in more than one category of specialization. This type of museums commonly serves a region or a locality to promote knowledge and reflect the natural and human history, traditions, and creative spirit of the area. However, in many cases the community thus served is culturally homogeneous; where it is not, the museum may develop specific programs to foster mutual understanding among the diverse peoples.

2. Natural history and science museums: Are concerned with the natural world. These museums have their origins in the cabinets of curiosities built up by prominent individuals in Europe during the Renaissance and Enlightenment.

3. Science and technology museums: Are concerned with the development and application of scientific ideas and instrumentation.

4. History museums: Where collections are presented to give a chronological perspective. Because of the encompassing nature of history, museums of this type may well hold so many objects of art and science that they would more properly be called general museums. Museums dealing with specialized aspects of history may be found at the national, provincial, or local level, while museums of general history are rare at the national level. In many cases, if artefacts are not available or are inappropriate, curators use reconstructions, models, and graphics, sometimes with multimedia techniques, to maintain chronological continuity and to increase the opportunity for interpretation within their essentially didactic approach.

5. Art museums/ galleries: Are concerned primarily with the object as a means of unaided communication with its visitors. Aesthetic value is therefore a major consideration in accepting items for the collection. Traditionally these collections have comprised paintings, sculpture, and the decorative arts.

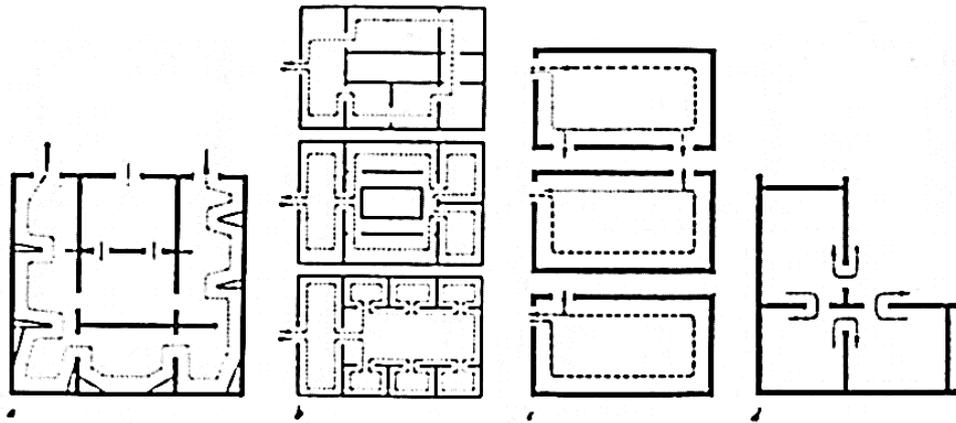
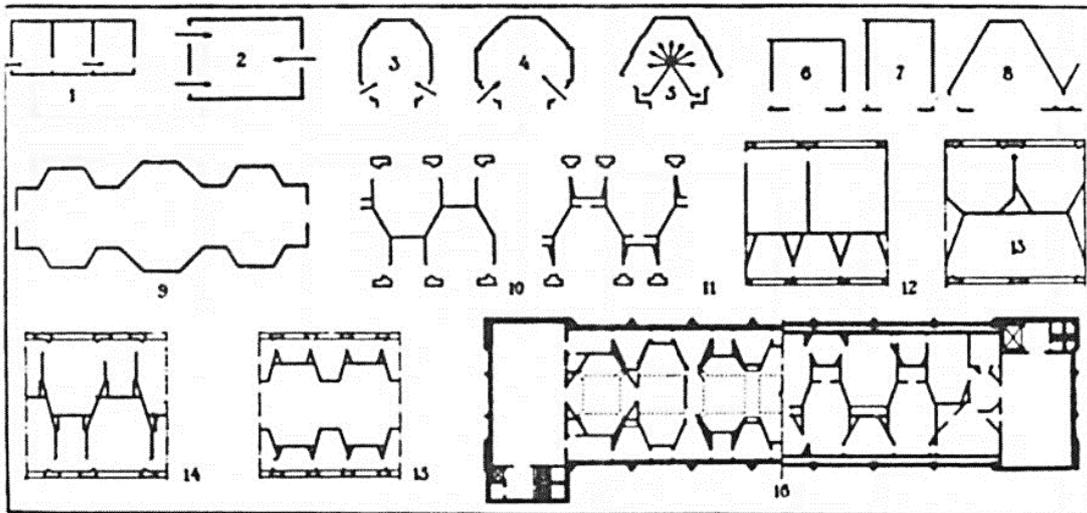


Fig.09: Floor plans for the location of doors in relation to the use of space



1-Traditional location of doors. 2 to 8- Secondary doors. 9 to 15- Polygonal enclosures

Fig.10: Traditional ways of dividing spaces

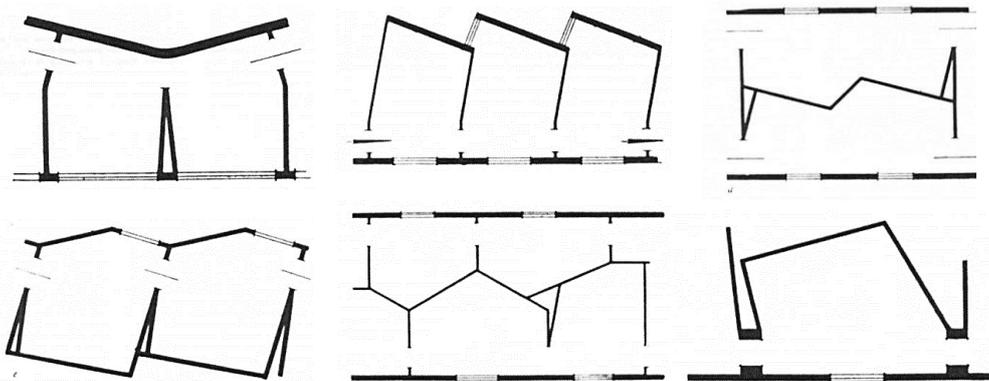


Fig.11: Different ways of dividing up exhibition space

2.4. Museum design

Museum design is fundamentally based on museum type, the collection it contains, and budget. We certainly might encounter many treatments regarding visitors' circulation, division of space, object display, lighting, etc..., but anyway, some of them are more common than others, we will address these treatments in the next few paragraphs.

2.4.1. Visitors' circulation

The visitors need a clear idea of the layout of the exhibition rooms (so people don't feel lost). Also, the building should accommodate the needs of people with any kind of disability. The sequence of viewing can be determined by the visitor, who can bypass specific areas without the loss of the general sense of position, or we can allow the viewing of a collection chronologically, while at the same time accessing individual components of the exhibition (Beecham, 2002).

2.4.2. Division of space

The modern tendency is to create large unbroken spaces, which can then be divided up by movable partitions or lightweight structures, to be grouped or displaced as required. The traditional system is the contrary one of dividing the space, by means of permanent walls, into rooms of various sizes, which may be either communicating or independent (See Figures 09 and 10) (De Chiara, 1980).

A museum in which all the rooms are the same size becomes very monotonous. By varying their dimensions and the relation between height and width-and also by using different colours for the walls and different kinds of flooring-we provide a spontaneous and unconscious stimulus to attention (See Fig. 11) (De Chiara, 1980).

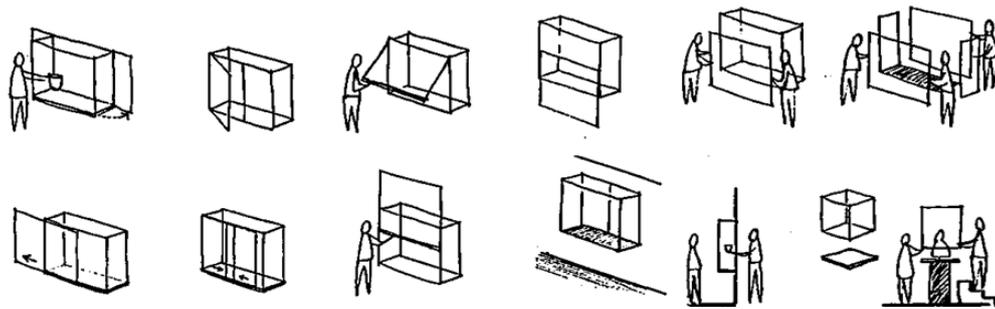


Fig.12: Display cases

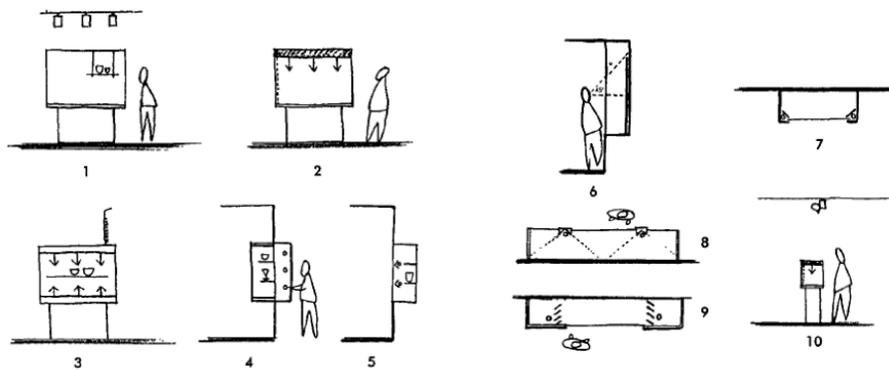


Fig.13: Lighting cases

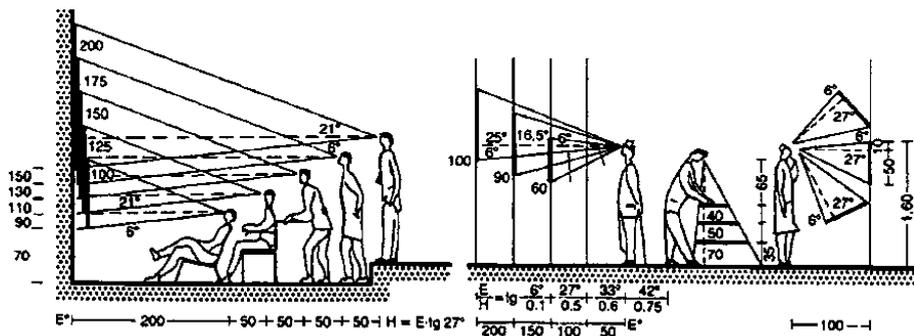


Fig.14: Field of vision: height/ size and distance

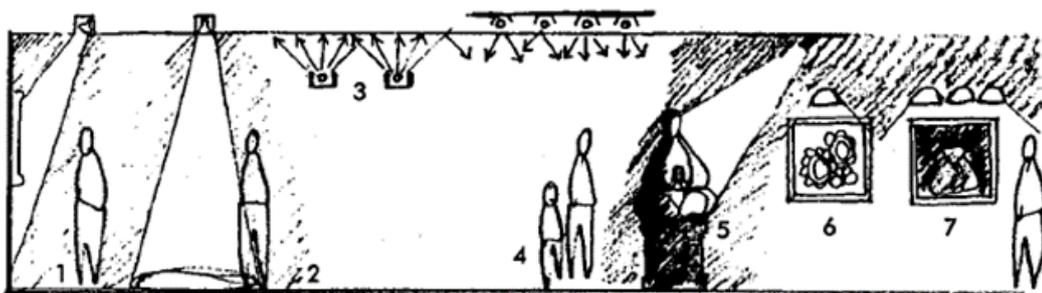


Fig.15: Display-lighting techniques

2.4.3. Object display

Individual items must be placed at an appropriate viewing level, in suitable light. Each object must be given a visual context. Emphasis on particular objects is achieved through design, restricted viewing, positioning etc... The presentation of information about individual objects has to be made in the context of the overall strategy for information, which includes the look of the message, editing, graphics, signs and titles, information panels, labelling the objects, 'keying' of information etc... Display cases can be a very important part of museum furnishings. Visual and practical matters have to be considered (e.g. backgrounds have to be selected with reference to the compatibility of materials, both of the objects and with their surroundings within the case) (See Figures 12, 13, 14 and 15) (Beecham, 2002).

2.4.4. Lighting

Display lighting should aim to present the exhibits accurately in terms of the whole object and its details, while making the display attractive. This generally requires a combination of ambient and accent lighting. The light level needs to be sufficient to provide a balance between the lighting of the object on display and the whole visual field. Exhibits should be brightest to ensure optimum visibility of the display (Beecham, 2002).

We have clearly two methods of lighting: daylight and artificial light. While daylight sounds more tempting, because it could be more economic on the long term, artificial light is more practical and easier to control.

Anyway, let's get to know both of their advantages, (Beecham, 2002):

Advantages of using daylight:

- Reduced energy consumption.
- View of exterior and some sparkle enlivens space.
- Variable light pattern.
- Strong contrast through sunlight can add interest, defining form and texture.

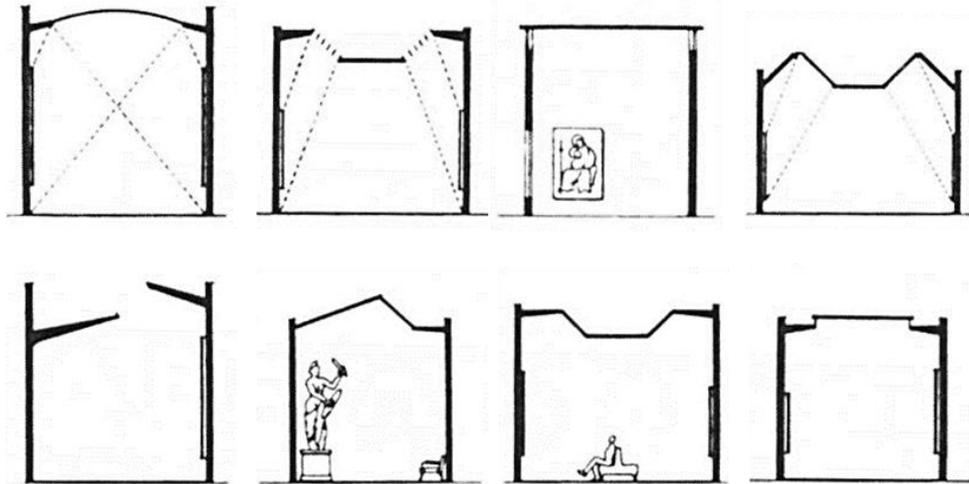
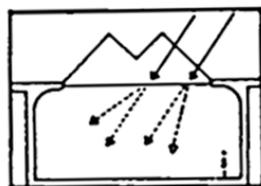
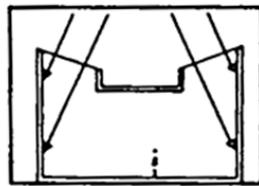


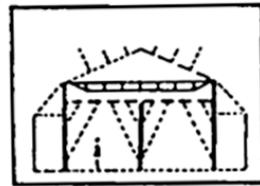
Fig.16: Different methods of admitting natural light from above (Part-1)



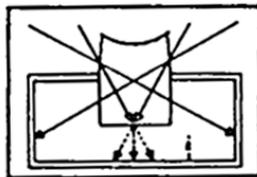
Neue Pinakothek, Munich



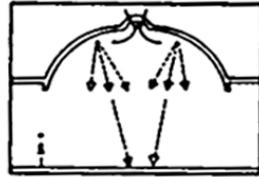
Art Gallery, Bremen



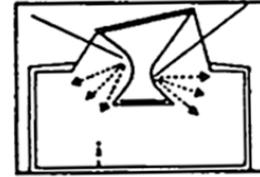
Brandywine River Museum,
Chadds Ford, PA, USA



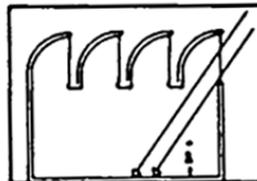
National Museum of
Western Art, Tokyo



Kimbell Art Museum, Fort
Worth, TX, USA



Nordiyllands Art Museum,
Aalborg, Denmark



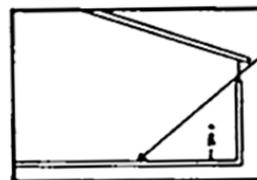
Bauhaus Archives, Berlin



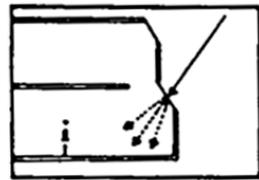
Abteiberg Museum,
Monchengladbach



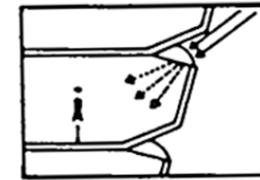
Maeght Foundation Museum,
St. Paul-de-Vence, Paris



Uffizi Gallery, Florence



Diocese Museum,
Paderborn



Guggenheim Museum,
New York

Fig.17: Different methods of admitting natural light from above (Part-2)

Advantages of using artificial light:

- Fluorescent lighting can be nearly indistinguishable from natural day lighting in colour rendering.
- Flexibility can be achieved with various combinations of artificial lights.

De Chiara, in his well-known book, sees that despite of the fact that electric light is “*easy to switch on, adaptable and unvarying in its effects and able to give full value to architectural features*”, experience shows that daylight “*is still the best means of lighting a museum, despite the variations and difficulties which characterize it at different seasons and in different places*”. Daylight may come from above (skylights) or from the side (windows) as we can see in the attached figures, both ways have advantages and drawbacks, (De Chiara, 1980), (See Figures 16 and 17):

- **Lighting from above** provides a steady supply of light and it is possible to regulate the amount of light cast on the exhibits, it saves wall space and obviates the need for courtyards or light shafts, not mentioning facilitating security procedures. However, it still has some technical problems of glare, isolation, weatherproof qualities, heating, maintenance, cleaning, security, etc...

- **Lateral Lighting** has one serious drawback, because objects with a smooth reflecting surface, if placed against the wall facing the source of light, will inevitably cause an interplay of reflections which impedes visibility. But it could also bring out the plastic and luminous qualities of paintings and sculpture created in past centuries, when artists usually worked by such light. High-placed windows, especially if they occupy more than one wall, provide more light, more closely resembling that supplied by skylights, and leave all four walls free for exhibits : but as they must be placed at a considerable height. Eventually, the solution adopted should be determined by the type of museum and the nature of its exhibits, as the advantages and disadvantages vary from one to another.

Chapter 3:

Rehabilitation of Old Buildings and Sites

Chapter 3: Rehabilitation of Old Buildings and Sites

3.1. Definitions

- **Adaptation or adaptive reuse:** The modification of a heritage place to a new use that conserves its heritage values. Adaptation may involve the introduction of new services, or a new use, or changes to safeguard a heritage item (HONSW, 2008).
- **Alterations and additions:** Physical changes to the fabric, setting or layout of a heritage item (HONSW, 2008).
- **Archaeological sites:** A place that contains evidence of past human activity (HONSW &DUAP, 1996).
- **Character:** The combination of the particular characteristics or qualities of a place (HONSW, 2008).
- **Compatible use:** A use for a heritage item which involves no change to its culturally significant fabric, changes which are substantially reversible or changes which make a minimal impact (HONSW &DUAP, 1996).
- **Conservation:** All the processes of looking after an item so as to retain its cultural significance. It includes maintenance, preservation, restoration, reconstruction and adaptation and will be commonly a combination of more than one of these (HONSW &DUAP, 1996).
- **Context:** The specific character; quality; physical, historical and social characteristics of a building's setting. Depending on the nature of the proposal, the context could be as small as a suburban street, or as large as a whole town (HONSW, 2008).
- **Form:** The overall shape and volume and the arrangement of the parts of a building (HONSW, 2008).
- **Heritage conservation areas:** Areas listed on the State Heritage Register or in a local environmental plan for their heritage significance. They may also contain individually listed heritage items (HONSW, 2008).

- **Heritage building:** A heritage building may be regarded as having some aspects that are considered important or significant by the community (MGFNSW, 2014).
- **Heritage-listed building:** A heritage-listed building has been assessed as having aspects that are so important or significant that it is considered essential to preserve it (MGFNSW, 2014).
- **Heritage place:** A place, building, work, archaeological site or relic, garden or landscape, movable object or place of Aboriginal heritage significance, listed on the State Heritage Register or in a local environmental plan (HONSW, 2008).
- **Historic character:** The combination of particular characteristics or special qualities of a place, related to its period or style of construction (HONSW, 2008).
- **Infill development:** A new building in an established and valued historic context, which is adjacent to a heritage item, within a conservation area, or within a heritage site or precinct (HONSW, 2008).
- **Interpretation:** Interpretation explains the heritage significance of a place to the users and the community. The need to interpret heritage significance is likely to drive the design of new elements and the layout or planning of the place (HONSW, 2008).
- **New Design:** All significant designed interventions in the historic environment. This includes open space, public realm, new build and major alterations and additions. In terms of scale, it covers everything from minor infill to major master planning exercises (Parsons, 2010).
- **Preservation:** Maintaining the fabric of an item in its existing state and retarding deterioration (HONSW &DUAP, 1996).
- **Restoration:** Returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without introducing new material (HONSW &DUAP, 1996).
- **Setting:** The area around a heritage place or item that contributes to its heritage significance (HONSW, 2008).

3.2. Principles of rehabilitation

Rehabilitation of historic centres includes both reviving historic buildings and urban spaces. Therefore, terms like adaptive reuse and infill design are related with rehabilitation. Both of them aim to cover the contemporary needs of the society, by providing the essential functions inside the historic centre or its surroundings, either existing or completely new, held in adapted historical buildings or in new buildings that are designed to suit that function.

However, there are some principles for rehabilitation that were discussed and developed through the years by many international conferences to put some standards and guidelines to protect the local and world heritage as we will see in the next segment.

3.2.1. International charters on rehabilitation

In this segment we will address the most important charters regarding restoration, addition and new building in a chronological order:

- *The Athens Charter 1931*³:

- **The occupation of buildings**, which ensures the continuity of their life, should be maintained but that they should be used for a purpose which respects their historic or artistic character.
- **In the construction of buildings**, the character and external aspect of the cities in which they are to be erected should be respected, especially in the neighbourhood of ancient monuments, where the surroundings should be given special consideration.
- **The new materials** should in all cases be recognizable.

³ [icomos.org/en/charters-and-texts](https://www.icomos.org/en/charters-and-texts)

- *The Venice Charter 1964*⁴:

- The intention in conserving and restoring monuments is to safeguard them no less as works of art than as historical evidence.
- Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents.
- **Any extra work** which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp.
- **The restoration** in any case must be preceded and followed by an archaeological and historical study of the monument.

- *The Secretary of the Interior's Standards for Rehabilitation, US-WA 1977*⁵:

- A property shall be used for its historic purpose or be placed in a **new use** that requires minimal change to the defining characteristics of the building and its site and environment.
- **The historic character** of a property shall be retained and preserved. Changes that create a false sense of historical development shall not be undertaken. Changes that have acquired historic significance in their own right shall be retained and preserved.
- **Distinctive features** shall be preserved. Deteriorated historic features shall be repaired rather than replaced... the new feature shall match the old in design, colour, texture, and other visual qualities and, where possible, materials.
- **New additions** shall not destroy historic materials, and be differentiated from the old and shall be compatible with its environment. If removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

⁴ icomos.org/en/charters-and-texts

⁵ nps.gov/tps/standards/rehabilitation/rehab/stand.htm

- *The Burra Charter 1979-2013*⁶:

- **Adaptation** is acceptable where the conservation of the place cannot otherwise be achieved, and where the adaptation does not substantially detract from its cultural significance (1979).
- **Adaptation** means modifying a place to suit proposed compatible uses (1981).
- **Compatible use** means a use which involves no change to the culturally significant fabric, changes which are substantially reversible, or changes which require a minimal impact (1981).
- **New work** such as additions to the place may be acceptable where it does not distort or obscure the cultural significance of the place, or detract from its interpretation and appreciation (1999).
- **New work** should be readily identifiable as such, but must respect and have minimal impact on the cultural significance of the place (2013).

- *The Appleton Charter 1983*⁷:

- **Respect for the existing fabric** is fundamental to the activities of protection and enhancement.
- A property should be used for its originally intended purpose. If this is not feasible, every reasonable effort shall be made to provide a **compatible use** which requires minimal alteration. The use of reversible processes is always to be preferred to allow the widest options for future development or the correction of unforeseen problems, or where the integrity of the resource could be affected.
- **New volumes**, materials and finishes may be required to satisfy new uses or requirements. They should echo contemporary ideas but respect and enhance the spirit of the original.
- **New work** should be identifiable on close inspection or to the trained eye, but should not impair the aesthetic integrity or coherence of the whole.

⁶ First adopted in 1979, the Burra Charter is periodically updated to reflect developing understanding of the theory and practice of cultural heritage management. The current version of the Burra Charter was adopted in 2013. australia.icomos.org/publications/burra-charter-practice-notes/

⁷ icomos.org/en/charters-and-texts

- *The Washington Charter 1987*⁸:

- **New functions** should be compatible with the character of the historic town or urban area. **Adaptation** of these areas to contemporary life requires the careful installation or improvement of public service facilities.
- When it is necessary to construct **new buildings** or adapt existing ones, the existing spatial layout should be respected, especially in terms of scale and lot size. The introduction of contemporary elements in harmony with the surroundings should not be discouraged since such features can contribute to the enrichment of an area.

- *The Charter of Krakow 2000*⁹:

- **The conservation of built heritage** is implemented by the project of **restoration** which should be based on a range of appropriate technical options and prepared in a cognitive process of gathering knowledge and **understanding of the building or site**.
- **The reconstruction** of *entire parts* 'in the style of the building' should be avoided. Reconstruction of very *small parts* having architectural significance can be acceptable as an exception on condition that it is based on precise and indisputable documentation. If necessary, for a proper use of the building, completion of more extensive spatial and functional parts should reflect contemporary architecture. Reconstruction of an *entire building*, destroyed by armed conflict or natural disaster, is only acceptable if there are exceptional social or cultural motives that are related to the identity of the entire community.
- **Any intervention** involving the archaeological heritage, due to its vulnerability, should be strictly related to its surroundings, territory and landscape. The destructive aspects of the **excavation** should be reduced as far as possible. At each excavation, the archaeological work must be fully documented.

⁸ icomos.org/en/charters-and-texts

⁹ lecce-workshop.unile.it/Downloads/The%20Charter%20of%20Krakow%202000.pdf

- **Historic towns and villages**, in their territorial setting, represent an essential part of our universal heritage, and should be seen as a whole with the structures, spaces and human factors, normally in the process of continuous evolution and change.
- **Conservation/preservation techniques** should be strictly tied to interdisciplinary scientific research on materials and technologies used for the construction, repair and/or restoration of the built heritage. The chosen intervention should **respect the original function and ensure compatibility** with existing materials, structures and architectural values.

- *The Valletta Principles 2011*¹⁰:

- **The introduction of new activities** must not compromise the survival of traditional activities or anything that supports the daily life of the local inhabitants.
- Such new functions must also satisfy the need for **sustainable development**, in line with the concept of the historic town as a unique and irreplaceable ecosystem.
- **Contemporary architecture** should find its expression while respecting the scale of the site, and have a clear rapport with existing architecture and the development patterns of its context.

We can notice that over the years, the treatment with the issue of additions, adaptation and new building had changed, from a careful approach based on respecting the historic character of the place to an approach that insures the compatibility of contemporary design and materials without affecting the coherence of the whole. It had changed from emphasizing that the original function should not be changed and if necessary the new function should be respectful, compatible and with minimal change, to stating that new functions should become a part on the sustainable development of the area.

¹⁰ icomos.org/en/charters-and-texts

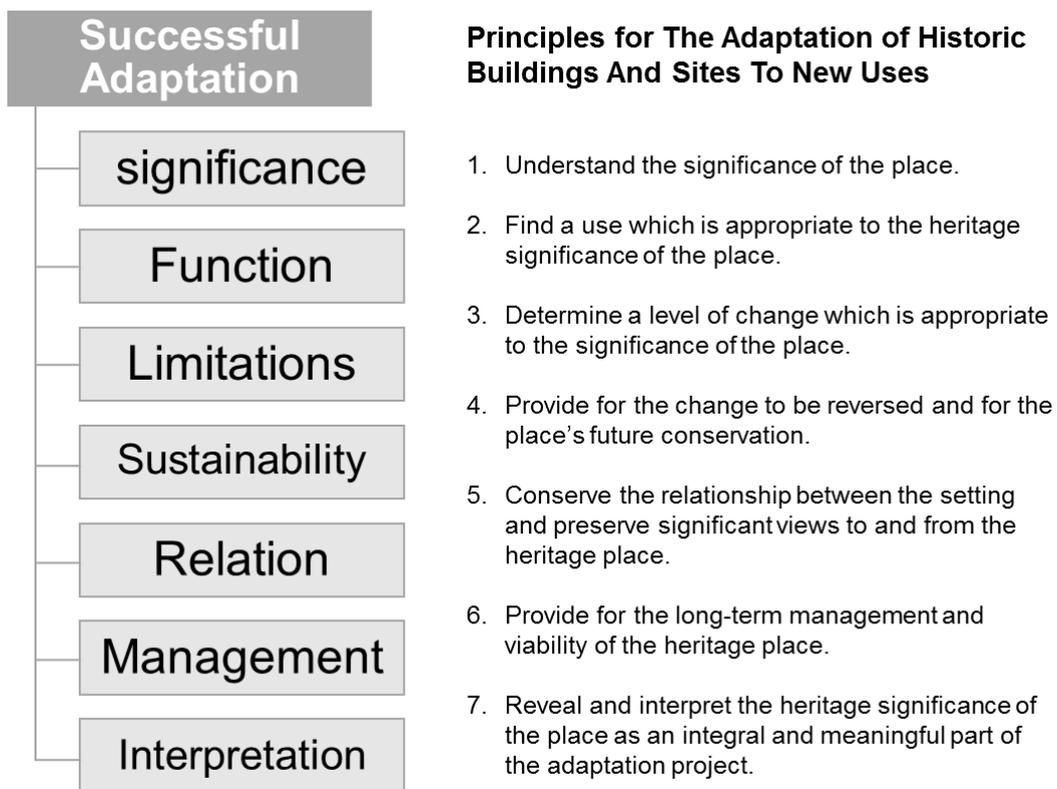


Fig.18: Principles of adaptive reuse

3.2.2. Principles of adaptive reuse of historical buildings

Regarding adaptation, many heritage buildings were built for a use that no longer exists today, also redundant buildings are vulnerable to neglect, decay and eventually demolition... Therefore, the best way to conserve a heritage building, structure or site is to use it (HONSW, 2008). This way it will be functioning and providing the money it needs to be restored and maintained when needed. However, some adaptation works are accused of reducing the value of the monument or its context. Therefore, there is a need for some principles to achieve a successful adaptation (HONSW, 2008), (See Fig. 18):

- 1. Understand the significance of the place:** by analysing the heritage values and the fabric and consulting specialists and the local council to understand what is considered appropriate and to avoid later resistance.
- 2. Find a use which is appropriate to the heritage significance of the place:** whether retaining the existing use if it is integral to the heritage significance, or choosing a new use that is compatible with heritage significance and involves minimal.
- 3. Determine a level of change which is appropriate to the significance of the place.**
- 4. Provide for the change to be reversed and for the place's future conservation.**
- 5. Conserve the relationship between the settings and preserve significant views to and from the heritage place.**
- 6. Provide for the long-term management and viability of the heritage place:** by securing ongoing funds to maintain the heritage place in the future.
- 7. Reveal and interpret the heritage significance of the place as an integral and meaningful part of the adaptation project,** to provide a sense of continuity from the past to the present.

3.2.3. Principles of New design in historical settings

Rehabilitation in historical centres, as we have mentioned, also includes new design, especially when new buildings and functions are needed to revive these districts. But as we can see in the latest architectural works, most architects are using extreme approaches with a desire of achieving a 'distinction' from the context or on the contrary a 'fusion' with it.

There are varying views on what constitutes appropriate new development within a historic context. Some argue that new insertions to the fabric of the historic urban environment should be in the style of the old. Others abhor historicism and argue that each generation should represent its own time: the ideas, technology, materials, and architectural language (Macdonald, 2011).

Whatever design solution is arrived at, from the reticent and recessive to the boldly contemporary, general principles should be applied without diminishing the creative role of the designer (Parsons, 2010).

There are many design guidelines laid out by different commissions, organizations and city councils for new design in historical contexts. It would be pointless to address all of them, however, there are some points and terms that we would encounter repeatedly while searching for principles that can enrich the research, of them we mention:

- **Siting:**

Concerns the way a building occupies its site and how it relates to other buildings and to the street or other spaces. Respect for existing street patterns and block/plot sizes helps harmonious integration: plot amalgamation, for example, alters the scale of city buildings and breaks down the traditional urban grain (Carmona, Heath, Oc, & Tiesdell, 2003).

- **Urban grain:**

Refers to the pattern of streets and spaces that is influenced by the rhythm of architectural composition and the prevailing relationship of solid-to-void in buildings. New design is expected to respect the urban grain, it should seek to make a positive contribution to the existing urban structure, the pattern of development blocks, streets and buildings (Parsons, 2010).

- **Massing:**

Massing is the three-dimensional disposition of the building volume. The impact of new development needs to be considered from a range of viewing points and angles (Carmona, Heath, Oc, & Tiesdell, 2003).

- **Height:**

Consistency with the existing height of the district, sub-area and/or immediate block consistency with adjacent rooflines by not exceeding rooflines by one story, or stepping back from a prevailing roof or cornice line (Preservation Alliance, 2007).

- **Scale:**

Scale is the perception of that object relative to other objects around it, and to our, perception of those objects. It is different from **size** which represents the literal dimensions of an object. Scale concerns the building's dimensions and all its parts relative to the dimensions of a human being (**human scale**) and its dimensions relative to those of its setting (**generic scale**) (Carmona, Heath, Oc, & Tiesdell, 2003). New design should consider the surrounding scale, hierarchy and massing of the existing built form (Parsons, 2010).

- **Street line:**

Maintaining the relationship to the street or property line characteristic of the district or block, including porches continuity of the building wall of the block (Preservation Alliance, 2007).

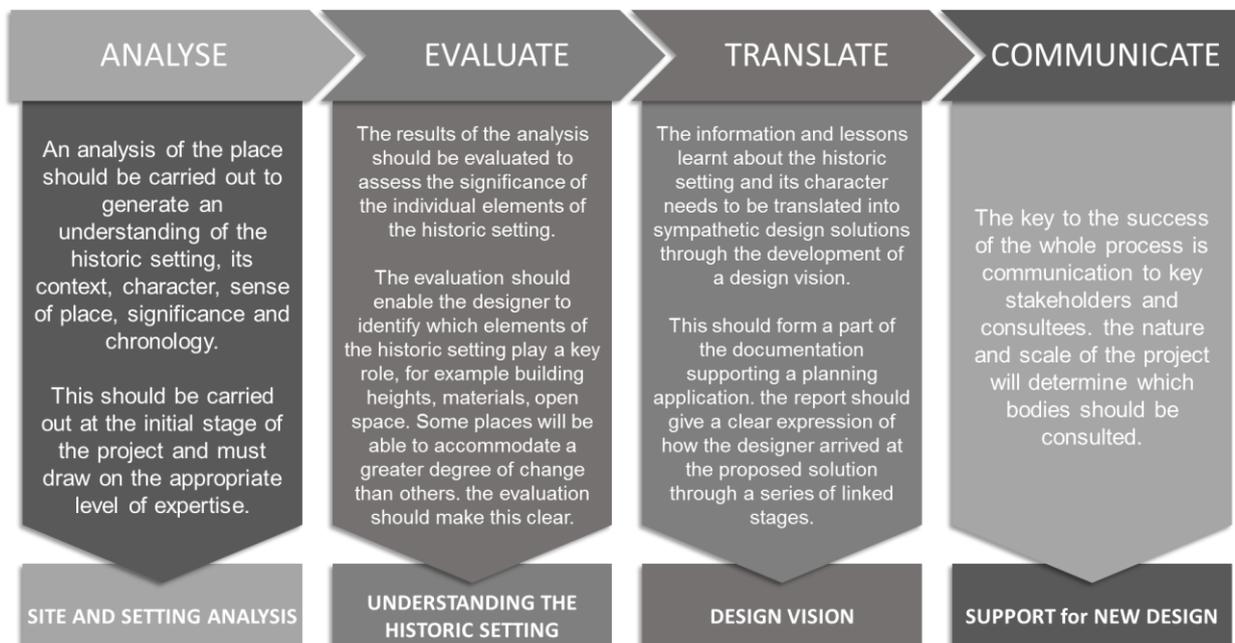


Fig.19: Methodology of New Building

- **Proportion:**

Proportion is the relation between the different parts of a building, and between any one part and the whole. It may relate to the ratio of solid-to-void in a building's facade, or to the way window openings are arranged in relation to solid wall elements. New buildings in established contexts may be more harmoniously integrated if their proportions are complementary with those of existing buildings (Carmona, Heath, Oc, & Tiesdell, 2003).

- **Rhythm:**

Is the arrangement and size of the constituent parts of a building's facade (e.g. its windows or bays), which is normally repeated (Carmona, Heath, Oc, & Tiesdell, 2003).

- **Materials and details:**

The judicious use of materials can sharpen or soften differences between the various parts of the building, and the relation between it and its neighbours. Materials also help establish local distinctiveness. Consistent use of local building materials can give a town or city a strong sense of unity and place, while their use in a new development helps it to integrate visually (Carmona, Heath, Oc, & Tiesdell, 2003).

A methodology for new building is suggested by Parsons (Parsons, 2010) to fulfil the general principles mentioned in the same reference, which is summarized by the researcher in the attached figure (See Fig. 19).

3.3. Techniques of new design

The relationship between new buildings and their old neighbours can be achieved using a variety of techniques within a scale of two extremes: **Replication and contrast.**

- **Replication:** Relating a new building to its context by duplicating: copying imitating or reinterpreting its older neighbour is the most widely used approach to architectural compatibility (Sotoudeh & Wan Abdullah, 2012).
- **Contrast:** If used carelessly, contrast can result in disorder and confusion, it “has a facile ability to destroy itself, translating into chaos, more imitating than interesting. If contrast is the object, then the character and permanence of the setting must be an integral part or the design concept.” (Overby, 1980).

Many researches have attempted to specify some distinctive points on that scale. As **Brolin** explained (Brolin, 1980):

"There are a variety of ways to design a new building so that it is sympathetic to its architectural context [. . .] One may literally copy architectural element from the surroundings; on the other hand, one may use totally new forms to evoke, perhaps even enhance, the visual flavour of existing buildings"

In this segment we will explore these techniques as mentioned by many researchers like **Shane, Davies, Semes and Tyler.**

Shane (Shane , 1976) has pointed out the fact that the degree of replication may vary, four levels of correspondence might be observed: "**facsimile, Correlation, simile and metaphor**".

- 1. Facsimile:** Exact imitation or mirroring of older façades is the extreme level of replication used generally in sensitive historical sites to preserve the national identity, in the case of a group of historic buildings forming a totality, rather than in the case of isolated historic building (Sotoudeh & Wan Abdullah, 2012).
- 2. Correlation:** Achieving harmony by relating design features or elements relationships of the new building to its older neighbour is the most widely used approach by architects and the most favoured by review boards and planning departments. This relational approach is accused of producing monotonous environmental, deprived from the vitality of tension needed for stimulating an enjoyable aesthetic experience (Sotoudeh & Wan Abdullah, 2012).
- 3. Simile:** Copying specific design features from the prevailing style(s) to establish a visual link. As Shane explained: "To establish a link between architecture and a particular philosophy designers may employ visual cues which betray the allegiance of the building: modernized gothic arches or abstract stained glass" (Shane , 1976).
- 4. Metaphor:** Replication does not have to be of a cosmetic nature, instead it should go beyond superficiality and consider more significant issues such as the symbolic and cultural aspects of architecture by using symbols or metaphors from the past, so the new can be related to the old whether it is at the phenomenological or imagery level (Graves & Wolf, 1980).



1. The 'Pastiche' approach

Richmond Riverside Development by Erith & Terry

A very skilful approach that requires an academic understanding of the period. Every detail and choice of material is an essay in the historic language of architecture. This building could easily be mistaken for the 'real thing', but if the detail and materials are watered down it will result in a poor imitation.



2. The 'Traditional' approach

Televillage, Crickhowell by Powys County Council architects

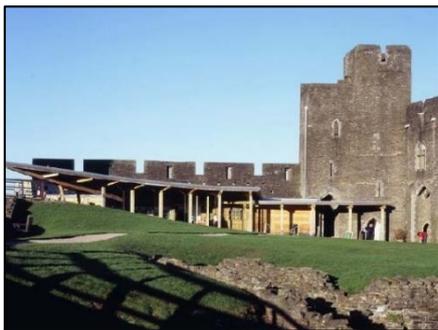
A safe option that is often encouraged by the planning authorities, as it tends to follow the local vernacular. Much of its form, detailing and materials are borrowed from the past but have evolved into a watered down version. It takes little imagination and skill to produce a solution that 'fits in'. If handled sensitively it can produce some pleasing results.



3. The 'Subtle' approach

Cathedral Library extension, Hereford by Whitfield Partners

Probably the most universally accepted approach to design in the historic environment. It is a conservationist's approach, where a light touch is required. Note the use of historic references and traditional materials, yet it is still subtly modern. It combines a respect for its surroundings with subtle detailing that confirms its place in the present.



4. The 'Modern' approach

Visitor Centre, Caerphilly Castle by Davies Sutton Architecture Ltd

This approach displays a modern design that is clearly of its time, but still respects its historic environment. It will have a strong and clear philosophy which draws its inspiration from the past. It might assemble local traditional materials in a modern way or, use modern materials in historical forms. This requires a skilful hand and a good understanding of its historical surroundings.



5. The 'Arrogant' approach

Extension to the V & A, London, by Daniel Libeskind

The tension created between old and new can be quite breathtaking, but requires great skill and vision to pull it off. A bold approach that needs an enormous leap of faith by all those involved, from client to planning authorities. This may be considered a 'building of the future' and will inevitably receive mixed reviews.

Fig.20: Design approaches for the historic environment by Davies

Another study by **Davies (2003)** considers five different approaches to design in the historic environment on a scale polarized by two extremes: the **very historic** and the **very modern**. These approaches are¹¹, (See Fig. 20):

1. **The 'Pastiche' approach:** is where a building or extension is created as an historic essay based upon academic learning. Invariably this is very difficult to pull off, and there are nearly always some concessions to modernity.
2. **The 'Traditional' approach:** is probably the most common and is arguably that which has “watered down components lifted from the past”. It could also represent the modern vernacular of speculative house building.
3. **The 'Subtle' approach:** requires a light hand and a deft touch. This approach probably pays the most respect to its historic context and is often adopted where a quiet, gentle approach is appropriate, one which allows the historic environment to speak loudest.
4. **The 'Modern' approach:** provides an unambiguous building clearly of its time drawing its inspiration from the past and respectful of its historic context. When skilfully handled this is arguably the ideal approach.
5. **The 'Arrogant' approach:** is immensely confident and pays little regard to its historic context. For this to succeed requires the most skilful designer, and many people would always find this unacceptable.

¹¹ buildingconservation.com/articles/design/design.htm



1. Literal replication

Left: Jewish Museum, New York, formerly Warburg Mansion (C.P.H. Gilbert, 1908) with addition (left two bays) by Kevin Roche John Dinkeloo and Associates, 1993.

Right: Kennedy-Warren Apartments, Washington, D.C. (Joseph Younger, 1929) with addition (right) by Hartman-Cox Architects, 2004, completing Younger's original design.



2. Invention within style

Left: New Commercial Buildings, Merchants Square, Williamsburg, VA, by Quinlan & Francis Terry, 2003.

Right: 500 Park Avenue, New York, formerly Pepsico Building (Skidmore, Owings & Merrill, 1960) with office tower addition (right) by James Stewart Polshek and Partners, 1985.



3. Abstract reference

Left: Seamen's Church Institute, South Street Seaport Historic District, NY. James Stewart Polshek and Partners, 1992.

Right: Addition to the Harvard Club (McKim, Mead & White, 1892- 1902) by Davis Brody Bond, 2003. New York Yacht Club (Warren & Wetmore, 1899) is at left.



4. Intentional opposition

Left: Greenwich Village Townhouse, NY, by Hardy Holtzman Pfeiffer Architects, completed 1978.

Right: Brooklyn Museum, Brooklyn, NY (McKim, Mead & White, 1897) with addition by the Polshek Partnership Architects, 2003.

Fig.21: Differentiated and Compatible: Four Strategies for Additions to Historic Settings

Semes (2007) on the other hand proposes a set of four possible attitudes, ranging from maximum **compatibility** to maximum **differentiation**. He explains each design strategy as below (Semes, 2007) (See Fig. 21):

- 1. Literal replication:** The strategy of replication prioritizes compatibility and minimizes differentiation. This strategy will likely sustain the character of an existing setting so long as the historic elements to be replicated are well understood, the technical means to effect replication are available, and so long as the scale of the replication is modest relative to the original building.
- 2. Invention within style:** This strategy, while not replicating the original design, adds new elements in either the same or a closely related style, sustaining a sense of continuity in architectural language. The intention is to achieve a balance between differentiation and compatibility, but weighted in favour of the latter. This strategy also has a long history: In fact, it is what most architects have always done.
- 3. Abstract reference:** This strategy seeks to make reference to the historic setting while consciously avoiding literal resemblance or working in a historic style. This approach seeks to balance differentiation and compatibility, but with the balance tipped toward the former. This is a difficult strategy to execute because it requires an artistry and skill that are not often available.
- 4. Intentional opposition:** This strategy is one of conscious opposition to the context and the determination to change its character through conspicuous contrast, prioritizing differentiation at the expense of compatibility.

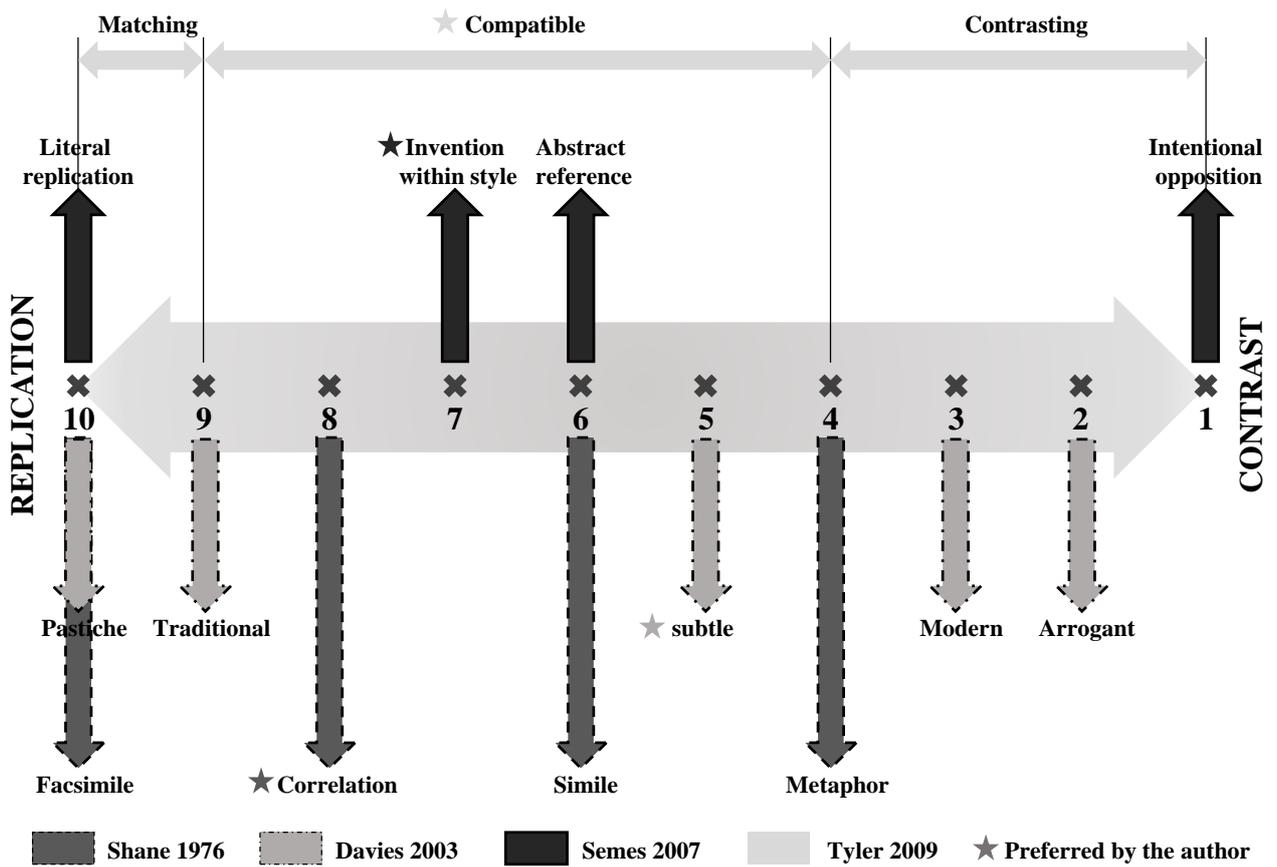


Fig.22: Techniques of new design

According to **Tyler** (2009), there are three terms to describe the relationship between the new building and its old surroundings, they are: matching, compatible and contrasting (Tyler, Ligibel , & Tyler, 2009):

- 1. Matching:** By matching, new buildings or additions seek to replicate the adjacent historic properties as much as possible, making it difficult, if not impossible, to tell them apart. This approach often appeals to owners of historic properties and civic organizations.
- 2. Compatible:** Compatible design usually defined as “capable of existing together in harmony”, when applied to historic preservation projects, typically refers to the design of additions of historic buildings that modifies the historic interiors and constructs new buildings in historic districts or landscapes.
- 3. Contrasting:** Advocates of contrasting approach argue that the design of new additions or buildings should be in nature contemporary design and distinguish the new from the old. Architects often favour this approach because they perceive that in this way they are free to interpret the context in current architectural idioms in much the same way as the original architects did in their time.

Unlike other researchers, **Tyler** points out the concept of compatible design, a design that is harmonious with its context, also known as contextual design. To describe the relationship between the design and its context we use terms like **contextual uniformity, contextual continuity, contextual juxtaposition and non-contextual** (Carmona, Heath, Oc, & Tiesdell, 2003).

In the attached figure (See Fig. 22) I have tried to combine all the previous terms in one scale from 1 to 10. Some of these terms describe the same approach as we can see and some are unique, this scale will be used later to evaluate some projects by the technique they use. The star symbol indicates the approaches that were praised and preferred at the time these references were written, mentioned by the authors.

3.4. Evaluating the compatibility of the new design

Assessing the impact of new development in a historic context has been accused of being subjective. However, design professionals differentiate between **taste** and **design quality**. Taste is **subjective**, while quality is **measurable**. Prescriptive planning tools such as height restrictions, envelope limitations, and requirements to use certain materials all attempt to provide qualitative design measures (Macdonald, 2011).

Some designers may adopt a more traditional approach; others may wish to explore a highly contemporary solution. **Both are valid. It is the quality of the response** that is the key and the relationship between the old and the new (HONSW, 2008).

The historic environment can, in fact, accommodate a rich variety of interpretations and expressions. A vernacular or traditional response may be as valid as a more contemporary response. It is the quality of the relationship between old and new that is critical, not the architectural language per se. Issues such as scale, form, siting, materials, colour, and detailing are important to consider when assessing the impact of a new development within a cherished historic town, city, or site (Macdonald, 2011).

What we understand from Macdonald (Macdonald, 2011) and the recent approach of Tyler (Tyler, Ligibel, & Tyler, 2009) is that the technique that is used in the new design does not matter, what really matters is whether the design is compatible or not.

After studying many references I have concluded that a criteria to assess the compatibility of the new building **objectively** in numbers is possible. The criteria that I propose is based on 5 main categories: **Siting, massing, façade composition, materials, and technique** (See Fig. 23). Each of these main categories is evaluated on a scale of 1 to 10.

Main categories	Sub- categories
Siting	Continuity
	Integration
	Contribution
Massing	Form
	Scale
	Height
Façade composition	Design elements
	Proportion
	Rhythm
Materials	Traditional /10/
	Same material different colour /8/
	Different material same colour /6/
	Different material and colour /4/
Technique	(1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication)
Total (x2)	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching

Fig.23: Evaluating the fitness of the new design

1. Siting:

Includes three sub- categories: **continuity, integration and contribution**. If the building achieves the three sub- categories it gets a full /10/, if two it gets /8/, if one it gets /6/ and if none it gets /4/.

2. Massing:

Includes three sub- categories: **form, scale and height**. Also if the building achieves the three sub- categories it gets a full /10/, if two it gets /8/, if one it gets /6/ and if none it gets /4/.

3. Façade composition:

Includes three sub- categories: **design elements, proportion and rhythm**. Again if the building achieves the three sub- categories it gets a full /10/, if two it gets /8/, if one it gets /6/ and if none it gets /4/.

4. Materials:

If the new design uses the traditional materials it gets a full /10/, if it uses the same materials but with different colours it gets /8/, if it uses different materials but with the same colour as the old it gets /6/ and if it uses different materials and colours it gets /4/.

5. Technique:

This category has an independent scale from 1-10 based on the references that were mentioned in the previous segment (1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication).

The building should have between 50 and 89 to be considered as compatible, if less, then it is considered as contrasting, and if more, then it is considered as matching. However, the needed level of compatibility is not the same everywhere, it depends on many factors as we will see later through the provided examples and conclusions.



Sharjah Museum of Islamic Civilization, UAE 2008



Royal Ontario Museum, Toronto, Canada 2012



Henry N. Cobb, Organisation for Economic Co-operation and Development Headquarters, Paris, 2008



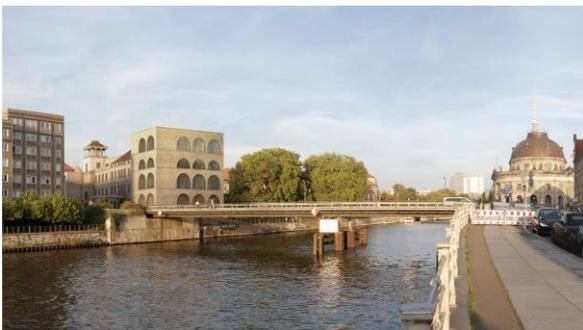
I. M. Pei, The Louvre Pyramid, Paris, 1993



David Chipperfield, Bötzw Brewery, Berlin, Germany 2013–2019



Foster and Partners, Reichstag building, Berlin, 1999



David Chipperfield, Forum Museumsinsel, Berlin, Germany 2010–2014



Hans Hollein, Haas House, Vienna 1990

Fig.24: Examples of new design in historical settings

Examples of new design in historical settings

We will address some examples in this segment, of new buildings in old contexts, disregarding their function and later in the end of the next chapter we will specialize in museums (See Fig. 24). These examples are very important because each one of them has a distinctive architectural treatment for integration. We will also apply the evaluation criteria on them and see how compatible they are with their environments.

- **The Dancing House,
Prague 1992-1996, Frank Gehry¹²**

Designed by the Croatian-Czech architect Vlado Milunić in cooperation with Canadian-American architect Frank Gehry on a vacant riverfront plot, the building was controversial because the house stands out among the Baroque, Gothic and Art Nouveau buildings, and in the opinion of some it does not accord well with those architectural styles. **Dameron** tells the story (Dameron, 2012):

“Dancing House's naysayers focused their attention on the building's supposedly poor integration with the existing landscape, and lambasted it as the work of an American starchitect¹³ with little regard for Prague. One early Czech commenter called the work “a mess of pottage, this time Californian”.

Today, this line of criticism seems wildly off the mark. Mr. Milunić spent a great deal of time advising Mr. Gehry on the site's context, and the two delivered a final product that richly pays homage to Prague's architectural leitmotifs (theme).

¹² Frank Gehry is a Canadian-born American architect, known for postmodern designs, including the Walt Disney Concert Hall and the Guggenheim Museum in Bilbao, Spain.

¹³ Starchitect: is a portmanteau (blend of words) used to describe architects whose celebrity and critical acclaim have transformed them into idols of the architecture world.



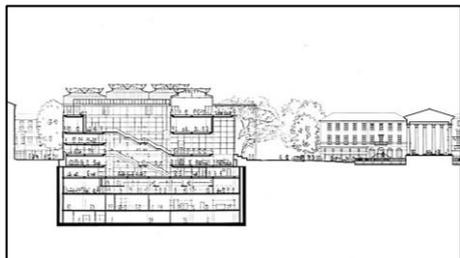
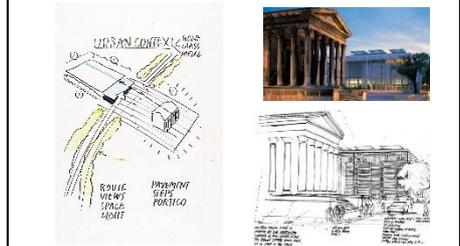
Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	6/10
	Integration	✓	
	Contribution	×	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	10/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		6/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		7/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		78/100 Compatible

Fig.25: Evaluation of The Dancing House

Start with the towers themselves: Prague's older city blocks are almost always bookended by towers of one kind or another, often topped by an ornamental cupola. Mr. Gehry followed the area's prevailing tradition by putting the focus on the corner, and by topping Fred with his decorative 'Medusa' sculpture, whose form playfully echoes that of several onion domes sitting atop adjacent corner towers.

Then consider Dancing House's riverfront elevation, which provides an object lesson in the artful integration of a new building with its neighbours. Dancing House's wavy stuccowork and pop-out windows elegantly match the window patterns and quoined and scored exteriors of the neighbourhood. Viewed in context, Dancing House grows naturally from its surroundings, its movement leading to the corner and to the surprising expression of its jubilant towers."

As a conclusion, we can say that the dancing house is compatible. Its approach is close enough to be **'Invention within style'** as described by **Semes**. The architect had used common treatments as mentioned by **Dameron**, and to be more specific, the towers and the articulation of windows, with a modern twist of new shapes and materials which makes it an important example to mention in this research.



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	8/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	×	8/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		6/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		72/100 Compatible

Fig.26: Evaluation of The Carré D'Art - Médiathèque of Nîmes

- **Carré D'Art - Médiathèque of Nîmes,
Nîmes 1984-1993, Norman Foster¹⁴**

Carré d'Art stands as a large glass cuboid with perfectly pure lines, its main feature being its transparency¹⁵. Despite that the building looks contemporary, it has many links to its historic setting. The multimedia library needed a huge area of nine storeys that required Foster to bury almost half of it under the ground to maintain the common height of the area.

Also, a central atrium, recalling the inner courtyards of the houses of Nîmes, is topped by a canopy allowing light, another fundamental element of this architecture, to stream into the building.¹⁶

Foster states that: *“The site faces the Maison Carrée, a perfectly preserved Roman temple. The challenge was to relate new to the old, but at the same time to create a building that represented its own age with integrity.”*¹⁷

Many similar elements between the building and the temple are simply detected: raising the building on platform as a simulation to the temple's stylobate¹⁸, the portico treatment that refers to the temple's colonnade that also inspires the idea of sun shades, without forgetting the repeated use of pediment-like shapes on the roof. That is why its approach is compatible and close enough to be **'Abstract reference'** as described by **Semes**.

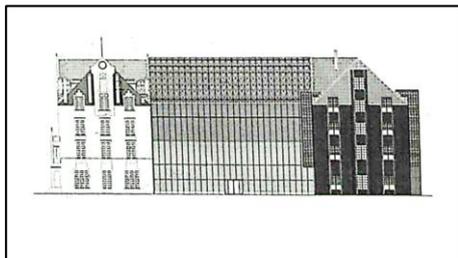
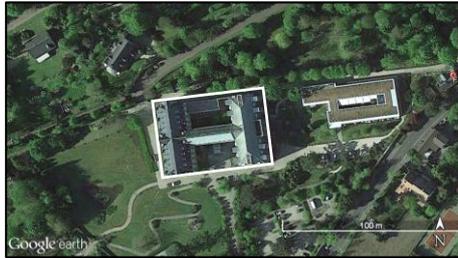
¹⁴ Norman Robert Foster, Baron Foster of Thames Bank, is a British architect famous for high-tech architecture, winner of the 1999 Pritzker Prize.

¹⁵ carreartmusee.com/en/museum/the-building/

¹⁶ fosterandpartners.com/projects/carr%C3%A9-dart/

¹⁷ fosterandpartners.com/projects/carr%C3%A9-dart/

¹⁸ Stylobate: a continuous base supporting a row of columns in classical Greek architecture.



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	✓	8/10
	Integration	✓	
	Contribution	✗	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	10/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		8/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		80/100 Compatible

Fig.27: Evaluation of The Cognacq-Jay Retirement House

- **The Cognacq-Jay Retirement House,
Rueil Malmaison 1984 – 1993, Jean Nouvel¹⁹**

An important work of Nouvel, where he was required to build an extension to the neo-gothic 19th century building to double the capacity of the facility.

The new constructions bend to the typology of the old one up to the saddle-roofs, except for the techniques and materials used which are strictly contemporary - moulded glass façades with sun screens on concrete structures (Elcroquis, 2002).

The decorative steel lattice derives its inspiration from the image created by the glazing bars of the old facade.²⁰

The production is very considerate to the old building, considered as a new version of the old, with the same modules, rhythms, shape and scale but with modern materials. **‘Correlation’** by **Shane** would be the best term to describe this building’s approach.

¹⁹ Jean Nouvel is a renowned French architect who has obtained a number of prestigious distinctions over the course of his career, including the Aga Khan Award for Architecture, the Wolf Prize in Arts and the Pritzker Prize in 2008.

²⁰ constructalia.com/english/case_studies/france/cognacqjay_foundation_#.VwvE1PlrJIU

Chapter 4:

The Adaptation of
Historic Buildings and
Sites as Museums

Chapter 4: The Adaptation of Historic Buildings and Sites as Museums

4.1. Introduction

The location of museums, either in open spaces or buildings, can play a significant role in the way information is transmitted. When an open space or a building is built to house a museum, the place should comply with the museum's objectives and mission for a given time. When an existing space or building is adapted to house a museum, space organization and means to be used will depend on multiple factors, not only on its mission. For example, the inclusion of a building in the list of safeguarded cultural heritage must guarantee that the value of the building included in the list is not affected by its use as a museum (Culture and development Magazine, 2012).

On many occasions, especially when historical urban areas are restored, some monumental buildings are selected as ideal spaces to house a museum due to their size and emblematic nature. The reason for this is usually associated with the need to collect the funds needed to refurbish the building that is transmitting, by itself, certain knowledge and, even more important, a sense of identity and pride within the community. The building should also be seen as a product of outstanding quality belonging to the society that can attract visitors and contribute to local development due to its impact on the historical urban area (Culture and development Magazine, 2012).

In many cases, refurbishment forms part of a larger plan for the restoration and management of a historical centre. In these cases, the restoration objective is not only to convey the mission of the museum, but also to improve the preservation status and its own value, as well as that of the historical area. This new use of the museum or cultural institution will help preserving its symbolic and architectural value (Culture and development Magazine, 2012).

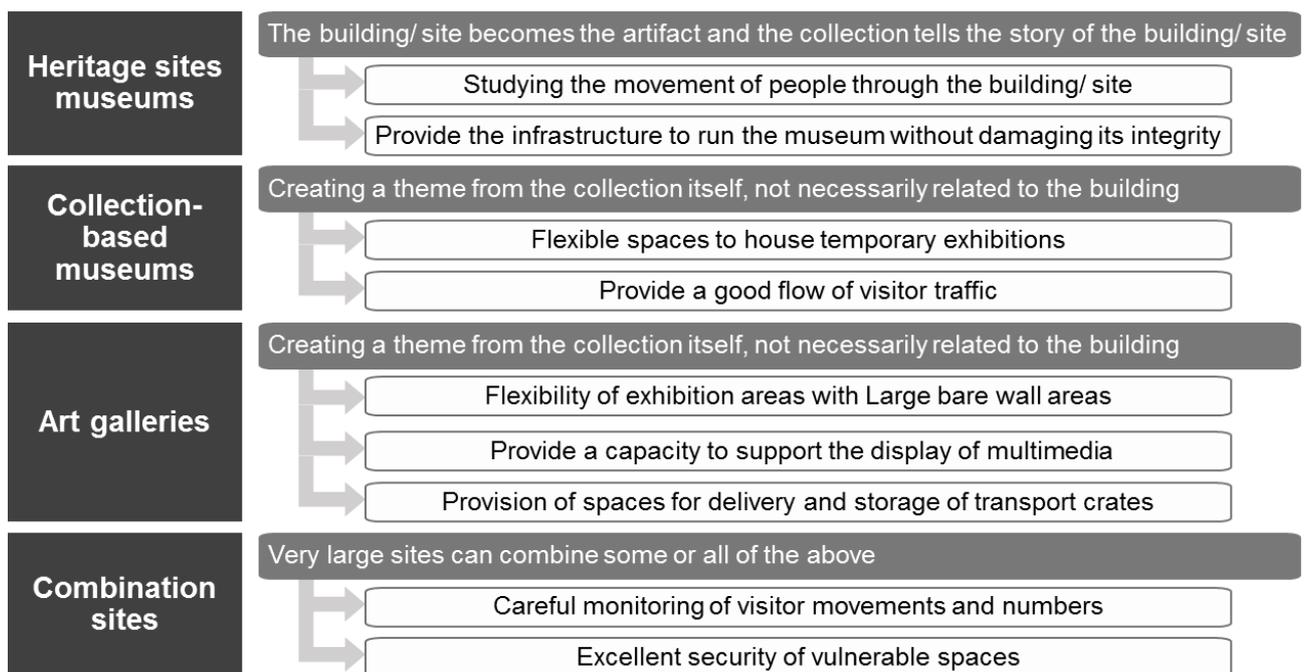


Fig.28: Choosing the theme of the museum

The building intervention has three purposes: 1) Preservation of the building; 2) Education and research; 3) Leisure for the local population and tourists.

However, the restrictions associated with the building refurbishment are aimed at preserving and enhancing its historical value, which could be in conflict with the museum's mission (Culture and development Magazine, 2012).

4.2. Choosing the theme of the museum

There is a wide spectrum of museums that can be divided into several categories - as we have seen in the second chapter. However, the nature of the building/ site among other factors could give a clue on which theme is more appropriate and suitable to be chosen. According to Museums & Galleries Foundation of NSW, these themes are (MGFNSW, 2014):

- **Heritage sites:**

Buildings such as houses, shops, prisons, mines, schools, factories and workshops can all be developed as heritage sites. In this instance it is the building or the site itself which becomes the artefact or collection and the museum's aim is to tell the story of the building and the people who lived or worked in it.

The major challenge for this type of museum often revolves around how to move people through the site and provide the infrastructure to run the museum without damaging its integrity.

- **Collection-based museums:**

These museums focus on one or several themes as the basis of a collection that may, but not necessarily, relate to the building. Such museums need flexible spaces to house temporary exhibitions and allow a good flow of visitor traffic. Providing good display and storage environments, as well as facilities for public programs, are central to the development of a successful collection-based museum.

- **Art galleries:**

Galleries generally have their own collections but may also have an emphasis on travelling exhibitions.

This places particular demands on buildings, such as flexibility of exhibition areas and the provision of spaces for delivery and storage of transport crates. Large bare wall areas and a capacity to support the display of multimedia are also a necessity for galleries wishing to exhibit contemporary art.

- **Combination sites:**

Very large sites can combine some or all of the above. Management of these kinds of sites requires careful monitoring of visitor movements and numbers, and excellent security to ensure that vulnerable spaces are secured if there is no-one available to supervise them.

4.3. Advantages and disadvantages of adapting historic buildings as museums

One of the first steps in assessing the appropriateness of the building as a museum is to look at what sort of building it is, in relation to how you want to use it. The building has to be (MGFNSW, 2014):

- ✓ **Available:** it must be publicly owned and vacant.
- ✓ **Valuable:** it has to have some heritage value to attract audience.
- ✓ **Economic:** the building should be simple to repair and adapt, a decision should be made whether the cost of work will be worth the effort or whether it would be more appropriate to start with a new purpose-designed building.
- ✓ **Compatible:** the new use should be compatible with the site, has a good location that is easy to find, has sufficient parking space, reached by public transportation, and has a general ease of access and service.

There are certainly advantages in using a heritage building for such a purpose (MGFNSW, 2014):

- A building recognized for its heritage value already has **an acknowledged role in the community's life**. This can be a great asset for a building that will require community involvement for its survival.
- Many heritage buildings **have a great character** that can be used to promote them in the community.
- Heritage buildings are often **well-located** near the centre of town. This is an advantage both in terms of attracting visitors to the site and providing ease of access.
- Heritage buildings can enrich the interpretation of historic collections by **providing an appropriate physical setting or historical context** for the collection.
- While there are plenty of examples that refute the fact, many heritage buildings are **solidly built** and provide a stable physical and climatic environment for collections.

There are also however, disadvantages in using heritage buildings as museums (MGFNSW, 2014):

- The substantial costs of adapting an existing building for a new purpose.
- The risk of downgrading the building's integrity and heritage value in the process.
- People might not respond well to the new use.
- Room sizes and layouts, access and circulation, light and climate control, can all complicate the designing process.
- Heritage-listed buildings usually impose some unchangeable parameters and restrictions to new design, therefore it would be hard to open some doors and windows, or to make an expansion for new sections.
- The building might be in poor structural condition great deal of remedial work to make it weatherproof and able to withstand visitor traffic.

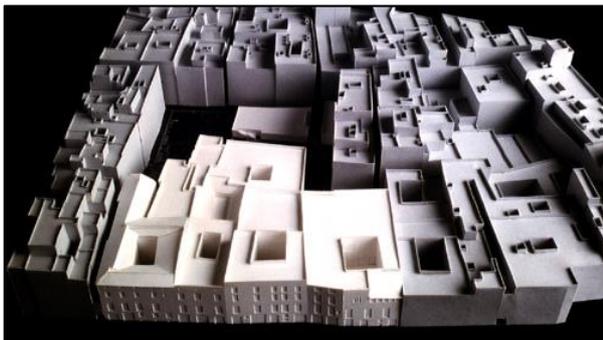


Fig.29 : The Picasso Museum, Barcelona

4.4. International examples

It is important to supply the research with visual examples of international architecture. These examples are selected from the works of well-known international architects in order to realize and compare their approaches and responses to historic contexts, heritage, modernity, community needs...

In this segment, we will discuss only museum projects: adaptations, additions, and new buildings, and their relationship with their environment. We will also evaluate them according to the proposed criteria from the previous chapter.

4.4.1. Adaptation of historical buildings as museums

We have already mentioned a group of museums that are held in historical buildings before (See Fig. 03). However, the Picasso museum is an interesting example with its gradual extension covering five historical dwellings.

- **The Picasso Museum, Barcelona 1999, Jordi Garcés & Enric Sòria**

The Picasso Museum occupies five large town houses or palaces on the street carrer de Montcada. The original palaces date from the 13th-15th centuries, undergoing major refurbishments over time, the most important in the 18th century. The palaces are a good example of Catalan civic gothic style. They have a common structure surrounding a courtyard with access to the main floor via an outdoor open stairway²¹.

The five palaces, grouped adjacent to each other, perpendicular to the Montcada Street's frontage, constitute a general structure of a built comb due to the similar shape of the parallel parts and their courtyards.²²

²¹ bcn.cat/museupicasso/en/museum/buildings.html

²² vitruvius.com.br/revistas/read/arquitextos/06.061/450

The museum presents a public space that was later composed by the private garden and the adjacent square, with some new-constructed façades, forming together a piece of great importance for the renewal of the urban life of the city in the fragment where it is inserted.²³

The Montcada Street was the only way of access and a natural, logical and sufficient connection, to each palace between the palaces and with the street. To expand the museum, a connection was established directly through the common walls, followed by the creation of an interior corridor parallel to Montcada, to connect all the palaces. Regarding the problem by itself, this proposal could be considered as a wise idea, but it was a design that decharacterized the entire original built complex... The design reduced the monuments to retain only their façades and main courtyards.²⁴

Even considering the difficulties of dividing interior spaces of a Gothic palace that is imposed by the needs of modern exhibitions, we have to start from the point that the characteristics of the building must be respected with the objective of preserving the unity of the monument's character. The fragmentation of spaces and its labyrinthine layout was a part of the museum's personality as a whole.²⁵

Regarding construction and finishing materials, the criterion of the current ground floor remains, using original materials in their original appearance. Corridors are paved with the same stone that exists in the Montcada Street.²⁶

Later in 2011 an annex was added, where complementary activities focus on study, research, and museological investigations related to Picasso²⁷, the annex was built in a closed area only visible from the small square of Sabartés, therefore we will not evaluate it.

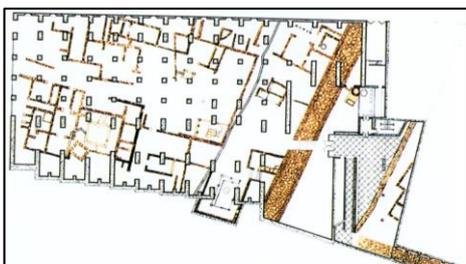
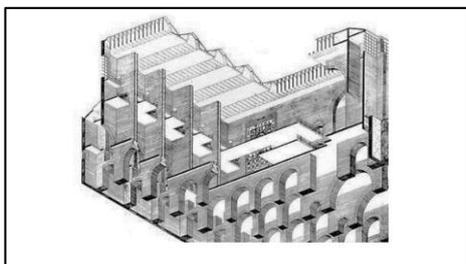
²³ arquitectura.com/arquitectura/inter/obras/cultura/garces/picasso/picasso.asp

²⁴ vitruvius.com.br/revistas/read/arquitextos/06.061/450

²⁵ vitruvius.com.br/revistas/read/arquitextos/06.061/450

²⁶ arquitectura.com/arquitectura/inter/obras/cultura/garces/picasso/picasso.asp

²⁷ archilovers.com/projects/60420/picasso-museum-annex.html#info



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	8/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	8/10
	Proportion	×	
	Rhythm	✓	
Materials	Traditional /10/		10/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		6/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		84/100 Compatible

Fig.30: Evaluation of The National Museum of Roman Art

4.4.2. Adaptation of historical sites as museums

- **National Museum of Roman Art, Mérida, Spain 1979 – 1986, Rafael Moneo²⁸**

Netto describes Moneo in his “**Lost in Translation**” article as an underrated starchitect. He explains why he is revered in Europe and not so well known in America by showing a few buildings of his oeuvre, (Netto, 2013):

“[Moneo] has produced buildings of startling quality, no two of which are alike. Working mainly in his native Spain, which has regarded him as something of a national hero since his National Museum of Roman Art.

Moneo has approached commissions with the goal of making architecture that is simultaneously an ornament to the Old World and a beacon of the new.

His buildings are extremely site-specific, usually physically elegant and charged with experiential surprise [...] Always born of some well-considered relation to context, Moneo’s buildings are not objects meant to promote themselves, nor do they condescend [...] Moneo makes architecture that refuses to show off. His buildings are woven into cities rather than imposed upon them, and might as easily be about texture rather than form.”

The National Museum of Roman Art is a museum hovering over an archaeological site... a building that teaches us about Roman antiquities, Roman construction methods and also modernism - specifically its potential to be expressive in the hands of a designer who is unafraid to engage the past and be inventive at the same time. ²⁹

At first sight it’s hard to realize that this museum... is even a new work of architecture. With details like buttresses, relieving arches and windows with divided lights and shutters, it looks **regional** but with a modern touch.³⁰

²⁸ José Rafael Moneo Vallés is a Spanish architect, winner of the Pritzker Prize for architecture in 1996 and the RIBA Royal Gold Medal in 2003.

²⁹ archdaily.com/625552/ad-classics-national-museum-of-roman-art-rafael-moneo

³⁰ archdaily.com/625552/ad-classics-national-museum-of-roman-art-rafael-moneo

The embodiment in architecture of time and place is Rafael Moneo's deepest concern. It is not a fashionable concern today. To many designers and students, the idea that a building should respond to the past, or to its physical surroundings, is regarded as passé. We live in a single worldwide culture, it is argued. A new scale and a new kind of architecture are required (Campbell, 1996).

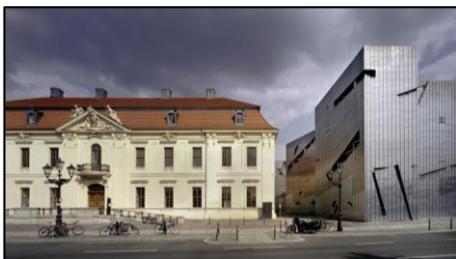
Netto made a strong comment on the modern global architecture, especially the American, accusing it of being far from conceptual sensitivity, which is a problem in his opinion, he explains (Netto, 2013):

“Important buildings are either expected to generate spectacle or belong to a recognizably branded style. Context, suitability and intelligence are considered secondary to provocation. The problem with this is that the built environment is something we have to live with for a long time, and excitement, once tasted, has a tendency to distort the other ways a building can be important.”

Moreover, at the end of his article, **Netto** quoted **Grover Mouton**, the director of the regional urban design centre in New Orleans, about his opinion of the reason why there isn't more room for buildings that take the risk of 'speaking softly' in American architecture, he quotes, (Netto, 2013):

“Because the vocabulary doesn't lend itself for the American mind to understand. We don't have the base for it, as the Europeans do, or the lifestyle for it. Here, it's more about the value of the cost than the value of the work”.

As a conclusion, Moneo's museum is very compatible within its environment and it clearly uses the '**Abstract reference**' approach as described by **Semes**.



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	6/10
	Integration	×	
	Contribution	✓	
Massing	Form	×	4/10
	Scale	×	
	Height	×	
Façade composition	Design elements	×	4/10
	Proportion	×	
	Rhythm	×	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		1/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		38/100 Contrasting

Fig.31: Evaluation of The Jewish Museum in Berlin

4.4.3. Additions on existing museums in non-historical contexts

- **The Jewish Museum in Berlin, Berlin 1989–1999, Daniel Libeskind³¹**

Libeskind is best known for one of his first projects “**The Jewish Museum in Berlin**” that made a huge controversy for its bold lines and the total contrast between his building and the original “Kollegienhaus” next to it, with a clear disregarding of the old surrounding. However, this project is profoundly considered as one of his best works. **Ouroussoff** describes it best (Ouroussoff, 2006):

“[Libeskind] had spent an entire decade pouring his heart into a single building that remains his greatest architectural achievement.”

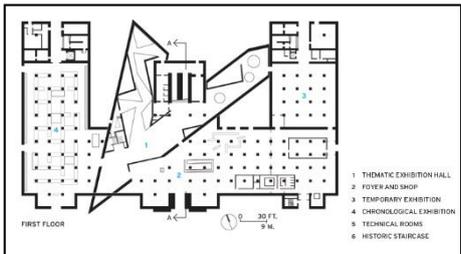
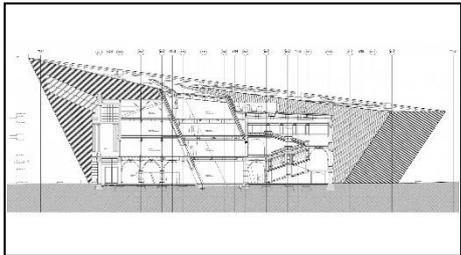
Curtis also supports this opinion, he states (Curtis, 2011):

“Not everyone approves of Libeskind’s ‘theatrical’ rendition of a troubled past but the Jewish Museum in Berlin stands as a work full of promise.[...] This was not a matter of ‘De-constructivist’ mannerisms that were so fashionable at the time, but of a narrative translated into abstract form, light and space through the medium of architecture.”

The façade barely enables conclusions to be drawn as to the building's interior, the division of neither levels nor rooms being apparent to the observer. The whole of the New Building is coated in zinc, a material that has a long tradition in Berlin's architectural history. Over the years, it will oxidize and change colour through exposure to light and weather.³²

³¹ Daniel Libeskind is a Polish-American architect recognized by his edgy geometric compositions that made a clear finger print in the architecture of the 90s and so on.

³² inexhibit.com/case-studies/daniel-libeskind-jewish-museum



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	4/10
	Integration	×	
	Contribution	×	
Massing	Form	×	4/10
	Scale	×	
	Height	×	
Façade composition	Design elements	×	4/10
	Proportion	×	
	Rhythm	×	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		1/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		34/100 Contrasting

Fig.32: Evaluation of The Bundeswehr Military History Museum

The Glass Courtyard is a transparent structure made of steel and glass, enclosing the Kollegienhaus court, which fulfilled the constraint of not overcoming the delicate Baroque appearance of the old palace. The design aimed to find out a good way to deal, both visually and structurally, with the old building, by creating an independent self-supporting structure like a table on four legs.³³

This independence factor, seen in the Glass courtyard and in the visual separation between the building and the addition, which makes you appreciate them both, might be the reason that drew my attention to this project to select it among the many examples of additions in Libeskind oeuvre. We should also notice that this kind of contrast or **'Intentional opposition'** as described by **Semes** is mostly used in those cases where the old building stands alone with no historic context.

- **Bundeswehr Military History Museum,
Dresden 2001-2010, Daniel Libeskind**

Libeskind's architectural style continued with the same artistic free-design method, extremely propagandistic, radical shapes, foreign materials, alien scale without recognizing the neighbouring building.

Many critics have criticized Libeskind's works, accusing him of repetition of the same sharp edges, deformed geometries and total negligence of location and context, as **Hawthorne** states, (Hawthorne, 2008):

"Anyone looking for signs that Daniel Libeskind's work might deepen profoundly over time, or shift in some surprising direction, has mostly been doing so in vain. [...] He seemed content to stamp the same jagged, mournful aesthetic on each of his new buildings..."

³³ inexhibit.com/case-studies/daniel-libeskind-jewish-museum

His additions obviously take all the attention from the original historic building, in a disastrous way, they seem ready to attack and devour the poor old building, violating its space, its character and authenticity, as we can see in the Military History Museum in Dresden, which brings me to mention a statement made by **Heffer** about the public acceptance of that museum, he says, (Heffer, 2010):

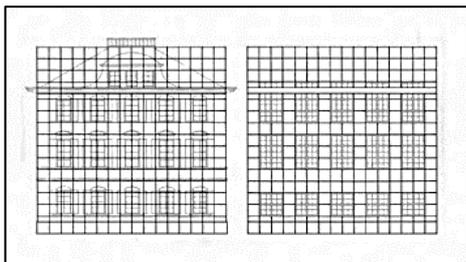
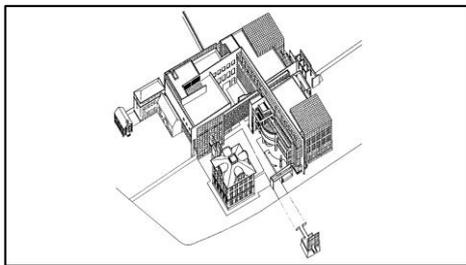
“Most Dresdeners appear to be in shock, not so much for the violation of the old garrison, as on account of a determination by an outsider to interrupt their plan to rebuild as much of their city as possible, and to maintain that the bombing can be erased from the collective memory.”

The design boldly interrupts the original building’s classical symmetry. The extension, a massive, five-story 14,500-ton wedge of glass, concrete, and steel, cuts into and through the former arsenal’s classical order.

The new façade’s openness and transparency is intended to contrast with the opacity and rigidity of the existing building. The latter represents the severity of the authoritarian past, while the former reflects the transparency of the military in a democratic society. The interplay between these perspectives forms the character of the new Military History Museum.³⁴

Another example of contrast, and again, we must mention that the old building is standing alone without a historic context, this point is important to justify an approach like this.

³⁴ libeskind.com/work//military-history-museum



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	8/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	10/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		4/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		72/100 Compatible

Fig.33: Evaluation of The Museum for the Decorative Arts

- **Museum for the Decorative Arts Frankfurt am Main,
Germany, 1979 - 1985, Richard Meier³⁵**

The character of the surrounding environment had a decisive impact on the form of this building, not only in terms of the topography but also in respect of the local doppel villa topology.³⁶

The module of the new building was derived from the old building (Villa Metzler) that takes an area of one square from the whole of 16 squares that form the building's envelope. However, the building is 3.5 degrees rotated from the original module in order to be parallel to the "Main" river's bank. Therefore, the building is designed as a response to the old, in an "L" form that embraces and integrates with the old villa, but in a gentle way by separating and giving them visual independence.

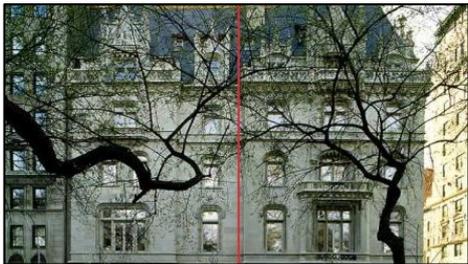
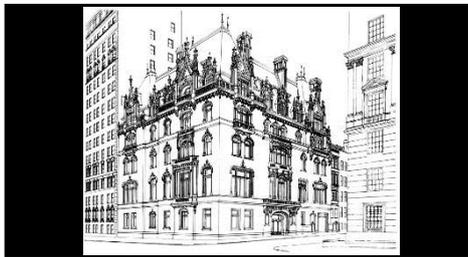
Also a shy connection is made towards the villa with a glazed bridge in a hidden way, not visible from the adjacent street, a connection that simply symbolizes the link between the past and the present.

The main façade is also derived from the old villa, with the same pattern of windows, the same number, shape and dimension, only differentiated by material of square white metal panels.

Meier has clearly used '**metaphor**' in this building, as described by **Shane**, despite that it is also modern like most of his other projects, this building has created a strong relation with its old neighbour through forms, shapes, proportions, module, etc...

³⁵ Richard Meier is a famous American architect, winner of the Pritzker Prize in 1984.

³⁶ richardmeier.com/?projects=museum-for-the-decorative-arts



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	✓	10/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	10/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		10/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		10/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		100/100 Matching

Fig.34: Evaluation of The Jewish Museum NYC

- **The Jewish Museum NYC,
NYC 1993, Kevin Roche³⁷**

“Mr. Roche has set out to do the right thing. Instead of creating a showcase for his own creative powers, he has designed a work that joins almost imperceptibly with the Jewish Museum's original building, a French Gothic chateau designed in 1908 by Charles Prendergast H. Gilbert for Felix Warburg” (Muschamp, 1993).

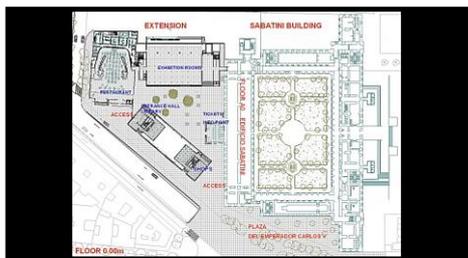
The recent Jewish Museum addition continued the fabric of the existing Warburg Mansion by adding two bays to the north and replicating the materials, general design, and much of the ornament of the original building (Semes, 2007).

Preservationists have criticized this addition as Muschamp stated in his article: *“It is an appealing formula, and Mr. Roche carries it off with devotion and skill. The building does not lack conviction. But it does lack depth.”* (Muschamp, 1993).

Although this “seamless” addition was criticized by some preservationists, the resulting unity of the composition would not have been achieved had the architect introduced a different architectural style or material for this modestly-scaled addition (Semes, 2007).

The extension falls under the **‘Literal replication’** approach as described by **Semes**, where it is almost impossible to differentiate the extension from the original building. In the figure, the section to the right of the line in the fourth picture is the original Warburg house, built in 1909 and designed by C.P.H. Gilbert. The section to the left of the red line is the 1993 addition.

³⁷ Kevin Roche is an Irish-born American Pritzker Prize-winning architect. Among other awards, Roche received the Pritzker Prize in 1982, the Gold Medal Award from the American Academy of Arts and Letters in 1990, and the AIA Gold Medal in 1993.



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	✓	10/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	4/10
	Proportion	×	
	Rhythm	×	
Materials	Traditional /10/		6/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		5/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		70/100 Compatible

Fig.35: Evaluation of The Reina Sofia Museum Extension

4.4.4. Additions on existing museums in historical contexts

- **Reina Sofia Museum Extension,
Madrid 1999-2005, Jean Nouvel**

The jury for the International Contest of Ideas to Enlarge the Museum selected the project by architect Jean Nouvel as it best solved the objectives presented. His proposal, with its potent and daring language, in addition to meeting the most modern and practical needs of a museum, politely and respectfully exchanged with the solid classic style of the Sabatini building.³⁸

His approach was so respectful that he called his project in the shadow of the 'Reina Sofia'. In the shadow, yes, for the existing museum must clearly dominate. It must impose its power simply and clearly. The great austere Reina Sofia, besieged by its glass elevators, is the place where our masterpieces of recent art are safeguarded. Our role is to pledge fealty, express respect and belonging. The museum is growing, annexing part of the neighbourhood. Not taking over and traumatizing, but adapting and adorning, for the insertion of a contemporary building into an existing site is successful only if it enhances what surrounds it, and if it is itself enhanced by its surroundings. I propose a gentle, natural approach.³⁹

Nouvel used in this extension a gentle or a 'Subtle' approach as described by **Davies** and the result was a highly compatible building with its form that achieved continuity, its colours where the roof continues to be grey on its exterior faces as the old but on the inside it is red to match the new walls that are abstracting their colour from the brick façades on the opposite side of the street, the design elements meaning here the grey roof and the courtyard despite that it is semi-covered. However, the extension is differentiated by its new materials, number of floors and the height difference where it was literally in the shadow of the existing building.

³⁸constructalia.com/english/case_studies/spain/extension_of_queen_sofia_national_museum_#.VxJGOUxrJIU

³⁹jeannouvel.fr/en/desktop/home/#/en/desktop/zoom/madrid-spain-reina-sofia-museum1



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	✓	10/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✗	8/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		8/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		8/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		88/100 Compatible

Fig.36 : Evaluation of Neues Museum

- **Neues Museum⁴⁰,
Museum Island Berlin, Germany 1997–2009, David Chipperfield**

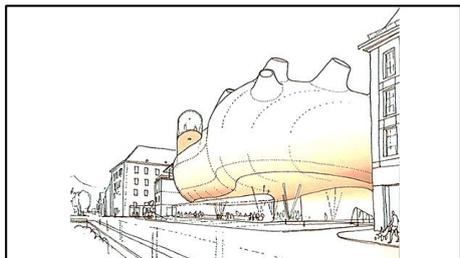
The original building was designed by Stüler, was erected between 1841 and 1859. The Neues Museum (The New Museum) was organised as a solitaire construction executed according to a simple ground plan that enclosed two courtyards and replaced the central rotunda and cupola used in the Altes Museum with a rectangular stair hall that rose through all floors and occupied the full width of the building.

Extensive bombing during World War II left the building in ruins with some sections severely damaged and others completely destroyed... After David Chipperfield Architects' appointment to the project in 1997–98, the building and restoration took nearly eleven years to complete, and the entire Museum Island was added to the UNESCO World Cultural Heritage list in 1999.

When considering the way forward, it was clear that the ruin should not be interpreted as a backdrop for a completely new architecture but neither was an exact reconstruction of what had been irreversibly lost in the war seen as an option. A single continuous structure that incorporates nearly all of the available damaged fabric while allowing a series of contemporary elements to be added became the preferred path, often described as 'the third way'.

The key aims of the project were to recomplete the original volume, and to repair and restore the parts that remained after the destruction of World War II. The process can be described as a multidisciplinary interaction between repairing, conserving, restoring and recreating all of its components. The original sequence of rooms was restored with newly built sections that create continuity with the existing structure. The almost archaeological restoration followed the guidelines of the Charter of Venice, respecting the historical structure in its different states of preservation.

⁴⁰ davidchipperfield.co.uk/project/neues_museum



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	6/10
	Integration	×	
	Contribution	✓	
Massing	Form	×	6/10
	Scale	×	
	Height	✓	
Façade composition	Design elements	×	4/10
	Proportion	×	
	Rhythm	×	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		2/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		44/100 Contrasting

Fig.37: Evaluation of The Kunsthhaus Graz

4.4.5. New museums in historical contexts

- **The Kunsthaus Graz,
Austria 2000-2003, Peter Cook⁴¹**

Located on the banks of the Mur, between the red brick roofs of neighbouring historic buildings, the new architectural symbol is locally referred to as the "friendly alien".⁴²

“Archigram is back. [...] If ever there was a movement that everyone dismissed as hopelessly utopian and absolutely unbuildable, it's the one initiated by Archigram in 1961. [...] Archigram's wildest flights of imagination have finally landed on Earth. And in the most unlikely place, too: Graz. [...] Literally popping out amid three- and four-story, 18th-century pastel-collared Baroque buildings. [...] The new building is a whopper of a big, bright, blue bubble with a shiny, scaly, acrylic-glass skin.”⁴³

The building does not show any respect to the scale, the volume, or the pattern of the neighbouring buildings. The blue mass clearly contrasts with the red brick roofs of the old Baroque buildings. However, the height does achieve some kind of harmony with the general roofline.

In general, the building clearly tries to “pop-out” from the historic context and it represents the modern high-profile buildings that aim to be iconic by contrasting with existing urban fabric of the city. Therefore, it is best described as ‘**Arrogant**’ following **Davies**’s classifications.

⁴¹ Peter Cook is an English architect, was a founder of Archigram. His achievements with Archigram were recognized by the Royal Institute of British Architects in 2004, when the group was awarded the Royal Gold Medal.

⁴² arcspace.com/features/spacelab-cook-fournier/kunsthaus-graz/

⁴³ archrecord.construction.com/projects/bts/archives/museums/0401_kunsthaus/overview.asp



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	6/10
	Integration	✓	
	Contribution	×	
Massing	Form	×	8/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	×	4/10
	Proportion	×	
	Rhythm	×	
Materials	Traditional /10/		8/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		3/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		58/100 Compatible

Fig.38: Evaluation of The Ara Pacis Museum

- **Ara Pacis Museum,
Rome 1995 – 2006, Richard Meier**

Celant describes Meier in the introduction of his book, (Celant, 2006):

“[...] the architect who allows monuments and things to speak. He permits them to engage in a monologue, without inventing a mask that conceals them. Instead he prepares a neutral place, where the profound beauty of ancient and modern history is offered as public energy. For Meier, architecture is a necessary process for revealing the contents and meanings of history. But he designs with the awareness that he is offering a method, not a response [...]”

His project **“The Ara Pacis Museum”** made a huge controversy a few years ago, possibly because it was the first contemporary building in the city. Only two years after it was finished in 2006 it was threatened to be dismantled and re-erected in the suburbs by the new Mayor as **Owen** explains, (Owen, 2008):

“The white marble, glass and steel structure housing the Ara Pacis [...] is regarded by some architectural experts as a masterpiece. Others, however, find it hideous, with some critics dismissing it as being “like a suburban swimming pool or a giant petrol station”.

There is no doubt that Meier is known for his prominent use of the colour white in his buildings, and that didn’t change even in places that cherish traditional materials. **Ouroussoff** might be one of the first to criticize this building, calling it an arrogant failure, (Ouroussoff, 2006):

“[...] the building is a flop is therefore a major disappointment [...] in its relationship to the glories of the city around it, the building is as clueless as its Fascist predecessors [...]. Mr. Meier’s building is a contemporary expression of what can happen when an architect fetishizes his own style out of a sense of self-aggrandizement.

Absurdly over scale, it seems indifferent to the naked beauty of the dense and richly textured city around it. That kind of insensitivity tends to reinforce the cliché that all contemporary architecture is an expression of an architect’s

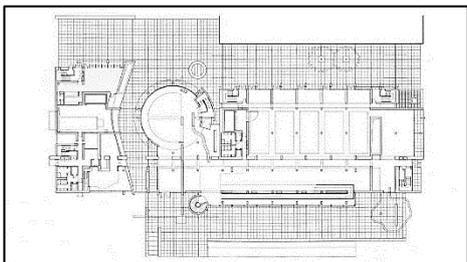
self-importance. The building is bound to give ammunition to architectural conservatives who clamour that there is no room for bold new architecture in the eternal city.”

Despite that the building has a reasonable shape, it “*was designed to be permeable and transparent in the midst of an urban environment*” and “*The materials [of white plaster and stone] were chosen with a view to integrating the building with its surroundings*”.⁴⁴

But it didn’t satisfy the roman community, they were shocked of a massive longitudinal glass building in the middle of the street, just next to the ancient mausoleum of Augustus and in front of the neoclassical church. **Owen** tells the story, (Owen, 2008): “*Gianni Alemanno [Mayor] [...] said bluntly that “Meier's building is a construction to be scrapped” [...] He said the building [...] was “invasive”, a “disfigurement in the heart of Rome” and “an act of intellectual arrogance against the citizens of Rome”.*”

Despite that this project is considered **compatible** and ‘**modern**’ like other Meier’s projects, it was not very appreciated by the community. This example of community rejection emphasizes the importance of communication, to support the new design and guarantee its sustainability.

⁴⁴ en.arapacis.it/sede/il_progetto_meier



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	8/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	×	4/10
	Proportion	×	
	Rhythm	×	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		3/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		58/100 Compatible

Fig.39: Evaluation of Barcelona Museum of Contemporary Art

- **Barcelona Museum of Contemporary Art,
Barcelona 1987 – 1995, Richard Meier**

Contextually responsive in its scale and orientation, this museum plays a key role in restructuring the Gothic district of Barcelona. Cladded in white enamelled-steel panels⁴⁵, that reflects the colours of the juxtaposition leading to a sense of harmony.

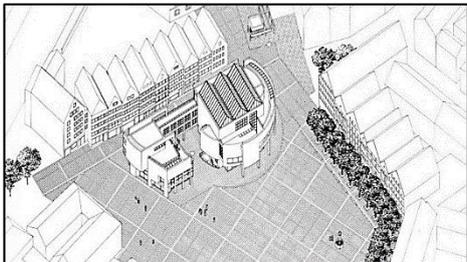
Meier did a comprehensive contextual study *“looking closely at the possibilities offered by the site within this fabric of dense streets characterized by skewed intersections and ancient church domes.”* (Frampton & Rykwert , 1999) And also took into his consideration to find out how to develop and enhance the circulation and pedestrian movement in the area, he explains: *“The compressed, low-scale mixture of commercial, institutional, and residential buildings offered few open spaces for pedestrian activity.”* (Frampton & Rykwert , 1999).

Therefore, he also landscaped the surrounding spaces in order to revive the area with open-space activities, he continues: *“There was no place where people could meet, talk, sit, read, watch children play, or walk their dogs. I wanted to create an open pedestrian plaza in front of the museum that would foster this type of activity.”* (Frampton & Rykwert , 1999).

“I'd like to think the museum can do for this area what the Georges Pompidou Centre in Paris did for the Marais.” (Riding, 1995) That is what **Meier** said at the opening of the museum.

This kind of sensitive design satisfies the community, considering their needs, what they prefer, and the concept of urban regeneration, and also thinking of how a new architectural work in an old district could attract the attention without harming the historic character *“The local news media have christened it “the pearl.” And Mr. Meier, who is 60, considers it one of the more successful projects in his long career.”* (Frampton & Rykwert , 1999)

⁴⁵ richardmeier.com/?projects=barcelona-museum-of-contemporary-art-2



Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	8/10
	Integration	✓	
	Contribution	✓	
Massing	Form	×	8/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	×	6/10
	Proportion	×	
	Rhythm	✓	
Materials	Traditional /10/		4/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		3/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		58/100 Compatible

Fig.40: Evaluation of The Ulm Stadhaus Exhibition & Assembly

Meier made sure that every façade of the museum responds to the opposite neighbouring old façades. Height, scale and form were not odd, he even used a white material but it reflected the surrounding colours, the building responds to its time and place in many aspects which makes it a successful example of new design.

- **Ulm Stadhaus Exhibition & Assembly,
Ulm, Germany 1986 – 1993, Richard Meier**

The Ulm cathedral has an essential meaning to the city, having the highest church spire of the whole of Christianity. Therefore, it had the required attention to be preserved as a symbol of the city. The cathedral was meant to be the only dominating building on the square and in order to enhance the overall appearance of the Minster Square the 13th century monastery had to be demolished. However, and for the following 100 years, there was a sense of need for a building that could possibly enter a dialogue with the Ulm Minster, which now sat almost forlorn on the spacious square. After a number of failed attempts, Ulm organized yet another architecture competition in 1986, the jury selected the design by New York architect Richard Meier.⁴⁶

Disregarding the storm protest against this **‘modern’** building that failed the public referendum the building was conceived as a programmatic and cultural complement to Ulm’s *‘Münsterplatz’* and the historic mass of its cathedral, this *‘Stadthaus’* establishes a modest, secular, civic presence within the main square of the city.

With its striking cylindrical form capped by three prominent roof skylights, the building imparts a decisively civic character to the mainly commercial frontage of the square. The main body of the building derives its form from the geometry of the cathedral and the square.⁴⁷

⁴⁶ stadthaus.ulm.de/stadthaus/das%20stadthaus.92224.htm

⁴⁷ richardmeier.com/?projects=ulm-stadhaus-exhibition-assembly-building

Chapter 5:

Case Study: Museum of
the Syrian Memory

Chapter 5: Case Study: Museum of the Syrian Memory

As mentioned before, the case study is a museum complex in the old city of Aleppo. Therefore an introduction to the Arab architecture in general and the Aleppian architecture in particular is necessary to understand the circumstances that formed the morphological characteristics of the case study.

5.1. Evolution of Arab architecture

First of all, we must differentiate between two terms: The ‘Arab’ world and the ‘Muslim’ world. The word Arab refers to the inhabitants of the Arabic Peninsula, where the Arabic language was born, then spread with the Islamic Conquests to be later the dominant language in the Arab world that extends from the Atlantic Ocean to the Arabic Gulf⁴⁸. While the Muslim world covers all the countries that considers Islam their religion which are about 50 countries. Therefore, the difference is that the term ‘Arab’ refers to culture, history, geography, and language while ‘Muslim’ only indicates the religion.

In this part of the research the geographical limits are within the Arab world, including the Levant⁴⁹, the Gulf countries⁵⁰, Iraq and Egypt. But first of all, let’s see the common characteristics of the ancient architecture of these countries which is the Islamic architecture.

⁴⁸ The Arab World consists of 22 countries in the Middle East and North Africa: Algeria, Bahrain, the Comoros Islands, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates, and Yemen.

⁴⁹ The Levant includes Syria, Lebanon, Palestine and Jordan.

⁵⁰ The Arab Gulf countries are Kuwait, Bahrain, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE).

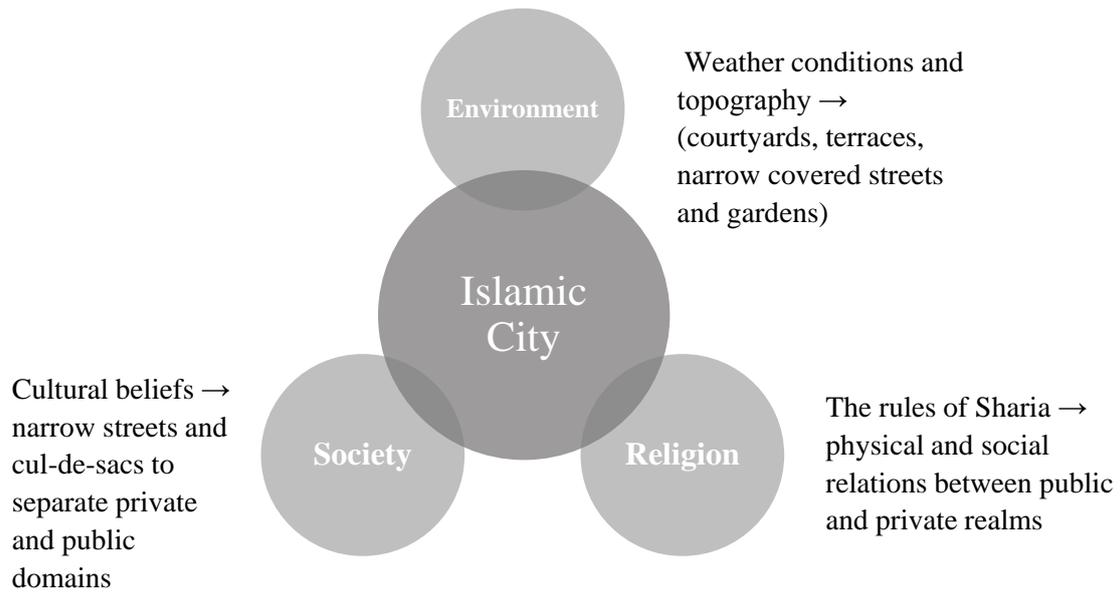


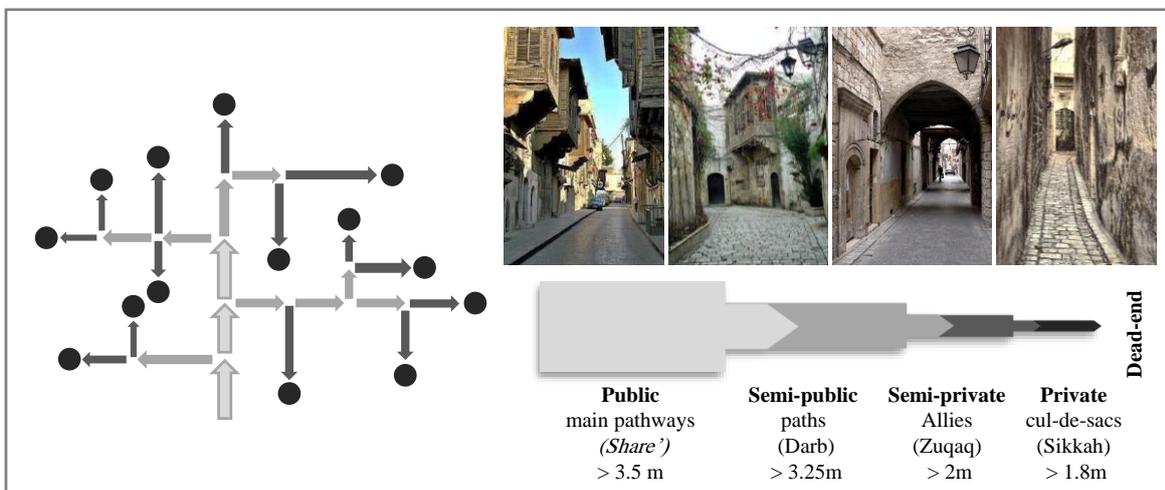
Fig.41: The formative factors of the Islamic city



Areas served by cul-de-sac in the urban fabric of the old city



Solid/ Void study of the urban fabric of the old city of Aleppo



Hierarchy of spaces and roads

Fig.42: Urban characteristics of the Islamic city

5.1.1. Characteristics of the Islamic city

The Islamic city in its concept is basically the same everywhere, based on three fundamental factors, (Saoud, 2002), (See Fig. 41):

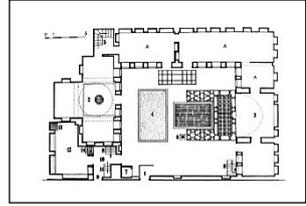
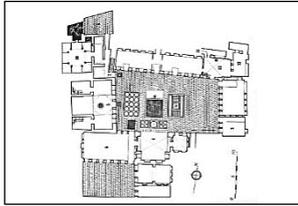
- **The geographic factor:** including weather conditions and topography. This aspect had introduced courtyards, terraces, narrow covered streets and gardens. Such elements were designed for coping with the hot weather conditions.
- **The social factor:** due to cultural beliefs, the town plan consisted of narrow streets and cul-de-sacs⁵¹ to separate private and public domains, while the land use emphasized the separation of men and women.
- **The religious factor:** The Muslim city also reflected the rules of 'Sharia'⁵² in terms of physical and social relations between public and private realms, and between neighbours and social groups.

When we study the visual image of the Islamic city, we always notice four morphological features (See Fig. 42):

- **A compact urban form:** that is a response to a hot climate, and to the social preference of privacy.
- **Scattered systematic courtyards:** the urban fabric in Islamic cities is organic of irregular-shaped buildings. On the contrary, the courtyard is always in a regular geometric shape. Because it is the first to be planned then the other rooms are arranged around it.
- **Absence of central squares:** replaced by widening paths and allies at some point as a place of gathering and commercial purposes.
- **Organic tree-shaped street pattern.**

⁵¹ Cul-de-sac: a street or passage closed at one end.

⁵² Sharia: Islamic canonical law based on the teachings of the Koran and the traditions of the Prophet.



Ghazaleh House, 17th century, Djdayde neighbourhood

Bassil House, 18th century, Djdayde neighbourhood

Fig.43: Architectural characteristics of the Islamic city



Al Adeeyat Archaeological Society - Aleppo



Fernando de Aranda ,Hijaz Railway Station, Damascus 1913-17



Qasis Hospital, Aleppo 1916



Baron Hotel, Aleppo 1909



Fernando de Aranda , Al-Abed Building, Damascus 1906



The Syrian Parliament, Damascus 1929/1932



Fernando de Aranda , University of Damascus,1923

Fig.44: The Colonial style in Syria

Also, in Islamic cities we usually encounter an urban structure that consists of religious, commercial, and political centres, residential quarters, and a street network that is characterized by being hierarchical, consisting of public, semi-public, semi-private and private streets, depending on the needed amount of privacy in the space they lead to (Saoud, 2002), (Al-Deeb & Shwaieh, 2009).

In addition to the urban characteristics, the Islamic architecture is rich with distinctive features, like **courtyards** that play an important climatic and social role, the **human scale**, **flexibility** and the possibility of horizontal expansion, the **organic form**, and providing the essential **environmental** conditions by increasing wall thickness and height, and using salient shapes, bay windows, corridors and wind catchers (OAA & ESA, 2006). The attached figures are examples of Arabic houses in Aleppo (See Fig. 43).

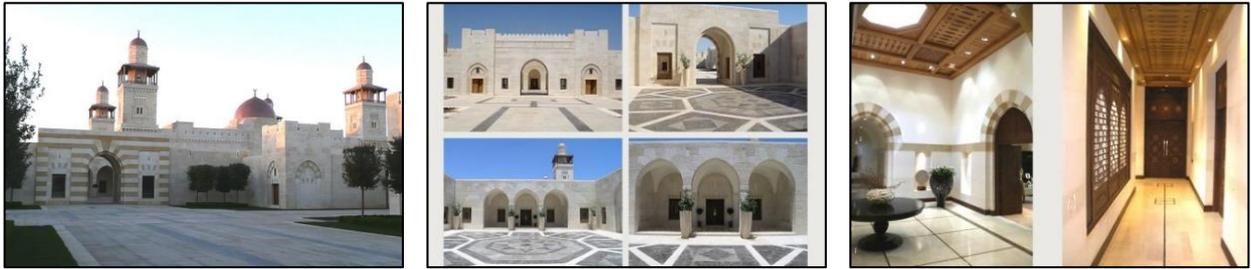
5.1.2. Arab Architecture in the 20th century

Architecture in the Islamic World underwent a series of major shifts in the last two centuries, which is, significantly, the period of Western colonial dominance and its aftermath (Rabbat, 2012). During **the Colonialism stage** Arab countries were affected by foreign colonial campaigns (Ottoman, French, English ...) that led to form a neo-classical style called the Colonial style with classical columns, pediments, elegant entrance stairways, cornices and other elements from Renaissance, Baroque, Rococo styles. Windows were transformed, courtyards was replaced with backyards, the number of storeys had increased, and balconies were added (See Fig. 44).

Change was not only in architectural style, foreign architects and planners were commissioned to design important urban projects in many historic centres around the Arab world that led to drastic changes in the traditional



King Hussein Bin Talal Mosque, Amman 2005



The Royal Hashemite Court, Amman 2007



Private Residence, Amman 1999



Private Residence, Riyadh 1995



The Cultural Souk, Abu Dhabi 2011

Fig.45: Selected works of Architect Khaled Azzam

urban fabric that did not respect its identity and spirit as we will see in the old city of Aleppo as well.

The Colonialism stage was then followed by **the Nationalism stage** by the middle of the 20th century as stated by Rabbat: National independence movements brought with them the more vocal and more aggressive categories of modernity, nationalism, and, later, socialism to represent the architecture of the recently established states... It also generated extensive debates about regionalism and vernacular architecture as authentic illustration of the nation's spirit, which produced idealistic villages, residential suburbs and community centres, in addition to villas for the artistically minded nationalist elites. This progressive stage, however, was succeeded and somewhat supplanted by the no less passionate discourse on religion as framer of identity that sprang forth in the 1980s (Rabbat, 2012). That period is called **the Islamism stage**.

An indirect consequence to this ideological twist was that most new architecture built in the Islamic world after 1980, though still following some international standards of form and function, began to pay homage to some notion of 'Islamic architecture,' even if sometimes only in the form of pastiche. This last stage, which we are still going through, runs the risk of completing a conceptual cycle of sorts and returning us to where we started, i.e., a narrowly defined, historically predetermined, and formally homogenized 'Islamic architecture' (Rabbat, 2012).



Villa Handal, Amman 1975-1977



Grand Mosque, (Qasr Al Hukm) Riyadh 1992



Justice Palace Riyadh, 1989

Selected works of Architect Rasem Badran



SOS Children's Village, Jordan 1991



Amman City Hall, Amman 1994 - 1996



Kazimi Residence, Amman, 1984

Selected works of Architect Jafar Tukan



Villa Hamood, Baghdad 1970-1972



Offices and Tobacco Warehouses, Baghdad 1974



Rafidain Bank, Mansour Branch, Baghdad 1969

Selected works of Architect Rifat Chadirji



Nassif house, Jiddah 1973



Akil Sami House, Dahshur, Egypt 1950



New Gournia Village, Luxor 1946-1952

Selected works of Architect Hassan Fathy

Fig.46: Selected works of famous Arab Architects

5.1.3. Tradition versus modernity

Islamic countries now realize and acknowledge the need to preserve their culture against rapid change. To keep specific historic environments alive is, therefore, regarded as protection against the loss of national identity and as a means of establishing an organic link between past, present and future (Bianca, 1980). At that stage local architects felt the need to imply the identity somehow in their modern designs. Therefore, many architectural approaches have emerged, these approaches were categorized by many references, with differences of terms they all fall under one of these three:

1) **Historicism, historical revival, and historic eclecticism**

A traditional approach where the architectural output has an overwhelming reference to the traditional/regional components and eclecticism is allowed “*to establish a sense of belonging*” (Salama, 1999).

This approach unfortunately reveals little understanding of the past, and primarily looks at it as a catalogue of images that may be borrowed, mixed, matched, and mutated at will, as long as they evoke, even if only vaguely, the idea of a certain bygone era (Al-Asad, 2012).

There are other more valid approaches, however, that borrow motifs from the past in a consciously literal, and also rather restrained, selective, and even academic manner, and are combined to create new arrangements. These different motifs also are brought together into a rather harmonious whole through applying unifying overlays of materials, colours, and scale (Al-Asad, 2012). An example of historicist architects is the Egyptian-born British architect Khaled Azzam⁵³ (See Fig. 45).

⁵³ Dr Khaled Omar Azzam is the Director of The Prince’s School of Traditional Arts in London. He is an architect by training and maintains his practice through offices in Cairo and Jeddah.



Farouk Al Gohary, Ministry of Finance, Nasr City, 1996



Ahmed Mito, The Supreme Court of Egypt, Cairo, 1999



Abdel Halim Ibrahim, The Nile Gallery, Cairo, 1997



Issam Hafez, Headquarters of Faisal Bank of Cairo, 2000



Farouk Al-Gohary, Oriental Weavers, Cairo, 1994



Rami El Dahan & Soheir Farid, Serena Resort, Luxor, 1994



Ashraf Sabry, Khan Al Azizia, Cairo/Alexandria Road, 1999



Tamer A. Elgabaly, FUE Future university, Cairo 2006



Abdurrahman Abdelhalim, Cultural Park, Egypt 1990



Mahmoud El-hakim, Nubian Museum, Egypt 1997



Abdel-Wahed El-Wakil, Halawa house, Egypt 1975



Solaiman A. El Khereiji (SAK), Okaz Press Complex, Jeddah



Dar al-Omran/Waelal-Masri, Al-Dalaliyyah Houses, Kuwait 2003



The Architect's Collaborative, Basrah Sheraton Hotel, 1981

Fig.47: Selected works of contemporary Arab architects

2) Regionalized modernism and modernized regionalism

“Where globalization and regionalization are regarded as inseparable” (Salama, 1999). This approach includes a certain amount of references to the local/regional heritage, it is considered as a developed Islamic Architecture.

A “hybrid” architecture that consciously juxtaposes distinctly traditional and modernist elements rather than aiming at forcing a synthesis between the two. This is evident in his combining of traditionally inspired domes, window openings, and arcades along with exposed steel trusses and air-conditioning ducts (Al-Asad, 2012).

Another common direction, which has been particularly predominant in residential architecture, involves searching for inspiration in the region’s vernacular architectural traditions (Al-Asad, 2012). Some of the more interesting examples of this design direction were pioneered by Rasem Badran⁵⁴, Jafar Tukan⁵⁵, Rifat Chadirji⁵⁶ and Hassan Fathy⁵⁷ (See Fig. 46).

⁵⁴ **Rasem Badran** is a Jordanian architect whose works are based on a methodological approach in defining Architecture as a continuous dialogue between contemporary needs and historical inherited cultural values. Badran received his school education in the nearby town of Ramallah and later in Germany where he graduated in Architecture in 1970. Following his graduation, he worked in Germany for two years and then returned to Jordan in 1973 where he has since been practising. In 1995, Badran was a recipient of the Aga Khan Award for Architecture for the Great Mosque of Riyadh and the Redevelopment of the Old City Centre.

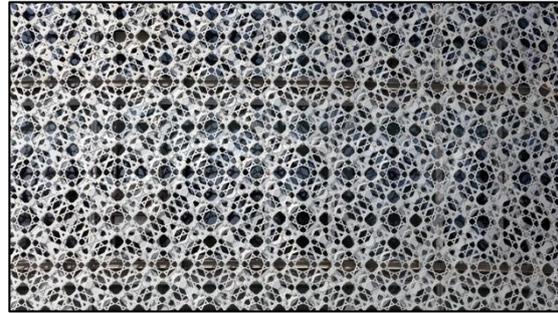
⁵⁵ The late Jordanian architect **Jafar Tukan** was born in Jerusalem in 1938, and went to school at al-Najah National College in Nablus before joining the American University in Beirut (AUB) in 1955, graduating in 1960. His work extended to include nearly all aspects of architecture and planning. He designed a number of important projects in Jordan and also in other countries including Lebanon, Palestine, and the United Arab Emirates, and his designs are widely recognized in Jordan and the Middle East. He collaborated with internationally-recognized architects and architectural offices such as Kenzo Tange, with whom he worked during the late 1970s and early 1980s on the design of the Jordan University for Science and Technology campus in Irbid.

⁵⁶ **Rifat Chadirji** is an architect who has imbued his work with a deep understanding of the roots of authentic regional expression, as well as a true appreciation of modernism and its principles. Chadirji has shown a unique capacity for the synthesis of form and function that translates traditional architectural idioms into contemporary expressions. In 2015, Chadirji was awarded the Tamayouz Architectural Lifetime Achievement Award, an award that celebrates the pioneers of Iraqi architecture and is "presented annually to an individual who has had a significant contribution towards the advancement of architecture in Iraq."

⁵⁷ **Hassan Fathy** was an Egyptian architect, artist, and poet who had a tremendous impact on generations of architects and planners. In his lifetime he designed more than thirty projects including several villages for the poor. Experimental and unorthodox as his ideas were, more than two-thirds of his projects were either partially or completely realised. Still in use, and well cared for, are a series of modest private residences shaped by his profound understanding of vernacular design.



WS Atkins ,Burj Al Arab, Dubai 1999



Jean Nouvel, Doha Tower, Doha , 2012



Jean Nouvel, Louvre Abu Dhabi, Saadiyat Island, Abu Dhabi, 2009



Rem Koolhaas, Ras Al Khaimah's Eco City, 2008



Foster + Partners, Abu Dhabi's Central Market, 2008-2014

Fig.48: International architects' works in the Arab gulf countries – Part 1

3) Other uncategorized approaches:

This line represents the practice that follows the recent universal styles of architecture, with no interest in incorporating any regional or traditional elements or lines.

There are many examples that delineate eclecticism, but this time they, consciously or unconsciously, employ copying from Western contemporary or classical images (Salama, 1999).

Another trend is avoiding the use of any reference whether historic or contemporary, local or western. This trend can be named basic design exercises in building façades. In this respect, one can argue that this attitude is based only on the creative impulses and intrinsic feelings of the architect without giving any attention to the extrinsic influences exemplified by historic, cultural, and environmental concerns (Salama, 1999).

What has emerged instead in the region is an architecture that clearly situates itself within the boundaries of today's dominant international architectural vocabularies. It no longer seeks to establish an independent regional identity that is rooted in a pre-modern Islamic past. It instead seeks to find a position within the parameters of a globalized world, in which vocabularies including those of De-constructivist and High-Tech architecture, as well as reincarnations of the mid-twentieth-century steel and glass block are currently in vogue (Al-Asad, 2012).

In the attached figure are a collection of various examples of Contemporary Arab architects around the Arab world (See Fig. 47).



SRSSA, Four Seasons Hotel, West Bay, Doha
2001-2005



Francis Gambert, American University of Sharjah,
1997



WATG, Royal Opera House, Muscat, Oman
2007-2011



Foster + Partners, Masdar Institute, Abu Dhabi,
2010



WATG, Four Seasons Resort Dubai, Dubai
2014



John Elliott/ WATG, Emirates Palace, Abu
Dhabi 2005



WATG, Atlantis Hotel, Dubai, UAE 2008



Creative Kingdom/DSA, Madinat Jumeirah, Dubai
2004

Fig.49: International architects' works in the Arab gulf countries – Part 2

On the other hand, there were some interesting approaches delivered by the international architects that were commissioned to build in the Arab countries, including Foster, Gehry, Hadid, Koolhaas, Nouvel, I. M. Pei, and others... These foreign architects had followed different approaches to respond to tradition as described by Amale Andraos⁵⁸, (See Fig. 48 and 49):

- **Metaphor:** as seen in **Burj Al-Arab** where the shape of the tower looks like the sailboats that are common in the area, while its internal architecture is rich with Islamic elements and patterns.

Also in **Doha Tower** which is sheathed by an aluminium layer of interlaced patterns inspired by historical Islamic decorative motifs. This not only aims at connecting the building to its Islamic context but also serves as the outer membrane of a multilayer cladding system developed to minimize the effects of the hot Gulf sun (Al-Asad, 2012).

- **Typology:** as seen in **Louvre Abu Dhabi Museum**, where the museum took the shape of the urban fabric of an Islamic city as a contemporary interpretation of Islamic architecture's domes as beautifully rendered by Jean Nouvel.
- **The meeting of green technology and the traditional Islamic city:** such as Koolhaas's **Ras Al-Khaimah's Eco-city**.
- **The application of variant signifiers:** best embodied by the use of Islamic patterns seen in **Abu Dhabi's Central Market**.

⁵⁸ Amale Andraos, dean of Columbia University and the organizer of the conference: "*Architecture and Representation: The Arab City*", that took place in 21/11/2014, with the participation of many international architects and scholars, later published by Columbia University as a book with the same title.



Damascus Opera House, 2004



Ministry of External Affairs and Foreigners, Damascus 2006



Real Estate Bank of Syria, Damascus 1966



Central Bank of Syria, Damascus 1956



UAE Embassy, Damascus



Shahba Mall, Aleppo 2008



Al Rahman Mosque, Aleppo 1978



Sheraton Damascus Hotel 1978



Aleppo City Hall 2008



Sama city, Aleppo (partially built)



Sama city's trading centre, Aleppo (not built)



Four Seasons Hotel Damascus 2006



Al-Assad National Library, Damascus 1984

Fig.50: Contemporary architecture in Syria

We must clear out that all these examples of local and international architects that we have mentioned are for new buildings in a non-historical context. They try to find identity in a modern world by forcing tradition on new buildings. Other than that, any new work in an historical environment, and specially in world heritage centres, is subjected to strict regulations that prefer a replicating, undistinguishable approach, that works of that kind are hard to find and pointless to discuss.

In the same manner that a duality exists between the work of foreign and local architects practicing in the region, a related duality is that between the architecture of the Gulf countries and the region's other countries (Al-Asad, 2012). The architectural development in the Arab world is not at the same level in all its countries, the reasons is the instability of cultural, political, and economic factors. Lebanon was suffering from a civil war, the Arab-Israeli conflict had affected the Levant and Egypt, and on the contrary the Gulf country had witnessed a construction boom due to the oil discovery that completely transformed the deserts of Dubai into an architectural realm.

On the other hand, architecture in Syria did not have the chance to develop mainly because the unstable political situation since its independence in 1946, the public budget always went to the most necessary projects of infrastructure, schools, hospitals, universities and other public buildings. All projects were commissioned to local architects except of a rare few. The centre of attention was Damascus and the coastal cities to build new projects while Aleppo was somehow neglected until the beginning of the 21th century when international companies like Agha Khan and GTZ started to rehabilitate the Old city, as we will see later, and other companies that invested in major projects like Shahba Mall, opening Aleppo-Gaziantep commercial axis, planning new luxurious residential compounds, unfortunately everything has stopped now with the war (See Fig. 50).



Jean-François Bodin, Arab Museum of Modern Art, Qatar, 2010



Jeoh Ming Pei (I.M.P), Museum of Islamic Art, Doha 2008



Moriyama & Teshima Architects, National Museum of KSA, Riyadh 1999



Zaha Hadid ,Performing Arts Centre, Saadiyat Island, Abu Dhabi, 2007



Frank Gehry, Guggenheim Abu Dhabi, Saadiyat Island, Abu Dhabi, 2007



Jean Nouvel, Louvre Abu Dhabi, Saadiyat Island, Abu Dhabi, 2009

Fig.51: Contemporary museums in the Arab Gulf



National Museum of Damascus 1919/1936/1979



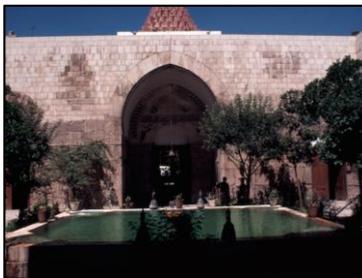
National Museum of Aleppo 1931/1966



Permanent exhibition of Aleppo history, Al-Shibani Church 12-19th century/ 2006



Museum of Arts and Traditions, Azm Palace, Damascus 1750/1945-1961



Museum of Medicine and Science in the Arab World, Damascus 1154/ 1975



Al-Raqqah Museum, Al-Raqqah 1981

Fig.52: Museums in Syria

A few remarks should be made about museums specifically. There obviously is a need for them, and there still is room for more of them in the region. The region's material heritage is very rich, particularly in the Levant and western Arabia. National museums that house impressive local historical collections had been established in Jordan, Lebanon, and Syria during the mid-twentieth century, when they were under British and French domination. Now a new ambitious wave of museum construction is under way, but is mainly concentrated in the rich countries of the Gulf, where museology is a less-established field and has considerable room for growth (Al-Asad, 2012).

The phenomenon of reusing archaeological buildings as museums in Arab world had spread vastly and continuously to attract the tourist and the visitor at the same time, and because this experiment was successful to protect the building (Hazzar & Daboura, 1997). That is why we have various examples of museums that are held in adapted historic buildings (See Fig. 51).

In Syria there is a limited number of museums, they are as listed by The Directorate-General of Antiquities and Museums: The two **National Museums** in Damascus and Aleppo, the **regional museums** within the governorates (Rif Dimashq, (Derattiyh), Homs, Hamah, Idlib, Ar-Raqqa, Deir ez-Zor, Al-Hasakah, Daraa, As-Suwayda, Tartus, Lattakia, Palmyra, and Quneitra), **Museums of Archaeological sites** (Ja'bar castle, Arwad Island, Maarrat al-Nu'man, Apamea, Bosra, Shahba, and Ugarit), **Folk traditions Museums** (Damascus, Aleppo, Homs, Hamah, Idlib, Ar-Raqqa, Deir ez-Zor, Al-Hasakah, Daraa, As-Suwayda, Tartus, Lattakia, Palmyra, Quneitra, and Bosra), in addition to **speciality museums** (The Historical Museum of Damascus, Museum of Medicine and Science in the Arab World, Calligraphy Museum of Damascus)⁵⁹ (See Fig. 52). Most of these museums are held in historic buildings. Therefore, and because of the small number of museums that does not correspond to the massive number of the existing antiquities, there is a need to build new museums in Syria.

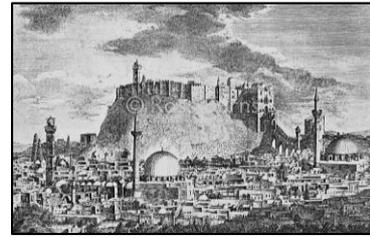
⁵⁹ dgam.gov.sy/index.php?m=309 (Translated)



The Citadel of Aleppo



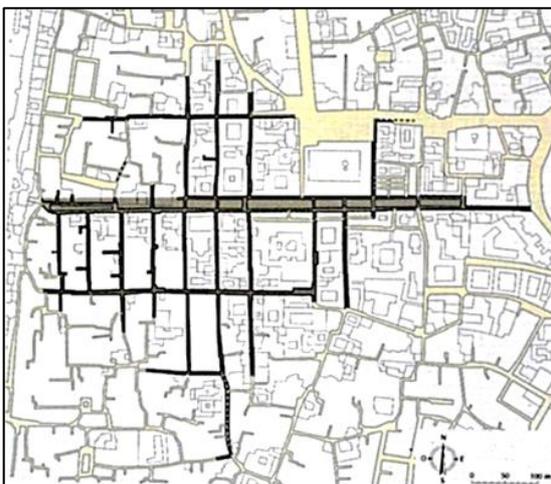
Umayyad Mosque



Drummond 1754



The old city of Aleppo



The grid planning of Hippodamus of the 4th century B.C.



The commercial centre (Agora)

Fig.53: The old city of Aleppo

5.2. Introducing the Old city of Aleppo, Syria

Aleppo is the commercial capital and the second city after the capital city of Syria Damascus, and one of the oldest continually inhabited towns on the planet (approx. 13.000 years). For centuries, Aleppo held its place among the most important cultural and commercial centres of the Middle East where it was a focal point on the Silk Road⁶⁰, and recently in 2006 it won the title of the "Islamic Capital of Culture 2006".

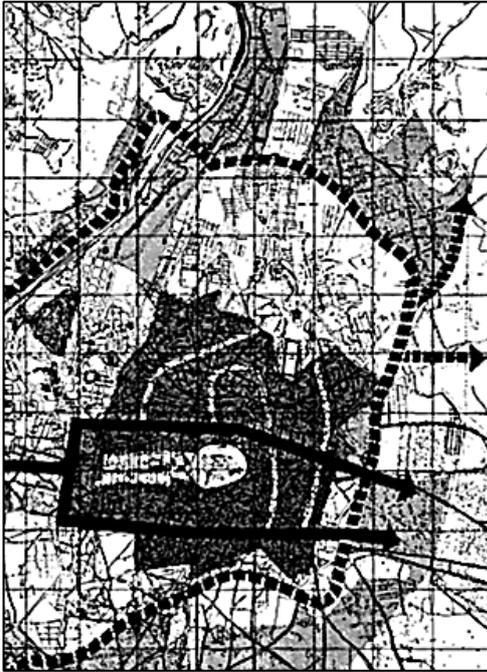
Due to the relatively good preservation of its fabric and its monuments, Aleppo is considered as one of the most significant historic towns of the Islamic world (The author described the situation in 1980). The old city of Aleppo is located in the centre of the city, it has a total length of about 750 meters, and a width of 300 meters. With an area of (3.5 km²) housing more than 120,000 residents (Bianca, 1980). The city souks follow the grid planning of Hippodamus⁶¹ of the 4th century B.C., the Great Umayyad Mosque occupies the former space of the Agora, and the Citadel of Aleppo rises majestically from the centre of the Old City, is one of the most remarkable examples of military architecture in the Middle East, and certainly one of the most ancient (approx. 5.000 years) (Gonnella, 2008) (See Fig. 53).

In 1954, a new master plan was put by the French architect André Gutton⁶², suggesting that the old fabric should be crossed by two large road channels in the west-east direction ("from the sea to the desert"). Inside the walls, the Medina was to be separated from the surrounding urban fabric by an interior ring road in order to give direct vehicular access to the khans and souks (Bianca, 1980).

⁶⁰ **The Silk Road** or Silk Route was an ancient network of trade routes that were central to cultural interaction through regions of the Asian continent connecting the West and East from China to the Mediterranean Sea.

⁶¹ **Hippodamus of Miletus** (498 – 408 BC), was an ancient Greek architect, urban planner, physician, mathematician, meteorologist and philosopher and is considered to be the "father" of urban planning, the namesake of Hippodamian plan of city layouts (grid plan).

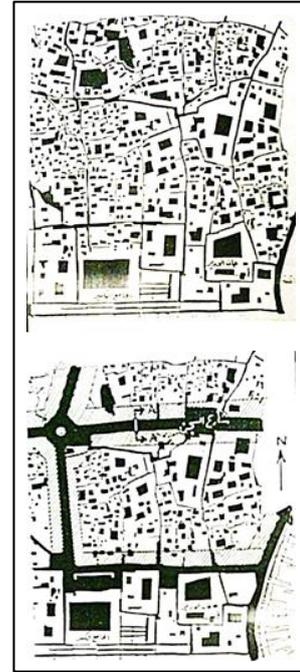
⁶² **André Gutton** (1904 – 2002) was a French architect. He was employed in Aleppo in which he redesigned part of the city and in 1952 had a number of roads widened to allow easier passage for modern traffic.



André Gutton 1954



Gyoji Banshoya 1969



The urban fabric before & after



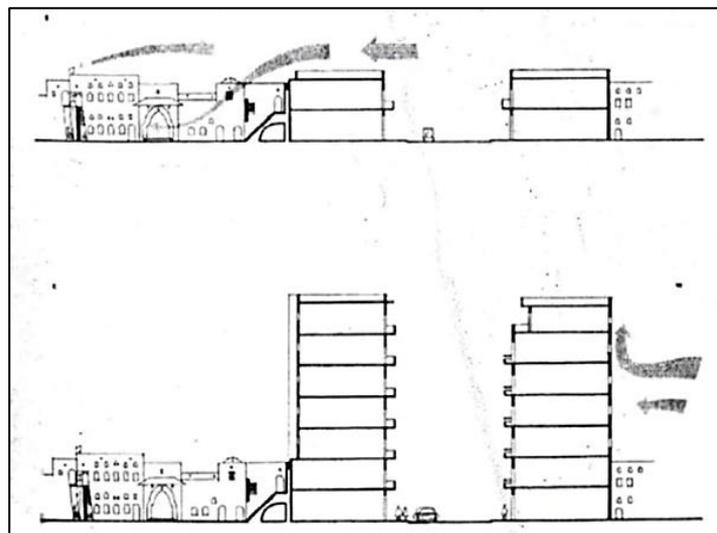
Historical neighbourhoods that were destroyed in 1979 in the area of Bab al-Faraj



Bab al-Faraj new multi-story administrative buildings



Al-Amir Hotel, an example of a fail intervention



Invading the privacy of the traditional houses, and blocking the sun and wind

Fig.54: Interventions in the Old City of Aleppo

The isolation of the historic commercial centre corresponded to the idea of “dégager pour mettre en valeur”⁶³, the idea of "exposing" a monument to spectators. This concept, however, contradicts the character of Islamic architecture. Fortunately enough, only part of the Gutton Master plan was executed. However, its basic approach and its spirit have been reflected in all the projects and proposals of the Municipality in the last 25 years (according to the reference time). Even the new master plan by Gyoji Banshoya in 1969, did not change the basic guidelines of Gutton's project (Bianca, 1980).

Important portions of both plans were executed between 1954 and 1975, causing the total destruction of 42 hectares of the historic fabric and the encirclement and deterioration of even larger areas (Qudsi, 1984).

These interventions tore the organic fabric of the old city, not only by destroying the inhabited houses to widen these streets, but also by the adopted urban system that included building high structures on these streets that murdered the privacy of the neighbouring two-storey houses behind them, that's why they were abandoned (Hajjar, 2011) (See Fig. 54).

The first success of the conservationists was to persuade the Department of Antiquities to register the whole of the old city intra-muros as a national monument, thereby, freezing the execution of the Master Plan (Qudsi, 1984).

As awareness for the need to preserve this unique cultural heritage increased, Gutton's master plan was finally abandoned in 1979 paving the way for UNESCO to declare the Ancient City as a World Heritage Site in 1986. Some building legalization (See Annex.02) were put and developed over the years that have controlled the architectural works and projects. In 1992, several international agencies like GTZ and the AKTC (Aga Khan Trust for Culture) have joined efforts with local authorities, the Municipality of Aleppo and Al Adeeyat Aleppo Archaeological Society, to rehabilitate the old city by accommodating contemporary life while preserving the old one (See Annex.06).

⁶³ Free to highlight, the process of clearing out the surroundings to emphasize the monument.



Al Hattab Square, al Jdayde Quarter



Bab al Faraj square



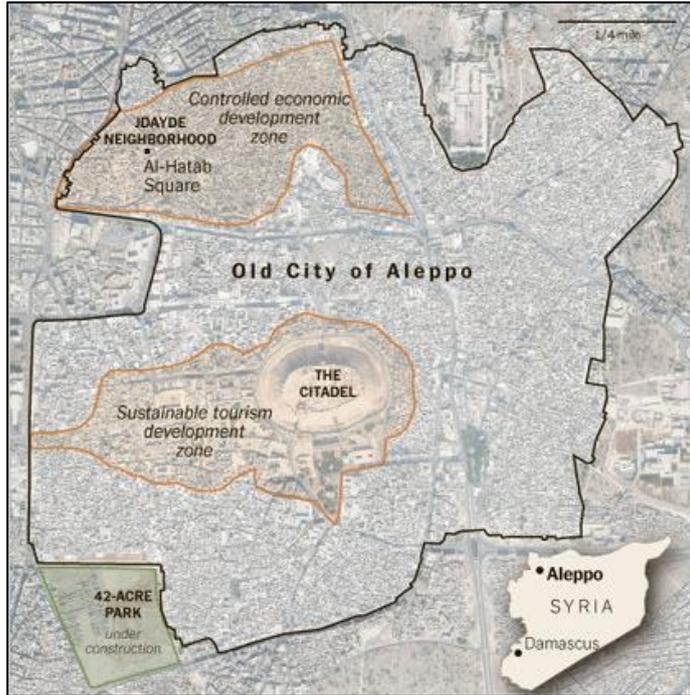
Sheraton Hotel



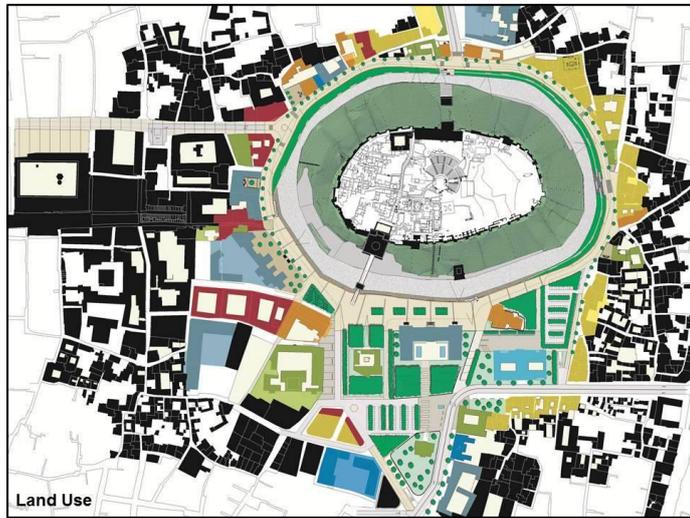
Dar Zamaria Hotel



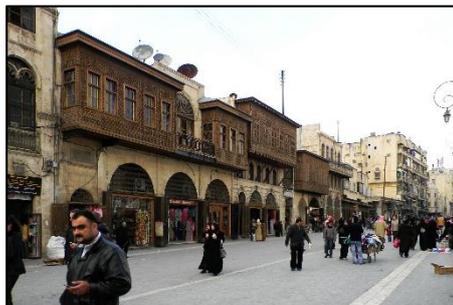
Tilel street



The rehabilitation project of the old city of Aleppo



Rehabilitation of the perimeter of Aleppo Citadel



Souq Al-Madina



Coral Julia Dumna Hotel

Fig.55: Rehabilitation of the Old City of Aleppo

The project encompasses the rebuilding of crumbling streets and the upgrading of city services, the restoration of hundreds of houses in the historic Old City, plans for a 42-acre park in one of the city's poorest neighbourhoods and the near-decade-long restoration of the Citadel itself (Ouroussoff, 2010).

At first sight the plan for Aleppo's rehabilitation may not seem a radical departure from preservation as usual. Led by GTZ, a non-profit organization owned by the German government, it began with a two-year analysis of the city's historic structures that included hundreds of interviews with residents. GTZ and its government partners divided the Old City into zones, with new hotels and restaurants confined to two areas, one around the Citadel and the other in the Jdayde neighbourhood (Ouroussoff, 2010) (See Fig. 55).

There is an on-going need to foster traditional approaches to conservation, restoration, repair and maintenance of building fabric. There is also a need for an overall conservation management plan to include planning rules for heights and density of new developments in specific neighbourhoods, and for policies for the protection of archaeological remains uncovered during infrastructure and development works. There is also a need for an approved buffer zone with appropriate planning constraints.⁶⁴

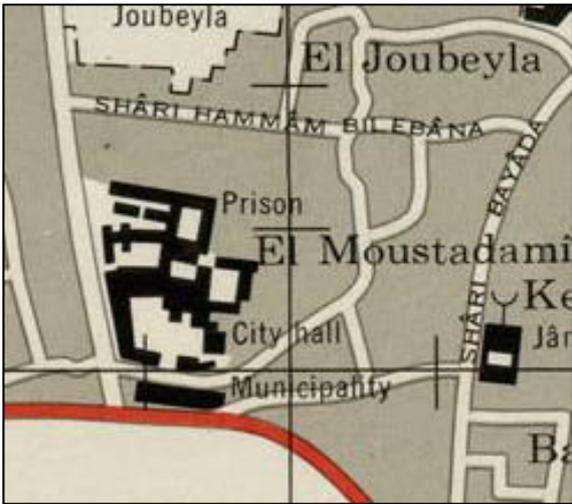
⁶⁴ whc.unesco.org/en/list/21/



The land of the old Prison



Recent photographs of the site



An old map of the site 1958



An old photograph of the site 1898

Fig.56: The site of the Project

5.3. Museum of the Syrian memory

5.3.1. Site

The land of the project is located in the perimeter of the citadel within a historic environment of many eras and architectural styles. It contains the remains of the Sarail of Ismail Pasha /1830/ (destroyed by the execution of Gutton's plan) that was formed by joining a group of houses that date back to the 13th century, (See Fig. 56, 57).

The Sarail of Ismail Pasha (the government) (place of the old demolished prison), was the seat of the governor, Ismail Pasha during the invasion of Aleppo by the Egyptian Ibrahim Basha /1831-140/ (Hajjar, 2011).

Al Gazzi described the building in his book "The Gold River in the History of Aleppo" (Al-Gazzi, 1924): *"It is a vast and enormous building... it contains the departments of property, justice, the house of post and telegraph, the municipal, three prisons, and the court house, then it became the residence of Ottoman governors."*

Some of its façades include inscriptions and beautiful decorations in limestone. It included in its southern part a post and telegraph office and the old prison. There were several projects to invest it but none of them was decided to be executed (Hajjar, 2011).

The site is surrounded by many public buildings with similar architectural styles like: **The old town hall, Al Ifta' House, The Grand Serail, the Strangers' Hospital (Carlton Hotel), the Agricultural Bank (Beroea restaurant), and Yalbugha Public Bath,** (See Fig. 58).

1. The old town hall 1905-1907/1925 (the Immigration and Passport Department previously): Was built between on the north of the citadel slope. A second floor was added in 1925 as inscribed on the marble tablet on top of its façade (Hajjar, 2011).

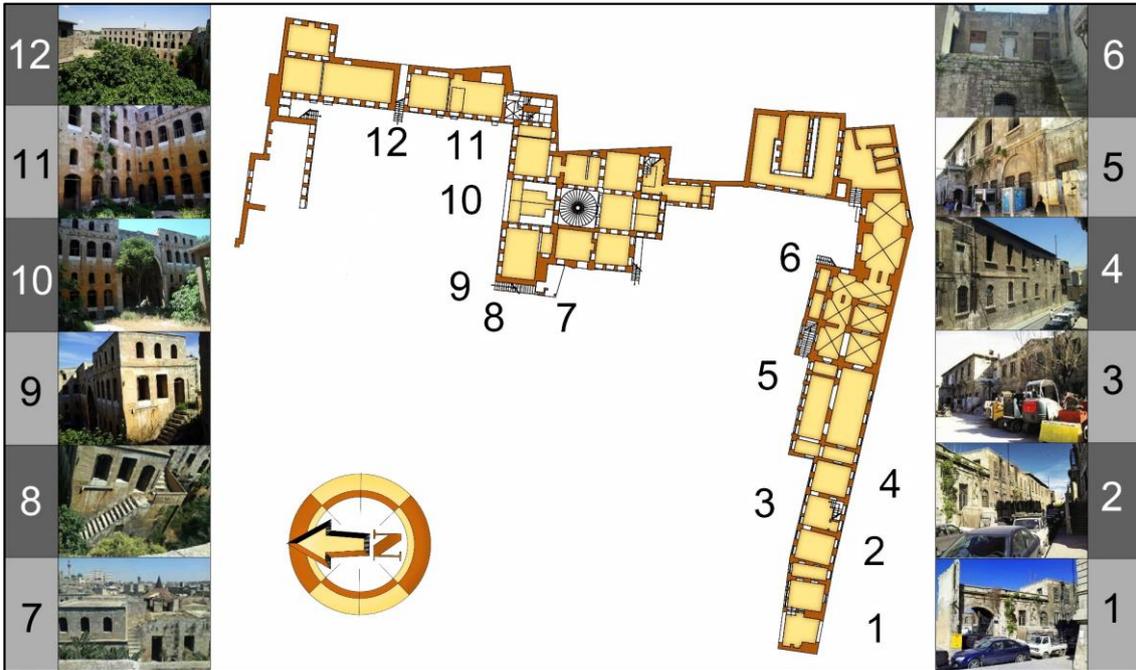


Fig.57: The historical structures of the site



The old town hall, 1925



The Grand Serail, 1936



Beroea restaurant, 1910



Al Ifta' House, 1909



Carlton Hotel, 1897



Yalbugha Public Bath, 1491

Fig.58: Neighbouring buildings of the site

2. Al Ifta' House 1877-1909 (Azzawia Assayadia): Located in front of the Citadel on the eastern part, it includes the Fatwa house and the department of Studies in the Directorate of Religious Endowments in Aleppo, it also includes a mosque and shrine. Was the first European-style building with an entrance of a beautiful spiral turn, built within the walls of the old city. Founded by Sheikh Mohammed Abul Huda Assayadi, who was named the chief supervisor of all the state of Aleppo in 1874 (Hajjar, 2011).

3. The Grand Serail 1927 -1936 (the former government house): Was built to serve as the main government building in the city. Designed by the Syrian-Armenian architect Kegham Akgulian, under the supervision of Kevork Baboyan⁶⁵. The style of its beautiful façade was inspired by the defensive merlons of the opposite citadel. The Sarail is evacuated now after it hosted the headquarters of the governor of Aleppo and the offices of local administration and there is a project to rehabilitate and adapt it into a five-star hotel (Hajjar, 2011).

4. Strangers' Hospital 1891-1897: Was dedicated to strangers and then was adapted into a nursing school. Recently was invested to be a first class touristic hotel (**Carlton Hotel**) (Hajjar, 2011).

5. Agricultural Bank 1910 (now the Beroea restaurant): Located on the north of the citadel in front of the old town hall on its west (Hajjar, 2011).

6. Yalbugha Public Bath 1390/1491: One of the most impressive public baths in Syria, located in the old city of Aleppo just south of the Aleppo Citadel next to the entrance. The baths were originally constructed in the mid-14th century, but were destroyed in 1399 when Timur sacked the city, then restored in 1491 by Seif al-Din Yalbugha al-Nasiri the Mamluk governor of Aleppo. They were again renovated during the Ottoman period.⁶⁶

⁶⁵ en.wikipedia.org/wiki/Grand_Serail_of_Aleppo

⁶⁶ syriaphotoguide.com/home/aleppo-hammam-yalbugha

5.3.2. Project

“The first step in liquidating a people is to erase its memory. Destroy its books, its culture, its history. Then you have somebody write new books, manufacture a new culture, invent a new history. Before long the nation will begin to forget what it is and what it was. The world around it will forget even faster.” -Milan Kundera-

Therefore, there should be a museum that documents the great history of Syria and represents it in an interactive way. Due to the lack of modern museums in Syria as we saw before. The Museum of The Syrian Memory is a local museum. It is also a national, historical, educational, cultural, artistic, aiming and inspiring museum. It targets researches, students, and the public, and attracts tourists for the importance of its historical site, and because it narrates the modern and contemporary history of Syria in an interactive way. It aims to help those who are damaged inside because of the Syrian Crisis, to provide schools' needs, and to reinforce cultural tourism.

The museum includes: **The service section** that includes the entrance, reception hall, stores, lounge, and a cafeteria, **the museum section** that includes a movie theatre, the main halls, the external gallery, and the temporary gallery, **the educational/ research section** that includes main library, documentaries and a lecture hall, and **the administrative section** that includes general management, technical laboratory, mechanical and storage rooms and a shelter, (See Annex.03 for the complete project program, Fig. 57 and Annex.08 for the enlarged project plans).

The museum halls are: **1) Hall of Throne** (the Syrian presidents and flags); **2) Hall of Independence** (from 1916, the Great Syrian Revolution in 1925 until the independence in 1946); **3) Hall of Glory** (the Arab Unity in 1958, the Revolution of 8th of March, the Corrective Movement, and the Liberation War of October); **4) Hall of Devastation** (the Syrian crisis); **5) Hall of Peace** (the Syrian civilization, culture and traditions); **6) Hurricane of Memories** (artistic paintings, and expressive sculptures) **7) Hall of fame** (wax figures of Syrian writers, singers, athletes, poets...).

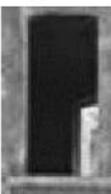
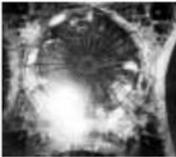
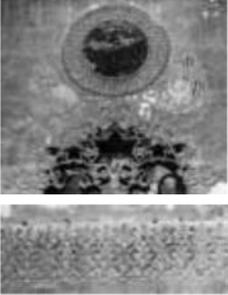
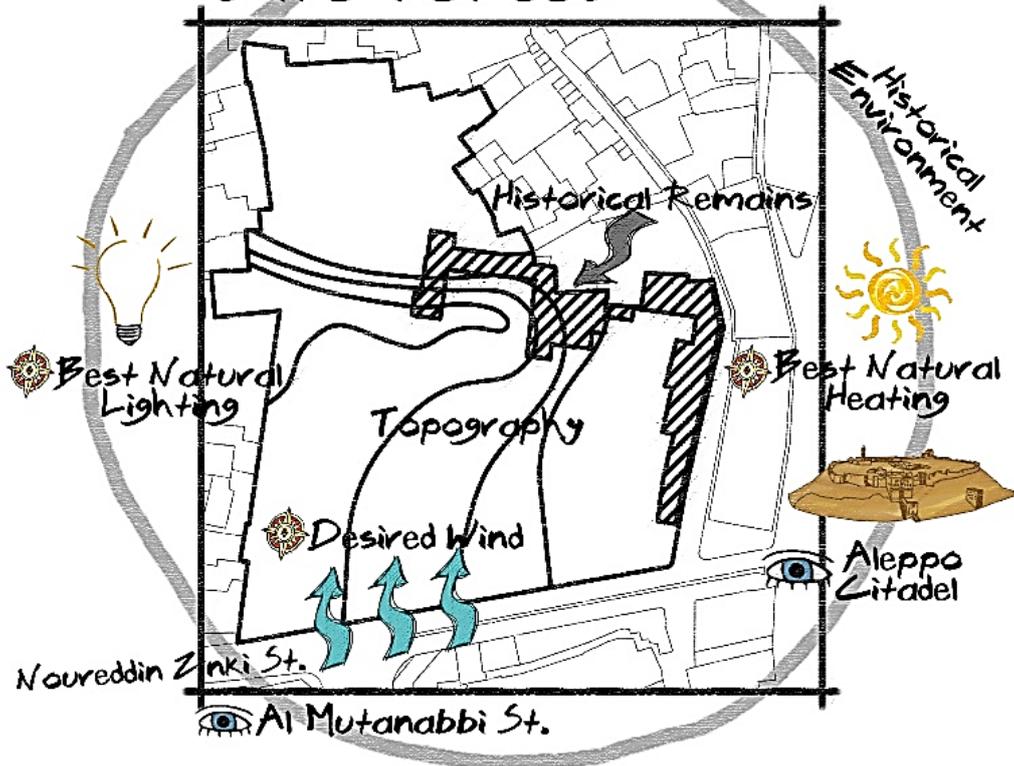
iron 	glass and wood 	yellow stone 	Building materials
with a segmental arch 	with an ogee arch 	rectangular shape 	
Stone-wood cone dome 	wood-brick truss 	flat roof 	roofing
			
fake arches 	basket handle arch 	segmental arch 	
tympanum 	ornaments 	The iwan 	Other elements

Fig.60: Designing elements of the historical structures in the site

Due to the distinctive site of the project in the centre of the old city of Aleppo, the designing process had to follow many steps to achieve a good architectural solution, these steps could be summarised in the following points:

- 1. A complete documentation of the historical structures in the site:** photographs, air shots and plans were collected (See Fig. 57).
- 2. A full analysis of the architectural elements of the original building:** materials, openings, arches, ornaments, and roofing (See Fig. 60).
- 3. A general study of site forces:** the surrounding buildings and streets, topography, sun and wind movement, orientation and views (See Fig. 61).
- 4. A comprehensive look on the urban legalizations of the old city** (See Annex.02).
- 5. A study of set-backs, the entrance point, and the movement around the site** (See Fig. 61, 62).
- 6. Zoning the general sections of the project** considering the old module and the movement around two courtyards (See Fig. 62, 63).
- 7. Dividing zones into smaller architectural spaces,** and distributing functions between the new and the existing spaces.
- 8. Studying the horizontal relationships** between floors and finding the ideal points for that movements.
- 9. Studying heights and roofing** that are compatible with the historical environment (See Fig. 63, 64).
- 10. Studying the façade** that had to be harmonious and to achieve continuity with the surrounding, an eclectic style was used that is a combination between the architectural elements of neighbouring buildings and the contemporary architecture (See Fig. 65).

Site forces



Set-backs:



Fig.61: Project analysis - Part 1

5.3.4. Project analysis

1. Studying Site forces:

Environment: The site is special because it is located in a historical environment, surrounded by old buildings, and, there is The Old Sarail building, that draws its borders on both south and east sides.

Streets and views: The site has a western façade along “Noureddin Zinki” Street, on the axis of The Prison Street (Al Mutanabi Street), also the site has a view of the northern side of the Citadel.

Orientation: Studying the best directions for placing the various functions, for instance, the theatre and the library get their stable lighting from the north, the Islamic praying room faces the south, and the cafeteria and terrace face the west to receive the desired wind in the summer.

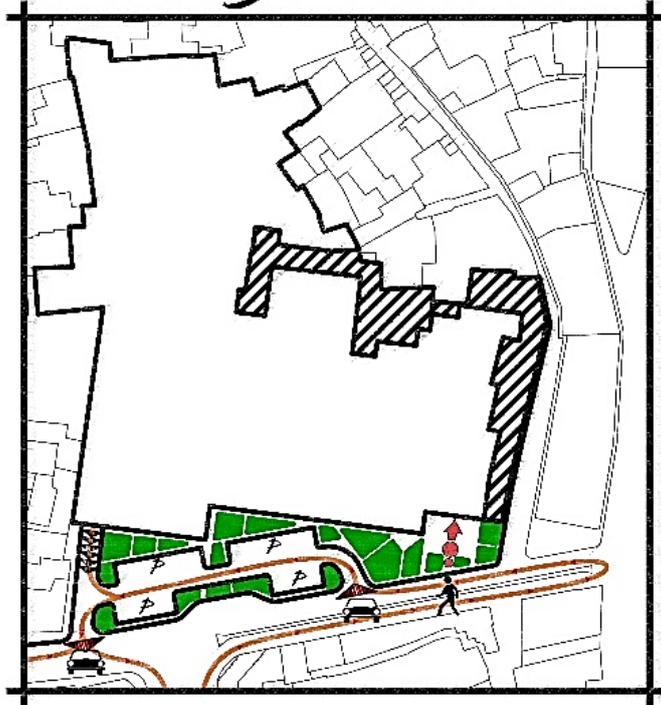
Topography: The site has a slight slope of one floor height that was used by making a basement without the need to dig.

2. Studying Set-backs:

Where the new building façades are becoming wider than the traditional, it is better to **subdivide the façade into portions that are similar in scale to historical façades**, by varying set-backs, types of roofing, and materials. Therefore, the façade has been subdivided by varying set-backs into 3 portions so it would be compatible with the historical scale, and **in respond to the Module used in the historic building**.

These gradual set-backs also helped leading to and emphasizing the entrance, also creating a gathering square in front of the entrance.

Defining Entrances:



General Sections:

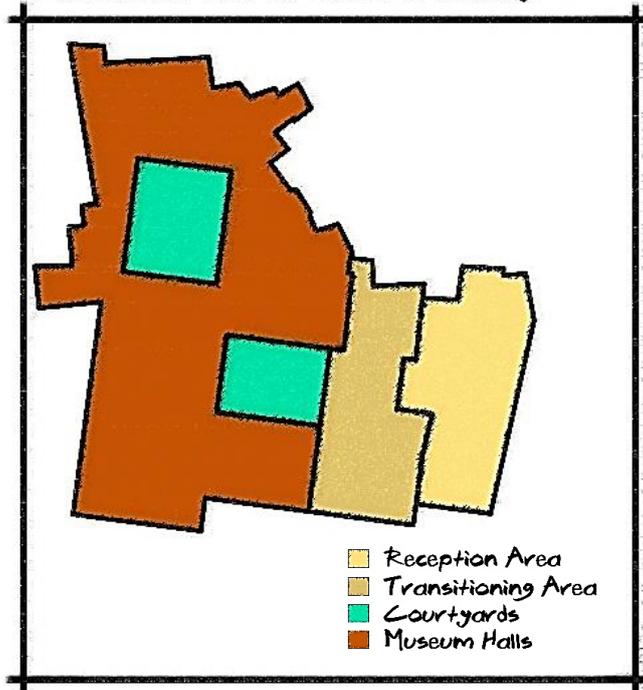


Fig.62: Project analysis - Part 2

3. Defining Entrances:

The landscaping considered **the main street as an effective factor**, and thus the main entrance was defined.

The mass composition was formed so the building appears luxurious and in an attractive image and a strong expression, that encourages **the desire to enter the place**.

The main entrance is located on the corner, and **the set-backs emphasize the entrance by forming a gathering square**.

The main entrance is located in the beginning of the old building in order to achieve **the philosophical movement (old-new-old)** that reflects the aim of the museum which is returning to the past.

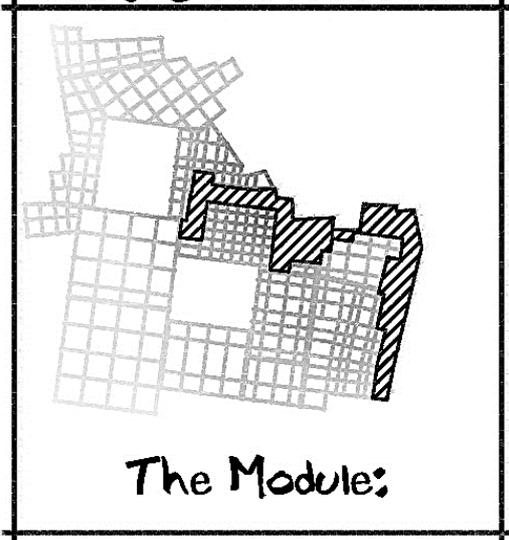
4. General Sections:

The museum is divided clearly into three main sections:

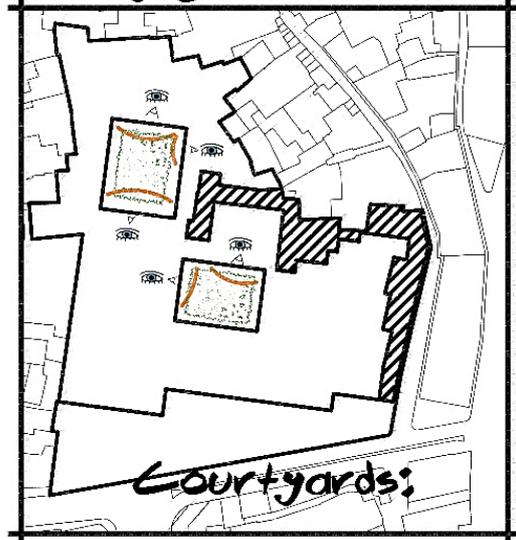
1. **Reception area**
2. **Transitioning area**
3. **Museum Halls**

This general zoning is also related to the philosophical movement (old-new-old), where the old zone forms **a reception area** that welcomes the visitors and prepare them to the next zone, **the transitional area** is divided between before and after the show includes the necessary services for visitors before and after visiting the galleries, and **the museum halls** are distributed around the courtyard and directly connected to the transitional area by their both ends.

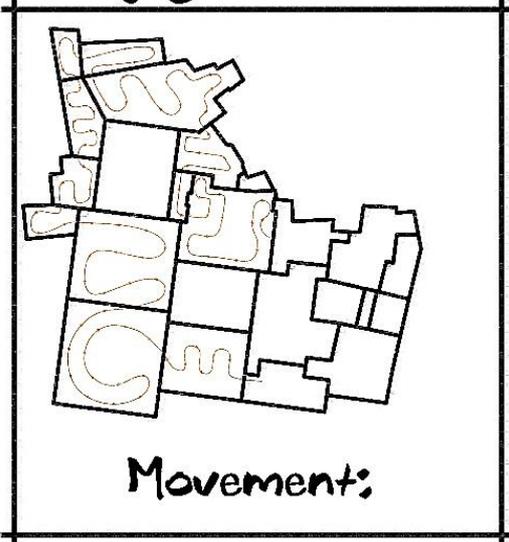
Studying The Form:



Studying The Form:



Studying The Form:



Height:



12-10	■	0	□
14-12	■	>6	■
Unknown	■	8-6	■
		10-8	■

Fig.63: Project analysis - Part 3

5. Studying the form:

The Module:

Generally, the module is based on the former module of the historical building. The module was made in a way to form geometrical courtyards, which created organic modern spaces that were used as Devastation Halls, for a philosophical need.

Courtyards:

One of the most important characteristics of the Islamic architecture is the geometrical courtyard and the non-geometrical internal spaces, together they form the compact urban fabric.

One of the new remarkable ideas now is the curved screen, which is the best type of screens that suits the visual angle of the eye. A simulation of this idea was used: curved concrete screens that make a frame to show reliefs, mosaics, statues, models...

Movement:

Movement is obligatory, because the museum narrates historical events that need to be serial, also it saves area and simplifies the control system.

The track was defined by furniture, or with movable partitions, in order to have the possibility of changing or modifying the track if we need to.

6. Height:

Height was studied taking in consideration the surrounding, the slope, the view, and the legislations of the area, respecting the traditional historical environment, and in a way that preserves the unity of the historical fabric.

Roofing:

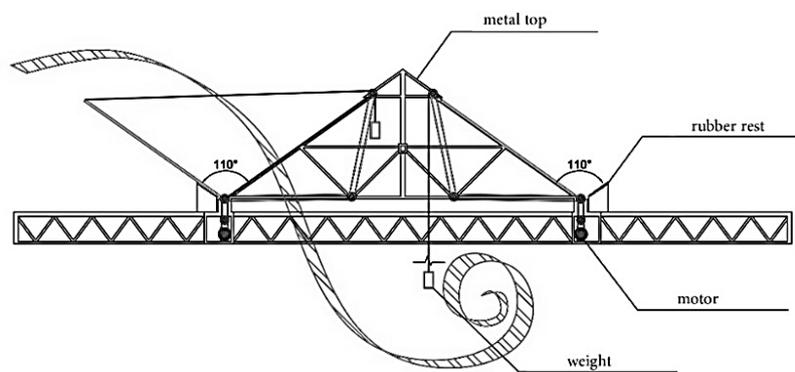
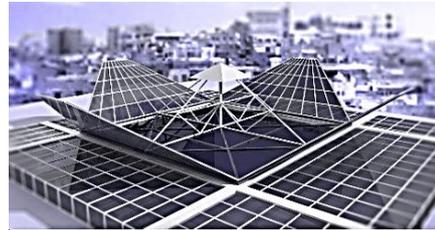


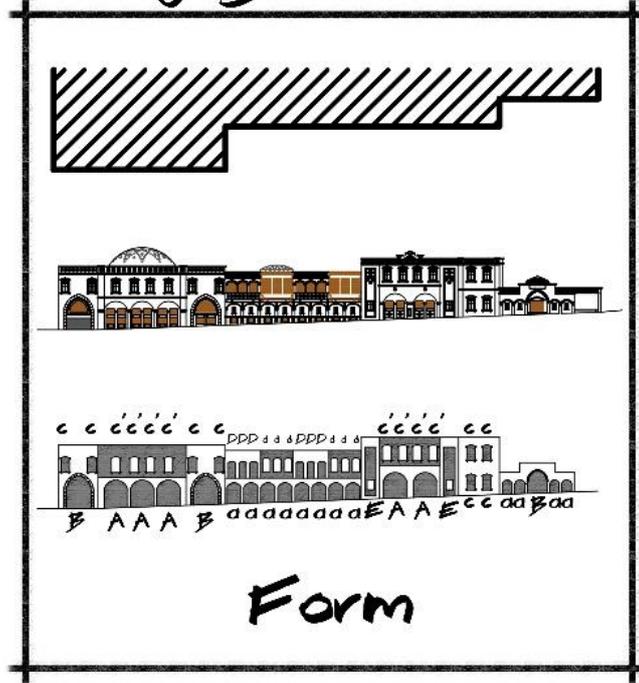
Fig.64: Project analysis - Part 4

7. Roofing:

Many types of roofs were used in the project according to the special character of each space, and in a way that provides good lighting, like:

- **Glazed trusses:** that simulate the old brick truss in scale and proportion.
- **Domes with light openings (kamariat):** that give dimmed romantic light.
- **Glazed barrel vaults.**
- **Glazed square pyramidal frustums:** in a shape that is similar in plan to arabesques.
- **A glazed square pyramid:** also extracted from the old brick truss, with an expressional message, because it covers the general management and The Hall of Throne, it has a purpose in natural ventilation, as it works like the old wind catcher by opening one or more of its faces according to the wind direction.

Studying The facade:



Studying The facade:

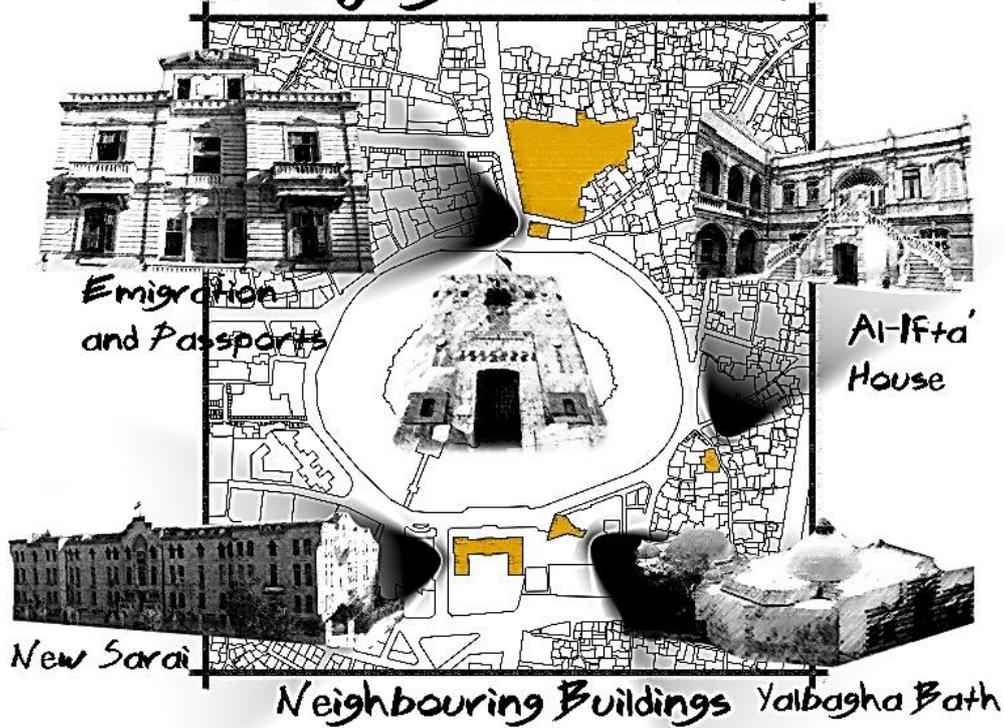


Fig.65: Project analysis - Part 5

8. Studying the façade:

As mentioned before, when the façade is wider than usual, we subdivide the façade into portions similar in scale to historic façades by varying set-backs, roof forms, and materials. Many repeated and interfered rhythms of designing elements were used to avoid boredom.

Architectural elements, very known in the architecture of the historical environment like the wooden bay windows, narrow balconies, arches and arcades, were all combined in the eclectic design of the façade.

Considerations like height, proportions and compatibility with the neighbouring, the unity and the spirit of the area, the continuity of the street, played an important role in the designing process of the façade.

Scale, massing, proportion, building height, and materials of new building should respect surrounding buildings that are similar in function (Public buildings).

Four historic buildings similar in function (public buildings) were chosen, in addition to The Old Sarail (that is located within the site) to influence the designing elements and characters of them, in order to achieve a clear response to the surrounding, they are: **Al-Ifta' House, The Immigration Building, The New Sarail Building, The Public Bath of Yalbgaha.**

Therefore, the details and ornaments used on the façades of the new building should be similar to the neighbouring buildings.

Main categories	Sub- categories	Y/N	Average
Siting	Continuity	×	8/10
	Integration	✓	
	Contribution	✓	
Massing	Form	✓	10/10
	Scale	✓	
	Height	✓	
Façade composition	Design elements	✓	10/10
	Proportion	✓	
	Rhythm	✓	
Materials	Traditional /10/		10/10
	Same material different colour /8/		
	Different material same colour /6/		
	Different material and colour /4/		
Technique	1. Contrast, 2. arrogant, 3. modern, 4. metaphor, 5. subtle , 6. abstract, 7. invention, 8. correlation, 9. traditional, 10. replication.		8/10
Total	/17-49/ contrasting, /50-89/ compatible, /90-100/ matching		92/100 Matching

Fig.66: Evaluation of The Museum of Syrian Memory

5.3.5. Critical approach

To self-criticize a project, we need to give it a comprehensive look to enhance the architectural solution. The project was very well-received by my professors there and got one of the highest marks ever given to a project in the old city /87%/ (See Annex.04 for professors' commentary) and was rewarded by the Order of engineers with a certificate of appreciation, simply because it had a good design and it obeyed the urban legalization.

In this segment I will try to criticize this project, and like every other project mentioned in this research, an objective assessment will be applied. This project as well is evaluated using the same criteria.

1. Siting:

- **Continuity:** the façade does not provide a visual sense of continuity of the street which is because of the new boarder line submitted by the organizing plan, the land was divided and the land use of the part facing the street was changed into car parking and hence it is not allowed to build on it anymore after it was occupied by the original building before it was partially destroyed by the execution of Gutton's plan as mentioned before (See Fig. 54, 56), (See Annex.07).
- **Integration:** the building integrates well within its context, it respects the character of the urban fabric through the relationship between solid and void as we have mentioned (See Fig. 63) (See Annex.09).
- **Contribution:** the building contributes positively to its site as its aims clearly state, it aims to help those who are damaged inside because of the Syrian Crisis, and to reinforce cultural tourism to support the national income.

2. Massing:

- **Form:** the building integrates well as we have mentioned before. Its form is common as we can see in other examples of public buildings in that area the architectural composition is quite similar. The full occupation of land, the use of irregular organic spaces and geometric courtyards are all common treatments of the architecture of the area (See Fig. 63), (See Annex.05).
- **Height:** the building respects the height limitations listed in the urban legalizations of the old city as we have seen in the Project analysis (See Fig. 63).
- **Scale:** the scale also follows the common treatments: the size of courtyards, the relationship between solid and void, the subdivided façade by varying set-backs to match the historical scale (See Fig. 61, 63).

3. Façade composition:

- **Design elements:** the building copies the design elements from the original building and the neighbouring buildings as mentioned before (See Fig. 65).
- **Proportions:** proportions the design elements were maintained.
- **Rhythm:** a similar rhythm of the historical buildings was applied.

4. Materials: traditional materials were used: glass, wood, and limestone. With the same colours, shapes and decorations.

5. Technique: the used technique is correlation.

As a result, the building is matching, hard to be distinguished from the original with an untrained eye, which is recommended by the urban legalization of the old city that states that additions must take into account the continuity of the original materials of the building, while observing slight differences (texture, small difference in level...) to differentiate the original material from the new, materials could only be new if necessary and with the approval of the competent committees. And as a license condition, it states that the new building must use traditional methods, materials, shape, and proportion in façades, respect height limitations, and use the examples clarified in the restoration criteria for elements like windows, doors, shades, wooden porches (See Annex.02)... Therefore, the project follows a historicist approach, with an eclectic style that does not express a predictable time.

Aleppo is known for the excessive use of stone in its architecture, which is why it was called “Halab Al-Shahbaa” or the white city of Aleppo, due to the white colour of its limestone hence the cityscape. Therefore, materials other than limestone are considered exotic and uncommon especially in the old city. As we have mentioned before, the architecture of the city did not develop a lot during the last years. Most of the latest projects were residential and tended to borrow some elements and motifs from many styles to form a neo-classical architecture, especially in rich neighbourhoods to express the wealth of high-status families, so it was like a competition of decoration (See Annex.10).

Working on my project was not easy, especially with the new façade. I had to change it many times to please my supervisors. Their comments were: where did you bring these modern domes from? Why the metallic material? You are not designing in the Gulf countries! Use traditional materials and elements! Pay attentions to the Urban Legalisation!

The faculty of Architecture in Aleppo has always oriented young architects to design like the market wants; no one will buy something exotic that is out of tradition! This building cannot be licensed! Where did you bring these organic forms from?

These are comments that every student had to hear while forming his architectural personality. It is like if these future architects will only work in Syria under strict regulations that would not change and keep up with the developing technologies and methods.

Of course the ambition of any young architect is to design like his idol architects with new exotic ideas that somehow form his architectural line and identity. The case here is completely the opposite, with a very sensitive world heritage site where the future does not exist. Where the sense of place completely dominates on the sense of time. Where new work must be covered with an old coat.

However the internal design and techniques in most projects in the old city are modern including mine, which reminds us of the philosophical aspect of Islamic residential architecture where all buildings look alike from the outside while only from the inside you can tell the economic status of the family as a kind of social equality. But the case of public buildings is different, they were always huge and monumental in size, up-to-date and full of decoration. Which is a strong argument that anti-historicisms use to criticize conservative works.

As we saw in the examples before, the problem is not in local architects and their productivity, it is in the mentality and in the fear of losing the identity of the place. Especially after the foreign interventions that had destroyed over a tenth of the old city, a strong reaction occurred to preserve what is left. But the history of Aleppo teaches us that every time has its fingerprints in the city, layers of history were very recognizable. So why are we replicating the old?

Now the big question is what is going to happen now after 50-80% of the old city is destroyed, is there going to be a good urban planning to take out the slum buildings? Are we going to restore everything or only the valuable? Are we going to see a coherent urban fabric or some scattered historical buildings? Is there going to be a new legalisation? Are we going to have a beautiful centre as before or a fake Disneyland? No one actually knows what is going to happen but I hope to see my city radiant and attractive again soon.

To get back to the project, if I was not subjected to all those limitations, I would have definitely followed a completely different solution. For example, the shape could have followed the composition of the original building to achieve the continuity of the street and regain the sense of place. If it was possible, I would have probably used a more solid treatment, simple openings, less decorations if not none, an abstract of the old style elements and a couple of tones of the traditional material. But anyway, heights and set-backs must always be respectful to the surrounding.

Of course I need to say that I am fascinated with the contemporary museums in the Arab Gulf (See Fig.51) especially the idea of combining the vernacular architecture with new the new steel structure of Bodin's Arab Museum of Modern Art, or the abstract of the Islamic Muqarnas⁶⁷ in the composition of I.M.P's Museum of Islamic Art and the use of Islamic ornaments and elements on a modern structure, or the creation of an urban fabric to form a museum in Nouvel's Louvre Abu Dhabi, which is a bit controversial because the fabric was formed in the middle of the sea and not inside a historical fabric it is like creating a virtual reality that does not exist in the area. An alternative solution could be based on such works that have a reasonable shape and are related to the area and could achieve a minimum level of compatibility.

⁶⁷ A form of architectural ornamented vaulting, the "geometric subdivision of a squinch, or cupola, or corbel, into a large number of miniature squinches, producing a sort of cellular structure"

Chapter 6:

Conclusions

Chapter 6: Conclusions

After this intensive study, it is important to go back to the beginning to review and answer the questions of the research.

- **Could a museum join many types in a complex?**

Of course, there is a type among museum types called a general or a multidisciplinary museum, where museums are too big and comprehensive to be classified as one type. An actual application of this type could be called a cultural or educational centre or a complex that can also include lecture rooms, libraries, laboratories, and theatres. And can attract researchers and specialists in addition to students, citizens and tourists.

- **Could a museum mix between old and fabricated in terms of exhibition?**

As we have mentioned before, in many cases, if artefacts are not available or are inappropriate, curators use reconstructions, models, and graphics, sometimes with multimedia techniques, to maintain chronological continuity and to increase the opportunity for interpretation within their essentially didactic approach.

- **What does the site impose on a new design in terms of architectural language?**

Usually, new projects impose themselves in historic contexts, with contemporary perceptions that may or may not be compatible with the local legalization or the inhabitant's predictions. But also the site should have an impact on the new building, the site expects a compatible response on many aspects as we have seen in the proposed criteria, through siting, massing, façade composition, materials, and technique.

- **Does a building have to look old in order to be considered as compatible?**

No, it does not have to look old, there are many approaches that form a scale from replication to contrast (See Fig.21). Some designers may adopt a more traditional approach; others may wish to explore a highly contemporary solution. Both are valid. It is the quality of the response that is the key and the relationship between the old and the new. Replication is one solution but it is not the only possibility to achieve compatibility.

- **How should an architect balance the importance between the old and the new building?**

Architects should respect the old building and always remember that the old building is the monument. Some of them show more respect than others as we have seen in the international examples like Moneo, Nouvel and Chipperfield. However, some architects seek contrast to make an iconic building that becomes famous only for being contrasting. The acceptability of these buildings means that difference is applauded and is celebrated over contextualized design, the approach the preservation community generally advocates. Preservationists would argue that the historic city is already iconic, so new development that seeks to stand apart from it is likely to receive criticism from communities.

- **Other than replication and contrast, what are the techniques that are possible to use in new design?**

Regarding the techniques of new design, we need to clear out that there are some shades between black and white, between replication and contrast. The research points out these techniques separately as mentioned by a group of authors (Shane, Davies, Semes and Tyler) and then combines them on a graphic scale from 1-10 based on the mentioned references (1. Contrast, 2. Arrogant, 3. Modern, 4. Metaphor, 5. Subtle , 6. Abstract, 7. Invention, 8. Correlation, 9. Traditional, 10. Replication).

- **Does the community acceptance matter when it comes to a new design?**

Of course, because in the end, architecture is meant to serve people, if people do not accept the new building then it is a failure. Unfortunately, residents are very much marginalized if not excluded from the decision making process. This aspect was focused on many times in the international examples, especially in the works of Meier and Libskind.

- **When would a contrast between the old the new building be considered accepted?**

Before deciding which approach to be used, we need to ask ourselves a number of questions:

- *How old is the historical building? Is it listed as an archaeological monument?*
- *Is the building located in a historical context? How sensitive is the site?*
- *What is the size of intervention?*
- *What would be the reaction of local community and authorities?*
- *What are the characteristics of the local architecture of the area?*

Only after the answers of these questions are clear we can decide which approach to use and how much contrast is acceptable.

- **What should be more dominant: the “sense of time” or the “sense of place”?**

The building should always express its time, but it should not affect the sense of place, especially when the place is a historical centre that is listed as world heritage. Therefore, the question is again the importance of the place.

- **Is it possible to objectively evaluate the compatibility of new design?**

Assessing the impact of new development in a historic context has been accused of being subjective. However, design professionals differentiate between **taste** and **design quality**. Taste is **subjective**, while quality is **measurable**. After studying many references I have concluded that a criteria to assess the compatibility of the new building **objectively** in numbers is possible. The criteria that I propose is based on 5 main categories: **Siting, massing, façade composition, materials, and technique** (See Fig. 23). Each of these main categories is evaluated on a scale of 1 to 10.

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		(Interior1) The Picasso Museum	jordigarces.com/gdsb/wp-content/uploads/2003/08/2000_ampliacio_picasso_2f_31.jpg	
		(Plan) The Picasso Museum	arquitectura.com/arquitectura/inter/obras/cultura/garces/picasso/picasso_002.jpg	
		(Interior2) The Picasso Museum	jordigarces.com/gdsb/wp-content/uploads/2003/08/2000_ampliacio_picasso_2f_33.jpg	
		(maquette) The Picasso Museum	bcn.cat/museupicasso/imatges/elmuseu/remodelacio/maqueta2-g.jpg	
		(Courtyard) The Picasso Museum	jordigarces.com/gdsb/wp-content/uploads/2003/08/2000_ampliacio_picasso_2f_18.jpg	
		The palaces before	arquitectura.com/arquitectura/inter/obras/cultura/garces/picasso/picasso_102.jpg	
		Timeline of the enlargement process	bcn.cat/museupicasso/imatges/elmuseu/remodelacio/remodelacio.gif	
		(Annex) The Picasso Museum	designboom.com/weblog/images/images_2/danny/picasso/picasso02.jpg	
Fig.30	Evaluation of The National Museum of Roman Art	(Site) The National Museum of Roman Art	google.com/maps/place/Museo+Nacional+de+Arte+Romano/@38.9173381,-6.3406885,301m/data=!3m1!1e3!4m7!1m4!3m3!1s0x0:0x0!2zMzJCsDU0JzAwLjAiTiA2wrAyMCcwMC4wIlc!3b!3m1!1s0x0:0x0!8m2!3d38.9173381,-6.3406885?hl=en	47
		(Perspective) The National Museum of Roman Art	images.adsttc.com/media/images/544f/8ca7/e58e/cef8/1300/00f0/large_jpg/Manuel_Ramirez_Sanchez.jpg?1414499491	
		(Interior) The National Museum of Roman Art	images.adsttc.com/media/images/544f/d384/e58e/ce63/a800/00f5/large_jpg/Alvaro_Perez_Vilarino.jpg?1414517626	
		(Sketch) The National Museum of Roman Art	c2.staticflickr.com/4/3611/3477235183_7f448f6f8f.jpg	
		(Plan) The National Museum of Roman Art	images.adsttc.com/media/images/544f/8cf8/e58e/ce63/a800/00d6/large_jpg/crypta.jpg?1414499573	
Fig.31	Evaluation of The Jewish Museum in Berlin	(Site) The Jewish Museum	google.pt/maps/place/Jewish+Museum+Berlin/@52.5027034,13.3902541,1868m/data=!3m1!1e3!4m2!3m1!1s0x0:0x4c2cd254de6304f	49
		(Perspective1) The Jewish Museum	libeskind.com/wp-content/uploads/aerial-view-c-guenter-schneider-1140x650.jpg	
		(Perspective1) The Jewish Museum	inexhibit.com/wp-content/uploads/2014/07/jewish-museum-berlin-libeskind-01.jpg	
		(Juxtaposition) The Jewish Museum	libeskind.com/wp-content/uploads/jmb_300cbitterbredt-1140x650.jpg	
		(The Glass Courtyard) The Jewish Museum	farm4.static.flickr.com/3637/3431202403_e911cc63d2_o.jpg	
Fig.32	Evaluation of The Bundeswehr Military History Museum	(Site) The Bundeswehr Military History Museum	google.pt/maps/place/Milit%C3%A4rhistorisches+Museum+der+Bundeswehr/@51.0792437,13.7557636,963m/data=!3m1!1e3!4m2!3m1!1s0x0:0x7794eac0ec61b6c	50
		(Perspective) The Bundeswehr Military History Museum	libeskind.com/wp-content/uploads/_u0b1232-2280x1520.jpg?theia_smart_thumbnails_file_version=2	
		(Façade) The Bundeswehr Military History Museum	libeskind.com/wp-content/uploads/daniel-libeskind-dmhm-15c-huftoncrow-photography-1140x650.jpg	

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		(Section) The Bundeswehr Military History Museum	libeskind.com/wp-content/uploads/section-north-south-c-sdl-2280x886.jpg?theia_smart_thumbnails_file_version=3	
		(Plan) The Bundeswehr Military History Museum	architecturalrecord.com/ext/resources/archives/projects/portfolio/2012/01/images/Military-History-Museum-9.jpg	
Fig.33	Evaluation of The Museum for the Decorative Arts	(Site) The Museum for the Decorative Arts	google.com/maps/place/50%C2%B006'23.0%22N+8%C2%B040'53.0%22E/@50.1061503,8.6785886,492m/data=!3m1!1e3!4m2!3m1!1s0x0:0x0?hl=en	52
		(Façade) The Museum for the Decorative Arts	richardmeier.com/wp-content/uploads/2014/07/P10.05-1024x804.jpg	
		(Relation) The Museum for the Decorative Arts	richardmeier.com/wp-content/uploads/2014/07/P6.SFrances_120704_Museum_of_Dec_Arts_024-724x1024.jpg, richardmeier.com/wp-content/uploads/2014/07/P5.SFrances_120704_Museum_of_Dec_Arts_017-724x1024.jpg	
		(Sketch) The Museum for the Decorative Arts	richardmeier.com/wp-content/uploads/2014/07/D5.MAKF_Axon-1024x859.jpg	
		(Module) The Museum for the Decorative Arts	richardmeier.com/wp-content/uploads/2014/07/D2.Diagram-1024x685.jpg	
Fig.34	Evaluation of The Jewish Museum NYC	(Site) The Jewish Museum NYC	google.pt/maps/place/The+Jewish+Museum/@40.7853901,-73.9581005,289m/data=!3m1!1e3!4m2!3m1!1s0x0:0x688f0d95f364e53d	53
		(Perspective) The Jewish Museum NYC	media.timeout.com/images/102719188/750/422/image.jpg	
		(Sketch) The Jewish Museum NYC	upload.wikimedia.org/wikipedia/commons/thumb/8/89/Jewish_Museum_building_line_drawing_-_b%26w_-_600_ppi.jpg/800px-Jewish_Museum_building_line_drawing_-_b%26w_-_600_ppi.jpg	
		(Juxtaposition) The Jewish Museum NYC	andrewcusack.com/jewmoo2.jpg	
		(Old) The Jewish Museum NYC	upload.wikimedia.org/wikipedia/commons/b/b1/The_Warburg_House%2C_1929.jpg	
Fig.35	Evaluation of The Reina Sofia Museum Extension	(Site) The Reina Sofia Museum Extension	google.pt/maps/place/Museo+Nacional+Centro+de+Arte+Reina+Sof%C3%ADa/@40.4080607,-3.6962273,581m/data=!3m1!1e3!4m2!3m1!1s0x0:0x309814d159babf71	54
		(Juxtaposition) The Reina Sofia Museum Extension	google.pt/maps/@40.4037988,-3.6937922,341a,20y,348.93h,54.07t/data=!3m1!1e3	
		(Interior) The Reina Sofia Museum Extension	jeannouvel.fr/images/made/images/remote/http_www.jeannouvel.com/mobile/projets/474_reinasofia/2_2048_1613_80_imagessiteajn.png_0_0_50_r_b_-20_-20.jpg	
		(Perspective) The Reina Sofia Museum Extension	constructalia.com/repository/transfer/en/resources/ContenidoProyect/00557283FOTO_AMPLIADA.jpg	
		(Plan) The Reina Sofia Museum Extension	constructalia.com/repository/transfer/en/resources/ContenidoProyect/00557374Foto_big.pdf	
Fig.36	Evaluation of Neues Museum	(Site) Neues Museum	google.com/maps/place/52%C2%B031'14.0%22N+13%C2%B023'52.0%22E/@52.5202483,13.3963292,331m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d52.520556!4d13.397778?hl=en	55
		(maquette) Neues Museum	davidchipperfield.co.uk/img/projects/467/b/346_07_d_uz_n2.jpg	
		(Façade) Neues Museum	upload.wikimedia.org/wikipedia/commons/0/0c/Neues_Museum_Berlin_EP1.JPG	
		(Interior) Neues Museum	davidchipperfield.co.uk/img/projects/485/b/346_10_c_hoe_090208_n1.jpg	
		(Collection) Neues Museum	davidchipperfield.co.uk/img/projects/462/b/346_10_uz_100428_n10.jpg, davidchipperfield.co.uk/img/projects/36/b/346_10_uz_101011_n3.jpg, davidchipperfield.co.uk/img/projects/34/b/346_10_uz_110515_n15.jpg	

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Fig.37	Evaluation of The Kunsthau Graz	(Site) The Kunsthau Graz	google.pt/maps/place/Kunsthau+Graz/@47.0712934,15.4331778,260m/data=!3m1!1e3!4m6!1m3!3m2!1s0x0:0xd0fc1950f194a44c!2sKunsthau+Graz!3m1!1s0x0:0xd0fc1950f194a44c	56
		(Prespective1) The Kunsthau Graz	crab-studio.com/images/graz%20kunsthau-photo%20external%20view%209-crop-u6017.jpg	
		(Prespective2) The Kunsthau Graz	museum-joanneum.at/fileadmin/user_upload/Presse/Standorte/Abbildungen/Kunsthau/Kunsthau_ZeppCam1.jpg	
		(Prespective3) The Kunsthau Graz	traveller.com.au/content/dam/images/p/u/s/j/image.galery.articleLeadwide.620x349.pusy.png/1268352844293.jpg	
		(Sketch) The Kunsthau Graz	crab-studio.com/images/kunsthau009.jpg	
Fig.38	Evaluation of The Ara Pacis Museum	(Site) The Ara Pacis Museum	google.pt/maps/place/Museo+dell'Ara+Pacis/@41.9056178,12.4740844,574m/data=!3m1!1e3!4m2!3m1!1s0x0:0x70751c1fe0fe843f	57
		(Perspective1) The Ara Pacis Museum	richardmeier.com/wp-content/uploads/2014/07/P1.AraPacis_18-1024x548.jpg	
		(Juxtaposition1)The Ara Pacis Museum	richardmeier.com/wp-content/uploads/2014/07/P2.RH1624-108-1024x767.jpg	
		(Perspective2) The Ara Pacis Museum	richardmeier.com/wp-content/uploads/2014/07/P12.RH1624-12-1024x767.jpg	
		(Juxtaposition2) The Ara Pacis Museum	richardmeier.com/wp-content/uploads/2014/07/P9.RH1624-1-1024x782.jpg	
Fig.39	Evaluation of Barcelona Museum of Contemporary Art	(Site) Barcelona Museum of Contemporary Art	google.pt/maps/place/Barcelona+Museum+of+Contemporary+Art/@41.3833837,2.165706,289m/data=!3m1!1e3!4m2!3m1!1s0x0:0x8efd28fd5e2c7b2a	59
		(Perspective) Barcelona Museum of Contemporary Art	richardmeier.com/wp-content/uploads/2014/07/P10.95SF40.016-1024x815.jpg	
		(Juxtaposition1) Barcelona Museum of Contemporary Art	(Frampton & Rykwert , 1999) P.145	
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		(Juxtaposition1) The Ulm Stadhaus Exhibition & Assembly	richardmeier.com/wp-content/uploads/2014/07/P1.ARC4870.040-2-1024x803.jpg	
		(Perspective) The Ulm Stadhaus Exhibition & Assembly	richardmeier.com/wp-content/uploads/2014/07/P3.93SF57_10-1-1024x795.jpg	
		(Juxtaposition2) The Ulm Stadhaus Exhibition & Assembly	tourismus.ulm.de/web/web-bilder/inhalt/01_ulm/museen_ausstellungen/stadthaus/dias/01_Stadthaus.jpg	
		(Sketch) The Ulm Stadhaus Exhibition & Assembly	richardmeier.com/wp-content/uploads/2014/07/D5.UlmAxon-992x1024.jpg	
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		Areas served by cul-de-sac in the urban fabric of the old city	Neglia, Giulia Annalinda. "Persistences and Changes in the Urban Fabric of the Old City of Aleppo." Environmental Design: Journal of the Islamic Environmental Design. Research Centre 18 No. 1/2 (2000/2001). P.39	
		Solid/ Void study of the urban fabric of the old city of Aleppo	Aleppo University	
		Djdayde neighbourhood 1	scontent-vie1-1.xx.fbcdn.net/hphotos-xpa1/v/t1.0-9/553936_485302294914657_11285129_n.jpg?oh=45fa57bbd67ba5d9a61f8e986e1cad67&oe=577304BC	

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		Djdayde neighbourhood 3?	scontent-vie1-1.xx.fbcdn.net/hphotos-xap1/v/t1.0-9/1513324_460435427401344_1223690644_n.jpg?oh=be8b56a804c6e54062c32c58a1326813&oe=57B63636	
		Jalloum neighbourhood	scontent-vie1-1.xx.fbcdn.net/hphotos-prn2/v/t1.0-9/1505390_469306293180924_2051852581_n.jpg?oh=53a98769e3d1d9cb63799c1227465007&oe=57BCF45F	
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		(Courtyard) Ghazaleh House	scontent-vie1-1.xx.fbcdn.net/hphotos-xap1/v/t1.0-9/1743522_473772909393837_879424146_n.jpg?oh=a78fbb6a1190d9b2242b63daa1a46c8e&oe=57BA17D5	
		(Plan) Ghazaleh House	scontent-vie1-1.xx.fbcdn.net/hphotos-xfp1/v/t1.0-9/11054330_645372048900588_82176598199378833_n.jpg?oh=95e640466dac84c20fa337d6daf44096&oe=579F4236	
		Bassil House, 18th century, Djdayde neighbourhood		
		(Interior) Bassil House	scontent-vie1-1.xx.fbcdn.net/v/t1.0-9/10301302_508512552586539_7274295105632875210_n.jpg?oh=95a33459db1a91c930a7fee86b7a93b4&oe=57BBC312	
		(Courtyard) Bassil House	scontent-vie1-1.xx.fbcdn.net/v/t1.0-9/1546215_508511665919961_4924701170842965078_n.jpg?oh=19a6b8257bc2c6dfc23d855cc7094413&oe=57B7DE91	
(Plan) Bassil House	scontent-vie1-1.xx.fbcdn.net/v/t1.0-9/11013396_645372428900550_5008131028389353427_n.jpg?oh=4361635b746efe1beec4da96053d323&oe=57A8DA2C			
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		(Balcony) Al Adeeyat Archaeological Society	scontent-vie1-1.xx.fbcdn.net/hphotos-xpt1/v/t1.0-9/10991125_637396013031525_897945274125202106_n.jpg?oh=9ac82908f08e5a0cc47c86bdb84b0bbc&oe=5774B64B	
		(Entrance) Al Adeeyat Archaeological Society	scontent-vie1-1.xx.fbcdn.net/hphotos-xfp1/v/t1.0-9/10150646_501603226617897_8277370974826290623_n.jpg?oh=62dcc0f80f42fd2c35634515df4a0f14&oe=57B57101	
		(Details) Al Adeeyat Archaeological Society	scontent-vie1-1.xx.fbcdn.net/hphotos-xpf1/v/t1.0-9/18408_637395456364914_6309327449433456279_n.jpg?oh=0aba7b6c58848860e811c5d3fe9ac67&oe=57A77510	
		Qasis Hospital, Aleppo 1916	scontent-vie1-1.xx.fbcdn.net/hphotos-xpf1/v/t1.0-9/74922_316924861752402_972417682_n.jpg?oh=f3fe2d66ccf9dd601740dcda0866f5bc&oe=57B04635	
		Baron Hotel, Aleppo 1909	upload.wikimedia.org/wikipedia/commons/thumb/4/46/Baron_facade.jpg/800px-Baron_facade.jpg	
		The Syrian Parliament, Damascus 1929/1932	dome.mit.edu/bitstream/handle/1721.3/46480/133437_sv.jpg?sequence=2	
Fernando de Aranda				
Hijaz Railway Station, Damascus 1917	upload.wikimedia.org/wikipedia/commons/thumb/6/64/Damascus-Hejaz_station.jpg/800px-Damascus-Hejaz_station.jpg			

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		Al-Abed Building, Damascus 1906	photos1.blogger.com/img/64/2193/1024/DSCN4952s.jpg	
		University of Damascus, 1923	aco.ae/uploads/pics/damascus_university.jpg	
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		(Exterior) King Hussein Bin Talal Mosque	khaledazzam.net/images/projects/king-hussein-mosque-1.jpg	
		(Arcade) King Hussein Bin Talal Mosque	khaledazzam.net/images/projects/king-hussein-mosque-5.jpg	
		(Interior) King Hussein Bin Talal Mosque	khaledazzam.net/images/projects/king-hussein-mosque-12.jpg	
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		(Exterior) The Royal Hashemite Court	khaledazzam.net/images/projects/royal-hashemite-court-1.jpg	
		(Collection) The Royal Hashemite Court	khaledazzam.net/images/projects/royal-hashemite-court-5.jpg	
		(Interior) The Royal Hashemite Court	khaledazzam.net/images/projects/royal-hashemite-court-10.jpg	
		Private Residence, Amman 1999		
		(Exterior) Private Residence, Amman	khaledazzam.net/images/projects/pr-amman-1.jpg	
		(Interior1) Private Residence, Amman	khaledazzam.net/images/projects/pr-amman-6.jpg	
		(Interior2) Private Residence, Amman	khaledazzam.net/images/projects/pr-amman-5.jpg	
		Private Residence, Riyadh 1995		
		(Façade) Private Residence, Riyadh	khaledazzam.net/images/projects/pr-riyadh-1.jpg	
		(Plan) Private Residence, Riyadh	khaledazzam.net/images/projects/pr-riyadh-2.jpg	
		(Interior) Private Residence, Riyadh	khaledazzam.net/images/projects/pr-riyadh-3.jpg	
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(Perspective1) The Cultural Souk, Abu Dhabi	khaledazzam.net/images/projects/cultural-souk-1.jpg			
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		Villa Handal, Amman 1975-1977	archnet.org/system/media_contents/contents/16290/medium/IAA7267.jpg?1384695269	
		Grand Mosque, (Qasr Al Hukm) Riyadh 1992	ada.gov.sa/res/ada/en/projects/Qasr_Alhukm/Ful_Size/17.jpg	
		Justice Palace Riyadh, 1989	archnet.org/system/media_contents/contents/87306/medium/IAA100430.jpg?1387555670	
		Selected works of Architect Jafar Tukan		
		SOS Children's Village, Jordan 1991	akdn.org/architecture/img/1805/24.jpg	
		Amman City Hall, Amman 1994 - 1996	archnet.org/system/media_contents/contents/18797/medium/IAA9798.jpg?1384696885	
		Kazimi Residence, Amman, 1984	archnet.org/system/media_contents/contents/97882/original/IAA110741.jpg?1426607186	
		Selected works of Architect Rifat Chadirji		
		Villa Hamood, Baghdad 1970-1972	http://img.worldarchitecture.org/net/bin.aspx?file=45016.JPG	
		Offices and Tobacco Warehouses, Baghdad 1974	archnet.org/system/media_contents/contents/16258/original/IAA7234.JPG?1384695248, archnet.org/system/media_contents/contents/16257/original/IAA7233.JPG?1384695247	
		Rafidain Bank, Mansour Branch, Baghdad 1969	chadirjifoundation.org/wordpress/wp-content/uploads/2012/05/RAFIDAINBANKMANSOURBRANCHBAGHDAD1969_2.jpg	
		Selected works of Architect Hassan Fathy		
		Nassif house, Jiddah 1973	archnet.org/system/media_contents/contents/30335/original/IHF1492.jpg?1384704496	
Akil Sami House, Dahshur, Egypt 1950	knoji.com/images/user/elshora1/slide4-e2f50672.jpg			
New Gournia Village, Luxor 1946-1952	whc.unesco.org/uploads/activities/documents/activity-637-1.jpg			
Farouk Al Gohary, Ministry of Finance, Nasr City, 1996	(Salama, 1999) P. 19			

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Fig.47	Selected works of contemporary Arab architects	Ahmed Mito, The Supreme Court of Egypt, Cairo, 1999	s.yimg.com/ny/api/res/1.2/DpWEVeGWXe1FnbqMO7CYPw--/YXBwaWQ9aGlnaGxhbmRicjtzbt0xO3c9ODAwO2lsPXBsYW5l/http://media.zenfs.com/en_us/News/afp.com/f40b0a8c6d01b2b96ae621cd223bc0dd08a80ea3.jpg	66
		Abdel Halim Ibrahim, The Nile Gallery, Cairo, 1997	(Salama, 1999) P. 18	
		Issam Hafez, Headquarters of Faisal Bank of Cairo, 2000	archnet.org/system/media_contents/contents/40308/medium/IMG08920.jpg?1384711376	
		Farouk Al-Gohary, Oriental Weavers, Cairo, 1994	(Salama, 1999) P. 15	
		Rami El Dahan & Soheir Farid, Serena Resort, Luxor, 1994	(Salama, 1999) P. 18	
		Ashraf Sabry, Khan Al Azizia, Cairo/Alexandria Road, 1999	(Salama, 1999) P. 16	
		Tamer A. Elgabaly, FUE Future university, Cairo 2006	media.glassdoor.com/l/656910/future-university-egypt-office.jpg	
		Abdurrahman Abdelhalim, Cultural Park, Egypt 1990	archnet.org/system/media_contents/contents/9599/original/IAA0269.jpg?1384690965	
		Mahmoud El-hakim, Nubian Museum, Egypt 1997	traveltocat.com/wp-content/uploads/2015/10/wp-id-Photo-20151012184245580.jpg	
		Abdel-Wahed El-Wakil, Halawa house, Egypt 1975	akdn.org/architecture/img/60/3.jpg	
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		Dar al-Omran/Waelal-Masri, Al-Dalaliyyah Houses, Kuwait 2003	(Al-Asad, 2012) P.33	
		The Architect's Collaborative, Basrah Sheraton Hotel, 1981	archnet.org/system/media_contents/contents/16151/medium/IAA7125.jpg?1384695178	
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LIST OF ABBREVIATIONS

(ACSA) – Association of Collegiate Schools of Architecture

(AKAA) – The Aga Khan Award for Architecture

(AKTC) – The Aga Khan Trust for Culture

(AUB) – The American University of Beirut

(CDM) – Culture and development Magazine

(DUAP) – NSW Department of Urban Affairs and Planning.

(ESA) – Engineers Syndicate of Aleppo

(FSTC) – Foundation for Science Technology and Civilization

(GTZ) – German Technical Cooperation Agency (Deutsche Gesellschaft für Technische Zusammenarbeit)

(HONSW) – Heritage Office of New South Wales

(ICOM) – International Council of Museums

(ICOMOS) – International Council on Monuments and Sites

(MGFNSW) – Museums & Galleries Foundation of NSW

(NSW) – New South Wales

(OAA) – Organization of Arab Architects

(UNESCO) – United Nations Educational, Scientific and Cultural Organization

Annexes



Fig.67: Old Aleppo areal view 2010-2016

ANNEXES

Annex 1: UNESCO Report 39COM 8C.2 (Summary) Update of the List of the World Heritage in Danger, Paris, 15 May 2015

Derived from: <http://whc.unesco.org/archive/2015/whc15-39com-7A-en.pdf>

Ancient City of Aleppo

- **Year of inscription on the World Heritage List** 1986
- **Year(s) of inscription on the List of World Heritage in Danger** 2013
- **Threats for which the property was inscribed on the List of World Heritage in Danger:** Destruction and ascertained as well as potential threats consequent to the armed conflict in Syria started in March 2011
- **Previous monitoring missions:** Since the start of the conflict in March 2011, the security situation has not allowed any missions to be undertaken to the World Heritage properties in Syria.
- **Factors affecting the property identified in previous reports**

Before the conflict:

- Lack of definition of the properties and of the buffer zones
- Lack of conservation and/or management plans
- Inappropriate restoration works
- Urban encroachment

Since 2013: Destruction and damage due to the armed conflict

- **Current conservation issues**

Due to the tremendous escalation of the armed conflict, the Ancient City of Aleppo has been severely damaged since 2013, and is undergoing regular destructions due to bombardments, targeted explosions (bombs detonated in tunnels), fire and street combat. On 14 January 2015, the State Party submitted a state of conservation report for the six World Heritage properties in Syria, which is available at: <http://whc.unesco.org/en/list/21/documents>. The report indicates that access to the historical area is impossible due to the ongoing fighting. Thus the State Party report relies on non-official sources such as the local community and social media (See Fig. 67).

- **Analysis and Conclusions of the World Heritage Centre, ICOMOS and ICCROM**

The Old City of Aleppo has been severely damaged due to the armed conflict and very large portions of the property appear to have been completely destroyed. Some experts estimate that 70% of its core zone has been affected by this large scale destruction and compare it with Berlin and Warsaw after World War II. Some of the most important monuments and historical neighbourhoods of Aleppo may have been erased from the map. Moreover, the destruction is ongoing and there are no signs that it might stop. The Old City and the Citadel are at the heart of the combats and are fully militarized. In the face of this devastation, UNESCO is proposing an experimental designation of “protected cultural zone” in the framework of the United Nations efforts to reach a cease-fire in Aleppo. For this purpose, the World Heritage Centre is preparing a desk study on the detailed state of conservation in Aleppo, on the stakeholders who should be involved in the reflection over reconstruction and on an overall feasibility study for the possible implementation of UNESCO’s proposal to designate and safeguard the “protected cultural zones” in Aleppo. While the potential designation and safeguarding of “protected cultural zones” might lead to mitigating further destruction in some important pockets of the property, the World Heritage Committee is faced for the first time with a World Heritage city that will need extensive reconstruction. An in-depth reflection on the nature of the corrective measures to be envisaged in such a case is needed. This reflection will be initiated in a technical meeting that the World Heritage Centre is organizing in May 2015, in partnership with the Advisory Bodies, on post-war reconstruction in the Middle-East context, focusing on the Old City of Aleppo as a case study and involving multidisciplinary experts and stakeholders, in particular from Syria. The meeting will aim to set out basic recommendations on reconstruction from a theoretical and practical point of view, and will contribute to policy debates on Aleppo’s reconstruction, building on those that took place in 2014 and 2015 in Aleppo itself, and on others in national and international academic circles.

Annex 2: The urban legalization of the old city of Aleppo (Summary)

1. Building categories:

Registered archaeological properties: Must be protected and conserved in their original documented shape, all bad additions and built violations must be removed, buildings must be restored by the conditions of internationally accredited charters and the accredited restoration criteria, under the direct supervision of the competent bodies.

Properties that are distinct within the fabric: Slight modifications that would be suitable for the building's function are allowed, but without affecting the structure or the remarkable elements of the building, also with the approval of the competent committees.

Properties that are located within the fabric and have special elements: Slight modifications that would be suitable for the building's function are allowed, but without affecting the structure or the remarkable elements of the building, also with the approval of the competent committees.

Properties that are located within the fabric but don not have special elements but their position within the fabric complement the structure of the old city and its traditional urban fabric: it is allowed to make some modifications within the conditions included in this system.

New properties within the fabric that are built under the urban organization system published in 1954 and its later versions: If demolished for structural or functional reasons, they are re-constructed according to the attached table.

The multi-storey buildings on the new main axes: These buildings were built under the "city organization and construction" law published in 1974, they should be preserved according to the urban systems they were built under, if demolished, they are re-constructed according to the conditions of each zone included in this system.

Land use	Ratio of built space	Maximum number of levels	Minimum width of courtyards	Percentage of Green surfaces in courtyards
Residential	70 %	2	4m	10 %
Mixed 1 (residential + markets)	70 %	2	4m	10 %
Mixed 2 (commercial + touristic)	70 %	2	5m	10 %
Traditional markets	70 %	2	5m	10 %
New buildings on new streets	100 %	3 (maximum height 12m +1 m parapet wall)	-	-
Development	100 %	3 (maximum height 12m +1 m parapet wall)	-	-

Fig.68: Conditions of new building in Old Aleppo

2. Rehabilitation works in the old city:

▪ Conditions of demolition:

- It is not allowed to demolish registered archaeological properties and distinct building, some decayed parts could be detached and reconstructed under the accredited restoration criteria by this system.
- Properties that threat Public Safety and are directly dangerous to its inhabitants and neighbourhood are allowed to be demolished with a report by the committee of Public Safety and the proposal of the technical committee of old city protection.
- Also properties that are impossible to restore are allowed to be demolished, these are selected by the competent committees.

▪ Conditions of reconstruction:

- In semi-decayed buildings, the decayed parts are reconstructed with the original conditions and materials.
- In buildings that are allowed to be fully demolished and reconstructed and have distinct elements, are constructed with the same height, and if the original height was not clear, with a compatible one with the adjacent.
- New buildings in the fabric, when demolished, are rebuilt to be of two storeys, unless they are on main new axes, then the maximum number of storeys becomes three, with a maximum height of 12 m +1 m for a parapet wall, compatible with the adjacent.
- In all cases it is obligatory to use traditional building materials.

▪ Conditions of new building in empty lots (infill building):

New building should correspond to the attached table (See Fig.68).

▪ **Conditions of additions on existing buildings:**

- It is not allowed to add any structures or a permanent constructions on registered archaeological properties or distinct buildings.
- It is not allowed under any circumstances to obliterate the essential architectural elements (Iwans, decorations, wooden porches, halls, courtyards...) when adding new constructions on distinct properties.
- Additions should only be for residential or touristic purposes.
- Additions should take into account the continuity of the original materials of the building, while observing slight differences (texture, small difference in level...) to differentiate the original material from the new.
- In special cases, when the courtyard is too big comparing to the size of the building, a new mass could be added inside, but taking into account that the ratio of the courtyard to the area of the property shouldn't be less than 30 % after the addition.

3. Terms of licensing:

1. Urban terms:

Cladding: Using traditional methods and materials as explained in the restoration criteria, where shapes, proportions, and materials on external façades are compatible with the adjacent. Photos of the neighbouring façades must be delivered with the documents of licensing.

Fenestration: Are according to the conditions of land use and the functionality of each street.

Heights: Are limited by the competent committee.

Shaders: Are allowed to be installed to shade entrances and markets, as explained in the examples provided in the restoration criteria.

Wooden porches: Are allowed to be restored and reconstructed with the used material as explained in the restoration criteria.

Materials of roads, squares, and public stairs: should be of natural stone.

Entrances and access:

Unless the property is a registered archaeological property or a distinct one, it is allowed to change the places of main gates as explained in the restoration criteria. One new entrance point could be created in properties in case of adaptation, while considering structural safety and neighbourhood privacy.

Traditional reinforced wooden doors are used in all gates that lead to public spaces. Metal shutters are not allowed and must be replaced by wooden doors according to the examples provided in the restoration criteria. Installing new, but traditional, wooden shades on top of doors and Iwans is allowed by the norms specified in the restoration criteria.

2. Architectural terms:

Materials: Construction materials could be new if necessary and with the approval of the competent committees, for interior cladding, materials are allowed as explained in the restoration criteria.

Roofs: Are not allowed to be used unless to serve housing, in a way that would not affect the structural safety of the building. It is not allowed to place any fixed or portable structures on it. In touristic buildings, it is allowed to install wooden pergolas with climber plants for sun protection, but its height should not exceed /2.5m/.

Courtyards: Are considered as setbacks, and no violations are allowed inside them: It is not allowed **to cover them** partially or entirely with fixed or portable materials, in touristic cases and publically used properties. It is allowed to cover courtyards partially or entirely with a proposal study approved by the competent committees, to be of a portable transparent or semi-transparent materials, and also mechanical, to achieve the conditions of lighting and ventilation without harming the architectural elements. **Plant pots, fountains and trees** are not allowed to be removed from the courtyard. It is not allowed **to divide** a courtyard, unless approved by achieving the specifications of courtyards (to fill 30 % of the land and the minimum width according to the table), the separating wall should be of rough limestone or what is compatible with the façades.

Annex 3: Project Program

The museum includes the following sections:

- **The service section:** that includes:
 1. The entrance and reception hall: supplied with the proper offices: information, ticketing, trusting, control, publications.
 2. Stores: to sell souvenirs, photographs, maps, films and books.
 3. Lounge: supplied with a kitchen and the necessary water course.
 4. Reception hall: for the guests of honour.
 5. Cafeteria: supplied with a kitchen and a terrace that has a view of the Citadel.

- **The museum section:** that includes:
 1. Movie Theatre: for 250 people, supplied with the necessary services: stores, backstage, toilets, and control rooms, to introduce the museum and its sections, to show documentaries, and to give lectures.
 2. The main halls of the museum: continuous halls organized according to the historical sequence.
 3. The external gallery: (in courtyards) where various replicas such as jets and tanks, and expressive sculptures, murals and mosaics.
 4. The temporary gallery: displays artistic paintings and expressive sculptures. It is independent of the main museum halls, and has a private entrance and opens on specific times.

- **The educational and research section:** includes:
 1. Main Library: includes a secondment office, a storage room, and reading spaces.
 2. Library of documentaries: a secondment office, a storage room, projection rooms, and an archive office.
 3. Lecture hall.

- **The administrative section:** includes:
 1. General management: that includes: the curator of the museum, and the curator's representative, secretariat, meeting room, staff offices, cabinet, copy centre, accounting, storage room and water courses.
 2. Technical laboratory: that receives, registers, classifies, and restores the exhibits, and it is linked with an external yard to receive the deliveries. It includes the manager office, staff, and technical workshops.
 3. Mechanical rooms: includes heating and air conditioning rooms, electric conversion rooms, generator, maintenance rooms, and the needed storage rooms for spare parts.
 4. Storage rooms: to cover the needs of the showrooms, equipped with elevators.
 5. Shelter: with the necessary services.

- **The landscape:** includes 35 parking lots and a bus stop, pedestrian routes and a gathering square in front of the entrance, courtyards, green spaces and water pools.

The Main Halls:

1. **Hall of Throne:** introduces the Syrian presidents, and displays their statues and belongings, and shows the revolution of the Syrian flag.
2. **Hall of Independence:** narrates the modern history of Syria, starting from 1916, the Great Syrian Revolution in 1925 until the independence in 1946, and includes: Maps of battles, and types of weapons, guns and bullets..., statues of the most remarkable heroes at that stage like "Yousef Al Azameh" and "Sultan Basha al-Atrash"
3. **Hall of Glory:** deals with the period between the Arab Unity in 1958 until 2010 and includes Arab unity, The Revolution of 8th of March, The Corrective Movement, and The Liberation War of October, and it displays the types of weapons, guns and ammunition.

4. **Hall of Devastation:** deals with the Syrian crisis and the suffering of the Syrian people during it, divided between 4 rooms and includes images (before and after) that shows the effects of the destruction, artistic paintings and expressive sculptures, followed by the Hall of Martyrs where images of martyrs are displayed.
5. **Hall of Peace:** expresses the Syrian civilization, its culture and traditions, it includes: Syria's archaeological and cultural landmarks, Crafts and traditional markets, and artistic paintings and expressive sculptures.
6. **Hurricane of Memories:** tells about the Syrian memories and expresses the emotions and feelings through artistic paintings, and expressive sculptures.
7. **Hall of fame:** filled with 14 wax statues of famous people who participated in building the Syrian culture: writers, singers, athletes, poets...

Annex 4: Professors' commentary

Prof. Herbly (Head of the urban planning department, previous rector of the faculty): **How did you deal with the slope? Did you provide enough parking lots to solve the traffic problem of the area?**

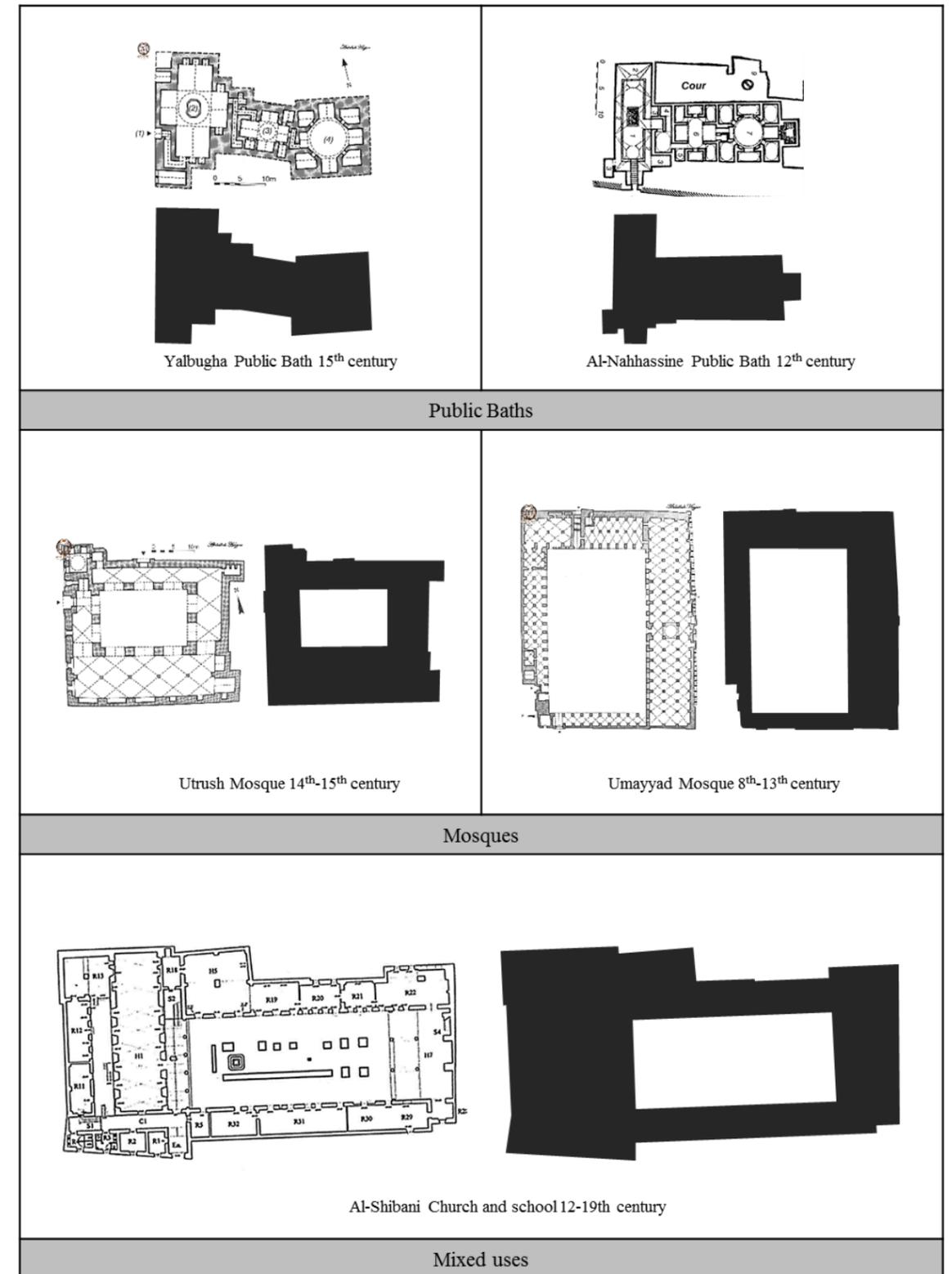
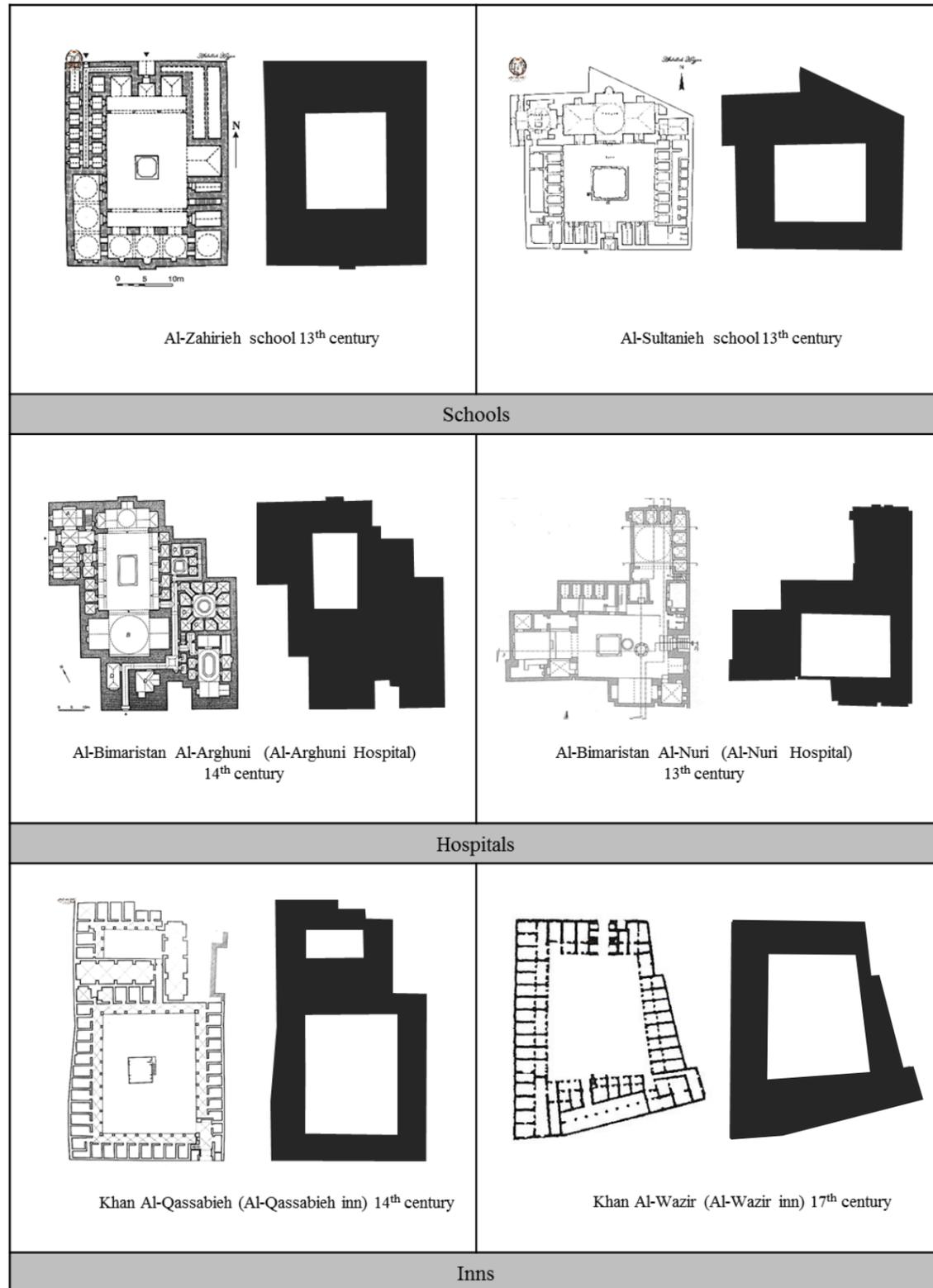
Answer: I've managed to build a basement without having to dig using the slope, which contains the maintenance workshops of the museum. I have provided 35 parking lots for the audience which means around 150 people and that is the capacity of the museum in addition to a bus stop and an underground parking for the administration.

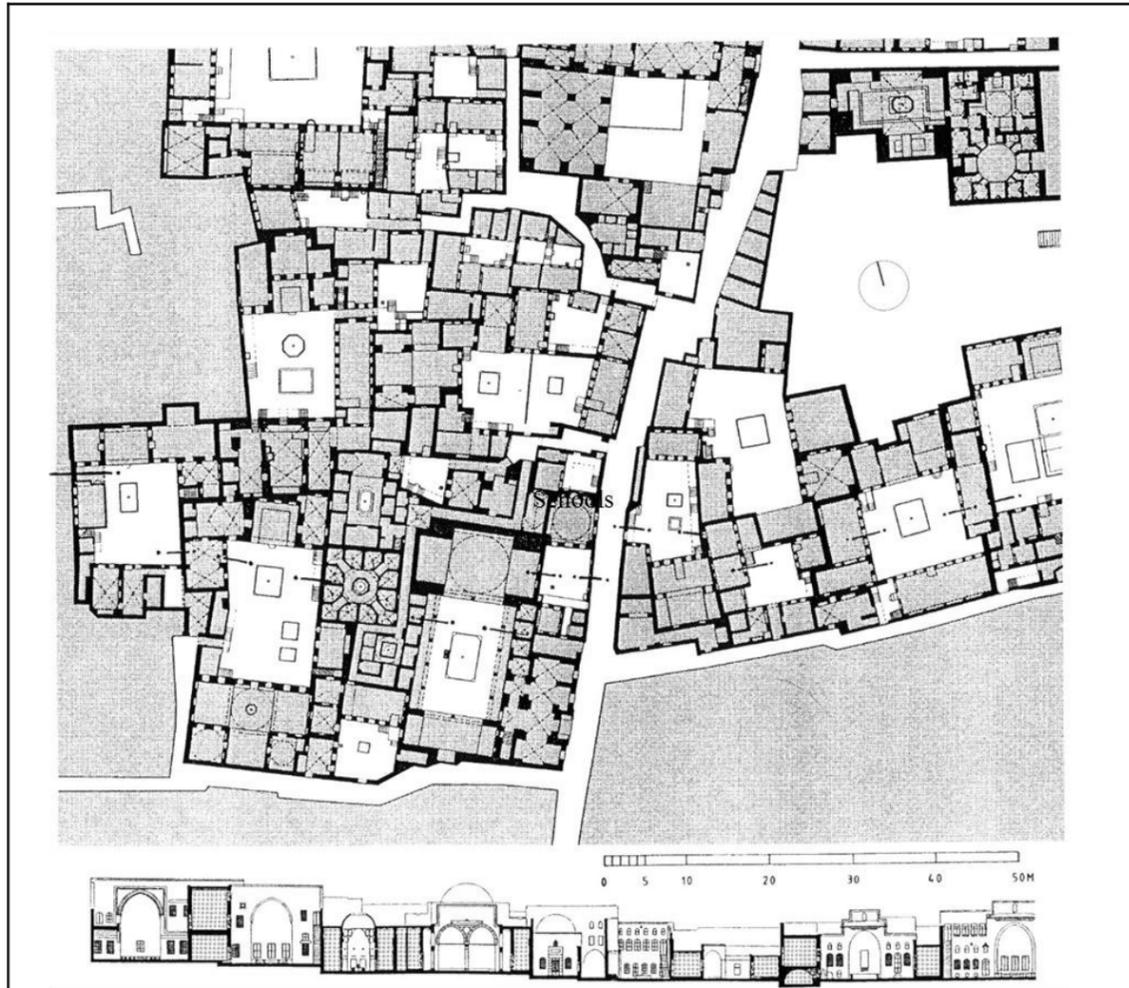
The first obstacle is that it is almost prohibited to dig in this area, because the old city of Aleppo is registered in the UNESCO and new construction is very limited, and also, recent studies were talking about the traffic problem which is because of the existence of administrative buildings in the centre of the old city and that these functions must move out to reduce and limit the traffic in certain areas.

Prof. Herbly: Explain the theatre's movement ... I know that you always pay attention to every detail. That is why I'm asking you. Good job!

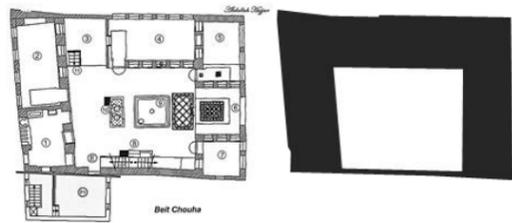
Prof. Sheikh Muhammad (head of department of theories of architecture): **I want to complement on the selection of the theme and the site, the details in the analysis panels. This is the first actual application I've see of the discipline of Architectural Analysis, the first student who knew how to use it in a way that matches his project. Also the size and area of the graduation project, we only saw students choosing lands of 10, 17 and 27 hectares while this land barely reaches 1.5 hectares but he dealt with it with proficiency in terms of topography, the slope, there is a proficiency where it comes to install a new structure within a historic environment, and the name of the project holds the memory of the area, hence the dealing with it is very cautious... I thank you for this work that will become an example for the next projects in the old city.**

Annex 5: The morphological characteristics of building types in the old city of Aleppo - Fig. 69

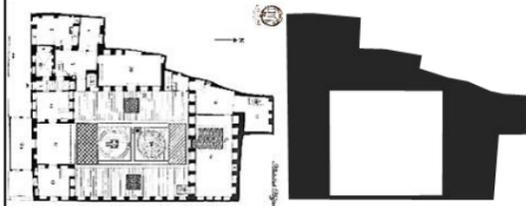




Old quarter of Aleppo, Syria. Plan and section. Internal volumes are shaded grey

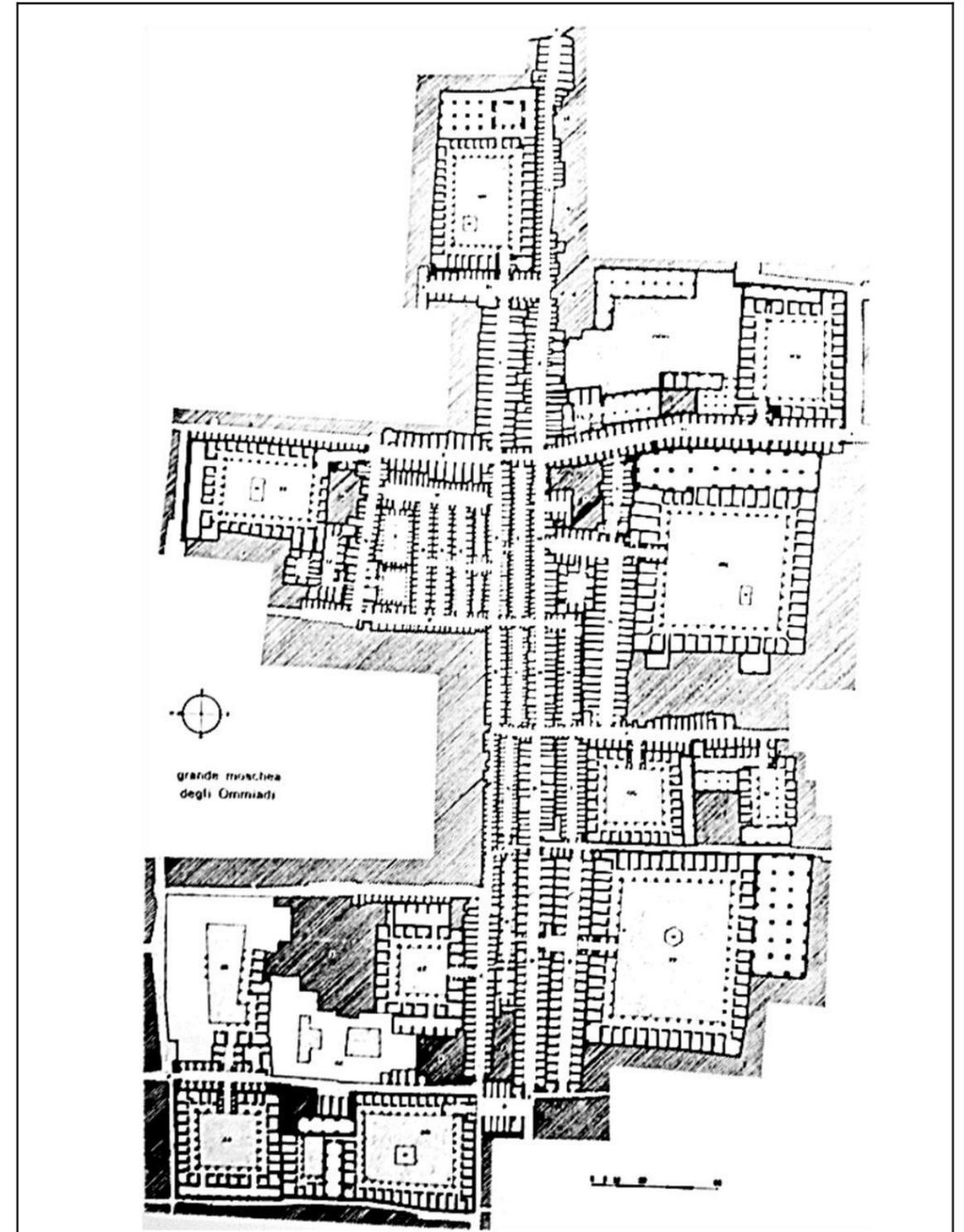


Chouha house



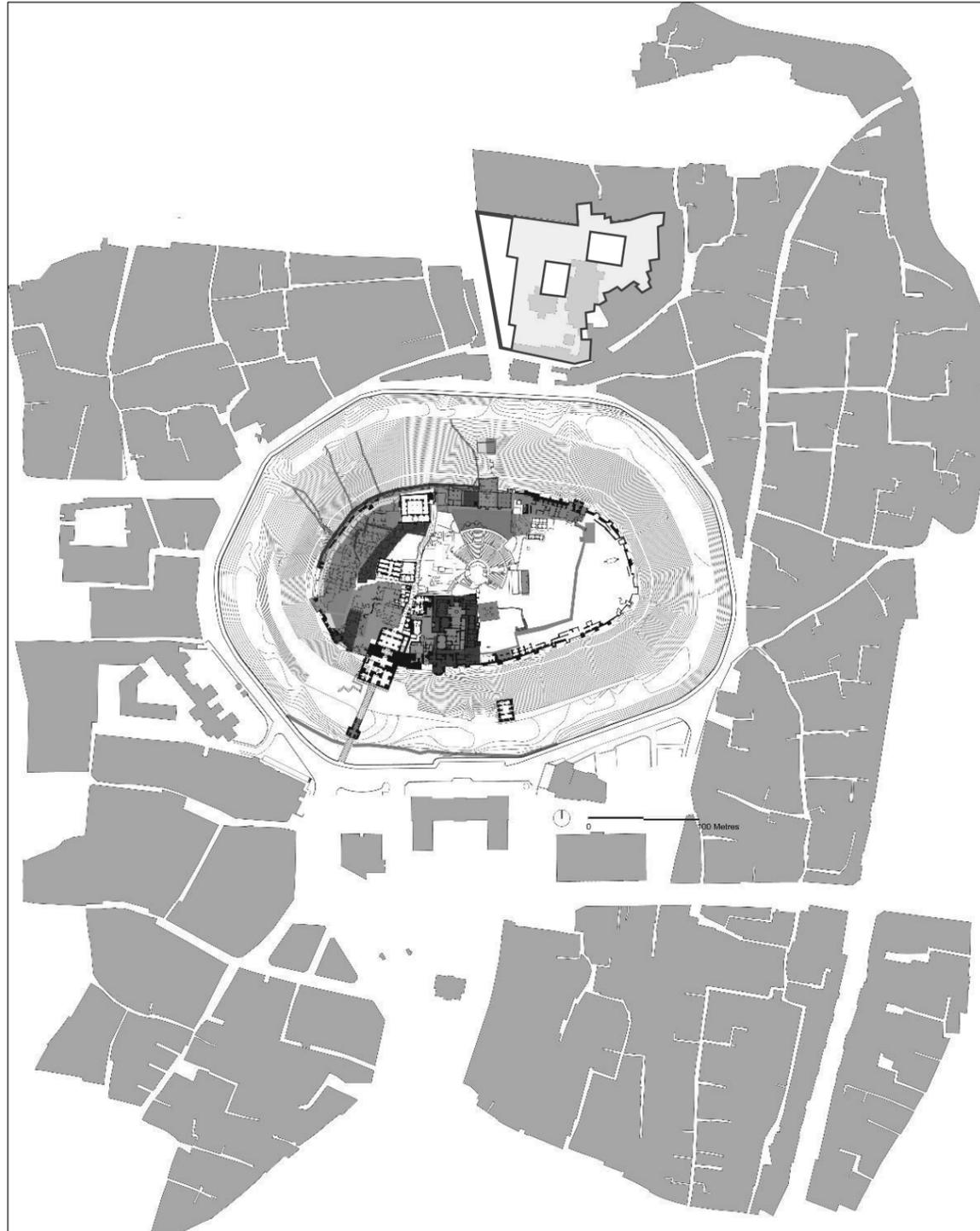
Ajqabash house 18th century (Folk traditions museums)

Courtyard houses



Plan of City Souks

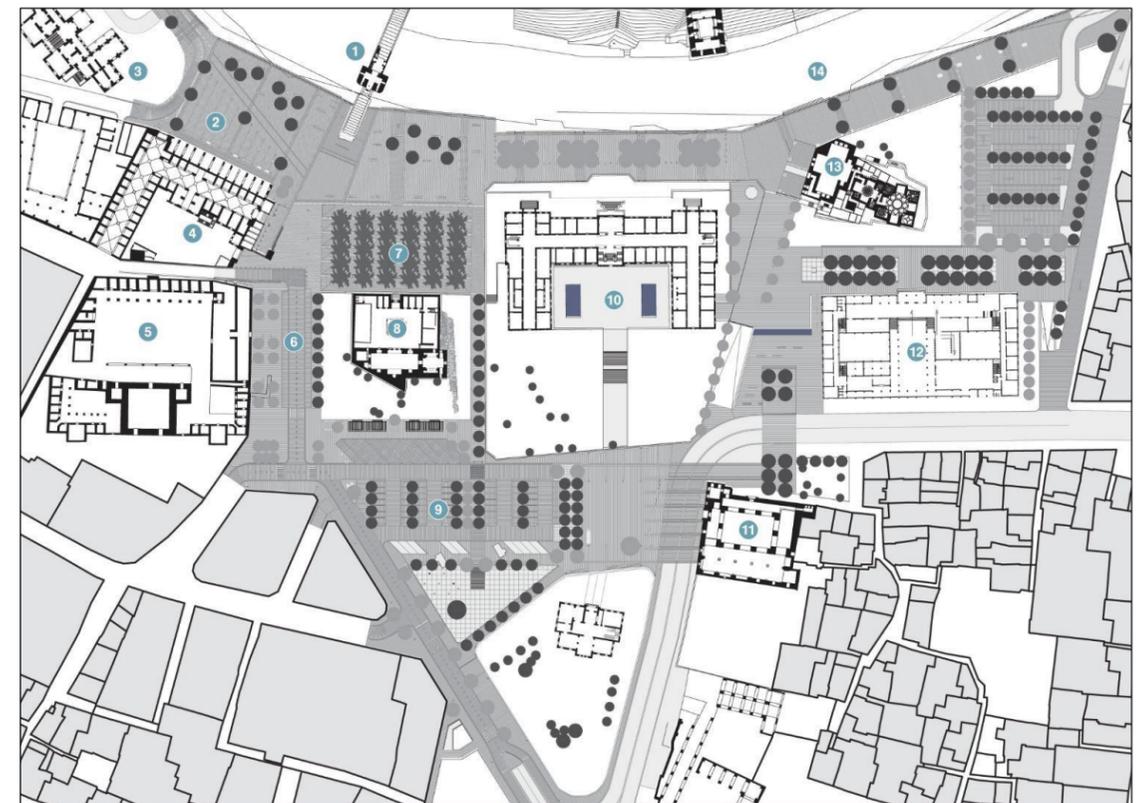
**Annex 6: Rehabilitation of the perimeter of Aleppo Citadel
- Fig. 70**



Aleppo Citadel within the fabric/ the site of the project



The Citadel of Aleppo



- | | |
|---|--|
| 1 Bridge and Tower (entrance to Citadel) | 8 Madrasa al-Sultaniya (mosque) |
| 2 Esplanade with outside cafés | 9 Future underground parking and above ground bus station |
| 3 Old National Hospital converted into a hotel | 10 New Serai (former governorate offices soon to be a hotel) |
| 4 Khan ash-Shoune (handicraft market) | 11 Djami' al-Otrush (mosque) |
| 5 Mosque al-Khosrowiya (religious school) | 12 Justice Palace |
| 6 Esplanade (parking and access to the Old City quarters) | 13 Hammam Yalbougha al-Nasri |
| 7 Esplanade (pedestrian area planted with palm trees) | 14 Moat |

Rehabilitation of the perimeter of Aleppo Citadel

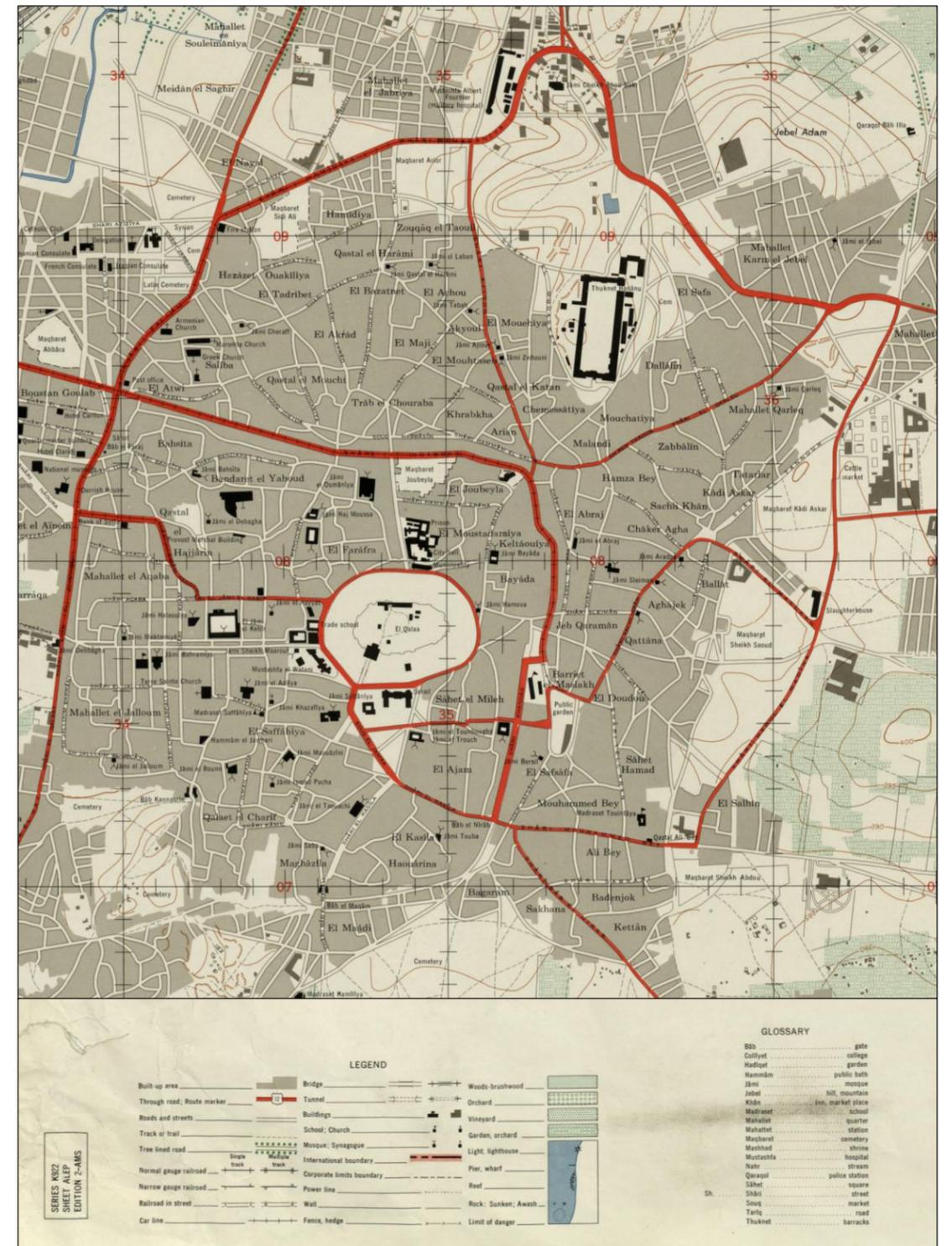
Annex 7: Old documents of the site
- Fig. 71



The city of Aleppo seen from the Citadel (circa 1912)



Aerial view of the old city of Aleppo (1936)



An old map of the City 1958

Annex 8: Project plans
- Fig. 72





**Annex 9: Solid/ Void study of the urban fabric of the old city
of Aleppo – Fig. 73**



**Annex 10: The image of the city
- Fig. 74**



The southern-eastern view from the Citadel of Aleppo



Around the Citadel



Umayyad Mosque square



Sabeh Bahrat square



Al Khandaq avenue



Residential architecture in Aleppo in the late 20th century