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### The Recovery of Historic Buildings: A Tradition Full of New Foundings

Domenico Chizzoniti Senior Assistant Professor Polytechnic University of Milan Italy

Letizia Cattani Research Assistant Polytechnic University of Milan Italy

Luca Preis Research Assistant Polytechnic University of Milan Italy

Klizia Beggiora Research Assistant Polytechnic University of Milan Italy

Monica Moscatelli Research Assistant Polytechnic University of Milan Italy

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Dr. Gregory T. Papanikos President Athens Institute for Education and Research

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Athens Institute for Education and Research

8 Valaoritou Street, Kolonaki, 10671 Athens, Greece

Tel: + 30 210 3634210 Fax: + 30 210 3634209 Email: info@atiner.gr

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## The Recovery of Historic Buildings: A Tradition Full of New Foundings

Domenico Chizzoniti Letizia Cattani Luca Preis Klizia Beggiora Monica Moscatelli

#### **Abstract**

The aim of this paper is to describe a specific approach to renovate old buildings in an historical and monumental area of town centre through some new buildings, reconstruction and rehabilitation. In this case, the most important thing is to join the new architecture with the ancient one, sometimes through the integration, other times through the completion and the replacement. This study is based on theories by Ernesto Nathan Rogers about "environmental pre-existence", resumed by Ignazio Gardella, Franco Albini and Carlo Scarpa in theirs projects. According to this idea it is important to analyse all the case studies to define the right hypotheses to find the best solution for this problem.

In this paper, the particular case described is a project made to redraw the main buildings and public spaces of the town centre of Moglia, a little city near Mantua, in Italy. On 20th May 2012 strong earthquake shocks hit places near Modena and Mantua, damaging and destroying many historical buildings; for instance the Church of Saint John the Baptist in the centre of Moglia was seriously damaged. This church was built at the beginning of the 1500 and finished in 1741-1755. During the earthquake shock, a portion of roof felt in ruins and the main walls were seriously damaged; also some others buildings were compromised in their stability, for instance the primary school's building, the city hall and all historical buildings on XX September Street.

The project of renovation is divided into several stages: the analysis of the present condition; the study of the clefts; the estimation of the roofing system; the analysis of load-bearing walls and the study of arches, vaults and centrings. After completing all these analyses, the project goes on with the consolidation of the church and the preservation of the original shell using an internal structure of load-bearing pillars. The next step concerns the reconstruction of the main front; this part of the study consider some examples of renovation in Italy, like Castelvecchio in Verona by Carlo Scarpa, the St Lawrence's Treasure in Geneva by Franco Albini or the Castle Museum of Milan by BBPR. The main front is designed with its original geometry using a simple wood trellis. The last part of the project refers to the consolidation of the historical buildings on XX September Street; all current structures are kept in their original aspect and they are secured with metal arches and chains.

**Keywords**: Architectural heritage, Renovation, Critical conservation, Rehabilitation.

#### Introduction

This paper is focused on a reflection about the relationship through the meaning of conservation and rehabilitation. We use the term "critical conservation" according to a standard definition (that entails the creation of a new context to the building or site).

The conceiving of the absence, represents a way to reproduce the image, the shape, the idea of the "non-appearance", not only from the physical point of view but even as the creation of a new context to the historical building or site (critical conservation), instead of maintaining the latest state and the condition, such as simple preservation (to maintain the structure in the original condition).

When we have to rebuild an absence, on the one hand we pay attention to the part of the building that has been built and then demolished, or transformed; on the other hand it is necessary to create new conditions that increase the value, following the idea of enhancement, of architecture, building or historical site. In this idea of absence, of "non-appearance", the problem of critical conservation, such as rehabilitation by reconstruction, is widely regarded as unsolvable. This apparent lack of solutions is often taken as a sufficient reason for the complete abandonment of this critical approach to the conservation. As shown by Capdevila-Werning, the role of conservation is not only to "preserve" the existence but to evaluate what should have to be brought back and what not: '... The interactions between absence and presence are first of all found at a material level. When the appearance of a building has changed, some of its parts or even an entire structure is no longer extant, there are several strategies to bring them back to a whole or... to make absences present. These strategies or degrees of intervention range from simple cleaning and maintenance, through stabilization, repair, and restoration, to a total reconstruction or replication of a building or area...'.

In this kind of interventions, the less invasive methods are considered the cleaning and maintenance, as well as the replication is considered something of conventional.

In order to follow this idea of absence we can say there are two kinds of absences: we refer to 'what goes without saying' (replication, reconstruction where it was as it was) and what is conspicuous by its absence' (maintenance, preservation). What is the role of Architectural Design in the enhancement of cultural heritage?

After the Second World War, many cities in Europe, like London, Berlin, Dresden and Warsaw were destroyed. The reconstruction has been so faithful to the original that now many buildings are preserved and protected even if not genuine. An example of this concept is the rebuilding of the old centre of Warsaw. The desire to preserve and to re-create Architectural Heritage has gone beyond: 'where it was, as it was' – like an exact and artificial replica of its former self: that could be a creation "in vitro". Warsaw was actually a

<sup>&</sup>lt;sup>1</sup>Capdevila-Werning, R. 2013. Constructing the absent – Preservation and Restoration of Architecture. In *Proceedings of the European Society for Aesthetics* (Vol 5, 2013). European Society for Aesthetics.

particular case: there were not only aesthetic reasons on these choices of reconstruction, but also ideological, and probably political purposes because of symbolic role of the "re-construction". Another case is represented by the Semperoper of Dresden. The original building dates back to 1841, constructed to a design by Gottfried Semper. Following a wildfire in 1869, a new project in the same area was completed in 1878, also to a design by Semper. In 1945, during the final months of Second World War, the Semperoper was once again burned to the ground. After that, a second reconstruction was successfully completed in 1985, using the original character of the previous building.

In these cases, (like more of other cases) the city has been interpreted as an architectural palimpsest. It has constantly been rebuilt. Sometimes the project of reconstruction involves a few surface details, as though it were better to get something wrong on preserving instead of rebuilding: mistakes are remediable in this case, the process is quite reversible. In other case, specifically by the reconstruction, practices for safeguarding monuments are involved with the idea of completion. But conservation in these two aspects is constantly faced to the absence 'not only a physical absence, when material parts are missing from a building, but also an intangible one, when the physical absence stands for a missing people, culture, society or tradition' - Capdevila-Werning (2013).

#### To Preserve the Appearance

This paper explain the strategies of reconstruction related to the analysis of some cases, and the practices involved in preserving buildings or historical sites, according to the idea to focus the distance and the void formed by the time, between the presence and the absence. The aim is to help the perception, through the reconstruction of its history, to discover its reasons, its objectives, and the progressive development of the city.

To preserve the appearance, the history and the project can represent a frame of reference, that is now more aware than any historical period. In order to discover and to save the memory of historical architecture, site, context, it is necessary to update the teachings make them available again. We know that it is quite impossible to reproduce the initial conditions that give rise to these architectures, because many new factors have changed and in spite of few historical facts are unknown, we can save the memory and even preserve their appearance. Following this idea it is clear now that our aim is not to reproduce a copy of those historical aspects, elements or figure; rather our objective is to transform them into living matter, making them useful for new design, by drawing them to the present through what is still today the common heritage of architecture, coming down through the history. 'In order to execute, it is first necessary to conceive. Our earliest ancestors built their huts only when they had a picture of them in their minds. It is this product of the mind, this process of creation, that constitutes architecture and which can consequently be defined as the art of designing and bringing to perfection any building

whatsoever. Thus, the art of construction is merely an auxiliary art which, in our opinion, could appropriately be called the scientific side of architecture.' 1

Coming down to the history means the need for a new relationship between protection of cultural heritage, its knowledge and accessibility and contemporary design culture. This could be a big challenge: how to preserve the existence. It is possible to discover the particular character of Cultural Heritage, that is, by definition, history. So to discover this landscape it could not be necessary to "preserve" it like a museum of itself, according to the idea that it is quite impossible to consider and transform all resources of Cultural Heritage into museum of themselves. The theory of preservation of historic buildings and structures can be traced back to the 19th century. Examining the ideas of John Ruskin and Viollet-le-Duc, who are considered the first two conservation theorists, we can found a clear idea of restoration: 'Neither by the public, nor by those who have the care of public monuments, is the true meaning of the word restoration understood. It is the means the most total destruction which a building worst manner can suffer: a destruction out of which no remnants can be gathered: a destruction accompanied with false description of the thing destroyed. Do not let us deceive ourselves in this important matter; it is impossible, as impossible as to raise the dead, to restore anything that has ever been great or beautiful in architecture [...]. Another spirit may be given by another time, and it is then a new building; [...]. And as for direct and simple copying, it is palpably impossible. [...] Do not let us talk then of restoration. The thing is a Lie from beginning to end.'2 Many others theorists and architects followed them, such as Gustavo Giovannoni, Luca Beltrami, Camillo Boito, Camilo Sitte, Cesare Brandi. So we should ask if instead of preserving all the monumental heritage, it might be better to give them some kind of vital function, to make them independent and meaningful even for the general public. In order to follow this idea of "preservation" it might be also necessary to recognise authentically the values and significance of a historic site and structure.

#### The Role of Architectural Design

In order to identify the importance of historical sites the act of acknowledgment of the cultural resources should be linked to the claim of preservation. For preserving the meaning of the site, the character of structure, the authenticity of all components of the architectural space and finally the significance of figuration (tangible like iconographic value and intangible like iconological value), it is necessary to give them new aesthetical and functional values. In that case the role of architectural design is to preserve the appearance, through a project of conservation (see N.Godmann,The structure of Appearance, 1951) and pre-figure a conceiving of absence, in order to create

<sup>&</sup>lt;sup>1</sup>Boullée, E.L. 2005. Introduction. In: Architecture, Essai sur l'art. Einaudi, Torino.

<sup>&</sup>lt;sup>2</sup>Ruskin, J. 1849. *The Seven Lamps of Architecture*, Theclassics. Us, United States.

a new condition for the building or site, working on new figures and new architectural structures. The underlying thesis of this idea is the relationship between narrative structure (as in a position to represent the absence, what was and now is present only as a memory) and architecture. Following this idea, the research is developed assuming the suggestion by P.Ricoeur<sup>1</sup> on the correlation between space and time: in this relationship the architecture represents for space what the narrative is for time. In the same way that the architecture acts on the space to edit it, the narrative intervenes in the time to organize it. Ricoeur proposes to apply to the art of building the same parameters of narration, for instance the concepts of prefiguration, configuration, and reconfiguration. The narrative works on the time, to configure it in such a way to give back an accurate conception of the reality. In the same way the architecture plays on the space to forge it. Both of them have the ability to create memory, or "making present the absent" (places of memory).

The concepts of durability and hardness are quite similar when viewed in this light: "the stone that lasts" is the perfect metaphor of architecture, which, however, should not be seen in an absolute sense because architecture is a provisional achievement on the ephemeral.

#### Prefiguration

In the literary field the prefiguration represents the collection of oral histories that are done spontaneously and without any literary pretensions. Basically the foreshadowing responds to the need to communicate with others. In the same way the building responds to the need of the primitive living.

We could say that the architecture of this phase is strongly characterized by its archaic references, and probably this process follows a standard definition of architectural conservation, constitutes actions and interests that address the repair, restoration, maintenance, and display of historic buildings. Hence, this phase of prefiguration in the architectural design process is a kind of philological reconstruction starting from the existence parts and completing the missing ones.

#### Configuration

For the project it is necessary to create a storyline since the events that make a "synthesis of the heterogeneous" (initial intrigue), try to "clarify the inextricable" (intelligibility), and create a relationship with all the other elements that interfere with the work (intertextuality).

On the design of something new these three phases are identical: first we discern between the heterogeneity of the forms with the composition (intrigue); then we continue with the conquest of readability from a context which by definition is inextricable (the city) and we end up to deal with everything that has been built both in intervention in the history of architecture (intertextuality). In the configuration phase of the narrative, the architecture can be affected by two different ways to approach these subjects: the first way

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<sup>&</sup>lt;sup>1</sup>Ricoeur, P. 2013. Leggere la città. Castelvecchi, Roma.

shows how many of the things built are filtered through a language reference or real ideologies; in second way the needs of living can be interpreted, but this is necessarily a projection of what people are able to grasp from the reality.

#### Reconfiguration

Reconfigure: the project is not completed once the building is constructed, but continues its life in comparison with the user. The creative act is a subjective act: the subjectivity of the project is a fact, as well as living and building. The man who lives inside can revise the act of building, review the project, in other words, he can reconfigure the space.

#### Case Study: Centre Town of Moglia

Theories on the restoration described in this paper can be illustrated through the description of a particular case study. This particular case describes a project to redraw the town centre of Moglia, a little city near Mantua. On 20th May 2012 strong earthquake shocks hit places near Modena and Mantua destroying many historical buildings; for instance the Church of Saint John the Baptist in the centre of Moglia was seriously damaged. This church was built at the beginning of the XVI Siecle and finished in 1741-1755.

The earthquakes have shocked and completely changed many areas of the territory of Mantua, leaving signs of great devastation. These damages have modified the site not only in the physical appearance, but also in the historical and cultural appearance. In fact, these places represent an historical heritage that is likely to be completely forgotten. The project intervenes in these places and on these buildings aware of the opportunity to reconsider and redesign the overall structure, while maintaining a value conscious and careful approach to the historic value of total assets. Another very important aspect taken into account by the project is the historical development of the city. In fact, Moglia has undergone a great expansion around the historic core. This growth has not occurred in continuity with itself, but in a chaotic manner and with unregulated settlements. This process has greatly affected the quality of housing in the new area of expansion and the original historic centre. Through the functional restoration and the architectural redefinition of the parish church and XX September Street, and with the enhancement of the historic city centre, the project aims to redeem the image of these environments and the public spaces that composed them.

Therefore, it becomes important to adopt a unified design for the study of the paving, for the elements of street furniture, for the lighting that can give a higher quality to urban and architectural public space.

So, the project pays a particular attention to the redevelopment of spaces along the curtain of the buildings facing the XX September Street, and to the renovation of the Church of the Saint John the Baptist.

A very important element of the project is the urban identity and the architectural quality of the historical buildings: for instance, parish church and

oratory, town hall and primary school, and also public space connecting Freedom Square to Martini Square.

#### General Criteria of the Project

The general criteria of the project are based on some researches about the "environmental pre-existence" made by Ernesto Nathan Rogers. These studies concern a tradition of working that from Ignazio Gardella and Franco Albini to Carlo Scarpa has been able to combine the new project with the recovery of the historic buildings. This point of view is referred to the Italian architectural culture, considers the project as a process to integrate the existing, a work of conclusion or substitution of historical buildings in monumental and historical contexts.

In this perspective, it's very important to analyse the correctness of suppositions, the rightness of procedures and, at the end, the reliability of solutions. So, we manage to remove all the barriers that are used to forge the real principles for the protection of natural and built environment.

For the project of Moglia the importance of the town centre is bound to the recovery of historic buildings and also to the redraw of its public areas that characterized all the general urban space.

In according with these criteria, the project involves the redevelopment of all the urban space through working methods and techniques used to realize a conservative renewal of the parish church. The project concerns also a new square, that becomes mostly pedestrian, and the recovery of the colonnade and buildings through a structural renovation. In this way, the design of new constructions and the recovery of existing are integrated into a new image that describes all the façades on XX September Street.

#### Parish Church

The project chooses to recover the Church of Saint John the Baptist and not to rebuild it like a new building, because it's full of very important architectural and symbolic values for the entire city of Moglia. In fact, the first structure of the church dates back to the '500, and its final structure is shown in some drawings dating back to the 1741-'55 with the addition of aisles to the nave.

The seismic events caused serious damages to the building: they compromised its structural stability but they weren't so dangerous as to be judged irreparable for the static and functional renovation of the church.

The project of renovation is divided into several stages that have allowed a proper evaluation cost-benefit. These phases can be described in this way: the analysis of the present condition; the study of the clefts; the evaluation of the roofing-system; the analysis of load-bearing walls; the study of arch.

#### Consolidation of Structure

After checking the firmness of the existing structure, an analysis was made in order to collect visible damages caused by earthquake. Although, the site was poorly accessible, however it was possible to reconstruct the building

surveys. Masonry has undergone compression and eccentric forces and horizontal seismic actions. The result was a state of stress for bending and cutting for the very low tensile strength of the walls. So the project's choices have considered several activities: the possibility to replace all the roofing system because the original one was totally damaged, using a new roofing and a structure made in wood and steel, respecting the original geometry; the restoration of the original masonry with the demolition and the new reconstruction of all dangerous elements.

The action on the building was mainly based on an idea of an architectural type reconstructed from the original shell with an insertion of a further internal structure that cooperates with the existing. In this case the first step is the recovery of the existing masonry with consolidation works and restoration of the structure with the technique of "cuci-scuci". Then, the damaged parts are removed and they are replaced with new elements, without interrupting the static function.

Weight-bearing elements have been subjected to hoop with metallic materials; in particular pillars and columns were consolidated with stiffening brackets and vertical angular. Finally, for metal parts has been set a structure with external tie-beams to create a monolithic behaviour for the whole building. Similar expedients were planned for the bell tower with elements that envelop all the vertical structure.

#### Reconstruction of the Roof and Consolidation of the Vaults

After this step, the project concerns the reconstruction of all the roofing system and the consolidation of all weight-bearing elements of the vault.

The new roofing system includes new trusses achieved with struts made of chestnut wood and steel chain anchored with metal plate to the strut. The project includes also the construction of a double metal plate for anchoring to the wall of the truss with bolts in curb consolidated.

This part of the project is preceded by a phase of consolidation of exist vaults with several methods: the reduction of the masses that load on vault; the contrast of the thrust possibly free with the inclusion of chains and bolts anchored to the steel plates inserted into the curb consolidated; improving of the characteristics of the masonry and recovery of the lesions with some material that is tensile strength. It is necessary, in this phase, to recover the nave's vault that is decked with a very interesting fresco painted at the beginning of '20 by Ettore Pizzini, the author of four tondi in the nave that, from the presbytery represented the Trinity, the Transfiguration, the Resurrection and finally the Ascension. The presence and the importance of decoration also presented in the six transverses twin arches and in twelve side openings that symbolized prophets and apostles, was an element of deep reflection about the recovery of this great heritage. This part of the building was involved by the collapse of the last segment of the vault, near the entrance of the church, for which the project provides a virtual reconstruction of the trellis longitudinal strips of wood in sight.

#### Reconstruction of Principal Façade

The reconstruction of the upper face of the church has adopted figurative criteria that do not follow documents regarding the Paper of Athens on 1931 and the most recent resolutions concerning the Paper of Krakow in 2000. The project has decided to proceed along traces left by some Italian architects: Castelvecchio in Verona realized by Carlo Scarpa, St Lawrence treasure in Geneva by Franco Albini, Castle Museum of Milan by BBPR. It is an empathetic reconstruction where the original elements are represented in their essential transfiguration through new materials and techniques that are independent from the mimicry "where it was, as it was".

So the reconstruction of the principal façade is made respecting the geometry of the wall structure by creating a simple and diaphanous trellis built in wood and interrupted near the vault reconstructed. It is projected onto the façade with a beam that separates the upper matte surface from the lower clear.

#### XX September Street

The project for the arcade along the axis of XX September Street first of all deals with the reconstruction of the curtain from the conservation and the recovery of the existing structures with the completion of the collapsed and demolished parts during the seismic events through new buildings. So, also in this case, the preservation of historical memory of the settlement takes place through the recovery of damaged façade with a static restoration of the colonnade.

#### Static Restoration of the Arcade Building

The project has followed the Italian guidelines of the Ministerial Decree 16 January 1996, art. C.9 "The intervention of the existing building", with particular reference to the paragraph C9.1.2 "Intervention to improve". The aim of rehabilitation of the colonnade space concerns the improvement of structures, the system of ties and of roof structures in the ground floor. Also in this case the procedure adopted, involved an analytical part that has studied the current status after the earthquake, the vulnerability and the crack pattern. As a result of this analysis, the project was developed following the "Guidelines for the preparation and implementation of restoration project including measures improving seismic and maintenance in the architecture complexes of historical and artistic value in a seismic zone" adopted by the Italian National Committee for the Prevention of cultural heritage from earthquake risk, annex B of the Ministerial 19 November 1996, n° 2475 and, in particular, about the actions of statistic consolidation of the system of tying-chains; the system of the horizontal supporting elements (vaults), the vertical bearing system (pillars and walls).

For the involvement on the pillars and columns on the arcade, the project provides for a system of hoops to restore the original resistance to normal stress. Then, the next phase was the elimination of horizontal thrusts, through devices, such as opposition of chains and metal arches with centerings, able to restore the links for transmitting horizontal actions to the most rigid elements.

The project involves a metal frame visible, along the outside edge of the colonnade, the stiffening of the front built, collaborating with the existing structural elements (columns, pillars, beams and walls). This device allows you to report the new intervention figuratively and to ensure to the existing structure a good degree of stiffness along the planes perpendicular to the horizontal thrust.

#### Paving

The pavement design explains the arrangement and the organization of the open spaces along XX September Street and the sequence of the squares (Liberty Square, Don Ghidini Square, the space in front of the Town Hall at the intersection with Via Matteotti).

In the matter of the architectural and environmental context along XX September Street, the proposal aims to avoid any kind of conflict with the characteristic of the area. In fact, the project involves the inclusion of new pavement according to the existing through a new texture, placed contrasting arches of porphyry cubes grey coloured.

Through the arcade, for the formation of the curbs along the row of the drains on the edge of the existing pavement, the project involves stone slabs Bedonia in different size.

Inside the colonnade we planned a design that marks the projection of the sequence of arches with stone slabs Carniglia, used to conceptualize the interior design of the space arcade and a "sestino" terracotta, frost resistant and hand-drawn.

#### The Lighting System

The project for the lighting system is divided into two parts aimed to the enhancement of public space and their complete and safe use.

Regarding the aspects of enhancement, the project tries to extend the connotation of public space to the arcade through a full integration among road, colonnade and square. Regarding the aspects to improve the use of the spaces, it's considered to proceed with two different lighting beams, with direct and indirect illumination to emphasize the geometrical, physical, material and architectural characteristic of the building elements of the historic centre of Moglia.

The project involves a type of direct lighting elements consisting of a stake arranged in arrays parallel to the building curtains along its development and spaced by regular distances. This system is made to solve the lighting problems of the street and also the spaces of square. It uses traditional equipment on stake, spaced by parallel rows in the longitudinal direction with asymmetric beam and direct concentration, sized to ensure correct lighting coefficients to the ground.

#### Arcade space

Under the arcade the project uses a lighting system made with elements in suspension with a beam of light directed towards the floor, coming from lighting fixtures similar to those of the stakes. They are placed in an alternating

way, in the longitudinal direction, to obtain a homogeneous and soft illuminating effect.

Parish Church

The project includes a lighting system designed to emphasize the bell tower and all the church using lights that are concentrated in beam headlamps, stood on the floor and under the eaves of the building. Some other lights were placed around the perimeter of the square in order to catch several point of view, the whole architectural system of the building, the plaza and colonnade.

Figure 1. Masterplan

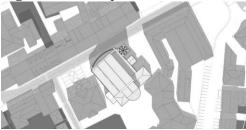


Figure 2. Cross Section



Figure 3. Ground Floor

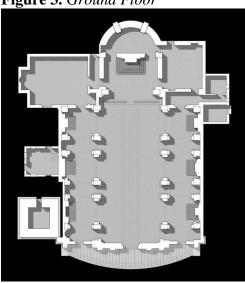
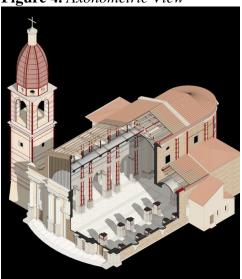
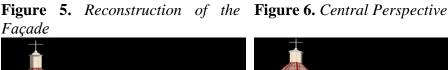
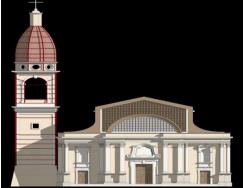


Figure 4. Axonometric View









**Figure 7.** Exploded Axonometric View

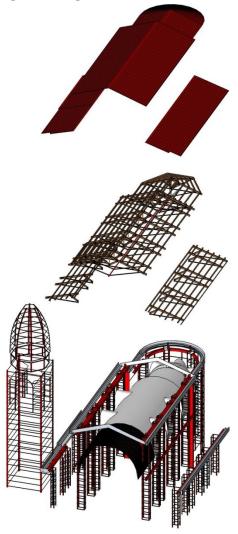


Figure 8. XX September Strret



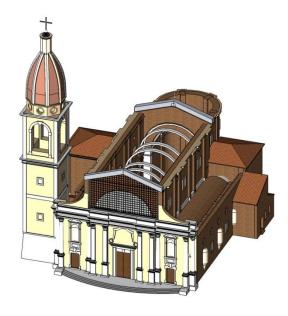


Figure 9.The Lighting System

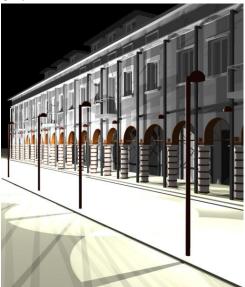
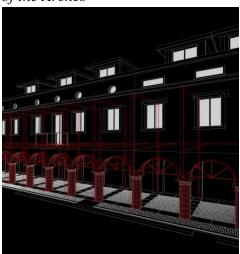


Figure 10. Structure of the Arches



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