



Strategy for Facade Restoration in Case of Craiova's City Hall Building

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Abstract. Restoration projects involve, first, a very careful measure of intervention decisions in relation to the cultural value of the protected monument. The façades of the building represent the most exposed elements, being on the one hand the most visible for visitors, but also the most sensitive in front of harmful interventions. In this article, we intend to evaluate the relationship between the degradations of the façades, the cultural value and the intervention process through a case study: the building of the Craiova City Hall. The compositional analysis of the façades was superimposed with the analysis of degradations and harmful interventions. Based on the correlation between the two levels, we structured the decisions of intervention on the façades. Thus, the article aims to display one of the most complex design processes.

In order to carry out the architectural analysis, it should be mentioned that, due to the lack of archiving resources to ensure the accuracy of the process, the interpretation was made strictly based on in situ observations and historical images. Therefore, the architectural study will be presented based on reasoned hypotheses.

Keywords: Restoration project · historical monument · façade restoration · degradations

1 Introduction

The nineteenth century could be defined as the period of Craiova's transition from medieval to modern times. The weakening of Ottoman control led to the leadership's attention being shifted towards diplomatic relations with Western Europe. Over the entire century, the inhabitants of the city begun to be preoccupied with more and more fields of activity, laying the foundations of a modern society economically, culturally and administratively developed.

As a result of the constant stability and economic growth, at the beginning of the 20th century Craiova had a significant development stage, the construction of many valuable buildings being carried out in that period.

The building of Craiova's city hall is one of the most representative constructions of the city. According to the obtained data, architect Ion Mincu realized the project in 1906 and architect Constantin Iotzu completed it in 1916 [1]. The original use of the building was as a bank, the beneficiary being the Commerce Bank.



Fig. 1. The urban context of Craiova's city hall

The restoration project dedicated to the heritage building, carried out by the team of architects from Getrix S.A. Craiova, involved complex working strategies. The current use as city hall involved adaptations of the flows and high demands of performance. Balancing them with the impositions generated by the preservation of the original substance of the historical monument has provoked the team to detailed analysis and careful decisions.

2 The Urban Context of the Studied Buildings

The historical importance of the building is supported by the urban context and the central location. A.I. Cuza Street in Craiova developed due to the direct influence of the city's commercial routes – Lipsyani and Unirii streets. The built texture of the A.I.Cuza Street evolved over several centuries, but from the second half of the nineteenth century, it crystallized as a central axe, with mixed public and private functions.

Located in front of the English garden, the building of the current headquarters of Craiova's city hall, forms a valuable ensemble next to the building of the Dolj County Administration, made by the architect Petre Antonescu, and the block of White House made by the architect Constantin Iotzu. Thus, the three buildings representative for the Romanian style form a defining ensemble for the local history (Fig. 1).

Taking into account the period of construction of the building, the project was subject to the Building Regulation published in 1910. According to it, the streets of Justice and Unirii were part of area I [3]. Also, on those streets, the height elevations from the sidewalk level to the attic had to be at least eight meters. The regulation required that the functions of the buildings on the streets of Justice and Unirii have a central character, and the built density was expected to be higher and higher. The alignment of the building at the street limit is in accordance with the provisions of the regulation.

3 City Hall Building Architectural Analysis

The volume of the building has a compact, rectangular body with an appendix located on the south-eastern corner. This body is asymmetrical and was probably conceived by

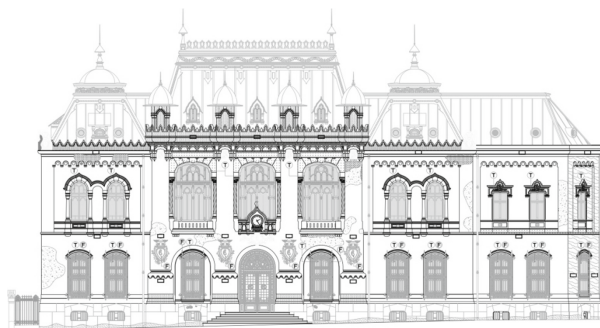


Fig. 2. The entrance main façade of Craiova's city hall – degradations investigation. Project by Getrix S.A., Craiova

the architect Iotzu, after the death of the architect Mincu. This addition was made with great attention and consideration to the original project. Thus, although it is perfectly inscribed in the expressive language of the building, it is composed so that it would be easy to notice that it is not part of the original ensemble.

The compact body of the construction is configured in perfect symmetry. The central axes of the façades are marked by decorative elements, retracted from the general plane, the corners of the building being obviously detached. The specific way of treating façades expresses a hierarchy of them in relation to their importance. Thus, the main access façade is the most intensely decorated, the façades from the west and from the north are simplified, but with a decorative language similar to the main one and the facade from the east is the simplest with an aspect that prints a secondary character. The appendix on the southeastern corner is treated similarly to the eastern facet, which also suggests its secondary character.

The façade towards A. I. Cuza Street is dominated by the main access of the building. From a compositional point of view, access is part of an ensemble that is defined in relation to the façade by a prominent volume. The large windows of this area give a monumental character to the ensemble. Four pillars that are raised above the general cornice being treated at the top as rivulets imprint the rhythm of the access area (Fig. 2).

The access to the building is marked at the top by a clock from mounted on the parapet of the central loggia of the first floor. The grilles from the main access door and from all the windows on the ground floor are made of wrought iron. Crafted with details of impressive finesse, they were fully preserved. On the grille of the access door, you can still see the emblem of the Commercial Bank. On both sides of the access and the side windows are four iron emblems that also bear the symbol of the Commerce Bank.

The details of the cornice of the main façade are spectacular. Harmonized according to the importance of each compositional element, the details are enriched or simplified accordingly. Thus, the decorative stone elements are very complex in the area corresponding to the entrance apparatus and are simplified towards the corners. The elements of the cornice corresponding to the entrance area are delimited by lateral turrets and are grouped into three registers. The very rich treatment bears the imprint of oriental influences. The cornice elements corresponding to the corner areas are also grouped into

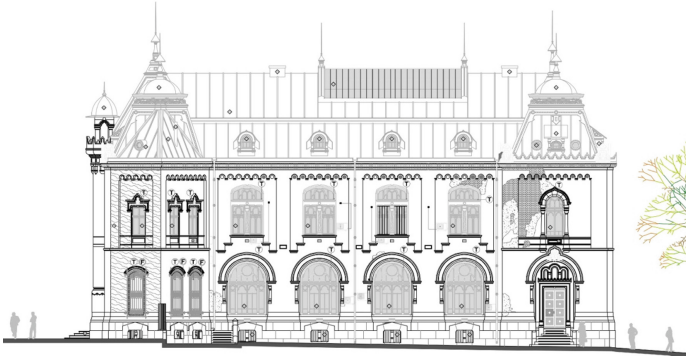


Fig. 3. The lateral facade of Craiova's city hall – degradations investigation Project by Getrix S.A., Craiova

three registers. The lower register is conceived as a string of stone cufflinks, the middle register is composed of simple geometric elements, and the upper one is composed of a line of arcades.

The western and northern façades have the same compositional elements being treated identically. However, both differ from the main façade in a simplified approach. The volumetric conception is the same and is based on the marking of the central area of the façades by retractions or protuberances from the general plan and the corner areas are marked similar to those of the main façade.

The lower register of the ground floor is defined by the windows withdrawn from the general plan of the façades that have very generous dimensions and circular upper part. The window frames of the lower horizontal register are formed with simple arches supported by engaged columns. Emblems that contain the symbol of the caduceus framed by floral garlands mark the key to the vault. A particular aspect is that of the upper endings of the emblems in the form of braces (Fig. 3).

The central area of the western face is marked due to the vertical elements that mimic the window's forms of the upper register. These elements rise above the cornice with the help of consoles treated like the turrets on the main façade. These elements are greatly simplified compared to those of the main façade. The windows of the upper register have no frames and are grouped two by two. Engaged columns with twisted spindles mark the separation between two windows (Fig. 4).

Corner areas are treated differently. Marking the central area by protruding the axis in relation to the general plan, represents the main composition idea. The lower register shall be treated in the same way as the elements of the lower register of the central area. On the northwest corner instead of the ground floor window there is a secondary access. The gaps of the upper register of the corner areas have much reduced proportions compared to the rest.

For the eastern façade, the decorative language of the façades from the west and north was used, but in a simplified manner. The proportions of the voids and their decorations are identical to those of the façades from the north and west. The cornice is treated differently being simple, with linear decorations. The north-eastern corner is marked



Fig. 4. Facade details of Craiova's city hall personal archive of Getrix S.A., Craiova

identical to the north-western one due to the secondary access existing in the area. Thus, the details of the cornice and the frames are taken over. The wing attached to the eastern side has a triangular volume that bears the proof of the original alignment of the building.

4 The Physical and Chemical Degradations of the Historical Monument Facades

The degradation analysis took into account both the physical affections of the elements and the harmful interventions. The approach to the study of degradation was based on two instruments: the *type of material* and the *intensity of the effect*. Thus, degradations were identified on the plasters, carpentries, masonry, metal elements and decorative elements. From the point of view of intensity, three degrees were taken into account:

- low degree - in which only the superficial layer of the element is affected.
- medium degree - in which several component layers are affected, but integrity is supported.
- high degree - in which the element is affected in deep both at the level of the upper layers and in terms of mechanical condition.

The main causes of the degradation of the building were determined by the water infiltrations, the phenomena of dilation and contraction generated by the warm-cold fluctuations, the aging of the finishes, the deposition of biological compounds or salts. The pollution covered the facades of the edifice with tar deposits and adherent atmospheric



Fig. 5. The facades degradations investigation. Project by Getrix S.A., Craiova

dusts and determined most of the stain type degradations. The presence of vegetation favored the development of biological attack, especially on the southern side of the building. The infiltrations were caused due to the degradation of the downpipes and the rainwater leaks on the surface of the walls.

The façade analysis revealed manageable degradations, without serious losses, difficult to reconstruct. From the point of view of material damage, the most degraded façade is the western one, the plaster layer being 25% lost. The rest of the facades had the integrity of the elements, with small exfoliations or fragmentations. Still, large areas of plaster showed micro-cracks, which is indicative of the imminent aggravation. The coating with successive layers of plasters made with inappropriate mortars represents both a harmful intervention and a cause of degradation.

The objects made of stone massifs that form the access steps on the three sides of the edifice as well as the decorative elements made of similar-stone (columns, frames, portals, consoles) present numerous cracks of different sizes. These led to loss of original matter.

Regarding the harmful interventions, there were identified replacements of the original metal grids, the placement of conditioned air appliances and lighting fixtures with inadequate shapes and style. However, fortunately, much of the original elements were maintained.

The building of the former Bank of Commerce has exceptional architectural value being classified as an architectural monument of national importance. Fortunately, the interventions suffered over the years have not irreversibly altered the original substance, the initial conception being perceptible. Through the restoration interventions, it will be aimed at highlighting the historical monument, being necessary to remove all the elements that affect the composition as well as all the causes of degradation. The interventions will be carried out in compliance with the provisions of the Venice Charter and the legislation specific to the restoration and preservation of historical monuments (Fig. 5).

5 Main Interventions Related to Identified Degradations

In order to control the negative effects brought by the biological deposits on the eastern façade, a biocidal layer proved necessary. The biocidal operation is performed with a base of quaternary ammonium salts brushed and sprayed. It is emphasized that the biocide must be general and applied both for curative and preventive purposes.

For the control of superficial deposits of dust, guano, tars, which were found especially in the upper part of the profiles in the cornice area but were also met in the lower areas and even on the vertical fields, works have been proposed to overcome the adherent deposits.

After a preliminary analysis, dust removal was necessary. The dust was treated with air jet and soft brushes, cleaned with a water jet at low pressure and the application of compresses made of cellulosic powder and PH neutral water in order to eliminate the of existing astrals.

The appearance of saline veils has been identified in areas with infiltrations or in areas with capillary moisture. The removal of the soluble salts from the areas with saline efflorescences visible on the surface is achieved by dry brushing, in a first phase, after which are applied series of successive compresses with cellulosic powder and water.

Cleaning of the Surfaces (Decorative Elements)

Being a complex, delicate and irreversible technical intervention, it can also have negative results in the situation where all the characteristics of the surfaces to be cleaned are not taken into account and are not chosen the techniques and substances best suited to the given situation.

It is necessary to take into account the state of deterioration/conservation of the surfaces as well as the fact that the cleaning operation can be interspersed (within the same area) with other operations. In certain situations, cleaning could be done after the consolidation operation. The cleaning will be carried out according to the specificity of the materials that make up the decoration of the façades (mortars, stone, metals).

From the methodological point of view, it is recommended a combination of chemical, mechanical or physical methods, which, combined, can provide a unitary result: solvent compresses, various brushes, micro sandblasting, gommage (dry) hydro gommage, etc.

The operation of filling with mortar for the restoration of the missing areas refers to those areas where the previous unsightly fillings were eliminated or in the extremely degraded areas (erosions, lacks in decorative elements, profiling, etc.).

Depending on the area where the filling (repair) is applied, the variation of the particle size of the aggregates and of the dye will be made, taking into account the characteristics of the area adjacent to the intervention. The integration of colors and textures will respond to the same exigencies, so that the intervention presents a higher degree of compatibility.

The execution of the filling with mortar is performed after a preliminary careful cleaning of the lacunae area. The filling is executed in successive layers of mortars, the grain will be different decreasing from the inside out. When the surface mortar reaches its optimum plasticity, it will be done to texturing it in accordance with the adjacent area.

The replantation of the detached fragments in the initial position represents another direction of inevitable intervention in the process of restoration of the studied edifice. This was preceded by preliminary tests, performed on fragments of stone having the shape and volume close to those of the original fragments. If the fixing with restoration mortar with very fine grain gives satisfaction, it will be done as such; if not, in an extreme case, the replanting is done with the help of the epoxy resin and the glass fiber rods.

Volumetric Recording of Parts

This operation aims to complete the missing areas of the elements, both for aesthetic reasons and for functional reasons. The treatment follows to restore the decorative elements, as far as possible - the aesthetic, physical and initial mechanical characteristics. It can be executed both with the help of the restoration mortars (the modeling of the missing areas with the help of mortars) and by restoring the missing or irretrievably degraded elements at scale, by brushing from stone elements.

Treatment of Cracks

The operation refers to the consolidation of the areas where cracks appear in the decorative elements of the stone, stone plaster or mortars (ornaments, profiles, field). The treatment of the cracks follows the application of a strengthening material at the interface of the two surfaces of material detached by cracking. In the situation of the existence of strong cracks, having the character of cracks, their treatment will be done by injection with fine grain restoration mortar and appropriate fluidity. After the dust removal of the cracked area is carried out, the crack is thoroughly washed by manual injection of distilled water. After evaporation of the water, a mortar mixture is inserted into the crack made by mixing a very fine powder of the same type of stone as the object treated with a consolidate based on Ethyl Silicate (OH). The solution of Ethyl Silicate can also be added later by drip with the help of a syringe along the fissure.

Strengthening the Surfaces

Visual analyses show that the facades walls and decorations of the monument is built of different lytic materials that lend themselves to mineral consolidation. As such, all the areas representing the lack of cohesion at the level of the surface of the decoration will be treated by this method. The application of the material can be done repeatedly, until the expected result is obtained. Therefore, the reinforcement by injection will be done by taking into account this aspect and will have a minimalist character.

Water-Repellent Treatment

This operation must give the outer surfaces a resistance to water contact. The treatment follows the application of a product that does not close the protrusions of the surfaces but which has the property of electrostatic rejection of the water molecules. The substance used as water-repellent is applied on the entire surface by uniform impregnation starting with the upper areas and gradually continuing towards the base of the monument, level by level.

6 Conclusions

The method of investigations on the facades elements permitted a deep analysis of the causes that led to the apparition of the degradations and the interventions were decided as strict consequence. A first conclusion related the use of adequate materials with good resistance in time to the relatively low impact of degradations.

Mainly, the causes of degradations are the natural ageing of the building and the improper interventions over time. Therefore, we found a general layer of dust and deposits due to pollution. The loss of facades mortars was generated only by the improper use of materials or to the water infiltrations. Fortunately, the decorative elements of the facades are not lost. A very low number of elements have to be recovered. The existence of similar elements in all situations made the reconstruction of lost elements possible.

As a general conclusion, we should mention that all decisions of interventions based on the Venice Charter. The missing of the original project's plans was replaced by the detailed compositional analysis. The use of analogies and of the urban context helped in understanding the hierarchical conception of the facades and the general forms. The project revealed a coherent and efficient strategy for our field of interests.

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