

PROJECT:

Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo

2015
-
2022



Commission to Preserve National
Monuments of Bosnia and Herzegovina



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Contents

Acknowledgements	5
Preface	6
Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo	7
The significance of the National Museum of Bosnia and Herzegovina	9
The condition of the Museum complex before the Project	11
Preventive conservation and the methodology applied	14
The Project realization	17
The Project Implementation, Phase I 2015 – 2019	17
<i>Technical protection</i>	18
<i>Restoration of balustrade fences of the complex of the National Museum of Bosnia and Herzegovina</i>	20
<i>Equipment for the protection of the Museum collections</i>	21
<i>Restoration of roofs on the pavilions of the Archeological Department and the Natural Sciences Department</i>	22
<i>Restoration of the wall and ceiling paintings in the Prehistory Section</i>	25
<i>Restoration and equipping of the depots</i>	28
The Project Implementation, Phase II 2019 – 2022	29
<i>Improvement of sewage installation aimed at eliminating the risk of flood</i>	29
<i>Urgent restoration of the roof of the Department of Natural Sciences Pavilion</i>	33
<i>Partial restoration and replacement of wooden window frames and doors (joinery) – the Department of Natural Sciences pavilion</i>	33
<i>Replacement of the decrepit electric system to reduce the risk of fire</i>	37
<i>Illumination of exhibition spaces</i>	38
My Bosnia and Herzegovina – My heritage	40
Conclusion and the Project results	41
Bibliography / List of references	43
Biography	44
Review	46

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Preface

After a successful realization of more than twenty rehabilitation projects of the most endangered National Monuments, the Commission to Preserve National Monuments started a realization of the Project named *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* in 2015, in cooperation with the U.S. Embassy in Bosnia and Herzegovina and financial support of the American Ambassadors Fund for Cultural Preservation. The Project was rather up-to-date in the period when, due to the unresolved legal status and a poor financial situation, the National Museum of Bosnia and Herzegovina was closed down for three years and that happened for the first time in its 124 years long history. The cultural workers led the campaign named „*I am the Museum*” wishing to draw attention to the dire financial situation of the Museum. The Project’s activities were envisaged to address the Museum’s requirements to ensure optimum conditions for the safekeeping of the Museum collections, the work of its curators, as well as the safety of its visitors. Thanks to the financial support from the American Ambassadors Fund for Cultural Preservation and the strong commitment of the American Ambassador, H.E. Maureen Cormack, the Project opened the gates of the Museum to the public.

In addition to the National Museum of Bosnia and Herzegovina, the project was supported by the Ministry of Civil Affairs in Bosnia and Herzegovina, the Institute for the Protection of Monuments within the Federal Ministry for Culture and Sport, the Government of the Sarajevo Canton, et.al.

The Project’s realization took place from 2015 to 2022, in cooperation with the U.S. Embassy in Bosnia and Herzegovina. The Project’s activities were carried out through a multi-disciplinary approach, preventive conservation measures and conservation and restoration procedures. The Commission carried out this complex Project by providing technical expertise along with administrative, legal and financial responsibility.

The results of the Project are numerous, since conditions have been established to exhibit the collection of the Prehistory Section, which had been closed since 1992, risks to physical security, fires, floods and negative environmental impacts have been mitigated or eliminated, conditions have been established for the preservation of collections and the work of curators, as well as for further development of the Museum.

The Executive Officer

Mirzah Fočo

Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo

Mirela Mulalić Handan, Adi Ćorović, Medina Hadžihasanović Katana, Aida Bičakčić, Jasmina Memić



*This Museum (the National Museum)
is the Land's perception of itself*

Ivan Lovrenović

INTRODUCTION

The National Museum of Bosnia and Herzegovina represents the first purposefully designed museum building in the Austro-Hungarian period (1878-1918) in this part of the world. The Museum complex, which consists of the pavilions of the Archeological Department, the Department of Natural Sciences, the Ethnological Department and the Administrative building

with the library located around the Botanical Garden, was designed by the Czech architect Karl Paržik (Jičin, Czechoslovakia, 1857 – Sarajevo, June 16, 1942), in the Neo-Renaissance style. It was opened to the public in 1913. This monumental architectural design demonstrates the significance and importance of the Institution itself. (The Commission to Preserve National Monuments, 2018(1)) The Museum's holdings consist of more than 3,000,000 artefacts of outstanding significance, not just for studying the history of Bosnia and Herzegovina, but the world history as well.

Despite the fact that it was greatly damaged during the 1992-1995 war, thanks to the efforts and enthusiasm of its employees all Museum collections have been preserved. The status of the National Museum in the post-war period, i.e. after 1995, was neither legally nor financially regulated, which brought about difficult financial situation, poor conditions for the safekeeping and presentation of artefacts to the public, as well as for the safety of visitors so that, in 2012, the Museum Management was forced to close the Museum for the public.

The Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* (hereinafter: the Project) was conceived in response to the difficult position of the Museum while it had been closed down for three years. The Project was developed and realized by the Commission to Preserve National Monuments in cooperation with the U.S. Embassy in Bosnia and Herzegovina, while the funding for its implementation was provided through support of the American Ambassadors Funds for Cultural Preservation. The Project activities were envisaged with the aim of eliminating risks posed to the collections, improving curators' working conditions and the conditions for safe-keeping and exhibiting the collections, as well as to open the gates of the National Museum of Bosnia and Herzegovina to visitors.

A wide range of actions and interventions were carried out, ranging from physical protection of the building of the National Museum of Bosnia and Herzegovina that was achieved by the installation of the video surveillance system and anti-theft systems¹ in the whole Museum, restoration of the balustrade fences of the Museum complex; setting up the fire protection by installing fire-alarm system and replacing decrepit electrical installations and wirings; introduction of flood protection by refurbishing the sewage network, the elimination of risks of negative environmental impacts by restoring/replacing roofs and windows; ensuring conditions for safe-keeping and conservation of the collections by restoring and equipping the depot and purchasing sophisticated equipment for the protection and restoration of the artefacts. Restoration of the wall and ceiling paintings enabled the re-establishment of the permanent exhibition in the Prehistory Section, which had not been in function since 1992. All the Project activities were carried out in two phases, from 2015 to 2022.

Intervention on a historical edifice cannot commence without a thorough and in-depth understanding of its meaning and purpose. This is why a multidisciplinary team was engaged in its realization.² The Commission to Preserve National Monuments, the Institute for the Protection of National Monuments of the Federal Ministry for Culture and Sport, and experts of the National Museum of Bosnia and Herzegovina monitored the implementation of measures envisaged for preventive conservation and conservation-restoration works.³ Given the specific nature of some of these activities, experts from other institutions and specialized companies were also consulted.⁴

In the process of carrying out the works, some new facts were discovered. Thus, extensive project-technical documentation, photo and video documentation, accompanied by feasibility studies on the conservation treatment and reports on all phases of work, were compiled. A promotional material, i.e. a film about the Project activities and posters, was produced, along with the presentations and lectures on preventive conservation and the results of the Project to students and a wider audience.

1 The installation of anti-theft systems was not the act of the Commission's Project, and it was financed by the National Museum of Bosnia and Herzegovina as an integral part of physical protection of the Museum complex.

2 For both phases, the Commission adopted decisions on the establishment of implementation teams. Pursuant to the Decision No. 02.-7.2-52/15-11 of December 29, 2015, the team for implementation of the Project's Phase I was formed with the following members: the Head of the Project POC Mirela Mulalić Handan; the Project Coordinator Medina Hadžihasanović Katana; the Project Coordinator's Deputy Aida Bičakčić; the Project Assistants: Milka Grujić Zeković and Mak Bećirbašić; the Public Relations Advisor Inka Peršić; the Legal Advisor Bedrudin Nurikić and Financial Advisor Maja Turkić Dervišević. Pursuant to the Decision No. 03-7.2-116/19-1 of December 10, 2019, the team for implementation of the Project's Phase II was formed with the following members: the Head of the Project POC-Mirela Mulalić Handan; the Project Coordinator Adi Čorović; the Project Coordinator's Assistant Azra Delalić; the Technical Service Coordinator Mak Bećirbašić; the Public Relations Advisor Inka Peršić; the Legal Advisor Bedrudin Nurikić; the Financial Advisor Maja Turkić Dervišević; the Secretary Vesna Obućina, and the External Associate for Protocol Sanela Tvrtković.

3 The Commission signed Tri-Partite Agreement with the National Museum of Bosnia and Herzegovina and the Institute to Protect National Monuments of the Federal Ministry for Culture and Sport, whose experts were engaged in activities dealing with their competence, jurisdiction and expertise. On behalf of the Institute to Protect National Monuments, the supervision was carried out by architect Azer Aličić. Depending on the requirements of Project activities, the following experts from the National Museum were engaged: Esad Vesković, Andrijana Pravidur; Azra Bečević Šarenkapa and Ana Marić.

4 The following external experts were engaged: architect Azra Hadžić, DSC Doo Company, Sarajevo; electrical engineer Damir Mujezinović; civil engineer Predrag Kožul and Jasmina Memić, architect specialised in illumination design.

The significance of the National Museum of Bosnia and Herzegovina

The National Museum of Bosnia and Herzegovina is the oldest such institution in Bosnia and Herzegovina. It was established in 1888, during the Austro-Hungarian rule and named the National Museum of Bosnia and Herzegovina (Landesmuseum für Bosnien und Herzegowina). Since 1913, this building complex was the first such complex built in this part of the world designed to suit the needs of activities and functions of the newly established Museum. Karl Paržik, the Czech architect, who worked in Sarajevo for 60 years and was buried here, designed it. The Museum complex consists of four pavilions (the Archeological Department, the Department of Natural Sciences, the Ethnological Department and the Administrative building with the Library), placed around the rectangular inner yard, which is the main part of the Botanical Garden. There is a park surrounding the pavilion, while on its southern side, there is a park facing the Wilson's Promenade. The complex occupies a total of 25,5 hectares. (The Commission to Preserve National Monuments, 2018(1))

In the urban structure of Sarajevo, the Museum complex was positioned in the then city suburb as a determinant of further expansion of the city towards the West, i.e. towards the Sarajevo Field. In today's structure of Sarajevo, the Museum complex represents the backbone around which cultural, educational and administrative buildings have been built.

As for the characteristics of its style, this building unit has been classified as a Neo-Renaissance building, especially in the context of its urban concept. The style of this building unit is also defined by Neo-Baroque decorations, and by the division and design of its walls, especially on the Archeological Department facade. The Botanical Garden contributes to the "Renaissance" impression of the building. (The Commission to Preserve National Monuments, 2018(1)) The Botanical Garden was designed and created in 1913 by the botanist Karl Malý. With all its collections, it was designed to serve for scientific research in all botanical branches, as well as for the relaxation and enjoyment of its visitors.⁵

All pavilions have a ground and first floor (P+1) with high ceilings, while basements accommodate depots, laboratories and conservators' workshops. All the individual buildings have centrally positioned and impressive entrance halls. The organization of the Museum departments influenced the architectural concept of the Archeological Department pavilion; thus, in space-wise, it is divided into the Prehistory Section, on the east side, and the Antique and Middle Ages Section, on the west side. However, they are both connected by the entrance hall and are designed in the same style. The interior of the Prehistory Section has walls painted with extraordinarily valuable Secession (i.e. Art Nouveau) works. The Department of Natural Sciences pavilion is a home to abundant collections of the natural heritage of Bosnia and Herzegovina along with depots and conservators' workshops. The Ethnological Department pavilion and the Administrative building pavilion with the Library have identical outer facades while the interior design has been adapted to the Ethnology collection and to Administration and Management, as well the Library needs, respectively. (The Commission to Preserve National Monuments, 2018(1))

5 <https://www.zemaljskimuzej.ba/bs/izlozbe/botani%c4%8dki-vrt> [12th, May 2022]

Wood-carving, done specially for the interior of the Ethnological Department, is exceptionally valuable, especially the monumental ceiling decoration, interior doors and wooden stairs with the banister, designed by the architect Josip Pospišil (Nahošovice, Moravia, February 12, 1868 – Sarajevo, 1918). The sculptural and other decorative works were carried out by Izidor Jung (Valpovo, April 8, 1872 – Osijek, July 3, 1961) and Ruse (?) from Vienna.

The display cabinets and pieces of furniture, made exclusively to house collections, are of a great value, according to the sketches drawn by the architect Josef Škorpilo (1856-1931). The display cabinets were made of a high-quality wood, and they still provide a fully functional protection for the Museum holdings. (The Commission to Preserve National Monuments, 2018(1))

The Museum buildings and collections have an extraordinary value not only for Bosnia and Herzegovina, but also for the European and world history. In the Museum's holdings and item displays there are more than 3,000,000 items, and the unique archeological artefacts of the Butmir and Glasinac culture (The Commission to Preserve National Monuments, 2015) are among them. One of the most famous artefacts in the Museum is the Sarajevo Haggadah, the illuminated 14th century Jewish manuscript⁶, kept in a special room together with other valuable items from the medieval collection, such as the remaining pieces of the cloak of the Bosnian king Tvrtko I Kotromanić and the funerary cloak of Duke Mirko Radojević⁷.

Thanks to the efforts and enthusiasm of the Museum employees, and despite the war devastation in the period from 1992 to 1995, all collections in the Museum have been saved.

Because of its exceptional significance, the Museum complex has been designated as the National Monument of Bosnia and Herzegovina as per the Decision that was adopted by the Commission to Preserve the National Monuments. Its exceptional significance is reflected in the architectural, aesthetic, ambiental and documentary values, and the values it has for the whole society, as well as for its preserved authenticity and integrity attributes. (The Commission to Preserve National Monuments, 2018(1))

6 <https://www.zemaljskimuzej.ba/bs/arheologija/srednji-vijek/sarajevska-hagada> [12th. May 2022]

7 <https://www.zemaljskimuzej.ba/bs/arheologija/srednji-vijek/ostaci-pogrebnog-pla%C5%A1ta-kneza-mirka-radojevi%C4%87a> [May 12, 2022].

The condition of the Museum complex before the Project

The size and complexity of the building complex of the National Museum of Bosnia and Herzegovina, as well as the destruction and devastation caused by the war and the impossibility of its proper maintenance are just some of the reasons the condition of the Museum complex was relatively poor. Although the Museum areas have been partially restored as part of the earlier initiatives, some of its parts were still in poor condition and required repairs. These are some problems that were detected and that have been solved by the Project, in both its phases (The Commission to Preserve National Monuments, 2015):

- Inadequate supervision and physical protection of the entire area of the National Museum of Bosnia and Herzegovina have affected both its buildings and its collections that were exposed to burglary and vandalism.
- Fire protection systems were set up only in the Ethnological Department pavilion, and in the Administrative building with the Library, whereas other pavilions and their collections were exposed to that risk.
- The roofs and skylights above the Prehistory Section in the Archeological Department pavilion were considerably damaged, and the rainwater leaks damaged the walls and ceilings together with valuable painted surfaces. Therefore, the exhibition in the Prehistory Section has been unavailable since 1992.
- The roofs and skylights of the Department of the Natural Sciences pavilion are also damaged.
- The poor condition of windows and doors allowed for the negative influence of bad weather conditions inside the edifices that resulted in greater wall dampness and deterioration of valuable collections.
- Electrical installations and wirings in all four pavilions are decrepit, and the collections and edifices are exposed to the risk of fire.
- The existing underground sewage pipes neither had enough capacity nor ability to receive storm water during heavy rainfalls, which resulted in floods and sewage retracing.
- The Museum depots and workshops were in extremely poor condition, inadequate for keeping artefacts, and they needed the restoration of the walls, ceilings, floors and installations, as well as purchasing of the equipment that would provide for better conditions for storing, safekeeping and working with artefacts.

BOTANICAL GARDEN

ADMINISTRATIVE BUILDING WITH THE LIBRARY

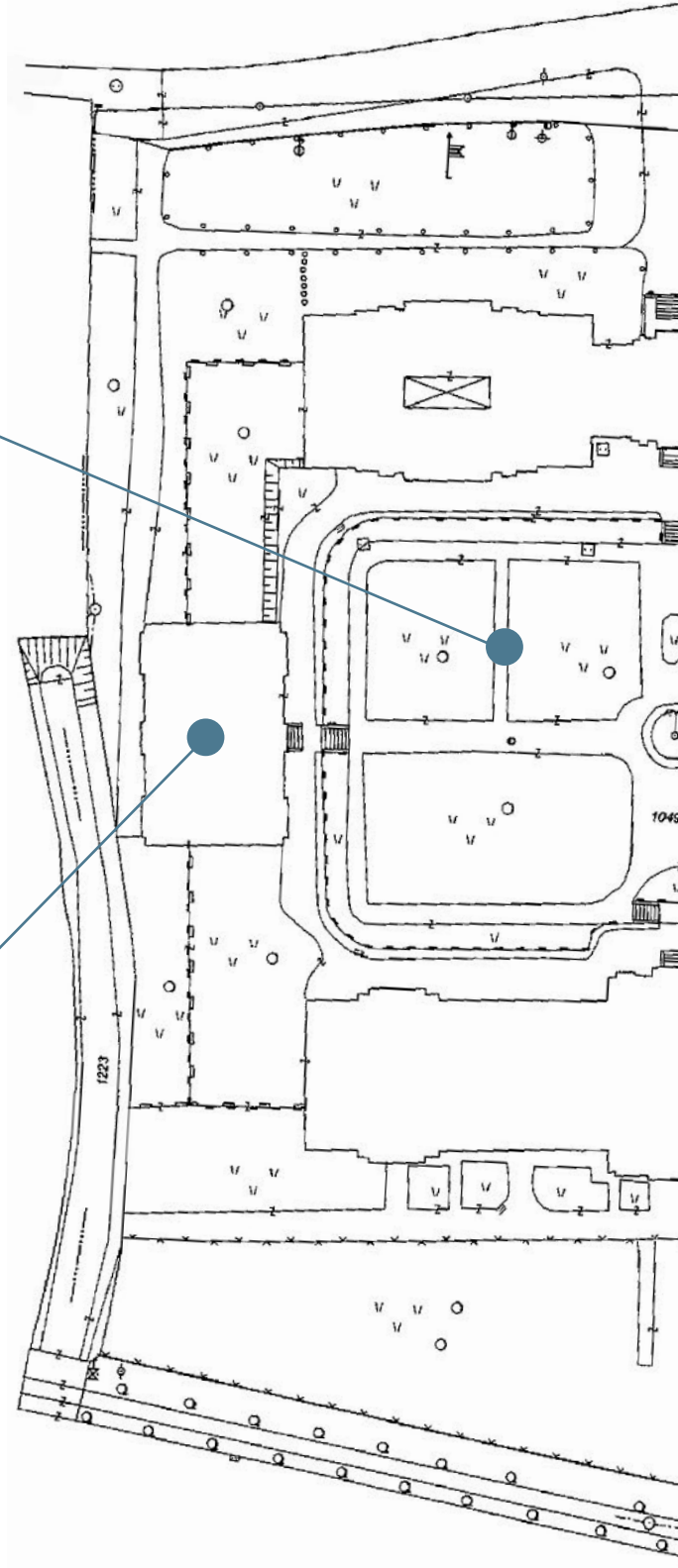
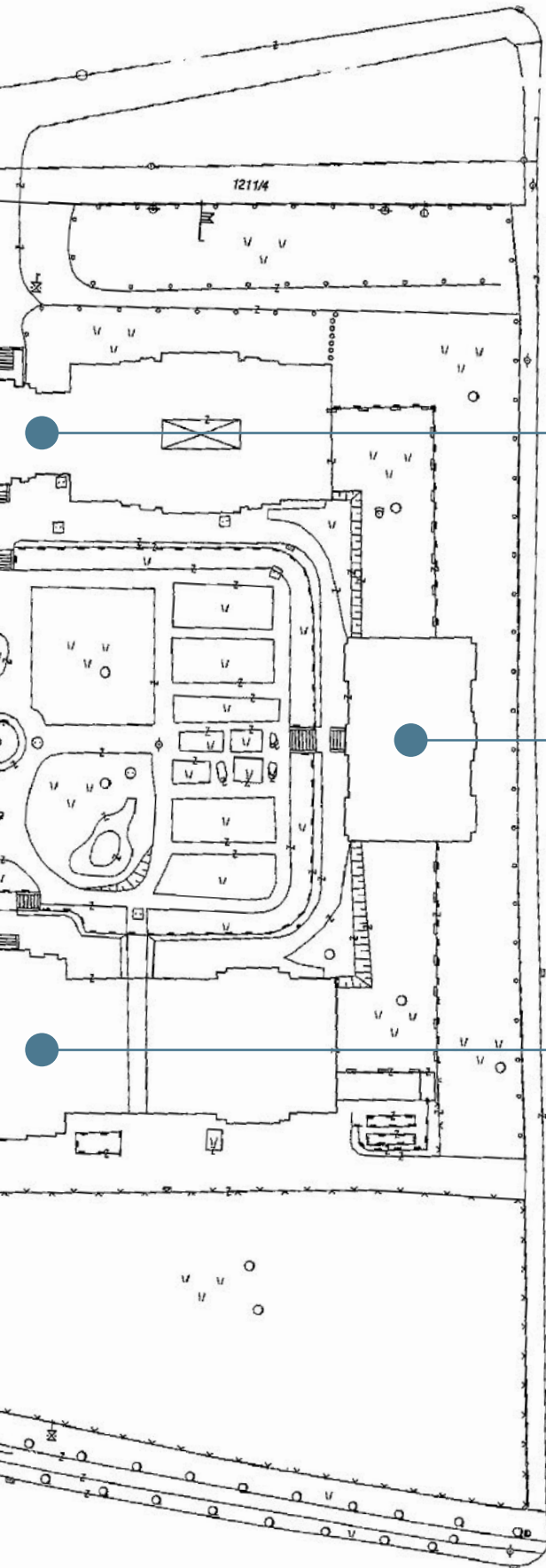


Illustration 1: Aerial plan of The National Museum of Bosnia and Herzegovina, Commission to Preserve National Monuments



**ARCHEOLOGY
DEPARTMENT PAVILION**

**ETHNOLOGY
DEPARTMENT PAVILION**

**NATURAL SCIENCES
DEPARTMENT PAVILION**

Preventive conservation and the methodology applied

As a proof that this was a significant and avant-garde Project, and generally, in order to grasp the importance of this multi-annual enterprise, it is necessary to take a look at the period of several past years, when the fire in the similar institution in Brazil – in the National Museum in Rio de Janeiro in 2018, destroyed almost 20,000,000 artefacts, at the time when the agreement on financing the Fire Prevention System in the building of this Brazilian Museum was concluded, but not implemented.⁸

We can also remember the event that happened some fifty years ago, when, in the 1960s, a flood caused irrecoverable damages to the cultural-historical heritage of Florence, and when almost fifteen museums were damaged. The Crucifixion (Cimabue) from the 13th century that was kept in the Santa Croce church was damaged, among others, and its restoration lasted for years and demanded engagement of numerous experts, as well as large technical and material resources.⁹ The collection of Musei Capitolini from Palazzo Conservatori (Campidoglio) in Rome was also damaged after the floods in late 1990s, and as a result, a part of the collection was permanently transferred into the building of the former thermal-power plant Montecatini on the outskirts of the city that was thus turned into a new exhibition space.¹⁰ All the above-mentioned damages could have been lesser or maybe even avoided if effective preventive measures had been previously applied.

In the middle of the 20th century, Italian restorers, prompted by these negative experiences, developed an extensive practice of preventive restoration, relying on firm theoretical foundations of one of the founders of contemporary restoration philosophy, Cesare Brandi. In the period before signing the Venice charter, following the example of restoration of ancient remains in Sicily (Gela) and using modern means aimed at active protection, one of those restorers, Franco Minissi, proved that presentation and restoration were inseparable activities. It is these European activities that the concept of the preventive restoration Project of the National Museum of Bosnia and Herzegovina collections was based on. (Minissi, 2011)

The Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* has been developed in accordance with the practice of some distinguished international institutions, such as ICCROM-a (International Centre for Studies for the Conservation and Restoration of Cultural Heritage) and ICOM-CC (International Council of Museums - Committee for Conservation) whose definition of the „preventive conservation“ is:

“Set of measures and actions aimed at avoiding or minimizing future deterioration or loss. They are conducted on the environment and in the context of the good, generally a set of goods, regardless of their condition or era. Such measures and actions are indirect – they do not interfere with the materials and structure of the goods and do not change their appearance.”
(ICOM-CC, 2008)

⁸ <https://www.theguardian.com/world/2018/sep/03/fire-engulfs-brazil-national-museum-rio> [23rd, December 2021]

⁹ <https://www.ilfattoquotidiano.it/2018/11/04/firenze-a-52-anni-dallalluvione-il-patrimonio-artistico-non-e-completamente-al-sicuro-servono-prevenzione-e-piu-fondi/4740705/> [23rd, December 2021]

¹⁰ http://www.centralemontemartini.org/museo/storia_del_museo [23rd, December 2021]

Preventive conservation of the collections encompassed a range of conservation-restoration interventions on the Museum buildings that are itself exceptionally valuable architectural achievements from the beginning of the 20th century.

Preventive conservation of the collections in the National Museum of Bosnia and Herzegovina was not merely a technical architectural operation; it was carried out in the spirit of contemporary trends so that it is possible to recognize the ideas of Giovanni Carbonara and his predecessor Renato Bonelli, the most distinguished theoreticians of restoration in the second half of the 20th century in Italy, who stated that:

„All technical-architectural operations have to be historized. Separation of consolidation (in the case of this Project – prevention) from restoration presents a conceptual error that results from the wrong definition of historical assets... restoration implies both the historical critical understanding as well as scientific technical knowledge! It is the point in which historical and technical, i.e. operational components merge.“ (Carbonara, 1997, pp. 454-455)

Prevention is not an ephemeral technical activity, since it demands, just like restoration, a critical assessment and control that can be seen on the example of the activities carried out and completed within this Project.

The activities in this Project were carried out in accordance with the recommendations given by the experts from the Washington-based Smithsonian Institute, one of the most renowned research centers that comprises nineteen museums supervised and run by the U.S. Government, and which, during 2016, did the full assessment of the state of the Museum collections and the conditions in which they had been kept. The recommendations given by the Smithsonian Institute include:

“Shoring up the building envelope of each pavilion structure should be a top priority of construction projects planned for the space.... Long-term preservation of the Museum collections is dependent on the ability to protect them from agents of deterioration: pests, fire, water, incorrect temperature, incorrect relative humidity, physical forces, light/radiation, pollution, thieves/vandals, or custodial neglect. The building envelope is the greatest asset to carrying out preventive conservation initiatives.” (Smithsonian Institute, 2016)

The suggestion for the Project activities was guided and instructed by the Feasibility Study named “The National Museum of Bosnia and Herzegovina - the Feasibility Study“ (Aličić, 2013), along with the risk assessment done for the Museum collections on the ICCROM methodology and the assessment of the National Museum of Bosnia and Herzegovina conservators.

Every intervention on a historical building, from the standpoint of conservation as a discipline, is a sophisticated and modern act since it is done in an age different from the one in which the building in question was built or made and, therefore, it represents a creative act. This creative act is limited by the conservation approach – i.e. the minimum of indispensable interventions, while in this Project the approach to conservation

was prompted by purely functional needs of the Museum. Before each intervention, preliminary research activities were undertaken to assess the condition of the building and choose the most optimal option for the restoration treatment. Every intervention was carefully analyzed and chosen, whilst the Project documentation was revised several times. Therefore, this Project has been both complex as well as delicate in terms of balancing the conservation requirements on the very edifice and the requirements to secure optimal conditions for safekeeping, presentation, operation and a further development of the Museum.

In order to ensure the longevity of the conservation-restoration interventions, it is necessary to introduce adequate monitoring and control of the environmental impact and to implement measures of a regular maintenance. ICCROM also developed a special method called RE-ORG¹¹, aimed at re-organizing the Museum's holdings and collections. Thus, conditions for safe and meaningful usage of resources have been provided in a creative way. After the implementation of two phases of preventive conservation, a new possibility for the National Museum of Bosnia and Herzegovina arose, i.e. the continuation of its activities in accordance with the ICCROM methodology.



Photo 1: The National Museum of Bosnia and Herzegovina, Commission to Preserve National Monuments

11 More information about RE-ORG methodology can be found on <https://www.icrom.org/programmes/re-org>

The Project realization

The Project activities were carried out in two phases between December 2015 and September 2022. The American Ambassadors Fund for Cultural Preservation approved the Large Grant for the Project named *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* in September 2015. In 2019, after its successful implementation, a continuation of the Project was approved within the same program. Activities of the Project were carried out and done throughout both phases and over a period of seven years, and they significantly improved the conditions for the safekeeping of the collections in the National Museum of Bosnia and Herzegovina.

During the Project's implementation, a valuable technical documentation was compiled and it represents a sound base for further activities on the restoration and improvement of functionality of buildings belonging to the National Museum of Bosnia and Herzegovina, with the aim to reach a higher degree of safety of the Museum collections. The envisaged program of activities represents a comprehensive intervention aimed at introducing modern standards of the preventive conservation of the Museum' collections in Bosnia and Herzegovina.

The Project Implementation, Phase I 2015 – 2019

The Museum collections are exposed to various damage factors, which can be either natural or man-made. These factors include fire, theft and vandalism, water, radiation, inadequate humidity and temperature, various pests, pollution and direct physically caused damage. The activities of the Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* were directly or indirectly focused on protecting against most of the abovementioned damage factors. (Hadzihasanovic Katana & Bičakčić, 2016)

The focus of the Project – Phase I was on the following activities: restoration of roofs in the Archeological Department and the Department of Natural Sciences pavilions; reconstruction of electric installations and wirings, restoration of the ceiling and wall paintings in the exhibition hall of the Prehistory Section, and restoration of the selected depots. The aim of the Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* Phase I was to provide, using preventive measures, a proper physical protection, reduce the risk of fire, ensure adequate conditions for safekeeping and presentation of the Museum exhibits, as well as to improve the work of the Museum curators. Activities on the physical restoration of premises, beside the improvement of conditions of the Museum buildings, have also indirectly improved the protection of the Museum collections. (The Commission to Preserve National Monuments, 2019)

With regard to the type of preventive protection for collections, two series of activities were implemented in the Project Phase I. The first range was related to the protection against physical damage of premises and collections, and it was done through the following activities: restoration of the balustrade

fence which visually and physically defines the area of the National Museum of Bosnia and Herzegovina; development of technical protection measures; installation of a video surveillance system for the whole Museum complex, installation of fire protection systems in the buildings of the Archaeological Department and the Department of Natural Sciences, and its connecting to the previously built-in fire protection systems in the Administrative building and the Ethnological Department. The protection of items of the Museum collection was subject to another set of activities, i.e. preventive conservation of the collections by way of purchasing sophisticated equipment for the control of temperature and humidity. Furthermore, based on the needs, the equipment for the Museum conservation and restoration workshop for identification of components/materials of artefacts, i.e. for gathering information of vital importance for determining the measures of preventive conservation was purchased. (The Commission to Preserve National Monuments, 2019)

Technical protection

The Project of technical protection was drawn up and implemented by the DSC d.o.o. Company Sarajevo, and it included the following: the projects of video surveillance system for the Museum complex; the anti-theft system project; the project of fire protection systems for the buildings of the Archeological Department and the Department of Natural Sciences as well as the project of fire protection system for the room with Haggadah and for the Library. (The Commission to Preserve National Monuments, 2019) It is important to emphasize that the spots and types of video surveillance cameras, fire-alarms, alarms, and other elements of these protection systems were chosen and positioned so that potential damage on the Museum interior art features, such as the wood-carved ceilings in the Ethnological Department pavilion or mouldings in the halls of other buildings would be avoided. The aim was to install a state-of-the-art system of video surveillance and fire protection system that protects architectural and aesthetic values of these historical edifices.

The installation of video surveillance provided a comprehensive and thorough monitoring of the Museum complex, both the interiors and the exterior of the buildings, and at the entire perimeter of the Museum complex. By installing the modern video surveillance systems, together with all 107 outer and inner cameras and improvement of the control center, all vitally important spots of the Museum, including entrances, corridors, exhibition areas as well as the surroundings of the Museum complex, have been secured and protected with the video surveillance system that significantly improves the physical protection of the Museum collections. (The Commission to Preserve National Monuments, 2019) The Museum staff members were trained to operate the video surveillance system. The works were performed and completed by the Securitas d.o.o. Company Sarajevo.



Photo 2: Fire detection system, Ideologija, Sarajevo



Photo 3: Video surveillance system, Ideologija, Sarajevo

The fire protection system was installed in the pavilions of the Archeological Department and the Department of Natural Sciences, while it was connected to the existing fire protection systems in other two buildings. All important places in all areas, exhibition areas, office premises, depots and halls are now equipped with smoke detectors (Wi-Fi or cable), while the halls and lobbies are equipped with fire alarms and sounders (visual and audio warning). (The Commission to Preserve National Monuments, 2019) The works were performed by the Vatrostemi d.o.o. Company Sarajevo. INZA Institute (Scientific Research Institute for Risk Management) provided a positive, independent and professional report about the quality of the fire protection system.



Photo 4: Video surveillance system, Ideologija, Sarajevo

Restoration of the balustrade fences of the complex of the National Museum of Bosnia and Herzegovina

A concrete fence surrounds the area of group of buildings of the National Museum of Bosnia and Herzegovina. This fence is an important element of the aesthetic value of this architectural ensemble. Over a period of time, the balustrade fences suffered a great damage that led to jeopardizing their protective function. The Project of balustrade fence renovation was a part of *The Main Project of the Restoration of roofs of the pavilions of the Archeological Department and Natural Sciences and of the concrete balustrade fences on the terraces of the complex in the National Museum of Bosnia and Herzegovina* (ArhiPlus, 2016), which was designed and carried out within the Commission's Project. The fence was damaged, some balusters were either missing or broken, so the restoration and reconstruction works were aimed at returning their visual integrity. The works included the following: removing the overgrown vegetation from the fence; making the molds for the missing balusters; making the missing balusters; renovation and replacement of the damaged and missing balusters and beams on all four terraces of the Museum complex. (The Commission to Preserve National Monuments, 2019) The works were carried out and completed by the Neimari d.o.o. Company, Sarajevo.



Photo 5: Restoration of the balustrade fences of the complex of the National Museum of Bosnia and Herzegovina, Ideologija, Sarajevo



Photo 6: Restoration of the balustrade fences of the complex of the National Museum of Bosnia and Herzegovina, Commission to Preserve National Monuments

Equipment for the protection of the Museum collections

In cooperation with the National Museum of Bosnia and Herzegovina conservators, who provided the list of requirements, mobile devices for preventive conservation of Museum items were purchased. The oxygen generator LC_MS (for disisnectization of organic material) was placed in the textile restoration workshop; a cooling chamber for cold ULV fogger actions of the material was placed in the Department of Natural Sciences. Conservation laboratories of the National Museum of Bosnia and Herzegovina are equipped with the following devices: metal surface paint thickness gauge; handheld UV torch for detection of impairments and previous treatments with protective goggles; a TOOLCRAFT digital microscope with a camera; four air dehumidifiers; four air hygrometers, a thermometer and the air quality monitor as well as a CO2 detector. (The Commission to Preserve National Monuments, 2019)



Photo 7: Mobile devices for preventive conservation, Commission to Preserve National Monuments

Restoration of roofs on the pavilions of the Archeological Department and the Natural Sciences Department

The pavilion roofs of the Archeological Department and the Department of Natural Sciences suffered a considerable damage after the last renovation in the late 1990s, especially after heavy snowfall in 2012, and therefore their restoration was of a great importance for both the Museum buildings and its collections. (The Commission to Preserve National Monuments, 2015) One of the Project outcomes was the development of *the Main Project of Restoration of roofs of the Archeological Department and the Department of Natural Sciences, and the restoration of the concrete balustrade fences on the terraces of the complex in the National Museum of Bosnia and Herzegovina*. The main Project involved a technical assessment of the roofing of the Archeology and Natural Sciences pavilions; development and design of the project of roof restoration with all its elements (the roof structure, skylights, balustrade roof fences). (ArhiPlus, 2016) In order to improve the quality of the roof cover, which was originally made of zinc and later of galvanized sheet metal, the Head of the Project and the team experts agreed to use the zinc alloy with titanium and copper inset in a lower ratio. They opted for the zinc roof cover due to its features: flexibility during the building process, corrosion resistance, unusual durability and reduced need for maintenance.

Adapting to the available financial resources and respecting the Main Project's principles, the works on the roofing of the Prehistory Section, i.e. the Archeological Department pavilion, were carried out and completed, given its poor state, and in order to be able to start the restoration of the exhibition hall in the Prehistory Section with an emphasis on restoration of the ceiling and wall paintings. The Prehistory Section is located in the east wing of the Archeological Department pavilion, while the Antique and Middle Ages Section is in its west wing.

The multi-level roofs contribute to the lively volume of the pavilion; in the part of the pavilion with the exhibition halls, their height is emphasized and they end with balustrades. Behind the balustrades, the roof is four-eaved, with a centrally elevated hipped skylight, decorated and emphasized with the balustrades. The lateral ends of the building have shallow three-eaved roofs, while the corridors that connect them with the entrance hall have two-eaved roofs emphasized with balustrades. The central entrance hall is emphasized with the hipped roof. (The Commission to Preserve National Monuments, 2018(1))

The works on the roof restoration included the replacement of damaged wooden framework structures, repairs of the roof base carrier and racks and roof rafters, and the replacement of the boarding and the wooden roof cover. Below the zinc roof cover, the appropriate waterproof vapor permeable foil with tri-dimensional plastic net had been placed. This net allows the roof ventilation that prevents white corrosion on the roof cover. Beside the roof cover, the replacement of gutters was done as well as installation of the lightning rods, cleaning, galvanization and re-building of the already existing snow-



Photo 8: Restoration of the roofs above the Prehistory Section, Neimari. d.o.o. Sarajevo



Photo 9 & 10: Restoration of the roofs above the Prehistory Section, Neimari. d.o.o. Sarajevo

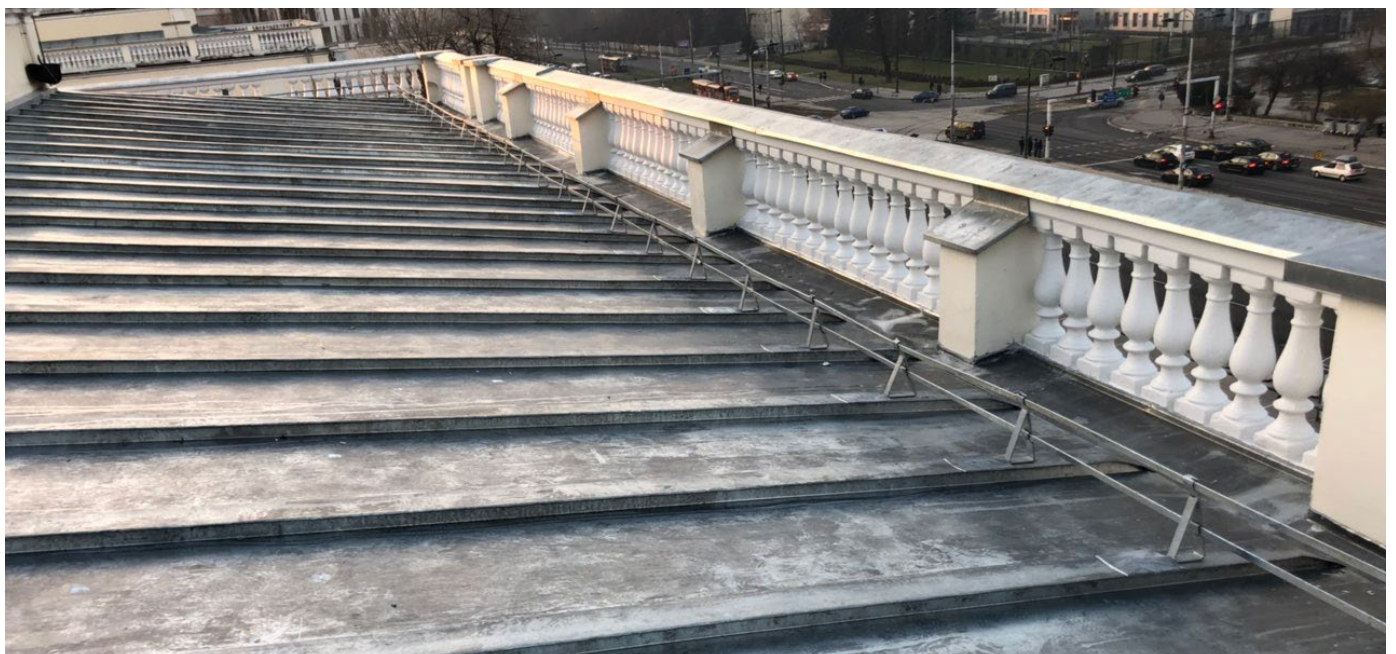


Photo 11: Restoration of the roofs above the Prehistory Section, Neimari. d.o.o. Sarajevo



Photo 12: Restoration of the glass ceiling and the roof above the Prehistory Section, Ideologija, Sarajevo

stoppers. There was restoration of the roofs marked with sign 01, 02 and 03, matching the roofs above the Prehistory Section, i.e. the east wing of the Archeological Department pavilion. The works were carried out and completed by the Neimari d.o.o. Company Sarajevo, under the supervision of the IG d.o.o. Institute of Engineering, Banja Luka.

Restoration of the wall and ceiling paintings in the Prehistory Section

„The exhibition hall in the Prehistory Section occupies the space on two high floors, where the second floor is actually a gallery held up and supported by a colonnade of pillars, joined by arcades that form a rectangular atrium. The same colonnades of pillars continue along the gallery edges, thus forming a high atrium covered with a glass ceiling. The total exhibition area in this hall occupies the surface of 700 m². There are two staircases in this part of the building: a monumental three-flight staircase along the east end of the exhibition hall that leads to the gallery, and a smaller, closed bifurcated staircase in the south-west corner of the exhibition hall that leads to the basement area (a depot of the Prehistory Section), and ascends the mid-floor and the first floor where the offices are located. Along other corners, there are exhibition halls on the ground floor with an area of around 32m² - used as offices, workshops and the like, depending on the Museum needs. There are same premises on the mid-floor and the first floor.“ (The Commission to Preserve National Monuments, 2018(1))

The wall and ceiling, done in the Secession-style (Art Nouveau) secco painting is of a special value and it presents a rare example of preserved such painting in Bosnia and Herzegovina. The ceilings in the grand hall are painted, just like those on the ground floor and in the gallery. The wall and the ceiling in the entrance hall, constructed in the form of a dome, and the barrel-vaulted ceilings of the corridors that join the lobby and the halls are also painted. Motifs on the wall painting are floral and geometrical, while on the ceilings, the floral motifs are combined with the idealized faces of muses. All of them are set in the cassette-like area, rimmed with geometrical edgings and a rosette in the middle of the cassette-like area. The domed part of the central area is striking with its presentations of lions, horses and dolphins. Between the lions, there are urns and between the urns, there is a face in a rectangular field. In the gallery part of the central area, above the pillars and between the arches, the painting imitates marble above which there is a floral frieze, identical in its motifs, but not in the same color as the one on the ground floor. (The Commission to Preserve National Monuments, 2018(1)) The painting was done by J. Fleger, P. Tomašek, Baldasar and Comp, and J. Ojzner, who were all from Sarajevo.“ (Paržik, 1914, pg. 41)

The colors used were mostly land pigments (ochre, umbre, sepia and siena). The interesting effect is a result of a combination of lean subfield, more layered impasto with pasty upper layers over which vazure lie. Besides painting, the architectural plastic: pillars, pilasters, wreaths, and capitals as well as the sculpture pedestals (bases) and arches contribute to the aesthetic value and representative image of this Department. (Koto, 2019)

Esad Vesković, the Head of the Restoration Department in the National Museum, did the Feasibility Study for the interior restoration. Due to the roof and windows damage and water penetration, the ceiling areas were mostly affected. Mortar, which supports painted surfaces, was in a relatively solid condition, but it needed stabilization on certain surfaces, while in many parts the painted decoration was missing. The



Photo 13: Restoration of the wall and ceiling paintings in the Prehistory Section, Commission to Preserve National Monuments



Photo 14: Restoration of the wall and ceiling paintings in the Prehistory Section, Commission to Preserve National Monuments



Photo 15: Restoration of the wall and ceiling paintings in the Prehistory Section, Ideologija, Sarajevo

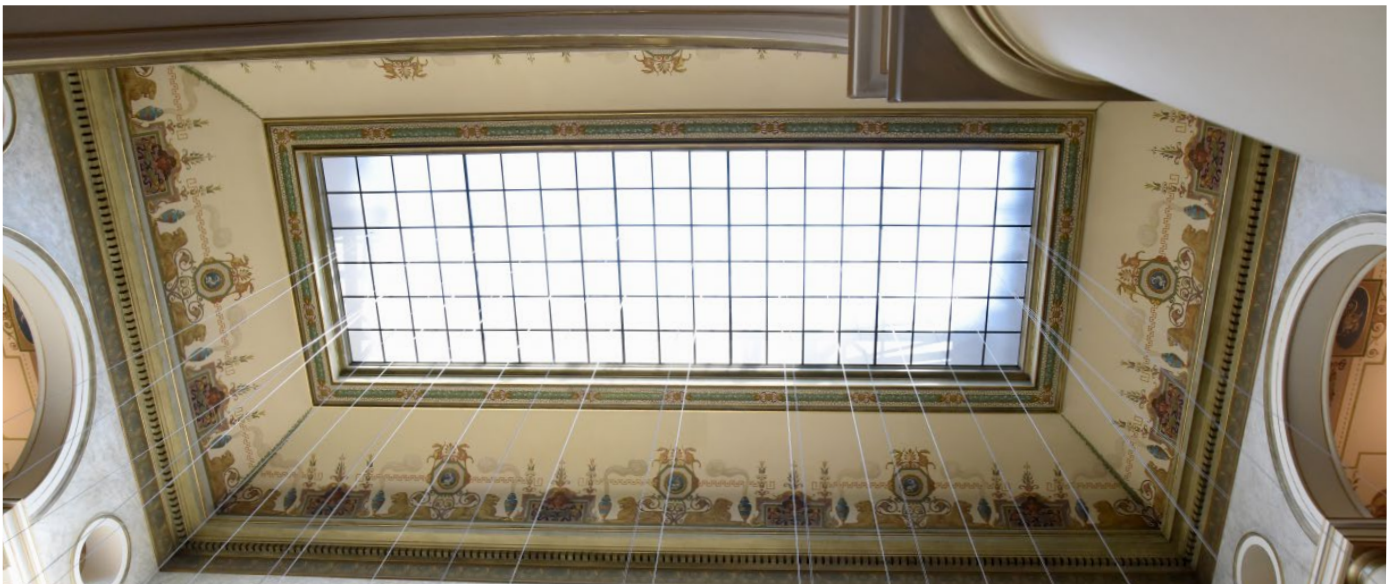


Photo 16: Restoration of the wall and ceiling paintings in the Prehistory Section, Ideologija, Sarajevo

painted layer started to peel off and lose its color-tone value and, in some places, it started to fall off. In the corners of the decorative fields, there was shading of the hue tonality. Architectural plastic was well preserved with a few existing minor cracks. (Koto, 2019)

In the process of the Project implementation, the reconstruction of electric installations and wirings in the exhibition hall in the Prehistory Section was identified as a necessity. Electric installations, which were done in this Project, are up to the modern standards of electrification, which enables digital control of the lights, the light intensity (so-called Dali system), etc. These works had to be done prior to fine conservation-restoration procedures since they might have jeopardized the walls and ceiling if the subsequent interventions on them had to be done. (The Commission to Preserve National Monuments, 2019)

The restoration works on the ceiling painting were done in 2018 and 2019. Due to a longtime exposure to unfavorable microclimate and war damage, the valuable ceiling painting with the motifs belonging to the Secession (Art Nouveau) decorative program sustained a considerable damage. In order to preserve and restore the visual integrity of the painted decoration, the acts of conservation, restoration and the partial reconstruction of the painting compositions on the areas of ceiling in the ground floor hall, the access corridor, the staircase ascending the first floor, the gallery on the first floor and the walls below the glass ceiling, were done. (The Commission to Preserve National Monuments, 2019)

Beside the previous research works on the stability of the base, materials and trial conservation procedures, the works included: mechanical cleaning of the layers of impurities by dry procedure, fixing of the unsteady painted surfaces (before mechanical cleaning) with acrylic, repeated where necessary, affixing the damages on the painted surfaces, replacing unsteady mortar base with the new one, the reconstruction of the missing parts of the painted layer modeled after the existing one. The drawing was completely transferred onto the prepared base by art calques and template models taken from the existing painted surfaces.

Retouch of the painted layer was done on the minor damages following the rule of not overriding the original. All the damage, such as cracks and holes have been filled with the material modeled after the original. Damages on the larger surfaces in the central part have been straightened and painted with an appropriate primer in order to obtain the base that can evenly absorb the paint. The restoration of all gold-plated surfaces on the arch-like wreaths was done. (Koto, 2019)

The colored, non-painted wall surfaces were done in one color of various tones, while line parts of the architectural plastic, straight mouldings, pillars' capitels and pilasters, arches and rosettes, were done by a method of gold gilding with bronze dust. Since multi-layers of paint were applied, the probes on the walls and pillars were opened in order to stipulate the originally painted layer. Multi-layered painted coats of the non-painted wall surfaces were removed, all damages were repaired, the walls were spackled with the mesh net, and all surfaces were coated with color in two or three paint-coats in the tonality, which mostly resembled the original one. (Koto, 2019)

The usage of materials and applied restoration methods were based on the scientific data and positive results gained by the scrutiny and detailed examination in the laboratory and the very building site. After completing the works, the Feasibility Study on the conservation treatment was done (Koto, 2019) and handed over to the National Museum of Bosnia and Herzegovina.

After completing the restoration of the roofs and the interior, the functional and visual integrity of the Pre-history Section was restored, and conditions for displaying the exhibition were now provided, for the first time after the Department was closed in 1992. The National Museum worked on the preparation of this exhibition for two years and a permanent exhibition Bosnia and Herzegovina in the Prehistoric period had its grand opening in October 2021.

Restoration and equipping of depots

The works on modernization of depots in the pavilions of the Archeological Department and the Department of Natural Sciences were carried out and completed in 2019. The depots for artefacts safe-keeping and workshops are located in the basement of the pavilions. The works on restoration and equipping were done for 11 premises and corridors - 790 m² in total, including the laboratories for taxidermy of vertebrates, the depots for safe-keeping of amphibians, reptiles and fish, the Ethnology and Archeology depot, as well as the restoration of corridors. The sanitary block was constructed and set up on the ground floor. Along with the restoration of the depots, the electrical installations were done, the lightning fixtures were set and toilets were built in. The area has been equipped with 8 movable display shelves and sliding doors for front closing and safekeeping of the materials, while lockers with drawers for textile storage were put in the depot of the Department of Ethnology.

The works included sanitation of all storage areas: floors, walls and ceilings. Walls and ceilings have been plastered and whitewashed (1900m²). The new anti-skid tiles were put as well as the streed on the floor (509m²), except in the room with



Photo 17: Restoration and equipping of the depots, Ideologija, Sarajevo

wooden parquet, which had been restored. The restoration of the depot on the ground floor of the Pre-history Section was done, as well as the restoration of the metal staircase with the wooden treads and the mid-floor where the office was set up. In this area, the restoration of the existing (9) massive wooden closets was carried out. The closets are of a simple design without ornaments, while the design solution reflects a tendency towards the functionalism from the beginning of the 20th century. Metal glazed showcases for deposition and display of the sepulcher and anthropological material were made. After the completion of the building works, the depots were equipped with the modern closets for safekeeping of the Museum holdings and property.

The Project Implementation, Phase II 2019 - 2022

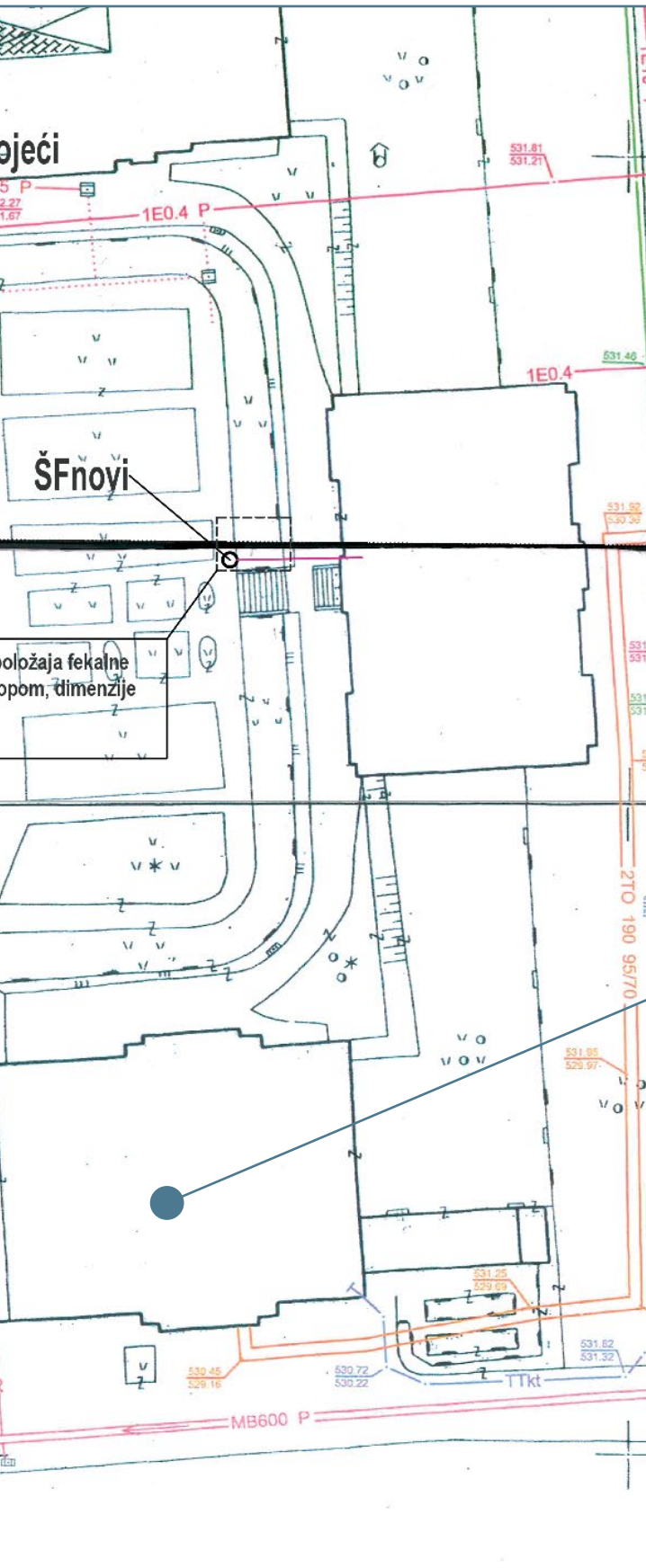
The continuation of the Project commenced after the approval of the American Ambassadors Fund for Cultural Preservation to continue the Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo*, which was also done by the Commission to Preserve National Monuments once the Contract was signed in September 2019.

The aim was to continue the works on the improvement of protection of all four Museum pavilions from the risk of fire, flooding as well as risk from negative environmental impacts, as a way to protect the collections' safety. The activities included: elimination of the risk of fire by replacing the decrepit electrical installations and wirings that were not overhauled during the implementation of the Phase I; elimination of the risk of flooding by reconstructing the water and sewage installations; protection against atmospheric impacts and improvement of energy efficiency by restoring and replacing the woodwork in the pavilion of the Department of Natural Sciences, as well as the partial urgent renovation of roofs in the same Department. (The Commission to Preserve National Monuments, 2021)

Improvement of the sewage installation aimed at eliminating the risk of flood

The external sewage system in the National Museum of Bosnia and Herzegovina is of a mixed type. The existing sewage pipes in the ground neither have a sufficient and adequate capacity nor capacity to receive the storm water during heavy rainfall, which had resulted in floods and sewage retracing. In the existing sanitary facilities on the ground floor of the Archeology Department pavilion the fecal waste used to retrace. The problem was the system of sewage pipes, which were laid under the ground, through the Botanical Garden, among all four pavilions of the National Museum, where the roots of a sequoia tree pierced and clogged the pipes. A solution, which could make the least damage to the Botanical Garden, was to make a bypass.

The Botanical Garden is positioned centrally to the pavilions and it is two meters lower in relation to the paths around the pavilions. About 1.700 types of plants with a few thousands of single plants are



THE BASIS OF THE SEWAGE NETWORK

Original project:
HP Hidro projekt d.o.o. Sarajevo

grown in the Botanical Garden, 750 of which are tree and bush species.¹² On the east side of the Botanical Garden there are examples of the antique monuments and the stećak tombstones that were brought here from their original locations. All the things mentioned above were taken into consideration when the bypass, i.e. the new sewage network alignment was chosen.

The Feasibility Study on the water works and sewage system implied the replacement of the external sewage net system with the new alignment alongside the pavilions in the Botanical Garden and the fitting of sewage pipes of a larger profile and volume with bigger inclination, adequate enough for the water flow and shafts installation. All the works, carried out by the Neimari d.o.o Company, Sarajevo, were done and thus the risk of floods and sewage retracing were eliminated. (The Commission to Preserve National Monuments, 2021)



Photo 18: Improvement of the sewage installation, Neimari. d.o.o. Sarajevo



Photo 19: Improvement of the sewage installation, Neimari. d.o.o. Sarajevo

12 <https://www.zemaljskimuzej.ba/bs/izlozbe/botani%c4%8dki-vrt> [12th, May 2022]

Urgent restoration of the roof of the Department of Natural Sciences pavilion

The Natural Sciences pavilion is located on the south side of the Botanical Garden, across the Archeology pavilion. The architectural shape of the pavilion in which the Department of Natural Sciences is located, has actually been separated into three higher volumes that, in both vertical and horizontal projections protrude outside the building volume. The set volume of the entrance hall is the most dominant. Following the same pattern, the pavilions' volumes are covered with the roofs on different heights, while the skylights are above the exhibition halls. (The Commission to Preserve National Monuments, 2018(1))

The roof above the Department of Natural Sciences demanded an urgent restoration due to the damages on the skylights' glass, the gutter and the roof covering made of galvanized sheet metal, which led to water penetration into the exhibition rooms. The big broken skylight glazing was replaced with the 0,8 cm thick glass, the swivels were repaired and the window sealing gasket on a small skylight was replaced with the return of the existing window glazing which had skidded, the places on the roof wreath, where the birds used to enter, were closed, the examination and cleaning of the internal and external gutters, fascia on the roof and brass roof covering were done as well as soldering on the damaged places. The works were carried out and completed by the Neimari d.o.o. Company, Sarajevo. (The Commission to Preserve National Monuments, 2021)

Partial restoration and replacement of wooden window frames and doors (joinery) – the Department of Natural Sciences pavilion

The visual image of the Neo-Renaissance palace of the Department of Natural Sciences pavilion is achieved by rich architectural plastic on the facade. The symmetry of the facade walling is emphasized by the regular rhythm of window openings that end up in a semi-circular shape on the ground floor and rectangular on the first floor. The central axis is emphasized with the arch-ended entrance portal above which tympanum is positioned. In the portal, there are two double-winged doors made of a massive oak wood. The lower part of the wings is coffered while the upper part is glazed in the triangular metal frames arranged in squares. (The Commission to Preserve National Monuments, 2018(1))

Windows and doors in the Natural Sciences pavilion are from the period when the edifice was built, more than 110 years ago. Windows were made of oak, most of them twin double-winged with upper ventus, except for the fixed single-winged windows that end up in a semi-circular form and which are set on the striking square blocks. All the windows are single glazed. In the fixed arched stone window luminous outward openings are of dimensions in the range from 225 to 232 cm and from 390 to 405 cm, while twin double-winged windows with ventus (ending up in a rectangular and arch form), the luminous outward openings are of dimensions in the range from 140 to 154 cm and od 300 to 309 cm. On every side of the entrance door, one double single-winged window with a lunnete of an origin-changed shape was set (it was probably completed in an arch shape). Inside, the exhibition halls on the high ground floor on the north side are adapted to the needs

of the depot and the restoration workshop; they are partitioned with mid-floor structures on two storeys while the original windows were kept but couldn't be opened because of the partition. Poor condition of the windows and the doors allowed the penetration of the water into the objects, which resulted in a higher level of humidity and decay of the collections. Furthermore, the windows didn't meet the conditions of energy efficiency. (The Commission to Preserve National Monuments, 2018 (2)) The initial approach was to restore the windows along with setting an appropriate window sealing gasket, and to replace only those positions which are in a poor condition and which cannot undergo the restoration treatment.



Photo 20: The partial restoration and replacement of the wooden window frames and doors, Commission to Preserve National Monuments

The Feasibility Study of the partial restoration of the windows and doors in the Natural Sciences pavilion, done by the Urbing d.o.o Company, Sarajevo, analyzed the state of each of the joinery positions. The Study proved that the windows were in an extremely poor condition – that they were 110 years old, neglected, damaged by acts of war in the 1992 – 1995 period, partially rotten and deteriorated, the hinges removed, while most of the windows were later fixed so that they could no longer be opened. (Urbing, 2020)

After the Study's results were published, the initial approach on the restoration of windows was abandoned. The new approach, which was taken into consideration, was to restore the external windows together with the setting of the window-sealing gasket. In the internal wings, the insulating glass had to be put (IZO glass) to increase energy efficiency along with the reinforcement of the wooden window frames that could bear the heaviness of the insulating glass (IZO glass). Also, the option of replacing the internal wings with the new ones with the insulating glass (IZO glass), while keeping and restoring the external wings, was another considered and discussed option. The aspiration was towards the restoration, not replacement of the external wings in order to avoid the facade damage. However, the market survey in Bosnia and Herzegovina proved that the joinery workshops primarily deal with the new window manufacturing, and those few master joiners who still work, actually do not have a capacity for such restoration of a greater number of window positions. Unfortunately, the only solution left was a replacement of almost all windows, which consequently increased expenses. Adapting to the Project's budget, the agreement with the Museum Management was reached – to replace the windows on the ground floor of the Department of Natural Sciences, which were in the worst state, while the replacement of the windows on the first floor was left to be carried out with the support of other donations. The applied principle was that the new windows had to be made on the model of the already existing ones in the context of materialization, appearance, and color. To help increase the energy efficiency, new windows have double insulating glass (IZO glass) on the external wings. (The Commission to Preserve National Monuments, 2021)

In order to preserve and present the original windows, the agreement was made to restore two best-preserved windows, which would be the exhibits of the original joinery. The entrance door was well preserved and in a good condition, so it only needed restoration.

Workshop draft and sketches were made for each position and according to it, 42 windows were replaced. Sketches for lateral surface finish for different window positions were also done. Double windows on the north side, which could not be opened, due to the mid-floor structure, were replaced with single windows with ventus and insulating glass (IZO glass), which enabled their opening. The new windows were made of the glued oak elements, finally impregnated by the submersion with the addition of the chosen water-based wood stain and final ecological colorless matte varnish, appearance and dimensions of which were modeled on the existing ones.

As the best preserved, two windows on the north side were chosen for restoration, singly in the middle of the indented part of the facade on the left and right side of the entrance. The works of replacement and restoration of the joinery were carried out and done by the Koto Joinery Workshop Company Banja Luka, the restorers were from Koto d.o.o. Belgrade, and the Fagus Company Banja Luka did the windows manufacturing. For the joinery restoration and the restoration of the entrance door, the following methodology was applied:

- After dismantling, all wings of the wooden windows were put away at the building site for the purpose of choosing hinges and other parts that required replacement. Given the fact that brass hinges were hand-made and custom manufactured, it was necessary to try out more models that were found on the existing windows. Window hinges and drip-rails were in a very poor condition and had to be replaced. The internal ledges were in a rather good condition and needed only minor renovation works. The window glass was replaced with the original existing glass from a dismantled window because of its cracks. Removal of the present impurities from the brass elements was done in the solution of sodium bicarbonate and acetic acid in warm water after a few trials. Neutralization was done in distilled water, while drying was done at a room temperature. After cleaning, brass elements were protected with the micro-crystal wax paste.
- On the wooden window frames and doors, the works were done in the following phases: cleaning surface impurities, filling in the cracks by putty method. Deeper damage spots were filled with binder and addition of wood sawdust of the same structure as the original wood. Shallow damages and cracks were closed



Photo 21: The partial restoration and replacement of the wooden window frames and doors, Commission to Preserve National Monuments

with the acrylic putty. Grinding of the surfaces was done up with the removal of the existing color and patina with emery of different granulation, P120-150. Trying out combination of more tones of water-based wood stain until gaining the tone most similar to the original color, was done. After that, impregnation was done by coating water-based wood stain with a brush and removal of any extra stain with the cotton cloth. Drying took 4-6 hours in accordance with the instructions suggested and given on the product specification. Afterwards, the lacquering with the one-component matte varnish on the acrylic base was done.

- Separately, on the door, filling of the missing part on the lower part of the doorjamb was done with a piece of oak wood that had been taken down from the dismantled window. A particular attention was given to the balance of the tone of the re-touch of the water-based wood stain with the acrylic base of different tones. Iron grids on the door that bear the glass were cleaned with acetone after several attempts with solvents failed. After the cleaning, the grids were protected with the solution (5-8%) Paraloid B71 in toluene (Koto, 2022).

Given the fact that in Bosnia and Herzegovina there is a general practice of replacement of the original joinery on historical objects with the new one, and that it is often done with windows and doors made of modern materials, a special attention was paid to the restoration of joinery following the suggested methodology and a video was made because our intention was to demonstrate and promote a restoration of joinery that should put an end to the practice of its replacement without assessing energy efficiency and condition in which it is found.



Photo 22: The partial restoration and replacement of the wooden window frames and doors, Ideologija, Sarajevo

Replacement of the decrepit electric system to reduce the risk of fire

The main Project on electrical installations was done for all four pavilions of the National Museum and while being done, some new data were included. In addition to a detailed recording of all four edifices, the precise locations of numerous exhibit showcases, as the elements of illumination, were also recorded on video. The ceilings with decorative elements of significance for the very act of fitting the electrical installations were also video-recorded. The Project also comprises adjoined areas and depots. The main Project, the extended bill of quantities and the priced bill of quantities were done by the Urbing d.o.o. Company Sarajevo. (Urbing, 2021)

In accordance with the available financial means and budget, and consultations with the Management of the National Museum of Bosnia and Herzegovina, it was agreed to replace the electric installations in the Department of Ethnology, which is, due to the textile and wooden items, exposed to the greatest fire risk.

The Ethnology pavilion is located on the west side of the Botanical Garden. The centrally positioned wooden monumental three-flight staircase dominates the interior. The staircase has a wooden banister and there is a wood-carved ceiling, richly designed, as well as the internal door, all adapted to the Ethnological collection. On the ground floor, on the left and right side of the entrance, there are halls, which are used for the theme exhibitions, while the exhibition halls with the permanent exhibitions are on the first floor and interconnected. The intermediate landing of the staircase is also used for the needs of exhibit presentation. Because of such valuable and decorative interior, the preparation for the work had lasted for two months. While carrying out the works, a great attention was paid to avoid any damage and to do minimal interventions. (The Commission to Preserve National Monuments, 2018(1))

According to the main Project, the works on installations of strong current were done with building in and fitting of four distribution boards and power cords, ensuring backup power, fitting of installations for illumination and electrical ports, installation for equalization of potentials in sanitary blocks and lightning rod installations and installation of the weak current in the integrated data nets. During the realization of the main Project, a change relating to the illumination was agreed. The number of the treated areas is reduced and the concept of illumination of the exhibition areas on the floor was partially changed. The decision was made that priority should



Photo 23: Replacement of the decrepit electric system, Ideologija, Sarajevo

be the public space, communication space and exhibition spaces along with ensuring the representative and good quality illumination, while the basic illumination should be installed in the depots and basement. It has also been agreed to introduce the system of indirect illumination for the exhibition spaces on the floor in order to be a part of its set and to emphasize details. The idea about illumination of the wood-carved ceiling in the central staircase was abandoned because of high position of lights, maintenance of which would demand the scaffold usage. Instead, it was decided that decorative lights should be put on a lower position, which will attain and provide diffuse illumination of the staircase. Construction and finishing works preceded the work on electrical installations. They included both, chiseling off the ceiling and walls to set the cables and walls for distribution boards and their treatment after the building in process as well as painting the entire wall surfaces and ceilings. The works were carried out and completed by the Neimari d.o.o. Company Sarajevo. The constructor has been obliged to design and make the project of the carried out state of the electrical installations of strong and weak current, and submit the attestations. (The Commission to Preserve National Monuments, 2021)

Illumination of the exhibition premises

The Project on the interior illumination was done within the Project on electrical installations of the National Museum of Bosnia and Herzegovina, which was within the Project *Preventive conservation of the collections of the National Museum of Bosnia and Herzegovina - continuation*.

The Project has dealt with the general illumination of all spaces with the accent illumination of the exhibition. It was done with the aim to provide a visual comfort and visibility within the space, depending on its purpose, and to emphasize feature of the heritage and meet the exhibition needs. The types of illumination were chosen to serve the purpose of the area, meet the illumination principle and to visually match the ambience. The general illumination of all spaces was settled as either diffuse illumination, direct or indirect. The layout of lights ensures the uniform illumination, which, along with the adequate amount and color of light, creates a cozy ambience and atmosphere for pleasant work, spending time, visit and moving around.



Photo 24 & 25: Illumination of the exhibition premises (Ethnological Department), Commission to Preserve National Monuments

Illumination of communication and exhibition areas was settled as indirect illumination of the ceiling, which particularly emphasizes the architecture and features of the space. Reflection of the diffused light from the ceiling creates cozy ambience illumination in the space. Applying a warm white light – 3000K, contributes to a pleasant atmosphere and pinpoints the materialization and structure, which especially refers to the wooden ceilings with carvings. For a supplementary illumination of communication and staircase there was a plan to build wall decorative lights and diffused distribution of light.

In the office areas, superstructure ceiling lights made of microprismatic polycarbonate, which acts as a diffuser, were planned to be built in. Such diffuser is convenient for workspace due to its even light scattering and dispersion without flashing. Light distribution is diffused with a certain percentage of indirect illumination of the ceiling. Neutral white color of the light - 4000K is recommended for the work atmosphere and maintenance of the work enthusiasm.

The accent illumination refers to the illumination of the exhibition areas and it has been settled as a flexible system, which consists of rails and spotlights. The number and layout of spotlights are adapted to suit the needs and arrangement of the exhibition. Warm color of light – 3000K and high level of color rendering $CRI \geq 90$ additionally emphasizes materials, color and details of the exhibited material.

In the exhibition areas hanging high voltage rails with two types (size) of the spotlights were planned to be built in. The rails form the fields depending on the exhibition demands and need to divide the space. On the floor in the exhibition areas, the system consisting of low voltage superstructure rails and mini spotlights was planned to be set. The entire system is dimmable. The spotlights have attachments for flashing control and focused distribution of light.

The illumination in the display cabinets was not included in this Project. The existing installation with original illumination fixtures has been kept. The recommendation is that, with maintenance, more efficient light sources, neutral or white colors of the light are used, depending on the materialization of the exhibited material and items. The emergency illumination is using modern and efficient products, which ensure anti-panic illumination and enable people to reach exit points with the aim of prompt evacuation under certain circumstances. The flashing control, the light color, the index of color rendering and uniformity are the parameters which describe the visual comfort in space, while the level of illumination doesn't refer to visibility. All these parameters define the quality of the interior space illumination and match the validity regulated by the international standards and recommendations for illumination of exhibitions, museums and galleries.

All lights are of the LED type (energy efficient light sources) with adequate optical system for a focused distribution of light and control flashing. The system of illumination is modern and energy efficient, and will result in lower electricity consumption and saving in the terms of expenses' maintenance and the environment protection.

The Project on electrical installations was carried out and completed by Studio Urbing d.o.o Sarajevo in cooperation with the Electra d.o.o. Company, Sarajevo and Jasmina Memić, as the illumination designer.

My Bosnia and Herzegovina – My Heritage

In the projects realized by the Commission, the educational component that aims to raise awareness about significance, values and the respect for heritage is always present and carried out via the campaign *My Bosnia and Herzegovina – My heritage*. The campaign has had various aspects so far, ranging from lectures to exhibitions, and it mainly involved elementary school students and teachers. However, this time, due to the complexity of the project itself, university students and experts were engaged. In addition to the lectures given within the Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo*, in 2017 and 2018 respectively, in the National Museum of Bosnia and Herzegovina, the Commission also carried out the independent project *My Bosnia and Herzegovina - My Heritage* that was financed by the U.S. Embassy's Democracy Commission Small Grants Program.

The Commission and Museum experts gave a set of lectures for the students of Archeology and Conservation on the topic of preventive conservation and its application within the interventions on the Museum edifices. The Project's significance and activities were presented at ICOM international scientific conference "Problems and Development Perspectives of Post-Soviet Countries Museums" (Mulalić Handan, 2015) within the panel on *The International training about the risk management in emergency situations in the cultural heritage domain*.

During the visit of Italian students to the National Museum, the activities carried out within the Preventive Conservation of the Museum Collections were presented.

In the second phase of the Project, given that it was impossible to organize regular lectures due to the COVID-19 pandemic, which was declared in 2020, the screencast lecture was given with video presentation about the experiences of the Project that included the methodology of preventive conservation and restoration of the Museum complex. Information about the Project, including lectures, presentations and videos, are available on the Commission website¹³ and on the *Preventive Conservation of the collections in the National Museum of Bosnia and Herzegovina* Facebook page.

13 <http://kons.gov.ba/Publication/Read/preventivna-konzervacija-zemaljskog-muzeja>

Conclusion and the Project Results

The U.S. Government support was provided through the allocation of funds from the American Ambassadors Fund for Cultural Preservation, which significantly contributed to the re-opening of the National Museum of Bosnia and Herzegovina. In the context of cultural identity of Bosnia and Herzegovina, the significance of the National Museum of Bosnia and Herzegovina is immeasurable and invaluable. The collections of this Museum reflect the history of the peoples of Bosnia and Herzegovina.

After being closed down for visitors for the period of three years, due to the lack of minimum working conditions in the National Museum of Bosnia and Herzegovina, and after the citizens' campaign *I am the Museum* that demanded the ensuring of the Museum status, this Project enabled re-opening the Museum gates and drew the attention of the authorities to the need to solve the status of the Museum. Thus, it has attracted numerous donations both from local and from foreign sources.

Thanks to the realization of the *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo* Project, resistance to the risks of fire, flood, negative environmental impacts on the collections, burglary and vandalism has been improved for all four pavilions, while adequate conditions for safekeeping and presentation of the Museum exhibits, working conditions for the Museum curators and the safety of visitors have been provided.

Restoration of the roofs and the interior of the Prehistory Section and the reconstruction of electric installations secured conditions for the opening of this department for the first time after 1992 and for displaying its exhibits. The permanent exhibition "Bosnia and Herzegovina in Prehistoric period" was opened to the public on October 20, 2021. This permanent exhibition depicts the development of the material and spiritual culture of the people from the today's area of Bosnia and Herzegovina during the prehistoric period. The Sewage Project, developed within the main Project of Restoration of roofs of the Archeological Pavilion and of the Natural Sciences Department pavilion, and restoration of the concrete balustrade fences on the terraces of the complex of buildings of the National Museum of Bosnia and Herzegovina, was partially used for the restoration of the sewage system in the National Museum of Bosnia and Herzegovina, which was financially supported by UNESCO.



Photo 26: Re-opening of the National Museum of Bosnia and Herzegovina, Commission to Preserve National Monuments

The Project ensured and provided the conditions for the operation, safekeeping and presentation of Museum collections. In order to enable longevity of the conservation-restoration treatments that were carried out, in the future work of the Museum, it is necessary to provide for an adequate monitoring and control of environmental factors as well as a regular maintenance. The activities that were carried out enable a future development since it is of a vital importance for cultural identity. The possibility has risen for the National Museum to continue activities in accordance with the working methodology of ICCROM, known as RE-ORG, that are aimed at re-organizing the Museum possessions and collections and creative approach to setting the conditions for the safe and meaningful use of resources.

Activities of local sponsors that got together and formed the advisory body named *Museum's Friends* have resulted in the project of reconstruction of electric installations in the exhibition hall of the Prehistory Section in the Archeological Department pavilion. Many international cultural institutions, such as the Louvre Museum and Smithsonian, have established cooperation with the National Museum of Bosnia and Herzegovina.

Since the re-opening, the Museum hosted many conferences, scientific programs, summer schools and exhibitions. Nowadays, it is a modern platform for interactive and creative work, and for the promotion of science and culture in Bosnia and Herzegovina.



Photo 27: Closing ceremony of the Project *Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina* in Sarajevo, Commission to Preserve National Monuments

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Biography

COMMISSION TO PRESERVE NATIONAL MONUMENTS (Commission) is a national institution of Bosnia and Herzegovina (BH) established in accordance with Annex 8 of Dayton Accords for the purpose of preservation of BH national monuments. As of its inception the Commission has achieved significant results in this field, as it is confirmed by the Europa Nostra Award in 2010, awarded to the Commission by the Europa Nostra organization and the EU Commission for its dedication to the preservation of cultural heritage. Since 2005, the Commission has implemented 20 projects of restoration of national monuments supported by the U.S. Ambassadors Fund for Cultural Preservation.

MIRELA MULALIĆ HANDAN, Engineer of Architecture, Executive Officer Assistant for Heritage of the Commission. She specialized in Heritage Conservation and Management, from the ICCROM (International Centre for the Preservation and Restoration of Cultural Property), the ISCR (Istituto Superiore per la Conservazione ed il Restauro), in Rome, the International Leadership Programme for Heritage Preservation of the U.S. State Department, etc. She serves as a regional expert of the Council of Europe. She held a position of Executive Officer of the Commission (2002-2015), served as an expert of the BH Delegation to the World Heritage Committee, BH coordinator of the CoE and the EC Integrated Rehabilitation Project Plan for SE Europe (2003-2010). She has worked on numerous projects of conservation and restoration of the built heritage, and is the author of studies and management plans for the world heritage in BH.

ADI ĆOROVIĆ is an assistant professor at IUS of Sarajevo and architectural heritage expert of the Commission since 2007, where he completed 83 research papers that served as the basis for the declaration of different cultural properties and sites as national monuments of BH, including the Townscape ensemble of the Sarajevo's Čaršija. He is the project coordinator of the Preventive Conservation of the Collection of the National Museum BH, Phase 2, financed by the AFCP. In 2018, after the completion of three phases of the Project of Restoration of Red Cross Building in Sarajevo, in the capacity of the project coordinator, the President of the Republic of Italy Sergio Mattarella honored him by the Knight Honorship.

MEDINA HADŽIHASANOVIĆ KATANA obtained her Engineer of Architecture Degree from the University of Sarajevo and the Master Degree of International Cooperation in Architecture degree from International University of Catalonia. She specialized in Architecture Conservation for which she attended various certified trainings. She worked on the reconstruction of around thirty monuments, among which mosques; towers; and residential buildings. Among others, she coordinated the AFCP Project Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina from 2015 to 2018. She works as an Adviser for Built Heritage at the Commission.

AIDA BIČAKČIĆ is an art historian from Sarajevo. In the Commission to Preserve National Monuments of Bosnia and Herzegovina she is an Expert Advisor for Art History. In ten-year long work experience, she coordinated the projects My BiH, My Heritage, Restoration of Wall Paintings of the Mišća Mosque Phase II, acted as deputy coordinator of the project Preventive Conservation of the National Museum of BiH Collections (AFCP), etc. She participated in international conferences, congresses, and gained knowledge in certified educational programs. She published her papers in scientific and professional publications in the

country and abroad. She interned at ICCROM, is a recipient of a scholarship from the Getty Foundation and is a member of ICOM Bosnia and Herzegovina.

JASMINA MEMIĆ is the architect and lighting designer, with over fifteen years of international work experience. She has been professionally active in architectural lighting design of heritage sites, public cultural and educational spaces and worked in the field of interactive technology development. She was born in Sarajevo and graduated from the Faculty of Architecture of the University of Sarajevo. She completed her postgraduate studies in the field of lighting design at the La Sapienza University of Rome, where she lived and worked professionally for some time. She currently lives in Sarajevo and runs a private architectural lighting design studio. She is an assistant professor at the Academy of Fine Arts, where she teaches Light in Design course. She is the author and co-author of a large number of realized projects, out of which she singles out the projects of illumination of public buildings, cultural and heritage assets, as well as exhibitions and museum settings.

Reviews

MSC. HERITAGE MANAGEMENT / ABDELHAMID SALAH AL-SHARIEF CHAIRMAN OF THE EGYPTIAN HERITAGE RESCUE FOUNDATION

The publication “Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo 2015-2022” explains the development and use of an integrated strategy on the preventive conservation of the National Museum of Bosnia and Herzegovina. The processes of the project implementation demonstrate an elaborate set of actions aimed at achieving specific goals; some more or less detailed, but generally well explained with clear and tangible outputs.

The research articulation method gives a smooth flow of information and enables an insight into an appropriate research vision. In addition, the development of the intervention plan is based on methodologies developed and approved by international organizations and therefore tested in many cases. Thus, the strategic plan for intervention matched the importance of the Museum.

Accentuating the significance of the National Museum of Bosnia and Herzegovina ranges between the buildings itself, designated as the National Monument of Bosnia and Herzegovina, and its valuable collections, in that regard, this explains the scope of the work developed to address both buildings and objects to create a better environment by taking into consideration the importance of both.

Assessing the current condition of the Museum, and linking it to the maintenance issues with comparison with previous risk mitigation strategies helped identifying the agents of deterioration on the collections and the buildings housing them. All of these facts give the research paper a good basis for developing the intervention methodology to treat current deterioration factors and mitigate future risks.

This paper expresses its case to a broader audience, including academics, as well as practitioners. It is very comprehensive with clear messages about the benefits of utilizing the preventive conservation process and can be used as reference for future similar projects.

**PROF. DR. ADNAN PAŠIĆ, UNIVERSITY OF SARAJEVO
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Title of the Manuscript

Title of the Manuscript Project “Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo“ 2015-2022, carried out by the group of Authors, is appropriate and corresponds to its content. The Publisher is the Commission to Preserve National Monuments of Bosnia and Herzegovina.

Structure and Scope of the Manuscript

Manuscript is consist of three major parts/chapters:

The 1st chapter is the introductory chapter that begins with the Acknowledgments and Preface, followed by description of the Project and its implementation, description of the National Museum architecture and its importance as an edifice, as well as its collections and its condition before the Project implementation, and concludes with the introduction into applied methodology.

The 2nd chapter is about Project implementation and it is divided in two subchapters: the Project Implementation Phase I, from 2015, and the Project Implementation Phase II, from 2019 to 2022. Each subchapter consists of descriptions of specific Project intervention and its description.

The 3rd chapter is the concluding one and it strives to provide a wider context of the Project describing its relation with other important activities and platforms, initiated with or being the part of its implementation.

Originality and Current Relevance

In methodological and comprehensive way the Authors have presented key information about the Project of Preventive Conservation of the Collections of the National Museum, starting with a very eloquent description of the building and its collection, and followed by a scientifically-based comprehensive description of the applied methodology, its origins and current internationally recognized method in the field of tangible heritage conservation, restoration and reconstruction.

Besides its documentary importance, the manuscript has an added value as the manual and textbook for professionals, as well as for students from different scientific fields who are dealing with tangible heritage regionally as well internationally. It is particularly important that this methodology was implemented on the most valuable example of National Museum building, with its innovative typology from early 20th century and included the conservation and presentation project of its priceless collections.

Conclusion

The National Museum of Bosnia and Herzegovina and its collections are the country's most valuable treasure. This is not only because of its institutional significance and meaning but, above all, because of its collections and the architecture of the building and its surroundings, and consequently it has a very high symbolic and artistic value. The Museum building, designed by architect Karlo Paržik, was opened in 1913, was the first purposely designed museum building of this type in the region. The applied typology of museum pavilions, with the botanical garden in the courtyard and the large area facing the south elevation next to the Miljacka River. The integration of architectural structures and open spaces represents an extraordinary example of program, architecture and landscape design integration. Classical and contextually driven innovative design is the forerunner of spatial purity and formal dynamism of emerging modern architecture.

Institution-wise, the National Museum of Bosnia and Herzegovina is the oldest modern type cultural and scientific institution in Bosnia and Herzegovina established on 1 February 1888. Ever since then, the Museum curators and staff made an incredibly valuable and rich collections, research and publication activities that are the core of Bosnian and Herzegovinian knowledge about the special place and importance of this land and people in European and universal human history.

In this respect, the Manuscript of the Project: "Preventive Conservation of the Collections of the National Museum of Bosnia and Herzegovina in Sarajevo" 2015-2022, produced by Mirela Mulalić Handan, Adi Ćorović, Medina Hadžihasanović Katana, Aida Bičakčić and Jasmina Memić has a decisive role as the continuation of endeavors and achievements of those who had built and preserved the presence and the supreme place of this institution in cultivating the culture of living, and creating the values that make this land and its people extraordinary through the history, as well as in the present time, in spite of current worldwide and regional context and tendencies of unification and simplification of human lives and values.

Categorization and Proposal

This manuscript is presented as an overview and a detailed description of the Project methodology and the goals and implementation of preventive conservations of collections of the National Museum of Bosnia and Herzegovina implemented by the Commission to Preserve National Monuments of Bosnia and Herzegovina, thanks to the financial support of the American Ambassadors' Fund for Cultural Preservation. For these reasons it possesses an important documentary value, and in this form, it could be categorized as a publication.

The real value of the manuscript is also the implementation of current scientific theory and practice in the area of tangible cultural heritage preservation, restoration and transformation, which would be the point of reference for additional methodological improvements and the expanding of the manuscript's structure, content and visual presentation. This reviews considers that the result of this endeavor will upgrade its categorization into a scientific book or a monograph, which will depend on the ambition and resources of its Authors.

