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THE SECOND LIFE OF A SHOOTING RANGE – THE CONSERVATION
AND ADAPTATION OF THE HISTORIC SHOOTING RANGE
AT WOLA JUSTOWSKA IN KRAKOW FOR ITS NEW FUNCTION

DRUGIE ŻYCIE STRZELNICY – KONSERWACJA I ADAPTACJA DO NOWYCH
FUNKCJI ZABYTKOWEJ STRZELNICY NA WOLI JUSTOWSKIEJ W KRAKOWIE

Abstract

This article presents the problem of the maintenance and adaptation of a historic shooting pavilion for new premises of the Museum of Photography in Krakow. The wooden pavilion used to be a part of the military shooting range development in Wola Justowska, established for the Austrian army in the 1880s. The adaptation of the pavilion for new functions has primarily enabled the protection of this historic and derelict building, which was entered into the Register of Historical Monuments in 1993. Conservation works have restored the shooting pavilion to its former splendour; there is also an effective display of preserved architectural elements, although these vary in their technical condition.

Keywords: adaptation, conservation, protection, monument, shooting pavilion

Streszczenie

W artykule przedstawiono problematykę konserwacji i adaptacji zabytkowego pawilonu strzelniczego na nową siedzibę Muzeum Fotografii w Krakowie. Drewniany pawilon wchodził w skład Założenia Strzelnicy Wojskowej na Woli Justowskiej, powstałego w latach 80. XIX w. dla wojska austriackiego. Przystosowanie pawilonu do nowych funkcji umożliwiło przede wszystkim ochronę popadającego w ruinę zabytku, wpisanego do rejestru w 1993 roku. Obecnie pawilon strzelniczy odzyskał swoją dawną świetność dzięki konserwacji i umiejętnemu wyeksponowaniu zachowanych w różnym stanie technicznym elementów architektonicznych.

Słowa kluczowe: adaptacja, konserwacja, ochrona, zabytek, pawilon strzelniczy

1. Introduction

Cultural assets gradually become an important component in the field of urban regeneration strategies or other types of urban space transformation or restructuring, not only for the cities themselves, but also for the communities. Urban policies embrace this heritage as an instrument for the activation of economic space that defines the context for social life. Such heritage is also an important factor that integrates the existence of any community, especially in the process of its further development [9]. According to UNESCO research, the development of civilisation predominantly occurs in an uncontrolled manner and has a negative impact on urban areas and their surroundings. This results both in the degradation of the environment and the destruction of urban cultural heritage. UNESCO states that urban heritage is a type of capital for humankind, created in the process of the historical accumulation of values which stem from both old and modern cultures as well as from acquired traditions and experiences [6]. For this reason, it is important to focus on the preparation of strategies that may protect and allow the management of historical city structures as well as better coordinated development planning in both local initiatives and large-scale urban projects; this all ensures that future generations can benefit from historical objects and appreciate their values.

Krakow is a city that has several monuments entered into the UNESCO World Heritage List, but there are also a number of other objects in the city, often in poor condition, that await such a special protection and require conservation. Because Krakow is a city with a unique atmosphere and a rare collection of historic objects, every such intervention strengthens its position, and emphasises the identity and specific character of this royal city. Various geographical conditions, the diversity of the local community, historical events, economic activity, and contacts with other cities all prove the uniqueness of this city, its exclusive atmosphere and specific identity. The cultural heritage of Krakow is somewhat dominated by Wawel Royal Castle with its silhouette clearly standing against the background of the meandering Vistula river. The main square, which is the centre of the city and a vibrant public space, is located to the north of Wawel Castle. Other recently revitalised districts include Kazimierz, Podgórze and Zabłocie; these are located on opposite bank of the Vistula and connected by the Father L. Bernatka footbridge. Relatively small objects that are located outside the Old Town, often neglected or forgotten, are being successively restored to the city and its residents.

The value of architecture is most effectively verified by history, but technical durability, artistic and aesthetic values as well as importance for the local community are also important. Objects that have survived to this day constitute authentic substance and every effort should be put to protect and preserve them. However, this requires intervention, not only with regard to applicable conservation doctrines, but also to changing needs and conditions of civilization, as well as the need to introduce new values. Architectural stratifications, which accumulate over the centuries, have created a material record of the history, culture, identity of the cities. The fascination with history, the inspiration that it provides its contemporary reinterpretation and the dialogue with historical context all lead to several creative experiments for architects [7].

The use of historical objects, their protection and care and their re-adaptation to urban space are issues both for scientists and practitioners. An extensive body of literature exists on the subject of the conservation of architectural monuments. This work, however, focuses on a very specific and interesting case, which is the shooting range at Wola Justowska in Krakow. The first stage of revitalisation works included an inquiry on the historical materials concerning this architectural complex. During subsequent stages of the works, a new functional program for providing new technical conditions for the building and its historical structure was introduced. This was based on architects' expertise and experience, and with respect to the historical value of the object, unfortunately, the building was in a very poor condition. The shooting range in Wola Justowska was established in the 1880s. In the interwar period, and after World War II, it was used according to its original purpose. Adaptation of the derelict monument for the new functions primarily enabled its protection; the building was entered into the Register of Historical Monuments in 1993 (No. A-965, decision of 2/12/1993). It was necessary to replace the structure and construction of the building, which were in a critical technical condition. The salvation of the building was possible through the installation of an additional support structure to prevent its collapse. The former shooting pavilion has now regained its splendour through an effective display of various preserved architectural elements which remain in different technical conditions. The architectural and construction project was prepared by the Ateliers for Conservation of Cultural Property PKZ ARKONA LLC. The main designer was Paweł Górkiewicz.

2. History of the military shooting range in Wola Justowska.

The General J. Pelletier KuK Elementar-Schiessplatz shooting range was established in the area of the former medieval settlements Zwierzyniec and Wola Justowska, called Łysa Góra [4]. The area is located in the western part of Krakow, north of the Vistula, in District VII – Zwierzyniec, in Wola Justowska, at 220 Królowej Jadwigi Street, in its southern section, between Koło Strzelnicy Street and Pod Sikornikiem Street. The complex includes the shooting pavilion and earth embankments with the wooden constructions of the bullet barrier, as well as auxiliary buildings that were constructed at a later stage during the operation of facility, such as stables, a gazebo, toilets and warehouses. The garrison shooting range was one of two shooting ranges constructed as part of the “III Fort Group Krakow Fortress” project, having been built in the vicinity of Krakow for the Austrian army since 1864 [1]. The facility, which was the support base of the “Krakow Fortress”¹, had the shape of an elongated trapezium with dimensions of 725 x 125–225 m, with an area of over 10 ha and orientated in a north-south direction. The open shooting field was about 800 m long and was protected by transverse and longitudinal earth embankments that diverted the area into sections for shooting with the use of various types of weapons [4]. The building structures were located only in the northern part of the area, where the wooden pavilion in the form of a three-part shooting hall and

¹ Kraków Fortress is one of the largest and best-preserved defence facilities built in Europe in the 19th century.

frontal landscape development was located. The basic purpose of the pavilion was to protect the shooting posts and the mezzanine audience sector from rain and wind; thus, the original building had no closing external wall on the southern side. The pavilion was also a venue for shooting association meetings and for ceremonies held during shooting competitions².

The main shooting pavilion was located next to Królowej Jadwigi Street at an angle of approximately 30 degrees, which formed space for the triangular garden in front of the

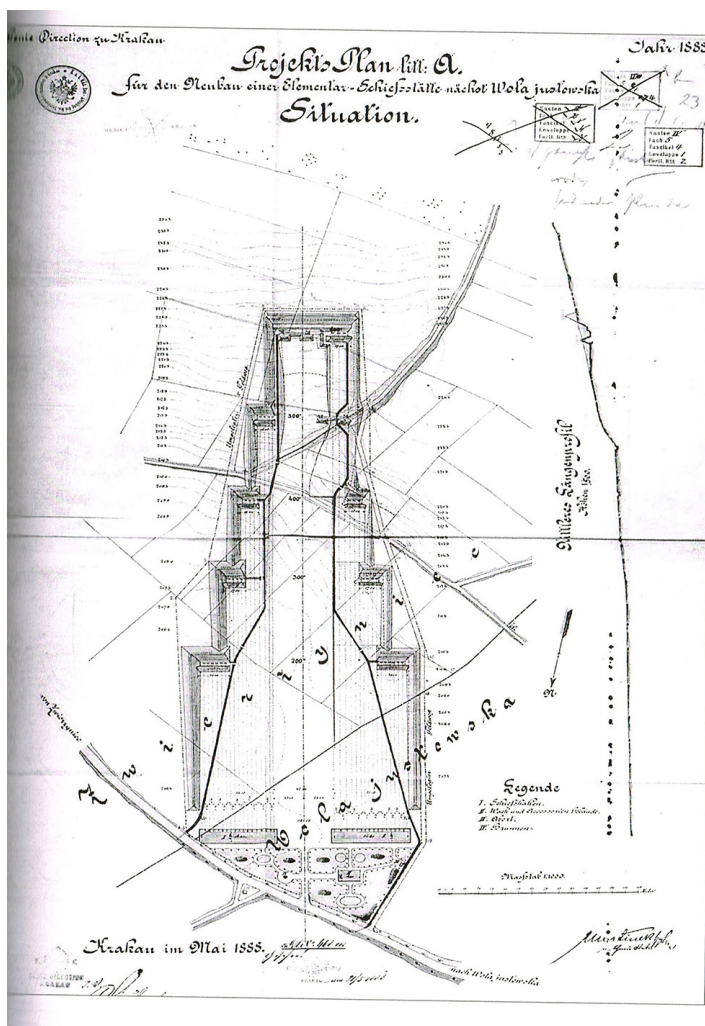


Fig. 1. Construction project of the shooting range, dated 1888 with the then yet unimplemented concept of two shooting pavilions (copy of CAW, DOK V, Ref. No.: 1/371/5/95), (Source: PKZ ARKONA Sp. z o. o.)

² The shooting competition was usually concluded with a group photograph of all participants with their wives in front of the avant-corps of the pavilion seen from the north and inside the building (in its central part). Based on the photographs included in [5].

building. The shooting fields were located for further down the plot. Due to the lack of records, the exact construction date of the shooting range and its main pavilion remains unclear. One of the notes from the interwar period states that the shooting range was built in 1886 [5, p. 2]. The first record of the project can be found in the situational plan dated 1888 (Fig. 1). Presumably, the author of the shooting range project was the chief sapper inspector in the Austro-Hungarian army, Eng. Emil Gologórski [4]. This plan shows a drawing of two separate shooting pavilion buildings of approximately 6.5 by 40 m each. Both the pavilion buildings and the orientation of the embankments have a common axis of symmetry in the north-south direction. The embankments decrease stepwise to a length of about 320 m; the outlines of fields and roads can also be seen (Fig. 1).

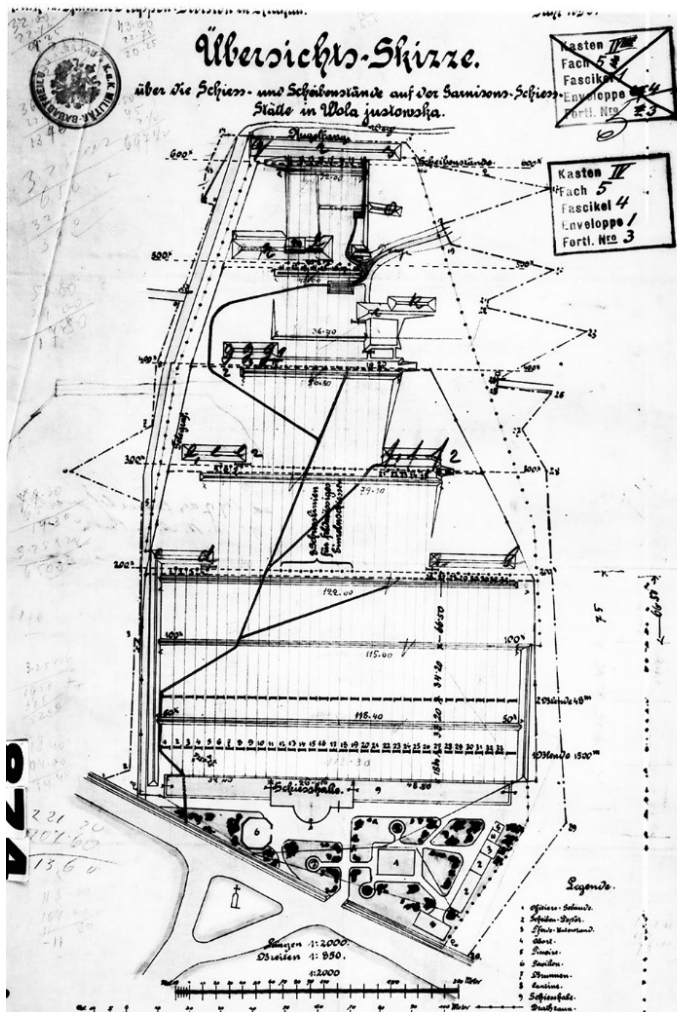


Fig. 2. Situational plan of the shooting range, dated 1896, presenting one long shooting pavilion with a wider middle section including an avant-corps (copy of CAW, DOK V, Ref. No.: I/371/S/95), (Source: PKZ ARKONA Sp. z o. o.)

The situational plan from 1896 presents one long pavilion building, which consists of three clearly distinguishable parts with individual segment lengths of 33 m (eastern section), 26 m (central section) and 49 m (western section) with a total length of 108 m (Fig. 2). Apart from the main shooting pavilion building divided into three halls that were open towards the south in the direction of shooting, the plan also includes several smaller buildings, such as a guardhouse, stables, a gazebo and latrines. The wooden fencing raised along the street consisted of several decorative entrance gates³. The axis of symmetry of the entire development is marked in the plan from 1888 in the layout of the front garden. Additionally, upon examination of the plan from 1888, one may observe that the layout of the earth embankments changed, and that the length of the whole development was around 255 m. An interesting fact is that for some time, the eastern segment of the pavilion was extended with an oblique vestibule, that was parallel to Królowej Jadwigi Street. It was probably erected between 1896 and 1900 as it is visible on the plan from 1905 and is still exists on the plan from 1912; in the later period, it was demolished [7] (Fig. 3).

Initially, the shooting range was used by the Austrian Army, then by members of the Riflemen's Association, commonly called the 'Rifleman' which was a paramilitary organisation established in 1910. The Józef Piłsudski' legionnaires, many of whom had previously been members of the Rifleman, mastered their skills in the facility. Starting from 1918, when Poland regained its independence, the shooting range went under the supervision of the Shooting and Combat Garrisons Command. It served both the army and the civilians associated in the Falcon Society and the Cock Brotherhoods. After the cancellation of the shooting range command in 1922, the shooting range was moved under the authority of the War Camp Command [5]. In 1925, the earth embankments, known as "kulochwyty", were modernised [7]. In this same year, the shooting range was given the name 'General Zygmunt Zieliński' [5, p. 10]. Between 1912 and 1922, the southern façade and sections of the lower segments on the southern side were boarded with timbers. Between 1912 and 1929, a shooting officer's bureau was built of

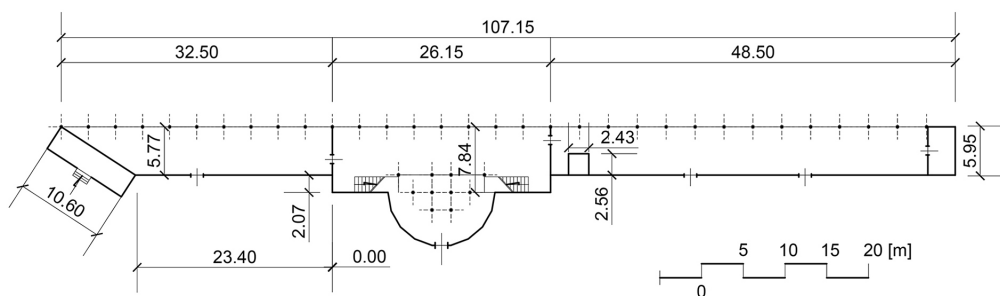


Fig. 3. Schematic layout of the shooting pavilion prepared on the basis of a drawing from 1912. The layout consists of the oblique vestibule added to the eastern segment. The eastern segment still has 10 spans, the middle segment has 8 spans, and the western segment has 14 spans. In the subsequent years, the eastern segment was shortened and it currently has 7 spans (Source: [3]. Diagram by the Author)

³ There were several wooden decorative gates there, but only the image of the north-western gate has survived on a photograph. See [3].

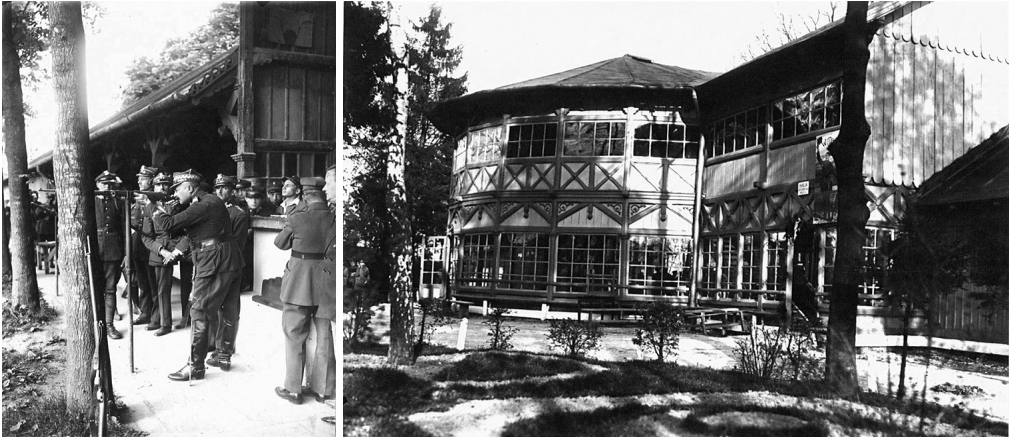


Fig. 4. Photograph from the shooting competition of the „Falcon” Krakow, which took place in May 1924. The southern side of the shooting range is visible in the background. During this period, it was still open, without the timber boarding. There is also a fragment of the western wall of the upper central hall interior with its richly elaborate wood carving detail and the edge of the lower wing of the hall roof with an openwork ornament cut into the timber. In the foreground, a row of tall ash trees is visible (Source: [5])

Fig. 5. Photograph of the central hall apse from the north-western side taken in 1927. The colour diversity between the framing and wall surface elements is visible; these are probably the original painting layers. Roof patches are covered with roofing felt. The front garden consists of well-maintained plants and paths (Source: [5])

brick in the western part of the facility (Figs. 4, 5). In the post-war period, the facility was managed by the WKS ‘Wawel’, the sports club which had a shooting section established in April 1928 [5, p. 22]. The area for small arms shooting was created in the shooting range after 1945 [4]. After World War II, the building was exposed to successive destruction; not only wooden stables and sheds but also decorative wooden entrance gates were demolished.

In as late as the 1990s, two earth embankments forming the base for the wooden bullet barrier walls that were parallel to the pavilion still existed. Two earth embankments sitting along the long edges of the site also survived (one on the eastern side and two on the western side). The site still bears the marks of the original development, which are the sections of longitudinal earth embankments covered by wild growth and the remains of the old road from Zwierzyniec to Wola Justowska, one of the side roads to today’s Koło Strzelniczy Street [4]. Nevertheless, the transverse earth embankments have been mostly destroyed. In the meantime, new building objects, such as the Ortopedicum Hospital and the tennis centre were constructed. Interestingly, the original tree planting laid out during the shooting pavilion construction has survived in good condition. Nowadays, the longitudinal foundation of the shooting pavilion is marked by a row of impressive ash trees planted along its southern façade. Additionally, the front garden includes impressive specimens of lime trees, ash trees, oaks, elms, acers, black locusts, horse chestnuts, as well as other plants which are the remains of the diverse park once founded between the building and the street. One can assume that some of the trees may have been planted at the time of the shooting range construction or be even earlier [2].

3. Architecture and structure of the shooting range

The shooting pavilion, which has survived until the present day, was erected on the plan of a narrow rectangle, on the east-west axis, as a single-storey building with a higher and wider section and asymmetrically arranged axis of the whole building. The building has a main supporting structure formed of a wooden frame supported by a brick-and-stone foundation. The posts and wall plate beams are wooden with decoratively hewn angle braces. Some posts are positioned on concrete bases. The area of the shooting range building is 800 m² and the floor space is 1180 m². The height of the central section is 9.30 m and the height of the side wings is 5.40 m [2].



Fig. 6. View of the eastern segment interior eastwards; on the left and in the background there are the walls with a half-timbered structure, on the right there are posts of the open wall of the hall immersed in a concrete shooting bench (post-war) – the other side presents the original level of the hall (concrete pavement slabs, possibly from the inter-war period). This is the condition before the adaptation of the pavilion (Source: Author's archive)



Fig. 7. The interior of the eastern hall; the pyramids/cones are visible. This is the condition before the adaptation of the pavilion (Source: Author's archive)

The building is covered with a gable roof excluding the avant-corps, which is covered with a multi-hipped roof with a single-frame structure, reinforced with angle braces and struts in each full truss. The whole frame of the building bears a specific carpentry detail finishing: smooth undercuts and chamfers on the ends of the vertical elements with four-sided pyramids, so-called cones, cantilevered ends of beams, decorative cut-outs of rafters; angle braces and struts are also decoratively finished. The framing of exterior walls is filled with shuttering, glazed woodwork or remains open. The northern external walls, side walls and parts of the southern walls in the western segment are supported by a concrete pedestal (Fig. 6, 7).

The central segment of the pavilion is distinguished from its side wings by its increased height and width. It is also separated from the neighbouring wings by stud walls covered with timbers. The central part is also characterised by decorative carvings in the form of geometric and floral patterns. On the north-western side, it is extended by the nine-sided avant-corps

on the plan of a semi-circle. The avant-corps includes a mezzanine observation area facing the shooting field, with access through a single-flight staircase (originally there were two symmetrical flights of stairs). The staircase and the mezzanine were equipped with closed wooden balustrades. The mezzanine is topped with a hoist supported on four posts with struts, and is connected from the north to radially spreading ceiling beams and three middle beams on an additional hoist supported on two posts. Both the eastern and the western wing are single-storey, single-spaced and lower than the central section. The brick room was built in the west wing. The wings are boarded with vertical planks (originally on the northern side and, in the later period, in the western wing on the southern side).



Fig. 8. Interior of the middle segment - view of the western wall - the open roof truss, single-frame with struts and king posts supporting the ridge. A view of the interior of the avant-corps – the closed balcony balustrade, the avant-corps roof truss and secondary reinforcement of the original structure are visible. This is the condition before the adaptation of the pavilion (Source: Author's archive)

The southern elevation of the central section, including the avant-corps, is glazed with two rows of windows placed between the ground floor posts and the mezzanine floor. The single loom windows have several quarters. The colour of the wooden frame is clearly distinguishable on the northern façade and is darker than the wall surface elements (Fig. 5). The carpentry of struts and crosses was also designed in a decorative way. The avant-corps has an exposed frame, and the post heads are profiled. Its roof is multi-hipped and flattened and the surfaces of gable roofs are topped with decorative wooden pinnacles. The central section is entirely open to the south. High construction posts sitting on pedestals have decoratively finished capitals. At the turn of the 20th and 21st century, the upper part of the building was supported, which preserved the stability of the original wooden frame [2] (Fig. 8).

4. Problems of adaptation and maintenance of the shooting pavilion

The shooting pavilion required urgent renovation works. Despite the ongoing disintegration, the building still had an attractive form and the richness of its carpentry ornamentation was impressive. The front garden and plants on the southern side of the building had also been neglected. The central section of the pavilion was in the worst condition and thus it was reinforced with the framing support. The need for maintenance and renovation was urgent, and its goal was to halt the disintegration processes, to obtain stable technical parameters and to preserve as many of the original elements of the building as possible.

The main cause of the poor condition of the wooden framing was leaky roof coverings and damage to the metal-sheet work. In many places, the wood had darkened and was covered with stains; white patches of salt were apparent on the borders. (Fig. 9). The mould had spread on the structural frame elements, the decorative details and the covering boards. Significant changes to the geometry of the wooden frame system were visible (22 cm deviation from the perpendicular position of the posts). Deformations, breaks, numerous cracks and the delamination of oil paint coatings were also spotted. The window and door wings were warped, and the glazing was destroyed. The ironwork elements were corroded and incomplete [2].



Fig. 9. The critical condition of the shooting range pavilion showing a view of the central section from the southern side. This shows the condition before the adaptation of the pavilion (Source: Author's archive)

The planned adaptation of the facility, initially for leisure and sports purposes, was covered by a multi-branch project and number of expert opinions; this was followed by a wide range of construction and conservation works. The overriding objective of the project covering the reconstruction, extension and change of the building purpose was to extract its architectural values and the advantages of its external surroundings. The projection and shape of the building and the roof shape were subject to legal protection as elements of the original development. Elements such as the secondary concrete shooting benches/shelves could be removed, which allowed for the display of original post bases in the southern façade.

Due to the limited space on the ground floor and the character of the building, a partial basement of the building was designed for auxiliary functions. Hygienic facilities for the staff and visitors, a catering area and an exhibition room have been planned for the ground floor. The viewing function of the mezzanine has been maintained. It was necessary to insulate the building and enclose the pavilion with a glazed curtain wall. In addition, the usable space has been extended through the construction of the basement section in the central and eastern segment of the building. The stratigraphic studies defined the original colour scheme of both the interior and the exterior of the pavilion. Construction elements had been covered with brick-coloured paint, while the covering boards were probably unpainted. Chronologically the oldest coating inside the building was iron red paint and this was later confirmed in micro-chemical tests [2] (Fig. 10).

As a result of professional inquiries conducted in the field of construction, stratigraphy and micro-chemistry at the design stage of the project (including the schedule of conservation works) and with consideration to the planned construction of the basement, the decision to dismantle and reassemble the entire wooden frame and foundations was made. This enabled performing conservation procedures on the original structural elements and making necessary replacements. The dismantling started with the removal of the old roofing and was followed by the deglazing of windows. The original glazing was secured and re-used as “witnesses”. Initially, the structural elements of the upper part of the avant-corps were dismantled. Each element of the dismantled truss was recorded and was examined by an authorised mycologist



Fig. 10. View of the interior of the central segment. The open roof truss was restored by decorating it in the original colour scheme. The southern wall has been glazed to the entire height of the pavilion which was feasible after installation of a steel support structure (Source: Author's archive)

in order to determine which should be kept and which should be replaced. The disassembled elements of the trusses were laid out in sets to form complete trusses. Surface pre-cleaning was also performed, and all of the elements were then secured for the duration of further works. The wooden elements went through a preservation procedure: they were disinfected, cleaned, stripped of their secondary oil coatings, reinforced or repaired according to their condition, and protected against weather conditions, microbiological decomposition and damage caused by insects. Rejected elements of the structure were replaced with components made from seasoned wood in accordance with the original parameters relating to wood type, grain direction and dimensions. The original pavilion structure had been made of native conifer species, primarily fir but also pine and spruce⁴.

With regard to the need for adapting the building to applicable legal regulations, it was also necessary to increase the cross sections of the wooden structural elements of the trusses. The whole wooden structure of the central segment that included preserved and new wooden or steel components was placed on a 15-cm steel-reinforced concrete slab laid above the new basement. The curtain wall supporting structure consists of 1 300 steel columns at intervals adjusted to the dimensions of the wooden trusses (approximately every 325 cm). The excavation was secured with a Larsen-type sheet wall. Due to the vicinity of the legally protected old trees on the southern side of the building, the wall was left in the ground, constituting a part of the foundation. In other places, the wall was extracted out of the ground. The dismantling of the structure was also followed by the construction of the planned basement under the central and eastern parts of the complex. The basement was made in the form of a tight reinforced-concrete basin with a bottom plate and external 25-cm-thick walls. Due to the relative proximity of old trees with an estimated age of over 100 years, some of them required correcting cuts of their crowns in addition to regular care procedures [2].

Interior and exterior decorating works included the reconstruction of the earliest colour scheme of the object (Fig. 10). For this purpose, the framing elements were painted with red-



Fig. 11. View of the central segment of the pavilion with the apse from the southern side. This shows the condition after adaptation (Source: Author's archive)

⁴ See [2] detailed inventory report of plants, with the assessment of tree condition and recommendations for further tree care works.

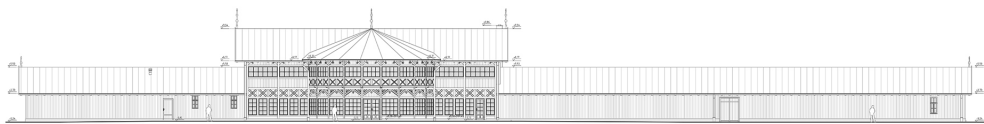


Fig. 12. Northern elevation of the shooting pavilion (Source: PKZ ARKONA Sp. z o. o.)

brick paint and the wall surface sections were left the colour of natural wood. The preserved elements of the original ironwork were subjected to metal conservation. The roof surface was insulated from the outside in order to keep the elements of the roof truss visible from the inside. The wooden decorative detail was reconstructed in the original form and vertically planked. Decorative constructions of the avant-corps and the apse were also made [2] (Figs. 11–14).

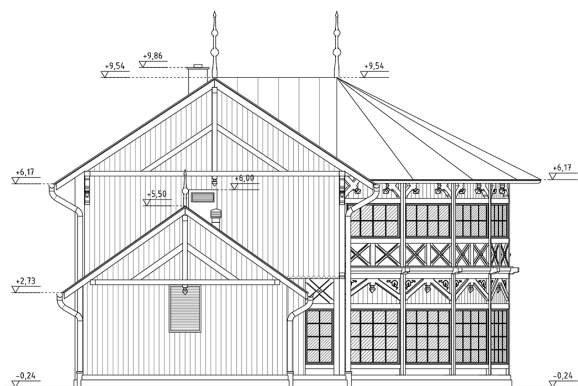


Fig. 13. Eastern elevation of the shooting pavilion (Source: PKZ ARKONA Sp. z o. o.)

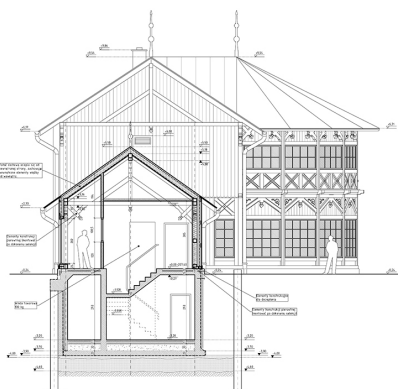


Fig. 14. Cross section through the eastern wing (Source: PKZ ARKONA Sp. z o. o.)

5. Conclusion

The unique character of buildings and urban complexes, as well as their architectural forms, become the engine of tourism development and also contribute to urban identity. This is the reason why we are so eager to visit European cities, to experience their atmosphere and mood, perhaps in search of new impressions and lasting emotions. The city of Krakow has acquired one more interesting place which is an attractive public space that has military history heritage. The reconstructed shooting pavilion is the only noteworthy relic of the original foundation of the shooting ranges that were built as part of the fortification of Krakow by the Austrian Army in the 19th century. In line with the conservation recommendations and despite the all/roof insulation and partial basement construction, the complex has kept its historical form. The design emphasized the frame structure by making the truss elements visible. The original ornamental details such as capitals, decorative cones, piles and chamfers of the rafters have been reconstructed. The reconstructed original decoration of the interior and exterior also has high aesthetic value. The glazing of the southern façade (in the central and eastern sections)

created an impression of synergy resulting from the accumulation of historical values and modern standards. Designers who work on projects of this kind should be inspired by humility, the aesthetics of elegance, the careful use of means of expression, and be able to integrate new technologies with existing structures and be aware of the value of each monument. The criteria of authenticity and awareness of sensitivity are also crucial as is the awareness of the volatility of matter, which is a witness of history and events, especially when the monument is in ruins [8]. It is a case of perfect interference in the historic tissue of the building, combined with the careful preservation of historical details. In this respect, the object and public space have been revitalised, together with the recovery of their historical features.

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