



COURTYARDS OF CASTLES PARTIALLY RECONSTRUCTED IN HISTORICAL TOWNS

BOGUSZEWSKA Kamila ¹ DROBEK Katarzyna ²

- 1 dr inż. arch. Kamila Boguszewska, Department of Conservation of Monuments; Faculty of Civil Engineering and Architecture; Lublin University of Technology; k.boguszewska@pollub.pl
ORCID: 0000-0002-1513-2490
- 2 mgr inż. arch. Katarzyna Drobek, Department of Conservation of Monuments; Faculty of Civil Engineering and Architecture; Lublin University of Technology; k.drobek@pollub.pl
ORCID: 0000-0003-3599-1169

ABSTRACT: The protection and development of castle courtyards in historical cities pose complex conservation challenges. This complexity arises from the need to reconcile the historical form of courtyards, often known only through relics, with contemporary and expanded functional needs. The aim of this article is to critically analyze selected concepts for the modern development of castle courtyards. The research material consisted of contemporary implementations in the development of castle courtyards in European cities, including 36 complexes. The criterion for selecting these objects was their location, closely tied to the spatial structure of the city. Another condition for choosing the analyzed examples was the form and scope of courtyard adaptation to various functions. Based on the conducted analysis, the authors of the article formulated conclusions regarding the conservation-oriented development of castle courtyards.

KEYWORDS: castle courtyard, adaptation to contemporary function, spatial development

1. Introduction

The conservation of historical ruins remains a constant subject of discussion within the realm of historical preservation. Their distinctive features, including historical significance, geographical placement, dimensions, symbolism, and notably, their status as remnants from the past devoid of modern utilitarian functions, make them a frequent focus of attention in conferences, research endeavors, and scholarly publications dedicated to the proper protection and conservation of these invaluable remnants¹. The discussion on the preservation of historic ruins gained prominence in conservation circles from the mid-19th century onwards, with contemporary approaches and concepts taking shape in the early 20th century².

The matter of engaging with deteriorated castle spaces poses a significant challenge. While a great deal of attention is paid to the preservation and adaptation of historic ruins, in the context of protecting them, very often the problem of courtyard management is relegated to the sidelines. It is necessary to state that the importance of courtyards in the history of castles is a topic of great value in the context of the study of medieval defensive architecture and the social function of these structures. These spaces, which were the focal points of castles, had key functions both practical and symbolic. They were not only the heart of the military and defensive functions of these structures but also centers of social and economic life. Due to their multifaceted functions, courtyards become pivotal elements in the examination of medieval castles, offering valuable insights into various facets of life during that era.

Within the conservation activities at ruins, there is a need to consider interventions from both architectural and urban perspectives. It is important to emphasize that a historic castle ruin should be seen as an integral part of the environment in which it is located, whether this is a natural or urban context. The aim of any conservation effort should focus on maintaining or restoring the balance between the monument and its environment³.

Interventions related to courtyard space are a very important aspect of conservation proceedings, as are decisions related to the restoration of masonry. This is due to the need to combine the historic form of courtyards (often only known from relics) with contemporary (extended) utilitarian needs. In this context, it can be argued that castle courtyards in historic towns are key elements of cultural heritage whose protection and management require complex interventions. They constitute an essential and equal component of any castle environment. Moreover, castle courtyards play a crucial role in shaping the perception and functionality of the castle.

¹ Szmygin B., *Zabytkowa ruina /tak lub nie/*, [in:] B. Szmygin, P. Molski (ed.), *Zamki w ruinie - zasady postępowania konserwatorskiego*, Warszawa – Lublin, 2012, p. 5.

² Molski P., *Wprowadzenie. Zasady postępowania konserwatorskiego z zamkami w ruinie jako problem badawczy*, [in:] B. Szmygin, P. Molski (ed.), *Ochrona i konserwacja ruin zamkowych – wybrane problemy i przykłady*, Warszawa – Lublin 2013, p. 5

³ Karwacka E., Croatto G., *Architektura obronna – metodologiczna hipoteza działania w trudnych kwestiach ochrony zabytkowych obiektów*, [in:] Lewicka M. (ed.), *Ochrona Zabytków Architektury Obronnej - Teoria a praktyka*, Lublin – Warszawa, 2008, p. 70.

A fundamental difficulty is that any theoretical discussion of intervention in a damaged facility is based solely on the subjective judgments of researchers. Even with reference to international doctrinal guidelines, there is no simple, binary method of evaluation, characteristic of the exact sciences, that allows for the unquestioned establishment of the correctness of given assumptions⁴. The assessment of such activities is complicated by the fact that cultural heritage sites have a unique value, which often includes not only their material substance but also symbolic and emotional significance that is difficult to measure and assess objectively.

2. Objective and methodology

This article focuses on a critical analysis of contemporary approaches to the development of castle courtyard spaces, highlighting a variety of design approaches that oscillate between conservation and adaptation. Balancing the protection of the historic and architectural integrity of the courtyards with the demands of contemporary use is an extremely difficult task. It requires careful planning and consideration of both the tangible and intangible values of these spaces. This may involve innovative design solutions that respect the historic fabric while allowing for sustainable use.

The paper analyzes 36 courtyards of castle buildings located in Poland and Europe. The analysis of the development of historic courtyards was based on the following criteria:

- Utilization of contemporary pavement compared to historical pavement, considering technical, traffic, and conservation aspects;
- Addressing the challenge of aligning pavement material solutions with the requirements of all facility users within the framework of universal design;
- Implementing small architectural elements and new structures into the space, specifying their forms and limits;
- Incorporating greenery into the environment of historical courtyards, delineating the shapes and boundaries of its integration;
- The attributes of the current role of courtyards and the demonstration of their versatility influence specific spatial activities.

The result of the analyses was the formulation of conservation proposals for the development of historic castle courtyards.

⁴ Bukal G., *Ruiny zamków – studia ingerencji i ich efekty*, [in:] Lewicka M. (ed.), *Ochrona Zabytków Architektury Obronnej - Teoria a praktyka*, Lublin – Warszawa, 2008, p. 182.

3. Historical functions of castle courtyards

Castle courtyards played a pivotal role in the history of medieval castles, influencing both defensive architecture and daily life. Serving as the epicenter of castle activities, they were hubs where various aspects of castle life intersected, fulfilling practical as well as symbolic functions. The design and purpose of courtyards evolved alongside shifts in military strategies and societal changes, yet they remained integral to castle landscapes for centuries.

From an architectural standpoint, courtyards were strategically crafted to enhance the defensive capabilities of the castle while accommodating a diverse array of activities. Their location and size were closely tied to the castle's status and purpose, leading to a diversity of courtyard forms and dimensions across regions and historical periods.

Courtyards held multifaceted practical roles. During times of siege, they served as gathering points for castle defenders, ensuring swift access to various fortress areas. In times of peace, courtyards transformed into spaces for commerce, military training, and various daily activities, ranging from cooking to craftsmanship. Often, courtyards housed essential structures like wells, providing access to water during isolation.

Symbolically, courtyards embodied the power and prestige of the castle owner. Impressively designed and often adorned with lavish decorations, they stood as clear indicators of wealth and influence. Many courtyards were crafted to awe visitors, underscoring the sophistication and cultural richness of castle life.

In the realm of military architecture, courtyards served operational functions, facilitating effective defense and internal coordination. The strategic placement of vital structures, such as arsenals, stables, or living quarters, around the courtyard allowed for efficient logistics and rapid mobilization of forces when needed.

The concept of gradation and hierarchy, intertwined with the historical function of courtyards, played a pivotal role in shaping the structural and symbolic identity of castles. This principle manifested in the organization of different castle parts, accentuating their roles and statuses. The distinction between upper and lower courtyards, illustrated by Helfštýn Castle (Fig. 1) and Itza Castle (Fig. 2), exemplifies this hierarchy. Upper courtyards symbolized prestige with limited accessibility, highlighting their representative and strategic roles. Conversely, lower courtyards, more open and accessible, served everyday purposes, contributing to the unique identity and spatial context of castles.

Courtyard gradation also aligned with historical divisions into various functions, as observed in Janowiec Castle (Fig. 3). There, the fortress walls separated a larger, representative courtyard from a smaller one dedicated to economic functions. This spatial distribution reflected the diverse tasks and daily life needs within a medieval castle.



Fig. 1 Castle Helfštýn, Czech Republic, source: https://architektura.muratorplus.pl/realizacje/zamek-helfstyn-renowacja-po-czesku_10824.html, access August 2023



Fig. 2 Castle in Iłża, Poland, source: <https://www.facebook.com/zamekwilzy>, access August 2023



Fig. 3 Castle in Janowiec, Poland, source: Archiwum KKZ, Politechnika Lubelska

4. Analysis of contemporary development of castle courtyards

Examining the modern evolution of castle courtyards holds significant importance for various reasons. Primarily, it offers insights into how historical sites are utilized and adapted to meet contemporary needs, playing a vital role in the preservation of cultural and historical heritage. Furthermore, such analysis allows for an assessment of the impact of changes on the aesthetics and functionality of these spaces, which is crucial for both tourism and local communities.

Conducting this analysis necessitates an interdisciplinary approach that considers both historical elements and the current requirements for use. To comprehensively assess the contemporary development of historic castle courtyards, it is imperative to take into account various factors influencing their spatial and functional transformations. The proposed criteria for analysis underscore the multifaceted nature of this examination, highlighting technical, aesthetic, functional, and socio-cultural elements.

Moreover, the significance of these spaces as a connection between the past and the present should not be overlooked. The contemporary development of castle courtyards often serves as a symbolic bridge, linking the historical identity of the site with its present-day utilization. This integration aligns with modern urban and social trends while maintaining respect for the historical context.

The following are selected factors that influence:

- **The use of modern paving versus historic ones:** This criterion is fundamental, as it addresses the core conflict between conservation and modernity. In a technical context, modern materials may offer better durability and functionality, but they may also compromise the historic character of the courtyard. From a traffic perspective, it is important that the pavement meets the demands of modern traffic while not disrupting the historic spatial layout.

- **Adapting pavement material solutions to the needs of users:** The key here is universal design, which allows the space to be accessible and usable for a wide range of users, regardless of their individual needs. This is particularly important in the context of historic buildings, which often are not adapted to the needs of people with reduced mobility.
- **Introduction of small architectural elements and new volumes:** This criterion relates to the aesthetics and functionality of the courtyards. The introduction of new elements requires a sense and ability to integrate contemporary solutions with the historical context, which is a design and conservation challenge.
- **Introducing green space into historic courtyards:** Green spaces can transform the character of courtyards, bringing elements of relaxation and nature into the heart of historic complexes. However, it is important that the way in which these spaces are greened harmonizes with their historic character.
- **Multifunctionality of courtyards:** Historic courtyards often serve a variety of functions, from representational to communal to recreational. Understanding and highlighting these multiple functions is key to maintaining their vitality and relevance in the contemporary context.

Examining the evolution of castle courtyards demands nuanced consideration and harmonization of diverse requirements. This includes preserving historical integrity, ensuring accessibility and functionality, and addressing aesthetic and social aspects. These criteria are crucial as they enable a comprehensive approach, considering both historical heritage and present-day challenges.

4.1. Foundation level of the castle courtyard

In the conservation analysis of castle courtyards, the first important aspect is to consider the original usable level of these spaces. Archaeological investigations, including probing and stratigraphic studies, often indicate that the original level of the courtyard was below the present level. This change in level is due to the evolution of the military function of castles, changes in technological and spatial requirements⁵, as well as extensions and adaptations to the buildings over the centuries.

Deciding to restore the original usable levels of castle courtyards presents a number of challenges. First of all, it is necessary to consider whether such restoration is technically feasible, taking into account secondary modifications and 'openings' that may have significantly altered the original structure of the courtyard. Furthermore, it is crucial to understand that the original level of the courtyard does not necessarily determine conservation decisions regarding contemporary use.

⁵ Łobocki J. M., *Średniowieczne zamki Polski północnej*, Muzeum Zamkowe w Malborku, 1983, p.78.

It is also important to take into consideration the complex function that castles had, combining military, residential, and administrative aspects⁶. When revaluing such spaces, it is necessary to take into account not only the historical aspects but also the needs and possibilities of the contemporary user. The design of the revaluation should therefore include the space of the recently formed courtyard, taking into account the contemporary opening of the building, even if only parts of it are preserved.

Such a multidimensional perspective allows for an effective combination of heritage conservation with functionality and accessibility for contemporary users, while maintaining authenticity and historical context. Conservation decisions should therefore be based on thorough historical and archaeological analysis, as well as consideration of contemporary needs and technical possibilities.

At the Upper Castle in Ilza, following the restoration works carried out between 2021 and 2022⁷, the contemporary level of the courtyard was adjusted to the original level. Part of the existing pavement was left unchanged (Fig. 4 and 5). Thus, the foundation level originally shaped in the project has been preserved⁸.



Fig. 4 Castle in Ilza, Poland. Status as of June 2021, source: <https://zamek.ilza.pl/wydarzenia/udostepnienie-zamku-biskupow-krakowskich-w-ilzy-dla-ruchu-turystycznego/>, access August 2023



Fig. 5 Castle in Ilza, Poland. Condition as of June, source: <https://zamek.ilza.pl/wydarzenia/udostepnienie-zamku-biskupow-krakowskich-w-ilzy-dla-ruchu-turystycznego/>, access August 2023

⁶ Musiaka Ł., *Funkcja turystyczna średniowiecznych zamków i jej wpływ na miasta Pomorza, Warmii i Mazur*, Łódź, 2013, p.72.

⁷ Zapłata R., *Udostępnienie zamku Biskupów Krakowskich w Ilży dla ruchu turystycznego*, https://zamek.ilza.pl/wydarzenia/udostepnienie-zamku-biskupow-krakowskich-w-ilzy-dla-ruchu-turystycznego/?fbclid=IwAR3e4aIC88CbAg0_CiV4I5EW5SPN_7P7AggXh249bDbuw7FYgisDrCv6wM, access: august 2023.

⁸ *Projekt konserwacji i odtworzenia części murów zamku górnego w Ilży w zakresie niezbędnym dla zachowania i ustabilizowania konstrukcji zabytku*, Gdańsk, 2020.

The level of the courtyard of the castle in Sochaczew was determined based on recommendations from the association 'Nasz Zamek,' which operates on the site. These findings were made on the basis of an analysis of archaeological research reports and consultations with experts specializing in the history of this castle. It is worth noting that the usable level of the Sochaczew castle courtyard was significantly lower than the present one. Although the exact level of the courtyard from the 17th century is not known, it was certainly adjusted to the level of the offsets and the outlet of the sewage canal⁹.

At the castle in Ciechanów, due to periodic flooding of the area surrounding the castle by the nearby Łydynia River and the resulting groundwater problems, the surface of the courtyard and the rampart surrounding the castle walls was raised by 1.5 meters around the 15th century, using a layer of clay as an overlay¹⁰. The current state is the result of the revaluation carried out in recent years, which has received a great deal of criticism¹¹. The level of the courtyard has been disturbed by the location of the technical and utility rooms below it.

4.2. Type of paving applied in castle courtyards

The castle courtyards, historically unpaved, were designed for efficient drainage of rainwater. Systematic archaeological investigations confirm this theory. The surface of a castle courtyard not fixed with paving may have been a layer 11-15 cm thick formed from uniformly mixed, grey-colored clay. This is the classical structure of the layers marking the level of use of the courtyard¹². For example, at Krzyżtopór Castle, it was discovered that the courtyards had no paved surface and that the main yard had a gentle slope towards the western corner, which facilitated the drainage of rainwater into a specially designed drainage channel, the vaulted outer outlet of which was uncovered in an extension to the northern shoulder of the bastion "Die Croone"¹³.

During the restoration of the upper castle in Ilza, the paving did not take into account the pattern of the original section in the southwestern part of the courtyard. The shape of the surface for water drainage was not properly refined, and there was no success in recreating the original shape and consistency of the central gutter¹⁴.

⁹ Brykowska M., *Ochrona zabytkowych ruin – problemy badawcze i projektowe na przykładzie zamku w Sochaczewie*, Protection of cultural heritage, No 6, 2018, p. 22.

¹⁰ Lewicka M. L., *Konserwatorski problem „rewaloryzacji” zamku w Ciechanowie*, [in:] *Ochrona zabytków architektury obronnej. Teoria a praktyka*, Lublin – Warszawa, 2008, p. 5.

¹¹ Kęsik G., *Spór o rewitalizację zamku w Ciechanowie*, Ciechanów, 2011.

¹² Kuczyński J., *Archeologiczne przyczynki do badań nad architekturą i historią zamku Krzyżtopór w Ujeździe, pow. Opatów*, Rocznik Muzeum Świętokrzyskiego 6, 1970, p. 530.

¹³ Kuczyński J., *Archeologiczne przyczynki do badań nad architekturą i historią zamku Krzyżtopór w Ujeździe, pow. Opatów*, Rocznik Muzeum Świętokrzyskiego 6, 1970, pp. 527-533.

¹⁴ <https://www.ilzahistoria.pl/tag/zamek-ilza/>, access: august 2023.

The courtyard of the castle in Ciechanów, also mentioned in the previous section, is an interesting case. Originally, the courtyard was filled twice with a clay embankment, divided by a layer of wood extending outside the walls¹⁵. In the second half of the 15th century, the courtyard was covered with a "cobbled surface of granite pebbles laid in the form of rectangles of larger stones filled in with small stones"¹⁶. As part of the temporary development, its surface was covered with sand for the most part. Along the façade of the Little House, there was a cobbled strip about 6 meters wide, equipped with a functioning rainwater drainage system. Openwork concrete 'meba' slabs were used in place of the utility facilities located under the courtyard surface. In addition, a temporary strip of paving was laid along the façade of the Big House¹⁷. In this form, the courtyard functioned for nearly eight years, during which discussions were held on the final form of its development. Based on a conservation decision, it was necessary to remove the extraneous elements associated with the above-described works and to recreate the historic appearance of the pavement, using the surviving stones¹⁸. Finally, the new top surface (Fig. 7 and 8) was laid based on historic aerial photographs taken during the 2007 archaeological survey (Fig. 6), showing the original composition of the paving¹⁹. Due to differences in levels and the need to hide the walls of the rooms located below the surface of the courtyard, wooden landings were also used.



Fig. 6 Castle in Ciechanów, Poland, source: Archiwum MWKZ, Delegatura w Ciechanowie



Fig. 7 Castle in Ciechanów, Poland, source: <https://modanamazowsze.pl/mazowiecka-twierdza-w-ciechanowie>, access August 2023



Fig. 8 Castle in Ciechanów, Poland, source: https://legio24.pl/pl/19_wiadomosci-z-regionu/123466_region-kultura-za-zlotowke-dla-szesciolatkow.html, access August 2023

¹⁵ *Scientific documentation - description of the history of the castle in Ciechanów*, Archives of MWKZ (Regional Directorate of State Archives) Branch in Ciechanów, reference number 2385, p. 1.

¹⁶ Pikulińska-Ciuk M., *Badania zamku książęcego w Ciechanowie (1977-78)*, p. 21.

¹⁷ Kleczkowski M., *Konserwacja murów w obrębie przedbramia zamku książąt mazowieckich w Ciechanowie wraz z uporządkowaniem dziedziny i otoczenia, executive design*, Gdynia, 2020.

¹⁸ *Decision No. 684/DC/2020 dated August 24, 2020, issued by the Regional Conservator of Monuments in Warsaw*, Delegation in Ciechanów, regarding the issuance of a permit for conducting conservation works and construction activities in connection with the implementation of the task: „Konserwacja murów w obrębie przedbramia Zamku Książąt Mazowieckich w Ciechanowie wraz z uporządkowaniem dziedziny i otoczenia”.

¹⁹ Piotrowski M., *Przedstawienie wyników badań archeologicznych przeprowadzonych na obszarze Zamku Książąt Mazowieckich w Ciechanowie w 2008 r.*, [in:] M. Piotrowski (red.) *Zamek Książąt Mazowieckich w Ciechanowie – nowe spojrzenie*, Ciechanów, 2017, p.30.

Recent stratigraphic investigations at Inowłodz Castle have revealed a primary structural level in the central part of the castle, consisting of sandstone rubble with fragments of lime mortar²⁰.

In contrast, archaeological investigations carried out in the 1990s at Wawel Castle (courtyard of 2,481 m²) revealed the original levels of the courtyard and the types of limestone paving from the 16th century. On this basis, in 1995-2000, design documentation was created for the reconstruction of the paving of the courtyard, replacing the German gravel embankments with a new surface of limestone cubes of various sizes from the Turkish limestone Crema Rozalia. The courtyard was edged with a strip of porphyry cobblestones²¹. The pavement was designed to drain into two manholes, using an envelope paving system with large limestone slabs on the drains and taking into account the needs of modern users.

In the case of the revalorization of the Pieskowa Skała castle courtyard, wild limestone paving was considered to be aesthetically pleasing and historically justified, but for functional and usability reasons, and above all for accessibility for the disabled, a large rectangular limestone paving in an irregular arrangement was proposed²². A similar solution was adopted for the outer courtyard with accentuated strips of wild limestone accentuating the course of the walls and the bridge²³.

Contemporary trends in the revitalization of castle courtyards take into account both their historic character and the need to adapt to modern standards. The design of castle courtyard paving requires consideration of many factors, from historical integrity to functionality and accessibility. The need to find a compromise between aesthetics and practicality is becoming a key element in protecting cultural heritage and ensuring equal access to historic spaces. In heavily used areas, such as popular tourist attractions, smooth surfaces made of large stone slabs are often used to accommodate people with different disabilities, combining functionality with respect for historical heritage²⁴.

²⁰ Różański A., Olszacki T., *Badania terenowe zamków z obszaru Wielkopolski i Polski Centralnej w XXI wieku*, [in:] A. Różański (ed.) *Gemma Gemmarum. Studia dedykowane Profesor Hannie Kóćce-Krenz*, Poznań, 2017, p. 1026.







²¹ *Attachment No. 2a - Conservation guidelines for the conservation of the pavement of the arcaded courtyard of the Royal Castle on Wawel*. Public procurement for the execution of the task „Konserwacja nawierzchni dziedzińca arkadowego oraz konserwacji ścian i sklepień „Sieni Berrecciego” w Zamku Królewskim na Wawelu” – znak sprawy: DZP-282-01/20, march 2020, <https://wawel.krakow.pl/zamowienie/przetarg-nieograniczony-dzp-282-01-20>.






²² *Attachment No. 1b to the Specification: Guidelines for the renovation project of courtyards, stairs, and inclined ramps in Pieskowa Skala*. Public procurement for the execution of the task: „Prace budowlane w zamku w pieskowej skale obejmujące modernizację nawierzchni dziedzińców wraz z wymianą instalacji, budowę zbiornika przeciwpożarowego, remont konserwatorski elewacji oficyny i obudowę studni zamkowej”.

²³ *Ibid.*

²⁴ Szmygin B., *Dostępność architektoniczna obiektów zabytkowych dla osób ze szczególnymi potrzebami*, Politechnika Lubelska - Narodowy Instytut Dziedzictwa, 2022, pp. 94-95.

Tab. 1 Surfaces used in castle courtyards: examples and a presentation of their advantages and disadvantages.

Fieldstone paving		
Advantages of the surface applied:	Disadvantages of the surface applied:	
<ul style="list-style-type: none"> - reference to the original historical solutions, - provides a neutral background to the perception of the ruins, - unique character and permanence. 	<ul style="list-style-type: none"> - problem of building accessibility for all users, especially people with reduced mobility, - high cost of implementation. 	
		
<p>Fig. 9 Castel in Liw, Poland, source: Archiwum KKZ, Politechnika Lubelska</p>	<p>Fig. 10 Castle in Ciechanów, Poland, source: https://ciech24.pl/jubileusz-50-lecia-muzeum-szlachty-mazowieckiej-w-ciechanowie-07-09-2023/, access August 2023</p>	<p>Fig. 11 Castle in Ząbkowice Śląskie, Poland, source: Archiwum KKZ, Politechnika Lubelska</p>
		
<p>Fig. 12 Inowłódz Castle, Poland, source: https://mynaszlaku.pl/zwiedzilismy-zamek-w-inowlodzu-i-byalismy-przykosciele-swietego-idziego/, access August 2023</p>	<p>Fig. 13 Castle in Ilza, Poland, source: https://www.facebook.com/zamekwilzy, access August 2023</p>	<p>Fig. 14 Castle in Torun, Poland, source: Archiwum KKZ, Politechnika Lubelska</p>

Cut stone		
<p>Advantages of the surface applied:</p> <ul style="list-style-type: none"> - smooth surface, meets the standards of a surface suitable for any user. 	<p>Disadvantages of the surface applied:</p> <ul style="list-style-type: none"> - the perception of the surface is less natural and appears more 'foreign'. 	
		
<p>Fig. 15 Sochaczew Castle, Poland, source: Archiwum KKZ, Politechnika Lubelska</p>	<p>Fig. 16 Castle in Czchów, Poland, source: https://mynaszlaku.pl/zamek-w-czchow-pole-rekonstrukcji-jak-wygladal-wczesniej/, access August 2023</p>	
Gravel surface		
<p>Advantages of the surface applied:</p> <ul style="list-style-type: none"> - neutral background for fortress buildings - possible adaptation of the color and fraction of the material to harmonize with the historic surroundings, - permeability of the surface. 	<p>Disadvantages of the surface applied:</p> <ul style="list-style-type: none"> - problem of building accessibility for all users, - requires regular replenishment. 	
		
<p>Fig. 17 Castle in Bedzin, Poland, source: https://medievalheritage.eu/pl/strona-glowna/zabytki/polska/bedzin-zamek/, access August 2023</p>	<p>Fig. 18 Castle in Kazimierz Dolny, Poland, source: Archiwum KKZ, Politechnika Lubelska</p>	<p>Fig. 19 The castle at El Real Del Jara, Spain, source: https://www.archdaily.com/499439/eej-adaptation-of-patio-de-armas-in-el-real-de-la-jara-castle-villegas-bueno-arquitectura?ad_medium=gallery, access August 2023</p>


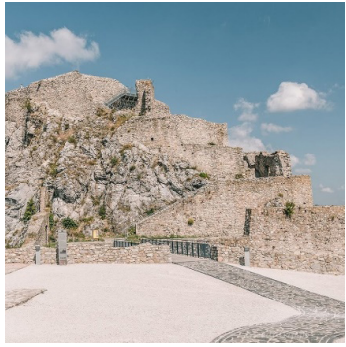



Mineral surface		
<ul style="list-style-type: none"> - functionality, - technical, economic, environmental, and aesthetic qualities. 	<ul style="list-style-type: none"> - saturation, which in certain weather conditions causes puddles and mud, - requires regular renovation. 	
		
<p>Fig. 20 Helfštýn Castle, Czech Republic, source: Archiwum KKZ, Politechnika Lubelska</p>	<p>Fig. 21 Devin Castle, Slovakia, source:http://ineedatrip.pl/2019/11/zamek-devin/, access August 2023</p>	<p>Fig. 22 Rabsztyn Castle, Poland, source: https://lifeinkrakow.pl/galerie/w-wolnym-czasie/1037,zamek-rabsztyn-zaprasza-piekne-miejsce, access August 2023</p>
Grass surface		
<ul style="list-style-type: none"> - provides the most neutral backdrop for the display of the castle ruin, - offers an opportunity for multifunctional use of the courtyard space. 	<ul style="list-style-type: none"> - unsightly appearance in heavy use, - problematic use in wet weather, - requires regular mowing and care. 	
		
<p>Fig. 23 Tenczyn Castle in Rudno, Poland, source: https://turystyka.wp.pl/polski-zamek-zagral-w-serialu-netflixa-nazywano-go-malym-wawelem-6827501167057440a, access August 2023</p>	<p>Fig. 24 Castle in Czersk, Poland, source: Archiwum KKZ, Politechnika Lubelska</p>	



Fig. 25 Castle in Rawa Mazowiecka, Poland , source: <https://tymrazem.pl/zamek-w-rawie-mazowieckiej-warownia-ksiazat-mazowieckich/>, access August 2023



Fig. 26 Trancoso Castle, Portugal , source: <https://www.goncalobyrnearquitectos.com/trancoso-castle-home>, access August 2023

Analyzing Table 1, some important trends and challenges can be observed in the context of the design of castle courtyard paving. First of all, the use of fieldstone paving dominates. This choice alludes to historic construction methods, which is important in the context of preserving the character and authenticity of historic sites. Fieldstone, due to its natural origin and appearance, provides a neutral background that emphasizes their historic character. However, its use, due to the uneven surface of the paving, causes problems of limited accessibility for people with disabilities.

Cut stone paving, characterized by an even texture, is used as an alternative to fieldstone. However, using it results in a somewhat unfamiliar perception of the pavement. The use of gravel paving, whose aesthetics allow it to be adapted to the character of the historic site, is also popular. However, the use of such pavements raises challenges in terms of accessibility for different users. There has been an increase in the popularity of courtyard pavements made of water-permeable mineral materials that are naturally stabilized, allowing the use of different types of gravel. To ensure the longevity of such pavements, proper sub-base construction and the use of kerbs or edging is key. A limitation to the use of gravel pavements is a slope of more than 5%. Significant slopes can result in erosion and leaching of aggregate. Mineral base pavements have a shorter lifespan due to the movement of aggregate and the formation of cavities and irregularities, which increase over time. After rainfall, they turn into puddles, which are then overgrown with weeds and grass. Some courtyards are covered with a grass surface, but this requires regular maintenance and is not resistant to heavy use.

4.3. Contemporary functioning and development of castle courtyards

Medieval castles, adapted to modern functions and therefore also to tourism, play a key role in the socio-economic aspect of towns, especially smaller ones. Their impact on the local community and economy is both direct, through the creation of jobs, the generation of demand for local products and services, tax revenues, and the satisfaction of various needs

of the inhabitants, and indirect, through the effects of tourism²⁵. In the context of making effective use of the historic values of castles, it is important to recognize and address their role in the life of local communities. Because of their status as symbols of local identity, castles have special significance for local people. Their views and opinions are therefore a key element in the decision-making process regarding the future of castles.

Castle courtyards, due to their rich history, diverse use, and adaptations over the centuries, reflect changing needs and tastes, simultaneously shedding light on the diversity of approaches to the conservation and adaptation of historical spaces.

An essential aspect in the context of developing castle courtyards is understanding that the form, size, and layout of these spaces were directly linked to the rank and complexity of the castle. The arrangement of courtyards was, therefore, a result of the military complexity of the structure, investor capabilities, and material-technical constraints.

As mentioned earlier, castle courtyards, integrated with the functionality of the entire castle, served various roles depending on their number and size. In smaller spaces, the communicative function predominated, while larger courtyards combined various practical aspects, such as military, economic, observational, directional, representative, and recreational functions. It's worth noting that the size of the courtyard directly influenced its multifunctionality.

In the context of perception and readability of the designated courtyard space, a division into "closed" and "open" courtyards can be made. The "closed" courtyard is a clearly delineated and restricted space. Its characteristic features include well-defined boundaries, often highlighted by architectural elements such as curtain walls or volumetric objects. Examples include the castles in Ciechanów (Fig. 27), Kazimierz Dolny (Fig. 28), and Rawa Mazowiecka (Fig 29). In the case of the second structure, its boundaries are particularly emphasized. While the original elements may be reduced to a minimal form (i.e., perimeter walls), the way they are presented and preserved underscores the closed nature of the courtyard. The presentation of the ruins takes place on a neatly trimmed lawn, reminiscent of the "English school of ruin conservation," and the courtyard has been deprived of all utilitarian functions, retaining only its aesthetic appeal.

²⁵ Musiaka Ł., *Funkcja turystyczna średniowiecznych zamków i jej wpływ na miasta Pomorza, Warmii i Mazur*, Łódź, 2013, p. 8.



Fig 27 Castle in Ciechanów, Poland, source: Archiwum KKZ, Politechnika Lubelska

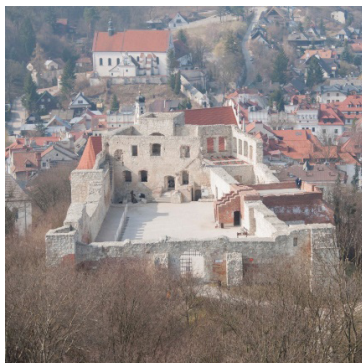


Fig. 28 Castle in Kazimierz Dolny, Poland, source: Archiwum KKZ, Politechnika Lubelska



Fig. 29 Castle in Zamek w Rawa Mazowiecka, Poland, source: <https://www.rawamazowiecka.pl/1814,zamek-ksiazat-mazowieckich>, access August 2023

On the other hand, the "open" courtyard is characterized by a lack of clearly defined boundaries, giving it a more spacious and less restricted character compared to closed courtyards. "Open" courtyards may employ subtler means to delineate their boundaries, such as changes in pavement or subtle landscaping elements. An example of this can be seen in the castle in Sochaczew (Fig. 30 and 31), where a lack of consistency in conservation efforts is evident. The surface of the courtyard defines the boundaries of the defensive structure, and the remaining relics do not naturally delineate or enclose the interior, making it less legible in space.



Fig. 30 Castle in Sochaczew, Poland, source: Archiwum KKZ, Politechnika Lubelska



Fig. 31 Castle in Sochaczew, Poland, source: Archiwum KKZ, Politechnika Lubelska

The functionality and development of courtyards in various historical structures have also been analyzed, demonstrating their contemporary applications. Castle courtyards in the past were characterized by multifunctionality, adapting to changing needs and the specific nature of each historical period. In the contemporary context, these courtyards can be classified as either monofunctional, dedicated to a specific purpose, or multifunctional, offering versatile applications.

As an example of a "monofunctional" space, we can cite the castle in Kazimierz Dolny (Fig. 32), where the courtyard, devoid of permanent furnishings, constitutes a space with simple and modest development, simultaneously enabling the realization of various functions. The emphasis is placed on the castle itself and the surrounding landscape, making this courtyard an example of the effective use of multifunctional space.



Fig. 32 Castle in Kazimierz Dolny, Poland, source: Archiwum KKZ, Politechnika Lubelska



Fig. 33 Castle in Sochaczew, Poland, source: Archiwum KKZ, Politechnika Lubelska

Another example is Devin Castle (Fig. 33), characterized by a large, multi-level courtyard that allows for diverse use of the space. The absence of modern architectural elements emphasizes the character and picturesque nature of the ruins, while grassy surfaces near the preserved relics enhance their exposure. Paved pathways designate the main routes within the castle grounds.



Fig. 34 Castle in Trancoso, Portugal, source: https://www.archdaily.com.br/br/01-189232/adequacao-do-patio-do-castelo-de-el-real-de-la-jara-slash-villegas-bueno-arquitectura?ad_medium=gallery, access August 2023



Fig. 35 Castle in Trancoso, Portugal, source: <https://www.goncalobynearquitectos.com/trancoso-castle-home>, access August 2023

Trancoso Castle (Fig. 34 and 35) is another example where the courtyard has been discreetly and multifunctionally adapted. Avoiding pastiche, modern architectural elements have been introduced, harmoniously blending with the historical surroundings. The changes applied are

subtle and precise, resembling more artistic installations than construction structures. The central and enduring element remains the castle's ruins, accentuated by a grassy environment, reflecting the approach of the English school of conservation.

In the case of Castello del Real de la Jara (Fig. 36), the secondary recreational function introduced in the form of an amphitheater diverts attention from the architecture of the castle itself, becoming a kind of scenography. The added function overwhelms the courtyard space, simultaneously disrupting historical surface levels and limiting the possibilities of its contemporary use.



Fig. 36 Castle in Castello del real de la Jara, Spain, source: https://www.archdaily.com.br/br/01-189232/adequacao-do-patio-do-castelo-de-el-real-de-la-jara-slash-villegas-bueno-arquitectura?ad_medium=gallery, access August 2023



Fig. 37 Castle in Haapsalu, Estonia, source: <https://estonianworld.com/culture/pictures-the-haapsalu-castle-museum-awarded-by-the-european-museum-forum/>, access August 2023

Haapsalu Castle (Fig. 37) presents a way of utilizing space that teeters on the edge of exceeding conservation principles. Each element introduced into the courtyard is considered individually and harmonizes with the architecture of the fortification. However, their excessive accumulation and a rather aggressive contemporary form make it challenging to perceive the monument.

In contrast, Chęciny Castle (Fig 38 – Fig. 40) is an example where modern elements introduced into the courtyard space become disharmonious and unnatural. The systematically expanded program has led to the placement of foreign elements in the castle space, such as pavilions and fences reminiscent of small structures used in backyard gardens.



Fig. 38-40 Castle in Chečiny, Poland, source: <https://slowroad.pl/inspiracje/zamek-w-checinach/>, access August 2023

The last example is Castillo de Garcimuñoz in the town of Castillo de Garcimuñoz²⁶. This structure serves as a warning against excessive intervention, where a modern, aggressive form of art in the courtyard space can disrupt the perception of the historic environment (Fig. 41 - Fig. 43). The development represents a kind of distortion and overstepping the boundaries of good taste.



Fig. 41 Castle in Castillo de Garcimuñoz, Spain, source: <https://cultura.castillalamancha.es/patrimonio/yacimientos-visitables/castillo-de-garcimunoz>, access August 2023

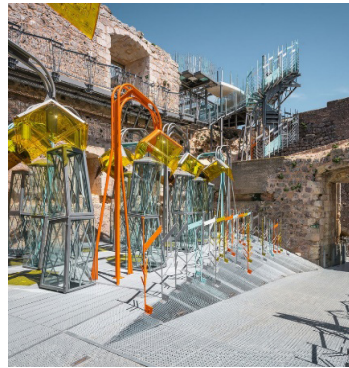


Fig. 42 Castle in Castillo de Garcimuñoz, Spain, source: https://www.archdaily.com.br/br/791095/reforma-do-castelo-de-garcimunoz-izaskun-chinchilla?ad_medium=gallery, access August 2023

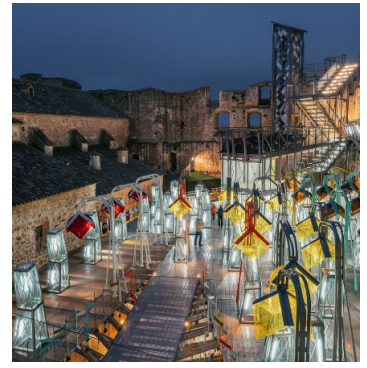


Fig. 43 Castle in Castillo de Garcimuñoz, Spain, source: https://www.archdaily.com.br/br/791095/reforma-do-castelo-de-garcimunoz-izaskun-chinchilla?ad_medium=gallery, access August 2023

²⁶ Izaskun Chinchilla Architects, Refurbishment of Garcimuñoz Castle, Bartlett Design Research Folios, 2015.

4.4. Greenery in the castle courtyard space

Historically, greenery was not introduced into castle courtyard spaces, mainly due to limited space. It is true that so-called hortus conclusus - small ornamental gardens - appeared in castles, but they were not an integral part of the castle architecture. Instead, greenery was often placed outside the castle walls, where so-called play gardens were created²⁷.

In contrast to medieval practices, greenery is often introduced as a surface type in historic courtyards today. This is inspired by the so-called English school of ruin conservation, where the priority is to expose the castle ruins against a background of neatly cut lawns²⁸. This change in approach emphasizes the importance of greenery in an aesthetic and ecological context, introducing a natural element into historic spaces that can also serve a recreational function and visually enhance the surroundings.

5. Conclusions

Castle courtyards represent a vital facet of architectural heritage, posing distinctive challenges and opportunities in their preservation. Managing contemporary development with sensitivity is crucial to ensure these historic spaces maintain their significance and contribute to the urban landscape.

In the revitalization of historic castle courtyards, recognizing that the original courtyard level doesn't dictate conservation decisions for its contemporary use is critical. The project should encompass the recently formed courtyard space, considering the modern 'opening' of the fortified building, even in small fragments. Balancing conservation and adaptation is necessary, harmonizing contemporary needs and functions with historical heritage. When revaluing castle courtyards, comprehensive design consideration should be given to every element as a fragmentary testament to the past.

Choosing the surface of the courtyard is a decision rooted in preserving its historic character and function. Paving should align with contemporary functions, with selection and design mindful of the complexity and intensity of use, matching the building's standard of finish.

The courtyard, as the fortress's focal point, should embody the fortified site's key space, authenticated by 'walls' in the form of structures and relics. This authenticity preserves the castle's identity, allowing visitors a richer historical experience. Safeguarding the variety of shapes and sizes, including gradations, of castle courtyards is crucial to maintaining and authenticating their typology.

The functional and utilitarian program of the courtyard should align with the castle's functional capacity. In larger courtyards, spatial arrangements should neither dominate nor hinder flexibility, facilitating dynamic responses to changing needs without compromising

²⁷ Majdecki L., *Historia ogrodów*. Vol. 1, 2008, Wydawnictwo Naukowe PWN, pp. 81-85.

²⁸ Tajchman J., *Konserwacja ruin historycznych - uwagi o metodzie*, [in:] *Ochrona Zabytków*, V. 4, No. 4, 2005, p. 28.

historical substance.

Minimalism in courtyard furnishing is equally important. Fixed elements should be minimal, and small architectural features should be discreet and easily removable. The use of natural materials underscores the castle's relationship to its historical context and natural surroundings.

Greenery introduced into the courtyard should be carefully curated, assuming an accent role rather than a dominant one. Serving aesthetics and aiding in authenticating historic elements, it should align with the principles of the English conservation school. Extensive greenery forms should be positioned outside perimeter walls in line with historical considerations.

For the effective valorization and conservation of castles, it is crucial to consider the impact of these sites on local communities. As castles are often seen by the public as symbols of local identity, the perspectives and opinions of local people are an important element in the discourse on their future use and management.

Upon completion of the restoration project, the castle courtyard should not only reflect its history and cultural significance but also seamlessly integrate into its contemporary context. It should become a space connecting the past and present, serving educational and entertainment purposes.

Bibliography

Brykowska M., *Ochrona zabytkowych ruin – problemy badawcze i projektowe na przykładzie zamku w Sochaczewie*, *Ochrona Dziedzictwa Kulturowego*, No. 6, 2018.

Bukal G., *Ruiny zamków – studia ingerencji i ich efekty*, [in:] Lewicka M. (ed.), *Ochrona Zabytków Architektury Obronnej - Teoria a praktyka*, Lublin – Warszawa, 2008.

Izaskun Chinchilla Architects, *Refurbishment of Garcimuñoz Castle*, Bartlett Design Research Folios, 2015.

Karwacka E., Croatto G., *Architektura obronna – metodologiczna hipoteza działania w trudnych kwestiach ochrony zabytkowych obiektów*, [in:] Lewicka M. (ed.), *Ochrona Zabytków Architektury Obronnej - Teoria a praktyka*, Lublin – Warszawa, 2008.

Kęsik G., *Spór o rewitalizację zamku w Ciechanowie*, Ciechanów 2011.

Kuczyński J., *Archeologiczne przyczynki do badań nad architekturą i historią zamku Krzyżtopór w Ujeździe, pow. Opatów*, *Rocznik Muzeum Świętokrzyskiego* 6, 1970.

Łobocki J.M., *Średniowieczne zamki Polski północnej*, Muzeum Zamkowe w Malborku, 1983.

Molski P., *Wprowadzenie. Zasady postępowania konserwatorskiego z zamkami w ruinie jako problem badawczy*, [in:] B. Szmygin, P. Molski (ed.), *Ochrona i konserwacja ruin zamkowych – wybrane problemy i przykłady*, Warszawa – Lublin, 2013.

Musiaka Ł., *Funkcja turystyczna średniowiecznych zamków i jej wpływ na miasta Pomorza, Warmii i Mazur*, Łódź, 2013.

Piotrowski M., *Przedstawienie wyników badań archeologicznych przeprowadzonych na obszarze Zamku Książąt Mazowieckich w Ciechanowie w 2008 r.*, [in:] M. Piotrowski (ed.) *Zamek Książąt Mazowieckich w Ciechanowie – nowe spojrzenie*, Ciechanów, 2017.

Różański A., Olszacki T., *Badania terenowe zamków z obszaru Wielkopolski i Polski Centralnej w XXI wieku*, [in:] A. Różański (ed.) *Gemma Gemmarum. Studia dedykowane Profesor Hannie Kóćce-Krenz*, Poznań 2017.

Szmygin B., *Dostępność architektoniczna obiektów zabytkowych dla osób ze szczególnymi potrzebami*, 2022.

Szmygin B., *Zabytkowa ruina /tak lub nie/*, [in:] B. Szmygin, P. Molski (ed.), *Zamki w ruinie - zasady postępowania konserwatorskiego*, Warszawa – Lublin, 2012.

Tajchman J., *Konserwacja ruin historycznych - uwagi o metodzie*, *Ochrona Zabytków*, Vol. 4 , No. 4, 2005.

Zapłata R., *Udostępnienie zamku Biskupów Krakowskich w Iłży dla ruchu turystycznego*, https://zamek.ilza.pl/wydarzenia/udostepnienie-zamku-biskupow-krakowskich-w-ilzy-dla-ruchuturystycznego/?fbclid=IwAR3e4aIC88CbAg0_ClvV4I5EW5SPN_7P7AggXh249bDbuw7FYgisDrCv6wM, Access August 2023.

Archival documentation

Pikulińska – Ciuk M., *Badania zamku książęcego w Ciechanowie* (1977-78).

Kleczkowski M., *Konserwacja murów w obrębie przedbramia zamku książąt mazowieckich w Ciechanowie wraz z uporządkowaniem dziedzińca i otoczenia*, executive design, Gdynia 2020.

Decision No. 684/DC/2020 dated August 24, 2020, issued by the Regional Conservator of Monuments in Warsaw, Delegation in Ciechanów, concerning the issuance of a permit for the execution of conservation works and construction activities related to the implementation of the task „Konserwacja murów w obrębie przedbramia Zamku Książąt Mazowieckich w Ciechanowie wraz z uporządkowaniem dziedzińca i otoczenia”.

Scientific documentation - description of the history of Ciechanów Castle, Archives of MWKZ (Regional Directorate of State Archives) Branch in Ciechanów, reference number 2385.

Attachment No. 1b to the Specification: Guidelines for the renovation project of courtyards, stairs, and inclined ramps in Pieskowa Skala. Public procurement for the execution of the task: „Prace budowlane w zamku w pieskowej skale obejmujące modernizację nawierzchni dziedzińców wraz z wymianą instalacji, budowę zbiornika przeciwpożarowego, remont konserwatorski elewacji oficyny i obudowę studni zamkowej”.

Attachment No. 2a- Conservation guidelines for the conservation of the pavement of the arcaded courtyard of the Royal Castle on Wawel. Public procurement for the execution of the task „Konserwacja nawierzchni dziedzińca arkadowego oraz konserwacji ścian i sklepień „Sieni Berrecciego” w Zamku Królewskim na Wawelu” – Case reference: DZP-282-01/20, March 2020 <https://wawel.krakow.pl/zamowienie/przetarg-nieograniczony-dzp-282-01-20>.