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**Material Identity of Kyiv: Restoring the Historic Character of the City through
the Restoration of 19th- and Early 20th-Century Brick Architecture**

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ABSTRACT

Kyiv is gradually losing its historic urban character. Facade alterations, the demolition of historic buildings, weak preservation policies, commercial redevelopment, and wartime destruction have together eroded the visual and material coherence of the city. One of the dominant surviving layers of its historic fabric is the yellow brick architecture of the late nineteenth and early twentieth centuries, yet much of its authentic materiality remains concealed beneath paint, plaster, insulation, and later interventions. The result is a weakening of the city's material identity and recognisable historical image.

This study addresses the following research question: which methods and strategies can be used to restore the historic urban character of Kyiv through its material identity? It applies a mixed-methods approach combining theoretical analysis, field observation and visual survey, semi-structured interviews with restoration specialists, a focused restoration case study, and comparative analysis of international examples drawn from Glasgow, Paris, Amsterdam, and Lodz.

The findings show that the Kyiv brick style is one of the dominant — though largely obscured — layers of the historic city, and that restoring authentic brick facades can function not only as a conservation practice but as a broader mechanism for recovering urban continuity, collective memory, and imageability. In the context of post-war reconstruction, such restoration acquires particular significance as a means of maintaining Kyiv's historical distinctiveness during a period of accelerated urban transformation.

Keywords: material identity, Kyiv, brick architecture, heritage preservation, restoration, urban identity, collective memory, post-war reconstruction.

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1 INTRODUCTION

Cultural heritage is a core aspect of societal identity. It embodies the collective memory and historical experiences of a community. In the context of architecture, cultural heritage creates distinctive urban spaces that give a city its recognizable character and significance.

However, today Ukrainian cities, and Kyiv in particular, face unprecedented pressure. The full-scale Russian invasion of 2022 has caused considerable destruction. Shelling has damaged or destroyed architectural monuments. However, the problem runs deeper than the war's consequences. Even before the active phase began, Kyiv faced systemic architectural degradation. Demolition of historic buildings for commercial development and a lack of effective monument protection have gradually deprived urban space of authenticity. As a result, Kyiv is acquiring features of a depersonalized space, lacking a clear architectural face.

Among the diverse layers of the architectural heritage of Kyiv, a dominant place belongs to the Kyiv brick style architecture of the end of the nineteenth and the beginning of the twentieth century. It is exactly the domination of the yellow brick buildings that has, to a significant extent, formed the unique material identity of Kyiv.

Today, the given identity is almost invisible — but not totally destroyed. However, despite its quantitative presence within the urban space, the given architecture remains to a significant extent undervalued and neglected: a major part of the buildings is in a neglected condition and does not realize its cultural potential. At the same time, the emphasis on Kyiv's brick style architecture does not diminish the significance of other components of the architectural heritage of the city, which must be considered as elements of equal value within the integral cultural system of Kyiv.

Within contemporary heritage discourse, preservation is no longer understood only as protection of isolated monuments. International preservation theory more and more approaches the city itself as a historical environment that is shaped by the relations between architecture, memory, and everyday urban experience.

The research hypothesis is that the restoration and preservation of authentic historic brick facades can contribute not only to the conservation of individual buildings, but also to the recovery of visual continuity, recognisability, and urban distinctiveness within the contemporary city.

The central research question is: Which methods and strategies can be used to restore the historic urban character of Kyiv through material identity?

2 LITERATURE REVIEW

The main focus of this study is on theories of how people experience cities, how a city's identity is created by its physical environment, and the possibility of strengthening this identity through architectural restoration. Special attention is given to city visual surfaces — like building materials, their textures, and colors. These physical details shape the city's image, make it recognizable, and influence how people experience it.

This chapter reviews previous research on this topic. It examines theories of how people perceive a city as a whole, ideas about how people connect to specific places, and international heritage rules that guide modern conservation work.

2.1 Perception of the city through its materiality

One of the foundational concepts in the literature on urban perception is imageability, which was introduced by Kevin Lynch in *The Image of the City* (1960). Lynch defines imageability as the capacity of a physical object to give "a high probability of evoking a strong image in any given observer." It is that shape, color, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment“ (Lynch, 1960). A place becomes recognizable due to its spatial, visual, and material characteristics, which together allow people to perceive it as a coherent structure. Lynch argues that imageability depends not only on the physical qualities of the environment but also on how it is perceived and interpreted. Therefore, the image of a city is formed through the interaction between the observer and the urban space.

Lynch identifies five main elements that together compose the image of a city: paths, edges, districts, nodes, and landmarks. Together, they create a clear and readable city structure. For this study, the most relevant are:

Paths guide movement and shape everyday life in a city. Streets, walkways, and routes act as a skeleton that helps people move through the city. The facades of buildings along a path create the visual experience of this movement — its imageability.

Districts are large city areas that people can easily identify on their mental map. We recognize them because they have repeating physical and visual details, such as building size, materials, colors, street layouts, and types of activity. These details give each district its own atmosphere and character.

Landmarks serve as visual anchors to help people orient themselves in the city. They can be small architectural details or huge buildings visible from afar. Because they are easy to recognize, they make the city's structure clearer for both locals and tourists. Landmarks often become the main symbols of a city, connecting physical buildings with cultural memory and identity.

For this study, Lynch's major point is particularly important: the city's physical embodiment directly influences how people see, experience, understand, and remember it.

In *The Architecture of the City* (1982), Aldo Rossi describes the city as a collection of urban artifacts — buildings, streets, squares, and spaces that acquire meaning and historical value over time. So, the image of the city is formed through people's everyday interaction with these elements. Experiencing these artifacts over time creates the memories and spatial connections that make a place unique.

The passage of time highlights another crucial concept in this framework: permanence. Urban forms often retain their physical presence long after their original function or social context has disappeared. Even when buildings completely lose their initial purpose and context, they remain anchored in the city's shared visual landscape. Through this continuance, architecture acts as a material witness to earlier eras and carries historical continuity forward.

Rossi also emphasizes the value of the urban fabric as a continuous structure that connects individual artifacts into a coherent whole. The value of a city lies not only in its monuments or dominant buildings, but also in its ordinary buildings, which form stable spatial relationships, facade rhythms, block typologies, and the material atmosphere of the urban environment. It is exactly such continuity that produces the sense of a city's character and recognisability.

Particularly important for the present study is Rossi's argument that "the city itself is the collective memory of its people" (Rossi, 1982). Materials, textures, colors, and the traces of time are not merely technical features of architecture; they become carriers of cultural meaning.

Questions of material authenticity become central in Alois Riegl's *The Modern Cult of Monuments* (1929). Riegl creates a theory of monument preservation based on different systems of value — namely, artistic value, historical value, commemorative value, use-value, and age-value.

Within Riegl's system of values, the distinction between age-value and historical value is central to understanding how monuments are perceived and preserved. Although deeply connected, they often adopt opposite approaches to a monument's physical condition.

Age-value is defined by means of the visible signs of time and appears in the "outmoded appearance" of the monument, in its "imperfection" and "lack of completeness." The given value celebrates the natural cycle of growth and decay, treating a human being as a natural organism that must be allowed to live freely. According to the supporters of age-value, any attempt at restoration is considered an unacceptable interference with the natural laws of disintegration.

In contrast, historical value considers the monument as an irreplaceable part of the continuous development of human activity. It seeks to preserve the monument as evidence of a specific historical period and its individual characteristics. From this perspective, traces of decay that are appreciated by age-value — such as physical deterioration and partial loss of material — are viewed negatively because they obscure the monument's original appearance. Historical value, therefore, supports scientific restoration and interventions aimed at slowing the process of material decay in order to preserve the monument as a reliable object for historical study.

The view on materiality in architecture is examined by Juhani Pallasmaa in his book *The Eyes of the Skin: Architecture and the Senses* (2005), where the domination of vision in modern architecture is subjected to criticism. Pallasmaa argues that architecture must be understood not only by means of visual appearance, but by means of the full bodily and sensory experience of space. According to him, people perceive architecture not only with their eyes, but also through touch, sound, smell, temperature, texture, and movement. Materials, therefore, play a central role in the shaping of human experience and of the emotional connection with place.

In the words of Pallasmaa, "natural materials — stone, brick, and wood — allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter" (Pallasmaa, 2005). Authentic materials are therefore perceived not only as construction materials, but also as carriers of truthfulness, connecting human experience with architectural space at a deeper, almost epistemological level. The given materials possess sensory depth, revealing aging, weathering, and traces of human use over time, thereby enabling architecture to communicate continuity, memory, and the passage of time.

Pallasmaa argues that materials are not passive surfaces, but active elements that shape atmosphere and human perception. The given idea is reflected in his well-known statement that "the door handle is the handshake of the building" (Pallasmaa, 2005, p. 56), by means of which the intimate relation between the human body and architectural space is emphasized.

The concept of Critical Regionalism, formulated by Kenneth Frampton in the essay "Towards a Critical Regionalism: Six Points for an Architecture of Resistance" (1983), offers an important perspective on material identity and architectural distinctiveness. Frampton criticizes "universal civilization" and the global standardization of architecture, arguing that they produce culturally weakened environments that are increasingly "placeless." As an alternative, he proposes Critical Regionalism as a "strategy of resistance," which mediates between universal modernization and the peculiarities of a specific place, including its climate, topography, light, and material traditions.

Within the given concept, local materials become essential, since they connect architecture with specific geographical and historical conditions. Brick, stone, timber, and other regional materials help to maintain cultural specificity within rapidly modernizing environments.

In the section "The Visual versus the Tactile," Frampton criticizes architecture that reduces experience to visual consumption and argues for what he calls the "tactile resilience" of architecture. He writes that architecture must engage "complementary sensory perceptions which are registered by the labile body: the intensity of light, darkness, heat and cold; the feeling of humidity; the aroma of material; the almost palpable presence of masonry as the body senses its own confinement" (Frampton, 1983).

2.2 International approaches to heritage preservation

During the course of the twentieth and twenty-first centuries, international organisations — UNESCO, ICOMOS, the Council of Europe — have formed a system of concepts and normative documents which influence contemporary approaches to the protection of historic environments. The trajectory of such documents demonstrates a gradual transition from a narrow understanding of the monument as an isolated architectural object towards a broader vision of the city as a carrier of cultural memory, material identity, and social relations.

One of the foundational documents in international restoration theory is the ICOMOS Venice Charter(1964). It established the ethical and methodological principles of architectural conservation, with particular emphasis on authenticity, historical continuity, and responsibility for future generations. It stated that historic monuments form a common heritage of humanity, and that it is the duty of the present to hand them on "in the full richness of their authenticity" (ICOMOS, 1964).

Of equal importance is the broadened definition of heritage which is given in the Charter. Article 1 extends the concept of a historic monument beyond the individual structure and includes also the urban or rural setting in which it is situated, which is considered as evidence of a particular civilisation or stage of historical development. The value of a historic city, from such a point of view, consists not only in its individual buildings, but in its whole material fabric — the scale of streets, the rhythm of facades, the character of materials, and the visual unity of the environment.

Besides, the Charter formulates a modern ethics of restoration. Article 9 defines restoration as a highly specialised operation which is aimed at the preservation of historic and aesthetic value of a monument through respect for the original material and authentic documents, and emphasizes that restoration must stop in that place where conjecture begins.

Further development of the concept of authenticity took place in the Nara Document on Authenticity (1994), which was elaborated with the purpose of broadening the concept of authenticity beyond and making it applicable in different cultural contexts. Among the sources by means of which authenticity is judged, the document mentions form and design, materials and substance, use and function, traditions and techniques, location and setting, as well as spirit and feeling. For the studies of material identity, the most relevant among them is exactly "materials and substance" — that is, the affirmation that the physical material of a building is a primary carrier of its authenticity.

The most significant of the subsequent developments became UNESCO's Recommendation on the Historic Urban Landscape (HUL). In contrast to earlier models, which were centred on individual monuments or historic centres, in HUL the city is considered as a many-layered system of cultural, social, economic and natural relations. Heritage, within such a framework, is no longer an isolated object of conservation, but a resource for social cohesion, cultural continuity and urban regeneration.

A central idea of HUL consists in the understanding of the city as the result of "historic layering of values that have been produced by successive and existing cultures" (UNESCO, 2011). The urban environment includes not only architectural objects but also the morphology of streets, open spaces, the material fabric of the city, social practices and collective memory. Therefore, heritage protection must consider not only the physical state of buildings but also their role in the formation of local identity, sense of place and visual continuity of the urban environment.

HUL also pays particular attention to the integration of heritage into the processes of sustainable development. Contemporary cities are subjected to urbanisation, globalisation, and market pressures, which often lead to the loss of authenticity and to fragmentation of historic environments. In response, HUL proposes a comprehensive approach which combines heritage protection with urban planning, economic development, community participation, and environmental sustainability. Particular emphasis is being placed on the harmonious integration of new interventions into historic contexts, and also on maintaining a balance between development and historical identity.

International approaches have also changed in their understanding of the economic role of cultural heritage. While earlier documents were focused predominantly on technical conservation, contemporary practice considers the historic environment as a resource for sustainable development. UNESCO emphasises that a well-preserved historic fabric is capable of stimulating tourism, supporting local businesses, attracting investment, and improving the quality of urban life. At the same time, international documents underline the importance of maintaining a balance between economic exploitation and preservation of authenticity.

The general trajectory of international heritage theory demonstrates a gradual transition from the restoration of individual monuments towards a comprehensive, human-centred and interdisciplinary understanding of the historic city. Cultural heritage is being more and more considered as a dynamic resource for identity, collective memory, urban distinctiveness and sustainable development. Material authenticity, from such a perspective, becomes not merely a question of conservation technique, but a key element in maintaining a recognisable and culturally continuous image of the city.

3 HISTORICAL CONTEXT OF KYIV'S ARCHITECTURAL IDENTITY

The main assumption of the present study is that the Kyiv brick style architecture is a defining element of the historic urban fabric of Kyiv and can serve as an expression of the city's material identity. Accordingly, the present chapter provides a brief overview of the historical background of the emergence of the Kyiv brick style, the circumstances that have shaped its development, and the factors that have contributed to its widespread use within the city during the late nineteenth and early twentieth centuries.

The architectural appearance of Kyiv has changed significantly during the nineteenth century, when the city grew from a small town into a prosperous metropolis. The given transformation was conditioned by geographic factors, administrative reforms, and rapid urban growth. An important role in this process was played by the emergence of the so-called "Kyiv brick style" - an architectural movement that used local, unpainted yellow clay brick and contributed to the formation of a visually unified urban environment.

The earliest masonry traditions of Kyiv date back to the tenth century and were introduced through Byzantine construction technology. The given method combined alternating rows of thin fired clay tiles, also known as plinths, with layers of natural quarry stone (Yerofalov, 2021). Among the notable examples, it is necessary to mention the Church of the Tithes (built in 989–996, destroyed in 1928) and Saint Sophia Cathedral (built in 1017–1037), which has been preserved up to the present day.

Despite early achievements in masonry, for many centuries most civil buildings in Kyiv remained wooden. The transition from timber to masonry construction was accelerated after the catastrophic fire of July 9, 1811. In just a few hours, the fire destroyed more than 2,000 buildings and almost completely erased the Podil district of Kyiv. The given disaster was considered by the authorities an opportunity for urban redevelopment and modernization, which led to the creation by city architect Andrii Melensky of a "regular plan" focused on fire safety and masonry construction (Research Institute for Monument Protection Studies, 2015).

The transition from wood to brick remained gradual, since a significant part of the population could not afford masonry housing. Even by the middle of the nineteenth century, timber was still the dominant building material. The statistical data of 1852 demonstrate the scale of the given imbalance: in Kyiv, there were "Stone houses 303, and wooden 5714" (Funduklei, 1852). Therefore, masonry architecture continued to serve as a marker of prestige and economic status, while a major part of the urban fabric remained wooden houses built on stone foundations.

An important factor in the spread of brick architecture became the transformation of Kyiv into a "fortress city" through the construction of the Kyiv Fortress. The project required millions of bricks per year and spurred the industrialization of local brick production, particularly at Gustav Eysman's factories (Bilenky, 2017). Besides its military purpose, the fortress also demonstrated the aesthetic potential of exposed brickwork. Yerofalov describes such a transfer, indicating that "open brickwork migrated to civil buildings from the structures of the New Kyiv Fortress" (Yerofalov, 2021).

The visual character of Kyiv's brick architecture was also closely tied to the city's geology. The Kyiv hills consist to a great extent of layers of clay, which in their natural state have a greenish tone but, upon firing, acquire warm yellow shades that later became strongly associated with the architecture of Kyiv.

Over time, the given light-yellow brick became one of the most recognizable features of Kyiv's urban landscape. Contemporary authors also emphasized such a local specificity, indicating that "a distinctive feature of these buildings, unique only to Kyiv, is the famous Kyiv light-yellow brick, produced at local factories" (Boguslavsky, 1913).

A turning point in the development of the Kyiv brick style became the construction of the Hotel National. The given project marked a significant transition in Kyiv's architectural practice through the introduction of clean, exposed brick facades. "The first residential building of yellow brick and without plastering was erected by architect V. M. Nikolaev in 1870 — the Hotel National on Besarabka" (Yerofalov, 2021).

Such an approach contributed to the formation of the Kyiv brick style. Instead of expensive stucco decoration, the architects created ornamental details directly from brick — through arches, cornices, pilasters, and decorative patterns. Although the architecture of Kyiv during the period included Neo-Renaissance, Neo-Gothic, and other historicist styles, the widespread use of yellow brick has created a visually unified urban environment (Research Institute for Monument Protection Studies, 2015).

The golden age of the yellow brick architecture of Kyiv occurred during the late-nineteenth-century "building fever" of 1895–1901 and 1907–1914. Such rapid urban growth was conditioned by the development of the sugar beet industry and the arrival of the railway, which turned Kyiv into an important transit and commercial center (Bilenky, 2017).

The scale of construction during the given period was unprecedented. Boguslavsky described the speed of such a transformation, writing that "these multi-story buildings grew in some five or six years during the period of building fever that took over Kyiv in 1895" (Boguslavsky, 1913). The speed was remarkable: "almost 1,000 new apartment houses were built between 1898 and 1901 – an unprecedented figure" (Bilenky, 2017). It is exactly the given period that has to a large extent shaped the modern appearance of the city. As

Yerofalov explains, "The first truly capitalistic construction boom of the 1890s gave the city the look habitual to us, transforming it from semi-wooden to stone" (Yerofalov, 2021).

By the beginning of the twentieth century, exposed yellow brick had become one of the defining features of Kyiv's urban landscape. "The prominent feature of Kyiv's built environment was the pervasive use of locally produced yellowish bricks in open decorative brickwork – the so-called 'brick style'" (Bilenky, 2017). Such a material consistency gave Kyiv a strong visual identity, which distinguished it from other cities.

The urban fabric of central Kyiv has experienced catastrophic destruction during the Second World War, namely in the autumn of 1941, when Khreshchatyk Street was to a large extent turned into ruins. The deliberate destruction has taken away many of the most significant architectural landmarks of the city, including the iconic Ginzburg Skyscraper and the Hotel National. The loss of these structures has effectively erased the nineteenth-century eclectic brick identity of the commercial center of the city, leaving behind a landscape of ruins, which required a total urban replanning. In the post-war period, the reconstruction of Khreshchatyk was considered a "symbolic rebirth" of the city, the result of which was a monumental architectural ensemble designed in the late Stalinist "Empire style," which fundamentally changed the scale and character of the historic center (Research Institute for Monument Protection Studies, 2015).

However, today, a significant part of this material identity has been lost. Although many of the nineteenth-century buildings have been preserved, their original surfaces are often hidden under paint, plaster, or modern insulation. As a result, the distinctive textures and colors that once defined the architectural character of Kyiv gradually disappear.

4 ANALYTICAL FRAMEWORK

On the basis of the literature reviewed in the previous chapters, the present chapter sets out the working analytical framework of the study and applies it to the case of Kyiv.

4.1 Conceptualisation

In this research, material identity is understood as the historically continuous system of recurring physical qualities within the urban fabric. This includes the strong presence of distinctive physical materials within the cityscape, expressed through local building materials, the color palette of the city, facade textures, and construction traditions. Together, these elements give the city its distinctiveness and permanence, contribute to the emotional connection between residents and the urban environment, and reinforce collective memory and the sense of historical continuity.

Unlike the broader concept of urban identity, material identity focuses specifically on the physical and visual characteristics of the city. It is concerned not primarily with individual monuments, but with the repetitive material qualities that shape ordinary streetscapes and create a coherent urban character.

4.2 Theoretical framework

The framework is based on several theoretical concepts, which have been reviewed in the previous chapters, and are synthesised into a theoretical model focused on the relation between materiality and the broad perception of the city.

Figure 1

Model of the formation of urban material identity



One of the central concepts of the framework is imageability, which was introduced by Kevin Lynch. While Lynch analyzed predominantly the spatial structure of the city — namely paths, districts, nodes, edges, and landmarks — imageability can also be understood as being formed by means of the recurring material characteristics of the urban environment. Facade textures, construction materials, colors, and architectural details contribute to the perceptual coherence and recognisability of the city at multiple scales.

The material and sensory dimension of the framework is informed by Juhani Pallasmaa and Kenneth Frampton, who argue that architecture is experienced bodily and sensorially to the same extent as visually. Material characteristics such as texture, density, and tactility contribute to the sense of place, create greater visual complexity, and deeper spatial engagement, and shape the embodied urban experience.

The framework additionally adopts the understanding of the city, which has been elaborated by Aldo Rossi, as a repository of collective memory, which is composed of enduring urban artifacts. Historic buildings are therefore understood not merely as isolated architectural objects, but as material carriers of historical continuity, the long-term presence of which contributes to the recognisability and permanence of the urban environment during the course of time.

Particular importance within the framework is given to the facade as the most immediate point of contact between the individual and architecture. The facade is understood simultaneously as a spatial asset, which contributes to the rhythm, scale, and visual continuity of the street; as a cultural document, which materializes local building traditions and historical development; and as a carrier of tactile memory, which preserves traces of aging, weathering, and authentic material presence.

The model proposed within the framework is not universal. Not every city possesses a historically continuous material identity based on recurring materials or construction traditions. The framework is therefore applicable predominantly to those cities in which consistent material characteristics have historically formed a coherent urban fabric.

The framework additionally draws upon the Historic Urban Landscape (HUL) approach, which considers the historic city not as a collection of isolated monuments but as an interconnected urban fabric composed of ordinary buildings, streetscapes, materials, and spatial relations. Within the given approach, urban coherence appears not only by means of exceptional landmarks, but also by means of the continuity of everyday material environments — namely, facade textures, street rhythms, construction methods, and recurring architectural details. Historic urban character is therefore produced cumulatively, by means of repeated encounters with ordinary material elements across the city.

4.3 Application to the Kyiv case

As has already been indicated in the chapter dedicated to the historical context of the Kyiv brick architecture, among the multiple layers of the architectural heritage of Kyiv, a particularly significant position is occupied by the brick architecture of the late nineteenth and early twentieth centuries. Being formed by means of the historical development of the city and by the widespread use of locally produced yellow brick, the given architecture today constitutes one of the dominant surviving layers of the historic urban fabric of Kyiv.

This study does not argue that the yellow brick represents the only authentic material identity of Kyiv. Rather, it is considered one of the most dominant and spatially coherent historical layers of the city, contributing substantially to its visual distinctiveness and historic character.

At the same time, despite its widespread presence, much of this architecture remains undervalued and neglected. Numerous historic facades are currently painted, plastered, insulated, or altered, resulting in the concealment or gradual loss of authentic materiality. In many cases, original decorative elements and surface qualities have disappeared, while the absence of a systematic restoration strategy has limited the cultural and urban potential of the historic environment.

An important question within the analytical framework concerns the value of later alterations and interventions, which have been applied to historic facades.

An important question within the analytical framework concerns the value of later alterations and interventions, which have been applied to historic facades. Although Alois Riegl has acknowledged the value of aging, many of the historic brick facades today exist in a contradictory condition: they continue to possess historical value as authentic urban artifacts, while at the same time being deprived of the possibility of natural material aging, which itself constitutes an essential component of age-value. Paint layers, cement renders, and inappropriate insulation conceal the original brick surface and interrupt the visible process of material aging. As a result, the historic facade preserves its historical significance but loses the capacity of expressing the traces of time by means of texture, patina, weathering, and material imperfection.

Within the given perspective, the careful removal of later non-historic coatings is capable of allowing historic brick facades not only to recover their material authenticity but also to regain the capacity for natural aging during the course of time. Restored brick surfaces are therefore capable of functioning simultaneously as carriers of historical value and of age-value, according to the theory of Riegl.

In the context of post-war reconstruction, the preservation and restoration of authentic material fabric may additionally contribute to the continuity and recognisability of the urban environment during periods of rapid transformation and physical loss. The recovery of historic materiality can therefore function not only as a conservation practice but also as a cultural mechanism within broader urban recovery processes.

4.4 Research Gap

Although international studies and practice provide numerous examples of historic urban regeneration, architectural conservation, and reconstruction, relatively few studies

examine the recovery of historic urban character through the concept of material identity at the scale of the city as a whole.

Existing research is frequently focused either on individual monuments, on technical restoration methods, or on wider heritage policy, while the role of recurring historic materials in the formation of urban fabric, spatial continuity, and collective identity has received relatively limited attention. The present study addresses the given gap by means of examining the restoration of historic facade materiality as a mechanism for the recovery of the material identity and historical character of Kyiv.

4.5 Research Hypothesis and Research Question

Taking into consideration the current condition of Kyiv's historic urban fabric and the widespread need for large-scale restoration of a significant number of individual architectural monuments, the present study focuses on the restoration of the historical urban fabric with particular attention to the distinctive material character inherent to Kyiv's architecture.

The main hypothesis of this research is that the restoration and exposure of authentic historic brick facades can function as an instrument for recovering the material identity and historic urban character of Kyiv.

More specifically, the study proposes that conservation-led restoration and the unveiling of authentic brick surfaces can contribute to:

- the strengthening of the imageability and distinctiveness of urban fabric;
- the preservation of collective memory embedded within the historic environment;
- and the maintenance of cultural continuity during post-war recovery processes.

In order to achieve this objective, the central research question of the study is formulated as follows:

Which methods and strategies can be used for restoring the historic urban character of Kyiv through material identity?

5 METHODOLOGICAL DESIGN OF THE RESEARCH

This study uses a mixed-methods exploratory research design combining quantitative data collection with qualitative methods. The methodology combines field observation, visual analysis, semi-structured interviews, and case study analysis. Together, the given methods allow for examining both the physical condition of the Kyiv historic urban fabric and contemporary approaches to its preservation and restoration.

5.1 Field Observation and Visual Quantitative Analysis

Field observation and visual analysis have been conducted in selected area within the historical centre of Kyiv, with the purpose of examining the condition of the historic urban fabric, especially of Kyiv brick-style buildings. Taking into account wartime restrictions on photo documentation, the direct on-site observation was supplemented by additional analysis on the basis of Google Street Maps and photographic street imagery.

Since at present no comprehensive database or precise classification of the buildings belonging to the Kyiv brick style exists, the study has applied a wider visual identification approach. Buildings were included in the analysis in the case when they demonstrated visible historic brickwork, preserved architectural features associated with late nineteenth- and early twentieth-century brick architecture, or retained identifiable stylistic characteristics despite plastering, repainting, or insulation. Plastered facades with reconstructed brick patterns were also considered.

With the purpose of identifying areas with a potentially high concentration of relevant buildings, the research additionally used the city map by LUN service which categorises residential buildings by period of construction. Although not all of the buildings from the given period belong to the Kyiv brick style, the map served as an instrument for approximate spatial identification of historically relevant areas. Saksaganskogo street was chosen on the basis of the high concentration of map buildings built before 1917.

5.2 Case Study Analysis

A restoration project on Bulvarno-Kudriavska Street was selected as a focused case study, with the purpose of examining the way in which the restoration of historic brick facades is approached today by professionals in the field of heritage preservation. The given project has been analysed as an example of the practical implementation of facade restoration and as a way of identifying architectural, technical, and urban challenges connected with the recovery of material identity in the city. Particular attention to the analysis was paid to such aspects as the treatment of original materials, the preservation of facade texture, and the integration of the restored building into the surrounding streetscape.

5.3 Semi-Structured Interviews

Within the research, semi-structured interviews have also been conducted with the respondents who carry out their professional activity in the sphere of heritage preservation and architectural restoration. During the interviews, perceptions of the architectural identity of Kyiv, attitudes towards historic brick architecture, and also opinions regarding restoration, authenticity and contemporary transformation of the urban environment have been explored.

5.4 International material identity preservation case studies

The research also includes several comparative international examples of city-wide restoration approaches. The selected cases were chosen from cities with a strong and recognisable material identity, with the purpose of examining the way in which local materials, facade preservation, and restoration policies contribute to visual continuity and urban distinctiveness. The comparative examples served as contextual references for approaches potentially applicable to Kyiv and to the restoration of its material identity.

5.5 Limitations of the Research

The main limitations of the present research are connected with its scale - it was not possible to conduct a comprehensive survey and condition assessment of all the buildings which could potentially be attributed to the Kyiv brick style across the entire city. The number of interviews conducted within the research is also limited, in particular due to the relatively small number of professionals directly involved in restoration and heritage conservation in Kyiv.

Another limitation concerns the comparative international analysis. The number of cities which can be identified as possessing a strong and clearly recognisable material identity, comparable with the historical brick architecture of Kyiv, is relatively limited. For the given reason, the selection of international case studies was necessarily selective, but not comprehensive.

Despite the given limitations, the combination of visual analysis, field observation, interviews, archival sources research provides a sufficient basis for examining the relation between historic brick architecture and the material identity of Kyiv.

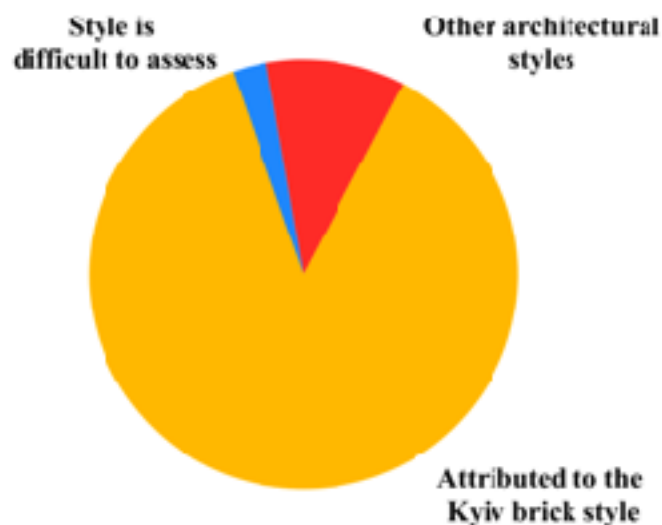
6 RESULTS

6.1 Contemporary Transformations and Loss of Material Continuity

During the survey of Saksahanskoho Street, a table of all buildings included in the analysis was created and is provided in the appendices. The building age map was useful for an initial assessment of the area and identification of residential buildings; however, it had several limitations. The map includes primarily residential buildings, while many historical buildings on the street were later converted into public or office functions, or were originally constructed as public buildings. Therefore, the survey required additional on-site verification and historical analysis.

The statistical data presented below were compiled in order to determine the proportion of buildings associated with the Kyiv brick style within the street's historical fabric. Most construction dates and historical information were obtained from the Register of Historical and Cultural Monuments of Kyiv. At the same time, not all buildings constructed before 1917 currently possess official heritage status.

Figure 2. Results of the survey of Saksahanskoho Street



Most buildings attributed to the Kyiv brick style contain not only exposed brick elements and decorative brick details, but also preserve brick as the dominant facade material. In some cases, the original brickwork was partially covered or altered over time; however, traces of the historical appearance remain visually identifiable.

The survey results can be summarised as follows:

- 116 buildings — total number of buildings on Saksahanskoho Street included in the analysis;
- 77 buildings — constructed before 1917;
- 2 buildings — difficult to assess due to later modifications and alterations;
- 8 buildings — belonging to different architectural styles;
- 67 buildings — visually preserve the appearance of exposed brickwork or are historically identified as buildings constructed in the Kyiv brick style.

Based on the Saksahanskoho Street case study, approximately 87% of pre-1917 buildings can be associated with the Kyiv brick style or preserve visible characteristics of historical brick architecture. Although these findings cannot be fully extrapolated to the scale of the entire city, they demonstrate the significant presence and dominance of brick architecture within the historical urban fabric of central Kyiv. This supports the assumption that the Kyiv brick style represents one of the dominant components of the historical urban fabric and material identity of Kyiv.

The visual analysis and field observations have demonstrated that a significant part of the historic yellow brick architecture of Kyiv is currently in a fragmented and physically neglected condition. Although many of the nineteenth- and early-twentieth-century buildings formally survive, their architectural authenticity has been to a significant extent lost.

The most widespread transformation which has been identified during the fieldwork is the partial or complete overpainting of historic brick facades, as a result of which the material consistency which have historically characterised the streetscape of Kyiv, have been lost. Additional alterations include the replacement of original wooden windows with plastic frames, the installation of visually incompatible balconies, chaotic signage, exposed air-conditioning systems and fragmented commercial adaptations of ground floors.

The given degradation of facades occurs incrementally, but not by means of complete destruction: most buildings remain structurally intact, while losing their authentic character, they can be restored. In general, the findings show that the current crisis is not limited to isolated cases of neglect, but reflects a wider process of weakening of the material identity of Kyiv, which weakens urban legibility, disrupts the continuity between historical and contemporary urban experience, and undermines the sense of place.

6.2 Restoration Case Study: Bulvarno-Kudriavska Street 18/2

The restoration of the former gymnasium building at Bulvarno-Kudriavska Street 18/2 has become one of the most important recent restoration projects connected with the historic yellow brick architecture of Kyiv. The given case is important not only due to the final visual result, but also because it reveals many deeper problems connected with restoration practice and heritage legislation. The insights into the given process have been obtained during the public lecture given by the restoration specialist Alina Sviatyna and during the interview which has been conducted with her.

Before the restoration, the gymnasium building had a neglected appearance. The original facade was hidden under cement plaster and several layers of paint. Visually, the building no longer communicated its historic. However, after the scientific research and stratigraphic analysis, the restoration team has discovered that the building originally had exposed yellow brick facades. The scientific research included historical investigation, laboratory analysis of materials, chemical examination of paint layers and the study of masonry mortars. According to Sviatyna, archival photographs alone are not sufficient for the understanding of the authentic appearance of a building. Material analysis becomes of equal importance, since the facade itself contains historical information.

The restoration process itself has revealed the extent to which restoration work can be difficult and uncertain. During the cleaning, the team has discovered up to seven layers of paint, including oil-based coatings, which were extremely difficult to remove without damaging the original brick surface. At the intermediate stages, the facade looked visually chaotic and damaged. The given moment is important, since it demonstrates that restoration often passes through phases where the building temporarily appears worse before the improvement becomes visible.

The project has also exposed larger institutional problems in Ukrainian restoration practice. One of the recurring issues consists in the gap between restoration complexity and existing budgeting systems. According to the interview, restoration estimates are often inaccurate, since many technical problems become visible only after the cleaning and dismantling have begun. In the given project, decorative gypsum elements, which were initially planned for partial repair, eventually required the replacement of almost eighty percent of the facade decoration.

Despite the fact that the building already had officially approved facade documentation, the approved solution before the project consisted simply in repainting the facade again. The decision to restore the exposed brick has appeared only because the restoration team has insisted on additional scientific research and has convinced the client to support the given idea. The given example demonstrates that heritage preservation in Kyiv often cannot rely on legislation itself.

The case also demonstrates that exposed brick architecture possesses practical advantages in addition to historical value. According to the restoration team, exposed masonry is often capable of ageing more naturally than painted plaster facades, since it avoids constant cycles of peeling, cracking, and repainting. At the same time, facade restoration alone is not capable of solving deeper structural problems. Moisture penetration, damaged drainage systems, leaking roofs, and poor waterproofing remain serious threats for historic buildings throughout Kyiv. Therefore, the project demonstrates that restoration must be understood as a long-term and complex process, but not only as an aesthetic improvement.

An especially important conclusion which can be drawn from the given project concerns the connection between restoration and urban identity. The restored facade has changed not only the appearance of one building, but also the way in which people perceive the given part of the street. According to the Sviatyna, after the completion of the project, the building has become a part of city tours and public discussions about the historic architecture of Kyiv. The project has helped people to see the way in which the city originally looked before decades of repainting, insulation and facade alteration. In such a sense, restoration has become not only a form of technical conservation, but also a form of reconstruction of collective urban memory.

In general, the restoration of Bulvarno-Kudriavska Street 18/2 demonstrates both the fragility and the resilience of the historic urban fabric of Kyiv. The project has revealed the extent to which the material identity of the city has been hidden beneath later interventions, but it has also demonstrated that authentic historic architecture can still be recovered by means of careful restoration work.

6.3 Interview Analysis: Restoration, Material Identity, and Urban Memory in Kyiv

The interviews were conducted with Daria Korba, architect and urbanist, one of the leaders of the initiative “Map of Renovation,” a public organisation focused on the preservation of the architectural heritage of Ukraine, and Alina Sviatyna, certified restoration technologist and director of the “Restoration and Technological Centre.”

One of the strongest themes that emerged from the interviews concerns the idea that the historical image of Kyiv is deeply connected with yellow brick architecture. Korba directly described Kyiv architecture as “first of all made from brick.” She further explained that the uniqueness of the brick architecture of Kyiv consists not only in the material itself, but also in the craftsmanship connected with it. She described the late nineteenth- and early twentieth-century buildings as “literally carved from brick.” According to her, decorative

masonry and brick ornamentation historically formed an important part of the visual character of Kyiv.

The interviews also strongly connected architecture with collective memory and sense of place. Korba argued that historical environments allow people to connect personal and family histories with physical places, and that the loss of such environments weakens continuity between generations. Reflecting on the destruction and transformation of historical spaces, she explained that “you lose this place” and that “it becomes traumatic because it existed only in your memories or photographs.”

Another important theme that emerged from the interview with Korba concerns the distinction between authentic historical architecture and imitation. She described authenticity as “a guarantee that the thing really is what it claims to be.” Using the example of Vozdvyzhenka, she argued that architecture can imitate a historical appearance while lacking actual historical continuity, since it does not contain the original material fabric or historical layers.

The interview with the restoration technologist Alina Sviatyna revealed another important dimension of the topic, namely the scientific and institutional side of restoration practice. Sviatyna repeatedly emphasised that restorers are “scientists first, and only then designers.” According to her, restoration work begins with archival studies, stratigraphic analysis, laboratory investigation of pigments and mortars, and examination of construction materials. In this sense, masonry itself functions as a material archive embedded directly into the urban fabric.

Discussing the current state of restoration practice in Ukraine, she directly stated that “restoration became just commerce.” According to Sviatyna, the collapse of specialised restoration institutions and the removal of restoration as an official professional specialisation after 2018 weakened professional standards and allowed many projects to become ordinary renovations instead of actual conservation work.

Reflecting on the completed projects and the public reaction to them, she recalled how guides later told visitors: “Look at this building the way your ancestors saw it.” This quotation demonstrates that restoration is capable of reconnecting contemporary residents with the historical image of the city and partially restoring continuity between past and present experiences of the urban environment.

According to Sviatyna, many historic brick facades in Kyiv were covered during the Soviet period simply because painted facades required less maintenance. In other cases, facades were plastered after war damage, since there was neither sufficient time nor funding for detailed restoration work.

As a result, large parts of Kyiv have gradually lost those material qualities that previously created visual continuity within the historic city. This idea became especially important for the present research, since brick itself functioned not only as a construction material, but also as historical evidence.

The question of scaling such restoration across Kyiv also appeared during the interviews. Sviatyna explained that restoration methods can be partially systematised, but every building still requires individual material analysis and technical solutions. Some facades preserve original masonry in good condition, while others contain later additions, structural changes, or incompatible materials, which make restoration significantly more difficult. For this reason, the large-scale restoration of Kyiv's historic brick architecture would require not only funding, but also specialised expertise, long-term municipal programmes, scientific investigation, and stronger institutional coordination.

Finally, both interviews connected heritage preservation with the wider wartime context and questions of cultural continuity. Sviatyna described historic buildings as “living witnesses” of Ukrainian history. According to her, the destruction of heritage threatens not only architecture itself, but also the ability of future generations to maintain a connection with historical memory and local identity.

5.4 International material identity preservation Case Studies

5.4.1 Glasgow Stone Heritage and the Building Health Check Programme

The architectural identity of Glasgow is strongly connected with its historic stone-built fabric, which forms material identity of the city. The historical image of Glasgow was shaped predominantly during the nineteenth and early twentieth centuries, when rapid industrial growth has coincided with extensive urban expansion. During the given period, large parts of the city were constructed from locally quarried blonde sandstone and later from red sandstone — namely, materials which became closely connected with the urban character of Glasgow. As is articulated in official municipal guidance, Glasgow is “traditionally seen as a city built from stone and slate; local quarried blonde sandstone and latterly red sandstone sourced from Dumfriesshire are synonymous with Glasgow and its tenements” (Glasgow City Council, 2018b). Stone was used not only for monumental public buildings and institutions, but also for ordinary residential tenements, which today remain one of the most recognisable elements of the image of Glasgow.

Despite the strong continuity of its historical fabric, the stone architecture of Glasgow has experienced significant degradation during the course of the twentieth century. Industrial pollution and domestic coal burning have caused severe blackening and chemical deterioration of sandstone surfaces. Black gypsum crusts have trapped moisture within the masonry and accelerated structural decay (Hyslop et al., 2006).

Another major problem appeared from aggressive stone-cleaning practices during the late twentieth century. Abrasive and chemical cleaning methods often removed the natural protective layer of the stone, leaving the softer subsurface exposed to rapid erosion and granular disintegration (Webster, 1992). In addition, many of the historical buildings underwent inappropriate repairs by means of impermeable cement mortars. The given repairs trapped moisture inside porous sandstone, accelerating deterioration and damaging the original historic material (Bluck & Porter, 1991).

In response to the given systemic problems, Glasgow has created the "Building Health Check" programme as part of the Safeguarding Glasgow's Stone Built Heritage project. The programme has introduced a scientific and preventative approach to heritage conservation, shifting restoration policy from reactive repairs towards long-term management of the material fabric of the city.

The methodology consisted of several integrated stages. In the first place, the researchers have created a digital inventory of more than 230 traditional stone facades by means of georectified photographic documentation. The given approach allowed precise mapping of stone decay and the calculation of the areas which require intervention (Hyslop et al., 2006). In the second place, the programme relied on the analysis of stone samples. Laboratory studies have identified different sandstone types, their mineral composition, porosity, and weathering characteristics. The given analysis became essential for the selection of compatible restoration materials and for the understanding of long-term deterioration processes (Hyslop & Albornoz-Parra, 2009).

The programme has also emphasised the importance of regular maintenance. The surveys have demonstrated that many of the structural problems originate not in the masonry itself, but in the failures of drainage systems, gutters, roofs, and water-dispersal elements. Preventative maintenance has been demonstrated to be significantly more cost-effective than large-scale structural restoration after serious deterioration has already taken place (Hyslop et al., 2006).

The case of Glasgow provides several important lessons for the municipal policy of Kyiv. It demonstrates the importance of recognising historical materiality as a central component of urban identity. In Glasgow, stone architecture became not simply a heritage category, but one of the primary visual markers of the city itself. A similar approach is capable of strengthening the recognition of yellow brick architecture as a defining component of the material identity of Kyiv.

Also, Glasgow demonstrates the importance of scientific restoration methods. The adaptation of approaches similar to the "Building Health Check" is capable of helping Kyiv to move from cosmetic renovation towards evidence-based restoration. Laboratory analysis

of historic brick, mortar composition, moisture conditions, and material compatibility is capable of improving the quality and authenticity of restoration projects.

Finally, the case of Glasgow emphasises the importance of preventative maintenance and long-term municipal programmes. The establishment of a system of regular inspections focused on roofs, drainage systems, and facade conditions is capable of helping Kyiv to prevent further deterioration of historic brick architecture before major structural damage takes place. The given approach is capable of reducing long-term restoration costs while preserving the authentic material fabric of the city.

6.4.2 Paris Preservation practices and craftsmanship

Image of Paris is bound up with Lutetian limestone — locally known as *Pierre de Paris* — which remains one of the most recognisable visual features of the historic city. Centuries of unbroken use have produced a strikingly unified urban fabric and given Paris its familiar creamy-white appearance.

This material identity was forged through the continuous use of stone quarried directly beneath the city, a practice that eventually produced the vast network of tunnels and catacombs lying under modern Paris. Over time, limestone became inseparable from the image of the city, lending visual continuity to the historic centre and shaping a coherent architectural character. Within the historic core, limestone still dominates facade materials, producing the near-monochromatic streetscape that has come to define Parisian urban identity (Doersch et al., 2015).

Although Parisians had long built in limestone, the material only became an obligatory element of urban identity during the nineteenth century under Baron Haussmann. His reconstruction of Paris introduced strict regulations governing facade composition, building heights, street alignments, and the use of cut limestone, all aimed at producing a visually harmonious cityscape (Pinkney, 1958).

Material continuity was sustained not only by planning rules but also by contractual obligations placed on property owners, which together preserved the historic material image of the city over the long term. Today, instruments such as the *Plan de Sauvegarde et de Mise en Valeur* (PSMV) continue this tradition, regulating restoration practices and requiring the use of authentic materials within historic districts.

A central feature of the Parisian preservation approach is the survival of the craftsmanship that limestone construction depends on, in particular on the profession of stone masonry. In Paris, the given craft is considered as a vital component of the living heritage of the city, but not as a technical relic. The development of a proficient stone mason requires approximately seven years of training — an investment which ensures that the "material biography" of the city is maintained by means of authentic methods (The Earful

Tower, 2023). The value of this tradition became especially clear after the 2019 fire at Notre-Dame de Paris, when restoration required both extensive scientific analysis of the limestone itself and the work of thousands of specialised craftsmen able to reproduce historic construction techniques. The project showed that authentic restoration depends as much on professional knowledge as on the original materials (Gros et al., 2023).

The Parisian experience also points to the importance of scientific restoration. Lutetian limestone is geologically layered, with each stratum showing different porosity, mechanical properties, and weathering behaviour, which means restoration projects need detailed laboratory analysis and careful selection of compatible replacement stone (Fronteau et al., 2010).

Just as limestone is inseparable from the visual image of Paris, yellow brick has historically been one of the dominant material features of Kyiv. Important aspect of the Parisian example is the institutionalisation of restoration standards and long-term material preservation policy. Regulations concerning facade maintenance, authentic materials, and restoration methods have helped preserve visual continuity throughout the historic city. Similar policies in Kyiv could strengthen the protection of historic brick architecture and slow the gradual loss of authentic material fabric.

The Parisian case also highlights the importance of craftsmanship and specialised expertise in conservation practice. The preservation of Kyiv's yellow brick architecture would require not only funding and technical regulation, but also the development of professional restoration education, material analysis, and conservation methods specifically adapted to historic masonry.

6.4.3. Amsterdam as a Living Heritage Preservation System

Amsterdam's distinctiveness based on the continuity of ordinary urban elements: narrow gabled houses, brick facades, and a streetscape that integrates 17th-century architecture with 19th-century Neo-Renaissance additions. This material image was largely forged in the seventeenth century as Amsterdam rose as a major European commercial hub.

The origins and widespread use of brick architecture in Amsterdam strongly resonate with the historical development of brick architecture in Kyiv. Following devastating urban fires in the fifteenth century, wooden constructions were phased out in favour of brick, which became the dominant material defining the historical city (Janssen, 2022).

Amsterdam's current preservation strategy evolved from a 20th-century conflict between aggressive modernisation and citizen-led conservation. Originally, municipal plans prioritised transforming the historic centre into a central business district through large-scale demolitions and the construction of highways and subways. Public protests, such as those in the Nieuwmarkt district during the 1970s, ultimately forced the municipality to abandon

these plans in favour of a "repair and maintenance" approach that preserved the existing urban fabric (Pruijt, 2004)

A core operational element of this approach is the reliance on public-private partnerships, exemplified by Stadsherstel Amsterdam, which reconciles heritage preservation with social needs. By rehabilitating neglected historical structures to provide social housing and cultural spaces, these organisations maintain the city as a "living" environment, preventing the "museumification" that often occurs in historic centres (Vermeulen, 2012). This integrated vision is being legally formalised under the new Environment and Planning Act, which obliges authorities to incorporate cultural-historic values into the early stages of spatial planning.

Furthermore, the city connects its historical materiality with sustainability, viewing the "existing stock" as a valuable resource (de Groot, 2015). During times of material scarcity, Amsterdam's municipal policy considers demolition waste—such as brick, stone, and wood—as assets for the circular economy. Recent research indicates that even materials like carpet tiles and jute bags can be reclaimed and reused in new architectural projects, helping to lower the environmental impact of urban redevelopment (de Groot, 2015).

The Amsterdam case offers vital lessons for Kyiv, emphasizing the need to view historical architecture as part of an interconnected urban landscape rather than isolated monuments. Just as in Amsterdam, Kyiv's historical brick architecture (external knowledge) serves as a system that provides visual continuity and can be protected through the concept of "group value," where buildings gain significance from their relationship to one another. Kyiv could strengthen its heritage preservation by prioritising adaptive reuse of industrial and historical structures, following the model where "economy follows heritage." Finally, by combining heritage preservation with sustainability and local community involvement through participatory platforms, Kyiv can ensure its material identity remains a functional part of a living city.

6.4.4 Lodz and the Preservation of Industrial Material Identity

In contrast to many historical European cities, which have been shaped gradually by means of medieval development, Lodz has appeared as a major industrial centre extremely rapidly during the nineteenth century. During the course of several decades, a small settlement has been transformed into one of the largest textile manufacturing centres in Europe (Sowińska-Heim, 2015).

The rapid industrialisation of Lodz has created a highly distinctive urban morphology, which is composed of large textile factories, workers' housing, industrialists, palaces, warehouses, and dense tenement blocks. The dominant use of unplastered red brick has established a coherent material environment, which became deeply connected with the

identity of the city itself. The extensive use of brick has created a strong visual continuity across the city and has contributed to a highly recognisable industrial landscape. Massive factory complexes, chimney structures, decorative industrial facades, and repetitive brick tenements together formed a unique architectural image, which distinguished Lodz from other Central European cities. In such a sense, brick architecture became one of the main carriers of collective memory and of the material identity of the city.

The collapse of the textile industry during the 1990s has caused a severe economic and social crisis in Lodz. Large industrial complexes became abandoned, unemployment has dramatically increased, and significant parts of the city have entered a period of physical degradation and depopulation. During the given period, Lodz was frequently perceived as a "grey," neglected, and declining post-industrial city (Tobiasz-Lis & Wójcik, 2013).

At the same time, the decline of industrial production has exposed the fragile condition of the historical material fabric. Many of the brick factories and industrial buildings suffered from structural deterioration and long-term neglect. Research on former textile complexes has demonstrated that historical masonry often became saturated with chemical contaminants, which had been accumulated during more than a century of industrial activity (Chmielewski & Sankowski, 2024). In many cases, the structural condition of the original brick deteriorated to such an extent that restoration required a careful balance between the preservation of authentic material and the replacement of severely damaged elements by means of compatible new masonry.

Despite the scale of degradation, contemporary revitalisation strategies in Lodz have gradually transformed industrial heritage from a symbol of decline into one of the principal resources for rebuilding the image and material identity of the city (Sowińska-Heim, 2020). The industrial image of Lodz has been reinterpreted not as an obstacle to urban development, but as a unique cultural and economic asset, which is capable of supporting regeneration, tourism, and civic identity.

One of the central strategies of urban recovery in Lodz became the adaptive reuse of industrial architecture. Instead of large-scale demolition and the replacement of historical structures by means of generic new construction, many industrial sites have been transformed into cultural, commercial, educational and public spaces, while preserving their original brick materiality.

One of the most prominent examples is Manufaktura, which has been elaborated within the former Izrael Poznanski factory complex. The project has preserved extensive red brick facades and industrial volumes, while introducing shopping, cultural and entertainment functions into the historical structures. The given redevelopment has successfully transformed a declining industrial site into one of the main public and economic centres of the city. At the same time, the critics argue that certain aspects of the

redevelopment have given priority to commercial aesthetics over the preservation of the authentic industrial atmosphere (Sowińska-Heim, 2020).

A significantly different restoration philosophy can be observed in the OFF Piotrkowska project. In the given case, revitalisation relied on minimal intervention and on the preservation of the "raw" industrial atmosphere of the former factory complex. Damaged brick surfaces, traces of ageing and industrial imperfections have been intentionally preserved as a part of the material identity of the place (Zagula & Grzelakowski, 2021). Instead of creating a polished commercial environment, the project has embraced the authentic materiality of industrial heritage, which has subsequently attracted artists, creative industries, restaurants and cultural initiatives.

Importantly, the city more and more approaches industrial heritage not as static museum architecture, but as an adaptable urban resource, which is capable of integrating new functions while preserving historical continuity. The preservation of historical brick architecture allowed Lodz to maintain a recognisable urban image and material identity, while simultaneously transforming former industrial districts into active parts of contemporary urban life.

The case of Lodz also demonstrates that visible traces of ageing, deterioration, and industrial history are capable of strengthening rather than weakening urban identity. Instead of completely erasing signs of decay, many revitalisation projects integrated these historical layers into the contemporary image of the city. This approach allowed the process of revitalisation to preserve authenticity and avoid the complete "Disneyfication" of historical environments.

Another important aspect of the Lodz experience is the adaptive reuse of historical industrial sites as an alternative to demolition-based redevelopment. Former industrial buildings can remain economically and socially relevant when integrated into new urban programmes while preserving their historic material fabric. For Kyiv, this approach could support the preservation of industrial sites and historic yellow brick architecture within the process of post-war reconstruction.

7 CONCLUSIONS AND RECOMMENDATIONS

This study has examined the present state of Kyiv's historic urban fabric through the lens of material identity, focusing on the brick architecture of the late nineteenth and early twentieth centuries. Its aim was to identify methods and strategies for restoring Kyiv's historic urban character, and it has argued that conserving and exposing authentic brick facades can serve as a mechanism for recovering the city's material identity. The findings set out in the previous chapter — drawn from field observation, a focused restoration case study, expert interviews, and international comparisons — support a number of conclusions and a set of practical recommendations.

7.1 CONCLUSIONS

7.1.1 The dominance of the Kyiv brick style within the historic fabric

The central empirical finding of this study concerns the dominant presence of the Kyiv brick style within the historic core of the city. A field survey of Saksahanskoho Street found that roughly 87% of buildings constructed before 1917 are either directly attributable to the Kyiv brick style or preserve its visible characteristics beneath later interventions. While this result is drawn from a single street and cannot be extrapolated to the city as a whole, it offers strong evidence that yellow brick architecture is one of the dominant historical layers of central Kyiv. This supports the underlying premise of the research: that the restoration of authentic brick facades can act as a potentially transformative strategy for recovering the imageability and material identity of the historic city.

7.1.2 Fragmentation of material identity and incremental loss

Although a significant share of the historic building stock physically survives, its material identity has been substantially weakened. Original brick surfaces are routinely concealed beneath paint, plaster, thermal insulation and incompatible repairs, while window replacements, chaotic signage, exposed mechanical equipment and fragmented ground-floor commercial adaptations further erode the visual coherence of the streetscape. The degradation observed during fieldwork occurs incrementally, through repeated small interventions that cumulatively dissolve the authentic character of the city.

7.1.3 The institutional and scientific crisis of restoration practice

The case study of the gymnasium on Bulvarno-Kudriavska Street, together with the interviews conducted with restoration specialists, has revealed a more structural problem — namely, the weakening of professional and scientific standards within Ukrainian restoration practice. The removal of restoration as a recognised professional specialisation after 2018 has blurred the distinction between scientific conservation and ordinary renovation. Complex projects requiring stratigraphic analysis, laboratory testing of pigments and

mortars, and detailed material investigation are now frequently approached as standard construction work, which is driven predominantly by commercial considerations.

The process of uncovering authentic brickwork is, moreover, technically demanding and difficult. Intermediate stages of cleaning often reveal damaged surfaces that may look worse than the painted facade did before intervention, which generates resistance from property owners and the public despite the long-term value of the work.

7.1.4 The practical advantages of exposed brick facades

Beyond their cultural and historical significance, exposed brick facades possess practical advantages over plastered or painted surfaces. According to the restoration specialist interviewed during the research, authentic masonry ages more gradually than rendered surfaces, since it avoids the recurring cycles of peeling, cracking and repainting, which characterise the maintenance of plaster facades. The given finding carries implications beyond aesthetic preference: it suggests that, under appropriate conditions, the long-term costs of maintaining authentic brick architecture may be lower than those associated with maintaining the multiple coating layers that currently conceal it.

7.1.5 Restoration as a cultural mechanism of urban recovery

The final finding concerns the wider cultural function of restoration within the context of war and post-war reconstruction. The destruction or alteration of historic environments weakens the relation between memory and place and disrupts the continuity by means of which residents connect personal and collective histories to physical surroundings. Restoration, understood in the given light, is not just aesthetic improvement, but a mechanism by means of which urban resilience and cultural continuity are maintained during periods of rapid transformation. In the case of Kyiv, the recovery of authentic brick architecture therefore acquires significance which extends beyond conservation practice and contributes to wider processes of post-war recovery.

7.2 Recommendations

The recommendations which follow are derived directly from the findings of the research and from the international cases reviewed in the previous chapter. They are addressed predominantly to the municipal authorities, heritage institutions and professional bodies engaged in the future reconstruction of Kyiv.

7.2.1 Institutionalising material continuity through urban planning

Heritage protection in Kyiv should extend beyond individually designated monuments to recognise the collective value of streetscapes and historic environments as a whole. Stronger planning regulations are needed to preserve material continuity within historic districts, including guidelines that protect the use of authentic yellow brick and restrict visually disruptive alterations to historic facades. As the cases of Paris and

Amsterdam show, the visual coherence of a historic city does not depend on exceptional landmarks alone, but on the regulation of ordinary urban fabric. Recognising the "group value" of historic streetscapes within Kyiv's planning framework would give restoration-led approaches to urban management a stronger legal foundation.

7.2.2 Re-establishing restoration as a scientific profession

The decline of professional standards identified in this research points to the need to re-establish restoration as a specialised field, clearly distinct from ordinary renovation. Policy should require scientific analysis of historic materials — including studies and laboratory examination of mortars and pigments — before facade interventions on protected buildings are approved. Buildings should be treated as material archives, not as surfaces for cosmetic repair.

This institutional reform should be accompanied by the development of specialised education and professional certification. Scientific restoration is inherently interdisciplinary and depends on cooperation between architects, conservators, material scientists and historians. Without certified professional standards and sustained institutional support, restoration quality will remain inconsistent and vulnerable to commercial simplification.

7.2.3 From cosmetic repair to building health checks

Following the model established by the Building Health Check programme of Glasgow, Kyiv should move from reactive repair towards the systematic preventative maintenance of its historic fabric. Many of the current interventions address only visual appearance, while leaving structural problems — namely, moisture penetration, drainage failures and masonry deterioration — unresolved. A municipal programme of regular inspections, supported by digital documentation of historic facades, would allow early identification of the given problems and would prevent the kind of cumulative deterioration which ultimately necessitates costly large-scale intervention. Preventative maintenance is, in the long-term perspective, both more sustainable and more economically efficient than emergency restoration after major damage has already taken place.

7.2.4 Adaptive reuse and sustainable financial models

The cases of Amsterdam and Lodz demonstrate that adaptive reuse is capable of reconciling heritage preservation with contemporary economic and social functions. Historic buildings should not be considered as obstacles to urban development, but as long-term cultural and economic resources, the value of which increases when they are integrated into the active life of the city. For Kyiv, particularly within the context of post-war reconstruction, adaptive reuse offers a viable alternative to demolition and replacement, by means of which the historic urban fabric is capable of remaining economically productive while preserving its material authenticity. Where possible, revitalisation strategies should

preserve visible traces of ageing and historical layering, since the given qualities strengthen authenticity and distinguish genuine historic environments from artificial reconstructions.

7.2.5 Integrating heritage into the circular economy

Finally, heritage preservation in Kyiv should be integrated into wider circular economy strategies. Authentic yellow brick recovered from demolished or severely damaged buildings should be preserved, catalogued, and stored for use in future restoration projects, but not disposed of as construction waste. The establishment of municipal material banks would support restoration work, while reducing the environmental impact of post-war reconstruction. Beyond sustainability, the reuse of original materials ensures compatibility in colour, texture, and porosity — namely, the qualities essential for the long-term durability and visual coherence of restored historic masonry. The given recommendation directly connects heritage policy with the wider environmental and economic imperatives, which will shape the reconstruction of Kyiv.

The findings of this research support the hypothesis that restoring authentic historic brick facades can function as an effective mechanism for recovering the material identity and historic character of Kyiv. The Kyiv brick style is not a peripheral element of the city's heritage but a dominant — though currently obscured — layer of its historic fabric. Its restoration is feasible because the original material in many cases survives beneath later interventions; it is culturally significant because it reconnects the contemporary city with its historical image; and it is practically advantageous because authentic masonry ages more sustainably than plastered or painted surfaces.

At the same time, the research has shown that material recovery alone is not sufficient. Without parallel institutional reform — professional standards, planning regulation, and integration with sustainable economic models — individual restoration projects will remain isolated successes within a wider pattern of incremental loss. The future of Kyiv's material identity will therefore depend not only on the careful uncovering of brick beneath paint but on a broader cultural and institutional commitment to the historic city as a coherent, living environment — one worth preserving in the very process of being rebuilt.

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Appendix A

Table 1. Sakaganskogo street survey

Bulding number	Date of construction	Atributed to brick style	Condition
1	After 1917		
2	1906	Yes	Painted
3	After 1917	Yes	Plastered
4	Late 19th century	Yes	Painted
5	Late 19th century	Yes	Painted
6	After 1917		
7	After 1917		
9	Late 19th century	Yes	Painted
10	After 1917		
11	After 1917		
12	1910 - 1913	No	
13/42	Late 19th century	Yes	Painted
14	After 1917		
15	1898 -99	Yes	Painted
16	After 1917		
17	After 1917		
18	After 1917		
20	Late 19th century	Yes	Painted
21	After 1917		
22	Early 20th century	Yes	Painted
23	Early 20th century	Yes	Painted
24/27	After 1917		
25	After 1917		
26/26	1911	No	
27	1900	Yes	Painted
28	Late 19th century	Yes	Painted

30	1899 - 1900	Yes	Painted
31/29	1901	Yes	Painted
32	Late 19th century	Yes	Painted
33-35	1910 - 1911	Yes	Painted
34	1912 - 1913	No	
36a	Early 20th century	Yes	Painted
37	Late 19th century	Yes	Painted
38	Middle 19th century	Hard to assess	
39	Late 19th century	Yes	Plastered
40/85	After 1917		
41	Late 19th century	Yes	Painted
42	Late 19th century	Yes	Painted
43	1896	Yes	Painted
44	1898	Yes	Painted
45	After 1917		
46	Late 19th century	Yes	Painted
48	1897	Yes	Painted
50	After 1917		
51	Late 19th century	Yes	Painted
52	Late 19th century	Yes	Painted
53	After 1917		
54/56	After 1917		
55	After 1917		
57	1905	Yes	Painted
58	1913 - 1914	Yes	Painted
59	After 1917		
60	1890	Yes	Plastered
61/17	1917 - 1918	Yes	Painted
63	After 1917		
64	After 1917		

65	After 1917		
66	Late 19th century	Yes	Painted
67	Late 19th century	Yes	Painted
68/21	1911	Yes	Painted
69	Late 19th century	Yes	Painted
70	After 1917		
72	1913 - 1914	Yes	Painted
74	1897 - 1898	Yes	Painted
75	After 1917		
78	1911	Yes	Painted
79	After 1917		
80	After 1917		
81	1898 - 1899	Yes	Painted
82	After 1917		
83	Middle 19th century	Hard to assess	
84	Late 19th century	Yes	Painted
85	After 1917		
86	Late 19th century	No	
87	After 1917		
88	After 1917		
89	1899 - 1900	Yes	Painted
90	After 1917		
91	Late 19th century	Yes	Painted
92	1909	Yes	Painted
93	Late 19th century	No	
96	1898 - 99	No	
97	1889	No	
99	1911 - 1912	Yes	Painted
100	After 1917		
101	1910	Yes	Painted

102	Late 19th century	Yes	Painted
103	1913	Yes	Painted
104	Early 20th century	Yes	Painted
105	After 1917		
106	Late 19th century	Yes	Painted
107/47	Late 19th – early 20th century	Yes	Painted
108/16	1898-99	Yes	Painted
109/20	1913	Yes	Painted
110	Late 19th – early 20th century	Yes	Painted
112	1898 - 1900	Yes	Painted
113a	Late 19th century	Yes	Painted
115	After 1917		
117	1912	Yes	Painted
118	After 1917		
119	After 1917		
120	After 1917		
122/37	After 1917		
123	1911 - 12	Yes	Painted
125	Late 19th – early 20th century	Yes	Painted
127	Late 19th – early 20th century	Yes	Painted
129	Early 20th century	Yes	Painted
131	1913 - 1914	Yes	Painted
133	Late 19th century	Yes	Painted
135/13	1897 - 1898	Yes	Painted
137/18	1893	Yes	Painted
139	Middle 19th century	No	
141	After 1917		

143	Late 19th century	Yes	Painted
145	Early 20th century	Yes	Painted
147/5	1900 - 1903	Yes	Painted

Appendix B

Figure 3 – former gymnasium building at Bulvarno-Kudriavska Street 18/2

