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Roman Kupranets*

Postgraduate Student

Lviv Polytechnic National University

79013, 12 Stepan Bandera Str., Lviv, Ukraine

<https://orcid.org/0009-0001-4234-6830>

Mykhailo Khokhon

PhD in Architecture, Senior Lecturer

Lviv Polytechnic National University

79013, 12 Stepan Bandera Str., Lviv, Ukraine

<https://orcid.org/0000-0003-4895-0817>

Architectural and structural decor of Lviv tenement houses in the late 19th and early of the 20th centuries

Abstract. Valuable historical buildings in Ukrainian cities, particularly in Lviv, that do not have architectural monument status are sometimes overlooked by architects and restorers. The physical deterioration of materials and structures, neglect of roofs, and damage to drainage and sewage systems have resulted in significant façade degradation. This study aimed to assess the preservation of architectural and structural elements on the façades of Lviv's artificial stone buildings, evaluate their structural stability, and formulate scientifically grounded recommendations for their restoration. The methodology was based on general scientific and specialised research methods. Through analysis, synthesis, systematisation, and generalisation of bibliographic materials, the research establishes the current state of knowledge on the topic and summarises and expands the available information on the formation of architectural monuments of the late 19 and early 20th centuries, as well as their architectural and decorative solutions. The most significant architectural and structural decorative elements of Lviv's townhouses from the first half of the 20th century are identified using systematic analysis and specialised research methods, including graphical comparison, retrospective modelling, and architectural composition. For a high-quality restoration that preserves the authentic substance of these buildings, it is essential to study the architectural and structural decor of Lviv's townhouses in detail. Restoration work should integrate modern technologies and materials, and restorers should apply innovative approaches that align with contemporary architectural and construction practices

Keywords: historic residential buildings; elements and details; artificial stone; reconstruction; façade renovation

INTRODUCTION

The historical significance of artificial stone in architecture during the late 19th and early 20th centuries represents a crucial phase in the evolution of building technologies and architectural styles. This material not only transformed

construction and design methods but also played a pivotal role in shaping the urban landscape. However, as of 2025, a comprehensive study of its technical, aesthetic, and functional aspects remains lacking.

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*Corresponding author



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Scientists such as M. Bevcz(2022), in their preliminary studies on the conservation of the interiors of the Main Building of Lviv Polytechnic National University, note that the first half of the 20th century witnessed significant architectural transformations, with the use of artificial stone emerging as one of the most important innovations. They also demonstrate that this period was characterised by the search for new materials and technologies that would allow the creation of more dynamic, functional, and aesthetically pleasing buildings. A detailed examination of the study's relevance underscores its importance in the historical, technical, cultural, and socio-economic contexts, as well as its significance for contemporary architecture and heritage conservation.

The study by M. Demkiv & I. Pohranychna (2022) identifies the reasons for the reconfiguration of historic residential buildings, the stages involved in developing a reconstruction project, and an analysis of the regulatory documents governing the reconstruction of the historic housing stock. The paper notes that reconfiguration and reconstruction projects for apartments can only proceed after evaluating the building's technical condition, structural framework, inventory plans, surrounding environment, and roof structures. The initial phase of field surveys is particularly crucial, as the final reconstruction project cannot be developed without high-quality data from this stage.

Research by M. Demkiv & S. Popova (2021) and A. Merezhko (2023) examines experiences in the reconstruction of historic façades and their decorative elements. According to M. Demkiv & S. Popova (2021), in European countries, the share of investment in reconstruction in total investment is lower or equal to the investment in new buildings. However, the cost of new construction in Europe is considerably higher than that of reconstruction or modernisation of existing housing. For example, in Austria, 45,000 new housing units are built annually, whereas 100,000 existing units undergo renovation. In Finland, investments in housing reconstruction account for about half of all construction expenditures and are projected to increase significantly. Between 2016 and 2025, they are expected to reach 1.9 billion EUR annually. In France, two-thirds of investments are allocated to reconstruction, while the remainder goes to new buildings. In Germany, 62% of investment is directed towards the reconstruction of existing residential buildings, with the remaining 38% allocated to new construction. In the Netherlands and Sweden, the number of renovated housing units is twice that of newly built ones. In Switzerland, modernised homes also outnumber newly constructed buildings. A. Merezhko (2023) examines the history of historic building renovation outside Ukraine and identifies financial programmes and grants used in European countries and America. The study highlights the primary renovation methods most commonly employed in Europe and the United States.

Researchers D. Moroz *et al.* (2022) investigate the use of natural materials in architecture. They emphasise that in the 21st century, the issue of preserving natural resources

is particularly pressing, making the use of artificial substitutes in construction and architecture increasingly relevant. Innovative technologies enable the use of artificial stone for both new construction and reconstruction. An analysis of the literature suggests that a project for the conservation of the architectural and structural decor of Lviv townhouses from the first half of the 20th century requires an integrated approach, ranging from the training of specialists in the field of conservation to the development of professional conservators. This perspective is supported by the research of K. Cherkasova (2021), whose article explores the historical, theoretical, scientific, and practical aspects of architectural and restoration activities, particularly concerning the evolution of architectural and conservation education in Ukraine. The training of specialists in the conservation of immovable heritage is a crucial aspect of higher architectural education, given the need to develop research, design, and production expertise in this field.

This study aimed to analyse the previous research in this field, assess the technical condition of the façades of Lviv townhouses from the early 20th century, identify the types and causes of architectural and structural decor deterioration, and develop recommendations for the conservation and preservation of architectural, structural, and stucco decor on these façades.

LITERATURE REVIEW

Published works in the fields of art history and architectural theory focus on the study of architectural decor, its classification, and its stylistic characteristics. An analysis of the academic literature on architectural decor, its classification, and stylistic approaches reveals a lack of research in this area in Ukraine. The classification of architectural decor and the definition of its key elements are presented in the articles of V. Tymofienko (2002) and I. Kreizer (2014). The body of sources highlighting the main factors and prerequisites, characteristic features, compositional aspects, and other distinctive elements of early 20th-century townhouses' architectural and structural decor includes the study of Yu. Zakharov *et al.* (2019) examined the specifics of residential building reconstruction across various structural systems. The reconstruction of historic residential buildings and façade renovation has been widely studied. H. Onyshchuk (2004) and I. Novosad (2015) analyse the experience of historic residential building reconstruction in European countries. Written sources describing the authentic and present-day condition, history of construction, and transformation of early 20th-century townhouses, along with their architectural and decorative features, include the research by M. Bevcz (2013). In particular, the author provides examples of buildings that confirm the widespread use of Roman cement in decorating the façades of public and residential buildings in Lviv during the second half of the 19th century.

The article by F. Fatiguso *et al.* (2013) describes a general methodology for studying artificial stone façades constructed between the 19th and 20th centuries, focusing on



selection criteria and the correlation of diagnostic methods. Researcher R. Kotiv (2011) conducted a detailed study on the manufacturing technology and characteristics of artificial stone, particularly Roman cement, used on the façades of Lviv townhouses. Artificial stone was frequently used to create unique decorative elements on façades. There remains insufficient research on how this material has influenced architectural and structural forms, as well as its integration with other building materials and techniques. Artificial stone emerged as a result of innovations in materials science, enabling the production of materials with desirable properties such as strength, ease of processing, and aesthetic appeal. This facilitated new opportunities for architectural experimentation and creative solutions. Due to its unique properties, artificial stone has had a significant impact on architectural design solutions. This material enabled the realisation of more complex architectural forms and structures that would not have been possible with traditional materials.

M. Demkiv & I. Pohranychna (2022) outline the stages of investigating historic residential buildings in their research. They note that a survey of the technical condition of a residential building is conducted to establish the degree of physical deterioration, assess the load-bearing capacity of structures, and, if necessary, develop measures to reinforce these structures, stabilise the soil beneath the foundations, and strengthen the foundations themselves. The scientific and practical aspects of restoration incorporate the works of researchers in theory and practice across all forms of fine arts and architectural restoration, as well as applied sciences such as construction, materials science, and engineering. For instance, it was found that the sculptural decor of Renaissance townhouses has been examined by O. Rybchynskiy (2022) and S. Linda & O. Kulynska (2023). Based on scientific research and practical restoration work, the development stages of the townhouses at 4 Rynok Square and 23 Rynok Square have been identified. Their architectural and structural features, along with the principles of façade conservation, are highlighted.

The technologies and methods for reproducing façade decoration using artificial stone are examined in the articles of G. Sheliong *et al.* (2012) and M. Bezv *et al.* (2022). The researchers note that through the study of archival materials and field research, it has been determined that in the late 19th and early 20th centuries, building mixtures based on Roman cement were widely used in western Ukraine. To ensure the preservation of architectural and structural decor, it is essential to restore historical buildings using a comprehensive scientific approach. This includes thorough research, the development of appropriate new materials, and the careful selection of materials when used on suitable for valuable historical sites.

MATERIALS AND METHODS

A comprehensive methodology for studying the reproduction of architectural and structural elements made of artificial stone in Lviv townhouses from the late 19th to the early

20th century is founded on two types of scientific methods: general scientific methods and specialised scientific methods. In this study, the following general scientific methods were employed: analysis, synthesis, comparison, systematisation, classification, and generalisation. Additionally, the following specialised methods were applied: visual inspection, system analysis, graphoanalytical comparison, retrospective modelling, threedimensional analysis, and comparative historical synthesis. The initial objective of studying townhouses from the first half of the 20th century was to review the scientific literature and assess the extent of research on this topic. To achieve this, the general scientific methods of comparison, analysis, and synthesis were utilised. Subsequently, research objects were selected for in-depth analysis. A list of buildings constructed with Roman cement was compiled for further study. For a detailed analysis in this article, residential buildings located at 1-19 S. Krushelnytskoi Street in Lviv were selected.

After identifying the research objects, the state of preservation and functional use of the townhouses from the first half of the 20th century were examined. During field research, visual inspection and photographic documentation methods were applied, while desk-based research employed analytical techniques such as systematisation, generalisation, comparison, graphoanalytical comparison, and systemic and structural analysis of object integrity. Additionally, retrospective modelling was conducted. Field and desk-based studies were carried out in parallel, complementing one another. The collected information on the studied townhouses was systematised to facilitate further source analysis. As part of historical and archival research, attention was given to previous studies as well as cartographic and iconographic materials.

During field research, visual inspection was conducted to gather comprehensive data on the existing buildings within the studied complexes, including the number of storeys, structural conditions, causes of deterioration, visual qualities, land use, and terrain characteristics. Findings from the visual inspection were recorded using sketches, diagrams, and photographic documentation to support subsequent desk-based and analytical research. This approach helped ensure a comprehensive examination of the deterioration of artificial stone elements on building façades from the first half of the 20th century. During photographic documentation, particular attention was given to decorative and stylistic elements, architectural details, material losses, and the condition of individual features. Characteristic forms of deterioration and challenges related to the preservation of architectural and structural elements made of artificial stone were also documented.

The abstraction method was employed to analyse proportioning systems, architectural and decorative features, and compositional techniques. This method involves systematically eliminating nonessential properties, connections, and relationships while identifying and recording the most significant characteristics of buildings from the first half of the 20th century. Abstraction enables complex



structures to be simplified without losing their fundamental attributes, thereby allowing for a clearer understanding of key architectural elements.

RESULTS AND DISCUSSION

Most historic buildings in Ukrainian cities are residential structures built between the 1860s and 1910s. This period of industrial growth brought about significant transformations, leading to substantial changes in the architectural landscape of many historic cities within just half a century. The central component of urban complexes and ensembles was the tenement house (Vereshko *et al.*, 2019). The tenement house became the most widespread architectural form in 20th-century capitalist cities, functioning not only as a multi-purpose building combining housing, shops, and various institutions but also as a source of income generation. In the challenging conditions of the market economy, apartment buildings emerged as the most practical type of housing, a role they continued to fulfil in the early 21st century. Various layout configurations were employed in tenement houses – rectangular, L-, T-, U-, and H-shaped – depending on the dimensions and positioning of the plot. At the turn of the 19th and 20th centuries, urban development in Ukraine was particularly characterised by single-section apartment buildings, typically T-shaped or rectangular, with two apartments on each floor.

Due to population growth in Ukrainian cities in the early 20th century, there arose a pressing need to provide housing for the general population. During this period, large multi-sectional residential buildings with substantial architectural volumes and courtyard wings extending deep into the plot began to appear. To mitigate overcrowding, developments incorporated compact geometric layouts and complex planning solutions featuring multiple courtyards. In the early 20th century, apartment architecture increasingly favoured the construction of large residential quarters or housing complexes. This trend was facilitated by the acquisition of small, fragmented plots by wealthy developers – either companies or individual owners – who consolidated them into larger, more practical parcels. A common urban planning approach involved the creation of an elongated open-front courtyard, around which residential volumes were arranged. In Ukraine, this type of apartment development was limited to major cities with well-established industrial bases. A distinguishing feature of perimeter-block developments, which primarily comprised apartment buildings, was the consistent rhythmic arrangement of façades elements, creating a unified streetfront composition. This continuity was punctuated by architectural accents such as bay windows, towers, domes, balconies, and decorative sculptures. As a result, the primary façades formed a decorative screen distinct from the overall structure, embodying a specific architectural style. In contrast, courtyard façades – unlike the highly ornamented front façades, which served as a visual

representation of the owner's status – were typically understated, featuring minimal or no decorative elements.

The ground floors of tenement houses frequently accommodated commercial establishments, such as shops, offices, and workshops, while basements were utilised for warehouses, laundries, and other service spaces. The most desirable apartments were typically located on the second or third floors, while furnished rooms were often positioned on the upper levels. Great attention was given to the design of residential interiors and the main staircase. Interior decoration commonly featured stucco ceiling mouldings, ornamental metalwork in staircase railings, carved doors, decorative stoves, and fireplaces (in the absence of steam heating). Thus, the decoration of these buildings followed a tripartite compositional principle (Fig. 1):

● 1st level – at the level of visual perception from the pavement, extending to the plane of the plinth and the first floor, this zone is vertically limited by the inter-floor cornice of the second floor. It represents the primary zone of active perception, emphasised by rusticated framing around windows and door openings and further accentuated by colour contrasts. Key architectural attributes that contribute to the individuality of each building include shopfronts, signage, nameplates, entrance doors, gates, and passageways;

● 2nd level – the wall space above the primary visual perception zone extends up to the cornice and serves as the canvas for individual stylistic and artistic expressions. Decorative elements include variations in window geometry, stucco mouldings, and painted window frames. During the Austrian period, two distinct shades of ochre were designated for Lviv, reflecting its status as an eastern capital in façade painting traditions;

● 3rd level – the cornice of the building forms the transition between the wall and the roof. Positioned above the ceiling of the top floor, it is distinguished by a horizontal band, a frieze with dormers, and a projecting cornice adorned with decorative elements that create a sculptural relief, casting shadows beneath the roofline. Cornices and pediments serve as defining architectural elements that complete the composition of the façade (Kupranets & Pohranychna, 2024).

The historic buildings from the early 20th century are richly decorated with stucco and sculptural elements, which deteriorate over time due to environmental exposure and building use (Table 1). Additionally, the architectural and structural decor of Lviv townhouses is frequently damaged due to substandard restoration and repair work. To preserve these elements, a comprehensive inspection by specialists with the requisite education and expertise is essential. Such assessments typically commence with a visual examination of all exterior and façade walls, followed by an inspection of interior surfaces. Throughout this process, façades are systematically photographed, with each image documented by date.

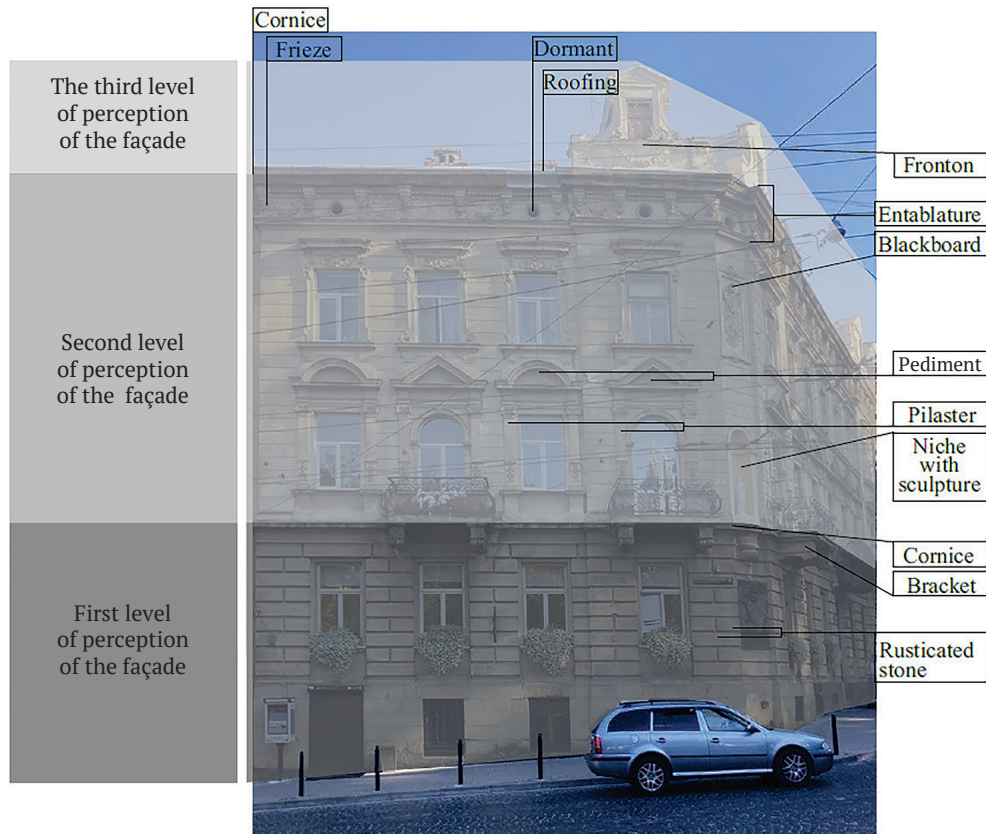


Figure 1. Architectural and constructive decor of Lviv townhouses from the first half of the 20th century
Source: compiled by the authors

Table 1. Examples of deterioration to architectural and structural elements of façades

Field of perception of the façade	Type of deterioration	Photo
1 st level of façade perception (the plane of the basement and the first floor)	<ul style="list-style-type: none"> - soaking and delamination of plaster - erosion of rusticated surfaces - destruction of the inter-floor cornice - damage to sculptural elements - loss of stucco decoration 	

Table 1. Continued

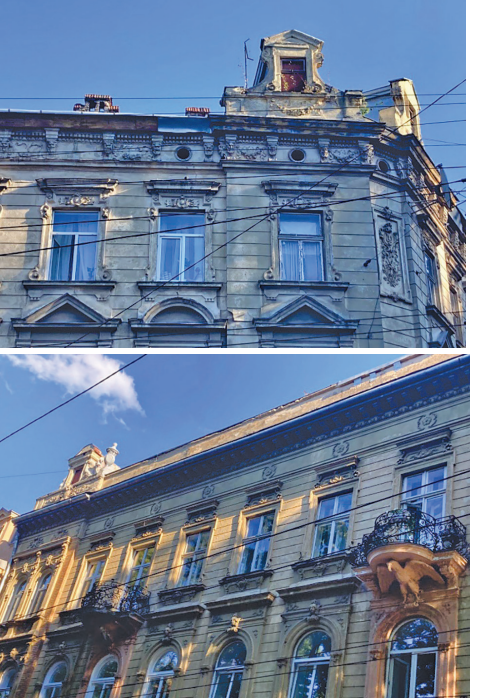
Field of perception of the façade	Type of deterioration	Photo
1 st level of façade perception (the plane of the basement and the first floor)	<ul style="list-style-type: none"> - soaking and delamination of plaster - erosion of rusticated surfaces - destruction of the inter-floor cornice - damage to sculptural elements - loss of stucco decoration 	
2 nd level of façade perception (wall space above the primary visual perception zone, extending to the roof eaves)	<ul style="list-style-type: none"> - soaking and peeling of plaster - loss of stucco decoration 	



Table 1. Continued

Field of perception of the façade	Type of deterioration	Photo
<p>2nd level of façade perception (wall space above the primary visual perception zone, extending to the roof eaves)</p>	<ul style="list-style-type: none"> - soaking and peeling of plaster - loss of stucco decoration 	
<p>3rd level of façade perception (the section of the façade above the eaves, forming the boundary between the wall and the roof)</p>	<ul style="list-style-type: none"> - deterioration of the corbeled cornice - damage to the roof covering - failure of the drainage system 	

Table 1. Continued

Field of perception of the façade	Type of deterioration	Photo
<p>3rd level of façade perception (the section of the façade above the eaves, forming the boundary between the wall and the roof)</p>	<ul style="list-style-type: none"> - deterioration of the corbeled cornice - damage to the roof covering - failure of the drainage system 	

Source: compiled by the authors

In the context of preliminary studies required for the development of a restoration project, photography serves as a highly effective method of documentation, capturing an accurate and comprehensive visual record in a short period. However, it is crucial to avoid taking photographs from extreme angles, as this distorts building proportions. Additionally, diffused lighting conditions provide better image quality than high-contrast lighting. Where possible, photographs should be taken in a nearorthogonal manner to ensure accuracy in documenting both entire façades and individual details or fragments. Furthermore, to accurately determine the proportions or dimensions of a building, it is advisable to include a reference object such as a measuring scale, a person, or a study marker in the frame.

During photographic documentation, attention should be given to both the overall appearance and key architectural accents of the exterior and interior. Additionally, a detailed focus on smaller elements, layered structures, or areas of damage will facilitate a comprehensive assessment of the building's condition. Particular records should be made of historical architectural elements and remnants of decorative finishes that have been preserved in attics, basements, or concealed within later modifications, as well as the materials from which they were constructed. The next stage of the building assessment involves a detailed examination of structural damage, including the condition of the masonry walls, the presence of cracks, and the structural integrity of load-bearing elements.

During the inspection, existing technical documentation should be cross-referenced with the building's actual condition, and necessary corrections should be made

where discrepancies arise. Additionally, damage locations for specific architectural elements should be recorded. The presence of essential infrastructure systems, including sewerage, water supply, boiler room facilities, gas supply, air conditioning, heating, and ventilation networks, should also be assessed. To conduct a thorough survey, it is essential to establish the building's construction date. This can often be determined from inscriptions or plaques embedded in façades during construction. In the absence of such markers, historical research and archival materials should be consulted to verify the building's period of construction.

A critical evaluation should be conducted to assess the preservation of the building's aesthetic integrity. Historic buildings have often undergone modifications, sometimes repeatedly, and in many cases, insufficient care has been taken to maintain the compositional and stylistic unity of the façades. Therefore, when inspecting a building, it is essential to identify and document historical layers, additional storeys, extensions, basement deepening, changes in the building's function, roof configurations, façade alterations, and other modifications. These include the creation or sealing of window and door openings in the main walls, as well as other structural changes. Architectural surveys should be accompanied by the following documentation: survey plan drawings indicating the nature of masonry joints, locations of test soundings, and sampling sites for mortar analysis; a façade cartogram detailing areas of material loss and variations in mortar types; measurements of test soundings recorded in a log, supplemented with photographic documentation (Chen & Hnidec, 2015).



Before commencing external cladding work, all activities that may damage the cladding surfaces must be completed. The texture of the cladding should replicate the original material as closely as possible. During the repair and restoration of the façade with natural stone, the upper edges of protruding granite elements (such as cornices, string courses, and pediments) should be inclined outward to facilitate water drainage. In cases where the façade cladding consists of ceramic or other types of slabs, the front surface must be free from efflorescence, stains, mortar residue, and cracks. Additionally, the joints between slabs should be smooth, and surface imperfections such as notches, edge chips exceeding 0.5 mm in depth, and corner damage should not be present (Senkovskiy *et al.*, 2011).

Paint mixtures should serve not only a decorative function but also a protective function one concerning the façade of the heritage structure. The following requirements apply to the paint coatings used on such façades: vapour and air permeability; weather resistance (resistance to solar radiation, atmospheric pollutants, weathering, temperature fluctuations, and industrial emissions); strong adhesion; a decorative appearance that aligns with the building's historical character; a colour scheme that is historically appropriate both to the building and its surroundings. Paints and coatings are classified as either aqueous or non-aqueous. The painting of heritage façades should be carried out as the final stage of the restoration process. It is imperative to avoid the use of finishing materials that may later contribute to the deterioration of authentic plaster, masonry, or decorative elements. Painting should commence no sooner than 14 days after the plaster application, crack-filling, and embedding processes have been completed.

Restoration and conservation works for architectural and stucco decoration should be carried out based on a comprehensive, developed, and approved project plan and technological procedures. Stucco work should adhere to working drawings and correspond to the original form and material. Depending on the degree of preservation of stucco elements on architectural monuments, it is permissible to undertake restoration and conservation of the original forms and decorative features, and reproduction of lost elements. According to restoration guidelines, damaged stucco components should be restored, supplemented, or replaced with new ones. To restore gypsum stucco, the "doping" method is applied, which involves the application of gypsum mortar to the damaged areas (DBN V.3.2-2-2009, 2010). For external stucco elements, materials must be waterproof, or adequate protection against water absorption should be provided using hydrophobic solutions. All actions to restore decorative elements should be reversible and utilise materials and technologies appropriate to the historical style and period of the structure. For tinting gypsum elements to resemble bronze, cast iron, ivory, wood, marble, or other materials, artistic oil paints diluted with drying oil, turpentine, or varnish should be used. To protect stucco elements, waxing is necessary; beeswax diluted in turpentine is commonly used. Wax coatings

provide hydrophobic protection. On façades, stucco elements and projecting components must be shielded from damage and weathering by covering them with galvanised roofing iron, copper, or a layer of protective paint. If ferrous iron is used, it must be oiled and coated two or three times with oil-based or waterproof paint. After drying, the stucco should be primed with a light oil mixture containing whitewash, followed by two or three coats of oil paint or a hydrophobic solution.

In his research, the scholar I. Kreizer (2014) argues that decorative elements in architecture have played a fundamental role since antiquity, serving as symbols, carriers of encoded information, and essential components of architectural composition. Such conclusions reinforce the importance of preserving and restoring architectural and structural decoration on the façades of historic buildings. As of 2025, particularly during the Russian-Ukrainian war, the issue of preserving the authenticity of Ukrainian culture has become especially urgent. F. Fatiguso *et al.* (2013), as well as M. Demkiv & S. Popova (2021), discuss examples of the reconstruction of historic buildings in Europe and America. However, these studies do not examine the conservation of exterior façade decoration; instead, they provide predominantly descriptive accounts and do not explore the specific features of stucco decoration conservation on historic façades.

Researchers Yu. Doroshenko & A. Merezhko (2020) assert that the renovation of the outdated housing stock is a critical issue for Ukraine, addressing which would facilitate the modernisation of the country's residential infrastructure, enhance living standards, extend the lifespan of buildings, and conserve national resources by improving energy efficiency. However, their research lacks graphic examples of such modernisation, which limits a comprehensive understanding of how the architectural and structural elements of buildings are preserved.

The scientific study of T. Grøntoft (2017) analyses the costs of conserving and renovating limestone façades in Kraków, Poland, focusing on damage caused by weathering, air pollution, and periodic exposure to aggressive atmospheric conditions. Although this topic is highly relevant, the study does not address the specific challenges associated with restoring stucco decoration on historic façades, which is the primary focus of this research. Instead, L. Chen & R. Hnidec (2015) offer detailed explanations of repair and conservation techniques for architectural monuments, providing recommendations ranging from the preservation of archaeological sites to the conservation of masonry and architectural decor.

A comprehensive study of artificial stone elements requires an interdisciplinary approach that integrates knowledge from architecture, art history, chemistry, and engineering. Such an approach is essential for further research aimed at expanding the understanding of material properties, environmental impact, and mechanisms of deterioration. A well-rounded understanding of these issues will support the development of conceptual and methodological



frameworks for the reconstruction of architectural and structural decor using both traditional and modern materials.

CONCLUSIONS

The use of artificial stone in the late 19th and early 20th centuries to adorn buildings represented an innovative and progressive stage in the development of architectural plasticity, particularly in Lviv. This method enabled the creation of complex architectural forms more quickly, at a lower cost, and with a high level of aesthetic appeal and durability. The concept of artificial stone is broadly defined and includes composites of various materials, with a particular emphasis on novelty cement decor. Based on the analysis of the technical condition of buildings, it has been demonstrated that, as of 2025, the preservation and restoration of decorative architectural elements on façades remain highly pressing issues. The exposure of architectural monuments to an aggressive urban environment requires a comprehensive, research-driven approach to both the study and application of new materials in restoration efforts. Over more than a century of use, Lviv's historic buildings have exhibited various forms of façade damage, including cracks, plaster deterioration, and the loss of decorative elements or their components. Prior to undertaking restoration work, thorough scientific research should be conducted, incorporating an analysis of the technical condition and architectural, as well as the compositional features of the building.

During the restoration or preservation of masonry surfaces and architectural and contouring decor in Lviv townhouses from the late 19th and early 20th centuries, it is essential to consider that the primary objective of these works is to preserve the monument's authenticity to the greatest extent possible, along with the features characteristic of specific construction periods that illustrate key historical stages in Ukrainian architecture. Depending on the nature and extent of damage, two approaches to surface restoration may be employed: conservation of historical material through the supplementation of damaged areas with specialist solutions or partial replacement of damaged elements with compatible substitutes, provided that their prototypes exist. All work must adhere to a pre-approved restoration project and comply with the relevant technologies. Further studies will explore the technological aspects of artificial stone conservation, contributing to the preservation of the authentic appearance of Lviv townhouses from the early 20th century.

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Роман Купранець

Аспірант

Національний університет «Львівська політехніка»

79013, вул. Степана Бандери, 12, м. Львів, Україна

<https://orcid.org/0009-0001-4234-6830>

Михайло Хохонь

Кандидат архітектури, старший викладач

Національний університет «Львівська політехніка»

79013, вул. Степана Бандери, 12, м. Львів, Україна

<https://orcid.org/0000-0003-4895-0817>

Архітектурно-конструктивний декор львівських кам'яниць кінця XIX – початку XX століття

Анотація. Цінні історичні будівлі в українських містах, зокрема у Львові, які не мають статусу пам'ятки архітектури, іноді залишаються поза увагою архітекторів та реставраторів. Фізичний знос матеріалів і конструкцій, занедбаність дахів, пошкодження дренажних і каналізаційних систем призвели до значної деградації фасадів. Метою цього дослідження були оцінка збереженості архітектурно-конструктивних елементів на фасадах будинків зі штучного каменю міста Львів, визначення їхньої конструктивної стійкості та розробка науково обґрунтованих рекомендацій щодо їхньої реставрації. Методологія дослідження ґрунтувалася на загальнонаукових і спеціальних методах дослідження. Шляхом аналізу, синтезу, систематизації та узагальнення бібліографічних матеріалів, встановлено сучасний стан вивчення теми, узагальнено та розширено наявну інформацію про формування пам'яток архітектури кінця XIX - початку XX ст., а також їх архітектурно-декоративне вирішення. За допомогою системного аналізу та спеціальних методів дослідження, зокрема графічного порівняння, ретроспективного моделювання та архітектурної композиції, визначено найбільш значущі архітектурні та конструктивно-декоративні елементи львівських таунхаусів першої половини XX ст. Для якісної реставрації зі збереженням автентичної субстанції цих будівель необхідне детальне вивчення архітектурно-конструктивного декору львівських таунхаусів. Реставраційні роботи повинні інтегрувати сучасні технології та матеріали, а реставратори повинні застосовувати інноваційні підходи, що відповідають сучасним архітектурно-будівельним практикам

Ключові слова: історичні житлові будинки; елементи та деталі; штучний камінь; реконструкція; реновація фасадів