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REBUILDING OF DESTROYED HISTORICAL QUARTERS OF KYIV: A THEORETICAL MODEL

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Abstract. The article aims to study the destroyed historical quarters of Kyiv and form a theoretical model for their rebuilding. We identified the peculiarity of Kyiv's historical quarters' destruction, which, over the last three years of war, has undergone a layering of simultaneous one on the temporal, significantly intensifying the negative impact. It requires a more complex methodological intervention in their rebuilding, with the elimination of the consequences of simultaneous destruction and the causes and problems of temporal destruction at the same time. The studied quarters were classified, and the identified features help to understand their potential and form an individual intervention strategy, affecting the possibility of using specific methods and techniques in their rebuilding. The proposed theoretical model of rebuilding destroyed historical quarters of Kyiv is a tool for a holistic and comprehensive solution to the problem, shows the possibility and effectiveness of combinations of various restorative and reconstructive methods, supplemented by specific techniques for different systemic levels of intervention, which we recommende to use depending on the initial existing state of these quarters, the determined degrees of their destruction and historical-architectural value. The proposed concept for rebuilding the destroyed quarter in Kyiv's Holosiivskyi district effectively illustrates its potential.

Keywords: destroyed historical quarters, rebuilding, theoretical model.

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1. Introduction

The historical quarters of Kyiv are spatial carriers of architectural value and morphological integrity of its urban environment, cultural identity, and collective memory. They were formed and acquired their distinctive features, and are now developing or declining and collapsing under the influence of many different factors, depending on which ones are dominant. Unfortunately, we can currently see counterexamples of their temporal destruction in downtown Kyiv. In the last three years, very often, simultaneous destruction has occurred when historical quarters lose their integrity and activity in one moment as a result of bombing, and the value of their buildings decreases. There are also more complex cases where instant destruction is superimposed on the existing temporal destruction, amplifying it.

Destroyed quarters significantly devalue and deactivate the urban environment, negatively affecting its attractiveness and quality of life. Temporal, extended in time, destruction is the gradual degradation of historical quarters that occurs over a long period due to their neglect and decline, as a result of a careless attitude or the non-compliance of existing buildings and spaces with modern requirements, and the loss of their functionality. Simultaneous instant destruction is the sudden loss of part (or all) of the buildings in relatively prosperous and active historical quarters due to a crisis, a catastrophic event, or military action. And while we can effectively eliminate the temporal destruction through comprehensive revitalization of degraded buildings and spaces, simultaneous destruction, and even more so, the combination of temporal and simultaneous destruction in one place, requires a more complex methodological intervention to eliminate the causes and problems of the former and the consequences of the latter at the same time.

Today, Ukraine is facing unprecedented challenges caused by a full-scale war that has led to the massive destruction of infrastructure and buildings in our cities, including historically valuable ones. Kyiv is no exception. Since 2022, 2,400 buildings have been destroyed in Kyiv as a result of bombing, and since the beginning of 2025, 577 (Kruhlenko, 2025). The destruction affected not only individual objects, including architectural heritage, but also entire historical quarters that give our city its uniqueness, personifying its architectural, spatial, and socio-cultural structure. And if, with temporal destruction, a particular

place may gradually lose its integrity and value, then this process can be relatively controlled to prevent negative consequences in time. With simultaneous destruction, this place instantly suffers significant damage that is impossible to predict and prevent. Within the city, this can be point-based, as in the example of Kyiv, or it can be systemic, as with the cities in Eastern Ukraine. In these conditions, the issue of rebuilding destroyed historical quarters is complex and critical. It acquires not only architectural and urban planning, but also social, cultural, economic, and symbolic significance. The task involves the simultaneous restoration of the urban structure's integrity, preservation of historical and cultural heritage, a return to normal active urban life, and necessary renewal for further development.

Given this, research on the rebuilding of historical quarters, which takes into account the degree of their destruction, the historical-architectural value of the building, the existing context of the urban environment, and the modern needs of society and city, is highly relevant to Ukrainian architectural science and practice. This study proposes a theoretical model for rebuilding Kyiv's destroyed historical quarters as a set of tools (possible combinations of methods and techniques) that, when applied simultaneously at different systemic levels, will produce a synergistic effect, leading to a positive solution of the identified tasks.

2. Theoretical base

In the context of this study, it is necessary to highlight several theoretical and practical works developed at different times and successfully implemented in various cities during their rebuilding after particular crises. These are comprehensive studies, as well as those that focus on specific individual components of the problem. First, it is worth noting the works on the post-war reconstruction of European cities in the second half of the last century, namely in Poland (Bugalski & Lorens, 2023). Spain (Munnoz-Rojas Oscarsson, 2009), Slovenia and Croatia (Díaz Unkovic, 2017), and Germany (Diefendorf, 1993). Also valuable is the comparative experience of Germany and Lebanon in eliminating the consequences of war-related destruction for the cultural heritage of Dresden and Beirut (Brincat, 2015), as well as discussions on professional-public interaction and participatory planning in the post-war rebuilding of the Lebanese capital (Shamoun, 2025). Research on the use of digital technologies to acquire data on cultural heritage and ruined buildings may also be relevant (Thekkum Kara & Niglio, 2025). Also noteworthy are publications on urban planning's preservation of cultural heritage (Osychenko & Hlupin, 2024), and restoration of destroyed iconic objects in Ukrainian cities (Antonenko & Deriabina, 2020), renovation of their residential buildings (Romanova, 2025), as well as research on the revaluation of architectural objects of the Soviet legacy in the post-war rebuilding of Ukraine (Didenko et al., 2023) and on the revitalizing of former industrial areas in Kyiv (Leshchenko & Guley, 2024).

It is also worth noting interesting and significant practical examples of the rebuilding of the war-destroyed city centers of Rothenburg ob der Tauber (Hagen, 2005), Warsaw (Jelenski, 2018), Nuremberg (Macdonald, 2009), Coventry and Rotterdam (Couperus, 2015), as well as the Ukrainian Kharkiv (Diakova & Topchii, 2024) and Kyiv (Tretiak, 2023), to which completely different restorative and reconstructive methods were applied, and which have now become classics and have received approval by time, and the first two have also entered the UNESCO heritage. Also valuable is the experience of rebuilding Aleppo (Dilsiz & Haj Ismail, 2020), Sarajevo (Ibrahimbegovic & Zlatar, 2009), and Gyumri (Carrasco, 2025), which suffered significant simultaneous destruction as a result of "carpet" bombing, the Balkan War, and a powerful earthquake, respectively.

Each period had its approaches and technologies in such crisis reconstructions. Still, this historical experience is a powerful analytical and practical basis for the synthesis of new methodologies that are relevant to the present. The analysis of these practical works related to this topic became the basis for generalizing and systematizing combinations of possible and necessary restorative and reconstructive methods, as well as techniques, and forming the author's theoretical model of rebuilding Kyiv's destroyed historical quarters, depending on their initial situation, which determined the purpose of this study. Its theoretical provisions are based on current Ukrainian regulatory documents (DBN B.2.2-12:2019, 2019), and also support fundamental international documents on the preservation of built heritage (The Charter of Krakow, 2000).

3. Methodology

The rebuilding process is a systematic sequence of architectural and urban planning actions aimed at preserving, restoring, and renewing historical quarters that have undergone temporal or simultaneous destruction. It is not limited to the technical restoration or reconstruction of buildings and spaces that form these quarters. It encompasses the task of simultaneously returning their holistic morphology, external attractiveness, functional activity, social content, and economic attractiveness, adapted to the needs of the modern city and its inhabitants.

The rebuilding process of destroyed historical quarters should be comprehensive and holistic. Comprehensiveness manifests in the possibility and expediency of using different restorative and reconstructive methods and techniques to simultaneously address various issues to improve the quality of their currently existing buildings and spaces. Holistic lies in the need to address these issues consistently at different systemic levels, defined in this study as urban planning, building, and environmental design.

The comprehensive application of various restorative and reconstructive methods, as well as techniques, for a certain historical quarter depends on the degrees of historical-architectural value and destruction of those buildings and open spaces that currently form it, as well as

on their characteristics and features of the context. The application of appropriate possible methods to them, as well as combinations of specific techniques, will contribute not only to the preservation and restoration of existing historical buildings, but also to increasing the value of low-value and eliminating the destructive impact of disharmonious ones, as well as increasing the quality of the open spaces formed by them and their joint harmonious integration into the modern urban environment. Thanks to this process, currently destroyed quarters will be able to become important centers of development and contribute to the architectural, economic, social, and cultural revival of the city. However, to achieve this result, it is necessary to apply specific methods and techniques consistently on the three system levels identified.

This proposed methodology improves existing tools for rebuilding destroyed historical quarters, creating effective combinations of restorative and reconstructive methods and supplementing them with combinations of techniques for different system levels, and showing the possibility of their application depending on the initial parameters of a particular situation – the defining characteristics of the existing buildings and open spaces, their degrees of historical-architectural value, and their destruction. The result is a theoretical model synthesized by the authors.

Based on an analytical study of 75 quarters of downtown Kyiv, including the destroyed ones and their immediate surroundings, namely the Podil, Shevchenkivskyi, and Holosiivskyi districts, we conducted their classification according to the following features:

- By periodization of development (built at the same time, almost 24%, and about 76% have buildings from different periods). It indicates the heterogeneity of development characteristic of the quarters of downtown Kyiv, which was formed over a long time, in different centuries, mostly harmoniously complementing the existing with the new;
- By the shape of the quarter (simple shape: rectangular – almost 48%, square – 16%, triangular – 4%, trapezoidal – 8%; complex shape: with cut corners – 12%, with a kurdoner – 4%, broken shape – 8%). These results indicate the priority of simple rectangular shapes in planning. It is essential for maintaining traditional morphology;
- By the planning-development composition (dispersed – 8%, perimeter closed – 20%, perimeter semi-closed – 24%, perimeter with open kurdoner – 4%, perimeter with buildings inside the quarter: with a shared courtyard – 12%, with separate or interconnected courtyards – 28%, with "light wells" – 4%). This indicator is crucial for preserving traditional planning-development characteristics when rebuilding destroyed quarters and introducing new spatial elements;
- By the significance in the city's composition (ordinary, supporting the general front of urban development – almost 68%, accent, having architecturally expressive elements that form visual points – nearly 24%, with a dominant that has a city-forming compositional significance – 8%). This characteristic is an essential indicator for preserving the traditional urban planning value of a certain quarter and maintaining the overall compositional integrity of the historical urban environment when introducing the necessary new buildings or implementing additions to existing ones;
- By number of floors (with low-rise buildings up to 2 floors – 8%, with medium-rise buildings up to 5 floors – almost 40%, mixed-rise buildings with variable height – nearly 52%). This indicator is also essential when we make new additions or new construction within a certain quarter;
- By functional purpose (residential – 4%, residential with a public function on the first floor of the building – 44%, public – 16%, mixed, multifunctional – 36%). It is essential for introducing new functions into a certain quarter while maintaining the traditional multifunctionality of the urban environment.

Also, based on the author's preliminary research (Leshchenko, 2020, 2025) and existing regulatory documents on the historical buildings of Kyiv (Istoryko-arhitekturnyi ta istoryko-mistobudivnyi opornyi plany, 2020), all the studied quarters were systematized by historical-architectural value and distributed into four degrees. So, quarters with a historical layout and the presence of architectural monuments received the 1st degree of historical-architectural value, quarters with a historical layout and ordinary historical buildings, without monuments, received the 2nd degree of historical-architectural value, quarters with a historical layout and modern buildings – the 3rd degree, and quarters with a modern layout and buildings – the 4th degree. We also systematized these quarters by destruction, distributing them according to four degrees of destruction. So, quarters with minor fragmentary damage (up to 10%) that preserved all the planning elements and architectural features were assigned the 1st degree of destruction. Quarters with point damage (up to 30%) that didn't destroy their overall composition were assigned the 2d degree of destruction. Quarters with significant damage (50%) that have a broken overall composition received the 3rd degree of destruction. Quarters that have lost most of their buildings (70% or more) or degraded due to disuse, lost their historical planning, and are completely ruined received the 4th degree of destruction.

The identified characteristics of the quarters help to understand their potential and form an individual intervention strategy. That is, how significant were the losses, what needs they entail, and how can we address them to restore their lost planning and spatial characteristics, significance within the city structure, and functional content, thereby activating these quarters. It influences the possible combinations of specific techniques in the rebuilding of their buildings and spaces to preserve and enhance contextual features and the integrity of the urban environment. The defined degrees of destruction and the historical-architectural value of the destroyed historical quarters form the basis for applying specific methods to them, or

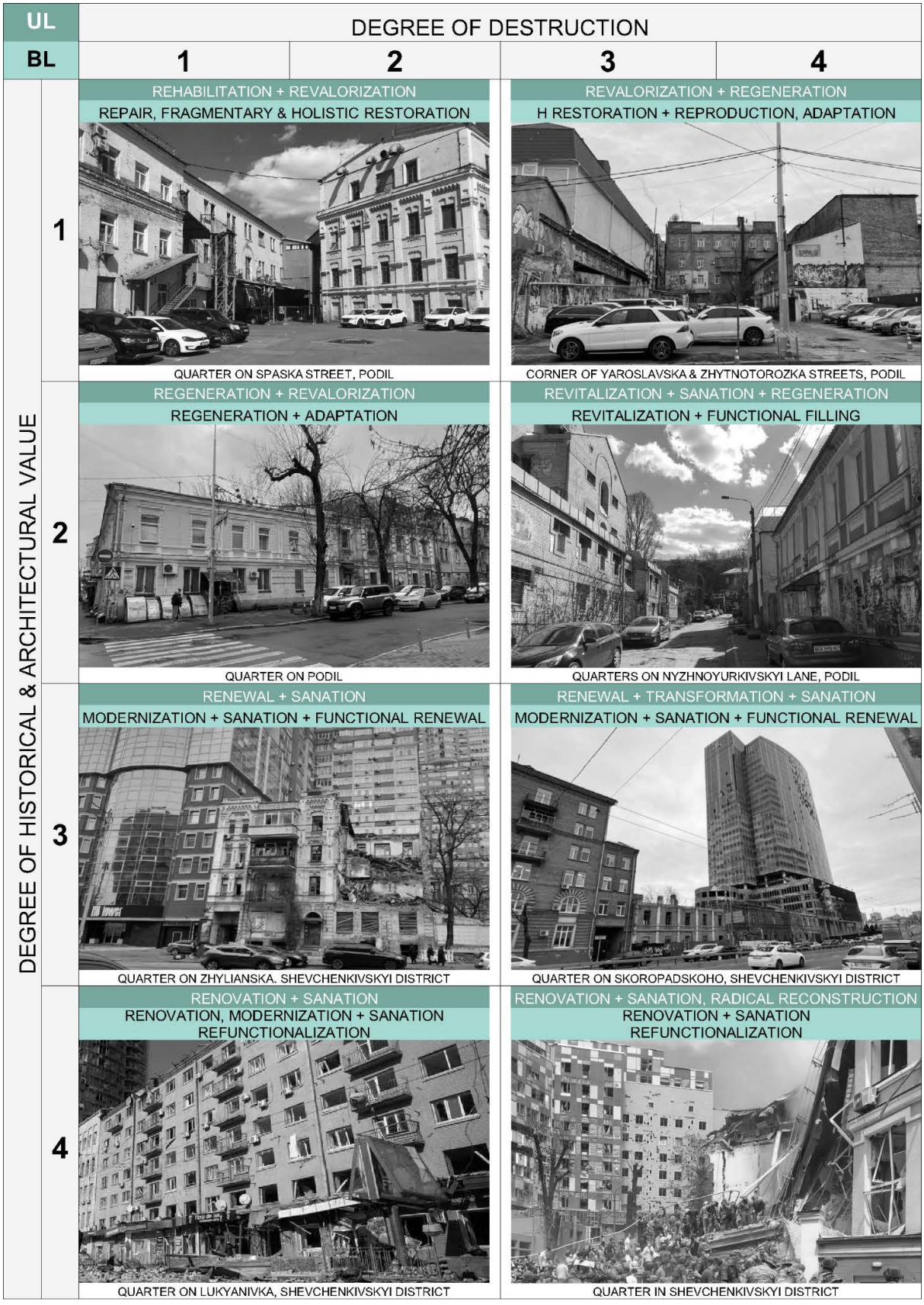

Figure 1. Methods for rebuilding Kyiv's destroyed historical quarters (source: authors)

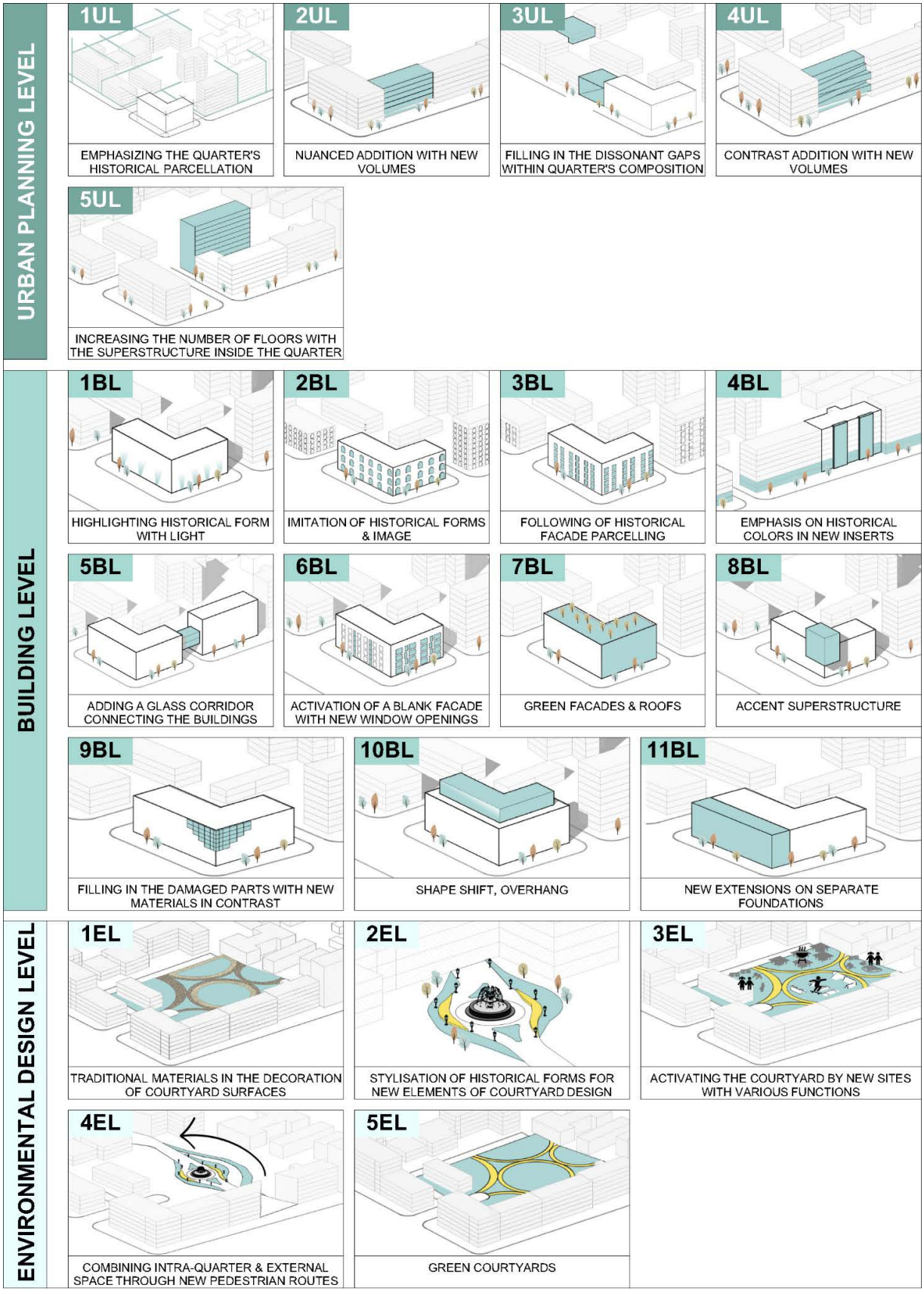

Figure 2. Techniques for rebuilding Kyiv's destroyed historical quarters (source: authors)

combinations of them (for a comprehensive solution to the issue). The authors identified possible combinations of restoring methods (for quarters of the 1st degree of historical and architectural value), restoring and renewing (for quarters of the 2nd degree of historical and architectural value), renewing and transforming (for quarters of the 3rd degree of historical and architectural value) and transforming methods (for quarters of the 4th degree of value) for the rebuilding of the destroyed ones, taking into account the degrees of their destruction (Figure 1).

We systematized all 21 proposed techniques for rebuilding destroyed historical quarters according to the three system levels identified (Figure 2). The urban planning level techniques include: 1UL – "emphasizing the quarter's historical parcellation"; 2UL – "nuanced addition with new volumes"; 3UL – "filling in the dissonant gaps within the quarter's composition"; 4UL – "contrast addition with new volumes"; 5UL – "increasing the number of floors with the superstructure inside the quarter". 2UL, 3UL, and 4UL techniques will be especially relevant when rebuilding the quarter after the simultaneous destruction. The building level techniques include: 1BL – "highlighting historical form with light"; 2BL – "imitation of historical forms and image"; 3BL – "following of historical facade parcelling"; 4BL – "emphasis on historical colors in new inserts"; 5BL – "adding a glass corridor connecting the buildings"; 6BL – "activation of the "blind" facade by new window openings"; 7BL – "green facades and roofs"; 8BL – "accent superstructure"; 9BL – "filling in the damaged parts with new materials in contrast"; 10BL – "shape shift, overhang"; 11BL – "new extensions on separate foundations". All of the above techniques will be relevant in the rebuilding of both temporally and simultaneously destroyed historical quarters, but for the latter, we can emphasize 2BL, 4BL, and 9BL. The environmental design level techniques include: 1EL – "traditional materials in the decoration of courtyard surfaces"; 2EL – "stylisation of historical forms for new elements of courtyard design"; 3EL – "activating the courtyard by new sites with various functions"; 4EL – "combining intra-quarter and external urban space through new pedestrian routes"; 5EL – "green courtyards". For simultaneously destroyed historical quarters, we can emphasize 1EL, 3EL, and 5EL techniques.

From this data and the positions above, we synthesized a resulting theoretical model. We tested it in the proposed concept of rebuilding a destroyed quarter in downtown Kyiv. We will discuss this in detail in the following section.

4. Results and discussion

4.1. Theoretical model for rebuilding destroyed historical quarters

The proposed theoretical model for rebuilding destroyed historical quarters was developed based on a classification of quarters by their historical-architectural value and degree of destruction, as well as the identification of potential combinations of intervention methods and techniques. This model takes into account three levels of intervention: urban planning, building, and environmental design. Within each level, we determined combinations of methods and techniques that can be applied depending on the specific situation — a combination of quarters' degrees of value and destruction (Figure 3). For each degree of value of the quarter, the main techniques are determined; however, we also propose supplementing with additional techniques that are relevant for quarters with different degrees of value.

Therefore, for historical quarters of the 1st degree of value, if they have the 1st and 2nd degrees of destruction (40% of those studied), it is possible to apply, respectively, such restorative methods as rehabilitation + revalorization (urban planning level), repair, fragmentary and holistic restoration (building level). To rebuild the quarter's buildings and spaces, we recommend using such techniques as: "emphasizing the quarter's historical parcellation" (urban planning level); "highlighting historical form with light" (building level); "traditional materials in the decoration of courtyard surfaces" (environmental design level). The first technique is especially relevant for the 2nd degree of destruction of such historical quarters.

If historical quarters of the 1st degree of value have the 3rd and 4th degrees of destruction (8% of those studied), the following methods are relevant for their rebuilding: revalorization + regeneration (urban planning level); holistic restoration + reproduction (building level); adaptation is appropriate for solving functional issues. The following techniques we recommended: "nuanced addition with new volumes" (urban planning level); "imitation of historical forms and image" (building level); the above-mentioned technique for quarters of the 1st and 2nd degrees of destruction – "traditional materials in the decoration of courtyard surfaces" also remains relevant. Revalorization is a key restoring method for such quarters. It aims increasing the architectural, artistic and socio-cultural value of the historical urban environment (Marder et al., 1995) by rebuilding or marking lost iconic elements and introducing new compensatory ones to improve quality and eliminate unwanted gaps. Increasing the socio-cultural value will be effective by adapting abandoned buildings and open spaces in these quarters to new, relevant functions for today, thereby involving them in active, modern urban life. Adaptation involves providing new functions to ensure activity while preserving and restoring the building's historical architectural, planning, and construction system (planning, volumetric, spatial, and compositional integrity of the historical quarter), and introducing necessary compensatory new elements (Leshchenko, 2020).

For historical quarters of the 2nd degree of value, if they have the 1st and 2nd degrees of destruction (20%), it is possible to apply such methods as regeneration + revalorization (urban planning and building levels), and adaptation is also relevant to solve functional issues. The following techniques are recommended: "filling in the dissonant gaps within the quarter's composition" (urban planning level); "emphasis on historical color in new inserts" and

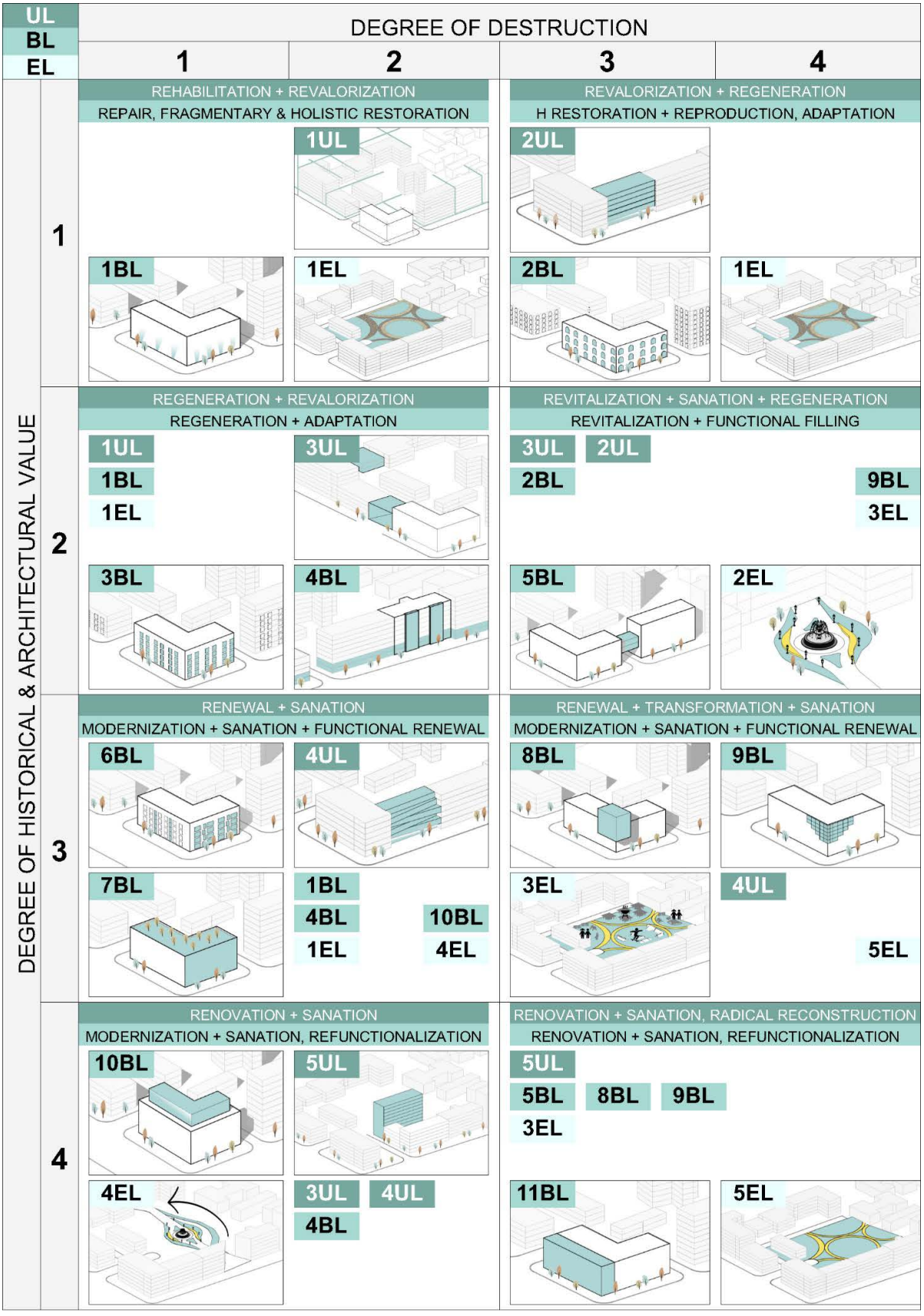

Figure 3. Theoretical model for rebuilding destroyed historical quarters (source: authors)

"following of historical facade parcelling" (building level). Also, these techniques can be additionally supplemented by the ones mentioned above for quarters of the 1st degree of value, namely: "emphasizing the quarter's historical parcellation"; "highlighting historical form with light"; and "traditional materials in the decoration of courtyard surfaces".

If historical quarters of the 2nd degree of value have the 3rd and 4th degree of destruction (12%), the following methods are relevant for their rebuilding: revitalization + sanation + regeneration (urban planning level); revitalization is also a key method for buildings; functional filling is appropriate for solving functional issues. Among the techniques, we highlighted the following: "adding a glass corridor connecting the buildings" (building level); "stylization of historical forms for new elements of courtyard design" (environmental design level). The techniques mentioned above for quarters of the 1st degree of value, namely: "nuanced addition with new volumes"; "imitation of historical forms and image" can supplement them. Also, two additional techniques may be relevant: "filling in the damaged parts with new materials in contrast" and "activating the courtyard by new sites with various functions".

For historical quarters of the 3rd degree of value, if they have the 1st and 2nd degrees of destruction (8%), it is possible to apply such methods as renewal + sanation (urban planning level); modernization + sanation (buildings level); to solve functional issues, functional renewal is relevant. We recommended using techniques such as "activation of a blank facade with new window openings", "green facades and roofs" (building level), and "contrast addition with new volumes" (urban planning level). These techniques can also be supplemented by the ones mentioned above for the 1st and 2nd value-degree quarters, namely: "highlighting historical form with light", "emphasis on historical colors in new inserts", and "traditional materials in the decoration of courtyard surfaces". Also, two additional techniques may be relevant: "shape shift, overhang," and "combining intra-quarter and external urban space through new pedestrian routes."

If historical quarters of the 3rd degree of value have the 3rd and 4th degrees of destruction (4%), the following methods are relevant for their rebuilding: renewal + transformation + sanation (urban planning level); also modernization + sanation (building level); to solve functional issues, functional renewal is also relevant. Practical techniques are: "accent superstructure", "filling in the damaged parts with new materials in contrast" (building level), "activating the courtyard by new sites with various functions" (environmental design level). In addition, "green courtyards" may also be relevant.

For historical quarters of the 4th degree of value, if they have the 1st and 2nd degrees of destruction (4%), it is possible to apply such methods as renovation + sanation (urban planning level); modernization + sanation, and renovation (building level); to solve functional issues, refunctionalization is relevant. Among the techniques we noted: "increasing the number of floors with the superstructure inside the quarter" (urban planning level), "shape shift, overhang", "new extensions on separate foundations" (building level), "combining intra-quarter and external urban space through new pedestrian routes" (environmental design level). These techniques can also be additionally supplemented by those mentioned above for quarters of the 2nd and 3rd value-degree: "filling in the dissonant gaps within the quarter's composition", "contrast addition with new volumes", "emphasis on historical colors in new inserts".

If historical quarters of the 4th degree of value have the 3rd and 4th degrees of destruction (4%), the following methods are relevant for their rebuilding: renovation + sanation + radical reconstruction (urban planning level); also, the combination of renovation + sanation will be applicable for buildings; refunctionalization will be relevant for solving functional issues. The techniques include: "new extensions on separate foundations" (building level) and "green courtyards" (environmental design level). We can also supplement these techniques with the ones mentioned above for quarters of the 2nd and 3rd value-degree: "adding a glass corridor connecting the buildings", "filling in the damaged parts with new materials in contrast", "accent superstructure", and "activating the courtyard by new sites with various functions".

The proposed theoretical model for rebuilding destroyed historical quarters focuses on balancing the preservation of authenticity, the adaptation to modern functions, and integration into the urban environment. We developed the model based on the analytics of Kyiv's historical quarters, but it can be adapted for other cities' quarters. It is the direction of further research. It will also be relevant to supplement the proposed techniques with newly synthesized ones in the future. Another discussion point could be to compare the proposed model's outcomes with those of other approaches to rebuilding similar historical quarters.

4.2. Concept of rebuilding the destroyed historical quarter in the Holosiivskyi district of Kyiv

We tested the proposed theoretical model on the concept for rebuilding a destroyed historical quarter in the Holosiivskyi district of Kyiv, at the corner of Zhylyanska and Skoropadskoho streets. Through the latter one, it borders the Shevchenkivskyi district. The territory comprises mainly mixed-storey residential buildings arranged around an internal courtyard, creating a semi-closed rectangular space. The number of storeys of the quarter's buildings is mostly 1–6 floors; however, a 27-storey office building, the 101 Tower business center, forms its western corner.

We have defined the quarter's building as having 2nd and 3rd degrees of historical-architectural value, and 3rd degrees of destruction. Currently, it is represented mainly by buildings from the second half of the 20th century. There are two destroyed historical buildings, as well as low-value buildings. During the full-scale war, as a result

Figure 4. Destroyed quarter on Skoropadskoho Street in Kyiv (source: authors)

of enemy shelling, a rocket directly hit the site. The damage severely affected two historical buildings that form the front of Skoropadskoho Street and led to the destruction of part of the quarter's spatial structure (Figure 4). The first historical building (on the left) was in use before the rocket hit, serving as a coffee and fitness centre. The second historical building (on the right) was not used at that time, lost its primary residential function, and gradually fell into disrepair. So, this is a case where the simultaneous quarter's destruction, superimposed on its temporal destruction, amplified negative effects. Therefore, while compensating for the consequences of simultaneous destruction, the causes of temporal destruction should also be investigated and eliminated.

The analytical study also revealed following problems: high degree of physical deterioration of existing buildings on Skoropadskoho Street and in the middle of the quarter; loss of quarter's compositional integrity; low quality of the courtyard environment; and the need to adapt some buildings and spaces to new functions relevant to this location, as well as modern requirements for energy efficiency and accessibility.

Therefore, the current task is to rebuild the quarter while preserving its historical parceling and morphology, integrating new elements into the context, as well as filling its buildings and spaces with new functions to ensure multifunctionality and quality of life. To this end, a combination of methods was used, such as sanation, revitalization, and renewal of destroyed buildings and courtyard area with maximum preservation of quarter structure, street lines, facade marks, dimensions, and scale, introduction of necessary new volumes and superstructures to existing ones, integration of pedestrian routes and spaces, and their landscaping. For historically valuable objects, we proposed their revitalization, holistic restoration, and renewal. Thermal modernisation – for existing buildings that are currently intact, but are of low historical-architectural value.

To rebuild the destroyed quarter, a combination of techniques was used, such as: "filling in the dissonant gaps within the quarter's composition", "imitation of historical forms and image", "following of historical facade parcellin", "green facades and roofs", and "shape shift, overhang" (Figure 5).

After the rebuilding of two destroyed historical buildings (through holistic restoration of preserved parts of their historical facades and renewal with add-ons, as well as their functional renewal), they will house an apartment-hotel and a creative center. In the eastern part of the quarter, we proposed erecting a new residential building after sanitizing the territory from the destroyed warehouse. We also proposed to preserve and strengthen the quarter's traditional multifunctionality. We supplemented the two main functions – residential and office – with new additional ones – commercial, service, cultural, and exhibition.

Regarding the functional-planning solutions for rebuilding two historical buildings from Skoropadskoho Street, on the ground floor of the first building (left part), a cafe, coworking space, and entrance area to an apartment-hotel are proposed. In the second building (right part) – a cafe, a shop, and an exhibition hall. On the upper floors of the first

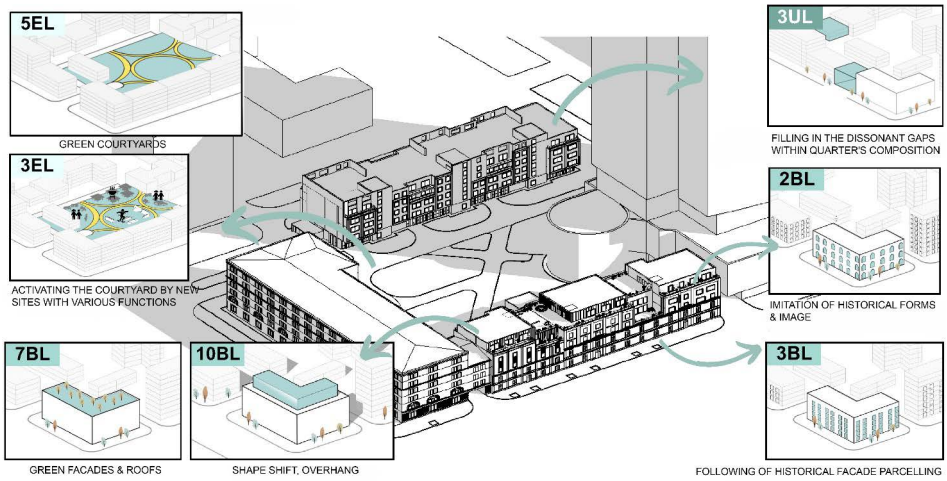

Figure 5. Techniques for the quarter's rebuilding (source: authors)

Figure 6. Rebuilding concept (source: authors)

building, we proposed placing the apartment-hotel rooms, along with a common area for residents, complete with a terrace. In the second building, on these floors, we proposed to place exhibition halls, coworking, creative workshops, and zones with variable functions.

The architectural-figurative solution of these buildings is a visual embodiment of the idea of restoration through supplementation – the preserved, authentic facade of the first two floors acts as the basis, above which new volumes appear. The lower floors' facade retains a brick texture with clearly defined pilasters and cornices. It is a historically valuable part, and we should restore it. The superstructure we proposed to implement in the form of rhythmically alternating modern volumes in predominantly light colors, which harmoniously contrast with the historical lower floors, without overloading the composition (Figure 6).

The proposed new compensatory building on the site of the destroyed warehouses is a five- to six-story apartment building with rooftop terraces. It will have commercial premises on the ground floor, as well as an entrance to an underground parking and shelter, which we partially located under the courtyard.

We considered the quarter's courtyard as the core of its social space. For its rebuilding, the techniques of "activating the courtyard by new sites with various functions" and "green courtyard" were used. We proposed to fill it with places for active and quiet recreation, well-equipped green areas. We also provided utility areas and a relief landscape with multiple functions. We hid the entrances to the shelter, located under the courtyard, inside artificial green hills. The space will become completely barrier-free. All proposed changes together will activate and enhance the quality of life in this place.

5. Conclusions

Therefore, when rebuilding historical quarters that bear traces of temporal, time-stretched, and simultaneous, instantaneous destruction, which have increased in Kyiv over the past three years, it is necessary to eliminate the causes of the first and the consequences of the second at the same time. The author's theoretical model can be an effective methodological tool for this. It interlinks into one whole the systemic levels of possible intervention, indicators of the initial situation of the studied quarters, various restorative and reconstructive methods, and also techniques, combinations of which are recommended for use in the rebuilding of a particular quarter, depending on the determined four degrees of destruction and historical-architectural value of its buildings and space, and solving the issue at three systemic levels – urban planning, building and environmental design. It allows for a comprehensive and holistic solution to the problem.

The classification of the studied quarters revealed their morphological and content features, which will supplement the determinant indicators in the methodology for rebuilding destroyed historical quarters of Kyiv. Similar studies will also be practical for other Ukrainian cities to create an analytical basis for solving similar problems with their existing buildings and spaces.

The presented concept for rebuilding the destroyed historical quarter in the Holosiivskyi district of Kyiv demonstrated the potential of the proposed theoretical model for future application. The architectural image and content of the quarter, with layering of simultaneous destruction on temporal, rebuilt, and updated according to such principles, is a synthesis of history and modernity, demonstrating delicate contextual but bold intervention in the historical environment. It is not only the restoration of the lost form and activity of the destroyed buildings and spaces in this quarter, but also the formation of a renewed urban environment as a whole, that remembers and moves forward.

It would also be interesting for further practical research to verify the effectiveness of applying the combinations of methods and techniques proposed in the author's theoretical model on other examples of destroyed quarters of Ukrainian cities, with other indicators of their initial situation, when creating concepts for their rebuilding.

Author contributions

Nellya Leshchenko conceived the study and is responsible for the proposed methodology and theoretical model for rebuilding destroyed historical quarters, as well as developing the conclusions. Anhelina Busel is accountable for data collection and the concept of rebuilding the destroyed historical quarter in the Holosiivskyi district of Kyiv. Nellya Leshchenko and Anhelina Busel are responsible for the proposed Figures.

Disclosure statement

Authors declare that they have not any competing financial, professional, or personal interests from other parties.

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