1. INTRODUCTION

Last decades saw modern shopping centers, also known as shopping malls, constructed in Kyiv, Kharkiv, Dnipro, Odesa and other major cities across Ukraine. This building type, as derived from foreign analogs and transplanted into Ukrainian conditions, was incredibly popular in the USA and Europe during the second half of 20th century [1, 2, 3]. Nowadays the interest in these, often literally gigantic complexes is declining, as noted upon in western professional literature [4, 5, 6]. Several causes are cited as reasons for this: an increase in online shopping (e-commerce), overestimated sizes and difficulties of orientation inside the building [7, 8, 9]. The signs of corresponding problems are beginning to show in Ukraine as well.

A number of western researchers not only ascertain the modern crisis of larger shopping centers but search and propose possible ways out of the current situation as well [8, 9]. The questions they ask are “What properties should a modern shopping center possess to sustain its attractiveness for visitors for a long time, despite changing conditions? How architects can influence this outcome? Where should they seek inspiration for that task?” An idea of considering local specifics, taking notes from regional traditions of urban environment formation in the process of shopping center design is showing itself to be one of the more promising and productive approaches. Therefore, it is deemed important to study the genesis and peculiarities of commercial structures and complexes on a local level from a historical perspective.
It is particularly relevant to the situation of Kharkiv, as one of the most prominent cultural, industrial and commercial centers of Ukraine. Commerce always played a leading part during its more than 350 years of history, influencing its urban development and activities, the architectural image of its streets and squares.

One of the still unsolved fragments of Kharkiv’s architectural history is the Old Arcade – one of the first commercial buildings of its kind on the territory of modern Ukraine, opened in 1875 and irrevocably damaged during the years of World War II. Its surviving textual and visual descriptions are very fragmented because the Old Arcade was built in the body
of the existing city block, the so-called “Bolshoy Korpus” (“Big Block”), practically situated inside of it (Fig. 1). Another possible reason why original drawings did not survive was the fact that the Arcade was created in the process of reconstruction of the city block, which was carried out by the “Kolodyazhny&Son” company. I.F.Kolodyazhny was a professional builder and an engineer [10]. Having considerable experience in his field, he was employing common building techniques known at the time, probably utilizing typical (“exemplary”) design projects, not always having the need for drawings or creating them for exclusive inside use. Meanwhile, as it was discovered in the process of study, the Old Arcade was reconstructed after the large fire in 1893 by design of another author, namely engineer-architect D. Tchernenko.

The paper aims at reconstruction of the architectural appearance of the Old Arcade, to reveal the specifics of its spatial structure and the causes for its decades-long popularity among the inhabitants of Kharkiv.

Methods of the study are based on an analysis of textual (articles, books, guidebooks) and visual documents, namely old maps, newsreels, photos and postcards dating from the end of the 1870s to the beginning of the 1940s. These visual sources, numbering 42 examples, show the central part of the city and contain depictions, often partial and from different angles, of the Old Arcade of Kharkiv [11, 12, 13]. Said fragments contributed to forming the holistic hypothesis on the facades of the lost building, not unlike the puzzle pieces falling into place, revealing the picture. The authors of this paper conducted an on-site survey of surviving buildings from the end of 19th century to verify the result. Methods also included comparing the hypothesis with existing studies of urban development of the end of 19th century. This allowed to define the structural specifics of the studied building and to reconstruct the hypothetic spatial model of the Old Arcade with greater precision.

2. MAIN PART

The period from the middle of 19th century until the beginning of 20th century is characterized by significant changes in architectural and construction field. Due to the use of new construction materials, especially metal construction elements, the method of natural lighting of inner spaces by skylights has become available. The trend of shops becoming larger has led to the appearance of new types of commercial structures around the world – these being department stores and shopping arcades.

Kharkiv was influenced by universal trends as well, for it was a center of province and a part of the Russian Empire at the time, as well as an important railroad junction, located at the intersection of commercial routes [14, 15].

2.1. Hypothesis on the spatial organization of the Old Arcade

The first (or the Old, as it was called later) Arcade was opened in 1875. Its owner was a merchant and a significant landowner from Kharkiv, V. Paschenko-Tryapkin. Starting from the mid-1850s he purchased all buildings on the city block with an area of 3040 square sazhens (equal to 13831 square meters), situated in the most prestigious location of downtown where the city was founded about two hundred years ago [16]. The city block was adjacent to Svyato-Pokrovsky Monastery (Monastery of Holy Intercession), facing University Street and the Cathedral Square that was decorated by a giant (about 89.5 m in height) bell-tower of Uspensky (Dormition) Cathedral, the main sacral building of the city. The site was situated on the slope along Kupcheshky (Mercants) Descent, later renamed to Paschenko Descent, and was limited by Klokhkovskaya Street at its lower western side. It was covered by structures of different height and function, among them commercial, which formerly belonged to other known merchant families. V. Paschenko-Tryapkin had undertaken a massive reconstruction of the city block while taking its active landscape into account. The houses of better quality were preserved without change, while many structures were rebuilt or replaced. The literature of the beginning of 20th century remarked that buildings during said reconstruction were “constructed solidly and rather beautifully, by plans and under supervision of father and son Kolodyazhny” [16]. In 1858, the so-called “Jewish Rows” opened on the city block, “with the multitude of wholesale and retail stores selling all kinds of goods” [17]. In time, the entire city block was transformed into a kind of multifunctional complex, earning its name of “Big Block”. Stores and small consumer service enterprises with storage and utility spaces were concentrated on the ground level of buildings, situated in steps along Merchants Descent following its landscape. The hotel with restaurant, Jewish prayer house, lodgings for rent, as well as separate apartments were situated above [10].

The highlight of the whole complex was the Arcade,
with its magnificent haberdashery stores – a favorite place for the public to visit” as an eyewitness wrote in 1901 [17]. According to documentary evidence, it opened in 1875. Arcade was unusual in its architecture, memorable for its high gable roof structure, with metal elements bearing prolonged glass skylight, allowing the natural light into its galleries (Fig. 2, Fig. 3). This site in Kharkiv was described in...
“Passenger’s companion on the southeastern railways” of 1900 the following way: “The hanging iron bridge connects the hill above Merchants Descent to the Arcade, the largest four-story building, which opens to University Street with its opposite side. The buildings of the University are situated on the same street… while close by there is Uspensky Cathedral and the massive building of government offices… To the left of the cathedral, as University Street continues, it is flanked by the best stores with silver, gold, draper’s...
and haberdashery merchandise, as well as a separate wholesale cloth row” [18].

How, then, the Arcade was built in the body of the existing city block? The only universally accepted version to this time was published by a famous scholar of Kharkiv’s architecture A. Leibfreid, claiming that “the Arcade was situated in the south-eastern corner of the block. Its gallery consisted of two segments, conjoined at a right angle”. He also insisted that the Arcade had two entrances: one facing University Street, located at its sidewalk level, while the other was opening at Merchants Descent at the height of the third floor due to landscape elevation difference, and thus connected with the pedestrian alley of University Hil across the Descent via a metal hanging bridge [10].

However, according to the hypothesis presented by this paper, the Old Arcade had a more complex and interesting form while having undergone at least one reconstruction. An analysis of photos taken before the October Revolution of 1917, as well as photos from World War II revealing half-destroyed structural elements, allows authors of this paper to state that there existed another segment of gallery on the third floor, parallel to Merchants Descent (Fig. 3, Fig. 4).

This segment had a third entrance at its end with an interior stairway leading from the lower part of Merchants Descent to the level of the main gallery and higher, probably reaching utility rooms on the fourth floor (Fig. 4).

Why had that part of the gallery remained largely unmentioned? It is probably due to the fact that both A. Leibfreid and later authors based their study upon the more famous documental descriptions of the Arcade from the time of its opening. In the course of the first 18 years of its functioning, before it had been damaged in the fire, it indeed had only two perpendicular segments of the gallery serving as a passage through the “Big Block” to the University Hil. The map of Kharkiv dating 1916 depicted the Arcade as a two-part passage through the body of the block, which also could have influenced the previous understanding of the structure of the Old Arcade (Fig. 5). The later third segment of the gallery could have been perceived as a dead-end in a way; it could not have been displayed as a “street” because its additional entrance was through the interior stairway at the far side of the Arcade. As the study found out, this third segment culminated in a large panoramic window in the westernmost wall of the building,

**Figure 5.**
Fragment of the map of Kharkiv, 1916 (depiction of Arcade as a street is highlighted) [13]
opening into a breathtaking vista overlooking Blagoveschensky (Good News) Cathedral across the river Lopan. Another window illuminating the stairway opened into a balcony facing Sergievsky Square below the University Hill.

When did this third segment of the gallery and its corresponding entrance appear? “Youzhny Kray” (“Southern Region”) journal wrote the following in 1893: “The Arcade of Mr. Paschenko-Tryapkin was rearranged for the better in the aftermath of the fire. While the work on all burnt places is not yet completed, the main gallery that housed stores before the fire is already finished and presents itself as the most beautiful structure comprised of a row of luxurious shop windows with the roof of glass above. Therefore the former darkness in most parts of this gallery is now replaced with an abundant light” [19]. It gives evidence that the Arcade did not have a skylight before reconstruction.

2.2. Hypothesis on the construction system of the Old Arcade

Authors analyzed pre-revolutionary images of Kharkiv’s city center (namely, postcards, guidebooks, books and any other materials containing fragmented depictions of a studied object) as well as the photos from 1941–1943 (showing the ruins of “Big Block”) with the aim of reconstructing the Old Arcade’s structural system. Results of the analysis testify that the building of the Old Arcade was of brick masonry with plastered façades. However, one of the older photographs shows part of an upper floor of Merchants Descent façade as being different from adjacent walls by color and texture (Fig. 6). It has become evident that the wall in question was constructed from timber. The later photographs showed this entire façade as plastered brickwork. It gives reason for authors of this paper to state that the Old Arcade was of mixed brick and timber construction.

The timber construction was characteristic for Kharkiv from its founding in 1656. Only the singular most important structures in the city were erected with the use of stone and brick masonry, namely churches, some administrative and educational establishments as well as houses of the richest and most prominent citizens. While the number of these structures increased with time, wood remained the most accessible construction material. The comparably high cost of brick masonry in 19th century determined the spread of mixed construction in different combinations of brick and timber. A practice was employed to veneer existing sturdy wooden houses with brick walls in order to improve their fire safety and to make them look more representative, for such structures were indistinguishable from more expensive brickwork analogs. Often the walls of the ground floor were made of bricks, while the walls of the second and the third floor were made of wooden logs or bars, usually plastered on the outside. This building practice was common for the Russian Empire in 19th century due to the image of provincial towns at the time being defined by projects of “exemplary” (recommended for construction) façades of residential and public buildings [20]. Almost all of these “exemplary” façades series included designs for mixed brick and timber houses [21].

The fact that the owner of the Arcade was an accomplished merchant also speaks in favor of the mixed construction of the building. By purchasing the real estate of the entire city block and financing its subsequent reconstruction, he primarily expected to gain a substantial return on his investments from rent. Therefore, V. Paschenko-Tryapkin had to approach the choice of building materials with corresponding care and frugality. The study of buildings in other provincial towns of the Russian Empire of 19th century also confirms this hypothesis [21]: specifically, that merchant and bourgeois classes, comprising the middle class of the urban community, often used the mixed brick and timber construction scheme while building their own houses, favoring cost before quality. Meanwhile, the aforementioned photograph of the Old Arcade with the darker wall section captured the moment of reconstruction in 1893, when the facing of the façade of the third segment was not yet complete.
It can be assumed that the floor structure corresponds to the construction methods and technologies of the time, being analogous to the corresponding structure of similar buildings in other provincial towns of the Russian Empire. The interfloor structure was traditionally supported by wooden beams of half-cut logs or bars with a diameter reaching 50 cm and length of up to 10 m. The two-layered structures were also employed as two layers laid upon the ceiling beams and floor beams with a ventilated gap between them. The wooden floor structure of the attic was practically the same as those of the lower floors. The rafter construction system for the residential and public buildings at the time consisted of rafters made of logs of different diameters supported by both exterior walls and interior posts [22]. The roof of the Arcade probably combined wooden rafters of this type over the stores with the transparent ribbed skylight made of metal profiles that was supported by the walls of the gallery below.

2.3. Hypothesis on the stylistic solution of the Old Arcade

The second part of 19th century and the beginning of 20th century were the time of change for the architec-
ture of the Russian Empire – when eclecticism and early Art Nouveau replaced the style of late classicism. Due to the growth of the urban population, apartment houses with shops on the ground floor and rooms for rent above were actively constructed. The monotony of the architectural image widely presented in architecture of the 1830–1890s was most apparent in these buildings. As noted by researchers [21], the large part of mixed urban development was based on the projects designed by specialists far from a professional architectural education, sometimes even the owners of the houses themselves. This meant that the image of buildings bore an imprint of vernacular architecture, transformed under the influence of architectural styles existing at the time. The architecture of mixed brick and timber apartment houses was eclectic at the studied period. The ground floor was often designed under the inspiration of classicism, while upper floors were influenced by one of the historic styles or decorated with some Art Nouveau elements.

The “Big Block” wherein the Arcade was built, largely consisted of houses of the aforementioned type. Its facades were influenced by “exemplary” projects. Meanwhile, the Arcade itself had its specifics. The monotonous rows of windows were framed by casings without pediments and frontons, while the bands of floor cornices were interrupted only at the asymmetrically located entrances to the gallery. At these places, the most elaborate décor was concentrated. Rusticated pilasters, a keystone and an attic decorated the two-story portal on University Street (Fig. 7). This portal was completed in 1875 according to the authors’ hypothesis. The study also points that two other portals facing the Merchants Descent were added later, during the reconstruction in 1893 (Fig. 8). They seemed to be repeating the main portal at first glance; however, they were rather different in details (Fig. 9). There, the rusticated pilasters were used for the décor of two lower levels only. Meanwhile, flutes bestowed elegance to pilasters of the upper levels, and the curve of the arch brought motives of early Art Nouveau to mind. The form of the metal balcony railing refers to the same source of inspiration. Similar railings can still be seen on Kharkiv’s buildings dating to that time (Fig. 10). The two portals facing Merchants Descent had different width. The narrow one was limited by the size of the existing metal bridge above Merchant Descent. The wider one can be explained by the presence of a wide interior stairway at the westernmost part of the building, connecting ground level to the main gallery three levels above.

This very particular “multilevel shopping center on a complex landscape”, as we would have defined it today, existed until the 1940s when it was destroyed.

Figure 9. Comparison of two portals of the Old Arcade facing Merchants Descent (left) and University Street (right). Own work, based on the analysis of original photographs, postcards, text descriptions of the end of 19th and the beginning of 20th centuries.
in the course of World War II. Its evident success motivated other merchants to create similar buildings, namely department stores and shopping arcades, in adjacent towns. Thus, merchant I. Kuleshov, impressed by an example from Kharkiv, constructed a department store (called an “arcade” at the time) in the downtown of Sumy at the beginning of 20th century [23].

What had ensured the decades-long attractiveness of the “Old Arcade” for citizens and guests of Kharkiv? Certainly, a rich palette of retail merchandise, including luxury items, being concentrated in one place, played its part, as well as a multifunctional nature of the entire shopping complex of “Big Block”, capable of satisfying the multitude of consumer service needs of its visitors. However, the architectural and urban advantages of the Arcade were no less important for its success. It ingrained itself into the structure of existing downtown in an organic manner, preserving and adding to the ways of activity previously specific to the block. Thus the Old Arcade enriched urban life with new events, filled urban space with unusual impressions and emotions due to it been masterfully integrated with favorite pedestrian routes of Kharkiv’s inhabitants. Its main eastern entrance was facing the administrative and commercial center of the city, where the Noble Assembly and Guests’ Court were situated. To enter the building from the south, one would cross the metal bridge over Merchants Descent, connecting the Arcade with University Hill, a popular place of public festivities at the time, where an impressive view opened to the western part of the city [24]. Its lower entrance was linked to the commercial Sergievskaya Square, to the riverfront promenade as well as to the bridge leading to Blagoveschensky Market and Blagoveschensky Cathedral. To pass the sunlit Arcade with its unusual transparent roof, gazing at the splendid storefronts on both sides, to witness striking Kharkiv landscapes through enormous oval windows reaching the floor, to rise then above Descent atop the delicate metal bridge, where loaded carts and pedestrians scurry below – and, finally, to reach the edge of University Hill with its magnificent urban views… It must have been impressive indeed.

3. CONCLUSIONS

1. The active construction of the “Big Block”, eventually including the structure of the Old Arcade, took place from the middle of the 1850s, when V. Paschenko-Tryapkin purchased the first buildings, to the middle of the 1890s. The study established that in the course of the “Big Block” development, its owner financed its constant transformations, improving and modernizing its spatial structure as well as its architectural image. Constant monitoring of contemporary trends (including architectural and spatial novelties) and their introduction in his property greatly contributed to the popularity of the Arcade among townspeople.

2. The architecture of the Old Arcade formed in two stages. The first stage is its initial construction and opening in 1875. At this stage, the rather unusual spatial and urbanistic idea was realized, distinguishing Kharkiv’s arcade from others of its kind. The first shopping arcades usually consisted of a direct passage or a gallery under a glass roof, connecting two parallel streets and flanked by stores (e.g. the Passage in St-Petersburg that opened in 1848, located between Nevsky Prospect and Italian Street). However, the city block purchased by V. Paschenko-Tryapkin was useless in that regard, for it was impassable, being situated on the steep slope, adjacent to Svyato-Pokrovsky monastery with one of its longer sides. Nevertheless, the owner and his hired engineers showed significant resourcefulness, turning disadvantages of the place in its favor. The gallery went far into the body of the block along the monastery grounds and then turned at the right angle, opening to the Merchants Descent façade at the height of the third floor. The original construction of the metal bridge above Descent connected Arcade with an alley of University Hill. This allowed to enrich existing popular pedestrian promenade with new
events, impressions and emotions while filling the inner space of the block with commercial activity. Still, the lack of natural lighting was the disadvantage of the gallery at the time.

The second stage is the reconstruction of the Arcade in 1893, which included significant changes, adding the transparent metal construction of skylight, the third segment of the gallery with entrance from the lower part of Merchants Descent by way of Sergievskaya Square, as well as the interior metal stairway leading to it. The Merchants Descent façade of the Arcade was improved by the addition of two representative portals, one above the pedestrian bridge and the other denoting a new entrance close to Klochkovskaya Street. A metal balcony was located above the portal of this new entrance. In addition, a new large window was placed at the westernmost side of the building overlooking the river Lopan and Blagoveschensky Cathedral.

The building also had an opening at the ground level allowing passage from Merchants Descent into the inner yard where the merchandise for stores of the Arcade as well as for other shops of “Big Block” were unloaded. A loading ramp was constructed in this inner yard to facilitate the unloading process.

3. The Old Arcade was constructed of mixed materials, both brick and timber. The basement and the ground floor were of brick masonry, while the upper floors (or, at least, some sections of them) were wooden, only veneered by brickwork. All the facades were plastered. Other structures of the “Big Block” were of mixed construction as well, which was the main cause of the total destruction of the city block during WWII.

4. The Old Arcade was eclectic in architecture, like most buildings of its period. Both its facades stood out in the row of adjacent buildings as that of a distinct separate structure. All three entrances situated at different levels served as visual markers of the Arcade, immediately distinguishable by virtue of their size, rich architectural décor and the advertisements adorning them. The large panoramic windows served a similar role as well.

5. The peculiarity of uncommon architectural, spatial and urbanistic solutions of the “Old Arcade” as well as its integration into the system of pedestrian routes and recreational spaces of downtown has turned it into a prominent and memorable landmark of the city, significantly raising its attractiveness for the inhabitants and guests of Kharkiv alike. Principles that were refined during the creation and reconstruction of the Old Arcade have not lost their relevance today and may serve as useful lessons for modern architects. Some of them are listed below.

- Masterful integration of the Old Arcade into the existing residential and commercial city block in downtown, as well as the full use of spatial and functional potential of the site in order to attract visitors.
- The prominent part that natural landscape and its existing possibilities played in urban and architectural solutions of the building, enhancing interior and exterior of the Old Arcade by inclusion of the most spectacular urban views.
- Integration of the building into existing pedestrian system of downtown, leading to activation and enrichment of the latter by new events and impressions; the accessibility of the Old Arcade from different directions and height levels in accordance to pedestrian flow on adjacent streets and the complex landscape of its site.
- Continuous spatial, functional, stylistic and structural improvement of the Old Arcade in accordance with modern trends in corresponding fields.
- Intriguing internal organization of the building utilizing novel for its time overhead lighting by skylight, as well as careful consideration of aesthetic decoration of interiors.

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