

## RESEARCH, PROTECTION, AND POSSIBILITIES OF RE-USE OF POST-WAR INDUSTRIAL HERITAGE IN THE CZECH REPUBLIC

LENKA POPELOVÁ\*, TOMÁŠ ŠENBERGER, TOMÁŠ ČUNDERLÍK,  
MARTIN LAPŠANSKÝ

Czech Technical University in Prague, Faculty of Civil Engineering, Thákurova 7/2077, 166 29 Praha 6 – Dejvice, Czech Republic

\* corresponding author: lenka.popelova@fsv.cvut.cz

**ABSTRACT.** Buildings of an industrial nature dated from the 1950s through '80s are often quite interesting from the standpoint of typology, architecture and technology, and correspond to the development of technological industrial efforts of that era. Still, they sit on the periphery of professional interest, in both the Czech Republic and abroad. The topic of industrial architecture which existed by the 1950s is already positioned in the professional spheres on the research and protection of industrial heritage, as well as the methodological development of industrial heritage. Industrial archaeology usually deals only with the industrialization period, and at the same time is difficult for contemporary researchers to postpone the debate forward. Our contemporary research thus plays very important role in evaluation of a typical and atypical examples of industrial buildings of that time. We continually lose many iconic buildings as well as a strata of historical culture as efforts are ongoing to determine both the ways we can protect this portion of industrial heritage and detail the problems that emerge in efforts to reuse it.

**KEYWORDS:** Industrial heritage, post-war architecture, re-use strategies.

### 1. INTRODUCTION

The situation in a former “socialist block” is complicated also due to a bias that is unwarranted among the professional public that stems in part from the context so closely connected with an authoritarian socialist period of these buildings, and also even their lack of acceptance of industrial heritage within the commonly evaluated typologies. In 2017 discussion on protection of post-war architecture was started by an independent group of researchers as part of the Working Group for Post-War Architecture connected to the ICOMOS Czech Committee. They published the first systematic inventory, of the prominent architectural works [1], which comprises various sections: cultural monuments, buildings considered for protection, adaptations, devastating adaptations, buildings under demolition. Also in 2021 it is still topical and is under revision. It is sorted according to typology and it included approximately 14<sup>1</sup> industrial cultural monuments, which are mainly connected with mining, hydraulic and railway structures. An output was a text sent to the Czech Ministry of Culture *Ideas for Cultural Monuments*, containing an inventory of architecturally interesting buildings [2] mainly of '60s and '70s. But again with the minimum number of industrial buildings. From the perspective of developing of typological/standardized solutions in general, the topic was dealt at that time also by Jan Zikmund from the Research Centre of Industrial Heritage of the Faculty of Architecture of the CTU in Prague [3].

<sup>1</sup>Information differs source by source.

For a contemporary research there are also important results of research carried out by the National and Cultural Identity project (NAKI II, finished 2020), Presentation of values of 1960 and 1970s as part of the national and cultural identity of the Czech Republic<sup>2</sup> [4]. The main result of this research was an implementation of a National Heritage/Monuments Catalogue and so called Inventory (an inventory of buildings not protected but of interest for monument conservation). Some entries in both databases have been updated with industrial buildings from the 1960s–1980s [5] – we can find there some exceptional administrative buildings, some telecommunication premises (now at high risk of demolition), bridges, railway stations, and water management structures, power plants (Dukovany nuclear power plant), glassworks, rubber factories, heating plants and other technical services premises were also mapped. This inhomogeneous sample was not further analysed but it can serve as a good review for the future research.

What is important is that in a published Methodology [6] were described architectural qualities and general values of architecture of that time, which could serve also for evaluating industrial heritage. It would follow a general methodology on industrial buildings published by Matěj and Ryšková [7].

Two published monographs [8] on buildings which were for long time under risk of demolition, were part

<sup>2</sup>It was implemented in 2016–2020 by the Department of Architecture, Faculty of Civil Engineering, CTU in Prague (hereinafter as FCE, CTU in Prague), and conducted by the National Heritage Institute.



FIGURE 1. Ostrava-Vítkovice railway station.

of a mentioned grant NAKI II. The first one described Ostrava-Vítkovice railway station causa (see Figure 1). One of the chapters compiled at FSv CTU in Prague defines in detail possible approaches regarding the re-purposing of railway buildings which range from minor to major changes, and from single purpose to those with a wider variety of function. In the Czech heritage care these possibilities have not been sufficiently formulated yet even in mentioned methodologies. Oral history sources were very important within this research.

A second book dealt with Transgas company's Central Dispatching Centre of Transit Pipelines [9], a very notable structure made in the style of New Brutalism, which was situated in the historical Prague centre. It has been recently demolished despite protests and replaced by a new development (see Figure 2).

These two examples can be also used to formulate specific research procedures (modern imaging or mentioned oral history methods which would bring a very vivid information on particular buildings). They also helped to formulate more precisely the main values that need to be defined and protected in connection with the post-war industrial heritage (the urban planning context within industrial agglomerations must be taken into an account, but also the transnational overlap of infrastructure, e.g. Transgas and the importance of typological design and technical innovations). They have demonstrated that these buildings do not significantly outperform examples from abroad – instead, they are well-informed representatives. As we have already stated, they also defined the potential of new use or re-use, which was completely ignored in the case of the Transgas complex, for example (re-purposing towards becoming part of the famous Pompidou Centre).

Within the mentioned NAKI project, Lenka Popelová published an article on the importance of architectural competitions in the development of individual typologies and forms, and Tomáš Šenberger published a paper on the construction of post-war Czechoslovak industry [10]. Some initial findings



FIGURE 2. Demolition of Transgas complex.

were published in the publication *Industrial heritage – recording, research, protection, re-use* also [11].

## 2. ARCHITECTURAL COMPETITIONS FOR INDUSTRIAL BUILDINGS AND DEVELOPMENT OF TYPOLOGY

A rather specific issue is an area in which the research deals, which is a promising topic of sorting opinions on typological solutions: competitions. The 1960s saw a significant increase in competitions, which were methodically launched across most typologies, and published in contemporary professional publications (for example *Architektura ČSR/ČSSR* and *Československý architekt* journals, which included a special edition organised by the Union of Architects) [12, 13]. It was an opportunity for investors to acquire a valued or at least interesting project within the somewhat typically rather homogeneous sphere typical of socialist building planning institutes. But there were rather few competitions available for industrial buildings, and only three were studied in detail, and thus research is still ongoing for this track.

## 3. ARCHITECTURE MINE AND HAVÍŘOV RAILWAY STATION: THE PUBLIC AND ITS VOICE IN SAVING INDUSTRIAL HERITAGE

As the research is only academic, it would have a real impact also. Thus, it also deals with re-use strategies. Conservation is not the sole method possible for preservation. It is rather unambiguous in today's debate that it quite often fails. Examples include issues surrounding a new purpose for Vítkovice railway station, and Transgas. Therefore, the topics for new research must include all possible methods towards protection of key buildings, and should then be utilized in practice. Re-use projects involving industrial buildings are an integral part of the effort to preserve the legacy of our recent history.

An author of the railway station building in Havířov is architect Josef Hrejsemnou. The building was completed in 1969 and became an important represen-

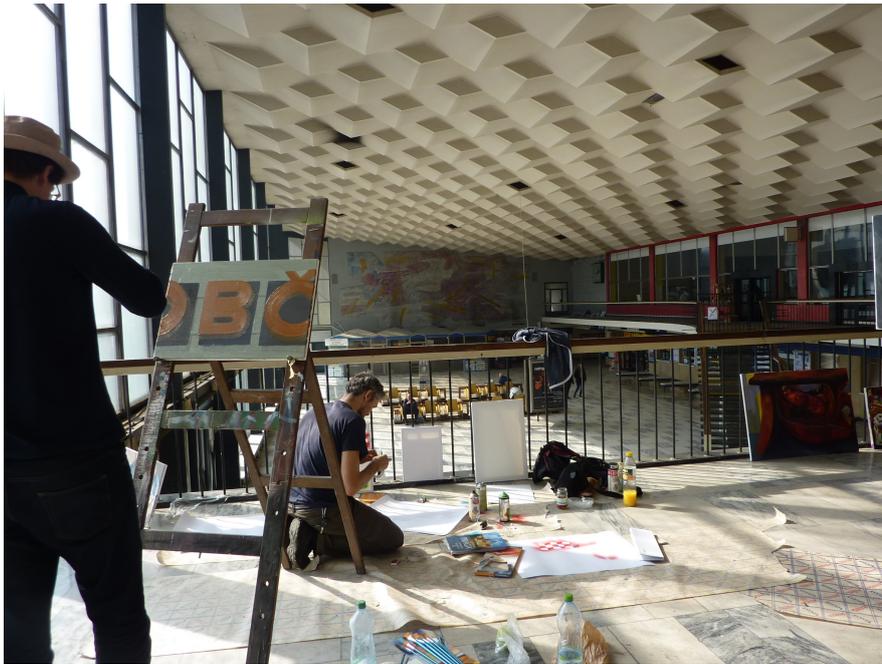


FIGURE 3. Workshop at Havířov railway station.

tative of the 1960s Brussels style architecture. The station's passenger building, which is decorated by artworks from Vladimír Kopecký and Václav Uruba, was integrated into the fabric of the city and became part of the everyday life of its residents. For many years it served its purpose bringing a unique experience to many passengers. The lack of care for the building and its surroundings, together with the high energy consumption of the premises of generous dimensions, resulted in the proposal to rebuild the railway and bus transport hub. The selected design no longer factored in the iconic construction of the passenger hall. Underestimation of the values of the existing building, inappropriate design concept, a lack of discussion among the public, as well as architectural competitions contributed to the coalescing of a movement of experts and activists in an attempt to save the passenger building of the station.

The representing voice of this initiative is the Důl architektury (Architecture Mine) association, which aims to save Havířov railway station by showing and defining the values of Brussels style featured at this station. As part of their activities, the initiators have reached out to the professional community and the general public and, through various station-related activities, have opened up a discussion on key topics such as heritage conservation, urban development, and a lack of balance in decision-making on architectural values. The proposal to designate the station's passenger building as a cultural monument has slowed down a plan for its renovation. The association has put together a number of activities within the structure for a variety of visitor groups. Among these are guided tours, discussions, film screenings, concerts, performances, theatre, a minimalist café, artist resi-

dencies, and the subsequent presentation of their work at the railway station site (see Figure 3).

At initiative of Důl architektury, students were asked to create projects showing the concepts different from the planned official project. All these activities provided valuable and stimulating experiences for the visitors. The different uses, outlined in the form of simple interventions highlighting the unique features of the site, triggered the interest of the general public. The support by the professional community of conservationists, architects, and historians was combined with a new public demand for the preservation of the station's passenger building. In 2014, it was finally and ultimately decided that the railway station building in Havířov would not be listed as a cultural monument.

However, thanks to the change of atmosphere, the Railway Infrastructure Administration and the city administration together decided to abandon the original redevelopment plan. Later, the project was reworked and as a result now, the original building is now undergoing a large-scale reconstruction, which will serve both the original and new functions. "The station Is Alive" motto accurately describes the association activities. An event reaching out to passers-by, a café fulfilling an originally missing function, that is, making an unused space accessible, a projection or a concert outlining new possibilities for its use, to name just a few of simple interventions the association used to engage the professional and general public. Through this effort there has been significant support for the preservation of the passenger building. And thus, it has for the time being been preserved, and an opportunity has been created to consider options on how it will evolve into a new function.

#### 4. ONE SELECTED TYPOLOGY: FORGOTTEN BUILDINGS FOR TELECOMMUNICATIONS BUILT BETWEEN 1948-1989 AND THEIR RE-USE

Another topic which was studied in detail were telecommunication buildings. Especially in Prague, telecommunication buildings, affiliated in most cases with post offices, were built until the first half of the 20<sup>th</sup> century in a functionalist style. However, with a growing number of telecommunications users, the post office premises were no longer sufficient, calling for the need to build separate telephone exchange buildings, the designs of which were responding to technological developments and innovations, the space requirements of the operations and, in particular, the problem of dissipation of waste operational heat, which used to cause overheating of the buildings. Communications buildings offered up completely new, unexplored possibilities for design approaches; they often served as experiments where not everything worked at first.

The State Project Institute of Communications (SPOJPROJEKT) was tasked with the design of these buildings, which, according to a resolution of the Communist Party of Czechoslovakia, was supposed to build the infrastructure for five million telephone stations by 1980 (in the 1950s the number of users was only 300 000). The priority was the construction of the Central Telecommunications Building, which was to become the main domestic and international telecommunication hub (later designed by the authors of the Czech pavilion at EXPO 58 in Brussels, F. Cubr, J. Hrubý, Z. Pokorný).

The construction of a network of transit and local telephone exchanges in places of need became one of the state interests; the socialist regime saw it as an opportunity to “catch up with the West”. Phone line installation was also one of the strategic needs of the military objectives. Local telephone exchanges were built in larger communities with a defined need of phone line installation, whereas politics also played a role in the location of actual exchanges (for example, Automatic Telephone Exchange in Prague-Dejvice was built in this location for a reason – precisely because of the large concentration of Communist bosses in this neighbourhood).

The actual archetype of the phone exchange was based on a high-tech architecture idea – a house-machine [14–16]. This western trend in architecture impressed the architects from Spojprojekt; they were inspired by the works of James Stirling, Richard Rogers, Archigram, etc. However, the development of these buildings is best depicted by the example of the then largest telephone exchange in the world – London’s Mondial House, whose designed technology during its eight-year construction had aged so much that it had to be completely replaced before its grand



FIGURE 4. Telecommunications building in Hradec Králové.

opening.

The basic division of exchanges in terms of their importance is constituted by the central telecommunication building followed by transit exchanges, which used to connect small local exchanges with this main central telecommunication building. Transit telephone exchanges (TTE) can be seen, for example, in Hradec Králové and Ostrava (designed by Spojprojekt architects – Loos, Malátek, Eusanreich & Aulický) or in Ústí nad Labem (designed by architects Šmolík, Vlčková, Růžičková). Transit telephone exchanges housed, among other things, local exchanges; this is well illustrated by the building of the TTE in Hradec Králové, where the architects visibly differentiated the individual operations in the main cascading mass of technological halls (see Figure 4). The building contains three types of internal operations, the first of which is purely administrative and was supposed to ensure smooth operation of the telephone exchanges in terms of human resources. These are offices, entrance areas, an enterprise’s canteen, a meeting room, and a cafeteria.

A second operation is technological; it served as a support for the main operations and features equipment and premises such as workshops for maintenance workers, cooling technology, backup generators, sanitary facilities, and storage areas.

The largest area was occupied by the remaining type of operations, that is, the actual telephone exchange technology, analogue communications devices.

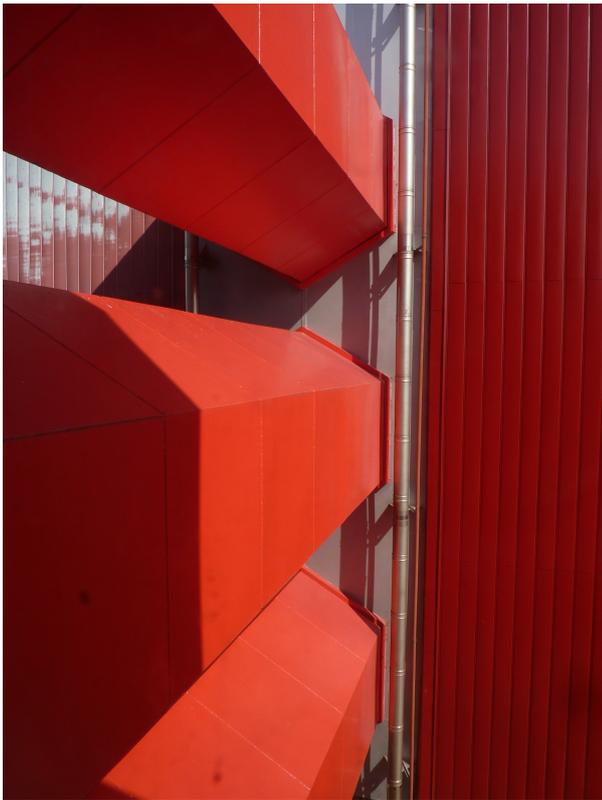


FIGURE 5. Telecommunications building in Hradec Králové in detail.

As already mentioned, this technology was very demanding in terms of cooling requirements, and this problem was also reflected in the architecture of the telephone exchanges themselves; in addition to the internal layout, the overheating solution was also reflected in the façade. The classic thermally insulating Boletice style façade was preceded by the so-called “radiation envelope”, that is, a double façade with mechanical shutters that could be used to regulate air circulation thus helping to dissipate heat from the building.

Another characteristic feature of the telephone exchanges designed by the Loos, Malátek, Eisanreich & Aulický team is octagonal windows with a distinctive jamb. The shape of windows was to allow the smooth flow of hot air and the overlap of the jamb to allow ventilation of administrative offices without drawing in waste hot air. These elements became typical for the telephone exchanges designed by these four architects from Spojprojekt.

Telecommunications infrastructure was a priority for the socialist state (in its efforts to match the technologies of the West), and so this type of building was not subject to so-called typification. However, the architects Loos, Malátek, Eisanreich & Aulický authored a manual for these buildings, which were mainly repeated in smaller towns and included the already mentioned elements of radiation facade, window shape, colour, or connecting bridges of the administrative offices and halls with analogue communications

devices in the form of three large-diameter tubes (see Figure 5). According to this typification manual, the exchanges buildings in Teplice, Kralupy nad Vltavou, Mladá Boleslav and Česká Lípa, for example, were built.

Telecommunications buildings have served their function for only a few decades, which is an unusually a short period of time in architecture. In particular, their technology was very expensive for the time, and also, great emphasis was placed on the buildings’ aesthetics and functionality. Therefore, it is even more unfortunate that the buildings for telecommunications are deteriorating; due to technological advances in telecommunications, the buildings have lost their original purpose and the question that our generation will need to solve is how to deal with this architectural heritage of unique buildings with a specific aesthetic.

A majority of these buildings, of which there are more than two dozen in the country, is essentially a large hall without windows, so it is very difficult to adapt these spaces for human use. This was done, for example, in Hradec Králové, where the Transit Telephone Exchange was given a long horizontal windows on its façade, thanks to which the halls can be used for administration. Although the windows has disturbed the original technicist expression, it has preserved the building and we do not have to worry about the building’s fate. It is also one of the few buildings to retain its original purpose – it houses the telephone exchange equipment in the form of a digital switchboard, but its size has been reduced to a technological device the size of a small wardrobe.

Another successful example of the use of a former telephone exchange is the conversion of the telephone exchange in Beroun by OV-A architect studio, where these architects succeeded in supporting the sculptural qualities of the building and making use of its universal skeleton (see Figure 4) to build a new administrative centre. In the West, such conversions are more common; we often encounter conversions to the above-listed offices or to a hotel.

One such hotel is in the Amsterdam city centre, called the W-hotel by BK-architects, with 251 hotel rooms and even a 22-metre roof swimming pool, but has retained its industrial character.

A great number of former telephone exchanges now house the headquarters of different companies, a car repair shop, an education club, and a hairdresser and other retail or services. However, these businesses are not permanent, and it is only a matter of time when they are under threat of dilapidation, the presence of asbestos in the structures, or increasing operating costs these businesses will end and the buildings will be condemned to demolition. Another aspect is often the land on which the telecommunications infrastructure sits.

Frequently, they are very lucrative patches of land in city centres, and the owners of these buildings want to sell or develop the land for commercial develop-

ment plans. However, there is no dispute that some representatives of these unique buildings would deserve some form of conservation protection to prevent degradation or demolition.

## 5. CONCLUSIONS

Industrial structures from the second half of the 1900s remain, at least in the Czech Republic and in regards to typological development, functional, as was shown through the examples mentioned in this text. On these structures the research attempts to systematize information. This current research intends to address the development of particular typologies, as well as a summary of the general history of development of Czech industry in the post-war environment [11].

In PhD programmes Sustainable Development and Industrial Heritage (Prof. T. Šenberger) and Industrial Heritage (doc. L. Popelová), there are grants helping to develop typologically-oriented research [17], both for the evaluation of individual typologies and general strategies, and thus individual typologies such as glassworks, porcelain plants, the automotive industry, and telecommunication buildings. The inventoried lists are thus continuously being updated, and the detailing of specific values and the options for repurposing of these structures are being refined.

Regarding the upcoming “industrial revolution 4.0”, premises are at risk of demolishing because of a promoted change. Industrial heritage can be seen as a component of cultural heritage. Architectural monuments from the latter 20<sup>th</sup> century no longer face such questions, the time has arrived to consider the evaluation of industrial buildings from this period. Based on a rather conceptual approach that considers the need for new production technologies, aspects of non-typical designs, and as well the attempts for quality architectural design and some of the early efforts towards environmental protection, these structures undoubtedly deserve our attention today.

## REFERENCES

- [1] P. Vorlík, K. Brůhová, J. Zikmund, et al. Česká poválečná architektura “pod ochranou a bez”. *Zprávy památkové péče* **77**(4):456–462, 2017.
- [2] P. Vorlík (ed.), J. Zikmund, P. Pavel, L. Popelová. *Náměty na kulturní památky – pracovní skupina pro poválečnou architekturu při ČNK ICOMOS*, 2017.
- [3] J. Zikmund. *Hledání univerzalit: kontexty průmyslové architektury v Československu 1945–1992*. České vysoké učení technické v Praze, Výzkumné centrum průmyslového dědictví Fakulty architektury, Praha, 2020. ISBN 978-80-01-06743-7.
- [4] NPÚ. *Analýza a prezentace hodnot moderní architektury 60. a 70. let 20. století jako součásti národní a kulturní identity ČR*. [2021-10-13]. <https://www.npu.cz/cs/npu-a-pamatkova-pece/npu-jako-institute/cinnosti/veda-a-vyzkum/9534-analyza-a-prezentace-hodnot-moderni-architektury-60-a-70-let-20-stoleti-jako-soucasti-narodni-a-kulturni-identity-cr>
- [5] NPÚ. Památkový katalog. [2021-10-13]. <https://www.pamatkovykatalog.cz/soupis/podle-relevance/1/seznam?druh=TS&temaSpec=tema&tema=2&lokalizaceZahranici=0>
- [6] R. Vrabelová, N. Goryczková, L. Popelová, et al. *Metodika hodnocení a ochrany staveb 2. poloviny 20. století (se zaměřením na architektonické dědictví 60. a 70. let) vzhledem k jejich (možné) památkové ochraně*. Odborné a metodické publikace. Národní památkový ústav, Brno, 2020. ISBN 978-80-87967-22-5.
- [7] M. Matěj, M. Ryšková. *Metodika hodnocení a ochrany průmyslového dědictví z pohledu památkové péče*. Odborné a metodické publikace. Národní památkový ústav, Ostrava, 2018. ISBN 978-80-88240-06-8.
- [8] M. Strakoš. *Nádraží Ostrava – Vítkovice: historie, architektura, památkový potenciál*. Národní památkový ústav, Praha, 2017. ISBN 978-80-87967-14-0.
- [9] N. Goryczková, M. Bartová, N. Brankov, et al. *Transgas: areál řídicí ústředny Tranzitního plynovodu a budova FMPE v Praze: historie, architektura, památkový potenciál*. Národní památkový ústav, Praha, 2019. ISBN 978-80-7480-138-9.
- [10] L. Popelová, R. Sedláková, T. Šenberger. Typologické proměny v československé architektuře 60. a 70. let. *Zprávy památkové péče* **78**(6):624–638, 2018.
- [11] L. Popelová, T. Šenberger (eds.). *Průmyslové dědictví – evidence, výzkum, ochrana, nové využití; Industrial heritage – recording, research, protection, re-use*. České vysoké učení technické, Praha, 2021. ISBN 978-80-01-06657-7.
- [12] L. Popelová. *Architektonické soutěže 60.let 20. století publikované na stránkách periodik Architektura ČSR/ČSSR Československý architekt*. Ph.D. thesis, ČVUT v Praze, 2012.
- [13] L. Popelová. Architektonické a architektonicko-urbanistické soutěže šedesátých let. Jejich specifický přínos v dějinách československé architektury. *Architektúra a urbanizmus XLVII*(47):34–51, 2013.
- [14] *Automatický telefonní provoz mezi městy ČSSR*. Ústřední správa spojů, 1978.
- [15] O. Klika, E. Prager, J. Hamřík. *Místní a uzlové telefonní ústředny*. Nakladatelství dopravy a spojů, Praha, 1968.
- [16] E. Prager, J. Trnka. *Elektronické telefonní ústředny*. Nadas, Praha, 1972.
- [17] L. Popelová, T. Šenberger. Research, protection, and re-use possibilities for post-war industrial heritage in the Czech Republic – Current research and efforts towards protection. *Architektúra a urbanizmus* **55**(3-4):184–199, 2021. <https://doi.org/10.31577/archandurb.2021.55.3-4.5>