VISUAL CHARACTER OF BUILDING CONVERSIONS

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ABSTRACT: Building conversions represent a specific type of architectural intervention in which the original purpose of a building is changed. These interventions raise a number of questions, including the extent to which the original appearance of the building should be respected. This work focuses primarily on the visual character of these conversions. The aim is to generally evaluate the approach to the transformation of building exteriors – whether and how architects work with the original building openings, rhythm, and division of the facade. The evaluation method is a visual analysis of a selected set of buildings supplemented by other parameters identified during a field inspection, which allow for the creation of clear graphic summaries. The results can help identify different approaches to conversions and provide a basis for reflection on the relationship between historical architecture and contemporary interventions. The study also draws attention to the importance of a sensitive approach when working with existing structures in an urban environment.

KEYWORDS: Architecture; composition; conversion;

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INTRODUCTION

The development of human society is integrally linked to the formation and refinement of space, from the first settlements of the Neolithic era to the present day. A recurring problem throughout history has been the issue of repurposing abandoned buildings, often due to changes in political, cultural, and economic structures. In the past, interventions in buildings were mostly simple, often motivated by the attempt to effectively use the affordable materials. The importance of the addressed topic has significantly grown in the industrialization period, when economic factors and the efficiency of production processes became involved.

From the architectural perspective, aside from space and location, time is also an important factor, not only in terms of the physical durability of the building itself, but also its moral value. As Edmund Vale (Beran, 2008) points out, even a ruin bears irreplaceable traces of time and the changing effects of the surrounding environment. Currently, financial considerations, both investment and operational costs, play a key role in decisions about new construction, reconstruction, or conversion. Many conversions, therefore, aim to preserve the original atmosphere and expressive elements (form, façade rhythm, proportion), while meeting the energy efficiency requirements and principles of sustainability. The subject of the research is to observe how specific typological categories of buildings change during conversion. The study addresses the relationship between the original composition of the façade and its new interpretation, intending to create an evaluation system that will contribute to improving the aesthetic qualities of these buildings.

Industrial building structures have been a motor of economic and urban development for two centuries. However, over the last 30 years, many areas have become disused due to the shift from industry to services. They are often situated in the proximity of the city centers and are a burden in terms of hygiene, transport, and ecology. The conversion of brownfields thus offers an opportunity for regeneration of the city structure, while demanding the interdisciplinary cooperation (decontamination, legislation, economics) and integration into urban planning.

When deciding whether to preserve or demolish a building, it is necessary to assess its value in a cultural, technical, and economic context. The conversion should be based on the potential of the building structure and consider its flexibility, suitability for new usage, and the adaptation possibilities. Technical requirements (energetics, accessibility, acoustics) must be addressed with care to avoid compromising the original architectural expression. A recurring solution is inserting new volumes into the original structures, which are not physically attached, and utilizing transparent materials.

The topic is elaborated based on statistical data, urban planning documents, and a comparison of realized conversions in urban and rural contexts. The research aims to identify effective approaches to conversions and evaluate their benefits, not only from the standpoint of the condition of a specific building, but also in terms of broader relationships within the urban structure. The objective is to find correlations between the quality of the conversion, the amount of the investment, and urban impact.

INDUSTRIAL ARCHITECTURE AS CULTURAL HERITAGE

The short period since the industrial buildings were constructed often leads to their underestimation. At the same time, these buildings reflect significant historical and social changes. From the late Baroque manufactures to the monumental ironworks of the 19th century, and Functionalist factory complexes of the First Republic period, the industrial architecture is a unique testimony to the development of technology, urbanism, and aesthetic preferences.

According to Czumala (1992), three vertical landmarks dominated the cityscape – the tower of the castle, the church, and the town hall, possibly the fortification system, and, over time, vertical factory chimneys. They determine the dynamics and prosperity, becoming new points of reference. It is therefore preferable to approach the conversions with respect for this memory layer. Architectural value can lie in the choice of materials (brick, cast iron, steel, concrete), in the rhythm and proportion of the façades, in the details, or in the relation to the landscape surrounding buildings. Preservation of these qualities is not in opposition to repurposing – on the contrary, it can be the foundation of the identity of the site.

Principles of composition in industrial architecture

Industrial buildings, although primarily used for functional and production purposes, often display surprisingly sophisticated architectural composition. Despite their utilitarian character, many of them were designed with an emphasis on order, proportion, and visual balance, thus becoming significant representatives of the aesthetic perception of the time.

In the industrial architecture, symmetry was often used, especially in administrative or main production buildings with a representative character. The symmetrical composition of the façades with a dominant entrance and axial articulation reflected the rational and systematic approach to production and the social

status of companies of the era. In the floor plans, symmetry was evident in the symmetrically arranged halls, storage rooms, and service routes.
An example of the application of symmetry is the Löw-Beer textile factory situated in Brno, now a part of the Vlněna area. The main production building is composed of an axial entrance, periodically spaced window openings, and a balanced mass composition. Similarly, the old Štvanice power station in Prague, designed by František Josef Thomayer, displays a symmetrical façade with a central entrance part, reflecting its public importance.
Asymmetry prevailed, where a symmetrical solution was not possible or necessary – especially in vast production areas, where the individual operations differed in terms of the technological requirements and dimensions. Asymmetrical composition became a tool to express the variety of functions and technological processes. It was often accentuated by height differences, the form of roofs, or the placement of the technological features (e.g., chimneys, silo, crane tracks, etc.).
A beautiful example of a thoughtful asymmetry is the area of Dolní oblast Vítkovice in Ostrava. Individual parts – blast furnaces, coking plant, gasometer, compressor room – are situated according to the production logic, without any attempt at formal symmetry. The result is an organic structure with a unique industrial aesthetics. Another instance is the gasometer in Berlin-Schöneberg, where the asymmetrical arrangement of the structural elements and different height levels reflect the technological function of the structure.
The rhythm, as a regular repetition of elements, is a typical feature of industrial architecture. It is primarily used in façades – for example, in rows of window openings, pillars, skylights, or construction modules. The rhythmization not only simplifies the production of building elements and assembly but also contributes to the aesthetic clarity and unification of large-scale façade surfaces. In the interior, rhythm is defined by the repetition of load-bearing elements (columns, trusses), while defining the spatial modules of the production.
A distinctive rhythm can be found on the façade of the Baťa factory in Zlín, especially the typical reinforced concrete construction of a skeleton structure creates a regular repetition of columns, infills, and windows. This rhythm flows from the façade into the interior, creating a clear spatial logic. A similar solution can be found in Fagus-Werk in Alfeld, designed by Walter Gropius, where the rhythmic composition of windows and columns supports the modernist form.
Gradation – the gradual enlargement, reduction, or change of the intensity of a particular element – is applied mainly in the massing and vertical articulation of buildings. In some cases, the façades are composed in such a way that individual parts of the building structure gradually increase in size towards the main operation, machine hall, or administrative center. An impressive visual effect is created, for example, by stepped volumes or gradation of the windows according to the number of floors.
An example of the usage of gradation is offered by Battersea Power Station in London, where four iconic chimneys form a dominant feature, while the height and complexity of façades gradually increase towards the central part. In the Czech Republic, one can mention the Zbrojovka factory in Brno, whose gradually linked masses, depending on the number of floors, create an effect of increasing gradation from the perimeter to the central part of the area.
The above-mentioned principles of composition are not merely an aesthetic tool in industrial architecture, but often derive directly from the logic of the operation, the structural system, and technological requirements. It is their connection with the functionality that gives these buildings the architectural value, which is often the rationale for their preservation and adaptation in conversions.
These examples not only illustrate the application of compositional principles but also demonstrate that the industrial architecture moves between practicality and artistic expression. Knowledge and recognition of these principles is important, especially in the design of conversions, where it is necessary to preserve or interpret the original architectural quality of the building structure.

The current state and consequences of abandoned industrial areas

The conversion of industrial buildings is a pressing challenge today, which combines economic, urban, cultural, and ecological aspects. After industrial buildings cease to be used, often due to economic transformations, changes in production technologies, or environmental restrictions, these buildings remain vacant and in a state of disrepair. The result is brownfields (Zemánková, 2003), i.e., neglected and unused areas, that create barriers in the city structure and negatively affect its cohesion and the quality of life of its inhabitants.
These areas are often located strategically near city centers, and their disuse represents an urban planning loss. They create traffic and hygienic burdens, hinder the development of residential housing, and contribute to the depopulation of city districts. In many cases, these areas are unique in terms of their extent, location, and historical significance.

Typology and structural assets

When assessing the potential for conversion, the typological classification of the industrial buildings is essential. This determines the extent to which the building can be utilised for new functions – administrative, cultural, educational, or residential. The structural system plays a key role, in particular the spans, floor height, type of load-bearing construction, and the possibility of altering the disposition.
Hall structures with a regular modular system (e.g., reinforced concrete skeleton) allow for a greater degree of customization than operational buildings with a complicated internal structure. It is the structural flexibility that determines the extent of necessary construction modifications and thus the economic efficiency of the conversion.
The evaluation should also include operational and spatial possibilities, such as orientation to the cardinal points, height of entrances, possibility of accessibility, or technical condition of the building envelope in relation to energy efficiency requirements.

CONVERSION

Conversion, or „creative-use“ (Vorlík a Sigmundová, 2014), means repurposing a building to revitalize it and integrate it into the urban structure. Cultural monuments present a specific challenge, as valuable technologies and architectural elements must be preserved. An example of a successful conversion is the Dolní oblast Vítkovice and the adjacent Trojhalí Karolina. Outside Ostrava, another example is the revitalization of a former coal storage and boiler room in the courtyard of Building A of the UCT in Prague.
The present issue of converting industrial buildings is based on several interrelated factors that influence the decision-making process regarding their future use. The causes of abandoned sites vary – from economic changes and industrial decline to environmental burdens and moral obsolescence of buildings.
These areas disrupt the continuity of the urban tissue, contribute to its fragmentation, and can increase the level of social exclusion. At the same time, they offer potential for increasing building density and regenerating inner-city structures, making them a key tool for sustainable urban development.

The approach to conversions until now has often depended on an economic comparison of the value of brownfields and vacant plots, taking into account the technical condition, degree of contamination, and heritage value of the properties. Ownership structure also plays an important role here, as it can significantly slow down or block the entire process.
For a successful conversion, it is vital to evaluate the typology of the original building—its functional and spatial prerequisites-and, above all, its structural system and its variability. The spans, load-bearing features, and overall spatial logic of the building determine the extent of possible adaptation. The flexibility of the structure is therefore key to its effective use in its new function (see Figure 1).

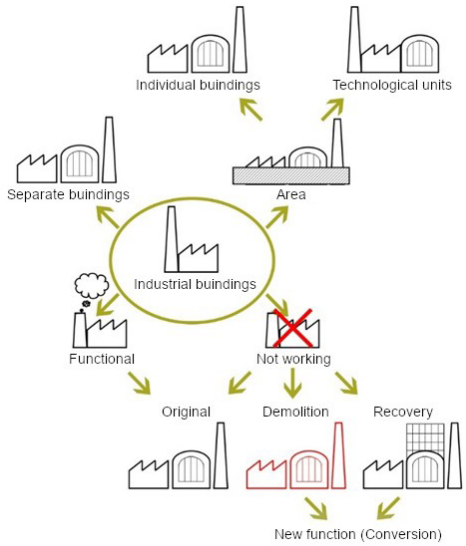


Fig. 1: Decision-making process diagram for an industrial building (Source: Filip Slivka)

Industrial buildings are often perceived as of limited value due to their relative recentness and utilitarian character. However, it is important to acknowledge that these building structures also bear cultural memory value—they are witnesses to their time and part of architectural evolution. Neglecting their meaning may result in the disappearance of precious elements that testify to the history and identity of a site.
For this reason, not only is technical and economic analysis in order, but also cultural-historical reflection and conceptual anchoring of the entire issue.

International approach to conversions

Foreign approaches are inspiring in this regard, where working with industrial heritage is often a systematic part of municipal policies. For example, the Zeche Zollverein project in Essen, Germany, represents the transformation of a former coal mine into a cultural and research center. The key was to preserve the iconic structure and add new functions in a contrasting architectural language (Studio OMA).
Another example is the Tate Modern in London, where a former power station was transformed into an exhibition space for a modern art gallery. The project by the studio Herzog & de Meuron showed that a conversion of a massive industrial building can contribute to the development of an entire city district.
In France, one can mention the example of Halles Alstom in Nantes, where former industrial halls were adapted into a creative campus (École de design). A common feature of these projects is respect for the original structure, preservation of the materiality, and emphasis on the authenticity of the place.
The conversion of industrial buildings is a multidisciplinary challenge combining technical, cultural, economic, and ecological aspects. The conditions for successful transformation rely on a proper comprehension of the building's potential—structural, typological, and historical. At the same time, it is necessary to pursue new concepts of utilization that are in accordance with the requirements of present-day society.
Foreign examples show that even radical transformations can be sensitive if they respect the original architectural qualities. The Czech approach to conversions should be supported not only by knowledge of local conditions, but also by a broader understanding of the significance of industrial heritage.

Types of conversions and approaches to abandoned buildings

A variety of factors influence the suitability of a conversion. The key factors are urban (location in a city, a village, or the countryside), architectural (quality of construction, composition, significance for the cityscape), political (level of support and financing), and functional (possibilities for new use of the site from a technical and economic standpoint) (Pavlík, 1998).
In the case of historical buildings (especially before 1940), reconstruction can restore their original aesthetic values. It is important to balance a qualitative (architectural value) and quantitative (extent of building volume) approach.
Technical monuments include manufacturing, storage, and energy buildings, as well as transport-related structures. Their value is determined by technical principles, historical significance, and structural solution (Valchářová, 2005).
Originally situated on the outskirts of urban areas, industrial buildings are now often absorbed into central urban zones (Brotan, 2013). Their potential thus lies not only in their architectural quality, but also in their adaptability to new urban contexts.
The research identifies three main approaches to conversions, as shown in Figure 2:

1. Non-intervention restoration
Most commonly used for buildings with preserved technology and heritage protection. Preserves the genius loci with minimal costs and building modifications. Prevents the creation of nonhomogeneous spaces.

2. Low-cost utilization
Suitable for buildings with adaptation potential. There are minor construction interventions, additions to structures, alterations to disposition, and the introduction of new functions (residential, cultural, workspaces), while preserving the original massing.

3. Complete reconstruction
For buildings without heritage protection. Includes major building alterations – dismantling, extensions, vertical extensions, or complete built-in structures ("house within a house"). Often involves irreversible interventions into the original structure.

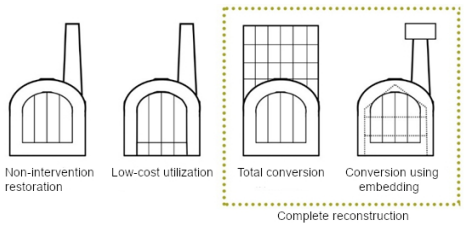


Fig. 2: Principles of utilization and restoration (Source: Filip Slivka)

THE RESEARCH

The scope of the research is to apply the above-mentioned findings of the investigated issue to evaluate the research questions and hypotheses. The research itself was conducted in several time phases. At the be-

ginning, suitable buildings were selected for a broader overview, and then sorted based on the criteria under investigation. It is very important to compare the resulting samples (subsets) with the initial number (set). The research was divided into three phases according to the procedure. Based on this, it was possible to employ a variety of statistical and scientific methods.

The theoretical part is followed by research that aimed to provide answers to research questions. The implementation of the findings from the theoretical part was related to the definition of hypotheses and the creation of evaluation criteria.

First phase

At the initial stage, it was important to clearly define the problem. Subsequently, it was necessary to pose a question: "Why could this problem have arisen?"
In the first phase of the research, a basic research hypothesis was formulated based on the information obtained, namely: The conversion of buildings responds to the original composition of the building.

Second phase

In the second phase of the research, the collection of basic statistical data was carried out using a quantitative method. The quantitative method was used due to its clarity and the possibility of rapid processing of large amounts of data. A table was created for the research. The results from the theoretical part of the research were used for the basic definition of categories. The number of selected samples examined reached 32, which, from a statistical standpoint, can better indicate more objective results.

The research area was defined concerning its location in the Czech Republic, specifically based on post-industrial trends in the Moravian-Silesian, Olomouc, and Zlín regions. These regions have a certain concentration of industrial buildings and brownfields, see Graph 1.

Graph 1: Distribution of surveyed buildings by region (Source: Authors)

INDUSTRIAL BUILDINGS																								
		Original building											Conversion											
Č.	Building	Original function	Period of the construction	Location	Industrial production sector	Geometry	Basic principles of composition				Type of settlement situation	Type of conversion	Intervention in the mass and structure			Basic principles of composition				Conversion author	New building function	Year of conversion
							Symmetry	Asymmetry	Rhythm	Gradation			Built-in	Vertical extension	Extension	Symmetry	Asymmetry	Rhythm	Gradation			
1	Trojhalí - energocentrála	Electrical control room	1907/1920	Ostrava	Energy	Rectangular	Yes	No	Yes	Yes	City	Low-cost utilization	Yes	No	Yes	Yes	No	Yes	Yes	Josef Pleskot	Social use	2014
2	Šupináč	Warehouse	x	Ostrava	Processing	Rectangular	No	Yes	No	Yes	City	Complete reconstruction	No	No	No	No	Yes	Yes	Yes	Létající inženýři	Administration	2008
3	DOV - staré koupelny BRICKHOUSE	Bathrooms	1899/1925	Ostrava	Mining	Rectangular	Yes	No	Yes	Yes	City	Complete reconstruction	Yes	No	No	Yes	No	Yes	Yes	Josef Pleskot	Museum	2017
4	DOV - nové koupelny Heligonka	Payment hall	1960s	Ostrava	Mining	Polygon	No	Yes	Yes	Yes	City	Low-cost utilization	Yes	No	No	No	Yes	Yes	Yes	Josef Pleskot	Social use	2015
5	Objekt E - plynárny	Warehouse	1950s	Ostrava	Processing	Rectangular	Yes	No	No	No	City	Complete reconstruction	Yes	No	No	Yes	No	Yes	No	Radek Kolařík a Lada Kolaříková	Administration	2003
6	Jatka	Cold storage room	1893/1903/1927	Ostrava	Food processing	Rectangular	No	Yes	No	Yes	City	Low-cost utilization	No	No	No	No	Yes	Yes	Yes	Robert Konieczny	Social use	2022
7	Babylon	Deacidification station	1935	Ostrava	Water management	Polygon	Yes	No	Yes	No	City	Low-cost utilization	No	No	No	Yes	No	Yes	No	Milan Sýkorský	Museum	2017
8	Aula Gong	Gas tank	1924	Ostrava	Metallurgy	Circle	Yes	No	Yes	Yes	City	Complete reconstruction	Yes	No	No	Yes	No	Yes	Yes	Josef Pleskot	Social use	2012
9	Malý svět techniky	Putty room	1930-1940	Ostrava	Metallurgy	Rectangular	Yes	No	Yes	Yes	City	Low-cost utilization	Yes	No	No	No	Yes	Yes	No	Zdeňka Fránka	Museum	2012
10	Bolt tower	Blast furnace	1988	Ostrava	Metallurgy	Polygon	No	Yes	No	Yes	City	Complete reconstruction	No	Yes	No	No	Yes	Yes	Yes	Josef Pleskot	Museum	2014
11	Kreativní akademie	Wind Pit Building	1960s	Ostrava	Mining	Rectangular	Yes	No	Yes	No	City	Complete reconstruction	Yes	No	Yes	No	Yes	ne	No	Kamil Mrva	Science and education	2023
12	Zemědělské muzeum	Veronica Mines, Copper Smelters Warehouses	1926	Ostrava	Metallurgy	Rectangular	Yes	No	Yes	Yes	City	Complete reconstruction	Yes	Yes	No	No	Yes	Yes	Yes	Josef Pleskot a Milan Šraml	Museum	2020
13	Důl Jan Maria	Mine	1906	Ostrava	Mining	Rectangular	No	Yes	Yes	No	City	Complete reconstruction	Yes	No	No	No	Yes	Yes	No	Aleš Student	Recreation	2008
14	Pospiech Delivery	Cloakrooms	1950s	Ostrava	Food processing	Rectangular	Yes	No	Yes	Yes	City	Complete reconstruction	No	No	No	Yes	No	Yes	Yes	PROJEKTST UDIO EUCZ, s.r.o.	Administration	2013
15	Městská policie	Bleachhouse	1868	Frýdek - Místek	Textile Production	Rectangular	Yes	No	Yes	No	City	Low-cost utilization	No	No	No	Yes	No	Yes	No	petit atelier s.r.o.	Administration	2023
16	KUPE	Water Tower	1892	Opava	Water management	Rectangular	No	Yes	No	Yes	City	Complete reconstruction	No	No	Yes	No	Yes	Yes	Yes	arch. studio Casua spol. s r. o.	Social use	2016
17	Muzeum nákladních automobilů Tatra	Foundry	1911	Kopřivnice	Metallurgy	Rectangular	No	Yes	No	Yes	City	Low-cost utilization	No	No	No	No	Yes	Yes	Yes	Kamil Mrva Architects, s.r.o.	Muzeum	2021
18	Rezidence Vista	Water Tower	1928	Karviná	Water management	Circle	Yes	No	Yes	No	City	Complete reconstruction	Yes	No	No	Yes	No	Yes	No	Roman Sabela	Housing	2017
19	Slezské vzdělávací centrum	Mill	mid-19th century, 1923	Karviná	Food processing	Rectangular	No	Yes	Yes	Yes	City	Complete reconstruction	Yes	No	No	No	Yes	Yes	Yes	x	Science and education	2015
20	Komerční objekt	Garage	2nd half of the 20th century	Trojanovice	Transport	Rectangular	Yes	No	Yes	No	Village	Totální přestavba	No	No	No	Yes	No	Yes	Yes	Kamil Mrva Architects	Commerce	2018
21	Centrum VÍCE	Mill	1930s	Karlovice	Food processing	Rectangular	Yes	No	Yes	Yes	Village	Low-cost utilization	No	No	No	Yes	No	Yes	Yes	Atelier Walter	Science and education	2021
22	Kovárna Čeladná	Forge	beginning of the 20th century	Čeladná	Metallurgy	Rectangular	Yes	No	Yes	No	Village	Complete reconstruction	No	No	Yes	No	Yes	Yes	Yes	RMBA Architekti s.r.o.	Commerce	2020
23	TAZO	Paper Mill	19th century	Český Těšín	Processing	Rectangular	Yes	No	Yes	Yes	City	Complete reconstruction	No	No	Yes	Yes	No	Yes	Yes	H1K Architectura, s.r.o.	Commerce	2019
24	Restaurace Nemlýn	Mill	18th century	Kravaře	Food processing	Rectangular	No	Yes	No	Yes	City	Complete reconstruction	Yes	Yes	No	No	Yes	No	Yes	Ing. Daniel Kozel a spol.	Commerce	2018
25	Brillovka	Textiles	1898/1906/1910	Rožnov pod Radhoštěm	Textile Production	Rectangular	Yes	No	Yes	No	City	Low-cost utilization	No	Yes	No	No	Yes	Yes	Yes	x	Commerce	2018
26	HOUSE 64	Research Center	1930s	Zlín	Textile Production	Rectangular	Yes	No	Yes	No	City	Low-cost utilization	No	No	No	Yes	No	Yes	No	x	Polyfunction	2019
27	Park Tower	Factory	1950s	Zlín	Textile Production	Rectangular	Yes	No	Yes	No	City	Complete reconstruction	No	Yes	No	Yes	No	No	Yes	Semela Ateliers	Housing	2023
28	14|15 Baťův institut	Production Building	1949	Zlín	Textile Production	Rectangular	Yes	No	Yes	Yes	City	Low-cost utilization	Yes	No	Yes	Yes	No	Yes	Yes	ADNS architekti	Social use	2013
29	Centrum strategických služeb	Silo	1938	Zlín	Food processing	Rectangular	No	Yes	No	Yes	City	Low-cost utilization	No	No	No	No	Yes	Yes	Yes	Ladislav Semela	Administration	2014
30	Silo Tower	Silo	1936	Olomouc	Food processing	Rectangular	Yes	No	No	Yes	City	Complete reconstruction	No	Yes	No	Yes	No	Yes	Yes	Blanka Zlamalová	Administration	2014
31	Telegraph	Telegraph Factory	1919	Olomouc	Metallurgy	Rectangular	No	Yes	Yes	Yes	City	Complete reconstruction	No	Yes	No	ne	Yes	Yes	Yes	Ječmen studio	Social use	2021
32	Vila na sile	Mill	1938	Olomouc	Food processing	Polygon	No	Yes	No	Yes	City	Complete reconstruction	No	No	No	No	Yes	No	Yes	Tomáš Pejpek a spol.	Housing	2005

Table 1: Table for the quantitative method (Source: Authors)

As part of the quantitative conversion survey, field research was conducted before each evaluation. The collected data was divided into specific sections. For the research, data were evaluated and categorized using criteria important for evaluating a wide range of characteristics defined on the basis of theoretical research on the issue. In particular, these are the following categories listed in Table 1.
The research focused mainly on comparing individual criteria of original buildings and conversions. Using features of the comparative method, comparisons were also made between individual categories that had a certain relationship with each other based on theoretical research, in order to confirm or refute this relationship. Subsequently, individual data from the table of industrial buildings were analyzed for the purposes of objectivity, the extent of statistical analysis necessary, and the evaluation of categories and their criteria. The examined parameters of each industrial building were classified based on the criteria of each category and then compared using a comparative method. This method was chosen based on the possibility of comparing typologically identical buildings with various nuances. From this phase, partial data was defined for the third phase of the research and work with the comparative method.

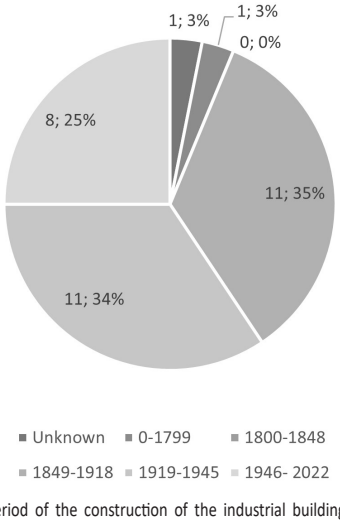
Third phase
In the third phase of the research, the data evaluation of the quantitative method was carried out using comparative analysis. This enables data processing for the creation of a specific typology and comparison of individual subjects based on their proximity to the desired standard. This method is a deductive research method. Based on the hypotheses, basic parameters related to the subject under investigation were defined.
The conversion of buildings responds to the original composition of the building.
The examination of the above-mentioned hypothesis was conducted by defining the basic problems based on analysis. It mainly involves data evaluation.

ANALYSIS AND RESULTS

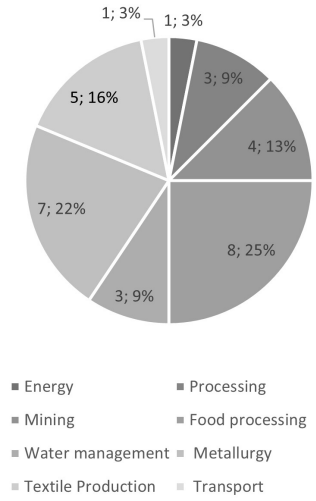
The primary objective of the research was to confirm the initial hypothesis of the relationship between the original composition of industrial buildings and the compositional solution of their conversion. The secondary objective was to identify recurring characteristics and develop model patterns that can be used in deciding on the restoration of abandoned buildings.

Characteristics of the original buildings

The analysis revealed that most of the surveyed buildings date from the periods 1849–1918 and 1919–1945, each representing 34.5 % (see Graph 2), which corresponds to the historical industrial development of the region. In terms of original use, food processing industry buildings predominated (25 %), while heavy industry (mining 13 %, metallurgy 22 %) was less represented (see Graph 3).

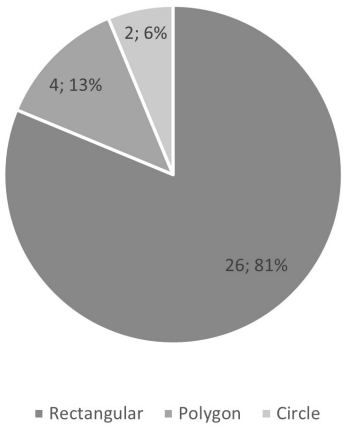


Graph 2: Period of the construction of the industrial buildings (Source: Authors)

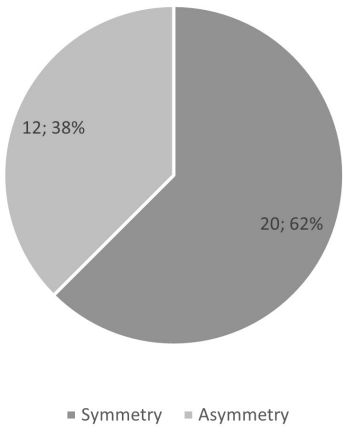


Graph 3: Original industrial construction sectors (Source: Authors)

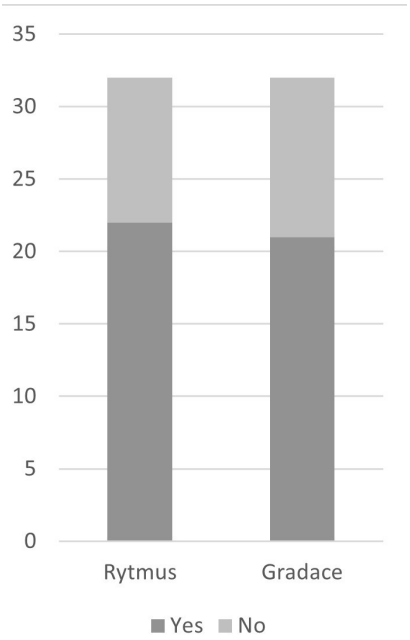
In terms of composition, 81 % of the buildings were derived from a rectangular floor base (see Graph 4). Approximately two-thirds (64 %) exhibited a symmetrical mass composition (see Graph 5), and around 60 % of the facades employed the rhythm and gradation (see Graph 6). The most common combinations were symmetry–rhythm–gradation and symmetry–rhythm, each representing 28 % (see Graph 7), with these solutions related to the period-appropriate requirements for the efficient arrangement of production operations and the prevalence of an urban location in 91 % of cases (see Graph 8).



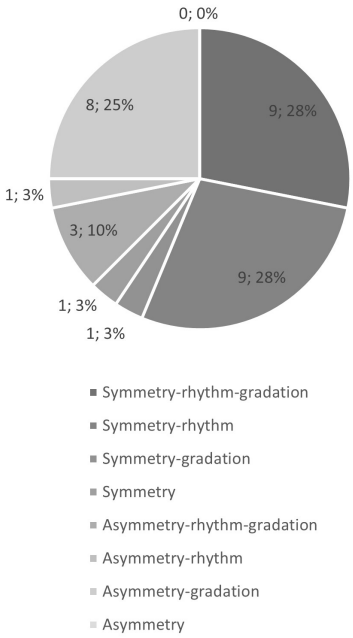
Graph 4: Geometry of the original buildings (Source: Authors)



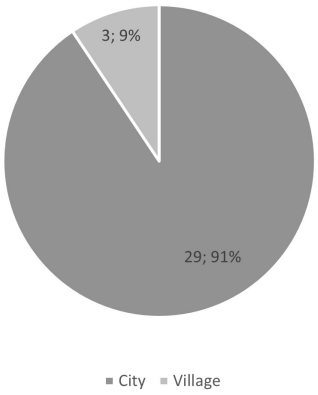
Graph 5: Basic principles of the building mass composition (Source: Authors)



Graph 6: Basic principles of composition (Source: Authors)



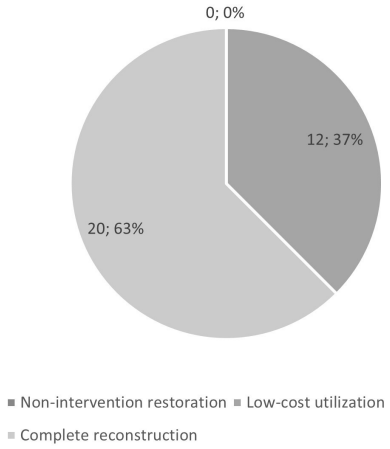
Graph 7: Combination of basic principles of composition (Source: Authors)



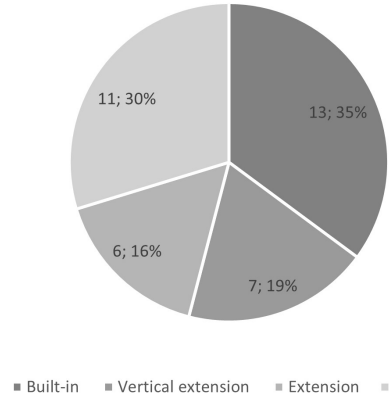
Graph 8: Type of settlement situation of the original buildings (Source: Authors)

Characteristics of the conversions

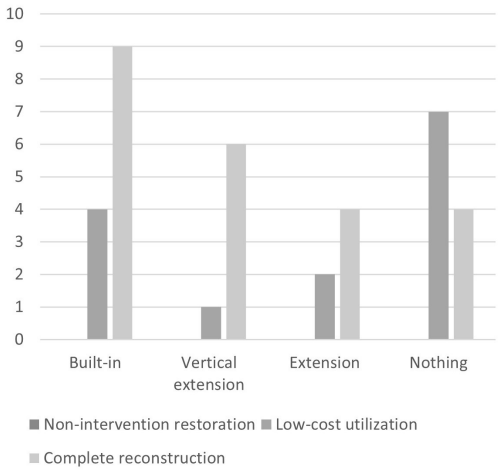
The "complete reconstruction" strategy prevailed in 63 % of the analyzed conversions, while "non-intervention restoration" was not represented (see Graph 9), reflecting the sample's focus on cases involving significant intervention in the mass. The most common were built-in structures into the original disposition, accounting for 35 %, and less common were vertical extensions or extensions, see Graphs 10 and 11.



Graph 9: Type of conversion (Source: Authors)

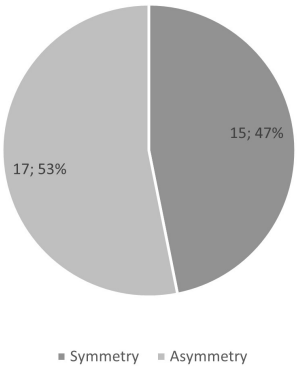


Graph 10: Intervention in the mass and structure of the building (Source: Authors)

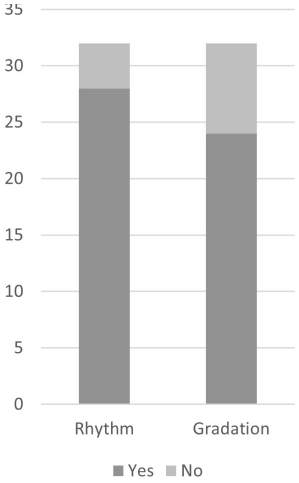


Graph 11: Relationship between conversion type and work with the mass of buildings (Source: Authors)

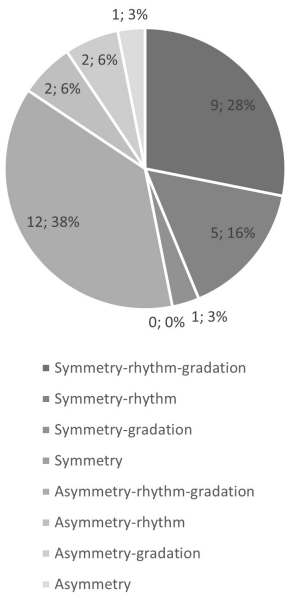
From a compositional standpoint, asymmetrical masses predominated after conversion, accounting for 53 % according to Graph 12, yet more than half of the façades employed rhythm and gradation, as shown in Graph 13. The most common combination was asymmetry–rhythm–gradation, accounting for 38 % according to Graph 14, which represents a significant departure from the original state.



Graph 12: Basic principles of building mass composition after conversion (Source: Authors)



Graph 13: Basic principles of composition after conversion (Source: Au-



Graph 14: Combination of basic principles of composition after conversion (Source: Authors)

The comparison of the former and proposed solutions

A comparison of the compositional principles before and after conversion (Table 1) revealed two main tendencies. Preservation of the same compositional combination (e.g., symmetry–rhythm–gradation before and after conversion, 7 cases). Adding rhythm to the new layer of initially less structured (asymmetrical) masses (6 cases of asymmetry–gradation → asymmetry–rhythm–gradation). This trend suggests that architects often use rhythm as a unifying element for compositionally unbalanced facades.

The evaluation of the hypothesis

Based on the conducted analysis, the hypothesis of a relationship between original and new layers of the building can rather be confirmed. The data indicate that conversions involve conscious work with the original composition, with interventions often aiming to unify and harmonize the visual character of the building structure through rhythmic features and gradation.

CONCLUSION

The primary objective of the research was to provide answers to the hypothesis formulated during the theoretical exploration of the issue under investigation. The individual chapters present specific criteria for a proper understanding of the issue and its complexity over time. From them, individual research methods and their phases were derived. Research proved that the compositional principles of original industrial buildings have a direct influence on the form of their conversions. An analysis of 32 selected buildings revealed that, despite frequent interventions into the mass and changes in function, in many cases the basic visual elements remain preserved, especially the rhythm and gradation of the façades, which contribute to the unification of the original and new layers of the building. The most frequent consistency between the original and converted forms was a combination of the principles of symmetry, rhythm, and gradation, while in buildings with asymmetrical composition, the new layer was often complemented by rhythm to achieve greater visual cohesion. These findings confirm the hypothesis that conversions respond to the original composition and demonstrate the importance of a sensitive approach to architectural heritage. The study thus provides a practical framework for deciding on suitable approaches to the adaptation of industrial buildings that respect their historical identity while reflecting the requirements of the present-day use.

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