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# RECYCLING OF OLD INDUSTRIAL BUILDINGS IN INNER CITY AREAS

*"The architectural character of a city is a special kind of problem. Each city possesses an individual character. What seems to be beautiful and lovable in one city may be ugly and detestable in another... not just materials but forms as well are bound up with the place, with the nature of the earth and by the air."* (1)

## 1. Introduction

The problem of revitalisation of industrial inner city areas and buildings is becoming to be the topic to discuss in Slovakia as well as in the European countries. The industrial revolution produced a strong economic and social faces that produced large areas now termed inner city, where factories were built and workforces lived in densely packed housing. In 1920s and 1930s cars and improvement of public transport enabled the wealthier and the skilled/qualified to move out to the suburbs and this has continued up to the present days. In 1960s and 1970s was the loss of heavy industry in the West European countries and the engineering moved to the Far East or to the developing countries. It left in Europe vast empty areas, vacant buildings, unemployment and poverty. Thus especially in the Western countries in these areas are now large concentrations of ethnic minorities, the poor and the disadvantaged. From 1970s more and more European countries began to report losses in their inner city population, in 1970s and 1980s many factory jobs in the recession were lost. Cities now compete with each other for the limited resources to revive the economy in their inner city areas. In the future those cities will succeed to attract investment, which have the human skills and most-to-date infrastructure. But urban regeneration cannot be achieved without cities' cooperation. It requires cities to produce a comprehensive strategy based on local needs and opportunities. It also needs flexibility and commitment to respond to new opportunities and changing circumstances as they arise.

The challenge that governments at all levels in all countries now have to face is how can people, who are unable to find employment, be offered an opportunity to carry out work which will be valuable for the community and from which they gain their own respect. We have to note that in Slovakia now the rate of unemployment is 25%.

### Other countries experience

The most important reason for looking at approaches in other countries is to learn from their experience but to avoid copying solutions out of context. Different countries have different cultural and social background, so we could hardly get an ideal solution for our cities.

Architectural design and urban design are very important and essential to the regeneration process. The benefits of good design will affect everyone, and directly or indirectly influence the quality of people's lives.

## 2. The aim

In Slovakia, we do not have practical experience with rehabilitation of industrial buildings to housing. The topic of my PhD thesis is regeneration of industrial inner city areas, recycling the structures for new functions, particularly to habitation. Revitalisation of old industrial buildings in inner city areas for different types of habitations (lofts, apartment buildings, conversion of the whole building to a family house, new development in old areas or sites) will be the main topic of my research.

The aim is to analyse the problems of inner city areas from industrial revolution up to present, recognise them, name principles through examples, define the values of the

areas, find or propose a new use suitable for abandoned inner city areas and their buildings. I want to map and define the buildings or areas in Bratislava suitable for conversion.

I will analyse the examples of transformed buildings realised in other countries. Their new function and typological and compositional principles of housing will be my main concern. I will try to establish the criteria for possible convenient transformation in the following:

1. Small structures like the former water towers transformed to family houses,
2. The former storehouses and factories transformed to apartments or lofts,
3. New development on former industrial areas or docks. (For example Borneo in Amsterdam).

In my work I would like to select an area and propose real solutions in cooperation with students.

The work will try to contribute to the debate by bringing together a variety of approaches to urban regeneration the philosophies, the ideas, the principles and examples from Western Europe, the USA and from Central Europe (Czech Republic), in connection with their social, economic and political context.

The following problems of inner cities areas are going to be analysed:

housing, homelessness, education, poverty and unemployment, health, law and order, crime, transport, re-use of old buildings, leisure and culture, employment, land values, architectural design.

**3. Conversion of abandoned industrial buildings**

Conversion or recycling of abandons/unused industrial buildings from 19th and beginning of 20th century in the last 30 years has become very popular in the Western Europe and the whole world. These buildings are part of urban structure and a symbol of past richness of the town and they are very suitable for the conversion. They could be adapted for a new function in respect and understanding of its construction system. Most of them have a high architectural value and are under heritage protection as monuments. Practical examples from over the world prove as well different methods of recycling/refurbishment.

In Slovakia this problem of refurbishment of old industrial architecture faces many problems: from economic potential of investor up to official permission procedures.

Several times the Heritage Protection Institute succeeded in preventing the demolition but unfortunately it does not always go that way. The proprietors usually do not care for the monument and process of destruction is not stopped. Therefore, lot of buildings have been demolished.

The criteria for the new use of building have to be considered individually and general principles could hardly be defined.

**4. Source materials**

COLQUHOUN in his book Urban Regeneration describes the issues of inner city areas in their complexity: their actual problems, different approaches of urban regeneration and design (economic and social backgrounds), the problem why it is so important to revenue them, examples from USA, Great Britain, Netherlands, France, Germany, Ireland and from Spain. All other source materials I have studied were only partial with presentation of several approaches of conversion of industrial buildings.

Another book was by BLANC, A., McEVOY, M., PLANK, R.: Architecture and Construction in Steel concentrates on construction and details of steel architecture. Very important is the part where the authors describe the industrial revolution and new buildings, introduction of steel construction and first uses of steel as construction material. Great Britain as a home country of industrial revolution has much more of the industrial buildings than in Slovakia. Nowadays, they also have excellent experience of successful solutions for derelict areas.

As the authors of the publication write, the Industrial Revolution in second half of the 19th century saw the development of new types of buildings for manufacturing and assembly purpose. Many of those buildings demanded new technical solutions for their

construction. These technical requirements led to innovations that in turn had a significant effect on the determination of the architectural design/result.

The buildings themselves had walls of brick and iron framed windows, and the vast interiors that had to provide large uninterrupted spaces for the new machines and the hundreds of workers employed in them. Light had to be provided internally and the need for fire protection became a critical issue.

**The Introduction of lighter materials into the building industry**

The rise of iron as a prime building material was in its initial partial application in mill buildings in the northern industrial cities (in Manchester, engineer W. Fairbairn). In Britain was adopted neo-classical vocabulary for some of the exteriors of mill works and dock buildings. Mild steel was introduced as the construction material after a long development. It possessed many of the same properties as iron but the new material required some adaptations in its use. It was a better quality material and much more consistent in its manufacture. It was as well more ductile and could withstand considerable deformation before failure and was equally strong in tension and compression. It exhibited great inherent qualities as a skeletal framing material for high buildings although it was not easier material to erect than iron.

With other technical developments, methods of analysis, constructional regulations and new invention of a lift or elevator- steel construction was soon the basic material for the whole variety of the new framed and glazed buildings.

Initially, steel framed construction was introduced to replace iron for increasingly higher public and commercial buildings in rapidly expanding town centres, mostly in the USA. In Europe, it was used extensively for railway stations and factories. The first extensive use as a large-scale multi-framing material was at Saulnier's Menier Chocolate factory at Noissel –sur-Marne near Paris. " *This building is considered to be the first one in Continental Europe to have been composed in it's entirety of a wrought iron frame with non-load bearing masonry external walls"* [3].

But the material was only slowly introduced into the building industry during the following 25 years. As it became cheaper to make, its use was more widely accepted in the 1890s, it was very popular for large-scale stores and shops, arcades, galleries, winter gardens, palm houses and floral halls. These types of buildings were constructed throughout Europe for everyday commercial application of iron and glass construction. In London Mewes and Davis used the material firstly in 1904 for the new steel-framed Ritz Hotel.

**Refurbishment of the buildings**

There has been from 1970 increasing interest in the reuse and refurbishment of the existing industrial buildings. Despite of complication of construction it is often cheaper to refurbish substantial buildings from the 19century instead of demolishing them and rebuilding. In Europe the recession, which followed the oil crises of 1972/73, turned developers to refurbishment as a cheaper and quicker way of achieving a building program. The trend towards conservation has been popular with public and this led planning authorities to schedule areas for conservations.

Further move towards conservation and rehabilitation has been the declaration of enterprise zones in Britain where rate-free periods and grants have been offered to encourage redevelopment of depressed inner city areas. Similar policies in the form of tax incentives were used in North America to bring derelict areas back to use.

One possible reuse of abandoned buildings is for loft living. This living is very popular especially in USA and Great Britain and it is one of the main trends of urban development in Europe.

In Slovakia the term loft living is not very known. In English the word referred to an attic or the upper level of a factory. Now, the term loft has a new meaning as an open space located in an industrial building or

unused warehouse. It means also a large rehabilitated space whose industrial architecture is used for domestic purposes. The word loft also describes the resident's new lifestyle.

Very helpful and interesting was the book by CUITO, A.: Loft. CUITO introduced the topic, terms, structure of the loft, finishing of walls, and division of space, windows, building's installations and recycling of part of the pre-existing building. As the author writes, the architects as well the clients exhibit different needs, and it is not easy to speak of materials habitually used. Each architect individually employs different facings.

The book includes 27 lofts refurbished in minimalist design. The design has been reduced to the basic concepts of light, volume and mass. Some designers divide the space by sliding doors that disappear behind walls; others use mobile screens that permit alternations in the space distribution. Almost all designers use translucent material to aid light flow through the separate spaces. In these refurbishing projects is habitually reused the part or element of the pre-existing building for their original use or to new use. The selection of photographs shows the most representative building elements of those lofts.

**5. Conclusion**

In my thesis I want to discuss the design methods of conversion on practical examples. To find a new use for an abandoned building in inner city area and design a good housing means to understand local problems and needs. This will also require the cooperation with the National Heritage Institute, good knowledge of housing typology, structure and history, and particularly an enlightened and sensible client.

The work aims to contribute to the debate about conversion of industrial buildings of inner city areas in Slovakia. The knowledge gathered may be useful for the students, professors and professionals.

**References:**

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