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Abstract

The urban planning practice of the 19th century shaped the basis of a modern development in European capitals. After the transition from manufacturing to the industrial age, innovative planning methods were established. The Medieval cores of the cities were reconstructed and expanded with new districts above former borderlines due to the urbanisation. The rapid population growth and the high demand for housing led to the acceleration of private construction activity. Consequently, tenement housing typologies emerged that are comparable in metropolises of Europe. The architecture of this era shows many similarities, but distinctive local characteristics as well. This paper investigates the origin of tenement housing typologies in the 19th century Budapest and Vienna.

Keywords

pianificazione urbana, regolazione, tipologia
urban planning, regulations, typology

Introduction

The metropolises of the former Dual Monarchy went through a significant transformation process in the 19th century. According to the prevailing trends in European capitals, both Budapest and Vienna have faced the challenges of rapid population growth and industrialisation. Even if the field of urban planning did not belong to the common causes of the two nations, the planning instruments of this era show relevant similarities. As legislative action tried to keep pace with the urbanisation, building regulations, zoning-, and regulatory plans were established. Each of them got more precise over time, influenced by common European tendencies. Large-scale interventions were necessary to build an infrastructure that can fulfil the requirements of a growing economy. Furthermore, projects such as the Danube regulations, construction of representative ring roads and boulevards were important steps to make the cities competitive among each other. In the context of these projects, residential development became more and more important as a form of private investment. Professionals of Budapest and Vienna have invented specific apartment building typologies of this era to satisfy the growing need for housing. Architectural solutions were based on the opportunities provided by the existing and new city grid, as well as on the possibilities given by the regulations and zoning.

1. City expansion in the 19th century

The 19th century can be considered as the start of large-scale planning in Budapest and Vienna. The first small-scale interventions already happened before, by reusing the structures of former military defence. However, the first overall regulatory plans appeared in this period, with the aim of replacing the earlier dominating phenomena of spontaneous development with a strategical planned expansion. [Körner & Nagy 2002, 130] In addition to that, many factors have influenced the process of urbanisation. Most of the buildings in Pest were destroyed by the Great Flood in the year 1838. This was the start of a reconstruction process, guided by regulations that required stronger materials and partial street levelling. [Körner 2010, 28-29] Furthermore, with the foundation of the Austro-Hungarian Monarchy, international banks have started to operate in the country and the number of investors grew substantially. [Körner 2010, 43] The city expansion took place from West to East direction, on the topographically more suitable side of Pest. Besides the densification of the inner city, new districts appeared, starting to reach out to the tax border line. The new urban grid was laid out, influenced by the path of existing streets and waterways, as well as by the shape of former farmlands. In the year 1873, Budapest emerged by the unification of Pest, Buda and Old-Buda on both river banks of the Danube. The border of the city did not change between the city unification and the first World War. The borders of *Great-Budapest* were defined later in 1950.



Figure 1. Approximated city area of Budapest

By investigating the early history of the two cities, the situation of Vienna appears to have a different character. The Austrian capital is located on the West side of the Danube, with more distance and has grown by multiple city expansions in the direction of East to West. As Figure 2. shows, the first expansion took place in the year of 1850 by opening the former glacis. The rehabilitation of the non-built military protection area resulted in the step by step construction of the Viennese Ringstraße. The most important administrative buildings were built along the representative double ring road, such as the parliament and the city hall. Furthermore, it became an important target area of residential investment projects. [Csendes 2005, 39] The solutions of urban planning and architecture that were used during the construction of the ring road have inspired Budapest, as well as many European cities. The establishment of building societies allowed innovative methods on a bigger scale. [Körner 2010, 99] The second city expansion took place by incorporating the suburbs outside the former line wall in the year 1890. At this point, the physical border got demolished to build an important traffic connection, the Viennese Gürtel. However, a separation between the layers of society has remained. Whereas the apartment houses for the aristocracy were built in the inner city, communal projects have supplied factory workers with dwellings in the suburbs. [Bobek & Lichtenberger 1978, 56] The expansion of 1904 added even more villages and industrial areas, which have become part of the integrated planning concept for *Great-Vienna*.



Figure 2. Approximated city area of Vienna

2. Instruments of urban planning

After its foundation in 1870, the Metropolitan Board of Public Works was responsible for the building regulations, as well as for the zoning plan in Budapest until the middle of the 20th century. [Locsmándi 1998, 7] The first zoning plan of 1894 has divided four building zones I. to IV., that were synchronised with the building regulations. In Vienna, the municipal authorities had to cooperate with the city council to create an overall zoning plan in 1893. The most important topic was similar, the separation between residential areas of different building heights and industrial areas. [Hagen 2015, 45] The zoning plans are important tools to define the usage of different parts of the cities. This basis of urban organisation has an effect on today's development as well. Residential areas of the Gründerzeit appeared in the form of a mainly orthogonal street grid, along the new representative ring and radial roads, directly connected to city cores. We can observe these typical block structures on the plan of not only Budapest and Vienna, but also in the case of Rome, Prague, Berlin and many other metropolises. Common principles were followed by regulation and spatial planning methods that show many similarities, but some differences as well.

One main difference between Budapest and Vienna appears on the block scale. By the transformation of ground floor buildings in rural areas, side wings were often used as the first addition. These additions were topped up later. [Körner 2010, 92] New buildings were constructed according to similar principles. With an additional back wing, the enclosed courtyard became widespread in Budapest. The situation was different in Vienna, where the first attempts started to connect buildings, to create a bigger, common courtyard. [Bobek & Lichtenberger 1978, 209] This way, the perimeter block construction emerged in Vienna. Examples for this structures are located in the district Ottakring in a regular grid structure. Although the ground floors of the buildings were often separated with a fence, there was still more sunlight and better air conditions inside the block. Budapest has started to use these methods in the 20th century.

3. Building regulations

On the smallest scale, we focus on multiple-storey apartment buildings that were built for the bourgeoisie in the development areas that were mentioned before. The private building activity of the Gründerzeit was controlled in Budapest by the 1894 building regulations, which were based on the ordinances of the Metropolitan Board of Public Works from the year 1886.¹ In Vienna, the regulations were enacted in 1883.² These allowed the construction of five-storey buildings in the urban areas, including the ground floor, called parterre with the maximum height of 25m. However, there were slight differences in measuring the height. Furthermore, in Vienna, the upper edge of the highest floor could be built on the maximum of 20m. This was not required in Budapest. The clear height of the rooms was set as a minimum of 3m in inner city zones, as well as basements with residential function in both capitals. It was allowed to use the souterrain for living under specified conditions. The mezzanin, which means a split level, could be constructed as well, but has still counted as one whole floor. It was necessary to plan 15% of the plot as a courtyard in both cities and to construct lighting courtyards according to similar specifications. Another difference was the definition of street width in Budapest by 10-15m, whereas in Vienna by 12-16m. The regulations of Budapest define plot sizes as well, in Vienna there were no general measurements given. According to these parameters, building typologies emerged with a similar, Historicism style. The generous room heights not only contributed to the healthy ventilation according to prevailing research, but also influenced the market value of the building. [Psenner 2012, 4-6]

3. Building typology

Figure 3. shows the elevation of a Gründerzeit building with underground workshops in the souterrain, which were a possible scenario in both Budapest and Vienna. The parterre is risen at least 0,6m above the ground, whereas the entrance area connects to the street level by indoor stairs. With the approximated maximum thickness of 0,4m for the ceiling construction, the parterre has 4,9m room clear height and 5,5m height in the entrance area. The first floor, called belle etage counted as the most prominent area before the invention of the elevator, which in this case, has 4,5m clear height. The second and third floor each have 3,5m height. The attic counts as the fifth floor.



Figure 3. Schematic elevation of the Gründerzeit building typology

¹ Official Reports of the Metropolitan Board of Public Works of Budapest on its Operations of 1886, 1887 and 1888. Metropolitan Board of Public Works, Budapest. 1890

² Building Code for the imperial capital and residence city of Vienna.

Provincial law and ordinance for the Archduchy under the Enns Nr. 35 from 17. Jan 1883.

Urban areas required the construction in a closed row, where buildings were built connected with a fire wall in both cities. Side wings and back wings were common in Budapest, enclosing an inner courtyard. Although the building regulations of both cities set 15% of the plot area as minimum courtyard area, different solutions were established. Flats and staircases were connected by hanging corridors on the inner façades of the buildings in Budapest. These corridors, called *Pawlatschengänge* in German, were originally made of wood. They were forbidden in the area of Vienna after the Rintheater fire in 1881 according to fire protection ordinances. [Bobek and Lichtenberger 1978, 70] The *Pawlatschen* might have played an important role in the different development of the building typologies. Buildings of Vienna either had side wings, or separate, lower backyard buildings, as shown in the schematic ground floor plans of Figure 4. But according to the preference of perimeter construction, high back wings appear to be uncommon. In buildings of Budapest there was a main staircase in the front building and a second one in the side wing. Figure 4. shows an example from Vienna, where only one main staircase was planned due to the small depth. A very important similarity is the constructive solution of the thick middle wall parallel to the façade. This allowed a flexible arrangement of the rooms in both cases. Therefore, flexible spaces were provided to serve the demand for mixed use. Many manufacturers were living and working in the same building. The townhouses, called *Stadthäuser* in German, not only provided home for a variety of usage, but also for different layers of society. [Psenner 2012b, 6-8]

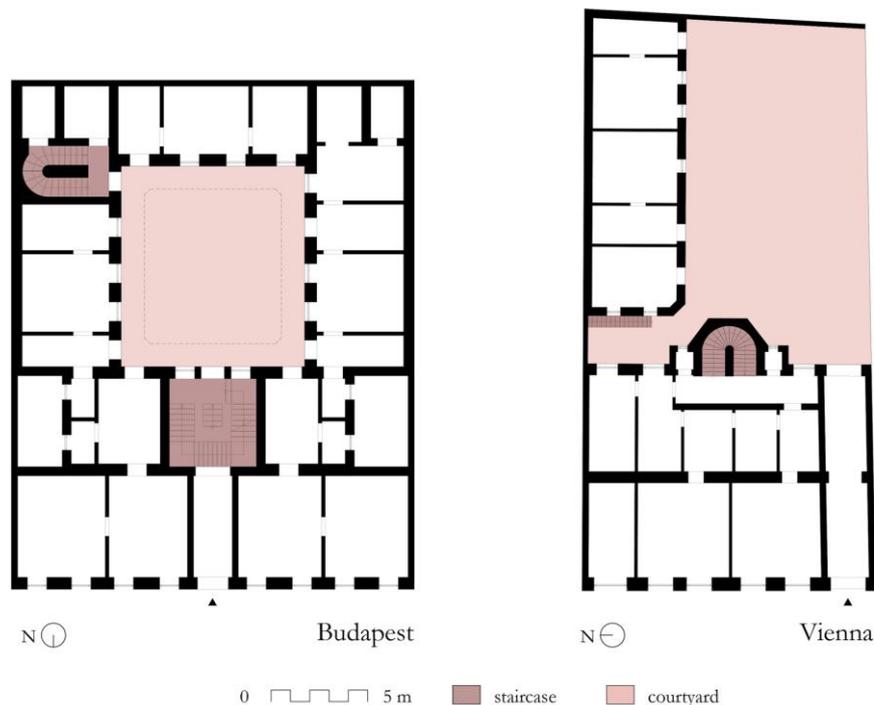


Figure 4. Schematic ground floor plans of the Gründerzeit building typologies

In this context, the street, the ground floor and the backyard of the buildings made one unit. The term of the Urban Parterre³ refers to the built and non-built environment on eye level that was more accessible and intensively used in the Gründerzeit than today. [Psenner 2012a, 5] As a transition between public and private, this semi-public zone of workshops, stores, small ateliers etc. shaped the streetscapes of the era. The approach and use of Gründerzeit buildings was varying in recent years. With the rise of a global market in the 20th century, as well as the spread of the automobile, a function separation moved the focus to the periphery. The paradigm change left its mark on the Urban Parterre. The ground floors of modernist residential buildings were designed less open, serving for the entrance of the garage and other functions. At the same time, the parterre zone of the Gründerzeit districts faced vacancy. However, there are more and more concepts about the return to a neighbourhood scale in the 21st century urban planning.

³ Urban parterre is the English translation of the German phrase *StadtParterre*[®] that was introduced by Angeilka Psenner.

The effects of the selected regulations on the components of the Urban Parterre were highlighted in this analysis. A more detailed analysis on an architectural level would allow the comparison of more attributes.

Conclusions

Under the changing conditions caused by urbanisation, both Budapest and Vienna gained new, densely built areas in the 19th century. As both being metropolises of the Austro-Hungarian Monarchy, the two cities show a parallel development. Although there was no common law in terms of regulating private construction activity, the international exchange of knowledge seems to be highly probable. As professionals travelled and spread ideas beyond borders, European cities have influenced each other. The phases and areas of city expansions were influenced by the early spontaneous development based on topographical situations, as well as by local governmental decisions. Still, the urban fabric of this period is comparable in European capitals, like Budapest and Vienna. Furthermore, the instruments of urban planning, such as the zoning plan and building regulations many parallelities in their development. In summary, some differences can be discovered on a block scale. Moreover, the minimum courtyard area was defined with the same percentage, but was executed differently. However, when it comes to the building and floor heights, constructive solutions, as well as to the usage, a lot of similarities were found.

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Building Regulations

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All Figures are schematic diagrams created by the author.