

THEORY
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THEORY FOR THE SAKE OF THE THEORY



Architectural theory can be defined as a unity of contradictions that has been one of the factors having paved the way of the architectural practice in the modern world. From Le Corbusier's Villa Savoye to slums, from urban transformations triggered by the French Revolution to the construction workers' strikes, from Bauhaus to the contemporary tendencies of architectural education, from avantgarde movements to architectural fashions, from Newton's definition of universal space, to the phenomenological studies on user perception, from Postmodernism's global impacts to Lefebvre's daily life scale, from an activist manner in design to critical sharp-tongued approaches—all these extremes exist in the wide spectrum of architectural theory.

Gérald Ledent, Olivier Masson, İlke Tekin, Pınar Dınc, Serap Durmuş, Esra Şahin Burat, Marc Belderbos, Olivier Masson, Peter Richter, Ali Tahmouri, M. J. Mirabolghasemi, Evangelia Pavlea, Ledian Bregasi, Daniel Cobb, Erdem Üngür, Martin Düchs, Petra Kempf, Edward Casey, Aneta Hristova, Matt Demers, Piotr Marciniak, Athina Papadopoulou, Christos P. Kakalis, Erik Sigge, Sinem Domaniçli, Aylin Ayna, Luciana Fornari Colombo, Meltem Al, Sylvain Marbehant, Gary Brown, Katja Piesker, Mehtap Serim, Pınar Kutluay, Seray Türkay, Andrzej Piotrowski, Asu Beşgen Gençosmanoğlu, Şölen Köseoğlu, Türkan S. Yaşar, Merve Kılıçbay, Ioanna Angelidou, Scott Colman, Barry Edginton, Daniel Grünkranz, Estelle Alma Maré, Seyyed S. A. Oloonabadi, Maryam K. Ardakani, Metin Bayrak, Filippos Oraopoulos, Serap Durmuş, Zorana Sokol Gojnik, Igor Gojnik, Mladen Obad Šćitaroci, Erdem Ceylan, Hossein Safari, Kathryn Bedette, N. Onur Sönmez, Bart Lootsma, Benoît Vandenbulcke, Katerina Charalampopoulou, Santiago Parramón, Pieter Brosens, Eirini Oraipoulou, Özlem Şenyiğit, Ebru Çerçi, Panajota Panotopoulou, Scott Budzynski, Ayça Özmen, Bihter Yılmaz Almaç, Michael Klein, Ruxandra-Iulia Stoica, Lena Athanasopoulou, Michael Edler, Myung Seok Hyun, Simon Mariann, Alma Hudovic, Emanuel Licha, Farzane Haghighi, Nikolina Bobic, Glen Hill, Andreas Rumpfhuber, Asiye Akgün, Aylin Ayna, Hale Gönül, Ceren Bayazitoğlu, Aurel von Richthofen, Christoph Lueder, Luis Diego Quiros, Sema Serim, Ali Sarraf Nik, Farzaneh Hadafi, Funda Kurak Açıcı, İlkay Maşat Özdemir, Yolanda Ortega, Miloš Ševčík, Fritz Neumeyer, Ada Kwiatkowska, Alan Fraydoon Ali, Noora Naeem Abood, Isra Tatlic, José Aragüez, N. Onur Sönmez, İlke Tekin, Erdem Üngür, Nezhir Ayiran, Kathryn Bedette, Thierry Lagrange, Hilary Bryon, Fouad Qahtan Waheed, Paraskevi Panteliadou, Stela Borisova Tasheva, Hooman Koliji, Eric Worcester, Bechara Helal, Jaime J. Ferrer Forés, Bechara Helal, Camille Crossman, Hyun Kyung Lee, Zeynep Aktüre, Angelika Psenner, Emine Görgül, Eva Rodríguez Riestra, Senka Ibrisimbegovic, Harold Fallon, Javier Pérez Herreras, Jimenez Lai, Pieterjan Ginkels, Aykut Köksal, Ahmet Tercan, Erdal Özyurt, Atilla Yücel, François Roche

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THE PRICE OF GENEROUS CEILING HEIGHTS: THE INFLUENCE OF HISTORIC BUILDING VALUE ON VIENNA'S GRÜNDERZEIT ARCHITECTURE

ANGELIKA PSENNER

[Image 1, a typical Gründerzeit street in Vienna's 9th district]

Densely built-up areas: The street-level space created during the Gründerzeit period is densely constructed and receives little daylight. The average street width is between 9 and 16 metres, which is extremely narrow in relation to the building height of 25 metres. The interior courtyards are of minimal size. This means Gründerzeit districts lack a sufficient balance of accessible outdoor recreation areas.

High vacancy rate on the ground floors: As a result of the relatively scarce daylight in the lower levels—and other socioeconomic and legal reasons—the ground level in most of the residential site streets is vacant. *Expensive overhead, high maintenance costs, and sparse population:* The large buildings are sparsely inhabited, as fewer and fewer people live in a former family home. The average per capita living space has increased from 4 square metres in 1901 to 42 square metres today. Therefore, what is it that accounts for the high market value of Gründerzeit buildings? First of all the *generous ceiling heights* have to be mentioned. Typically measuring between 3.20 and 4 metres—on ground floors, up to 5 and 6 metres—they basically constitute the framework for the 'grand and lordly' façades. The extravagant floor height also allows for diverse use: the modular and small-scale structure of the units can be merged or separated as required, while conserving the well-balanced spatial proportions.

From the beginning, Gründerzeit buildings were used for both living *and* working, and to this day they accommodate uses as diverse as apartments, hotels, offices, kindergartens, churches, fitness centres, and so forth.

Research question:

What motivated investors to place so much importance on high ceilings in spite of the drawbacks cited, while Gründerzeit buildings are said to be the prototypes of unlimited profit-driven liberalistic-capitalistic ideas? By quoting original literature of the time this paper offers a most astonishing answer to this question; and with this, a new dimension to the ongoing discussion about the value of *use-neutral architecture*.

1. Introduction: The Vienna Gründerzeit Building

1.1. Apartment Buildings as Objects of Speculation

The Gründerzeit period is marked by an unrestrained unfolding of the liberal-capitalist spirit

that drove the industrialization of the Habsburg Monarchy. While housing previously had been an occasional source of income for large property owners, it was during this period of economic liberalism that it became a full-blown object of

speculation. To wit, Vienna had half a million inhabitants and 8,493 landlords¹ in 1860, whereas at the height of the Gründerzeit period (1870–1890), 18.9% of the residential buildings in the city and its suburbs yielded such high returns that the owners were able to live on this income alone.²

One of the conditions that allowed for this extraordinary building boom was the so-called *Grundentlastung* (agrarian reform), implemented in the years following the abolition of manorialism in 1848.³ Both the high and the low aristocracy lost ownership of most of their land, leading to reduced aristocratic influence in the economy—and to a boost in the real estate market.

A second condition was migration: within eight decades Vienna's population grew from 440,000 in 1840 to 2,238,545. Most of the population was absorbed within the suburbs, where the population grew from 242,000 in 1870 to 1,011,000 in 1910,⁴ resulting in an excessive demand for and overcrowding of apartment buildings. In 1894 the Viennese Architect Lothar Abel (1841–1896), published a widely received article concerning the overwhelming housing problem, "*Das gesunde, behagliche und billige Wohnen*".

So-called building speculation, which considers a house not as a property but as a commodity, is the real cancer of our current art of building. These speculators start out by calculating the rent that they want the house to yield, or with which they want to attract a buyer, a so-called Wurzen. In order to obtain this rent, the building costs are set at a certain level, and this level must not be exceeded under any circumstances in order for the desired rent to be secured. They then charge as much as possible against the total building costs, which usually are calculated very tightly to begin with. Normally the price obtained does not buy very much, and this is compensated for by economizing in the building's masonry, its wooden structures, etc., just as much as is required for the initial calculation to work. Moreover, since the building does not yield any rent while being constructed, it must be completed with a time that is too short for it to be proper and solid. (Abel, 1894, p. 132–133)

1.2. Living and Working in a Gründerzeit Building

Hans Bobek and Elisabeth Lichtenberger's standard work *Wien: bauliche Gestalt und Entwicklung seit der Mitte des 19. Jahrhunderts* (Vienna: Architectural Form and Development Since the Mid Nineteenth Century) from the 1978 edition (first published 1966) offers illuminating data that provide a view of living conditions in the apartment buildings:

In 1869, 72% of all apprentices and 22.9% of the workers lived in their respective employers' buildings. Consequently, the proportion of non-family residents (workers, lodgers, so-called *Bettgeher*⁵, apprentices) in a household was as high as 42.6%. 55.1% among the 179,388 industrial employees had no apartment of their own, they were lodgers or *Bettgeher* in their employers' households, and only 28%

1 Fellner, 1860, p. 5.

2 Bobek, Lichtenberger, 1978, p. 38.

3 This resulted in peasants becoming the proprietors of the land they cultivated, however the manorialist rights associated with it were paid off with precisely regulated amounts of money.

4 Bobek, Lichtenberger, 1978, p. 30–31.

5 Literally 'bed goer'; lodgers sharing the same bed in day and night shifts (trans.)

among them were married. By contrast, most of the independent tradesmen had their own apartments and were either married or widowed.⁶

The 1859 Trade Act resulted in a liberalisation of what previously had been a guild-controlled industrial structure: with the new act, taking up a trade required only registration with the authorities and was otherwise free of restrictions. There were only 14 trades that required a business permit. Even though the stock crash of 1873 resulted in a return to a guild-based approach to the economy, the economic structure remained dominated by small businesses, which were all *based in residential buildings*. Only a few among the businesses covered in the 1869 business census had more than 10 workers—and only businesses located in the suburbs had more workers.⁷

Generally, outside of the *bel etage*, apartment buildings were used both for living and working—apartments even served as sleeping places for bed-sharing day labourers. Yet, even the 'stately', sizeable apartments on the *bel etage* itself existed next to offices of doctors, lawyers, factory-owners, and so forth.

1.3. Use-neutral Gründerzeit Architecture

Given their historical use, Gründerzeit buildings must be considered use neutral: they served both as residences and workplaces—largely due to the fact that in the 19th century there was little separation between living and working. The residents' way of life always comprised every possible form of expression: the 'residential' quarters were used for eating, sleeping, cooking, working, etceteras. The rooms offered an abode for everyone alike.

Moreover, the apartment building harboured people of different social strata: members of the bourgeoisie, factory owners, intellectuals, entrepreneurs, craftsmen, handymen, day labourers...all lived under the same roof. Communal life was nevertheless ordered by rigorous behavioural codes and strict hierarchies. Still, everyone used the same entrance and the same stairway—a circumstance that met with disapproval in some countries and social circles. The explanation for this dense intermingling of social strata, unique in Europe, rests in a mix of socio-historical, economic, and cultural factors—a discussion exceeding the scope of this paper.

For our purposes, what is of interest is the question of the 'hardware': the scope of possibilities that Gründerzeit architecture was—and still is—capable of providing. Use-neutral and open-use architecture is primarily defined through a flexible room model⁸ and adequate ceiling heights. The flexible room model secures the possibility of adaptation: a renovation can be carried out—and even reversed—at any time. Tenants and owners can thus design apartments and workplaces according to their own ideas and needs. In some cases, when the ownership permits it, apartments

6 18.5% out of a total of 524,202 workers were considered self-employed traders. As the Gründerzeit progressed, more and more labourers had their own apartment, while at the same time the frequency of marriage increased and the number of children born outside of marriage decreased. While in the early Gründerzeit period the ratio of children born in marriage to those born out of marriage was 1:1, it was 2:1 at the height of the Gründerzeit, and 2.5:1 just before WWI (Bobek, Lichtenberger, 1978, p. 35-38).

7 Beer breweries had the highest average number of employees. The iron and metal industry was not yet relevant at the time. (Bobek, Lichtenberger, 1978, p. 36)

8 This aspect is not addressed here as there already exists a wide range of publications, e.g. Erich Raith, *Stadtmorphologie*, 2000.

can be joined together, transgressing allotment boundaries. When smaller units are merged into a large space, it is the generous ceiling height of Gründerzeit buildings that ensures adequate room proportions. In this way, a Gründerzeit apartment building can accommodate spacious, prestigious offices for lawyers, for instance, as easily as day care centres for kids, coffee houses, community centres, yoga schools, and so forth—they all find their place in the Gründerzeit structure. At the same time, the supply of smaller housing units has again increased in order to accommodate the increasing number of single-person households. High ceilings allow for the creation of large units while also retaining the possibility of returning to a smaller scale.

So how did this happen? What motivated investors to place so much importance on high ceilings while Gründerzeit buildings are said to be the prototypes of unlimited profit-driven liberalistic-capitalistic ideas? How have the high ceilings paid their way? What did their value consist in?

2. On the Genealogy of the Viennese Gründerzeit Building: The Historical Development of the Gründerzeit Building Structure.⁹

2.1. Building Height and Ceiling Height

The total height of the average Gründerzeit building was originally (circa 1843) set at 4 storeys. From 1868 on, 5 storeys were allowed—including a mezzanine¹⁰ and the ground floor; additionally, these 5 storeys were limited with a total height of 13 fathoms (equivalent to 23.77 metres). When the metric system was introduced in 1870, the maximum building height was increased to 25 metres. The building regulations of 1881 allowed 0 metres for the upper edge of the flooring of the uppermost floor. Also coinciding with the introduction of the metric system, the

⁹ In Vienna, construction industry regulations were introduced in 1829. They were implemented through a series of decrees, the so-called *Regierungs-Circulare* (government circulars) of 13 December, 1829. In 1830 the first building regulation act was issued. The regulations written by von Mühlböck in 1843 (the contents of which coincided with those of 1830) represented the construction decrees then in force in 8 topics, 3 sections, and a total of 30 articles. The Gründerzeit period underwent a total of 4 different issues of the applicable building regulations. As mentioned, the first regulations were issued in 1830, followed by a second one in 1859 and a third one in 1868. The latter comprised as many as 93 articles and was amended in 1870 in response to the changes required by the introduction of the metric system. The last relevant issue of the building regulations was released in 1883 and for the most part remained valid up until the first third of the 20th century, with one amendment enacted in 1890.

¹⁰ In his PhD dissertation, *Graz, Strukturwandel einer Stadt im Lichte ihrer Bauvorschriften (1856-1968)* (Graz: The Structural Transformation of the City in Light of its Building Regulations) Peter-Heinz Maruschek attributes the existence of the mezzanine to a circumvention of the article 17, according to which "new buildings...may only be built four storeys high: Evidently, the preferred way of circumventing this norm was via the entresol (mezzanine)—a low in-between storey located between the ground and the first floor, or between the uppermost floor and the roof—which had to be considered a storey in the terms of the 1868 law." (Maruschek, 2010, p. 98) Other theories attribute the mezzanine to the storey tax, to be circumvented by the terms 'mezzanine' or 'entresol'. This is an assumption for which no evidence has so far been found: documentary research at the City of Vienna's departments for legal matters of construction (Municipal Department 64) and for accounting and fees (Municipal Department 6) as well as in the city archives yielded no results.

minimum ceiling height was increased from 2.74 (circa 1843 and 1868) to 3 metres.

Taking these different conditions into account and assuming a ceiling structure of approximately 40 centimetres, a discrepancy among the various height requirements becomes apparent—a discrepancy that circumscribes the actual excessive storey height without, however, explaining it. It is becoming clear that the ceiling heights of 3.20–4 metres (more on the ground floor) characteristic of the Viennese Gründerzeit building cannot be accounted for on the basis of building regulations. Instead, a formula is revealed, that is, the difference between the maximum building height (25 metres) and the largest allowed number of storeys multiplied by the minimum ceiling height ($5 \times 3.40 = 17$ metres).¹¹

What motivated speculating investors to incur this additional expenditure? Why did this not happen to the same extent in other cities—in Berlin, Paris, etc.?

2.2. Ceiling Height Value in the National Economy and Public Health

By the late nineteenth century, Gründerzeit Vienna was considered to be particularly densely populated. Additionally, Vienna had been repeatedly afflicted by epidemics, which drew considerable attention to the sanitary problems in the city's apartments. Time and again 'physicists' and doctors were invited to participate on commissions in order to draft expert opinions regarding public health care, and subsequently, to aid the reform of building regulations. Examples include the 1882 "Bericht des Ausschusses der k.k. Gesellschaft der Ärzte zur Berathung der Reform der Wiener Bauordnung" (report of the Imperial Medical Society on Suggestions for a Reform of Vienna's Building Regulations), and Carl Haller's lecture, held in 1864 on behalf of the Imperial Society of Physicians in Vienna with the title "On the Ventilation of our Apartments".

Research on sickness and mortality in our capitals...has shown that the course, the direction, and the duration of our most common epidemics are most evident at locations without a sufficient renewal of the air, and that improvements—such as they are manifest in the great successes of our charitable construction societies—do the most towards changing that situation. This research has also revealed that the dominant disease of our time, tuberculosis, which reaps away the most beautiful among our youths, and often also the blossoms of our intelligence with its cruel hand, killing 6000–7000 people in Vienna every year, has its main source in an insufficient breathing process. (Haller, 1864, p. 16)

When one compares the living situation in five of Europe's largest cities, the enormous influence that apartments have on the moral and physical condition of the population becomes mathematically evident. As mentioned previously, there are 7 persons to one building in London, 35 in Paris, 58 in Berlin, 52 in St. Petersburg, and none less than 59 in Vienna. As the number of inhabitants per house increases, mortality also increases, for out of 1000 people 24 die in London, 25 in Berlin, 28 in Paris, 41 in St. Petersburg and 47 in Vienna. (Abel, 1894, p. 347)

The theories about 'systematic air renewal' and 'ventilation' merit special reference. Developed by Paul Traugott Meissner, professor of technical chemistry in Vienna, it was received and disseminated as a "path-breaking thesis" across

¹¹ In relation to this consideration, the maximum allowed upper edge of the uppermost floor (20 metres) must be juxtaposed to the calculated height of $4 \times 3.40 = 13.60$ metres.

Europe.¹²

Of air layers in inhabited rooms there are always three, that is, the lower one, on the floor of a room, where carbonic acid, the heaviest among the gases make-up the air, will accumulate, in as much as through the breathing process so much of it is given off that it can no longer be bound by the atmospheric air. This is a case that frequently occurs in souterrain and basement units. Furthermore, the middle air layer will take up the lighter atmospheric gases, and finally on top of those there will be the even lighter putrid gases, mainly nitrogen and all the carbohydrates. Most of the ventilation installations siphon off the uppermost layer of air, which results in a continuous exchange of air in the room. (Abel, 1894, p. 227)

[Image 2: theories on ventilation, according to Carl Haller, 1864, p. 25-31]

Returning once more to the harmful effects of putrid air, there can be no doubt that it gives rise to the most problematic of health disorders. Even when the degree of contamination does not reach very high levels, it is the permanence of the effect of the room air that will increase the propensity for illnesses: a poor diet, anaemia, and the like—we can easily tell these things by the room dweller's pale complexion. (Alsberg, 1882, p. 32)

The concept of 'air layers' led to specific advice for architects and builders:

As is known, high rooms are much healthier than low ones, because in the former the air will always be pure, and high rooms can accommodate a greater volume of air on the same amount of surface....However, in the case of finer residential building's elegant rooms one must not fail to consider the architectural conditions, and one will therefore give smaller rooms a lower ceiling than large ones. All the while, one should not have rooms with a ceiling lower than 3 metres, especially when the room also serves as a sleeping room, in part because it would be unhealthy and there would be a lack of air supply, in part because of the danger of fire, as lamps placed on the table and the heat of the fireplace would then be too close to the ceiling. (Abel, 1894, p. 276)

From this point of view, small children were thought to be particularly at risk, which is why the practise of mounting cradles and children's beds on high base frames became widespread:

Another highly dangerous effect of contaminated room air is that in children it very often causes scrofula as well as increasing the propensity to catarrhs, the English disease (rickets), and similar conditions, thus paving the way for later infirmity already in childhood. (Alsberg, 1882, p. 32)

A further health and sanitation argument in favour of high ceilings was made in connection with 'scientific explanations' of the salutary effects of light and sunshine:

Looking now at the effect of the illumination from the façades and the windows, we notice that the same amount of light entering through the windows will create a better illumination of the rooms where the ceilings are higher and the buildings less deep....In buildings with small apartments, a ceiling height of circa 3 metres corresponds to a depth of approximately 10 metres, while buildings with large

¹² "Die Ventilation und Erwärmung der Kinderstube und des Krankenzimmers", (Ventilating and Heating Nurseries and Sickrooms), 1852.

Research on ventilation has also been carried out by Eugène Peclet, Pat Arnott, and David Boswell Reid.

apartments have a depth of circa 12 metres with a ceiling height of circa 3.6 metres. The lower floors of a building usually have higher ceilings, and rightly so, as this allows the limited light supply to be largely compensated for by better conditions inside the building. (Serini, 1913, p. 9)

Against the background of these arguments, it also becomes clear why the windows in Gründerzeit buildings were made both as high and narrow as possible, and why a greater ceiling height is required on the ground floor. Even though the building regulations stipulated a ceiling height of 'only' 3 metres, there was a general recognition that heavily used rooms—considering a per-head-space requirement of 4 square metres (!)—required a large air volume. Health considerations along with the desire for sufficient light must, therefore, be seen as the reason for the familiar and excessively high Gründerzeit rooms.

2.3. The Market Value of Ceiling Height

"Whenever I consider purchasing something, I must know its value at least approximately in order not to be deceived." (Řibřid, 1913, p.3)

From our current understanding, the original, historic value of a Gründerzeit property is not easy to comprehend. However, economic perspectives from the period offer insight into this phenomenon; for instance, in the book of architect and city-employed builder L. Kurzweil: *Wert- und Rentabilitätsberechnung von Zinshaus-Realitäten; Mit besonderer Berücksichtigung der Amortisation* (Calculation of Value and Cost-effectiveness of Apartment Buildings, with Special Consideration of Amortisation). Kurzweil intended the book as a "Ratgeber für Hauskäufer, bzw. – Verkäufer, für Architekten, Baumeister, Hausadministratoren und sonstige Interessenten" (guide for buyers and sellers of houses; architects, builders, building administrators, and other interested parties). Using complex tables, the author computes purchase value, depreciation, and total fees¹³ (taxes, charges, dues, etceteras), based on the various rental tax regulations that applied to the buildings.

According to Kurzweil, the price of a property was determined by three different factors: simply put, one could say that the value of a property was determined by the value of the *building lot*, the so-called *building value*, and the *earning rate* (resulting from the rental income). "The earning value by itself does not represent the value of the building....The true value of a building is determined by adding up the value of the building lot with the building value and the earning value, and then dividing the total by two." (Řibřid, 1913, p.13).

Consequently, the **estimated value of a property** is the result of the mean value between the cost of production (value of the lot and the building) and the earning value. Thus, it is not the rental income alone that determines the value of a building.

Land Value, Building Lot:

In addition to its size, the value of a building lot is determined by its location and its shape (configuration).

Configuration: Small and shallow real estate lots achieved a lower sales price

13 For example, there was a fee for a 'vault guard' (responsible for publicly accessible street level and basement spaces) that operated in the first district only. Depending on the location and type of the buildings in question, the fee was divided into four categories ranging from 6 to 44 crowns.

than wide lots of medium depth—in other words, pieces of land that were suitable for the construction of double blocks. Deep lots were considered less desirable because of the unfavourable ratio between the high rated front building and the low rated apartments of the back building. (Bobek/Lichtenberger, 1978, p. 50). What mattered was primarily the *width of the main building front*: a wide front combined with a shallow lot depth was considered a desirable building lot configuration. (see Řibřid, 1913, p.8) "As is known, we determine the value of an apartment by the number of its street-side rooms." (Abel, 1894, p. 301)

Location: In his 1901 analysis "Die Entwicklung der städtischen Grundrente in Wien" (The Development of Urban Land Rental in Vienna), Paul Schwarz finds a marked decline in land prices towards the urban periphery. This concentric structure was overlaid by sectors with (greatly) increased land prices. The western and north-western sections of the city, between the Vienna valley and the Danube canal, were considered particularly expensive, while districts such as Margareten met with little demand (Schwarz, 1901, cited in Bobek/Lichtenberger, 1978, p. 50). The reasons for this are to be found in the city's topographical building history¹⁴ as well as the stage of completion of the urban transit infrastructure.¹⁵

Building Value:

The building value is determined by the size of the built-up surface, by the building materials, as well as by the number of storeys and the exterior and interior fittings. Naturally, the more abundant these fittings, the higher the building value will be. (Řibřid, 1913, p.8)¹⁶

The evaluation was, thus, based on the number of square metres of built-up surface, and on a specific multiplier for the fittings. The design of the façade played an important role in this, too.¹⁷ There were other designations at work as well: "basic one-story buildings", "more elaborate buildings", with basements, without a *souterrain*, without a mezzanine, with hard floors on the street side, and soft floors on the yard side, and so forth. Furthermore, buildings were differentiated by "elegant interiors: hard floors on all storeys, kitchens with firebrick floors, the whitewashing of the walls done with more than three cartridges; apartments of three or four rooms on the lower floors" and finally those "equipped with all comforts". In the case of the latter, the definition presumes that "everything be: lavishly decorated and furnished" with "elegant business parlours, and furthermore a *souterrain*, a mezzanine, and an attic with a laundry".

14 Aside from the all-determining topographical factors, the main radial roads played a particularly important role in the Viennese case.

15 In the early Gründerzeit there was no public transportation in the city. A record in 1850 identifies 700 rented two-horse carriages and 60 wagons (so-called Zeiselwagen). The first horse-drawn railway was inaugurated in 1856. In 1872, 900 fiacres, 1100 one-horse carriages, and 960 horse-drawn wagons were registered.

16 The construction time for a "normal or slightly better, multi-storey building" is estimated to be 1.5 years—that of a two-storey building, 1 year. (Řibřid, 1913, p.6)

17 It seems all the more odd that in the 1950s and 60s removing facade ornaments was promoted by the city by means of the law. Evidently, decorative facade plastering had lost its importance in the post-war period and, being out of step with current notions of architecture, were often viewed as bothersome. In the same period, the old buildings in German cities underwent what was called *Entstuckung*, or de-plastering.

In the case of a single-floor building, 1 square metre of building surface is valued with 498 crowns. For additional floors, more is calculated, that is, 80 crowns for the second floor, 77 for the third, 73 for the fourth, and 42 crowns for rooftop artist studios. In the case of corner buildings, 6 % is added to the square metre value. (Řibřid, 1913, p.9)¹⁸

Many of the early Gründerzeit buildings—particularly in the main commercial streets, where they often lasted less than 50 years—were replaced by the turn of the century (1900).

Return on Investment, Rental Rates:

The actual rental income, that is, the return on investment, accounted for a small part of a property's value, and was by no means as central as one might assume from today's point of view. Moreover, it was a known fact that rental income reports were manipulated through the distinction between gross returns and net income:

In order to correctly determine the gross return, it is not sufficient...to merely look at the tax declarations, for these may be incorrect for a number of different reasons; they may state too high or too low of an income and thus not correspond to the actual state of affairs....Moreover, it often happens that building proprietors seeking to sell their buildings try to increase the rents—even if only for a short period of time—without consideration as to whether such inflated rents can be maintained in the future. (Řibřid, 1913, p.11)

The net income resulted from the gross returns from rental payments less the housing rent tax (after subtracting the tax benefits¹⁹), reduced by all additional charges and dues (provincial, municipal, schooling, etc.), reduced by the amortisation of the construction capital, that is, the time dependent devaluation,²⁰ reduced by the cost of building maintenance, fire insurance, chimney sweeping fees, building administration (including an apartment for the concierge), floor lighting, and finally the cost of vacant apartments or shops.

2.4. Image

The urban building, through its vocabulary of forms, catered to certain perceptions of value, which in turn co-determined its market value. It distinguished itself clearly from the rural or single-family home. Consider the following experimental scenario: in what way does the façade of a Gründerzeit apartment building change if its height

18 The building value also included the so-called *Interkalare*, the loss of interest on capital during construction.

19 The law of 9 February 1892 (Imperial Legal Gazette #37) introduced a 24-year rent tax exemption for the construction of "healthy and inexpensive" apartments for labourers, indicating only two requirements: apartments underneath street level were excluded from this tax exemption, while the minimum size for one-room flats was 15 square metres, and multi-room flats 40 square metres, with 30 square metres and 75 square metres being the respective upper limits. Another law on tax exemption for workers' homes was passed in 1903 (Imperial Legal Gazette #6, 1903), this time with detailed requirements. (Maraschek, 2010, p. 6)

20 Buildings constructed with fire-proof materials were expected to last 130-150 years, those with standard materials 70 to 100 years. Currently the amortisation period for new buildings is 66.67 years. (Standard, 2011, p. 11).

is reduced (while the vocabulary of forms remains unchanged)? The images reflect the problem: the one on the left is the original, while on the right the building has been reduced to 17 metres, applying the minimum ceiling height of 3 metres required by the building regulations. The clumsy proportions are much closer to the formal expression of a country house. Even though this building would meet the building regulations, it would hardly be perceived as valuable.

[Image 7: Front of a four-storey terraced apartment building from the high Gründerzeit.]

(from: Bobek/Lichtenberger, 1978, p. 120)

The rich and magnificent façade is the cheese with which to catch the mice. One must not hold this against the builders, even though they may often be pointed at as scapegoats when they abet construction speculation. (Abel, 1894, p. 227)

Most of the apartment buildings are erected with the intention to accommodate as many tenants as possible, while decorating the façade with all kinds of terracotta or cement ornaments, such as can readily be obtained from factory storehouses. (Abel, 1894, p. 99)

Furthermore, in this little book [note: the treatise by Eitelberger and Ferstel, criticized by the author] the modern apartment building-monsters are accused of feigning a palace-like appearance, without having the essential attributes of such a grand building, which is only a way of expressing how regrettable it would be if the countryman ever reached a level of wealth that would allow him to afford himself a stately home with high ceilings and windows, instead of his seven-shoe high thatched hut, for he would then, in spite of the architectural oddities that such buildings will always retain, still come closer to the wealthy citizen, or even the lordly manor. Besides, such frivolous builders are also accused of being extravagant and vain enough to install double doors and Venetian blinds, while the tenants are accused of requesting the same, which are sheer luxury and fitting for a palace, but not a townhouse! (Fellner, 1860, p. 10)

Attempting to establish through research the reasons for the excessive ceiling heights of the Gründerzeit buildings has been demanding. Apparently, we are looking at knowledge that was immanent in a system or within society; in other words, its content was considered so obvious and 'logically evident' that it was deemed unnecessary to make it explicit.

A **'valuable' building of this period necessarily had to have a 'stately' appearance**, because the value hierarchies of the Gründerzeit were influenced by the bourgeois ideology of the Vormärz period. The latter was oriented towards neo-classical images and details as well as elements of the Renaissance with a preference for triangular, segmented gables, and **'stately' sizes and proportions**.

Whenever the architectural forms of the Gründerzeit were questioned by contemporaries, it was not because of the ceiling height.²¹ After all, the necessity of

21 Instead, the general line of argument called for low-rise garden cities as in Britain. This type of criticism was expressed, for example, by the architect and Senior Building Official Professor Leopold Bauer (1872-1938), by the architect Lothar Abel (1841-1896), and by the lawyer and politician Erich Koch-Weser (1875-1944), who praised the virtues of the English, Dutch, and Belgian "small building", and considered the "large building", that is, the tenement house, as the root cause of his era's housing problems. Moreover, he was of the opinion that "everything that constricts the city—for example, greenbelts and the like—had

high ceilings had been 'scientifically proven' (see the previous section on air layers and ventilation), and furthermore, the added cost of constructing high ceilings, being covered by higher return on investment and the greater market value it generated, did not actually add to the costs.

Who has not observed the practices of our local masons! Several workers stand in one place, duly lining up the bricks one after the other; once they have thus completed a row, there are hands who bring in the liquid mortar, applying it upon and between the seams by using large spoons. The complicated process, requiring much supervision but little action, is completed.... (Velleman, 1872, p. 62)

In his 1872 treatise "Die oeconomische Bedeutung der Bauordnung in Oesterreich" ("The Economic Significance of Building Regulations in Austria") architect and engineer G. Velleman identifies what he considers to be adverse conditions in the construction industry. Looking at his meticulously recorded price lists, it becomes evident that during Vienna's Gründerzeit period, masonry work was carried out consistently by day labourers, keeping the price per cubic metre of walling exceptionally low.

3. Conclusion

The Gründerzeit apartment building represents an architectural form of use neutrality that is empirically evident. Its openness to different forms of use, historically proven and established over the decades of its existence, is based on the following attributes:

- a simple and flexible room model
- high ceilings
- high perception of prestige (value) reflected in fittings, ceiling height, and

façade

The market value of the Gründerzeit building was originally also determined by its prestige value, that is, by its fittings and details. Such symbols of prestige have remained in demand until the present, expressing themselves in the materials used (hard wooden floors, double wing doors, etc.) and in particular in a 'stately' façade. What seems to matter most with regard to the latter are not the plaster ornaments, but out-of-proportion ceiling heights.²² Thus, ceiling heights that seem above-average from our point of view, and for which sanitary considerations are co-responsible, are ultimately also an investment.

The fallout of economic and financial crises has lead to a re-discovery of Vienna's apartment buildings as objects of investment.²³ While the demand for this investment had its peak about two years ago—and major institutional investors have since pulled out of the active buyers' market—a lively interest in apartment buildings remains.

Even without elaborating on economic factors such as income, old-age provision, reinvestment of earnings, etceteras, the appeal of the Gründerzeit apartment

to be avoided" since they created a lack of space that caused houses to "stretch upward".

²² Gründerzeit buildings keep their value even when plaster decorations are removed—a practice promoted by the city administration in the post-war years in the name of progress and modernity.

²³ Prices on the apartment building market have consistently been rising since 1988, with the exception of a few intervals. (Standard, 2011, p. 111)

building can be described in terms of a *variable* based on *subjective* preferences. Today it is the Gründerzeit building's generous offering of space that is the real reason for the renewed interest in it as a 'commodity'. This is true, not least of all, because it offers the possibility of open-ended usage, thus catering to a wide range of interested parties, rather than limiting itself to a specific segment of the market.

Current architectural forms lag behind this kind of thinking. We are continuing to build apartment and office buildings as entities separate from each other, and with a maximum ceiling height of 2.50 metres.

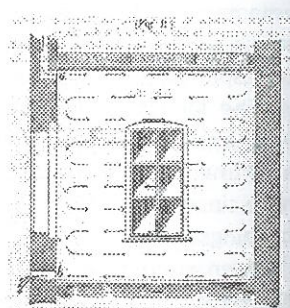
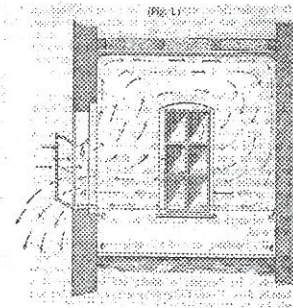
Given the circumstances discussed here, an updated interpretation of building regulations is required—one which might bring the vision of a mixed-use and compact urban structure within reach.

Tables and Images

Image 1



Image 2: Theorien zu Ventilation aus Carl Haller, 1864, S. 25-31



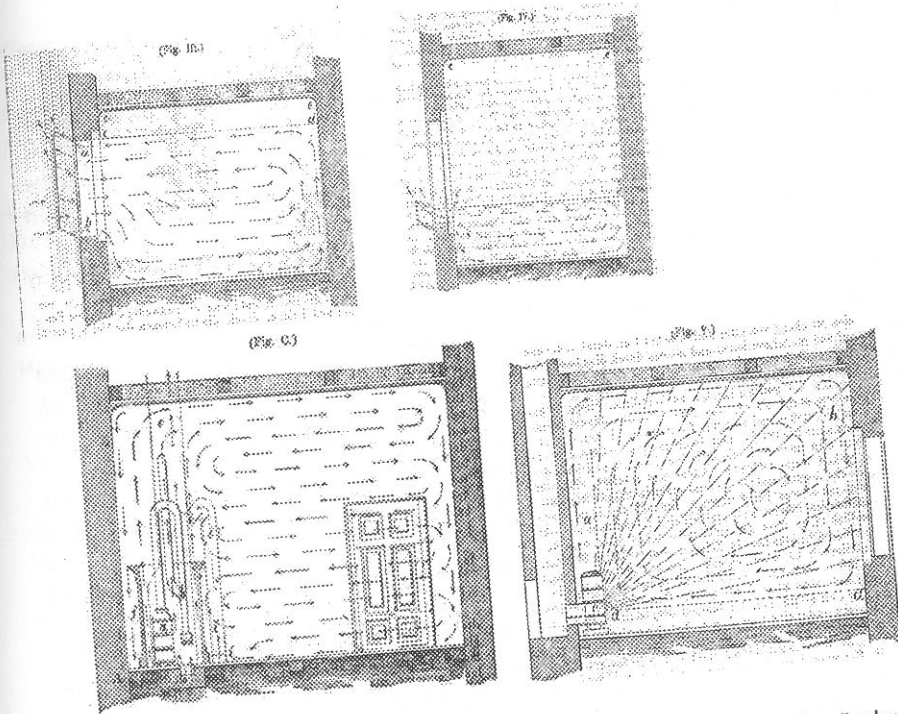
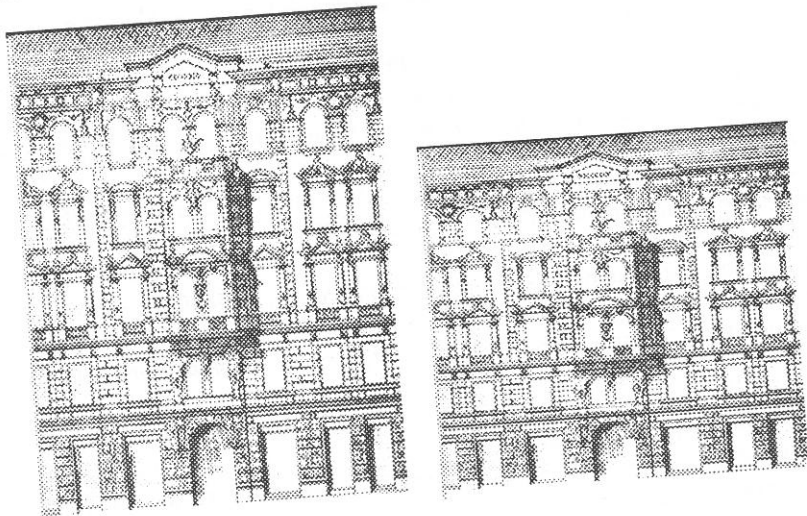


Image 3: Fassade eines Vierstöckigen Reihenmiethauses der Hochgründerzeit (aus: Bobek/ Lichtenberger, 1978, S. 120). Links im Original und rechts auf die, bei Einhaltung der per BO vorgegebenen drei Meter Raumhöhe sich ergebende Gebäudehöhe von ca. 17 Metern geschrumpft.



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