

city as organism

new visions for urban life

22nd ISUF International Conference | 22-26 september 2015 Rome Italy

edited by
Giuseppe Strappa
Anna Rita Donatella Amato
Antonio Camporeale

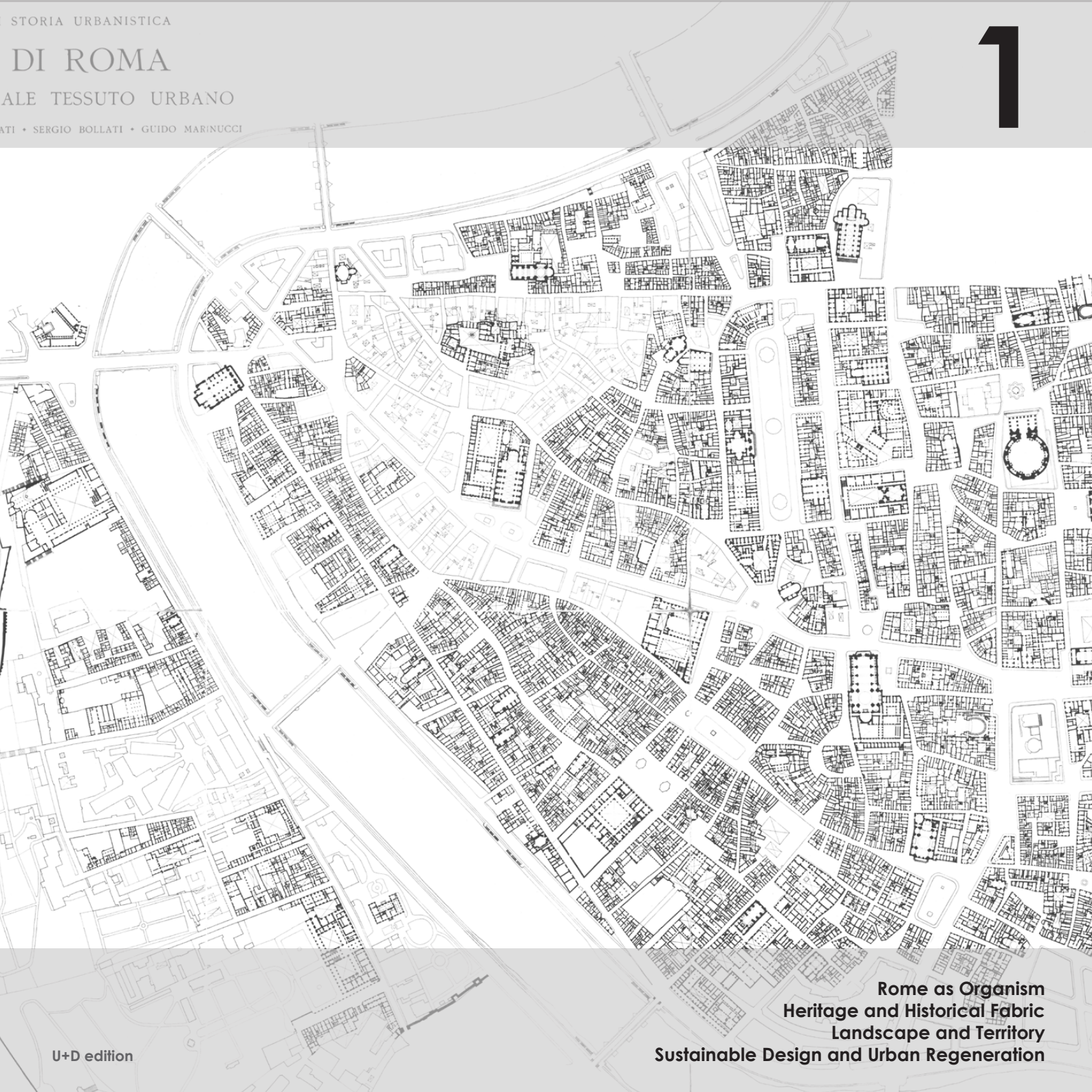
STORIA URBANISTICA

DI ROMA

LALE TESSUTO URBANO

ATI • SERGIO BOLLATI • GUIDO MARINUCCI

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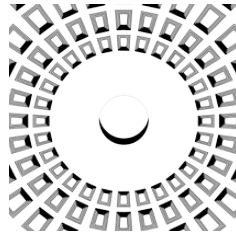
U+D edition

Rome as Organism
Heritage and Historical Fabric
Landscape and Territory
Sustainable Design and Urban Regeneration

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**Rome as Organism
Heritage and Historical Fabric
Landscape and Territory
Sustainable Design and Urban Regeneration**

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U+D edition Rome
ISBN 97888941188-1-0
May 2016

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Repairing urban fabric with large-panel system buildings – urban redevelopment in historic cities during the last decade of the GDR

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Keywords: pre-cast concrete slab construction, post-war reconstruction, socialist postmodern architecture

Abstract

During the 1970s architects and planners began to doubt about the principles of modern urbanism according to the 'Charta of Athens' not only in West Germany (FRG), but also in the socialist East Germany (GDR) (Urban, 2007). Although first renovations of 19th century districts (Animplatz, Berlin) were carried out mainly for economic reasons, soon the socialist government in 1976 ordered redesign of the historic city centre of Berlin (Sophienstraße, Gendarmenmarkt, Nikolaiviertel) respecting the history of the place. Its motives were, on one hand, propagandistic ones - exploiting the German history, culture and tradition for the legitimation as the true German nation - and on the other hand, indeed, the growing belief in the economic and social value of the compact city.

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The contribute describes and analyses the treatment of the historic fabric and weighs role and values that were attached to it by planners in the 70s and 80s. Further, it focusses on the question to what extent concrete slab/ panel buildings complete historic urban fabric or are in continuity with it.

Especially in the 1980s the formerly rigid prefabrication systems were more and more adapted to the urban fabric of the 19th century (Berlin, Jena), of Baroque times (Potsdam, Greifswald) or even Medieval times (Rostock, Stralsund) assuming an angular geometry, and an appropriate subdivision and dimension of building corps. Also in the architectural language was tried to create a relation to historic architecture by attaching bricks on the concrete panels, introducing specially formed panels for slope roofs, gables or entrances. Günter Stahn, the architect of the Nikolaiviertel said: "The concrete panel simply was the brick of our times." (Krüger, 1986)

Introduction and Methodology

Architects and town planners in the GDR brought historical town centres into focus during the so-called third period of reconstruction (Beyme, 1992), at the beginning of the 1970s. At that time cities that had not been destroyed during World War II, were in a serious state of neglect and decay.

In the third reconstruction period planners continued to pull down large parts of urban fabric in order to construct completely new buildings without any relation to the historical urban form. But in comparison to previous planners now they tried to adapt the new buildings to the irregular 'ground plans' of historic cities. Large panel system buildings by industrial prefabrication were the only available construction technique. And therefore planners were forced to find solutions to adjust their rigid modular system to the irregular course of historic streets.

Today the large-panel system building era is considered to have come to an end. Architecture and construction technique of the so called 'Plattenbauten'¹ have completely been abandoned after the reunification of Germany. However, recent publications of different branches show a topical interest in exploring this phenomenon under various points of views.

The present paper tries to analyse the relations between the 'Plattenbauten' and the historical urban fabric with its various types of historic buildings.

Pars pro toto three significant examples – two in Berlin and one in Potsdam – will represent the numerous parallels realised all over the GDR².

Historical context

196 "Sixteen principles of urbanism" were passed together with the reconstruction law on 14th of September 1950, a short time after the founding of the GDR. They declared "the economic and social value of the 'compact city' and asked to respect historical urban development and regional construction traditions in town planning (Beyme, 1992). Last not least the 'principles' should be a "counterweight to the 'Charter of Athens' " (Durth, Düwel, and Gutschow, 1998). Few projects were realised in the first phase of redevelopment, amongst them the famous Berlin Stalinallee, the Lange Straße in Rostock and the Dresden Altmarkt.

In 1955 the "16 principles" were mainly abandoned in favour of industrialized social housing that fulfilled again the idea of aligned blocks set in parallel ('Zeilenbau'), the same sunlight exposure and aeration for all and the construction with pre-cast concrete boards. The turning point that marked the end of the first reconstruction period had been Nikita Khrushchev's decree "On liquidation of excesses" from November, 1955. He ordered the Soviet Union and its satellite states, like the GDR, to start a sole industrial production for building.

Khrushchev's speech was published in the GDR with the programmatic title "build better, cheaper and quicker". The leaders of the socialist party of the GDR had obeyed and had started the construction of a city – Hoyerswerda-Neustadt – in the same year, using exclusively the prescribed building techniques (Richter, 2006).

Finally with his seven-year plan (1959-1965) the leader of the socialist party Walter Ulbricht made the industrial building production a governmental doctrine (Hannemann, 2005). During this second period of reconstruction most of the 691000 apartments were built in the periphery of the cities. At the same time a lot of 19th century residential districts were pulled down, whose tenement blocks ('Mietskasernen') were regarded as a symbol for the capitalistic oppression of the working class. After that these areas were 'reconstructed' by large-panel system buildings. Beside ideological reasons (Richter, 2006) those demolitions were legitimised by the idea, that every building lasts only a determined time (lifespan). After that

¹,Plattenbau' is the German colloquial term to indicate pre-cast concrete board buildings (technical German term 'Gebäude in Großtafelbauweise') even though a slab (=Platte) is actually only the horizontal board, by opposition with (wall)panel (=Wand-)scheibe) for the vertical boards. In order to simplify the text the shorter German colloquial term will be used.

²There are interesting examples in Rostock, Halle a. d. Saale, Erfurt, Jena and Gera.

it becomes inappropriate to up-to-date requirements (obsolescence) and the building has to be substituted, without considering its conservation state (Urban, 2007).

The third reconstruction period started on 1st of January, 1973, when Erich Honecker published his housing construction schedule for three million apartments. Till 1990 it should put an end to the housing shortage that had been unresolved since the end of World War II. In this occasion a new large-panel system called 'Wohnbauserie 70 (short: WBS 70)' was developed, that should increase efficiency and variability of apartments and façades³. For the housing construction principally huge new areas outside the cities were exploited. Nearly the half of today existing 'Plattenbauten' was realised in this system⁴.

The schedule also provides the renovation of old buildings in order to achieve more quickly the demanding aims. The number of building demolitions decreased constantly after when in 1973, for the first time, a whole 19th century district around the Animplatz in Berlin was renovated instead of being pulled down. Not the idea of cultural heritage preservation saved the buildings, but the economic argumentation of saving resources by 'extending their lifespan' till their certain substitution after the end of the housing shortage. But in the end the renovations contributed more to an image change and the rehabilitation of the tenement blocks than to a reinforcement of economy.

A decree of the 'Politbüro', the government of the GDR, from 1976 concerning the redevelopment of Berlin's city centre in view of its 750th anniversary in 1987 reveals that urban requalification was again used for propaganda aims. Evocating German history and culture by using architecture has been a tool to present the GDR as an autonomous nation according to Honecker's political goal to create two sovereign German states. As historically wrong the declaration of the existence of two German nations was as superficial and scientifically incorrect as the reconstruction approach to Berlin's city and architecture. "The unspecific ancient impression" (Urban, 2007) of the new 'old town areas' is the result of intentionally avoided critical consideration of history⁵.

This decree prepared the ground for a state-wide law, adopted on 29th of May, 1982 that declares housing construction inside historical town as main objective. Basically the law resumed some of the main points of the 'Sixteen Principles' from 1950 (Richter, 2006). Since 1980 design studies by architects of the 'Bauakademie der DDR' had started to develop new elements and different design solutions for the most modern large-panel system 'WBS 70', published in the 'Grundkatalog' in 1984. The crucial proposals were individual apartments instead of standardized ground plans and the transformation of the 'Zeilenbau'- types into the traditional block perimeter development. Further adaptabilities consisted in: additional elements with different conical and right-angled geometries to follow non right-angled street courses, variable building depth in a range between 9,6 and 14,4m, integration of shops at the ground level (storeys also realised in in situ concrete), pitched or (very frequently) mansard roofs and historicizing elements for the façade like oriel windows, French windows and many different materials for the surfaces of ordinary concrete panels. The main features of the construction as constructive details, the modular system in plan based on a 1,2m grid, the standard story height of 2,8m and the principal widths of façade panels (2,4; 3,6 and 6m) remained unaltered (fig. 1).

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Case Study I: Berlin – Spandauer Vorstadt – Sophienstraße

Towards the end of the 18th century Berlin becomes a tenant's city because the majority of people that immigrates to the Prussian capital were relatively poor. The Prussian

³At the end of Walter Ulbricht's period as leader of the socialist party a debate arose on the monotony of new housing districts (Richter, 2006).

⁴Designed by Wilfried Stallknecht and Achim Felz the first WBS 70 block was built in Neubrandenburg, till the end of the GDR 644900 apartments (42% of all Plattenbauten) were constructed.

⁵The decree provided the requalification of parts of the district Spandauer Vorstadt, in which the first two case studies are located) and the reconstruction of the Gendarmenmarkt, of Friedrichstraße as a commercial and pleasure district and the 'Nicolai Viertel' totally destroyed by bomb attacks during World War II. The 'Nicolai Viertel' became the most famous example for those reconstruction activities all realised in large-panel systems.

Figure 1. The territory of L'Aquila after the earthquake of 6h April 2009.



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civil law, amended in 1791, creates the social conditions for the bourgeois society that rises after the Prussian reforms of 1808 and for the interlinked typological development of the tenement. Hoffmann- Axthelm uses the term "pre-modern tenement" for the housing type being formed during the reign of Friedrich II., because it represents the starting point for the development of all tenement types till the end of 19th century.

The streets around Sophienstraße in the district 'Spandauer Vorstadt', in the north of Berlin's city centre and outside the modern fortifications, are prevailingly characterised by houses, whose origins go back to the period of the so-called enlightened absolutism before 1806 (Hoffmann-Axthelm, 2011).

With the intense growth of population during the reign of Friedrich II (1740-1786) the sparsely populated district outside the town gates was brought under a stronger governmental planning control. At this time the rough urban lay-out was already fixed by ancient suburban streets and a parcelling out based on the agrarian plot subdivisions. In comparison to other contemporary planned urban expansions the streets are right angled only exceptionally.

The governmental planning decisions concentrate principally on the subsequent regulation of existing buildings and on house projects. The lay-out of new buildings were determined by governmental standardized building types, the building laws and aesthetic demands, accompanied by a governmental financing offer for the financially weak population: house building was "widely a product of governmental administration" (Hoffmann- Axthelm, 2011).

The typical entrance to the two storey tenements of the Spandauer Vorstadt lies in the central axis. For this reason the ideal façade shows an uneven number of window axes. According the parcel's width there can be five, seven or nine axis⁶. From the large entrance corridor one reaches the triple- run staircase with a wide quadratic stairwell in the rear, where it extends the corridor's width to two window axis. At the same time the corridor is a passage for vehicles to the inner courtyard. Frequently the symmetry is abandoned, mainly at the narrow five axis type. There the entrance corridor lies in one of the outer axis. Accordingly a rear building ('Hinterhaus') is present only along one border of the parcel. The typical rear buildings, initially used as utility rooms like stables or workshops become part of the living area.

The mixed construction in brick masonry and timber frames is characterised by a bearing brick wall in the middle with integrated chimneys that braces the house diagonally and supports the storey ceilings tensed from façade walls to the middle wall. The need to protect wooden ceilings from ascending humidity forms widespread basement stories that protrude one-third- high over the street level and receive natural light. When at the beginning of the 1830th shops become more common, the basement stories were abandoned in favour of ground-level entrances.

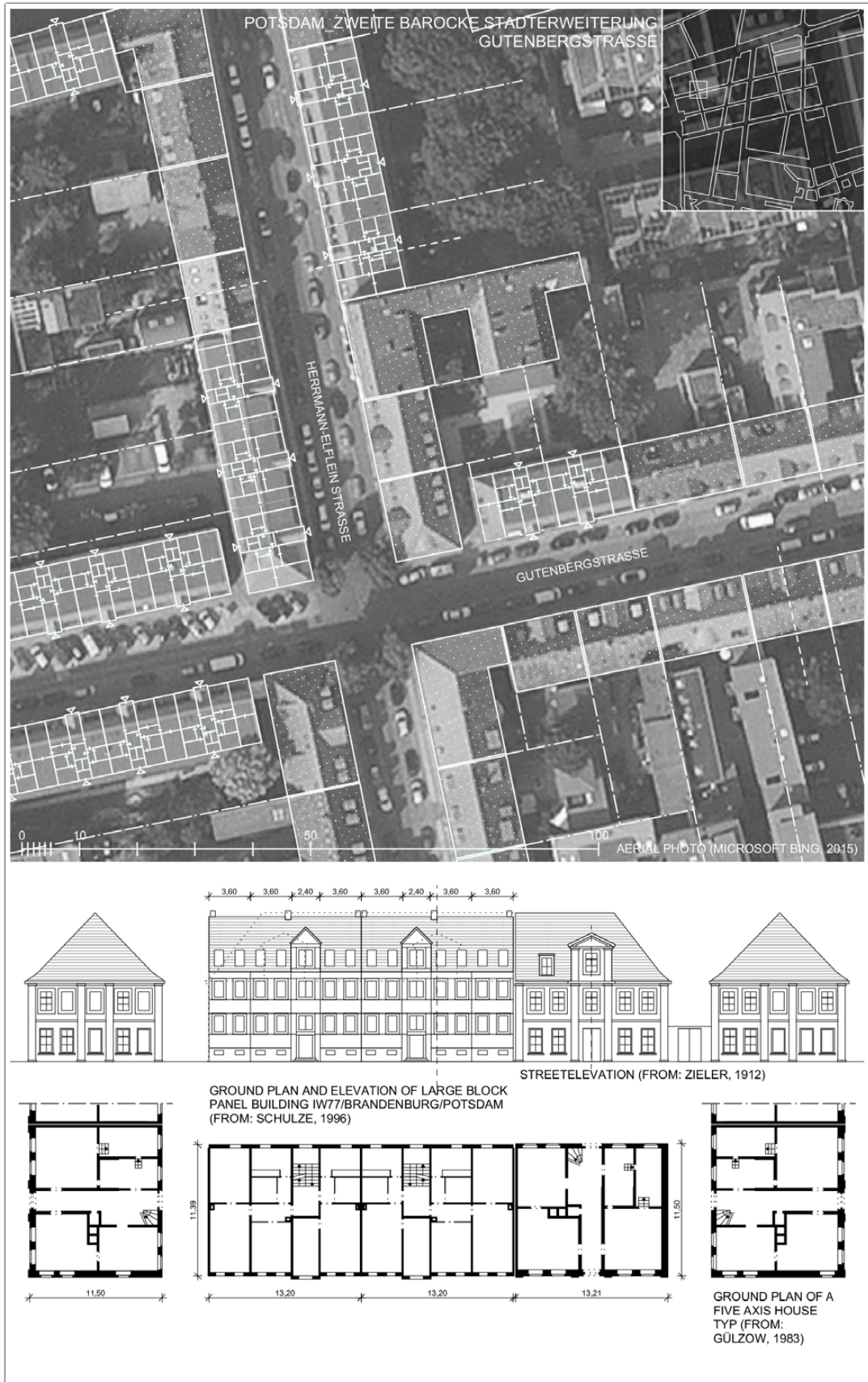
The urban fabric around Sophienstraße undergoes a constant transformation during the 19th century. Until 1830 the perimeter of the blocks is completely closed and a third storey is added to nearly every house, around 1840 a fourth storey (Hoffmann- Axthelm, 2011). The Spandauer Vorstadt evolves towards an inner city district where the Sophienstraße tends to be a subordinate street, whose houses suffer less strong transformations. The beginning of the street as part of a craftsmen's and petit bourgeois' district is still recognisable by the scale of its houses.

The Spandauer Vorstadt belongs to the best preserved districts of Berlin's urban fabric before the 19th century, thanks to few war damages. The construction works in the area of Sophienstraße executing the Politburo's decree from 1976 began in 1983. They include the restoration of 32 historic buildings and the closure of gaps in the northern block perimeter development towards Auguststraße, with 'Plattenbauten' of the WBS 70 system (fig. 2). The gaps had been owed to bombing attacks during World War II (Aust, 1986).

The parcelling out strongly influences the urban form: Next to possessory interests subdivided parcels point out the autonomy of a design project and the chronological independency of its realisation. Thereby it determines the houses' scale and its proportions.

⁶Obviously there are many exceptions to this ideal type, for instance the four window axis type that characterise the medieval Berlin.

Figure 2. The C.As.A. Initiative: C.A.S.E. complexes covered by the survey.



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In the present case a single design project occupies six parcels of endemic size for a private tenement. The inserted 'Plattenbau' is a large residential building type that unites several house units with proper staircases, so called "sections"⁷ in a single, relatively large scaled building structure. For this reason it represents an anomaly in the widely homogeneous urban fabric of small parcels. Significantly bigger parcels in this district are reserved for public building types.

The origin of the applied WBS 70 as an explicitly modern 'Zeilenbau'- type is undeniable in this project: The normally parallel set oblong buildings are simply aligned to the course of the streets⁸. There are neither rear buildings nor an addition of private open areas to the single 'sections'. Both sides of the building are equally dedicated to public space as it is common for a 'Zeilenbau' building. This fact is emphasized again by the equal treatment of the front and rear façade. The decision to provide the several house units with entrances exclusively in the inner block courtyard is contrary to the conception of the historic city. Next to the three big entrances to the courtyard there are only few entrances to shops at the street side, accordingly long street portions seem nearly deserted. This may result from determinations in the ground plan which had not much been modified in comparison to the standardized ground plan types of the WBS 70 "Zeilenbauten".

The 'Plattenbau' reconstructs the historical front building ('Vorderhäuser') respecting urban volume, number of stories and void/hole balance of the façade in an unexpectedly similar way. At the same time the number of the 'sections' corresponds to the number of historical tenement on an equally long street portion. One could argue that the insertion of the 'Plattenbau' is successful, because its spatial dimensions are near to the ones of the royal Prussian lower middle-class tenement.

In order to adjust the extremely long façade to the tenement' house scale, it is interrupted by 60cm- recesses in the façade panel axis, with staircases behind. These recesses have an effect like separating joints between sequences of two or three panels, that – being topped by a mansard roof – at first glance seem to be individual buildings. Although there is an approximate accordance between the dimensions of 'Plattenbau-sections' and historic tenement parcel, a façade design that distinguishes single 'houses' and is coherent to the ground plan, is not possible without causing ambiguities. At second glance the impression of autonomy of these 'houses' gets lost, because house entrances are missing. The result is a purely formal allusion that is born of the demand to design houses suitable to the history of the place (Urban, 2007).

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Case Study II: Berlin – Spandauer Vorstadt – Alte und Neue Schönhauser Straße

Today's urban fabric around the crossway of Alter and Neuer Schönhauser Straße, Münzstraße and Weinmeisterstraße is referring completely to its status at the end of the 19th century. Earlier building constructions along the street go back to the era of Friedrich II. But most houses were transformed or substituted later. These vast urban transformations are due to Berlin's entrance into the period of high industrialisation and the founding of the German Reich in 1871, interlinked with an economic boom. James Hobrecht's master plan for Berlin from 1862 is the planning basis for controlling the very rapid expansion. The district of Spandauer Vorstadt in 1860 is an inner city shopping street with combined business and apartment houses. On street level the ground floor shows wide shop windows strengthened by cast iron pillars, the protruding basement storey has been eliminated. The tenement types of the so-called 'Gründerzeit' – although grown in number of window axis and storeys – still have the similar configuration in their ground plan. Only the social differentiation inside the city as well as inside a single house increases due to the high density of urban fabric and the different quality of apartments depending on their position and alignment. Different types are far better identifiable by the social class for

⁷The term 'Sektion' is taken from vocabulary of the GDR planners.

⁸The project reminds housing complexes in Germany of the 1920th, in which the block perimeter development has not already been dismissed; only the block corner was exempt of buildings higher than one storey.

which they had been destined. Gustav Assmann's "Grundrisse für städtische Wohngebäude" from 1862 gives a summary of typical ground plan solutions, from which client and mason made their selection according to the individual needs. In high social class districts as in the Spandauer Vorstadt façades are getting equipped with oriel windows to valorise the building. Corner buildings are remarkable because of their chamfered corner, sometimes designed as a risalit.

In this case (fig. 3) the 'Plattenbauten' close another four gaps originating from war damage (Aust, 1986). In comparison to the case before the merging of parcel is moderate and could have happened in the 19th century as well. The 'Plattenbau' on the southern side of Neue Schönhauser Straße occupies two parcels as well as the 'Gründerzeit'-building on the same side towards Münzstraße. Both 'Plattenbauten' on Weinmeisterstraße take only one historic parcel, because the corner buildings had already reached remarkable dimensions in the 19th century.

The new building complex on Alte Schönhauser Straße ignores the borders of three parcels, nevertheless they don't exceed customary building dimension at this place: A double dividing wall separates it into two autonomous houses⁹, giving structure to an endless seeming sequence of concrete panels.

The 'Plattenbauten' correspond to a town house type aligned to the block perimeter and was probably designed for this project only. Many solutions have been realized which the "Grundkatalog" of WBS 70 provided for inner city housing, among those: the eye-catching oriel windows in the façade as a direct reference to the neighbouring houses, the increased building depth of 14.4m in order to exploit better the parcel's area – despite the absence of rear buildings – and the corner house type. Especially the corner type means a renunciation of classic modern urbanism that wanted to eliminate the block corner building. The modern achievements regarding building hygiene standards however are respected in the ground plan configuration where every apartment opens to both building sides.

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On the whole, the "sections" are smaller than the 19th century tenements, the corner buildings instead show the double number of housing units/ staircases keeping the same building dimensions¹⁰. In comparison to the apartments of adjacent houses that occupy a whole storey, including also rooms in the rear building, in the 'Plattenbau' the staircase gives access to two apartments on every storey. The subdivision of the 'Plattenbau' is much greater than in the historical houses that were obviously built for a richer social class. The façade confirms that impression by significantly more compact storeys.

The oriel windows in the street façade distinguish clearly the back and rear of the building. Rainwater pipes lie sometimes in front the transverse walls that separate the "sections". Together with the oriel windows they structure the façade in a similar way as in a 19th century façade composition.

Again a single passageway leads to the only entrance to the 'sections' in the inner courtyard. This entrance might belong to the opposite street of one's apartment. Therefore, façades copying those of differently organised buildings just remain formal allusions to the streetscape.

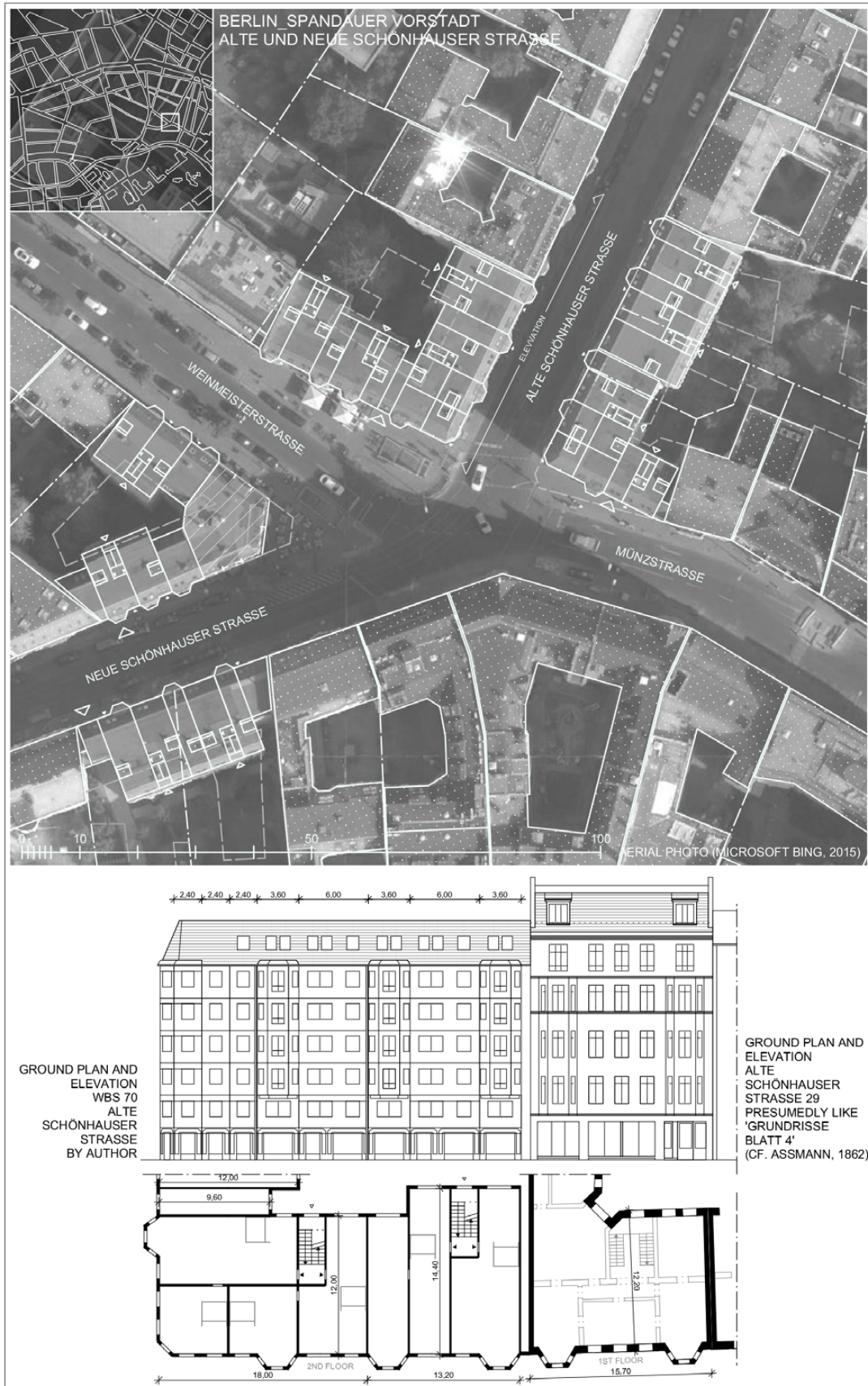
In this case the remarkable wastage of building ground would astonish any 'capitalistic' investor, meanwhile the planning socialist architect didn't bother about it at all. Nevertheless the conic elements of the WBS 70 were still too rigid to admit smaller angular differences.

The construction methods of large panel systems are strongly different to those of traditional masonry, but both of them use the panel or the closed cell as a structural unit. Despite of thinner walls, the affinity to historical urban fabric is closer than for instance a skeleton construction. But due to the parallel transverse wall principle the direction of stress of the storey ceilings of WBS 70 is rotated 90 degrees in comparison to the old tenement. Furthermore the WBS 70 system rejected for the first time a bearing middle wall to increase flexibility in the ground plan, once characteristically in old urban fabric. At least the double building partition wall is missing which creates a superordinate rhythm in the city ground plan.

⁹In elevation the autonomy of the building is less clear due to the aligned storeys.

¹⁰Corner buildings with two staircases exist only in lower-class tenements to give access to more and smaller apartments on the same floor-level.

Figure 3. Geographical narrative of earthquake: the places of death.



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Potsdam – Second baroque urban expansion – Gutenbergstraße

Gutenbergstraße (fig. 4) in Potsdam is located in the area of the second baroque urban expansion, that had been established northward the city according to a precise plan by order of king Friedrich Wilhelm I in 1733 and the subsequent years. Three parallel streets orientated approximately east-west and eleven streets tending to north-south create 23 large scale blocks. As some north-south directed streets have already existed, not all of the blocks are right-angled. The two-storey buildings with a lengthwise pitched (or hipped) roof close the block perimeter continuously. Every four block corners are opened by a so-called fire alley ('Brandgasse') that permits the fire brigade to fight fire from two sides. By that measure planners avoided a corner building type. The whole district is thought as a harmonised ensemble: not only the houses themselves are strictly standardised, the two differently wide parcels are distributed along one block side following a central mirror axis (Zieler, 1912). The central house got a special use, like a shop (Mielke, 1972). The standardised house types have got five or seven window axis. The entrance is always in the central (mirror) axis that is highlighted by a relatively big dormer.

In 1770 the unity of the ensemble is disturbed when massive three-storey buildings were constructed, unifying adjacent parcels. Transformations continued in the 19th and 20th century, when the inner block areas are getting occupied by rear buildings and many fire alleys are closed. World War II has brought only few damages. The disregard and decay of many houses during the GDR period create circumstances that lead to vast demolitions and the closure of gaps by large panel system constructions (Gegenbauer, 1991). Obviously a substitution rather than of repairing urban fabric has taken place here¹¹.

In order to substitute the Potsdam's baroque standardised house types, the large block system IW64 from the 1960s was reapplied. Being a kind of efficient masonry construction with big concrete blocks it repeats actually a previous system to the 'Plattenbauten'. The 'Blockbau' 'IW77/Brandenburg/Potsdam' was designed to be realised exclusively in the area of the baroque urban expansion. One 'section' of this 'Blockbau'- system corresponds within few centimetres precisely to the dimension of the historical house and its parcel. Surprisingly the modular system based on 2,4m and 3,6m wide elements fits in the historic five axes as well as in the seven axis type. This dimensional correspondence would have permitted the substitution of every historic house independently of each other. Considering this possibility and the effort of designing a special type for a small district, it seems probable, that GDR planners intended to replace the whole historical urban fabric.

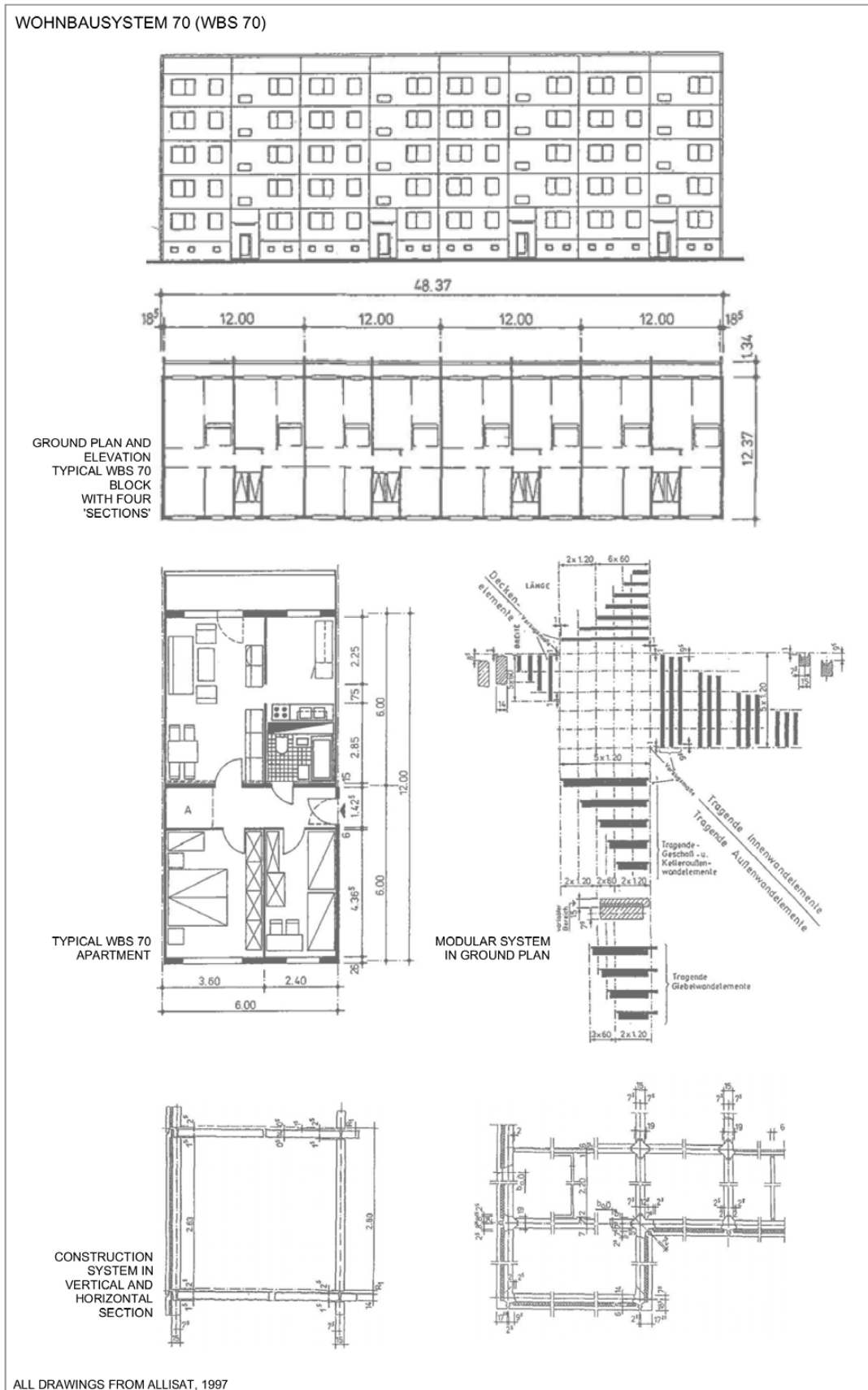
Although there is this geometrical correspondence fortunately, in practice the substitution has not always been executed respecting historic parcels. Despite of one house (Hermann-Elflein-Straße 36), the 'section' that replaces the five axes house was realised with the consequential loss of the sophisticated mirror symmetry of blocks in the city's ground plan – yet weakened by previous transformations. The ensemble suffers an additional disturbance by the entrance axis of the replacing 'sections' that is asymmetric in comparison to the parcel's middle axis. But nevertheless one must concede that GDR planners were more respectful to an original urban concept than most of their predecessors, especially regarding the building dimensions. Their motives were rather practical than driven by cultural heritage convictions, as the reestablishment of the fire alleys shows that nearly everywhere had been closed. The two practical reasons were firstly giving undivided access to the public inner block area, secondly avoiding a corner house type.

The 'IW77/Brandenburg/Potsdam' does not provide many changes in comparison to the IW64, but the two main adaptations – the mansard roof looking towards the street side and the recreated dormer above the entrance – have given enough impact to adapt the house to the streetscape.

In Potsdam building with industrial prefabrications seems to be more natural than in the previous cases. The urban fabric of Potsdam is based widely on right-angled geo-

¹¹In the GDR a cultural heritage preservation law was adopted on 19th of June, 1975 during the European year of cultural heritage preservation. Nevertheless the law has never really been practised.

Figure 4. Territorial quality in the present and for the future as perceived by adults and young people.



metric sites and was built in a serial, repetitive way like the 'Blockbauten' – even though without using industrial production methods. Insofar there is a certain affinity regarding technical planning conditions.

Conclusion

In the context of historical cities 'Plattenbauten' do not intend to resume any morphological or truly architectural characteristic of historic urban fabric – in spite of the adaptation of building volumes and some superficial formal allusion in the façades. If there are characteristics in common, they are owed more to practical needs, social demands and conditions on building sites rather than to a wilful subordination to the rules of an existing structure. 'Plattenbauten' are clearly recognisable as results of specific social and production conditions. More important than their (relatively low) architectural quality is their role as precious witnesses for the historic epoch in which they had been created, and for the reason why and how historical city centres have changed.

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