



06.07 Urban Structure

06.08 Urban Structure – Area Types Differentiated 2020

Introduction

The effects of urban development upon the environment depend to a particular degree on the type and intensity of human use. For this reason, the effects on the environment are closely linked to uses and building structures.

In the course of the urban development of Berlin, a multifaceted structure of buildings and open spaces has emerged. In Map “Urban Structure – Area Types Differentiated” (06.08), 52 area types are defined and described on the basis of their typical use, the time of their emergence and their structure of buildings and open spaces. For better readability, they have been grouped into 16 urban structure types and body of water in the “Urban Structure” Map (06.07).

The area types serve the purpose of further differentiating the use of the built-up areas (WOZ, cf. description of Maps “Actual Use of Built-Up Areas” (06.01) and “Green and Open Spaces” (06.02)). Especially for the use type “residential”, further differentiation is required. On the one hand, areas with residential use account for more than half of the city’s built-up area, and for more than one quarter of the entire area of Berlin, so that they assume a special position; on the other, this use covers a broad spectrum of characteristics, from single-family home residential areas to large estates. It is exactly this more detailed differentiation of the residential areas, that is of particular interest when using the data, since the various urban development and environmental indicators and characteristics are highly dependent on urban structure. Here, structural age, height, density, and arrangement of the buildings in relation to one another, as well as the characteristic structure of the open spaces, are particularly important.

In contrast, the types of green and open spaces largely correspond to the uses of Map “Inventory of Green and Open Spaces” (06.02) (GRZ cf. map description) or even combines them.

Knowledge of these various structural types, in connection with the [actual use mapping in Maps 06.01 and 06.02 of the Environmental Atlas](#) (SenStadtWohn 2021d and 2021e), constitute an essential foundation for the urban development and landscape planning investigations and development projects, both at the superordinate and the local levels. With the aid of these maps, it is also possible to derive information regarding the nature of biotope and vegetation structures, the climate situation, the consistency of the soil, the intensity of imperviousness, or the formation of new groundwater.

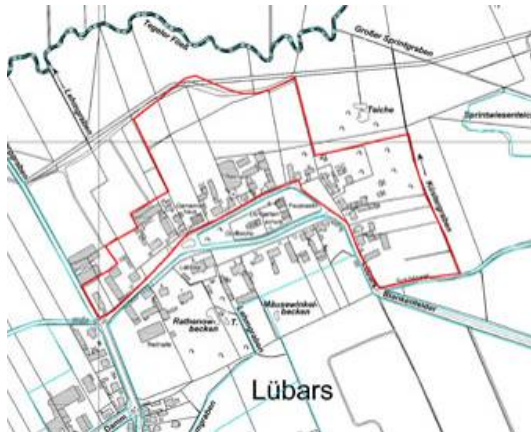
In terms of spatial and functional differentiation, these maps are of fundamental importance, especially for city-wide analyses, models, programmes and planning in the environmental area. Since not all data required for certain calculations or planning are available or can be collected with reasonable effort locally, literature values are assigned to mapping units by means of random sample mapping on site, or parameters or indicators that are obtained through expert estimates. Based on the comprehensive maps on use and urban structure available, these can then be transferred to the entire city for many applications with a sufficient degree of accuracy.

Development of the Urban Settlement of Berlin

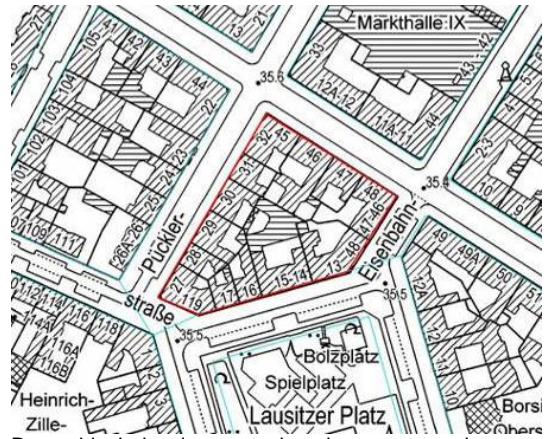
Both the natural landscape and the development of urban settlement have made their mark on the urban structure of Berlin. Some remainders of the agriculturally used land, as well as landscapes characterised by water and forest, have to this day remained free of development: the forests in south-eastern Berlin between the Spree and Dahme, and, in the West, along the Havel, and also some large contiguous agricultural areas in the north-eastern part of the city. Only a few of the once numerous creeks, ditches, ponds and wetlands are still present.

After 1880: The Wilhelminian period

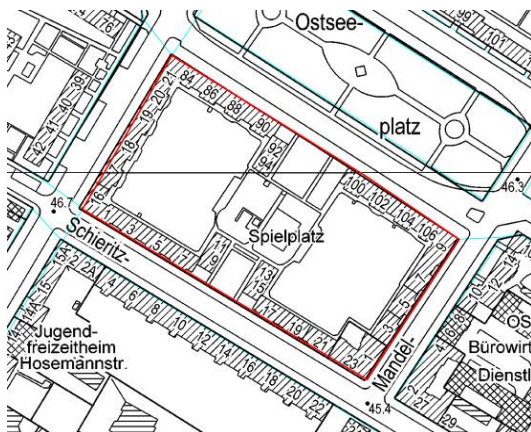
The appearance of Berlin changed most markedly at the end of the 19th century, as the city developed into an industrial centre. With increasing job opportunities, many people moved to Berlin, and a growing need for housing was the result. The building activity was regulated by development plans and building codes, in which the street edge lines, the sizes of the blocks, the minimum sizes of courtyards, and the heights of buildings were stipulated. Thus, Berlin's typical dense **block development** with its narrow, sometimes connected courtyards emerged between 1880 and 1918 within the City Rail Circle Line. This building design was structured by scattered decorative squares and parks, and by cemeteries. In the then-suburbs (such as Friedenau) the building code of 1892 permitted a lesser degree of property utilisation than in the inner city. In these areas, lower and somewhat more generously-dimensioned block developments emerged, with decorative features and a garden-courtyard structure, as well as villa development.



Village-like mixed development in old village core areas



Dense block development, closed rear courtyard (1870s-1918), 5-6 storeys



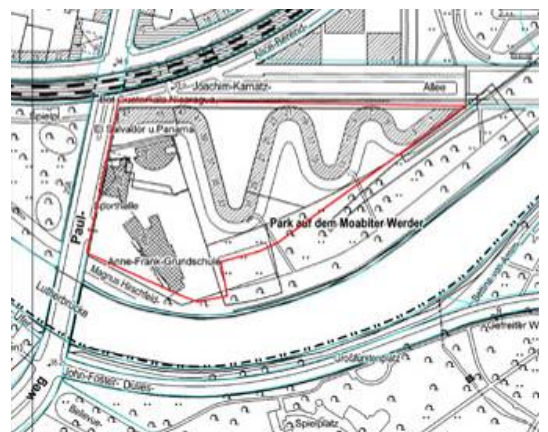
Block-edge development with large quadrangles (1920s-1940s), 3-5 storeys



Heterogeneous inner-city mixed development, post-war gap closure



Large estates with tower high-rise buildings (1960s-1990s), 4-11 storeys and more



Multi-storey residential development since the 1990s

Fig. 1: Examples of urban structural types from various phases of Berlin's urban development

After 1918: Greater Berlin

New designs developed extensively only after 1918, when the construction of wings and rear buildings was forbidden by law. At the same time, public housing construction companies took over the role of the main actors in the area of residential construction from private builders. They replaced the until-then prevalent lot-by-lot development with the construction of larger, coherent estates outside the Circle Line, in what was then the outskirts of Berlin. This development was favoured by the incorporation into Berlin of its surrounding communities in 1920, to form Greater Berlin, which made uniform planning possible. Also, the open spaces associated with housing developments were accorded greater significance, which was manifested in the greater size, usefulness and design of these open spaces, but also in the designing of public open space. During this time, the large public parks and allotment garden facilities emerged, which extended in a ring shape around the turn-of-the-century inner-city core. Some estates, such as the "Uncle Tom Estate" in Zehlendorf, continued to bear witness to the previous rural character of the area, with their woods and orchards.

After 1945: The divided city

Massive destruction during World War II and the political division of Berlin in 1948 influenced the further course of urban development. Some 30 % of all buildings had been totally destroyed or severely damaged.

Destruction of almost the same proportion – often with destructive effects on the historical plan of the city and on its structural substance – ensued in both parts of the city during the following decades, with the often radical implementation of such plans as the "automobile-appropriate city" and "socialist urban development".

The **western part of Berlin** received economic aid under the Reconstruction Programme (Marshall Plan), so that the war-time destruction could be removed continuously by large-scale building activity during the '50s and '60s. In the inner city, vacant lots caused by the war were closed, and whole blocks were reshaped by large-scale reconstruction and by de-coring, coupled with demolition and the construction of new buildings. The developmental goals at that time were relief of the density of inner-city development, the dispersion of municipal functions and the creation of wide thoroughfares for motorised private transport. On the outskirts, large new self-contained estates emerged with relatively high shares of open space, i.e. green spaces between the buildings, and with industrial areas on former open spaces between old village cores. Starting in the late '70s, construction policy began to be concentrated on the revival of the inner city. The recovery of the historic inner city, largely destroyed by the war and the building of the Wall, was the main focus of the International Building Exhibition (IBA) in 1984/87. Building activity was essentially limited to smaller vacant lots all over West Berlin, and on the preservation-oriented reconstruction of existing structures.

In the **eastern part of Berlin**, which did not receive economic support initially, but was in fact instead burdened by reparations in addition, reconstruction began on a large scale only after construction of the Wall in 1961 and with the industrialisation of the East Berlin construction industry. The emphasis during the '60s was on the new formation of the centre of the city on areas wiped out and cleared as the result of the war. At that time, the plan was not to reconstruct the pre-war building stock as the inheritance of capitalism, but to tear down the remains in further sections and to replace them with developments built in the socialist architectural style. Relatively little new living space was created during the '50s and '60s. As a result of great dissatisfaction among the population with the insufficient housing supply, the housing programme was proclaimed as the main focus of the GDR's social programme in 1971. Large residential areas were created in the centre of East Berlin and especially to a great extent on the outskirts of the city in Marzahn, Hohenschönhausen, Lichtenberg and later in Hellersdorf by means of industrial prefabrication. As part of this, new allotment garden areas were also created on the outskirts of Berlin. It was only later that the existing old building stock was recognised as living space worthy of preservation; but hardly any funds were available for its reconstruction.

After 1989: The reunited city

By 1992, all the concrete-plate residential estates still under construction in the eastern part of the city had been completed. In the western part, only insignificant amounts of additional construction were carried out during this period. From 1993 to 1997, construction activity involved on the one hand new suburbs on the outskirts, such as Karow-Nord, built on former farmland, and on the other, numerous major projects, such as around Potsdamer Platz in the following years. Moreover, both numerous government buildings were erected as part of the urban development programme "Capital City Berlin -

Parliament and Government District” and open spaces and memorials were created. Simultaneously, other urban development projects on extensive conversion spaces (predominantly areas with commercial, research, industrial, military and police use), such as Johannistal / Adlershof, in the Rummelsburger Bucht area and along Oberhavel river, were officially planned and concepts were developed in order to promote the development of new urban neighbourhoods. In the mid-1990s, it became clear that the development boom expected for Berlin would fail to appear. Migration to the surrounding areas became the dominant demographic factor. The housing market eased and the first office and commercial buildings became vacant. Due to these changed business conditions and unfavourable development policies, the original planning goals were modified, and the structural dimensions considerably reduced. For example, the Wasserstadt Berlin-Oberhavel development programme in Spandau was cancelled already in 2006 and construction projects were stopped. Less massive building typologies were devised and implemented for areas that were not yet developed in the Rummelsburger Bucht development area.

Since 1997, **new housing construction** has been declining in Berlin, and by 2000 had dropped back to the level of 1991, due to the reduction of subsidies. Subsequently, residential development stagnated at a low level up until approx. 2011. In place of major construction projects, this time saw the closing of scattered gaps, the expansion of existing structures, and the densification of already developed areas, especially in the inner city. This involved primarily buildings with large condominiums, as well as single-family homes and duplexes. New housing construction was largely concentrated in the boroughs and districts of Spandau, Weißensee, Pankow, Treptow, Köpenick, Marzahn and Hellersdorf, where densification was carried out in existing loosely built estates (cf. [FNP Report 2020](#), *SenStadtWohn 2020a*, only in German). Moreover, large parts of the city centre with old buildings, especially in the eastern part of the city, were reconstructed with the aid of various urban reconstruction and urban renewal subsidy programmes, which involved both the building structures and the residential environment. The same is true for the great majority of the concrete plate-type estates. In recent years, new housing construction has picked up significantly, due to the rapidly growing population. The [Urban Development Plan for Housing 2030](#) (*StEP Wohnen*, *SenStadtWohn 2020b*, only in German) identifies 14 new residential neighbourhoods, with a total potential of some 200,000 new residential units. New residential neighbourhoods of varying typology and density are currently being created or planned on conversion areas, on the outskirts and, particularly, on numerous urban fallow areas. Small-scale building projects are to be implemented as part of densification of already built-up areas. It is likely that this process will shape the city for the next 10-15 years.

The last 10 to 15 years have also seen a strong increase in the number of hall-like (large-scale) **commercial** buildings, including the associated access facilities and parking spaces for motor vehicles.

Open spaces along the old Berlin Wall corridor, and abandoned railway grounds which, in the course of the decades of the division of the city, have in some cases developed into valuable segments of the biotope and open space system, have since reunification in some cases been reshaped as urban parks or memorial areas. Some of them could also be secured as near-natural areas, and as new typical parts of Berlin, they contribute to the diverse structure of open spaces of the city (e.g. the Nordbahnhof, Gleisdreieck, Mauerpark, the Bernauer Straße Berlin Wall Memorial, Südgelände, Biesenhorster Sand). As part of urban development projects, completely new public green spaces were also created, which were oftentimes designed as landscape parks, and which meanwhile do not only serve the purpose of recreation but are increasingly taking on tasks and functions of nature and landscape protection as well. Environmental Atlas Map "[Open-Space Development](#)" (06.03) (*SenStadtWohn 2021f*) presents the increases and decreases in green and open spaces in detail.

Statistical Base

The Environmental Atlas Maps "[Actual Use of Built-Up Areas](#)" (06.01), and "[Inventory of Green and Open Spaces](#)" (06.02) (*SenStadtWohn 2021d* and *2021e*), were compiled parallel to Maps 06.07 and 06.08. In the process of updating to the version of December 31, 2020, changes in land use between 2016 and 2020 were recorded. Updates to the geometry of the 1 : 5,000 block (segment) area map (ISU5) were made and the urban structure maps were adapted accordingly. Moreover, the data base for actual use and structure mapping was subjected to an automated plausibility check on the basis of various geo-data available in the State of Berlin.

Overall, the following statistical bases were used to update and check the actual use and urban structure maps:

- Block (segment) area map of the Urban and Environmental Information System (ISU5), as of December 31, 2015

- Roadway areas of the Urban and Environmental Information System (ISU5), as of December, 2015
- Data from the Senate Department for Urban Development and Housing as well as the Senate Department for the Environment, Transport and Climate Protection:
 - Official Real Estate Cadastre Information System – ALKIS, as of March 10, 2021,
 - Official Topographic Cartographic Information System – ATKIS, as of March 16, 2021,
 - Land asset (LGV) Berlin, as of January 5, 2021,
 - Soil Associations of the Urban and Environmental Information System (ISU5), as of August 13, 2018,
 - Digital ortho-photos, aerial photography flights from 2010 through 2020,
 - Cemetery inventory, as of July 12, 2017,
 - Gardening schools, as of June 30, 2020,
 - Building age in residential development, as of December 31, 2015,
 - Green space and playground inventory, as of March 1, 2020,
 - Youth recreational centres, as of January 18, 2021,
 - Youth art schools, as of June 30, 2020,
 - Map of Berlin 1 : 5,000 (K5), as of 2010 to 2021,
 - Day care centres, as of January 18, 2021,
 - Allotment garden inventory, as of March 1, 2020,
 - Peatlands and soil types, as of May 2015,
 - Music schools, as of June 30, 2020,
 - Schools, public, as of January 5, 2021
 - 2014 road survey, as of December 31, 2015
 - Administrative units of Berlin's forests, as of February 7, 2020,
 - Adult education centres, as of June 30, 2020
 - Housing Construction Space Information System (WoFIS), as of December 31, 2020.
- Data from external sources:
 - Building completions of the years 2012 - 2019, Statistical Office for Berlin-Brandenburg, as of December 31, 2019,
 - Statistical blocks, Statistical Office for Berlin-Brandenburg, as of May 1, 2021,
 - Digital field block register, agricultural reference plots, Ministry of Rural Development, Environment and Agriculture Brandenburg, as of September 18, 2020,
 - List of hospitals, university hospitals, specialised hospitals and private maternity hospitals in Berlin, LAGeSo (Landesamt für Gesundheit und Soziales), as of January 29, 2021.

Methodology

The maps of both the urban structure mapping system and those of the actual use mapping system used the block (segment) area map of the City and Environment Information System (ISU) as the spatial reference system, and have been updated together. Generally, the area types correspond to the block and block segment areas identified in the land use mapping. Since the 2020 update, it has also been possible to form block segments based on different area types in order to portray the land use categories in a more differentiated manner.

For areas assigned both to the Map "Actual Use of Built-Up Areas" (06.01) and to Map "Inventory of Green and Open Spaces" (06.02) (**dual use**) the area type is oriented toward the structural use. An exception here is sports use, which is counted as green and open space use, and is always categorised as dual use together with Public facilities / special use. The type categorisation distinguishes between covered and uncovered sports facilities, with the latter being assigned to the group "Open space use area types".

Updating of the geometry and the use data

Update of the block (segment) area map of Berlin, 1 : 5,000 (ISU5)

The block boundary changes carried out between 2015 and 2020, including the current area key of the Berlin-Brandenburg Office of Statistics, have been adopted into the geometry of the ISU5. For all newly created blocks a use mapping procedure was carried out with the aid of aerial photography and other documents (see Statistical Base). Following the representation and differentiation system of the use and area classification of the Environmental Atlas, a further subdivision of the block areas into block segment

areas was implemented where necessary, in order to distinguish different use- or area types from each other.

Plausibility check and comparison with various spatial data bases

In addition to the geometric update of the ISU5 block (segment area) map of Berlin, the update as of December 31, 2020 focussed on verifying the land uses and area types of the entire database using geodata that had been recorded in recent years by the Senate Departments and other bodies for a variety of specialised tasks (see Statistical Base). The rules on the permissibility of combinations of different land uses and area types were slightly revised as part of this. Furthermore, plausibility checks were carried out for the entire database following these rules (SenStadtWohn 2021a).

The various specialised databases were either already available as ISU block (segment) area data or could be merged and compared with the ISU block (segment) area map, which then revealed individual cases for which the use data had to be verified. For example, the existing data on the Site Occupancy Index (SOI) was used to check the allocation of the blocks of the area types commercial and industrial area with dense or sparse development. The SOI indicates the share of the area covered with structural facilities, compared to the size of the lot (cf. Article 19 Para. 1 of the Federal Land Utilisation Ordinance (BauNVO)). It was therefore examined whether commercial and industrial areas have an SOI greater or less than 0.5 (corresponding to building structures covering either more or less than 50 % of the area) in accordance with their definition (sparse / dense development).

Retrospective densification and any resulting changes in area type classification of residential, mixed and commercial uses were examined for the first time as part of the ISU5 block (segment) map update as of December 31, 2020. Furthermore, the data of the Housing Construction Space Information System (WoFIS) served as a new, valuable data basis, which provides information on planned and already implemented urban housing projects involving 50 residential units or more, identifiable by lot.

In the current revision, 5,846 areas of the total of 26,378 contained in the ISU5 block (segment) area map were checked. Of these, 2,350 areas were assigned to a new use category.

In total, 596 blocks and block segment areas were assigned a new key, 506 block segment areas were dissolved.

Map Description

Description of mapping units

The 52 **different area types** which are available as mapping units for the urban structure are categorised into six groups. This is designed to facilitate a logical assignment of types to the various uses, to support the mapping process. For example, block areas with residential use can only be assigned to area types belonging to the groups “Dense residential development” and “Low-density residential development”. In Map “Urban Structure” (06.07), similar area types are grouped into 16 **overarching structure types**, as well as body of water (which cannot be assigned a “classic” structure type), for better readability. The **definition and description of area types** can also be seen [in the report which documents the mapping units and the updating of the 2020 database](#) (SenStadtWohn 2021a).

Area types of the “Dense residential development” group

Group I	Dense residential development
Type 1	Dense block development, closed rear courtyards (1870s-1918), 5-6 storeys
Type 2	Closed block development, rear courtyards (1870s-1918), 5 storeys
Type 3	Closed and semi-open block development, decorative and garden courtyards (1870s-1918), 4 storeys
Type 6	Mixed development, semi-open and open shed courtyard, 2-4 storeys
Type 10	Block-edge development with large quadrangles (1920s-1940s), 2-5 storeys
Type 72	Parallel row buildings with architectural green strips (1920-1930s), 2-5 storeys
Type 8	Heterogeneous inner-city mixed development, post-war gap closures
Type 7	De-cored block-edge development, post-war gap closures
Type 73	Rental-flat buildings of the 1990s and later
Type 9	Large estate with tower high-rise buildings (1960s-1990s), 4-11 storeys and more
Type 11	Free row development, landscaped residential greenery (1950s-1970s), 2-6 storeys

Tab. 1: Area types of the “Dense residential development” group
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Area type 1 “**Dense block development, closed rear courtyard (1870s-1918), 5-6 storeys**” emerged during the Wilhelminian period (1870-1918) in order to maximise land utilisation for residential purposes. It is largely found inside the City Rail (S-Bahn) Circle Line, and is characterised by close blocks of 5-6-storey buildings. Often, there are still several courtyards, usually entirely surrounded by buildings and connected with one another only by passageways; some of these courtyards are only the size of a light shaft. Sometimes, the courtyards are commercially used; usually however, they merely serve the purpose of access to the wings and rear buildings, and as placement for rubbish bins or bicycles. Not only in the case of commercial utilisation, are these courtyards virtually completely impervious. This area type is thus the most densely built-up and also the most impervious type of residential area.

Area type 2 “**Closed block development, rear courtyard (1870s-1918), 5 storeys**” designates blocks with primarily closed 5-storey block construction, also built during the same period, also within the Circle Line, for the rapidly growing population of Berlin. The blocks consist largely of old buildings with wings and/or parallel rear buildings. In addition, there are also commercial and industrial buildings, public facilities buildings and restored or new buildings at the block-edges. The courtyards are encompassed by high buildings on several sides, but only rarely on all sides. There are often separated from neighbouring courtyards by walls or fences, so that they together constitute angled interior block spaces. Often, courtyard areas have been connected with one another in the context of renovation measures by means of partial demolitions, and are now used as comprehensive areas for such public facilities as day care centres etc.

In this area type, is characterised by a mix of residential areas and workplaces. It also includes larger commercial operations which require large non-built-up spaces for storage purposes, deliveries, car parks etc.

This category has a somewhat lesser degree of density and imperviousness than the area type “Dense block development”. In better neighbourhoods, the courtyards often have old trees, paved walkways and decorative flower beds. In residential areas with a lesser degree of renovation or a less sophisticated courtyard design, the share of completely impervious and minimally green courtyards is higher.

Area type 3 “**Closed and semi-open block development, decorative and garden courtyard (1870s-1918), 4-storeys**”, is characterised by 4-storey block construction, often with front yards. The blocks with decorative and garden courtyards were often built during the Wilhelminian period (1870s-1918) in the then-suburbs of Berlin outside the Circle Line (today’s edge of the inner city). These buildings have only wings or only parallel rear buildings, but generally not both. They are characterised by a much sunnier interior block space than is the case for the above two area types; it is usually designed as a garden.

Area type 6 “**Mixed development, semi-open and open shed courtyard, 2-4 storeys**” is characterised by open mixed structures, particularly at the edge of the inner city and at the edge of the city, and is there especially associated with the old village cores and sub-centres. There are some remains of old structures which were built before 1870, sometimes low, old buildings, sheds and workshops in the courtyards, and these areas are also interspersed with buildings associated with the 4-storey construction of the “decorative and garden courtyard” type, as well as new buildings – both single-family and multifamily houses, and rental-flat buildings – built after 1945. Accordingly, the appearance of these areas is heterogeneous. Their characteristic feature is an interior block space broken down into small parts, often with commercially used workshops, storage areas and parking spaces, but also some privately used vegetable gardens and orchards.

Area type 10 “**Block-edge development with large quadrangles (1920-1940s), 2-5 storeys**” designates the type of block-edge construction with large residential inner quadrangles, which was typical for the period from the late 1920s to the mid-1940s.

The large quadrangles were formed by the complete or near-complete enclosure by 2 or 5-storey buildings directly on the street line. They were associated with rather well-appointed entry areas, and in some cases semi-public passageways connecting the quadrangles with the streets. The large quadrangles are almost entirely green, and are characterised by an architecturally symmetrical design. In some early estates, the quadrangle was apportioned into residents’ gardens surrounded by hedges. Otherwise, the predominant form was an open space design with lawns and scattered old trees. Particularly characteristic were such “informal” species (birch or willow), which contrasted with the symmetrically arranged, “architecturally-shaped” trees (Lombardy poplar and spruce). Access paths were generally sparingly designed; however, parking garages were in some cases added later. Some interior block spaces that are not under monument protection have been completely reshaped by new design elements as part of renovation measures.

Area type 72 “**Parallel row buildings with architectural green strips (1920s-1930s), 2-5 storeys**” describes the row housing of the 1920s and 1930s. During the late 1920s and in the 1930s, the first row houses were built in Berlin. The main purpose was to achieve optimum utilisation of the lots, and to provide much light, air and sun to all the residences. The long rows of 2-5-storey houses were arranged parallel to one another. The free space between the houses was narrow and elongated, and open on the short sides.

The row houses give the streets a spatial closure, since they were not detached in the middle of the lots, as would be common after the 1950s. Rather, they were uniformly arranged at right angles to the street, so that their narrow edges together formed the building line. In some cases, terminal lateral buildings were arranged parallel to the street, so that a mixture of row and block-edge construction emerged, resulting in variegated exterior spaces. Passageways, vistas and jutties were used to visually break up the appearance of these streets. Moreover, the street space was varied by placing the buildings slightly in front of or behind the building line, and with local extensions. Front yards were almost always provided.

Area type 8 “**Heterogeneous inner-city mixed development, post-war gap closure**” is also located within the residential neighbourhoods built during the Wilhelminian period. Here, unlike the previous area types, high-rise buildings with rental flats and offices were often built as rows or single towers in the block areas, often with no regard for the historic building lines or building heights of those streets. Remnants of Wilhelminian-period buildings are only sporadically present. The blocks have neither block interior spaces nor closed semiprivate courtyard areas. The non-enclosed open areas serve as car parks in the form of underground or surface parking. The other open areas are largely designed as non-usable green fringe.

Area type 7 “**De-cored block-edge development, post-war gap closure**” is scattered throughout the Wilhelminian-period residential neighbourhoods in the inner-city and the inner-city edge. The old buildings destroyed in the Second World War were replaced by the reconstruction of those buildings, or by new buildings in the gaps. Generally, the new buildings were placed along the same building lines as the old ones, so that this area type is largely characterised by closed block-edge construction, which is however sometimes interrupted by driveways, car parks, gaps, etc.

In the context of modernisation with the new construction of front buildings, it was not uncommon for all lateral and rear buildings, as well as sheds, to be torn down. The result was a block interior area that was more open than the original structure; generally, it is subdivided at the lot boundaries by fences. In addition to the old structuring of the courtyards, these areas are often dominated by car parks surrounded by green space, such as lawns and bushes. In some cases, however, relatively large interior spaces were created, which have been designed as leisure spaces for the inhabitants, with green spaces and lawns, playgrounds and benches, or with such public facilities as day care centres.

Area type 73 “**Rental-flat buildings of the 1990s and later**” includes all new multi-storey residential buildings built since the beginning of the 1990s, which are considerably different from the typical large estates (cf. area type 9 “**Large estate with tower high-rise buildings (1960s-1990s)**”), and include a wide range of urban development structures, e.g. block-edge, row houses, town villas and townhouses. For the most part, these are major residential development projects of the 1990s and the first years of the 21st century, which have been carried out in the context of major urban development measures (Wasserstadt Berlin-Oberhavel, Rummelsburger Bucht) and other large projects (Karow-Nord, Buchholz etc.). By contrast, single-family housing areas, row house and duplex estates built during the 1990s and later are assigned to the area types with unspecified building age (area types 22 “**Row houses and duplex with yards**” and 23 “**Detached single-family homes with yards**”).

Open spaces and interior courtyard areas of the estates built since the 1990s are often designed as semi-public green spaces with playgrounds and leisure areas; the ground-floor flats often have terraces or small garden areas. Car parking space is increasingly being provided in underground garages.

Moreover, the estates built since the 1990s have a relatively energy-saving, in some cases ecologically oriented type of construction, thanks to current standards (relatively good insulation, in some cases passive houses, rainwater seepage, greened roofs, etc.).

The buildings of area type 9 “**Large estate with tower high-rise buildings (1960s-1990s), 4-11 storeys and more**” appeared between the late 1960s and the end of the 1990s. Often, these were comprehensive large-scale residential areas at the edge of the city (satellite towns), mostly built by concrete plate construction. Smaller estates with row or block development can be found in the sub-centres and in the inner-city area. In the eastern part of the city, concrete plate construction was sporadically used even within the historic structural area.

Typically, unlike the following area type 11 “Free row development with landscaped residential greenery (1950s-1970s)”, various building heights and designs were used within the same estate. Often, these were 4–8-storey, semi-open block-edge developments, or mixtures of block-edge and row developments, which were in some cases combined with single tower high-rises or high-rise chains of ten storeys or more. Especially in the major estates, the buildings were often placed with no reference whatever to the streets, so that there is no homogeneous spatial street structure.

Large, non-enclosed open spaces often exist between the buildings, surrounded by large numbers of surface car parks. The pervious surfaces are largely covered by lawns and shrubbery.

As part of the Berlin-wide programme “[Strengthening Berlin's large housing estates](#)” (*Stärkung Berliner Großsiedlungen*, SenStadtWohn 2021b, only in German), increased efforts have been and are being made to upgrade the green spaces of the large estates in order to improve their amenity and ecological quality.

Area type 11 “**Free row development with landscaped residential greenery (1950s-1970s), 2-6 storeys**” emerged during the post-war period, primarily during the ‘50s through the ‘70s, in the context of the reconstruction programmes. The elongated mostly 4-storey blocks of houses arranged in rows were for the most part built as coherent estates in former residential areas badly destroyed in the war in the inner-city, and along the edges of the densely built-up areas at the inner-city edge.

Unlike the row housing of the ‘20s and ‘30s, the construction was no longer oriented directly toward the existing street grid. It is often oriented in an east-westerly direction, in order to provide more sunlight for the flats, but is no longer as strictly parallel as the rows built during the ‘20s and ‘30s. In the later years, the rows were often built in a staggered and shifted arrangement, or arbitrarily lined up along a curving pattern of streets. During the 1970s, designs in chain or spider-web form also emerged. By contrast with the area type “Large estate with tower high-rise buildings” each estate generally had uniform designs and heights.

Area types of the “Low-density residential areas” group

Group II	Low-density residential development
Type 25	Densification in single-family home areas, mixed development with yards and semi-private greening (1870s to present)
Type 21	Village-like mixed development
Type 24	Villas and town villas with park-like gardens (mostly 1870s-1945)
Type 22	Row houses and duplexes with yards
Type 23	Detached single-family homes with yards
Type 59	Weekend cottage and allotment-garden-type area

Tab. 2: Area types of the “Low-density residential development” group

Area type 25 “**Densification in single-family home areas, mixed development with yard and semi-private greening (1870s to present)**” developed from areas of the area types 23 “Detached single-family homes with yards” or area type 24 “Villas and town villas with park-like gardens”. Since, especially in former West Berlin, there was not sufficient free construction land available, there was a tendency during the second half of the 20th century to tear down old villas and single-family homes and to replace them with newly built larger rental-flat or apartment buildings, or to divide the lots and to build more houses in the former park-like gardens. The generously dimensioned interior block spaces are now interspersed with buildings.

The new buildings are in many cases multifamily houses or rental-flat buildings where there are no longer any yards, but rather only a semiprivate green strip surrounding the entire building. The imperviousness and structural coverage degree of this area type is accordingly higher than it is for the two area types 23 “Detached single-family homes with yards” and 24 “Villas and town villas with park-like gardens”. This phenomenon is particularly notable in the south-western part of the city.

Area type 21 “**Village-like mixed development**” is located in the area of the old village cores and, due to more recent development, particularly that in the open spaces, can only be found outside of the Circle Line, and very rarely in preserved village structures (e.g. in Kladow, Marienfelde, Buchholz, Malchow or Heiligensee). The village buildings today consist of a mixture of new buildings and typical farmhouses, as well as the old buildings of the former village cores. The decisive factor is that the open space elements of the village, such as the old streets, the village green, the village pond, the manor park, the cemetery at the church, etc., are at least partially visible, and in the areas at the edge of the city are in some cases largely still preserved.

The typical old village buildings are 1-2-storey residential buildings along the streets with farmyards behind them, often enclosed by farmyard buildings of brick. Behind these are fruit and vegetable gardens. The low height of the buildings has been supplemented around the edges of the inner-city by single and multifamily homes. In addition to their residential function, the old village areas today function as local sub-centres, with shops, retail facilities, administrative centres, small workshops, riding stables, restaurants and garden cafés in the old farm buildings.

Area type 24 **“Villas and town villas with park-like gardens (mostly 1870s-1945)”** includes residential areas with villages and townhouses, largely from the Wilhelminian period through the end of the Second World War. Villas are well-appointed single-family homes with yards. Town villas are similar to villas in design and overall appearance, but are multifamily houses with somewhat larger building volumes. Although they have the same use characteristics, these areas have larger lots and greater building volumes than those of the area type “Detached single-family homes with yards”. These buildings have front yards of uniform width, along a single building line, and are relatively close together at the block-edges. They form easily recognisable interior block spaces. The lots are separated by hedges or walls, and in some cases by old brick buildings, which previously served as staff housing, sheds or washhouses and are often used as garages today. In the case of town villas, the interior block space is sometimes relatively small, due to the larger building volume. The park-like impression of these gardens is created by the old trees which are very large, and in some cases exotic species. Sometimes the gardens include vegetable and flower beds; however, lawns with trees accompanied by decorative flower beds are dominant.

This area type rarely appears in pure form over an entire block, since the gaps caused by wartime damage have been filled by buildings of other styles. In addition, the pressure of change due to densification is great, due to the relatively large sizes of the plots in this area type (cf. also area type 25 “Densification in single-family home areas, mixed development with yards and semi-private greening (1870s to present)”).

Area type 22 **“Row houses and duplexes with yards”** describes row house estates or closely arranged duplexes with more or less longitudinally extended yards.

Until 1945, the sizes of the garden plots were dimensioned so as to be able to provide subsistence in vegetables, potatoes and fruit, and permit holding of small animals and chickens. A certain share of vegetable and flower beds, fruit trees and bushes can still to some extent be seen in these old row yards, even to this day. Until 1945, these houses were always built around the block edges, so that the yards in the block interiors formed large continuous green spaces.

The modern row houses are usually no longer built along the block edges, but rather arranged along spur roads or access paths which lead into the interior of the block areas. As a result, there is no longer any common open interior block space, but rather only rows of individual gardens screened off from the neighbours. Since the 1990s, there has been a trend toward space-saving construction, with smaller lot sizes resulting in increased shares of built-up areas on the lots, so that the yards barely cover half the lot areas in some cases. The yards of the duplexes are somewhat larger than those of the row houses. The area type “Row houses and duplexes with yard” is nonetheless one of those with the highest shares of open space.

Area type 23 **“Detached single-family homes with yards”** includes on the one hand single family housing areas, in which the houses are mostly built along a single building line behind front yards of equal depth, and in which small, single multifamily houses with appropriate garden plots are integrated only sporadically. Behind the houses are the actual yards, which are today largely used for leisure activity or as decorative gardens, and only to a lesser degree as fruit and vegetable gardens. At the level of the entire block, this yard area constitutes a large free space which is however subdivided by fences and hedges.

On the other hand, this area type also includes residential areas characterised by often unplanned, non-homogeneous building designs with a mixture of 1-2-storey buildings including single-family homes, bungalows, workshops and garages of various ages.

Such open, usually unstructured residential areas are located in the outer areas of the city adjacent to the more densely built-up areas, and at the city edge. Often, the structural density of these areas has been increased by the construction of buildings on so-called “hammer lots” and later densification with multifamily houses and rental-flat buildings (cf. also area type 25 “Densification of single-family home areas, mixed development with yard and semi-private greening (1870s to present)”).

Area type 59 **“Weekend cottage and allotment-garden-type area”** includes all block (segment) areas which are shown on the actual use map as “Weekend cottage and allotment garden type use”. Weekend cottages are, by definition, not permanently inhabited, and are largely for leisure use. By contrast with

single-family home construction for residential use, these blocks generally have low building volumes and small-scale land parcels. Compared with allotment garden areas, these areas are, however, more densely built up, and the parcels tend to be larger.

Area types of the “Commercial, service use, small business and industrial use” group

Group III	Commercial, service use, small business and industrial use
Type 29	Core area
Type 31	Commercial and industrial area, large-scale retail, dense development
Type 38	Non-residential mixed use area, dense development
Type 30	Commercial and industrial area, large-scale retail, sparse development
Type 33	Non-residential mixed use area, sparse development
Type 32	Utility area

Tab. 3: Area types of the “Commercial, service use, small business and industrial use” group

Area type 29 “**Core area**” has all block areas assigned to it which are shown in the actual use map as core use areas. These are areas with high use intensity and density which are located exclusively in the central areas of the inner city and in the major borough centres. The core areas are of overarching significance for commerce, private and public services, as well as cultural and scientific institutions. Sometimes higher-level public facilities in the inner-city area, such as federal administrative buildings, embassies, etc., are assigned to this category. These areas are not identical with the mixed building areas with core-area character as presented in the Land Use Plan (FNP).

Structurally, there are major differences between particular areas. The spectrum extends from Wilhelminian-period block construction to more recent high-rise construction. Generally, these areas are characterised by a high degree of urban density and of imperviousness.

Area type 31 “**Commercial and industrial area, large-scale retail, dense development**” describes areas with a corresponding use in which more than half of the area of the respective lot is built up and intensively used. Especially on the fringes of the city, commercial and industrial areas display the typical structural design featuring a large cubature. By contrast, the structural design in the inner-city areas, especially in small blocks, tends to include smaller structures adapted to the surroundings.

Area type 38 “**Non-residential mixed use area, dense development**” describes block areas with mixed use, in which more than half of the respective lot is built up, and the open spaces are almost entirely used as car parks or storage space. They are characterised by a mixture of residential and commercial use. The external appearance is largely marked by commercial use; the characteristics of residential use are little in evidence, so that the block cannot be assigned to any of the area types with residential character (see above, Group I).

This area type occurs mostly in inner-city densely built-up areas and in the centres of the outer areas of the city. It involves primarily multi-storey structures, often with storefronts and storage or manufacturing halls in the courtyards. More than half of the lot areas are built up.

Area type 30 “**Commercial and industrial area, large-scale retail, sparse development**” describes areas with a corresponding use in which one half or less of the respective lot is built up. The use of these large lot areas is here almost exclusively for the purposes of commercial production, the storage and shipment of goods, or as car and truck parking. There is virtually no residential use here.

Commercial areas with sparse development are increasingly located at the edge of the city, especially in areas with favourable traffic conditions, such as motorways, rail connections and waterways. There, buildings are predominantly single-storey structures built during the post-war period, with generous surrounding spaces. In underused areas, these facilities are often interspersed with fallow areas. Generally, these areas have a lower level of imperviousness than the commercial and industrial areas with dense development.

Area type 33 “**Non-residential mixed use area, sparse development**” describes block areas with mixed use in which half or less of the respective lot is built up. The commercial structures, which were only recently built, particularly outside the Circle Line, consist primarily of single-storey halls and building complexes with large surrounding open spaces.

The commercially used areas involve primarily commercial operations with a high share of storage, shipment and car and truck parking (junkyards, dealers in building materials, shipping companies and retail businesses). They occupy a major part of the block area, so that the block cannot be assigned to any of the area types with residential character (see above, Group I). There are also large areas which are not used or only extensively used, on which spontaneous vegetation in varying phases of

development is located (fallow area). Generally, these areas have a lower degree of imperviousness than the mixed areas with dense development.

Area type 32 **“Utility area”** includes all block areas shown in the actual use map as Utility areas. This category includes areas with facilities of the technical infrastructure, including electricity, gas, water and district heat supply, as well as waste and sewage disposal. The Central Bus Station (ZOB), and the bus and tram depots are also assigned to this category.

Area types of the “Traffic areas” group

Group IV	Traffic areas
Type 92	Railway station and railway ground, without track area
Type 99	Track area
Type 91	Parking area
Type 94	Other traffic area
Type 93	Airport

Tab. 4: Area types of the “Traffic areas” group

Area type 92 **“Railway station and railway ground, without track area”** includes all railway facilities except for the tracks, such as surface railway stations, railway freight and loading stations, workshop areas, etc. Former freight and loading stations are also classified as such, as long as no other use or change in ownership becomes known. Railway areas are a special case in terms of block segment area formation. In order to reduce the formation of block segment areas to the necessary minimum, the possibility for assigning dual use is used very broadly in this case. Thus, areas of the categories “Forest”, “Urban square/ promenade”, “Allotment garden” and “Fallow area”, which are contained in railway blocks together with railway facilities, are mapped as dual use traffic areas with the corresponding green space category, if the green use applies to more than 50 % of the area. If the area is used by the railway, the type assignment is carried out in accordance with the respective utilisation by the railway; otherwise the area will be assigned to the area type “Other traffic area”.

Area type 99 **“Track area”** describes the track areas of the city railway and the long-distance railway, as well as those sections of the underground/ subway running outside the tunnels in open cuts. The track course is thus shown in its entirety.

Area type 91 **“Parking area”** is only assigned for car parks, parking garage buildings and garage facilities which either occupy an entire statistical block, or which evidently are unconnected with the utilisation in that block, thus justifying the formation of a block segment area. For instance, the car parks in the areas of major estates do not constitute block segments, even if they exceed the ascertainment limit of 1 ha, since they are part of the specific structure of this residential use. However, if such car parks are located in a separate block, they will be assigned to the use category “Traffic area” and the area type “Parking area”. This procedure also applies to the car parks in the vicinity of Public facilities/ special use areas, such as the Olympic Stadium and the *Messegelände* trade fair grounds. In addition, median strips used as car parks and scattered large car parks in the city area and in recreational areas are assigned to this type.

Area type 94 **“Other traffic area”** includes tram tracks, traffic islands (except those which are evidently car parks), green and fallow strips along traffic routes, and promenades. It also includes areas of the categories “Forest”, “Park/ green space”, “City square/ promenade”, “Allotment garden” and “Fallow area” within railway blocks which are not used by the railway. In the use map, they are shown as dual use traffic areas with the corresponding green use category.

Area type 93 **“Airport”** includes the runways, airport buildings and access areas such as roads and car parks, and the extensive open spaces surrounding the runways of the airport, mapped as dual use “Traffic area” and “Fallow area”. In the 2020 mapping, Tegel Airport is still mapped as area type 93. It was an international commercial airport until 8 November 2020 and was decommissioned on 5 May 2021.

Area types of the “Public service and other special uses” group

Group V	Public service and other special uses
Type 43	Administrative
Type 45	Culture
Type 41	Security and order
Type 12	Old school (built before 1945)
Type 13	New school (built after 1945)
Type 44	University and research
Type 47	Children’s day care centre
Type 51	Other youth facility
Type 58	Camping ground
Type 60	Other and miscellaneous public facility/ special use area
Type 49	Church
Type 46	Hospital
Type 98	Construction site

Tab. 5: Area types of the “Public service and other special uses” group

All block areas shown on the actual use map as Public service and other special use areas are assigned to one of the following area types:

Area type 43 “**Administrative**” is assigned to the locations of public administrative offices. These include e.g. the borough offices, the town halls, the job centres, the courts, Senate departments, and such federal facilities as the locations of the ministries and the Bundestag. By contrast, embassies are assigned to the category “Other and miscellaneous public facility/ special use area” (type 60).

Area type 45 “**Culture**” includes museums, theatres, operas, the Philharmonic, and other such cultural facilities. It also includes large-scale memorials and monuments.

Area type 41 “**Security and order**” includes areas used by the police, the fire department, the prison system and the military.

Area type 12 “**Old school (built before 1945)**” describes the schools built before 1945, on relatively small lots in the neighbourhoods characterised by Wilhelminian-period block construction. Their structural style is similar to that of the Wilhelminian-period area types. The non-built-up areas are used as leisure courtyards with playgrounds, or sports facilities.

Area type 13 “**New school (built after 1945)**” describes the schools built since 1945. Particularly the school centres built during the 1970s have very large lots, the non-built-up areas of which are used as leisure courtyards, playgrounds, or sports facilities.

Both area types, “New school” and “Old school”, include exclusively general educational and vocational schools. The locations of music schools, horticultural schools, adult education centres, etc., are assigned to area type 60 “Other and miscellaneous public facilities/ special use areas”, since they do not have the buildings and open space structures typical of schools.

Area type 44 “**University and research**” includes, in addition to several scientific research facilities, primarily the universities and colleges and any teaching and experimental fields with agricultural or horticultural character linked to the colleges or other facilities. These are shown in the use map as public facility/ special use areas with corresponding open space dual use.

Area type 47 “**Children’s day care centre**” covers larger childcare centres occupying entire block (segment) areas. Smaller institutions are generally mapped in combination with other public facilities, such as schools or as part of residential areas. The buildings built since the Second World War are usually 1-2 storeys high; in rare cases, they have three or more storeys. The old buildings have been adapted to the building style of the surroundings. Childcare facilities have quite a high share of open space, which is often used intensively as an area for recreation and play and designed accordingly.

Area type 51 “**Other youth facility**” includes larger youth facilities sites which cannot be assigned to any other category, e.g. youth clubs, youth recreational centres, youth training centres, children’s and young people’s homes, children’s and young people’s circuses, school country centres, traffic schools and youth hostels and youth guesthouses.

Area type 58 “**Camping ground**” includes tent grounds, camping grounds and permanent campgrounds with mobile shelters, but not purely caravan camping places with an impervious parking-

area-like character. Built-up areas include infrastructural facilities, such as sanitary buildings, and shopping facilities or restaurants, but the share of built-up areas overall is relatively slight.

Area type 60 **“Other and miscellaneous public facilities and special use area”** includes all public facilities areas which, as a result of lack of information or due to the nature of the system described herein, cannot be assigned to any other public facilities or special use area type (e.g. music schools, student accommodation and retirement homes or workshops for the disabled, but also more extensive facilities such as the two zoos, Zoologischer Garten and the Tierpark, as well as the Messegelände trade fair grounds).

Area type 49 **“Church”** is assigned if a considerable portion of the area of a block or block segment area is occupied by church buildings. They often occur in connection with city squares or cemeteries, and may be mapped accordingly, as dual use areas.

Area type 46 **“Hospital”** includes both the structural facilities and the sometimes very extensive external grounds of each such institution. The time of construction of the hospitals is spread throughout the various construction eras. The hospital facilities built in the early 20th century were in some cases built in pavilion style. The relatively large external areas were designed as parks, and include a large share of access facilities. In later years, the style of construction was abandoned in favour of the central main building. However, large park-like external areas are usually typical here, too.

Area type 98 **“Construction site”** includes all areas designated as construction sites on the actual use map. These are areas with typical construction site characteristics, generally with open ground. Once the foundations and first floors of the new building are discernible, the site is classified according to its planned use. This area type is highly dependent on the time of recording by nature.

Area types of the “Green and open spaces” group

Group VI	Green and open spaces
Type 54	City square/ promenade
Type 17	Sports facility, covered
Type 16	Sports facility, uncovered
Type 36	Tree nursery/ horticulture
Type 37	Allotment garden
Type 53	Park/ green space
Type 27	Cemetery
Type 57	Fallow area
Type 56	Agriculture
Type 55	Forest
Type 100	Body of water

Tab. 6: Area types of the “Green and open spaces” group

Area type 54 **“City square / promenade”** includes all areas mapped for this use in the actual use map, provided they have not been assigned any dual use as Public facilities / special use or traffic areas. These are public spaces in the life of the city which serve as places of leisure and recreation, meeting areas, or markets, or else as space for movement for pedestrians and cyclists away from road traffic.

City squares and promenades generally have a higher degree of imperviousness than do those of the area type “Park / green space”.

Area type 17 **“Sports facility, covered”** includes sports facilities in which the share of covered sports facilities (halls) is dominant. These may include combinations of sports fields and sports halls, stadiums and multipurpose halls with a predominantly structural character, indoor swimming pools, riding halls and ice-skating rinks, as well as heavily built-up water sports facilities.

Area type 16 **“Sports facility, uncovered”** includes major sports locations in which the share of uncovered – i.e. non-built-up – sports facilities dominates the appearance. The buildings belonging to the sports facilities, such as dressing rooms and equipment storage facilities, are also included. Uncovered sports facilities may include stadiums, single sports fields, with or without tracks, in some cases located on the grounds of schools, tennis courts, outdoor swimming pools, golf courses and facilities used for riding, shooting or water sports.

Area type 36 **“Tree nursery / horticulture”** is assigned only to those block (segment) areas which are shown with that use in the actual use map. These are areas with predominantly open land plantation. It includes not only the planning areas of private tree nurseries and horticultural businesses, but also the

borough horticultural operations. Areas with halls only or with an impervious cover of more than 50 %, on the other hand, are categorised as commercial and industrial use.

Block (segment) areas with operational courtyards used by horticultural offices as well as certain research institutions such as the Institute for Crops Research and associated teaching and experimental fields of the universities are mapped as dual use public service and other special use areas, and are then not assigned to the area type "Tree nursery/ horticulture", but rather to the area type group "Public service and other special uses".

Area type 37 "**Allotment garden**" includes all areas mapped for this use in the actual use map, provided they have not been assigned any dual use as traffic areas. The assignment and area delineation of the allotment gardens is based on the catalogue of data of Berlin allotment garden facilities maintained by the respective Senate department, which lists the allotment gardens as per the Federal Allotment Garden Law.

Other areas with similar use characteristics are assigned in the actual use map to the use categories "Weekend cottage and allotment-garden-type use", and are therefore assigned to area type 59 "Weekend cottage and allotment-garden-type use" in the urban structure mapping system.

Area type 53 "**Park / green space**" includes only block (segment) areas which are also assigned to the category Parks / green spaces on the actual use map, provided they have not been assigned any dual use as public service and other special use or traffic areas. In addition to the public green spaces listed in the Register of Green Spaces, this category also includes other green areas, provided their appearance is similar to that of publicly accessible green spaces, and that they evidently enjoy regular horticultural care.

The extensive park and leisure facilities mapped as parks or green spaces in the actual use map that are almost exclusively characterised by more or less maintained forests or meadow-like areas, may be assigned to the area types Fallow area or Forest (e.g. Volkspark Klein-Glienicke).

Area type 27 "**Cemetery**" includes all areas mapped for this use in the actual use map, provided they have not been assigned any dual use as Public facilities/special use areas. In addition to those areas currently used for burials, these include former cemeteries, provided that their character as cemeteries is still recognisable.

Structurally, cemeteries vary primarily in terms of their stock of trees. While forests cemeteries and older park cemeteries are essentially characterised by their old tree stands, newer cemetery facilities may have almost no large trees.

Area type 57 "**Fallow area**" describes the usually no longer used areas on which a variegated array of vegetation, such as nutrient poor or dry meadows or ruderal fields may develop. All areas mapped under one of the "Fallow area use" categories are aggregated in this area type, unless they also have a structural use; in that case their type assignment is in accordance with that structural use. Moreover, certain facilities mapped under the use category "Park / green space" may be assigned to this area type if the area evidently is not being cared for, and is dominated by ruderal vegetation (e.g. Tegeler Fließ). Map "[Inventory of Green and Open Spaces](#)" (06.02) (SenstadtWohn 2021e) differentiates between three categories of fallow areas depending on their type of vegetation.

Area type 56 "**Agriculture**" is assigned to all block (segment) areas which are shown on the actual use map either as pastures / meadows or farmland, provided they have no dual use as public service and other special use areas. In that case, they would be assigned to one of the above area types (see above, area types of public service and other special uses).

Area type 55 "**Forest**" includes all areas mapped as the use category "**Forest**", unless they at the same time fall into a structural use category. In that case, the type assignment is in accordance with that structural use. In addition, some areas mapped in the use category "Park / green space" may be assigned to this area type, if they are predominantly well-maintained areas planted with trees (e.g. Volkspark Klein-Glienicke).

Area type 100 "**Body of water**" is assigned to all block (segment) areas which are also shown as body of water in the actual use map. "Body of water" includes not only natural waters, such as rivers and lakes, but also canals and the retention and seepage basins of the Berlin Waterworks (BWB), provided they are recognisable as water surfaces.

Key characteristics of area types

A differentiated **definition and description of area types** can be found in the report on [Flächennutzung und Stadtstruktur – Dokumentation der Kartiereinheiten und der Aktualisierung des Datenbestandes 2020](#) (Land use and urban structure – Documentation of mapping units and updating of the data base 2020, SenStadtWohn 2021a, only in German). There, the individual mapping units of the area types are described and illustrated in detail with reference to particular representations, also with regard to their location and distribution in the urban area.

Each **particular representation** contains:

- a text description
- the mapping rule names
- information as to how many areas are included in the respective category
- information on characteristic building age and other descriptive features
- a map displaying the distribution of affected block areas in the urban space, and
- exemplary sections from the 1 : 5,000 map (K5) and digital orthophotographs, as well as ground-level photos of typical block (segment) areas.

The **key characteristics** in each case include the area-weighted mean, the area-weighted 5th and 95th percentile and the cumulative frequency diagram for the following characteristics:

- degree of imperviousness (cf. Environmental Atlas Map [“Impervious Soil Coverage” \(01.02\), 2016](#); SenStadtWohn 2017b)
- the Floor Space Index¹ (cf. Environmental Atlas Map [“Urban Structural Density” \(06.09\), 2019](#); SenStadtWohn 2019)
- the Site Occupancy Index² (cf. Environmental Atlas Map [“Urban Structural Density” \(06.09\), 2019](#); SenStadtWohn 2019)
- the number of building storeys³
- the number of inhabitants per ha (cf. Environmental Atlas Map [“Population Density” \(06.06\), 2019](#); SenStadtWohn 2020c) and
- the green volume (cf. Environmental Atlas Map [“Green Volume” \(05.09.\), 2010](#); SenStadtWohn 2017a).

These characteristics are the factual data available in the data bases which are regularly generated in the Urban and Environment Information System (ISU), with the block (segment) area map as the spatial reference. The statements contained in the brief descriptions were calculated according to the current use maps by statistical evaluation. In order to ascertain the ranges, the lower limit was given as the 5th percentile, and the upper limit as the 95th percentile, in order to avoid including atypical outliers. In exceptional cases, there are therefore areas which fall outside these characteristic ranges (10 % of areas).

¹ The Floor Space Index (FSI) is calculated as the ratio of the sum of the storeys of all main buildings in the block (not counting such ancillary buildings like garages, etc.) to the area of the block.

² The Site Occupancy Index (SOI) is calculated as the ratio between the sum of the built-up and/or build-under areas (main and ancillary buildings, underground car parks etc.) to the block area.

³ Average number of storeys of all buildings in a block (segment), not including ancillary buildings or structures underground, based on the ALKIS data on the number of storeys above ground.

WOZ 10 Wohnnutzung

Beschreibung:
 Blockflächen sind dann als Wohnnutzung dargestellt, wenn sie überwiegend für Wohnzwecke genutzt werden. Es können wohnungsbezogene Dienstleistungsunternehmen, Gemeinbedarfseinrichtungen und örtliche Grünflächen mit einbezogen werden. Wohngebiete umfassen die dichte Bebauung der Innenstadt ebenso wie die offene Siedlungsbebauung in den Stadtrandbereichen.

- Kartierregeln:**
- Der Flächenanteil der Wohnnutzung beträgt mindestens 75 %.
 - Doppelnutzungen: nicht zulässig
 - Typzuordnung: ausschließlich **Gruppe I**

Charakteristische Merkmale:

Sauflur	unangelegt	
Anzahl	11.700	
Fläche [ha]	24.082	
Ø	Spanne (5 - 95%)	
Verseelungsgrad [%]	41,3	23,2 bis 77,7
Geschossflächenzahl	0,75	0,14 bis 2,46
Grundflächenzahl	0,24	0,12 bis 0,53
Geschosse	2,9	1,1 bis 6,6
Einwohner/ha	134	23 bis 423
Grünvolumenzahl [m³/m²]	2,9	0,7 bis 6,6



WOZ 10 - Wohnnutzung

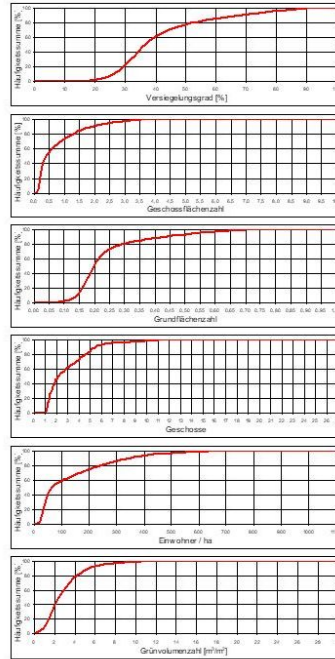


Fig. 2: Representation of a single area type (example) from the report which documents the mapping units and the updating of the 2020 data base

In the context of the update, automated plausibility checks were carried out on the basis of key characteristics, and areas that stood out were visually examined. For statistical evaluations based on block (segment) areas, only those areas could be used for which the geometry had not been changed with respect to ISU5 2015. For the new areas, the necessary data was not yet available.

Table 7 shows the key values ascertained by statistical evaluation for all area types. For example, it is evident that the dense block development with closed courtyards is the most densely inhabited area type, with an average density of 508 inh./ha. The exceptionally high use intensity of core areas is reflected in the high average floor space indices.

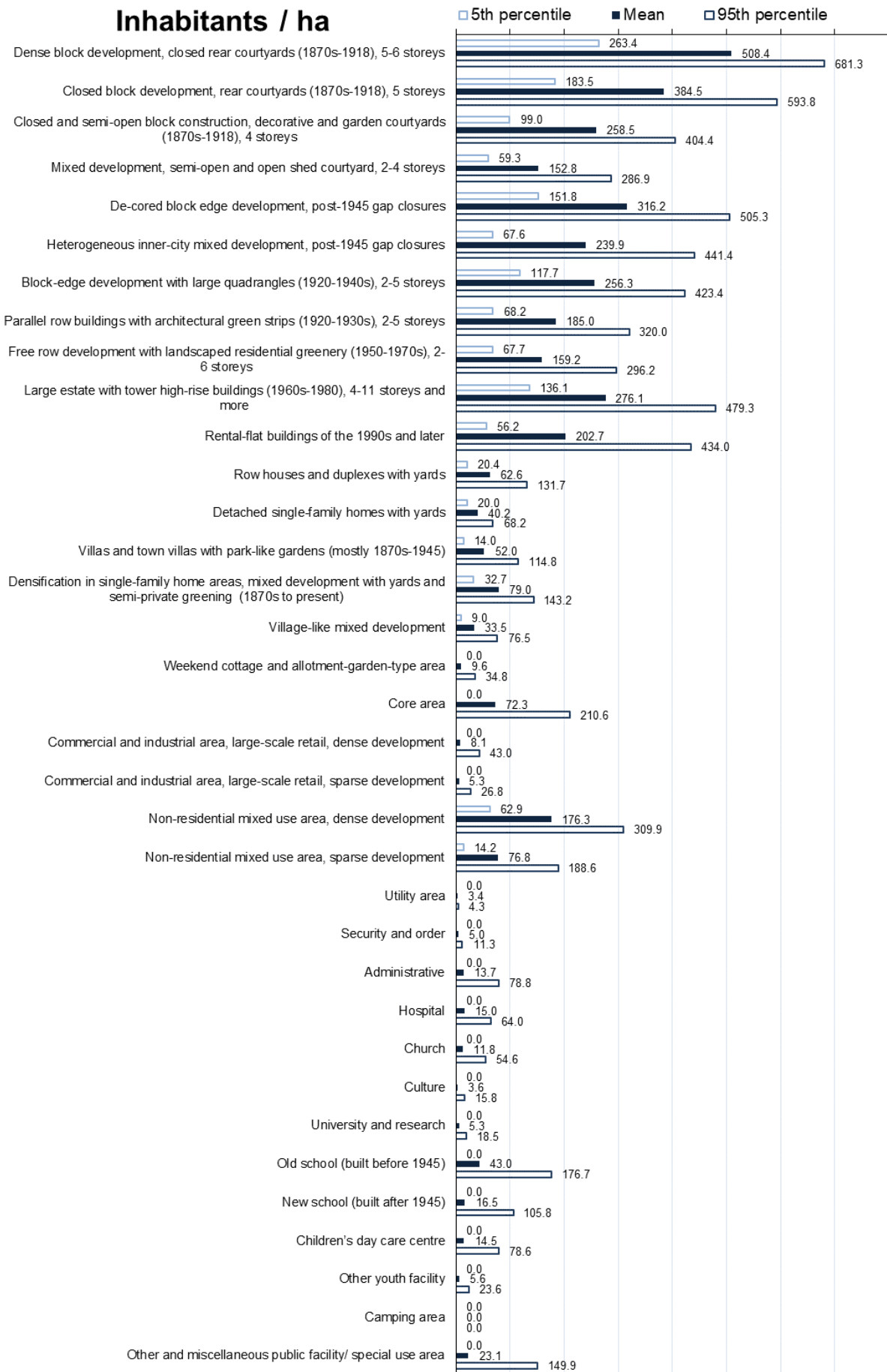


Fig. 3: Evaluation of key characteristics for selected area types (as of December 31, 2020): inhabitants/ ha (as of December 31, 2019)

Floor Space Index

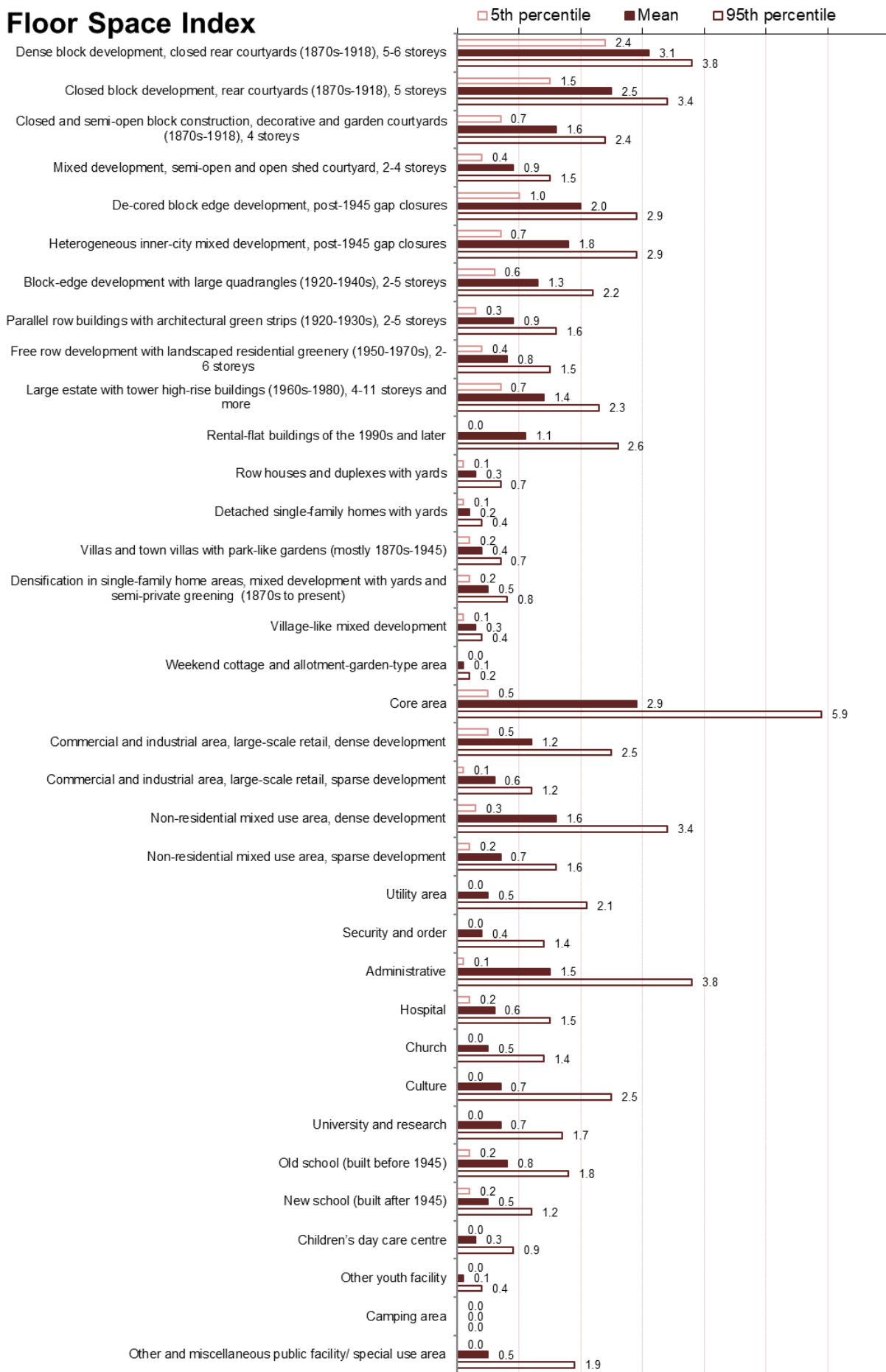


Fig. 4: Evaluation of key characteristics for selected area types (as of December 31, 2020); Floor Space Index (as of March 2019)

Grouping by structure types

In Map “Urban Structure” (06.07), similar area types are grouped into 16 overarching **structure types**, as well as body of water, which are not part of the “classic” structure types:

Tab. 8: Grouping of area types (Environmental Atlas Map 06.08) into structure types (Environmental Atlas Map 06.07)	
Structure type	Area type
Structure types with predominantly residential use	
(1) Wilhelminian-period block development with wings and rear buildings	(1) Dense block development, closed rear courtyards (1870s-1918), 5-6 storeys (2) Closed block development, rear courtyards (1870s-1918), 5 storeys
(2) Wilhelminian-period block-edge development with few wings and rear buildings	(3) Closed and semi-open block development, decorative and garden courtyards (1870s-1918), 4 storeys (6) Mixed development, semi-open and open shed courtyard, 2-4 storeys
(3) Wilhelminian-period block-edge development with major changes	(7) De-cored block-edge development, post-war gap closures
(4) Block-edge and row development of the 1920s and 1930s	(10) Block-edge development with large quadrangles (1920s-1940s), 2-5 storeys (72) Parallel row buildings with architectural green strips (1920-1930s), 2-5 storeys
(5) Row development since the 1950s	(11) Free row development, landscaped residential greenery (1950s-1970s), 2-6 storeys
(6) Postwar high-rise development	(8) Heterogeneous inner-city mixed development, post-war gap closures (9) Large estate with tower high-rise buildings (1960s-1990s), 4-11 storeys and more
(8) Residential development of the 1990s and later	(73) Rental-flat buildings of the 1990s and later
(10) Low buildings with yards	(22) Row houses and duplexes with yards (23) Detached single-family homes with yards (59) Weekend cottage and allotment-garden-type area
(11) Villa development with park-like gardens	(24) Villas and town villas with park-like gardens (mostly 1870s-1945)
(12) Development with yards and semi-private greening	(25) Densification in single-family home areas, mixed development with yards and semi-private greening (1870s to present)
(13) Village-like development	(21) Village-like mixed development
Structure types with predominantly retail, service, commercial and industrial use	
(14) Development with predominantly retail and service use	(29) Core area
(15) Sparse development with predominantly commercial and industrial use	(33) Non-residential mixed use area, sparse development (30) Commercial and industrial area, large-scale retail, sparse development (32) Utility area
(16) Dense development with predominantly commercial and industrial use	(38) Non-residential mixed use area, dense development (31) Commercial and industrial area, large-scale retail, dense development
Structure types with other uses (public facilities, traffic area, construction site or green and open space)	
(17) Development with predominantly public and special use, construction site or non-street traffic area	(41) Security and order (43) Administrative (45) Culture (12) Old school (built before 1945) (13) New school (built after 1945) (44) University and research (49) Church (46) Hospital (47) Children's day care centre (51) Other youth facility (17) Sports facility, covered (60) Other and miscellaneous public facility/ special use area (93) Airport (91) Parking area (92) Railway station and railway ground, without track area (99) Track area (94) Other traffic area (98) Construction site
(18) Public facility and special-use area with sparse or no development, green and open space	(55) Forest (56) Agriculture (53) Park/ green space (54) City square/ promenade (27) Cemetery (37) Allotment garden (57) Fallow area (58) Camping ground (16) Sports facility, uncovered (36) Tree nursery/ horticulture

Tab. 8: Grouping of area types into structure types

The representation of the structure types is concentrated, even more than that for the area types, on areas with predominantly residential use. The 17 differentiated area types with primarily residential use are grouped into 11 structure types with such use, while the other 34 area types (not including body of water) with other uses are grouped into the five remaining structure types.

The 11 structure types with predominantly residential use are differentiated based on the structure of their buildings and open spaces, and their building age.

Tab. 9: Description of the structure types with predominately residential use		
Structure type	Building structure and age	Open-space structure
(1) Wilhelminian-period block development with wings and rear buildings	5-6 storeys, closed or almost closed block-edge, front building, wings, rear building(s); built 1870-1918	Angled interior block spaces, narrow, largely impervious courtyards, often with small flower beds and/or single trees
(2) Wilhelminian-period block-edge development with few wings and rear buildings	Usually 4 storeys, some lower, largely closed block edge, front building, either wings or rear building, some 1-2 storey sheds, mostly built 1892-1918, some older	Jagged shaped or longitudinal interior block spaces divided by fences or separated into small segments by walls and sheds; usually with front yard and landscape or commercially used and hence impervious courtyards
(3) Wilhelminian-period block-edge development with major changes	5-6 storeys, largely closed block-edge, older Wilhelminian-period buildings at the block-edge, mixed with many newer buildings; built after 1945, some older	Block interior spaces divided by fences, walls or the wings or rear buildings with fairly large courtyards, as garden courts, storage spaces or car parks, often with a little greenery, or contiguous interior space, with pathways, playgrounds, with lawns and shrubbery as leisure areas for inhabitants
(4) Block-edge and row development of the 1920s and 1930s	2-5 storeys, large quadrangles with almost closed block-edge or parallel row development, with open block-edge	Contiguous block interior spaces or subdivided block sections with longitudinal open space; with decorative lawns and scattered trees and hedges along the houses, play area and waste bin locations.
(5) Row development since the 1950s	Mostly 4 storeys, house rows either parallel, staggered arrangement along curved streets, or in chain or spider-web form	Subdivided block sections with longitudinal free spaces; with parking spaces and play areas, as well as entry path-ways an decorative lawns with scattered trees and bushes
(6) Postwar high-rise development	Usually 4-6 storeys, row development or mixed block-edge and row development with concrete plate construction; interspersed with tower or rectangular high-rises in open arrangement within the block, with more than 6 storeys; mostly built 1960-1980s	Usually open structured but not enclosed block section; contiguous block interiors place only in case of block-edge development; with geometrical, broad entry pathways and parking spaces, as well as decorative lawns and shrubbery
(8) Residential development of the 1990s and later	2-7 storeys, block-edge development, row development, town-villa estates and townhouses, compact development; built since the early '90s	Block interior space either continuous or broken down by rows of houses or single villas; open free space with entry pathways and parking spaces, with decorative lawn, shrubbery and single trees
(10) Low buildings with yards	1-2 storeys, single-family homes and duplexes, row houses, smaller rental-flat buildings, weekend cottages and scattered workshops; older developments around block-edges, the more recent along spur streets and access paths into the block interiors; built since early 20th century.	Continuous interior block space, separated by fences on lot boundaries; in older estates, subdivided into longitudinal free spaces separated by fences and lot boundaries; decorative or vegetable gardens or orchards
(11) Villa development with park-like gardens	1-3 storeys; large rental-flat buildings between single-family homes with villas; built since 1950	Subdivided interior block spaces; with mixture of decorative lawns and shrubbery around flats, and park-like gardens or decorative or vegetable gardens or orchards.
(12) Development with yards and semi-private greening	Mostly 2 storeys; block-edge development with villas, rental villas and country homes, large building volumes; built 1890-1930	Front yard; contiguous interior block spaces separated by fences and lot boundaries; with park-like gardens with old trees on lawns
(13) Village-like development	Mostly 2 storeys; mixture of new buildings and farmhouses, also buildings in the former village cores	Village-like elements include layout of streets, village greens, village pond, manor parks, cemeteries around churches at least discernible; spaces with gardens, garden cafés, storage spaces for commercial and trade businesses

Tab. 9: Description of structure types with predominately residential use

This differentiated perspective has repeatedly proven to be effective. For example, the urban structure mapping system was taken as a secondary data source for the overall city biotope mapping process, and the description of the structure types based on the development and open space structures has largely been adopted for the descriptions of the biotopes in built-up areas (see also: [Berlin's biotope type list \(only in German\), SenUVK 2021](#)). The use of urban structure types and area types in particular is beneficial when, rather than identifying individual characteristics on a small scale, the goal is to derive indicators and to assign characteristics based on use, area type and building structures in order to design measures and programmes (e.g. in the context of adapting to climate change, cf. [StEP Klima KONKRET](#) (StEP Climate Concrete), SenStadtUm 2016, only in German).

Distribution of structure types in Berlin

The 11 **structure types with predominantly residential use** occupy approx. half of Berlin's built-up area. The category "Low buildings with yards" covers 46 %, by far the largest portion of the residential areas, followed by "Post-war high-rise development", with 10 %. "Village-like development" accounts for the smallest share of the area, with 2 % (cf. Fig. 5).

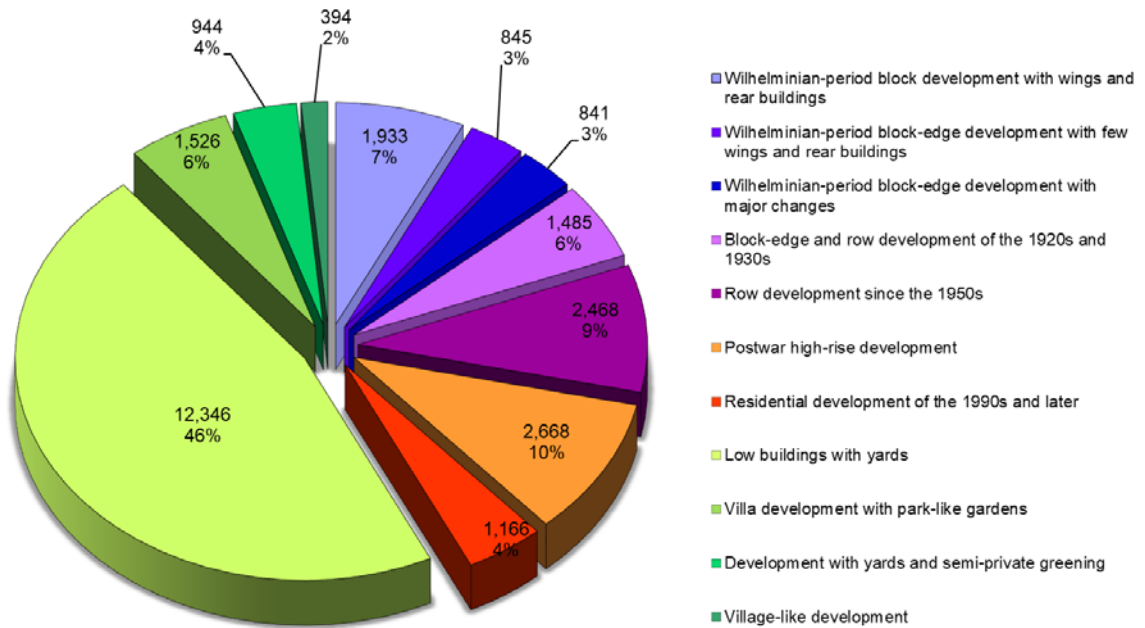


Fig. 5: Shares of structure types with predominantly residential use of the area with predominantly residential use, or mixed use with residential character, area sizes based on the ISU5 block (segment) area map, as of December 31, 2020

The distribution of the urban structure types across Berlin's boroughs illustrates the diverse urban development character of these boroughs (cf. Fig. 6).

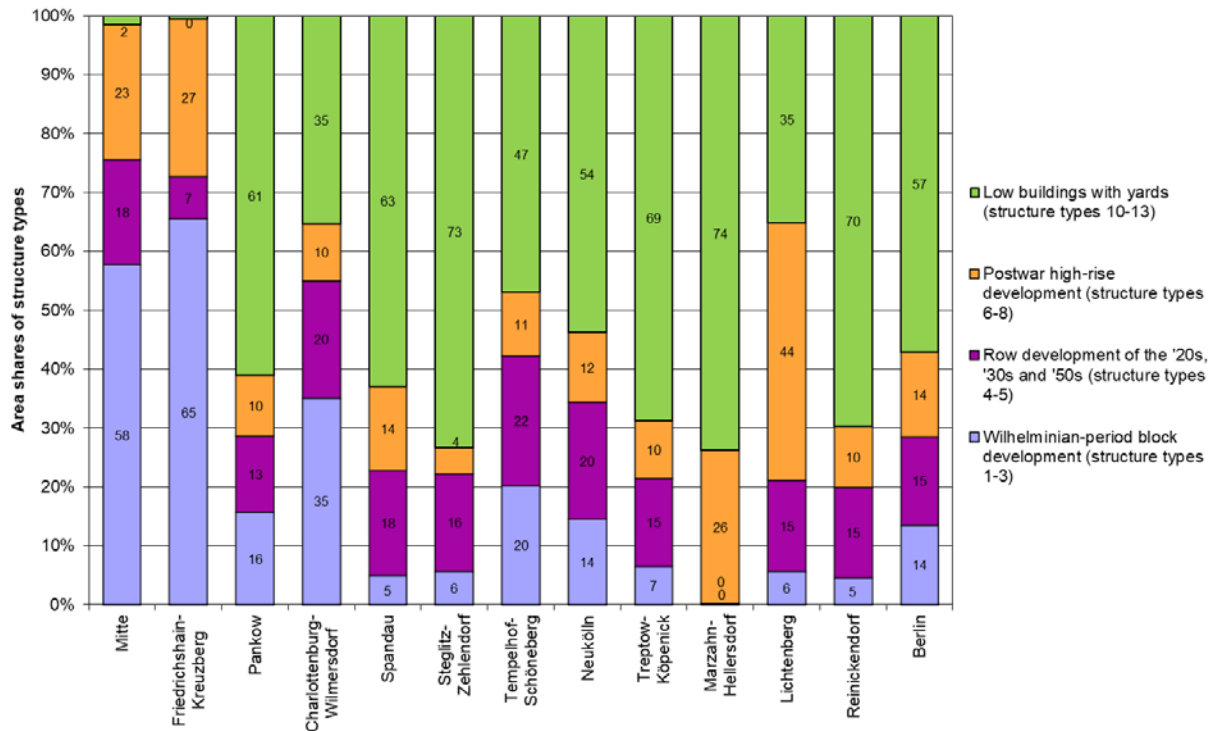


Fig. 6: Shares of structure types with predominantly residential use of the total area of the Berlin boroughs, and of the entire city, in percent, as of December 31, 2020

In the boroughs of Mitte and Friedrichshain-Kreuzberg, a high proportion of Wilhelminian-period block development has been preserved, amounting to between 58 % and 65 % of the residential area; in some cases, however, it has been considerably changed. In the other boroughs, that share is a lot smaller. The citywide average of preserved buildings from the Wilhelminian period is only 14 %. In Marzahn-Hellersdorf, both the share of Wilhelminian-period block development and that of row development are negligible. Tempelhof-Schöneberg has the largest share of row development (22 %), followed by Charlottenburg-Wilmersdorf and Neukölln (20 % each). A higher than average proportion of post-war buildings is found in the boroughs of Lichtenberg (44 %), Friedrichshain-Kreuzberg (27 %) and Marzahn-Hellersdorf (26 %). Unsurprisingly, low buildings with yards are almost completely absent in the inner-city boroughs of Mitte and Friedrichshain-Kreuzberg. On the outskirts of the city in Steglitz-Zehlendorf, Treptow-Köpenick, Marzahn-Hellersdorf and Reinickendorf, however, they play a key role in shaping the settlement structure, accounting for about three quarters of the residential area.

The **“Wilhelminian-period block development with wings and rear buildings”** (structure type 1), which have hardly changed since they were built can be found in parts of Charlottenburg and Wilmersdorf, between Lietzensee (Lake), Kurfürstendamm, Richard-Wagner-Straße and Spandauer Damm. In Moabit, Wedding and in Friedrichshain between the Circle Line and Petersburger Straße, along Warschauer Straße, and also in Kreuzberg, Neukölln and Schöneberg between the axes Neukölln Shipping Canal/Skalitzer Straße/Gitschiner Straße, Karl-Marx-Straße/Gneisenaustraße/Yorckstraße, and Potsdamer Straße/Hauptstraße in Schöneberg, the dense development with typical rear courtyard structures have largely been preserved.

The **“Wilhelminian-period block-edge development with few wings and rear buildings”** (structure type 2), which includes the area types “Decorative and garden courtyards” and “Shed courtyards”, can be found in the former suburbs of Berlin outside the Circle Line. These building structures, too, have hardly been changed since they were built. Large such areas exist in Friedenau, in Steglitz, in Tempelhof and Friedrichshagen, in Oberschöneweide, Karlshorst, Pankow, Niederschönhausen, and Spandau, and in Reinickendorf west of Provinzstraße.

Large areas of **“Wilhelminian-period block-edge development with major changes”** (structure type 3), which emerged as the result of war-time destruction and reconstruction, or of reconstruction with massive demolition of Wilhelminian-period block development, are found within the Circle Line, particularly in Charlottenburg between Otto-Suhr-Allee and Bismarckstraße and along Spandauer Damm, in Tiergarten around the Spreebögen and Invalidenstraße, and south of the Landwehr Canal around Potsdamer Straße, in Wedding between the City Rail Line between Nordbahnhof, Gesundbrunnen and Bernauer Straße, and in Friedrichshain west of the Warschauer/ Petersburger Straße corridor and, east of these streets, in the area of Frankfurter Allee. Also, in Schöneberg and Wilmersdorf, there are many areas in which the typical Wilhelminian-period courtyard structure was changed significantly by reconstruction and renovation.

In Prenzlauer Berg, Kreuzberg, Charlottenburg and Neukölln, very much of the Wilhelminian-period development of the area types with "closed courtyard" and "courtyard", which are characteristic of structure type 2, is still preserved in its original form. The share of very dense development of the type "closed courtyard" is relatively high in Neukölln, Wedding and Kreuzberg. Preservation-oriented reconstruction, under which the original Wilhelminian-period block structures were largely preserved, occurred most prominently in Kreuzberg. In Tiergarten, Friedrichshain and Wilmersdorf, however, war-damage to Wilhelminian-period block development was largely eliminated and replaced, particularly by new buildings of the post-war block-edge type. Major changes in Wilhelminian-period buildings through reconstruction by de-coring were most common in Wedding.

The **“1920s and 1930s block-edge and row development”** (structure type 4) is found mainly outside the Circle Line. Frequently, the rows and quadrangles were built in neighbourhoods where the “Wilhelminian-period development with few wings and rear buildings” type dominated, at the edge of the former suburbs of Berlin. They are as a rule well connected to the City Rail and subway/ underground network.

The **“1950s and later row development”** (structure type 5) settlements were built mostly on the Berlin outskirts, outside the Circle Line. They were created on former open spaces (agriculture areas, etc.) without regard for existing transport corridors or development structures. Within the Circle Line, formerly built-up areas were replaced by row development. This includes large areas in Mitte and Friedrichshain-Kreuzberg. In Kreuzberg, the Otto-Suhr-Siedlung west of the Moritzplatz is an example of this very green settlement type that remains largely unchanged. Sporadic areas with row development in the former Wilhelminian-period block structure also exist in other inner-city areas, however.

The **“Post-war high-rise development”** (structure type 6) can be found as heterogeneous inner-city mixed development in the western parts of the city. Large areas of this type exist in Wilmersdorf around

Bundesallee, in Schöneberg in the area of Nollendorfplatz and Kleiststraße, and in Kreuzberg between Wilhelmstraße and Stresemannstraße. Most of the post-war high-rise buildings are assigned to the area type “Post-war high-rise development with single tower high-rises”. Within the Circle Line, these are found only in Kreuzberg, Mitte and Friedrichshain, where smaller developments of this area type emerged. The high proportion of large post-war high-rise developments in an inner-city borough such as Friedrichshain-Kreuzberg, which seems surprising initially, started with buildings of up to 10 storeys in height located around Karl-Marx-Allee and Frankfurter Allee, which were mainly erected as part of reconstruction measures in former East Berlin after the Second World War. This reconstruction project also reached into the borough of Mitte (with a share of 23 %).

As a rule, the high-rise developments were built outside the City Rail Circle Line. Major such complexes in West Berlin include Gropiusstadt in Neukölln, developments in Lichtenrade, Marienfelde, Lichtenfelde and Spandau, and the Märkisches Viertel in Reinickendorf. In East Berlin, the largest developments are found in Hohenschönhausen, Marzahn, Hellersdorf and Lichtenberg. Estates with block-edge and row development with concrete plate construction and single tower high-rises are mostly found in Hellersdorf, Marzahn and Spandau. Smaller such estates were also built e.g. in Köpenick and Hohenschönhausen.

Large areas of structure type 8 **“Residential development of the 1990s and later”** were mostly built in the context of urban development projects, mostly on the outskirts of the eastern part of the city, as in Karow-Nord and Buchholz. Some of the larger residential projects, such as Rummelsburger Bucht, are also at the inner-city edge. Large projects in the western part of the city include Europacity on Heidestraße north of the main railway station, developments on the edge of the park near Gleisdreieck and the Wasserstadt Oberhavel in Spandau.

The **“Low buildings with yards”** (structure type 10) with usually single-family homes or duplexes and yards can be found on the fringes of the city.

The **“Villa development with park-like gardens”** (structure type 11) emerged mainly during the Wilhelminian period in scenically attractive areas and is no longer only characterised by an intact structure.. Locally, there are also signs of densification at the block edges as well as in the inner block area, e.g. through property divisions – developments that also affect other structure types of green residential use. Major such areas are located near the Grunewald Forest in Nikolassee, in Zehlendorf, Dahlem and Grunewald, in Lichtenfelde, near the Tegel Forest in Hermsdorf, along the Dahme at Grünau, and in the area of Müggelspree river at Rahnsdorf.

“Development with yards and semi-private greening” (structure type 12), in which villa development and/ or sparse development of single family houses are interspersed with larger rental-flat and studio-apartment buildings, occurs mainly in the southern urban area, particularly in the transitional areas between villas and single family housing in Lichtenfelde and Zehlendorf.

“Village-like development” (structure type 13) is only still preserved in the old village centres on the outskirts of the city, although far more and larger village structures may still be found in the eastern boroughs.

“Structure types with predominantly retail, service, commercial and industrial use” are concentrated along waterways and railroad lines.

“Development with predominantly retail and service use” (structure type 14) is largely found in the old core areas of the various parts of the city. The two city centre areas of West and East Berlin around Kurfürstendamm/ Tauentzienstraße and the area around Alexanderplatz/ Friedrichstraße stand out in particular.

“Densely built-up commercial and industrial areas” (structure type 16) cover a smaller area than **“Commercial areas with sparse development”** (structure type 15).

Structure types of **“Development with predominantly public facilities and special use”** (structure type 17) are relatively evenly distributed across the entire urban area.

“Green and open spaces” (part of structure type 18) are naturally much more common on the outskirts of the city than in the inner city, if the total inventory including the wooded areas and the remaining farmland is taken into account. Leaving aside these large green spaces, which account for more than 22% of Berlin’s total area, the distribution changes (cf. Table 2 in the map descriptions of the actual-use mapping, as of December 31, 2020). Berlin continues to be characterised by an extraordinary diversity and relatively even distribution of urban green space throughout the city, even on a European scale. In addition to the well-known and large urban parks, such as the Großer Tiergarten and parks, such as Volkspark Friedrichshain and Volkspark Humboldthain, there are many smaller green spaces within the

neighbourhoods. These include green urban squares, allotment gardens and cemeteries, and, in some cases, areas for sports use, public use or traffic areas characterised by greenery. Map “[Open-Space Development](#)” (06.03) (SenStadtWohn 2021f) documents the increases and decreases in green and open spaces since 1945.

As “**Traffic areas**” (part of structure type 17), for example, the former Tegel Airport and the railway grounds stand out, as do the large car-parking areas at the Olympic Stadium and in the area of the *Messegelände* (trade fair grounds) / ZOB.

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