Development Plans of Townhouses in the European Context

Zastavovací systémy townhousů v evropském kontextu

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ABSTRACT: The aim of this report is to offer a comprehensive picture of townhouse development plans in the European context, using the examples of Denmark, the Netherlands, Germany and the United Kingdom. A townhouse is a type of higher urban family house with multiple living rooms, usually with three or more floors. The height significantly exceeds the width of the house. Due to common building structures and technical and spatial solutions, such as shared parking, waste management, etc., it is more of a hybrid typology. That is, a combination of individual housing and an apartment building. From an urban point of view, townhouses are a type of urban housing, especially as an example of low-rise buildings with high residential density with a strong link to public space. An overall evaluation of foreign examples of development plans will demonstrate how current townhouses are implemented in the urban structure. This is in terms of character of development, open space and transportation.

KEYWORDS: development plans; townhouse; higher terraced house; urban family house; individual housing; low-rise high-density housing

ABSTRAKT: Cílem příspěvku je nabídnout ucelený obraz zastavovacích systémů townhousů v evropském kontextu, a to pomocí příkladů z Dánska, Nizozemska, Německa a Velké Británie. Townhouse je typ rodinného, vyššího městského řadového

domu s více obytnými místnostmi, obvykle se třemi a více podlažími. Výška výrazně převyšuje šířku domu. Vzhledem ke společným stavebním konstrukcím a technickému a prostorovému řešení, jako je například společné parkování, nakládání s odpady apod., se jedná spíše o hybridní typologii. Tedy o kombinaci individuálního bydlení a bytového domu. Z urbanistického hlediska představují townhousy typ městského bydlení, zvláště jako příklad nízkopodlažní zástavby s vysokou obytnou hustotou a se silnou vazbou na veřejný prostor. Celkové vyhodnocení zahraničních příkladů zastavovacích systémů poskytne přehled o tom, jakým způsobem jsou současné townhousy implementovány v městské urbanistické struktuře. A to z hlediska charakteru zástavby, otevřeného prostranství a dopravy.

KLÍČOVÁ SLOVA: zastavovací systémy; townhouse; vyšší řadový dům; městský rodinný dům; individuální bydlení; nízkopodlažní zástavba s vysokou obytnou hustotou

Introduction

A townhouse is a type of family, higher urban terraced house with more living rooms. Usually with three or more floors, where the height of the townhouse significantly exceeds the width of the house. A townhouse is a type of family urban house with a strong connection to public space. This is an example of a low-rise development with a high residential density. In the Czech Republic, townhouses are known in the form of burgher's houses, which, like today's townhouses, offered life in the city and combined to make a place for both living and work.

It is also a so-called hybrid typology. That is, a combination of an apartment building and a family house. The advantage of this typology is the higher sustainability of individual housing, from both an economic and social point of view. Characteristic aspects are shared indoor and outdoor spaces (Kohout, 2014).

The construction of townhouses is most widespread in Western Europe, especially in Germany, Denmark, the Netherlands and the United Kingdom. This type of urban housing has a long tradition in these countries. The result of this paper will be used for research, which is used to find suitable models of townhouses targeted at the Czech environment.

Method

In order to analyse the development plans of townhouses, 4 European countries where townhouses are, to some extent, represented and combined with another kind of typology were selected. The development plan is defined in the certified methodology of Social Housing (p. B-32, 2017) as: "a set of buildings and adjoining open spaces, usually with a uniformly designed environment and a specific character". The selection of the investigated examples of residential development plans are analysed using examples from Germany, the Netherlands, Denmark and the United Kingdom. Three localities were selected from each country. However, the size of the localities varies, but it is always a complete set, which was designed as a whole for a certain number of inhabitants and with a predetermined share of the typology of houses. The examined examples of development plans were selected to cover the most common representations in terms of urban typology that may appear in the urban environment. The aim was to select such examples that we can consider as exemplary. The structure, individually examined parameters and layout of the elaborated parts were taken from the certified methodology of Social Housing (2017). Each development plan was processed as a whole in the graphic part, because townhouses are always combined with other typologies in these cases and it is therefore necessary to analyse them in a broader sense, and not only within the block. The evaluation itself for each parameter is applied only to townhouses. Therefore, only those that are key in terms of evaluation were selected from the examined parameters. The following parameters were analysed for individual development plans within the analysis:

1. Character of the development

The aim was to analyse how townhouses are integrated into the entire urban structure of a given development plan, using the following parameters:

- Composition of units
- Parcel
- Typological composition
- Building orientation
- Functional use of the ground floor
- Height arrangement
- Floor area ratio (FAR)
- Building coverage ratio (BCR)
- Residential density

2. Outdoor open space

Townhouses have a strong relationship with public space, so it is essential to analyse these spaces around the townhouses, in terms of:

- Typological composition of outdoor open space
- Hierarchy of privacy
- Representation of natural elements

3. Transportation

- Permeability through the territory
- Parking

At the end of these analyses, a mutual comparison of all investigated housing estates is performed. This is in terms of the year of implementation, area of the territory, representation of individual typologies, floor area ratio (FAR), building coverage ratio (BCR) and residential density. According to FAR and BCR, the type of urban development in which townhouses appear was subsequently determined.

Development plans of townhouses in the European context

A detailed analysis was performed using four European countries: Denmark, the Netherlands, Germany and the United Kingdom. From each country, 3 residential development plans were analysed. The surveyed housing estates from Denmark and Germany were personally visited as part of a field survey.

1. Character of the development

The composition of the development plans is clearly legible in all of the countries studied. Townhouses are stacked in blocks, alone or in combination with either apartment buildings or with terraced or detached family houses. The typological composition depends mainly on the character of the development and its position within the city. The building line of townhouses may or may not be identical to the street line. However, it depends on the country. In the Netherlands, townhouses are located mainly with their facades on the street line and allow direct access to the house from a public space. In Denmark and the United Kingdom, the street line is, in most cases, not the same as the building line or the facade of the townhouses. It thus creates a small space between the street space and the townhouse itself in the form of a small semi-private front garden, which serves, for example, as a seating area. In Germany too, the street and building lines are not identical, and the front gardens of the townhouses are large enough to allow, for example, parking space. The degree of connection between townhouses and public space thus depends on the cultural context (Fig. 1 – 01.3 Typological composition). The parcelling of townhouses is, in most cases, uniform. However, there can be two types of plot widths within a residential complex: narrow plots that do not allow parking on their own plot, and wider plots

that allow parking. This diversity of parcelling offers different internal typologies of townhouses and thus offers housing to different target groups within the population. The orientation of the main facades with entrances is mostly oriented to the public space, or to the shared courtyard. Within the height level, townhouses are located mainly in the central part of the development plan and create a smooth transition between different levels and typologies. The functional use of the ground floor is situated on the main streets and squares, where services or shops are located on the ground floor of the townhouses. This active parterre also depends on the location within the residential complex and the outline of the public spaces.

The resulting analysis of development character according to the floor area ratio (FAR), building coverage ratio (BCR) and residential density shows that townhouses are designed in 3 types of urban development (Fig. 4). These are:

- Compact urban type of development
- Urban type of development
- Loose urban type of development

The **compact urban type of development** consists of compact closed blocks with a clearly defined and uninterrupted street line. Another type is the **urban type of development**, which is characterized by closed or semi-closed blocks with a predominantly continuous street line. The last type is a **loose urban type of development**. It is mainly a development consisting of a group of buildings or open blocks. The individual types of development plan differ from each other in the built-up area and also in their respective degrees of use, which depends on the height of the buildings. The population density of development plans ranges from 250–450 inhabitants / ha, depending on the type of development (Tab. 1). The terminology and coefficients for determining the type of development were taken from the Methodological Instruction to the Master Plan of the Capital City of Prague (2002).

2. Outdoor open space

The typological composition of buildings and its distribution within the entire development plans is primarily dependent on the hierarchy of public spaces and the typological composition of open space. Townhouses are one of the few types of family houses which have a strong connection to public space, which affects the internal typology and vice versa. Apartment buildings are mostly located along the main and busier roads. Townhouses are located along main or mostly busy, less busy roads. Apartment buildings and townhouses can also be located within one street. Terraced and detached family houses are situated on the hierarchy of lower public space, com-

pared to townhouses, and mainly on quieter streets. In the case of a combination of apartment buildings and townhouses within a block, apartment buildings are usually located on corners and townhouses are connected between them. Public spaces along the townhouses are largely planted with trees or other greenery, as the great effort of the residents themselves is to make their public space in front of the townhouses pleasant and representative. The front gardens of townhouses, which are oriented toward the public space, have a semi-private character and the gardens are oriented more towards quiet private spaces, such as courtyards. In most examples, internal or external spaces are shared within the block, which are shared with other residents living in the given block (Fig. 2).

3. Transportation

In most cases, the blocks allow secondary permeability through the territory. If the blocks are designed in the optimal size, they do not allow secondary permeability. Parking is usually shared in garages, in public areas or within your own plot. The parcelling of townhouses affects the method of parking. Narrower plots do not allow parking within the plot and it is necessary to use shared parking, for example, in a public space or in shared garages, which is in contrast to wider plots that allow parking (Fig. 3).

Conclusion

The method of townhouse development plans in Germany, Denmark, the Netherlands and the United Kingdom are more or less the same. The individual development plans within the countries differ from each other only in the degree of connection of townhouses to public space. It can be stated that the degree of connection to the public space depends on the cultural context, which is also reflected in the internal typology of each townhouse. The analysed examples also show that townhouses are designed for residential complexes located in city centres or in their inner peripheries.

Literature

- BOUMOVÁ, Irena, Ladislav KÁŽMÉR, Martin LUX et al. Sociální bydlení: příprava projektů (certifikovaná metodika). 2017. Praha: Fakulta architektury ČVUT.
- KOHOUT, Michal, František ŠTÁFEK, David TICHÝ a Filip TITTL, 2014. Můj dům, naše ulice: individuální bydlení a jeho koordinovaná výstavba. Praha: Zlatý řez. ISBN 978-80-87-068-11-3.
- Metodický pokyn k Územnímu plánu sídelního útvaru hlavního města Prahy, 2002. Praha: MHMP, sekce Útvar rozvoje hl. m. Prahy.

Fig. 1. Development plans - Character of the development (source Erik Petrus)

Fig. 2. Development plans - Character of the development and outdoor open space (source Erik Petrus)

Fig. 3. Development plans - Transportation (source Erik Petrus)

Fig. 4. Urban type of development (source Erik Petrus)

Country	Location	Year of realization	Area (m2)	Typological composition (%)				BCR	FAR	Residential density (pp./ha)	Type of urban development
				Apartment buildings	Townhouses	Terraced houses	Detached house				
Denmark	Sluseholmen	2000 - 2009	73000	88%	12%	-	-	0,36	1,85	399	Urban type of development
	Bellarekeme	2016 - 2017	18500	29%	71%	-	-	0,39	1,38	307	Urban type of development
	Artillerivej Syd	2006 - 2017	150000	46%	30%	10%	-	0,30	1,37	275	Loose urban type of development
Netherlands	Steigereiland	2003	173000	25%	34%	6%	13%	0,35	1,15	204	Loose urban type of development
	Borneo	1993 - 1996	100100	22%	75%	2%	-	0,53	2,05	455	Compact urban type of development
	Java-Eiland	1991 - 2000	121200	70%	7%	-	-	0,34	2,26	408	Urban type of development
Germany	Friedrichswerder	2006 - 2008	32100	30%	44%	-	-	0,40	2,13	309	Compact urban type of development
	Prenzlauer Gärten	2008	14700	77%	23%	-	-	0,35	1,37	307	Urban type of development
	Rummelsburg Bay	2001 - 2011	220000	53%	37%	2%	1%	0,21	1,02	217	Loose urban type of development
Great Britain	Accordia	2003 - 2011	66400	21%	25%	54%	-	0,40	1,10	239	Loose urban type of development
	Elephant park	2017	15950	61%	26%	-	-	0,38	2,58	494	Urban type of development
	King William	2011	20090	35%	28%	29%	-	0,37	1,47	316	Urban type of development

Tab. 1. Comparison of development plans of selected countries (source Erik Petrus)