

## URBAN MORPHOLOGY AND SOCIAL REPRESENTATION: THE CASE OF MODERNISTIC HOUSING ESTATES

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### *Abstract:*

*The spatial representation of community is present through different levels of built environment – from single dwelling unit and buildings with specific shared spaces to neighbourhoods and districts. In urban level the spatial representation of community is manifested in public spaces. Traditional urban public spaces - rooted in human cognitive and sensual capacities and cultivated for centuries-long development of adopting, using and identifying one self with a place – can be perceived as most natural field for public social interaction.*

*The paper describes the problems of legibility of modernistic urban patterns, its spatial and social dimension. Modernistic housing estates represent specific morphological structures where identity in urban level is generated by solitary buildings instead of public spaces. Public space is often designed as an open space without any specific content and with uniformity lacking social meanings. This setting can easily lead to disorientation and lack of inhabitant's identification with the environment. Based on problem analyses the study explores the possibility of reorganizing the public space in favour of legible public space without the necessity of massive changes in built mass. It presents the results of comprehensive research project "Housing Estates, What's Next?", which has taken place at the Faculty of Architecture CTU in Prague. During the process six specific modernistic neighbourhoods in Czech Republic were analyzed and more than 20 model solutions have been produced and evaluated.*

### **1. Introduction – Built Environment and its Social Dimension**

Spatial organization of built environment and its social dimension are closely related (Doxiadis, 1966). Humans identify with their living environment and that respectively constitutes a strong part of their own identity (Lewicka, 2011). This interaction is to be found not only on a personal level but is true for different forms of social organization - these being personal, interfamilial, civic, national etc. (Kohout et al., 2011). In a common sense we often identify a given social entity (being a single person, family, community, nation or even an institution or corporation) with its home or seat. This relation plays, no doubts, an important role in constituting and maintaining social relations, it shapes their forms and allows for their continuity, further it plays an essential part in their representation.

In a way built environment represents a dynamic balance of several contradictory tendencies. That of stability and flexibility, control and openness, readability and need for richness and depth. To allow for all this it tends to organize itself in spatial units each of which usually representing a certain social phenomena (Doxiadis, 1966). Based on the ability of human senses to recognize certain physical phenomena, these spatial units tend to appear in certain given physical dimensions (Hall, 1966; Gehl, 1987). As was pointed out by John Habraken (1998) these spatial units also represent certain decision making levels in the process of environment creation and management. To manage their different duration periodicity through their clear separation plays also an essential role in environment ability to withstand time changes (Kendall, 2000).

In a standard municipal built environment we can thus usually recognize the following ascending line of environmental units: rooms – dwelling units – houses – blocks – enclaves – neighbourhoods – districts etc. (Kendall, 2000; Kohout and Tittl, 2012; Lewicka, 2011; Galster, 2001). By rule the units of a higher scale usually consists of several units of a lower scale and specific extra elements which usually tie the composing units together (Berghauer Pont and Haupt, 2010). This “adhesive” role is usually played by communication spaces, being private shared in units of a lower scale levels (such as apartment corridors), semiprivate (inner staircase in an apartment house) or public in units of higher order (streets, squares etc.). It is usually these spaces which allow a user to perceive the situation and give him basic orientation of the unit given. I.e. a corridor or a hall in apartment unit enables one not only to move through the apartment, but also to get a certain overview. The same can be said about inner communication spaces of a tenement house or in even more obvious form in the public spaces on urban scale. Main streets or squares usually allow not only for circulation, but at the same time offer basic navigation and further more give a sense of presence and identification with a particular place.

Common spaces therefore play important role in providing the unit with an ability to offer a sense of identity. Such identity is closely connected to the setting of its communication spaces. This is true to the degree that the unit common spaces often are the main discriminatory feature of certain typological forms: so we recognize corridor or hall apartment setting, staircase, corridor or gallery setting of an apartment house radial or grid urban patterns. Seeing common spaces merely in their circulation role as secondary (serving) as opposed to the functioning (served) role of the composing units, means overlooking completely their organizational role (organizing as opposed to organized) and equally important communication (in broader sense) and representational role (as identity bearing elements).

## **2. Housing-Estates - Characteristics and Defects**

Czech housing-estates built roughly from the middle of the 20<sup>th</sup> century were planned like so many others in Europe and elsewhere in the world at that time with several underlying ideas. One was the spatial Modernistic concept of a free continuous park-like landscape with houses placed in this space as free-standing objects. These objects “freed” from the traditional formative mass/public space relation were first positioned in a rational row of slabs system, to be later substituted for more random composed types of massing.

As for their social concept, bigger housing estates were usually subdivided into so-called dwelling groups (roughly 1 500 inhabitants), neighbourhoods (ca 5 – 6 000 inhabitants) and districts (with tens of thousands of inhabitants). These units were served by corresponding planned public and commercial facilities (kindergartens, schools, shopping centres etc.). The unit system was usually applied directly often regardless of particular settings of the site and its individual character.

As for the planning-in-time aspect, housing estates were in a way built as “timeless” compositions with no clear concept of gradual change, future adaptation or renewal. This, together with the fact that from technical as well as ownership point of view these were often single planner, single-client and single-builder undertakings, proved to be a mayor limiting factors in their further re-/development. Especially in a situation when the ownership structure became massively fragmented in the privatisation processes following the social changes after the fall of Communism.

Despite broad range of applied urban patterns, when compared with the compact city forms, housing estates as a system tend to show certain characteristic deficiencies which tend to repeat in practically all cases and be therefore considered as inherent for this particular type of environment:

## 2.1 Undefined public spaces

Probably the most obvious characteristic of housing-estates urban fabric is the oversized public space. In comparison with traditional urban structure, where public spaces comprise about 25-35% of overall area, in housing estates this figure rises to some 60-80% (fig. 01). The modernistic vision of “living in park” brought along a new way of organizing urban fabric. Traditional municipal spaces were substituted by a concept of a free space without any specific content. It can be seen as symptomatic that in the nearly 70 years of living and using housing-estates no adequate and generally accepted names for their public spaces were adopted. The most often used word “greenery” for this “between-house-area” expresses sufficiently the helplessness of the situation and the lack of closer understanding and more structured use. The phenomenology of space which works with such terms as park, garden, orchard, playground, meadow, forest, but also parkway, alley, square with trees helps to understand particular space better. And such understanding not only facilitates identification but most of all helps to realize how to use such space, how to behave in it and consequently who is responsible for the space, who cares for it (Kohout, Tichý and Tittl, 2015). Unfortunately, the public spaces of housing-estates usually do not allow for their clear articulation and this decreased legibility results in their lower overall quality.

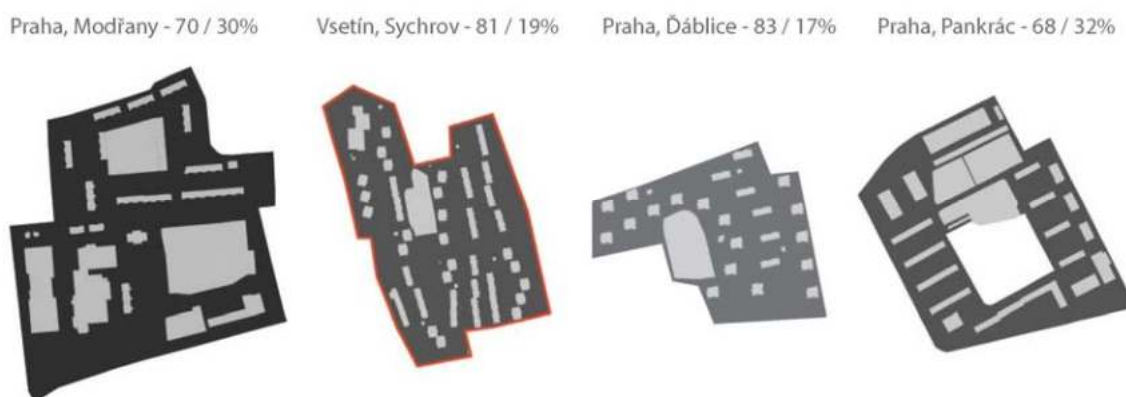


Fig. 01. Proportion of public and non-public space in typical housing-estates localities in Prague

## 2.2. Unclear composition of units and the reversed mass/space relation

Despite the fact that Housing-Estates and their strictly organised system of planning units and public facilities (kindergarten units, school precincts, neighbourhood shopping facilities etc.) represent in a way even more orthodox hierarchical system than standard municipal environment, these abstract units - due to the continuously floating public spaces – remain often undefined and unrecognizable from users perspective. Also public spaces with no clear delimitation can hardly become representations of any morphological units. It is often the case that such identification role is played rather than by public spaces by buildings themselves, usually those which play a public role, i.e. shopping centres, public facilities etc. However, such setting brings along several complications. Such buildings are often not authentically public (often they are privately owned). Also they can hardly orient a user in a way public spaces can (buildings usually do not offer any panoramic overview and therefore do not allow for better understanding of urban layout). But most importantly, the life cycle of buildings is by rule shorter (decades) than that of public spaces (centuries). They can therefore hardly become a stabilizing factor of the urban structure mental image.

### 2.3. *Absence of readable spatial pattern*

Public spaces do not represent only shared space of local communities with its programmatic content and symbolic meanings, they play as well a key role in forming urban pattern. In the spatial setting of traditional town the key part of public space system is usually performed by communications (streets) and their intersections (corners, squares). The public spaces are naturally defined by building mass and together they constitute a coherent pattern. On the contrary, in most of housing estates localities, the traffic network does not correspond to the spatial arrangement of buildings themselves and the spaces they form (fig. 02). The space is not oriented longitudinally in the communication direction (i.e. in the sense “from” and “to” somewhere), nor is it oriented perpendicularly (i.e. in the front – back sense). Further, housing estates public spaces do not form a comprehensible hierarchical system where the more and the less important elements would be clearly distinguishable. The communications do not take on the character of streets but they rather resemble roads, i.e. a phenomenon more characteristic for rural areas rather than a city (Kohout and Tittl, 2012).

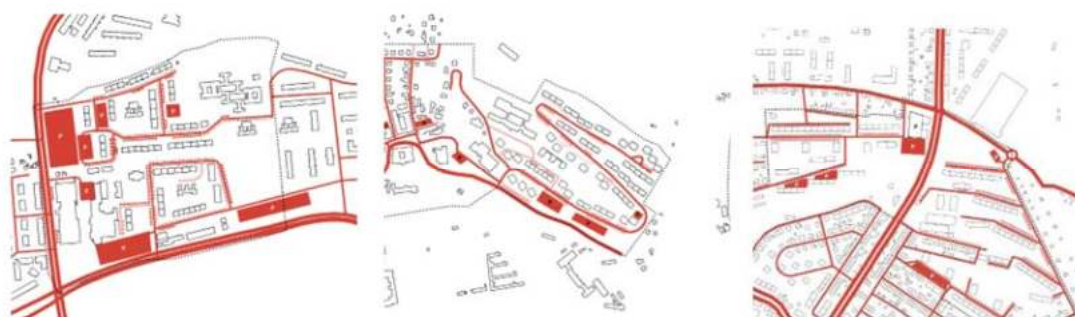


Fig. 02. Relation between built mass and traffic network; left: Modřany in Prague, middle: Sychrov in Vsetín, right: Skalka in Prague

### 2.4. *Lack of active parterre*

The fact that housing estates public spaces do not channel general movement (being of pedestrians, bicycles or cars) into clearly recognizable corridors supported visually by building mass has further two fold effect on formation of neighbouring private spaces and buildings. It brings along a lack of clearly distinguishable semiprivate space, suitable for certain types of outdoor activities (independent movement of small children, some types of house works etc.). Perhaps even more importantly, such arrangement negatively influences the possibility of commercial activities on ground floor inhibiting thus the creation of an active parterre – a living interface which would further stimulate public life of the neighbourhood and bring about their functional diversity.

### 3. Housing-Estates - Tools of improvement

Following section describes possible interventions in housing estates fabric targeting legibility of urban layout with adequate social meanings. It presents selected results of comprehensive research project *Housing Estates, What's Next?*, which has taken place at the Faculty of Architecture CTU in Prague. The project's general aim is to search for long-term and sustainable development strategies, which would result in housing-estates transformation into areas with adequate social status, stable mental image and functional arrangement. Six housing estates localities in Czech Republic (in Mladá Boleslav, Karlovy Vary, Vsetín and 3 in Prague) were chosen with aim to cover broad range of areas with different morphological, historical, sociological characteristics and regions with different level of development potential. Spatial, demographic, functional, traffic and other surveys were carried out on the basis of which 20 model solutions were produced with the aim of showing possible town planning strategies tackling the problems identified as the most pressing in respect to the areas future development.

Despite the diversity of housing estates spatial arrangement as well as their present development potential (pressure for further development in areas like Prague (Němec, 2014) or Mladá Boleslav, or on the other hand depopulation, in case of for example Vsetín), some general tendencies and themes can be drawn from the case studies executed. Most have a direct relation to the people-place relation and the social dimension of planning. They can be summarised into the following list arranged according to the scale of intervention:

#### 3.1. Delimitation of spatial and planning units

Referring back to a standard urban environment organisation (and its social meanings) described in the introduction, the key step in enhancing the legibility of housing-estates spatial structure represents delimiting distinguishable spatial and planning units - urban blocks, neighbourhoods, districts etc.

On the district level, neighbourhood arrangement is the main task. During this process critical parameters (number of inhabitants, dwelling units, public facilities etc.) were verified and corrections were made to match better their theoretical standard. Nevertheless this constitutes no dogma, divergences are possible, but they should be well-founded and their reasons should be preferably understandable from the environments context (terrain morphology etc.). Neighbourhood identity is usually carried by overall character of built mass and – in this case perhaps even more importantly – by key local public spaces. During the process these spaces were identified and set as a key element of public spaces pattern (fig. 03).

On the neighbourhood level, particularly critical is to define urban blocks (meaning block as a unit of urban environment). Predictably, the predetermined mass setting proved to be challenging when readable block structure was to be created. As a response, a highly diversified block typology was introduced, which manifested itself in different mass patterns as well as different sizes of the blocks. These ranged from small *urban islands* with only one side defined by a building mass, the other side usually articulated only by landscaping or fencing, to large *superblock* arrangements usually subdivided and with system of secondary permeability. Standard urban blocks with central semiprivate or semi-public space determined by building mass on all sides (though massing itself was usually with a less orthodox and more open arrangements) were of course also an option (fig. 04). Wide variety of block typology resulting from the effort to save most of the present built mass can be perceived not only as practical, viewed from economical and ownership aspects, but take into consideration also existing character and its mental meanings. Furthermore, specific block typologies can also provide for neighbourhood's specific character and as such are often found in examples of contemporary housing.

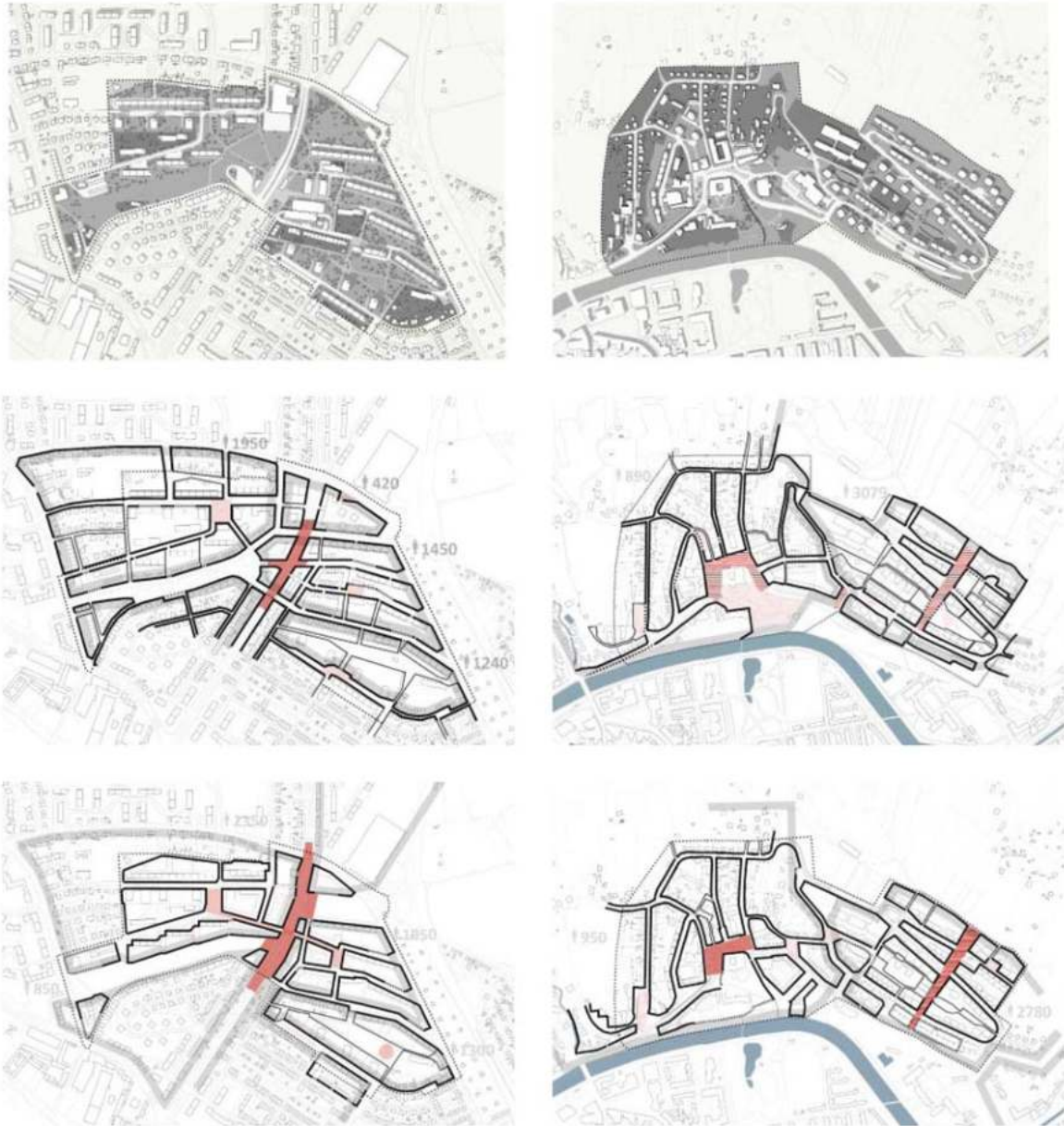


Fig. 03. Delimitation of comprehensible units (blocks and neighbourhoods) in two examples of housing estates – Skalka in Prague (left) and Sychrov in Vsetín (right); top - present state, bottom – two examples of possible unit delimitation for each locality in relation with number of inhabitants representing the neighbourhood community; source: Housing estates, what's next project case studies, Kohout–Tichý studio FA CTU in Prague, M. Decker, M. Marada (Skalka), R. Paulus, F. Bačuvčík (Vsetín)

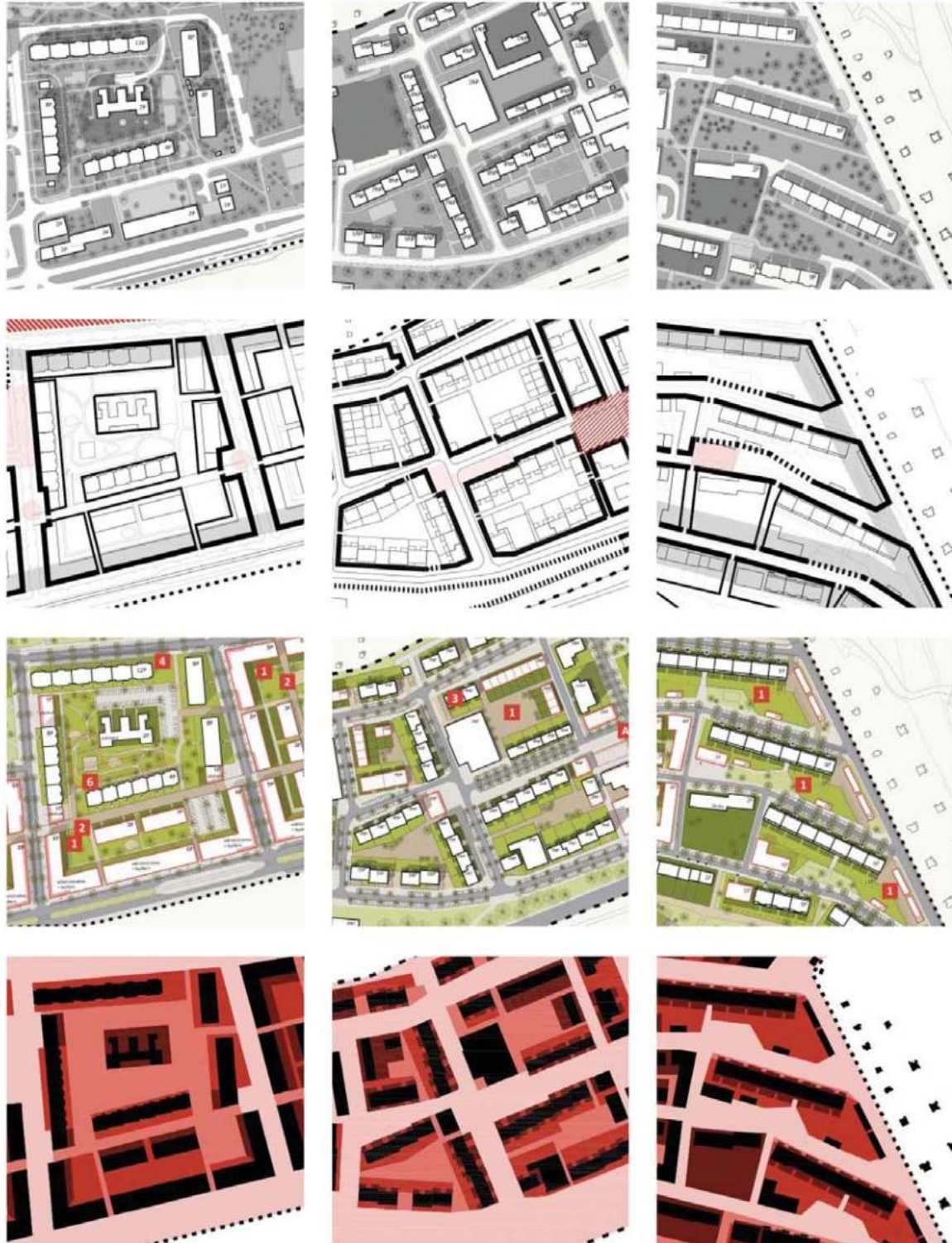


Fig. 04. Block arrangement possibilities related to housing estates built-mass organisation; left – superblock (Modřany in Prague), middle – standard urban block (Růžový vrch in Karlovy Vary, right – urban island (Skalka in Prague); top: current state, middle: rearrangement proposal (block delimitation and detail parterre organisation), bottom: diagram of hierarchy of privacy (for the key see fig. 05); source: Housing estates, what's next project case studies, Kohout–Tichý studio FA CTU in Prague, J. Sládek, T. Kafková, M. Decker

### 3.2. *Intelligible network of public spaces*

The basic characteristic of housing estate urban layout – the continuous unlimited space was assessed as one of environment's main disorientating factors. Individual case studies were therefore testing the possibility of its structuring into legible, nameable and limited spatial phenomena: streets, squares, parks etc. Effort was made to link these spaces into patterns, which spatial logic would be based not only on abstract compositional principles but would rather follow the underlying natural social meaning.

What was usually necessary to overcome in this process was the often unintuitive traffic system based on the principle of dead-end side streets connected to circling boulevards. Traffic connections have as a rule little to do with overall orientation of spaces indicated by building mass arrangement. It is therefore desirable to complement present communication into a more intuitive network by linking of the dead-end-streets. Different public spaces should have their natural continuation – they have to navigate the visitors and their orientation has to be clear and logical. Traffic intensity (the original reason behind the unintuitive traffic arrangement) can be effectively regulated by other means (mixed traffic streets or other types of reduced car-traffic on local communications) while avoiding the negative disorienting effect (Kohout and Tittl, 2012).

### 3.3. *Introducing broader variety of open spaces regarding hierarchy of privacy*

Urban fabric does not necessarily have to be composed of strictly private or strictly public spaces. *Semiprivate* open space shared only by inhabitants (e.g. yards of apartment houses), can be complemented by *semi-public* spaces (e.g. publicly accessible parts of blocks) with a more intimate character. Different level of privacy within the built environment stems from its distinguishable character. Such comprehensible heterogeneity caters for different ways of usage and helps inhabitants to identify themselves better with a place. Hierarchical sequence of outside spaces from public, semi-public, semi-private to private therefore fundamentally increases users capacity to „read“, comprehend and patronize environment by different ways of usage (Kohout, Tichý and Tittl, 2015).

Such articulation of open space does not have to be related with introduction of new built mass (fig. 05). In the housing estates areas it can be in fact achieved only by relatively simple interventions: in many cases by plain landscape rearrangement (see section 3.4). This solution can not only enrich the quality of environment and bring more life into open spaces, but also help to find new use for the oversized public spaces and to distribute more evenly the maintenance costs. Despite this significant change in open space organisation, present character of „houses in a park“ does not have to be changed fundamentally.



Fig. 05. Introducing broader variety of spaces with different level of privacy into housing estates fabric; top — Skalka in Prague, middle – Růžový Vrch in Karlovy Vary, bottom – Sychrov in Vsetín; left: current state, right: rearrangement proposal; source: Housing estates, what's next project case studies, Kohout–Tichý studio FA CTU in Prague, M. Decker, T. Kafková, T. Vrbová

### 3.4. Articulation of the boundary between public and private

From the point of view of direct impact on the user, the elements on a lower planning level play an essential role. This is even more important when adaptation of an existing urban fabric is being planned as due to pre-determined conditions the possibilities of later adjustments are decisively limited. Critically important in this sense are the boundaries between different types of spaces, which delimitate and define different units and determine the level in which a visitor can actually distinguish these urban elements. Most of all, the chosen type of boundary modulates the level of communication between the public and the private sphere and is therefore essential in moderating visitor's behaviour.

Probably the most important boundary represents the demarcation between block and street space. In the plan it is determined by street line, usually visible through edges of built environment, i.e. through buildings themselves or their articulated surroundings, such as front garden fencing. In any case, level of such articulation might vary dramatically in different areas. In housing estates context milder solution can be adopted regarding both respect to the "openness" of its character and predefined arrangement of built mass limiting range of possible solutions. Physical expression of the boundary can also manifest itself only through parterre organization (fig. 06). What is, however, critical is relation to ownership arrangement, i.e. division of lots, which should correspond to the real visible arrangement, in particular to positioning of street alignment.

At the similar importance as natural legibility of the boundary is its role as an active interface. Inhabited shared spaces or private gardens can introduce natural social control to public space, distinctive features of different activities in shops and services on the ground level led further identification to the spaces they address. In the housing estates context active commercial parterre can be introduced only by small additions in ground floor level (fig. 07).

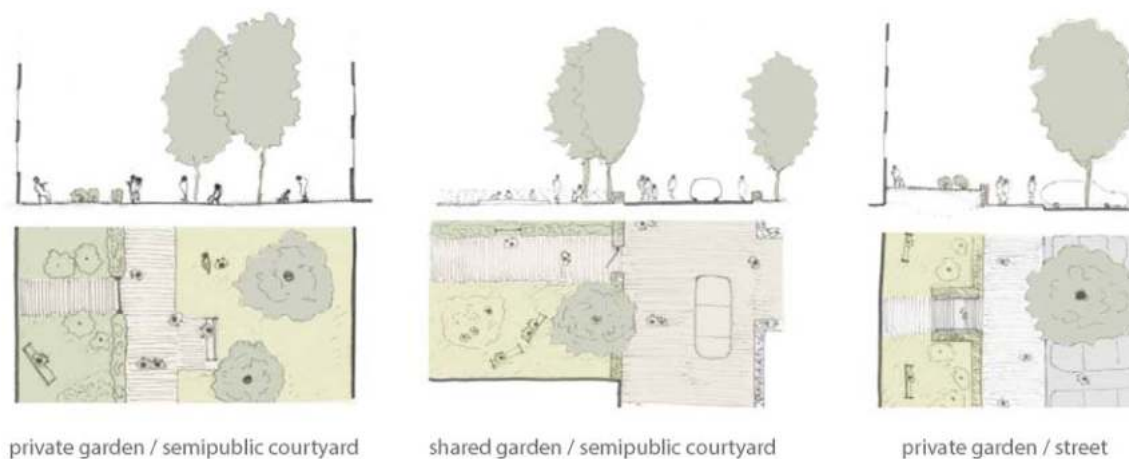


Fig. 06. Possible ways of delimitation of boundaries in urban environment by using small scale elements; source: Housing estates, what's next project case studies, Kohout–Tichý studio FA CTU in Prague, J. Sládek



Fig. 07. Introducing interactive interface in ground floor level – example of small addition to existing prefab slab; source: Housing estates, what's next project case studies, Kohout–Tichý studio FA CTU in Prague, L. Havelka

#### 4. Conclusion

Despite the drain of more affluent inhabitants (Oušedníček and Temelová, 2012) Czech housing estates still remain socially manifold. But even in these relatively favourable conditions the environment shows some systemic deficiencies which, if not taken care of, could in future jeopardize today's relatively favourable situation.

As it was described in the analytical part of the text, housing estates environment is often conceived as disorienting. This lack of orientation means not only that people have sometimes difficulty to find their way (this happens mostly to visitors), but perhaps more importantly it means that it is difficult to understand the functional designation of certain, mostly open, spaces - i.e. what activities are or are not suitable. This is true not only on short term level (for instance where is it possible to behave in a more relaxed way, what places are suitable for more formal activities etc.), but also for long term activities (where is it advantageous to open a shop, where is it possible to add or substitute a building mass).

The freely running continuous park-like public space represent therefore not only much higher running costs, but also in connection with its anonymous character, lower social status, at the same time it brings along a higher potential for negative social behaviour (vandalism etc.). In a negative spiral effect disorientation leads to lower identification with spatial units and loosening of the person-to-place relation.

#### *Possible interventions*

The research project has brought forth planning models which show, that by decisive reorganization of the land ownership and adequately changes of landscaping and parterre a spatial organization of the environment can introduce higher level of legibility and intuitive orientation - a clear structure of graspable phenomena of building mass (blocks, neighbourhoods) and readable public spaces (streets, squares, parks, etc.) both arranged in corresponding hierarchical order. Further, such changes can also allow for relatively independent development of manageable lots mostly of the size of urban blocks. These critical goals can be often achieved without large scale changes in overall building massing. Also the areas can most often retain certain visual openness and a "garden" character - qualities valued highly by their inhabitants. As a result the environment's physical structure can reflect and absorb better elements of its social structure and adapt more flexibly to their ongoing changes.

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