

# **SPATIAL QUALITIES OF BUILT ENVIRONMENT AS A PART OF SUSTAINABILITY AGENDA. CASE STUDIES OF PRAGUE RESIDENTIAL COMPLEXES**

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## **Summary**

Spatial layout and structure of the city are elements of spatial configuration with time span of centuries. If we speak about sustainable design, we have to speak about sustainable built environments, where people find themselves satisfy and safe, as it is emphasized by Ch. Day, for example.

The understanding of spatial layout or street network is one of the key points in sustainable design of new developments as well as in renewals of abounded areas in the cities. Therefore new set of analyses based on Space Syntax tools and methods was chosen to characterize and sort qualities of spaces. Three different levels – scales of analyses from city to neighborhood should allow us to precisely describe and understand shifts in spatial (and also social) meanings and relations.

The Space Syntax tools are based on idea, that space is determined and shaped by the social behavior. If we are able to better understand configuration of space, than we can create more sustainable societies and places where people can consciously move or live. Last, but not least we can learn from existing places for better future design solutions. Several examples of Prague residential complexes built in last 20 years are chosen for research. They show variety of possible spatial configurations and impacts on our built environment.

**Keywords:** Housing Complexes, Prague, Space Syntax

## **1 Research Task**

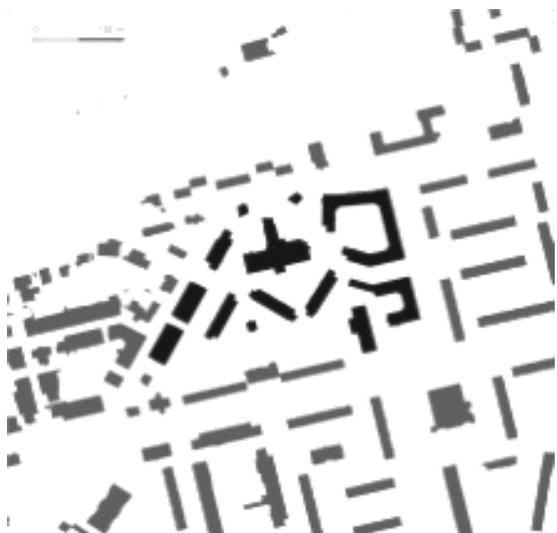
Research is based on descriptive comparison of different examples of housing areas; several analytical tools are used. In this paper relation to the city and to the community are presented and studied, because there is a relation to the sustainable city. It can be also characterised as a places, where people can easily identify places and can recognize them as their homes (Ch. Day, 2003). For such purpose the Space Syntax tools have been used and the results have been classified, sorted and evaluated. The aim was to find out, how the new complexes built in the different localities are interrelated to the city pattern and how they cooperate with the existing built environment.

## 2 Case study of Prague

### 2.1 Prague Housing Complexes

Based on the study of 140 housing complexes built in last 20 years, 15 housing complexes have been chosen for deeper study and research to represent the buildings of the period 1990–2010 in Prague. They have been chosen according to the following criteria: different typology, different period, different location in Prague.

The final set of 10 new housing complexes have been enlarged by examples of so called “good practice”. Areas, which are generally considered to be good for living. These five examples are references for comparison of research results.



*Fig. 1 Example of the Layout of Hvězda Housing Complex in Prague, architect Vlado Milunič (drawing of the author)*

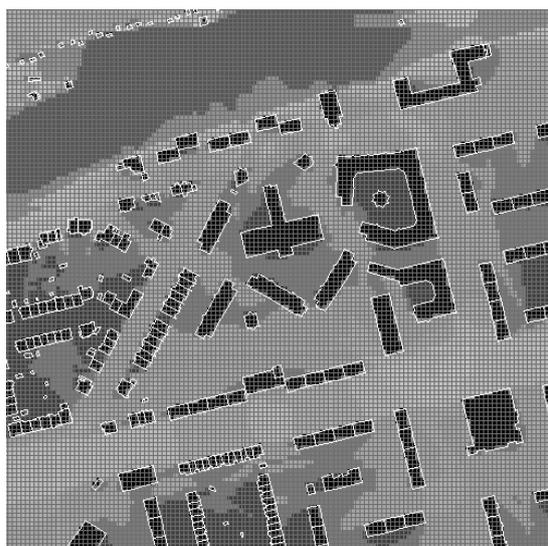


*Fig. 2 View form the main street, Hvězda Housing Complex, Prague (Housing Database of the Faculty of Architecture, CTU Prague)*

### 2.2 Research tools and method

The housing complexes have been studied and analysed in three different levels – scales. Based on the methods of Space Syntax specific tools have been chosen for analyses and research. They are following: Visibility and All Axial Line Scheme (for the level of locality) Connectivity, Accessibility and Integration Local (for the level of the quarter), Integration Global, Intelligibility and Depth analyses for the level of the city.

Each feature has been classified and summary tables have been prepared to be able to compare different qualities.



**Fig. 3** Example of Convex Map, more light means more visible areas (Depthmap 10)



**Fig. 4** Example of the axial map of adjoining area. This reduced map was used for analyses.

### 2.3 Preliminary Conclusions

**Tab. 1** Table with chosen value (more higher, more valued) Example of a table (including tips for hotkeys of frequent styles)

Housing Complex	Global Integration (-1 low, 2 high)	Local Integration (-1 low, 2 high)	Depth Analyses ( 0 optimal)
Hvězda	2	0	0
Palouk	2	1	0
Kaskády Barrandov	1	2	-1
Slunečný Vršek	0	2	-1
Velká Skála	2	2	0
U Kříže	1	2	1
Černý Most	2	1	1
Kulatý Chodovec	-1	2	1
Zelené údolí	-1	2	0
Harmonie	2	2	1
<b>Average Value</b>	<b>1</b>	<b>1,6</b>	<b>0,4</b>

There is a table showing only the part of different values, which have been proceeded. Presented table shows the most interesting outcomes from new developments, because the hypothesis was, that at least local integration will be not such good and high. In case of Global integration one can recognize places with the best potential for retail and services. Local integration in contrary shows connections to the adjoining areas, which are important for locals. Depth Analyses shows how far or close is the place linked to the main street soft city. For housing areas the middle values are the most suitable. (B. Hillier, 2003).

### 3 Conclusion

The conclusions shows, that the hypothesis of low connectivity at the local and global level was not proved. Surprisingly (see Tab. 1) there is a high level of local connectivity and hierarchy in the complexes studied plus there is a very good connection to the main city streets and arterial roads.

Further analyses of real situation, spatial layout, architectural design and deeper urban circumstances is necessary to validate good message, that the main problem of sustainable connections is not in the street pattern and in the design of the neighbourhood layout, but lies somewhere between the apartment doors, their inhabitants and appearance of architecture? Research have to be enlarged by the studies of public space, street patterns or by the real perception of places by different users.

### Acknowledgement

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