BLOCK 3: URBAN PLANNING REGULATION

Lesson1: Urban design criteria

URBAN DESIGN is a part of the proces of urban planning, dealing with the architectural composition of buildings and spaces; the central and the most complex component of planning – functional synthesis, structures and forms.

Urban design criteria are important planning tools for shaping the urban environment. Thay can be quantitative and qualitative.





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Urban Design Criteria

Quantitative

Quantitative urban design criteria are important planning tools which indicate the intensity of land use in particular site and give some indication of massing volumes.

Floor space index (FSI) Foot print index (FPI) Dwellings per hectar (dph)

Qualitative

Qualitative urban design criteria are important planning principles that are not quantifiable but have major impact on the quality of a living environment.

Context Permeability Variety Legibility Robustness Visual appropriateness Richness Personalisation Co-dwelling

- Floor space index (FSI) or floor area ratio (FAR) express the ratio between gross floor area and site area.
- Foot print index (FPI) express the ratio between ground flor area and site area.
- Dwellings per hectar (dph) is most commonly used measure by the planning system and developers because it is easy to monitor, with each house completion being registred. However, it gives useful information as to how dense a development will look only by knowing the typology of buildings or housing types.
- Quantitative urban design criteria (e.g. FSI, FPI) are important planning tools as they indicate the intensity of land use in particular site and give some indication of massing volumes. The same FSI can be achieved by using different building's typology or different FPI.
- Higher density does not mean building tall. Good design can enable higher densities to be achieved using a range of building and layout types as show tha following slides.
- Higher densities can help to create successful places by supporting local businesses, services and facilities. Higher densities can suport better effective public transport.

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Comapartive review of urban design criteria

Diversity of housing areas according to the building heights

Nia		low		middle		high	
NO	settlement	building type	UD criteria	building type	UD criteria	building type	UD criteria
1	Murgle	P	i = 0,23 g = 22 p = 3,4 z = 0,23				
2	Komenda	P + 1	i = 0.20 g = 9 p = 4,25 z = 0,10				
3	Kokrica	P + 1	i = 0,33 g = 17 p = 2,57 z = 0,16				
4	Cerklje	P + 1	i = 0,23 g = 22 p = 3,75 z = 0,12				
5	Koseze	P + 1(2)	i = 0,24 g = 14 p = 3,6 z = 0,14	P + 4	i = 1,99 g = 158 p = 0,3 z = 0,38		
6	Draveljska gmajna	P + 1 (2)	i = 0,45 g = 22 p = 1,4 z = 0,35	P+4	i = 0.7 g = 98 p = 1.16 z = 0.15		
7	Bakovnik	P + 1	i = 0.18 g = 14 p = 4.4 z = 0.18	P+3	i = 1,0 g = 146 p = 76 z = 0,23		4.)
8	Cankarjevo naselje	P + 1	i = 0.36 g = 29 p = 2.2 z = 0.21	P+4	i = 1,09 g = 151 p = 0,7 z = 0,25	P + 10	i = 1,26 g = 186 p = 0,6 z = 0,13

9	Štepanjsko naselje	P + 1	i = 0,25 g = 14 p = 3,2 z = 0,13	┍╷╡ ┛┛┙	i = 0,8 g = 104 p = 1,0 z = 0,17	P + 13	i = 1,8 g = 235 p = 0,5 z = 0,13
10	BS-7 Ljubljana	*	*	、*	*	P + 7	i = 1,25 g = 156 p = 0,69 z = 0,14
11	VS-4 Vič			P + 4	a) i = 0.76 p = 1.15 g = 109 z = 0.13 b) i = 0.94 p = 0.86 g = 156 z = 0.18		
12	Stožice BS-3			P + 4	i = 0,85 g = 106 p = 1,0 z = 0,14	P + 16	i = 1.4 g = 2.14 p = 0.65 z = 0.09
13	Šs-6			P+3	= 0,51	P + 10	i = 1,68
	Ljubljana				g = 86		g = 238
				I	z = 0,13		z = 0,19
14	Planina			*	*	_{P+6} ۱۲٦۲	i = 1,14 g = 127 p = 0,7 z = 0,21
15	Trnovo			*	*	P+6	i = 1,4 g = 175 p = 0,56 z = 0,23
16	ŠS- 8/2 in 7/1					P + 11 ==≓	i = 1,5 g = 185 p = 0,6 z = 0,2
17	Ferantov vrt					P + 7	i = 3,8 g = 365 p = 0,12 z = 0,46

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Densities, facilities and form

What current set-back and parking standards can give you: low density, suburban house types out of place with their setting and forecourts dominated by parking Applying standards with more flexibi parking on-street increases site poter and creates strong street frontage

Car free urbanism (perhaps with only some on-street parking) with strong links to nearby public transport facilities can provide high quality city living without town cramming

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Quantitative urban design criteria, Case Study

Koseze, Ljubljana

building typology: collective housing

building heights: *middle 5 floors (ground+4)*

FSI=1.99 FPI=0.38 dph=158

building typology: individual housing

building heights:
low
2 floors (ground+1)

FSI=0.24 FPI=0.14 dph=22

Quantitative urban design criteria, Case Study

Šiška, Ljubljana

building typology: collective housing

building heights: *middle*

FSI=0.51 FPI=0.13 dph=86

building typology: collective housing

building heights: *high*

FSI=1.68 FPI=0.19 dph=238

FPI and FSI limitations in relation to land use

Land use	Foot print index	Floor space index
	FPI	FSI
Housing areas	0,4	1,2
Leisure areas		
Housing with agricultural households	0,2	0,4
Areas of civic infrastructure	0,6	1,6
Central areas – urban centres	0,9	3,5
Mixed-use areas	0,6	1,2
Production areas	0,8	2,4

(Source: Spatial Order of Slovenia; ! regulations vary throughout Europe)

The limitations can be exceeded exceptionally only if:

- this is demanded by exclusive urban planning conditions
- exceeds can be balanced with the existing situation in the neighbouring areas
- this is not against the public interest

Urban Design Criteria

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Quantitative urban design criteria are important planning tools which indicate the intensity of land use in particular site and give some indication of massing volumes.

Floor space index (FSI) Foot print index (FPI) Dwellings per hectar (dph) Qualitative urban design criteria are important planning principles that are not quantifiable but have major impact on the quality of a living environment.

Qualitative

Context Permeability Variety Legibility Robustness Visual appropriateness Richness Personalisation Co-dwelling

- 1. Context
- 2. Permeability
- 3. Variety
- 4. Legibility
- **5. Robustness**
- 6. Visual appropriateness
- 7. Richness
- 8. Personalisation
- 9. Co-dwelling

The qualitative urban design criteria refer to:

- context guiding the design of physical forms in accordance with characteristics of a site in terms of topography, landscape, image of a city, city silhouette, important views, land use and scale
- **permeability** providing a number of routes through an environment to choose from;
- variety assuring a range of uses and choice of experiences;
- legibility setting up a layout that is easy for people to understand;
- **robustness** achieving a certain degree to which people can use a given place for different purposes;
- visual appropriateness assuring the appearance of the place that makes people aware of the choices available;
- **richness** providing a wide choice of enjoyable sensory experiences;
- **personalisation** allowing users of spaceto put their own stamp on a place;
- **co-dweling** enabling a cohabitation of human and non-humans in certain environment.

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Titograd, Montenegro: Thematic and unthematic structures of the city

Context, building in context, preservation and development of urban and architectural continuity are important planning provisions that guide the design of physical forms in accordance with characteristics of a site (topography, landscape, image of a city, city silhouette, important views), land use and scale. Basic characteristics and qualities of traditional city are identifiable urban pattern and complexity within identified order. According to Tibbalds (1992) popular and attractive cities followed the contextual approach to development and regeneration. Therefor a reliable insight into the context of a wider space is needed when planning a development of a definite site. This includes historical development, existing image and meanings, planning status, social and economic role (existing and potential).

Ground plan of a city, e.i. morphologic structure of a city, is coposed of various urban patterns as a rule. These patterns have been developed throughout various historic (cultural, social, economic, technical) periods. For a proper understanding of a city's morphological structure as a basis for its further transformation it is important to get acquainted with the characteristics of particular typologies, their historical background and image, local interpretation and their connectedness and functioning witin the wider city whole. From this point of view the physical structures of a city that enable the perception of a city can be thematic (repeating urban patterns) or unthematic (they enable the organisation of a city and link various urban patterns in a whole).

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Ljubljana, Slovenia: Thematic structures characteristic city areas

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Ljubljana, Slovenia: evolution of morphologic pattern in the city centre through time

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1 Two very different types of street patterns (grid and cul de sac) in terms of permeability

2 Clear distinction between public and private space improves safety and mitigates maintenance issues. Permeability refers to the possibility of reaching other activities, sources or places, including the variety of elements that are reachable. Only the places that are well accessible can offer a wide range of choices. This is important from at least two points of view: 1. connections and permeability of a site within the broader city context (criterion: shortest or most direct connection to the primary city streets network); 2. permeability in relation to the immediate vicinity of a site (criterion: the paths that will connect the majority of the programes to be assured).

Permeability can also be interpreted as a number of alternative passages through the site. For example – the continuous grid street pattern offers better accessibility than 'cul de sac' street pattern.

The criterion of permeability has to be addressed at the very beginning of a design process. A designer has to decide how many passages through the site are needed, how they will be linked with the existing connections in the neighbouring areas, as well as how the building blocks will be shaped. The possible usage of the **existing passages** is an important aspect as well.

When deciding the **shape of building blocks** the criterion of the size is relevant from two aspects:1. firmness (criterion: the blocks shall not be deeper than 80-100 meters as a rule as a tendency of spliting them in two may occure otherwise; the exceptions possible if functions demand so); 2. organisation (criterion: a clear distinction between public, semipublic and private spaces is anticipated for safety and maintenance reasons).

Typology of streets and design of junctions shall not only reflect the traffic flows (primary, secondary, local roads), it is also important to define the character and standards of the streets as well as density and typology of junctions.

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1. Context

2. Permeability

3. Variety

4. Legibility

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Fine grain urban structure offers more choices to pass through than big-box-developments.

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1 A sound combination of uses and their appropriate placing are important assets of viable urban environments.

2 Locating uses appropriately may have a major impact on economic outturn in mixeduse developments.

3 Functional, political and economic feasibility are key for a success of a project.

Variety of uses or programmes stimulates other kinds of variety: 1. variety in building typology and forms, 2. it attracts heterogeneous groups of users in different times and for different reasons, 3. the variety in bulding forms, programmes and users enriches the perceptual dimension of space and attaches different meanings to space.

The **level of variety** that a single site or project can stand depends on: 1. type of activities to be located in the area and the demand for them, 2. the avilability of appropriate space for the activities that is also economically viable, 3. the level of possible positive interactions between uses by appropriate design of space.

Feasibility of a project shall be estimated in terms of functional, political and economic feasibility: 1. functional feasibility won't be possible if the proposed programmes are not compatible due to increased noise or traffic flows for example, while some other 'incompatibilities' can be overcome by appropriate design (housing and workshops for example), 2. political feasibility may be questionable if the proposed programmes are to far from the planned ones or if there is weak or no support from the local community, 3. economic feasibility is an important factor to be simultaneously checked as only a profitable schemes will attract investors / developers.

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In designing new places, what role is the centre to have when all the potential 'mixed use elements' are sucked to the edge?

Uses are still being zoned and roads designed as strategic routes at the expense of the creation of more local relationships based on walking and cycling.

A more vibrant and sustainable form results from blurring the distinction between uses and designing places that make walking to the local centre, and bus stop or railway station, as convenient and comfortable as possible

OFFICE

Mixing involving predominantly offices

Possible mixed-use combinations with ground floor retail

some possible configurations of mixed-different residential types

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1 According to K. Lynch the mental image of space consists of five key elements.

2 – 4 Appropriate positioning of landmarks importantly improves legibility of space. Legibility is a quality of a space that can be easily understood and grasped by users. It refers to the perceptional dimension of space and its related interpretations.

The aspect of space legibility is important at two levels, e.i. two components of space have a major influence on space legibility 1. **physical form**, 2. **patterns of activities** in space. The city can be interpreted separately at each level, but a maximal utilization of space will be reached only when a complementary realtion between the two levels exists.

The perceptual dimension of space is a field of research of different disciplines such as environmental psychology, geography, cognitive technologies etc. Within urban design practice one of the most known and fundamental works is Kevin Lynch's approach to perceptual analisis of space. His theoretical framework is based on five basic elements that constitute the mental image of space in the mind of an observer, these are: paths, nodes, landmarks, edges and districts.

However the legibility of physical forms and patterns of use is strongly diminshed in the contemporary urban environmnets. It is important to understand the existing state of the art in the given environments and upgrade it accordingly, in order to improve the legibility of not only local but wider area.

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Appropriate positioning of landmarks as well as key programmes in the space contributes to legibility of space.

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1 Windows overlooking public space maintain street contact and add human scale to the environment.

2 Active frontages and appropriate positioning of amenities encourages a variety of uses to appear accross the open spaces.

3 Well designed built edge welcones users to settle it. COBRAMAN

- In terms of **open space** design this applies to:
- areas designed for active and passive uses,
- active frontages (with openings overlooking public space) that define the edges of open spaces,
- activities at the edges,
- equipment,
- -microclimatic conditions.
- In terms of a design of **built structure** this applies to:
- size of buildings the majority of buildings needs day light so the groundplans developed in depth are not suitable for any programme,
- frequency of entrances the accesibility is one of key aspects for any programme to run succesfully
- positioning of entrances they shall be placed di/from the open public spaces, this also improves the visual connectedness
- the skeleton of the building shall allow the flexibility of arranging the interior of the building.

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1 Not only scale, volume and basic shape, but also detailing has a major impact on semantics of space.

2 - 3 Physical structures can be analysed upon their constitutive elements. They shall be reflected in any new addition to the existing space if the contextual motto is to be considered and local identity strenghtened

Visual appropriateness of space relates to the level of detailed design and its message of possible choices that are offered to the users of space.

Visual appropriateness is closely related to legibility, variety and robustness of objects and spaces – legibility is sustained by paying regard to the existing characteristics and the contextual motto of space, and variety and robustness are sustained by patterns of usage of buildings.

The contextual motto is constituted by the following elements of physical structures: vertical rhythm, horizontal rhythm, roof ending, roof details (material, colour, texture), windows, doors, details of a ground floor. Contextual characteristics of wider scale are: roof endings, vertical and horizontal rhythm; and contextual characteristics of a smaller scale are wall openings and details – windows, doors and decorative elements.

When new spaces and buildings are designed these elements and their interrelations shall be taken into consideration, by doing so a design continuity of a given space can be reached.

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Verticality, rhythm and colour: Dublin, Ireland.

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1 The views onto the buildingdiffer in length and duration, they define the more and the less exposed facades of the building and the level of anticipated detailing.

2 Recognition of a surface changes by approching it, so shall the level of detailing.

The criteria of richness refers to an expessed architectural character and visually attractive details.

Visual interest is conditioned by a presnce/existance of visual contrast at a given object, which depends on orientation of an object and the directions of views onto the object. Visual contrast can result from a usage of various colours or colour tones on a two-dimensional surface, it can be conditioned by a three-dimensiol design of a faceade surface. The efficiency of these approaches depends on: 1. the types of perceptual distances to different parts of an object; 2. the duration of perception of an object respectively its parts.

To maximise the effect of investing into a richly designed facade it is important to estimate which parts of a building are perceptually exposed and need to be given special attention in design process.

When a surface of a building is being exposed to the views of users of open space for a long time its richness shall be increased. This can be achieved by

- increased visual complexity, when different patterns can be revealed only after a longer observation period,

- perceptual riddle, where a creative imagination of observers is activated when observing certain elements that look unfamiliar in a given context,

- the interpretation-assistance, where additional information about an object are given in a more detailed design so that their recognition is increased when coming nearer i.e. shortening the perceptual distance.

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The surfaces exposed to long views (by distance and viewing time) demand a more deliberated design.

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1 Personalisation affects the public realm too, well guided it is a positive contribution to it.

2 The same built structure can have a very different character if personalisation is allowed or if it is not allowed.

COBRAMAN

Personalisation is the extent to which people are able to put their own stamp on a place. Through personalisation the environments can be achieved that bear the stamps of users' own tastes and values. This calls for considerable effort from the place's original designer.

Personalisation makes clearer a places's pattern of activities. By encouraging each user to dress the building differently, personalisation can make each use explicit.

There are two main types of personalisation: 1. to improve practical facilities; 2. to change the image of a place. Improving practical facilities from the side of users is closely related to the principle of robustness which has already been described. Personalisation of the image of place or building is usually implemented as an affirmation of users' tastes and values (affirmative personalisation) or because they perceive the existing image as inappropriate (remedial personalisation). Affirmative personalisation is to be supported clearly.

When personalising a place, users are confirming their tastes and values to themselves as well as communicating them to others. The former occures inside a user's space, the latter accross its boundary, which separates the user's private domain from public realm. Public personalisation communicates across the private/public boundary and affects public realm. It mostly happens at physical gaps in the boundary (tresholds, windows). Eople personalise only the space they control – so patterns of personalisation reflect patterns of tenure.

2

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Personalisation adds personal touch to generally unified urban environments and thus contributes to individuals' attachment to place as well as it adds meaning to the environment.

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1 In large scale any wildlife patches shall be considered when deciding new design.

2 For small schemes any hedgerows, ditches and other alike elements might be of considerable importance. Until recently urban design discipline has focused mostly on human concerns when designing linkage spaces. But the issue of co-dwelling between humans and the wider biosphere is getting topical. It shall be addressed by providing wildlife corridors, that is linkage system for non-human beings.

For small schemes the potentials for wildlife corridors in the immediate vicinity can be identified, such as existing hedgerows and ditches - the new design shall make it sure that the layout of a new scheme extends these as far as possible.

For larger schemes the designed net may be casted more widely and might be reaching out to major wildlife patches at some distances from the particular site. Local, regional and central government information about the relative biotic importance of particular patches may be available. The study of old maps may also help to identify the relative ages of existing patchesand thus their likely ecological value.

Remembering to think about biotic linkage is the first prerequisite and the design objective stays the same at all scales: to make the new scheme contribute as much as possible to the overall on-human linkage system. Once a tentative decisions about locating wildlife corridors attention can be turned to the network of public spaces for humans.

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Penetrating wildlife corridors through the city does not only provide passages for the non-humans but also provides a closer link with the natural environments and contributes to a higher quality of life in the city.

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