

**Title:** *Assessment of public participation process by using urban coding methodology in urban design: case study Bostanci urban block*

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**Abstract:**

*One of the most important pillars of social dimension in urban design, **participation**, basically means the integration of users into the urban design processes. Participatory design processes seek a balance among variable thoughts that belong to users. Participation requires flexibility in the production of urban spaces since it theoretically needs to bring different thoughts together and let them change in the context of design goals.*

***Urban coding**, as defined by Marshall (2011: 6), is the application of any kind of code used in the context. Urban codes include form-based codes, building codes, layout codes, zoning codes, and generative codes. Not to be confused with design guidelines or general statements of policy, urban codes are regulatory, not advisory (Talen, 2009). For the creation of healthy and sustainable communities, urban codes should create the flexibility that participatory design demands. This requires a bottom-up approach like generative coding, which rejects predetermined forms and patterns in a stepwise process by which a form might emerge from the evolutionary actions of a group of collaborators (Mehaffy, 2008: 57). In this context urban coding and participatory design approach have a significant relationship and impact on making a decision.*

*The aim of the presentation is to demonstrate the social dimension of urban design by using quantitative methods and to show how urban spaces alter by using participatory methods and how this change can show itself in the context of urban coding by giving an example from Bostanci neighborhood in Istanbul.*

## 1. Introduction

Participation basically is identified as the involvement of group of people to the design process. One of the most important pillars of social dimension in urban design, **participation**, the integration of users into the urban design processes seek a balance among variable thoughts that belong to users.

According to Sherry Arnstein, participation is a categorical term for citizen power which means the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. Arnstein defines eight levels of citizen participation starts from non-participative levels to citizen control on which have-not citizens obtain the majority of decision making seats, or full managerial power (Arnstein, 1969). Participation levels on urban design scale has been directly or indirectly related to political and democratic ideologies which contributes to participation process on urban planning scale. Arnstein's ladder of citizen participation contributes to the analysis of the level of democratic situation and making an inference about decision making process on urban design scale as well.

Actors and stakeholders and most importantly user of the specific area contributes to design process by having an interaction with institutions and with each other as well, is replacing the simplistic debate on urban participation which asks whether cities should be organized bottom-up or top-down (Tan, 2014).

Participation requires flexibility in the production of urban spaces since it theoretically needs to bring different thoughts together and let them change in the context of design goals.

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Bostanci neighborhood in Istanbul is defined as a hypothetical research area of urban design studio in Middle East Technical University in Turkey. Rapid urban transformation and ignorance of actors/stakeholders causes different kind of problematic situations. This research has been based on parcel by parcel urban coding methodology as a controlling mechanism and gives an opportunity for creating a flexible design process. Bostanci neighborhood has been selected as a representative of any urban transformation area in Turkey.

## 2. Design framework

Bostanci is located on the Anatolian side of Istanbul, neighborhood of Kadiköy. Area fronts the Sea of Marmara. Research area is determined as one specific urban block in Bostanci which is approximately sixteen thousand square meters with eight parcel and eleven building (Table 1)



Figure 1. Location of the block in Bostanci Neighborhood

Existing building layout changes from two to five hundred square meters. Building coverage ratio is between 0.18 and 0.46 and floor area ratio starts from two to eight point eighty four (Table 2). Block has parcel size, plot depth and rugosity variation and good sun exposure and wind permeability. It creates an opportunity for privacy because of its impermeable structure which does not let access to urban block except the apartment residents. On the other hand this impermeable structure is considered as a weakness of the block according to plan decisions. Typical architecture, disconnection within buildings, having no common and semi/public spaces in urban block and morphological variation due to lack of functional usage are another weaknesses which do not let flexible growth of the block.

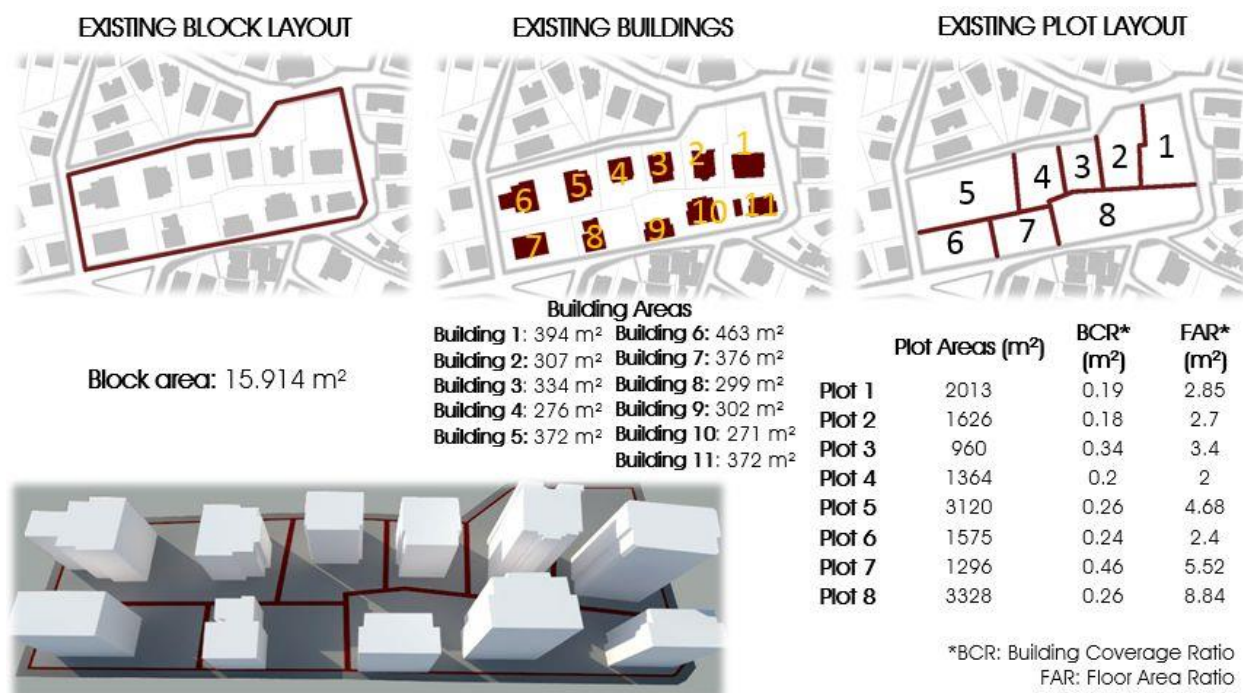


Figure 2. Existing Physical Structure of the Urban Block

Firstly plan decisions have been determined as a challenge of this hypothetical research project. In order to keep the building development right the same, plot layout will be remain the same. The ground level of the buildings will be commercial area and residential units have been planned on t levels. Floor area ratio will be three in the block which distributed equally unlike existing buildings which changes from two to eight because of several high rise buildings in the block. Last plan decision is composing an attached building housing.

Fine grain urban composition as a design concept will widen the spectrum of architectural types which can intervene monotonous architecture of the block. In addition to the design concept there is two different design principles; creating an inner space within the block and active street frontage for commercial area on ground level.

### 3. Design codes

The aim of the research is demonstrate the social dimension of urban design by using quantitative methods and show how urban spaces alter by using participatory methods and how this change can show itself in the context of urban coding. Urban coding system has been separated into four morphological elements; street, block, plot, building. Street is a public thoroughfare in a built environment. A block is defined as the smallest unit of development which give access to its plots by street/s. A plot is identified as a piece of land which represents the smallest expression of undivided ownership. Buildings is any relatively permanent enclosed structure on a plot of land, usually having a vertical surfaces, covering

surfaces and openings. The main elements of urban morphology and their relationship in different combination created the code matrix. For example one of the results of block and plot relationship is continuity which is the internal circulation within a block. The total number of segments on a route gives the value of continuity of the route. Continuity factor is basically expressed as the amount of segments on the routes and the total amount of the routes in the network. Expected performance of the continuity is efficient use of internal space in block in terms of the provision of parking space, fire safety and supporting the possibility of the emergence of retail. Building and building relationship can cause the emergence of the code of compactness. Compactness is the ratio between the total external wall areas of the building envelopes to their total volume. Compactness factor is calculated as the external surface of the building envelope and volume of the enclosed space of the building. Expected performance of this code is passive heating of the close-connected units problematic conditions for the efficiency of solar access.

In the urban block of Bostanci, firstly active street frontage has been coded in accordance with the plan decisions and design principles. Active street frontage is the building facades of the block facing with the public space. Different kind of commercial usage, diversity of local facilities and characterization of urban block provides an opportunity for an active frontage. Thus granularity, strip width and façade openings have been coded.

Granularity of an urban form can be revealed in terms of plot layout. In comparison of the two different patterns having the same size of surfaces, which are subdivided into the different amount of plots, the one involving more amount of plots can be regarded as multi-particulated in grain with the more relative granularity factor value.

Granularity is formulated by using plot surfaces and external setbacks. In this case since our plot layout will remain the same and does not let fine grain urban form, plots are divided into a number of strips. So the granularity is going to be increased in the block provides an opportunity for diversity in plot composition different building types which means variety in commercial usage, efficient use of the leftover spaces.

Second code for active street frontage is creating a variety in strip width. In order to create more variety in street segment plot should be fragmented into defined range of strip widths. According to the code minimum division of strip width should be minimum twelve meters in this context. In order to create a rhythm on the strip widths, each plot should have at least one twelve-meter strip. After dividing twelve-meter strip for each plot, remaining parts should be maximum number of strip width which is twenty three in this context. The reason for this number is, when strip width reaches to twenty four, it can be divided into two according to the situation which is unwanted in this case.

Repetition of façade openings is another code for rhythm which is defined by total façade opening areas on surface of buildings fronting the street, is a tool to create a rhythmic visual order. In accordance with the parcel by parcel development, rhythm on façade opening code is defined by initiator. When the first developer has designed its own façade openings, other building that has the same range of strip width with the first initiator, should have the same façade openings. For example if fourteen meter strip has a thirty percentage of façade openings the other strip widths between from twelve to fourteen should be thirty percentage of façade openings.

Second design principle is creating an internal common space which consists of three different variety in depth, permeability and counter positioning. The variations in the length of side edges of plot change the depth of plot which constitute the block median. According to sense of enclosure theory optimum height to width ratio should be decided according to the block width. Thus ratio is considered as part of the code formulation while creating usable common spaces.

One of the plot strips within plot can reach to block median in order to create variable (open/close/semi close) common spaces within block. In this case back facade of the building will be blind facade and confronted strip should reach to the block median and should have the same strip size.

Permeability code explains that one of the plot strips within plot can reach to block median in order to create variable (open/close/semi close) common spaces within block. In this case back facade of the building will be blind facade and confronted strip should reach to the block median and should have the same strip size. If openings are going to be given from edge of plot; whole front surface of the building should be regressed at least 4m. If opening are going to be given from inside strip plots; at least 4m opening in first floor should be given.

Third code is counter-positioning is measured by calculating the ratio between the numbers of building entrances visible from any other building entrance located opposing sides of block median and the total number of buildings on the street.

#### ***4. (Trans)Formation of the block***

Urban design codes is used for plot-by-plot urban transformation process for Bostanci urban block.

Transformation of the block has been appeared from first building to eighth building in accordance with the design codes which is explained previously. All these codes has been implemented (SIRASIYLA). In this scenario three different actors contributed to the process.

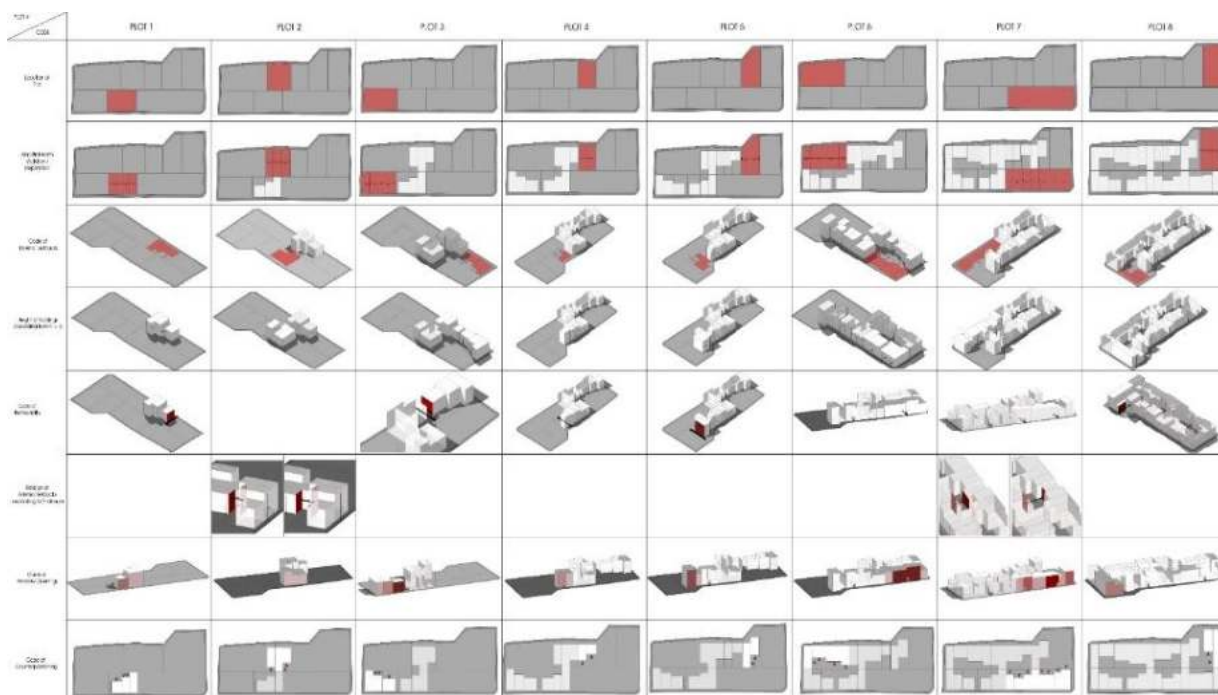


Figure 3. Formation of the Urban Block

When the first plot has decided to build his own house, owner or developer of the plot determines firstly its plot strip width in order to contribute its active street frontage principles in accordance with the codes given by urban designer. Developer can determine its strip width in the range of designer's codes. For example first plot has divided its own plot into three different strips. According to the repetition code, developer should define at least one twelve meter plot strip in its own plot. Other strips should reach maximum strip widths for creating variety in commercial area.

After defining strip width of the plot building mass is defined, building mass is distributed into three strips according to the developer's and architect's decision. In order to create a plot, building mass should give a setback from block median in accordance with the code of variety in depth. Access and service into the courtyards is provided by permeability code and since the access is given from the edge of plot, whole front surface of the building is recessed four meter. Finally entrance of the strips has been located inside of the block according to the counter positioning code. Façade openings have been defined as thirty percentage transparency.

Second plot is facing first developed plot, so firstly developer decides a random ground area of massing according to given codes. Setbacks of the buildings from block median should be formed according the height of counter positioning buildings for creating meaningful spaces in between them. According to the decided Floor Area Ratio, considering height of these buildings, setbacks should be rearranged in order to provide needed distance between them. In this case one of the strip plots should increase its setback, in

the last version of its buildings ground area, its height is increased. Access is given again to the plot and façade opening is defined as forty percentage of the total building façade.

Remained six plots have been transformed in the same process and final version of transformation of the block is identified according to the owner/developer of the each block within the design principles.

## **5. Conclusion**

Urban morphology and urban coding gives an opportunity for the decision making process for all the actors/stakeholders. After defining basic plan decisions, design concept and design principles with all stakeholders, urban block can transform itself by using urban coding system of the urban designer who leaves the main decisions to the user or the owner of the plot on architectural basis. This method is based on plot by plot development which refers to phase by phase development in practical life and takes fourth dimension into account.

Finally general aim of the poster presentation is to demonstrate the social dimension of urban design by using quantitative methods and to show how urban spaces alter by using participatory methods and how this change can demonstrate itself in the context of urban coding by giving an example from Bostanci urban block in Istanbul.

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