PATTERN LANGUAGE OF THE THIRD DIMENSION IN URBAN DESIGN

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1-Introductıon

One of the problems of two dimensional planning is not able to grasping the third dimension at the same time. This is one of the major problems that the students are faced in the departments of urban and regional planning.

The students of the departments of urban and regional planning try to organize the zoning decisions into a plan works according to geometric and functional relationships between different urban patterns.

But, urban as well as region is not only two dimensional areas but also they have the third dimension that define urban spaces. Urban spaces are made of built and social spaces Colquhoun, 1982). Some of the other scholar (Krier, 1979, Kostof , 1992, Moughtin, 2000) working in the urban design area show that urban physical design is a three dimensional work.

However, Lynch developed (Lyncy, 1960) a sort of language that was used to analyse the three dimensional urban image into two dimensional imageability. In this work physical image (volumetric properties) of the main urban patterns are represented into five elements; paths, edges, districts, nodes and landmarks.

Shortly, the article suggests that in order to plan (two dimensional) an urban and regional area there is a need for a three dimensional (volumetric) pattern language. This volumetric language enables to define the physical urban space while their planning works being proceed.

2-A volumetric pattern language

Planning works in the departments of urban and regional planning are based on optimisation of the placement of zoning decisions into two dimensional plans. Optimisation of the zoning decisions are carried out by geometric configurations and the relationships between different urban patterns.

The students of the departments of urban and regional planning try to combine the different urban patterns without considering their volumetric properties. They do not have any imaginations about the volumetric properties of the different urban patterns, because, they work on two dimension.

As, it is said that each urban pattern, that creates the urban space, has a third dimension and some volumetric properties. Like as; a residential area, a educational area, or a shopping area have different specific forms and volumetric dimensions.

While, a two dimensional urban or regional physical planning works are carried out, if a volumetric urban pattern language is used then the result work could be more successful in terms of urban spaces created.

2.1 Type of urban patterns (urban activities)

Alexander (1977) groups the urban patterns (activities), "... beginning with the very largest, for region and towns, then working down through neighbourhoods, clusters of buildings, buildings, rooms and alcoves, ending finally with details of construction". His patterns cover all scale of construction.

However, the major urban patterns are grouped in different level by the scholar. Chapin, (1972), defines the major urban patterns as, i-the behavioural patterns of individual, ii-families, iii-institutions and iv-firms. Ecosystem Planning and The Techniques, was one of the pioneer work done by Fortlage and Philips, 1970, in this classification. In their work, a long list of urban patterns is defined. Defined urban patterns are progressively developed depend on the relationships between man and his ecosystem.

Finally, it could be said that Alexander's pattern language (253 patterns are defined) is the most comprehensively one.

In this article, urban patterns are defined into towns scale. But, this may be widening to the all scale in urban and regional level in the future studies.

2.1.1 Type of urban patterns developed

Urban patterns, generally, are developed according to the user needs. User needs also, are changeable depends on, the user culture, user socio-economical characteristics, and physical environment. The current view is that the built environment can be seen as a setting for human activities, (Rapoport, 1977).

In this work, at this time, urban activities are defined as, a-residential, b- commercial, c- industrial, d-educational-social and f-cultural. This list can be expanded depends on the work level like as, country level, regional level, towns level or it could be enriched by adding to cultural characteristics.

Once the patterns are defined, their volumetric properties could be shown as three dimensional built forms depend on the levels that they are intended to be used.

2.2 Volumetric urban patterns

Each urban activity takes palace and occupies a space either in a built form or in open air. The built form of the activities also, depends on the activity capacity and densities. For instance the residential activities in a town could be arranged in different density levels and built forms. In each case the volumetric properties of the built form will be different. The differences of the densities and capacities of an activity are supposed to be shown in different volume. The drawing shows the volumetric patterns of a residential urban activity in different capacity, low high, medium (Figure 1).

Figure 1-Differant densities of residential pattern (drawn by author)

In the article, the basic urban patterns (activities) that is going to be shown their volumetric properties, are grouped under the headings of, 1- residential, 2-commercial/offices, 3-ındustrial, 4-educational, 5-administration, 6-open areas (city square, park) and7- religious building.

The following volumetric properties of the urban activities represent the user need in national level but also could be defined at local level.

The visual presentation of the patterns, defined above, given as schematic.

1-Residentail patterns (activity)

The researches, that done in national level, show that a family house is accepted as 100m2 in Turkey, (TOKİ, 2012). The volumetric property of this housing unit is represented as 10x10x3m3 (digits show width, length and height of the unit).

Residential areas are designed mainly in three different density, low, medium and high rise. The volumetric patterns of the residential areas could be represented as below figure 2.

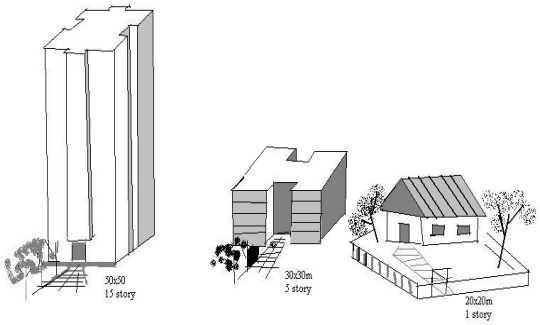


Figure 2- volumetric properties of residential urban patter in different density (drawn by author)

2-*Commercial urban patterns (activity)*

Urban commercial activities are classified as daily, weekly and longer periods shopping from consumer point of view. Weekly and longer period shopping take place in the larger building, where daily can takes place under the residential building.

Generally, longer period's patterns are supposed to be a separated building like as shopping centres out of CBD. The volumetric properties of these activities could be defined as 1000m2x5m where the shopping centres 10.000m2 x7m shown in below (the digits show area and height of the building).

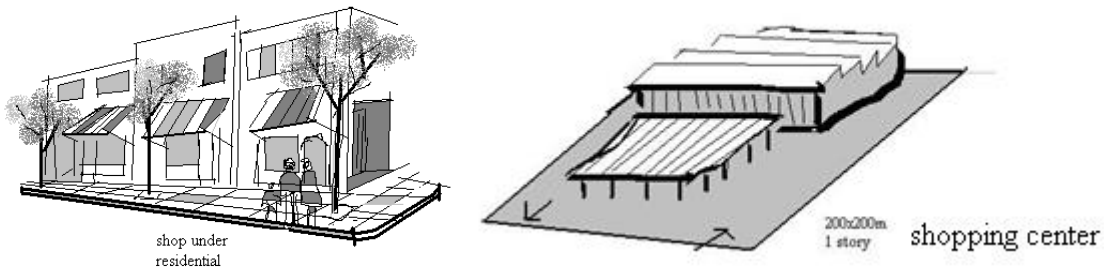


Figure3-Differant types of commercial urban patterns (drawn by author)

3-Industrial activities

The volumetric properties of industrial areas could be accepted as horizontal physical developments. As, variety of industrial productions require different size of built area. Even though, there could be a volumetric definition for the industrial activities shown as below.

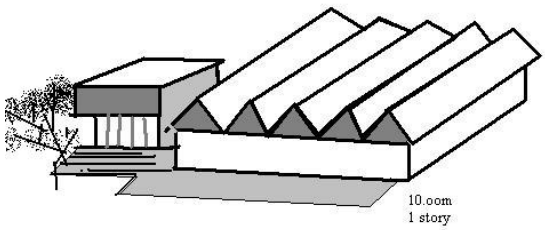


Figure 4-An example for industrial urban patterns (drawn by author)

4-Educational activities

Educational systems, generally, is divided into, first level (primary schools), secondary level (lyce) and higher education (universities). Their volumetric patterns are shown below (Figure5).

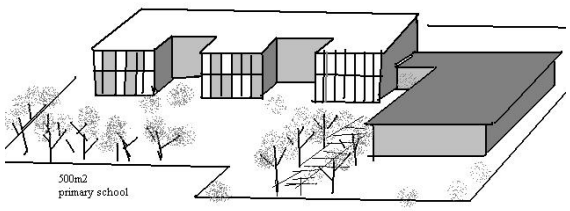


Figure5- Volumetric presentation of a primary school (drawn by author)

5-Administration activities

Under this heading the governor buildings, municipality buildings and the other administrative buildings are given as below (figure 6).

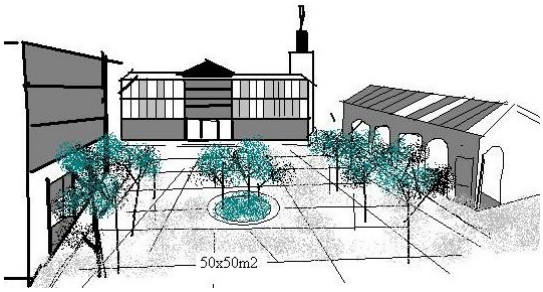


Figure 6- A civic centre (drawn by author)

6-Open areas activities

City square, parks and some pedestrian activities are considered and their volumetric patterns are defined as below (figure 7).

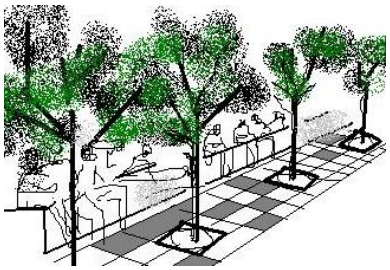


Figure 7- An open area (drawn by author)

7- Religious activities

The volumetric properties for this urban activity are also variable and shown below according to their densities (figure 8).

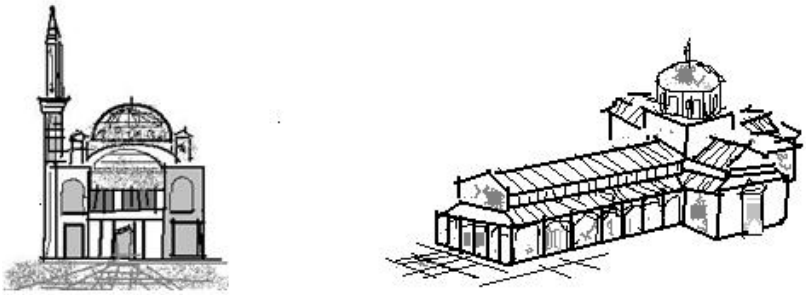


Figure 8-Different type of religious centre (drawn by author)

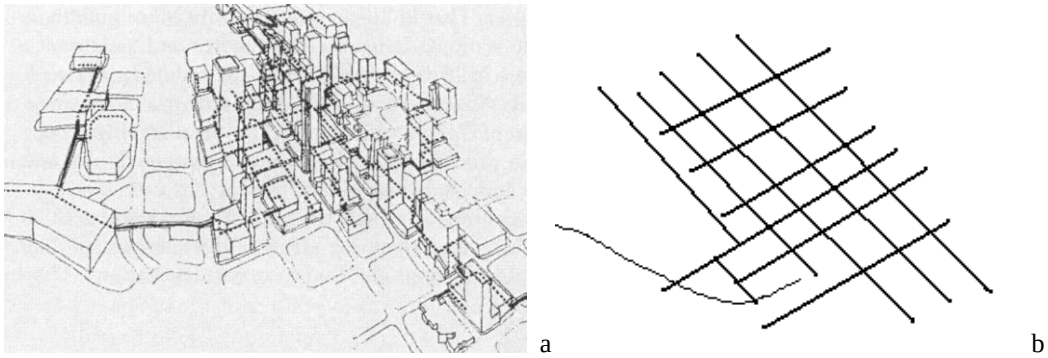
2.3 Usage of the volumetric language

The students, once they learn the volumetric properties of the different urban patterns, could size and resize the zoning areas more consciously and conveniently in the two dimensional plan works. Also, they can grasp and imagine the third dimension of the planning work.

The volumetric language enables to reshuffle zoning decision when kept in mind.

3-Examples

The figures show some of the application of the language by different planners and/or firms in planning works in different time.



a b

Figure 9-a-Volumetric works of different urban patterns in an urban level for a given plan

b-two dimensional plan (Source;Lang,.J Urban design 2005, p348)

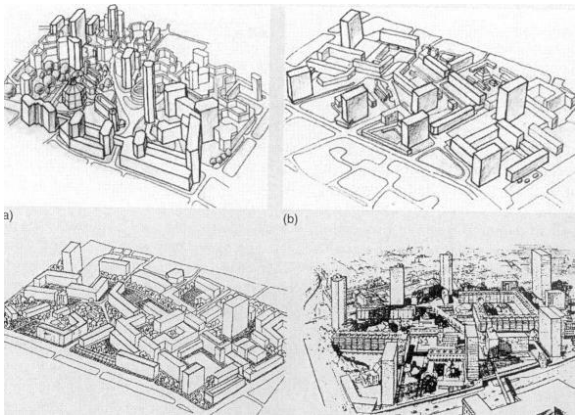


Figure 10- Different combinations of the patterns (Source;Lang,.J Urban design 2005, p166)

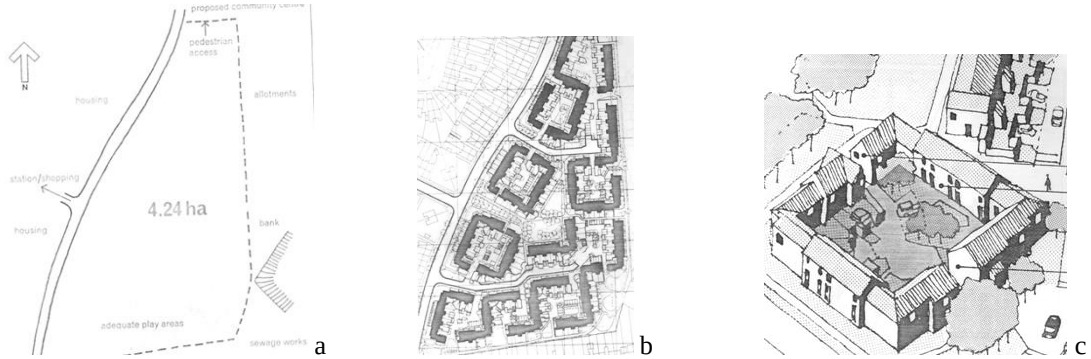


Figure 11- Two dimensional residential area and application of the volumetric language, (a,b,c.) (Source;An Introduction to Housing Layout ,1978 Nichols Pub. Com.Uk,p135-140)

4-Conclusion and future works

Physical representation (volumetric properties) of the urban activities (patterns) enables the student of the planning department to grasp two dimensional decisions into three dimensional concepts. This conceptual thinking could help them to make zoning decision more consciously about the creation of the future urban spaces.

Finally, it may be said that the volumetric pattern language offered could be enriched, according to the national, regional or local levels as well as the cultural diverse.

It is, earlier, stated that urban patterns could be in different intensities and morphology depends on the user needs.

Consequently, the next step of this work would be the preparation of the real volumetric drawings of urban patterns that could be needed for the two dimensional plan works in different levels.

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