

The Role of Form-Based Codes in Improving the Quality of Life in Contemporary Residential Neighborhoods

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1- Introduction

Riyadh has witnessed tremendous urban growth during the past decades as a result of the increase in the pace of urbanization, and the streets serving vehicles, which led to the creation of urban environments devoid of humanity^[1]. The residents of Riyadh have relied on vehicles as a means of transportation since the appearance of the first general plan for the city in 1973 AD, or what is known as the Doxiadis Plan^[2]. Since then, the city has expanded and spread residential neighborhoods with a network planning system to meet the demand for housing and services away from the standards of urban quality. The development of contemporary residential neighborhoods has tended to provide the largest possible number of residential areas at the expense of green spaces and open areas^[3]. Today, global indicators indicate that the average number of steps a person walks is equivalent to (3.8) thousand steps per day, which is less than the global average by a thousand steps^[4]. As for the level of per capita green spaces, Riyadh represents the tenth according to the standards of the World Health Organization. Therefore, the Quality of life (QOL) 2020 program focuses on developing lifestyle, improving living methods, and launching a number of initiatives in the field of housing, urban design and the environment, which seek to create a safe, high-quality pedestrian environment, and sustainable neighborhoods.

1-1 The Problem

The urban growth in Riyadh posed a great challenge to managing the city and meeting the demand for housing and facilities. In 2016, the urban area of Riyadh increased to about 3,116 square kilometers, by 28% compared to its area in 2009; However, the developed area of it amounted to 1,121 square kilometers with a rate of 36%^[5]. Since the emergence of the first plan for the city of Riyadh in 1973, the developed residential neighborhoods have focused on providing the maximum amount of space allocated for residential uses, basic services and roads serving vehicles, which alone accounted for more than 16% of the developed area. These rapid developments have resulted in the absence of the human dimension and the concepts of sustainability in the development of residential neighborhoods^[1]. Global statistics indicate that Riyadh obtained half the score obtained by each of the cities of New York, Singapore and London in the measure of availability of suitable places for walking, and the pollution rate was 15 times the rate specified by the World Health Organization^[4]. The lack of interest in environment in contemporary residential neighborhoods contributed to the increase in vehicle use rates at the expense of the pedestrian environment, which ultimately led to urban environments that lack the minimum requirements of human needs.

1-2 Objectives

The research aims to analyze the role of Form-Based Codes as a tool to improve the quality of life in contemporary residential neighborhoods by choosing a case study for a residential neighborhood (Tilal Al-Riyadh). The research also aims to draw lessons learned from global theories and experiences to determine the effectiveness of Form-Based Codes in improving the quality of life in cities, and their impact on creating a sustainable and pedestrian-friendly urban environment.

2- Methodology

The research is based on a descriptive and theoretical approach through in-depth analysis of the theories and global experiences of the impact of urban regulations on improving the quality of residential neighborhoods. The research reviews a set of examples of global cities that have applied Form-Based Codes to achieve the principles of sustainable urbanization and quality of life. The research also uses the inductive approach to analyze the Quality of life (QOL) standards in Saudi cities and methods of achieving them in our contemporary neighborhoods. The research focused on analyzing the case study model, using the questionnaire tool for a sample of 50 residents of the neighborhood, and in cooperation with the management of the Owners Association of Tilal Al Riyadh neighborhood ^[7]. The measure of the impact of the regulations was based on the indicators of the Quality of Life (QOL) Program 2020 document, in terms of viability and lifestyle.

2.1 Case Study

As shown in Figure (١), the Tilal Al Riyadh is located to the west of King Fahd Road and within Al-Malqa neighborhood, north of Riyadh, with an area of 1,111,766 square meters. This neighborhood is the first project in Riyadh that adopt Form-Based Codes ^[9].

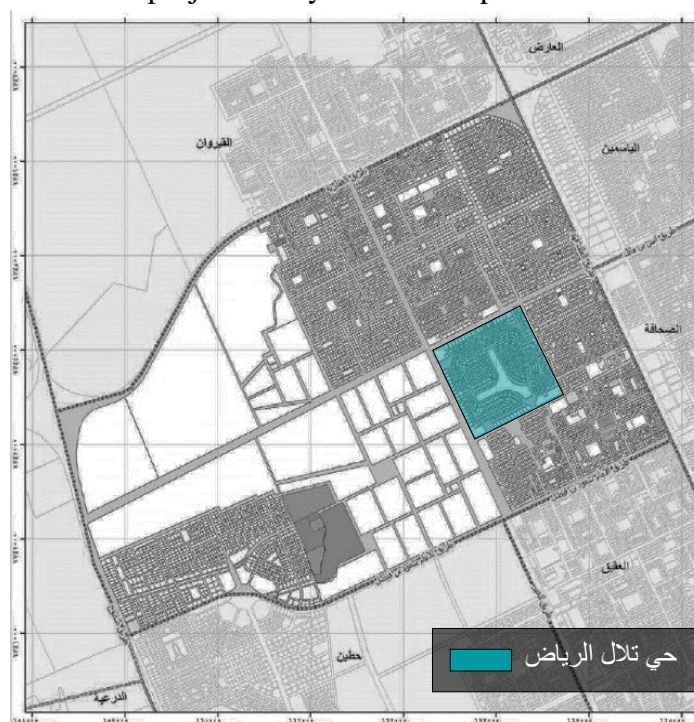


Fig (1): Tilal Al Riyadh neighborhood
Source: Royal Commission for the City of Riyadh

3- Results

In 2000, Prof. Dr. Khaled Alskait ^[8] set out the first plan based on Form-Based Codes for Tilal Al Riyadh neighborhood, which were partially implemented because it was a new experiment and differed from the pattern prevailing in the neighborhoods of Riyadh. Nevertheless, its effects appeared in succession in the neighborhood, making it a different model to the prevailing pattern in contemporary residential neighborhoods. The Form-Based Codes were set up as a tool to activate the planning idea objectives and to provide mandatory rules that are applied to improve the level of the built environment in the neighborhood. The criteria for public spaces were chosen as an organizational principle, in order to facilitate linking them with the existing urban systems, which work to enhance the planning idea of Tilal Al Riyadh neighborhood.

The planning idea of the neighborhood is based on three pillars:

- Designing the central park in the middle of the neighborhood and achieving the principle of safe pedestrian access.
- Separation between pedestrian traffic and mechanisms in a way that reinforces the principle of humanization in residential neighborhoods and fulfills considerations of quality of life.
- The studied distribution of neighborhood size in terms of residential land plots areas and service locations, and encouraging access to facilities.

The regulations for Tilal Al Riyadh neighborhood are based on a vision that reflects the actual needs of the residents, so that the neighborhood becomes the appropriate environment for housing through its exclusive design, planning and development idea within the framework of residential neighborhoods enacted [9]. The regulations for Tilal Al Riyadh neighborhood consist of standards for public spaces such as roads and streets. The regulations contain standards for building shapes, which are divided into building signature standards, parking standards and land use standards. The regulations also include standards for building styles and architectural standards.

66% of the study sample believed that the planning system contributed to enhancing the safety and privacy of pedestrians. The general planning pattern of the neighborhood contributed to encouraging pedestrian movement, as the results of the analysis indicated that 89% of the study sample use the walking method to move within the neighborhood periodically. On the other hand, 72% agreed that roads inside the neighborhood are prepared for pedestrians and take into account the humanitarian standard. Separating pedestrian traffic from machinery also contributed to encouraging more than 91% of the study sample to practice sports within the neighborhood. The urban regulations for public spaces also contributed to the planning system of the neighborhood by choosing the optimal location for the central park, which encouraged 98% of the population to walk to reach the center instead of using the vehicle. Also, 58% of the respondents indicated that the design of the pedestrian paths in the neighborhood is safe for all Sunni groups within the neighborhood. On the other hand, 63% of the neighborhood residents use the walking method instead of the vehicle to move and reach the activities close to and around the neighborhood, which is a very high percentage if compared to the prevailing planning patterns of residential neighborhoods in Riyadh.

The planning system in Tilal Al Riyadh neighborhood has enhanced the fulfillment of the living requirements of the individual, as 96% of the study sample agreed that the planning system of the neighborhood is suitable for the living requirements of having sufficient green spaces within the neighborhood, and 98% agree on a sense of belonging to the neighborhood. The use of the principle of ring planning of roads and their wave design for pedestrians contributed to increasing the exercise of sport for 80% of the study sample.

4- Conclusions

Based on the results, the Form-Based Codes strengthened the residents' belonging to the place and increased their social cohesion. It was also noted that the use of pedestrian paths in the neighborhood increased social cohesion. These regulations set urban controls that respect pedestrians and provide a security element, which ultimately contributed to encouraging the majority of the neighborhood's population to practice walking within the neighborhood's boundaries.

The most prominent conclusions reached by the research can be summarized as follows:

1. The Form-Based Codes raised the quality of life in the cities in which they were applied in terms of social, economic, health and security aspects.
2. The Form-Based Codes have greatly reduced dependence on vehicles and increased walking for the population in a way that enhances the sustainability of the built environment.
3. The use of pedestrian paths in Tilal Al Riyadh neighborhood increased social cohesion, since it is the first meeting point among the neighborhood residents.
4. The Form-Based Codes contributed to setting urban controls that respect pedestrians and provide a security element that preserves the rights of pedestrians on the sidewalks, which encouraged the majority of the residents of Tilal Arriyadh neighborhood to practice walking.

5- Recommendations

Based on the results of this paper, the study recommends the following:

1. Strengthen the cooperation of the legislative bodies represented by the Ministry of Municipal and Rural Affairs and Housing and the General Real Estate Authority with real estate developers and the local community to reach an integrated development model for residential neighborhoods with the aim of raising the quality of life in residential neighborhoods.
2. Development of guidelines for real estate developers in developing residential neighborhoods in line with considerations of quality of life in Saudi cities within the framework of Vision 2030. The directives include a vision and strategic goals based on community participation, and include standards for developing lands and roads within residential neighborhoods, as well as rules for obligations for the developer towards the population and is controlled by legal controls approved by the legislative authorities.
3. Developing the current residential neighborhood regulations which are based on the principle of dividing land use and replacing it with modern legislative systems that focus on the human relationship with the urban space.

4. Rehabilitation of the transportation networks within residential neighborhoods in a manner that takes into account the gradation in the ranks of the streets and the provision of a pedestrian network separated from vehicle lanes.

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