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Extraction of Floor Session Area of Building Plots by Length Vector Additional Technique in Different Types of Zoning Building Organizations

Selim Taşkaya*

Artvin Vocational School Architecture and Urban Planning Department, Artvin, Turkey

Abstract

Zoning plans are the design work required for the correct use of space in terms of urbanization. While creating zoning plans, zoning islands are created together with various planning methods. Reconstruction islands are also named as having legends such as residence, subject + commercial, commercial, social areas, religious facility areas called places of worship, green areas. The important part is how the construction permit is given to the parcels that will coincide within these islands. This process is the zoning diameter. Zoning diameters are the drawings made on the ground according to different methods. In our study on how to give the zoning diameter to different types of zoning islands, it was aimed to add the lengths of the parcels, which we call length vector addition, with each other to provide appropriate distances into them in a perpendicular or parallel manner. It was examined how the zoning island would be given a diameter in terms of length according to the precedent and the amount of height processed in the plan.

Keywords:
Different types of zoning islands, length method, zoning diameter

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Introduction

Zoning Law, which is directly related to fundamental rights and freedoms, brings regulations in areas that are closely related to the society such as the right to property, the right to life and the freedom of settlement. If we look at it from a broad perspective, zoning law restricts some fundamental rights and freedoms, but in practice, its scope includes issues that require more expertise. As can be understood from the definition, all public and private public works activities are included in the areas regulated by the zoning law (Aslantaş et al., 2006). When we look at the legislation within the scope of the zoning law, we encounter a wide variety of laws. The first of

*Corresponding Author: Selim TAŞKAYA, E-mail: selim_taskaya@artvin.edu.tr

these is the Zoning Law No. 3194. In article 2 of the Zoning Law, the scope of the law is mentioned and it is stated that all buildings to be built within or outside the borders of the municipality and the adjacent area are subject to this law. The Municipal Law No. 5393 covers the municipalities according to art.1 and art.2, but also regulates their working procedures and principles, duties and authorities. Likewise, the Metropolitan Municipality Law No. 5216 covers metropolitan municipalities and aims to provide planned and efficient services by regulating the legal status of metropolitan municipalities. With the Soil Conservation and Land Use Law No. 5403 article 2, it covers the issues of arranging the land and soil resources in accordance with scientific principles and determining the measures for the protection of the land (Namlı Serin, 2017). Although the main purpose of planning is livable cities and therefore public benefit, the regulations to be made create some obligations and obligations not only for the institutions authorized to make this regulation, but also for the individuals (Onar, 2014). Planning, as a concept, is a way of thinking that is thought ahead from a certain moment; It is the sum of the studies aimed at examining the possibilities, possibilities, comparison activities, and establishing regular relations between individuals and their communities and their environment (Kalabalık, 2014). It is aimed to transform the master development plans into implementation plans of 1000 by local governments, and to implement the zoning and urban activities in line with the principles of honesty and compliance in the light of laws and regulations (Taşkaya, 2019a). Rapid urbanization has brought about unplanned development. This process has revealed an urban texture where social and technical equipment areas are insufficient, transportation planning cannot be made, and industrial facilities are intertwined with living and resting areas (Taşkaya, 2019b).

Materials and Method

In the material and method section, vector space, affine space, Euclidean space, Euclidean frame, Euclidean coordinate system, line and plane equations, two lines relative to each other, two planes relative to each other, lines and planes relative to each other, basic principles about line and plane. concepts are given (Akagündüz Başköy, 2021).

Description 2.1. (Vector Space): Let V be a non-empty set, on which we will call the vector addition and the product of the scalar (real numbers) is defined. Symbolically, vector addition and scalar multiplication operations (Figure 1; Figure 2), Let x y V be defined as x y V $\partial \in$ for $\in$ and rx V$\in$ for r R x V $\in \in$; that is, let the set V be closed for vector addition and scalar multiplication. If the following conditions are met, the set V is called a vector space on R (set of real numbers) (Yüce, 2017). That is, by adding end-to-end from the length vector, it can be closed, parallel, perpendicular, etc. truth will be obtained.

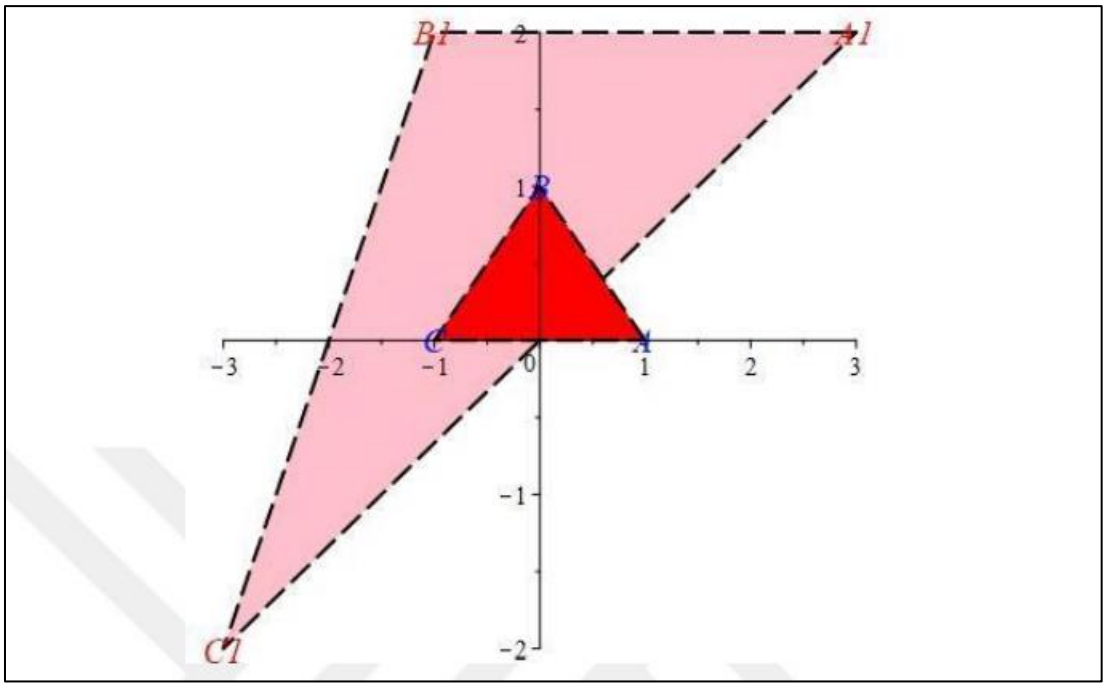

Figure 1. Area Scaling (Akagündüz Başköy, 2021)

In Figure 1, when shown graphically, triangle, square, rectangle etc. The method that occurs with the formation of convex fields is the length method in the form of a length vector.

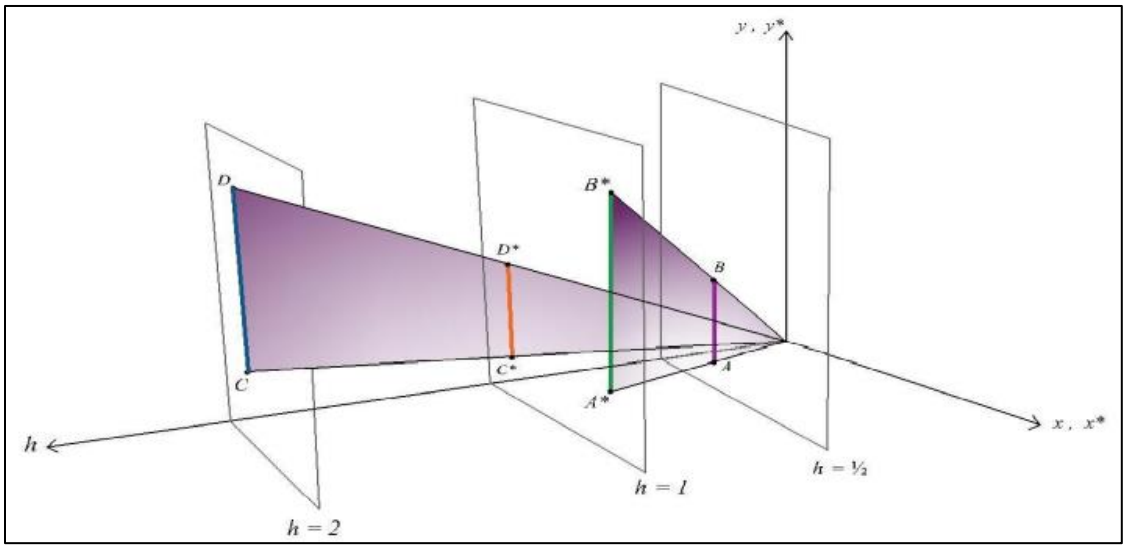

Figure 2. A geometric interpretation of general scaling (Akagündüz Başköy, 2021).

Homogeneous coordinates provide a convenient and efficient technique for mapping a set of points from one coordinate system to a corresponding set in an alternate coordinate system. Frequently, an infinite range in one coordinate system is matched with a finite range in an alternative coordinate system (Akagündüz Başköy, 2021). Parallel lines may not match parallel lines unless

pairings are carefully chosen. However, intersection points can be mapped to intersection points. This property is used to determine the homogeneous coordinate representation of a point at an infinite point (Applied, 1990; Adams & Gallier, 1999).

Results and Discussion

Regardless of the type of construction, residential, commercial, industrial, residential+trade or vineyard areas outside the zoning borders, or whatever will be done outside the zoning contiguous borders, the first step of the process is the zoning scale. Zoning diameter is the process of giving the drawing distances in accordance with the building regulation, in the national coordinate or local coordinate system, within the framework of the planned type or unplanned type areas regulation (Taskaya & Sesli, 2019). After the zoning diameter is given to a plot, the project phase is started. It is the basic initial zoning diameter for construction in a place (Taskaya & Taskaya, 2019a).

Zoning diameters are given in 3 main axes as separate, adjacent and in block order. If the front, depth and corner coordinates and the raw data obtained from the existing land correspond to where they correspond on the plan, the drawing distances are given according to the construction order of that plan (Taşkaya, 2019b). According to the mechanical results among these, shape changes, knot and vector analyzes can be examined and compared (Taşkaya, 2019a). The same structures with the same geometric shapes, different supports and different geometric shapes, the same structures were compared and examined (Taşkaya & Taşkaya, 2019b).

In Figure 3, the immovable is an island with a separate structure. The floor of the construction that can be done on this zoning island is maximum 3 floors, and the usage area at the base is 0.40 of the title deed area. This ratio is called the base utilization coefficient (TAKS). On the other hand, 1.20 means that the total precedent will be found by multiplying the coefficient of 0.40 in a 3-floor place. With the length technique, the front drawing distance was fixed at 5 meters in the planned type zoning regulation, since the parcel is a double-sided parcel, the zoning diameter is given in the middle by drawing 3 meters from the side garden.

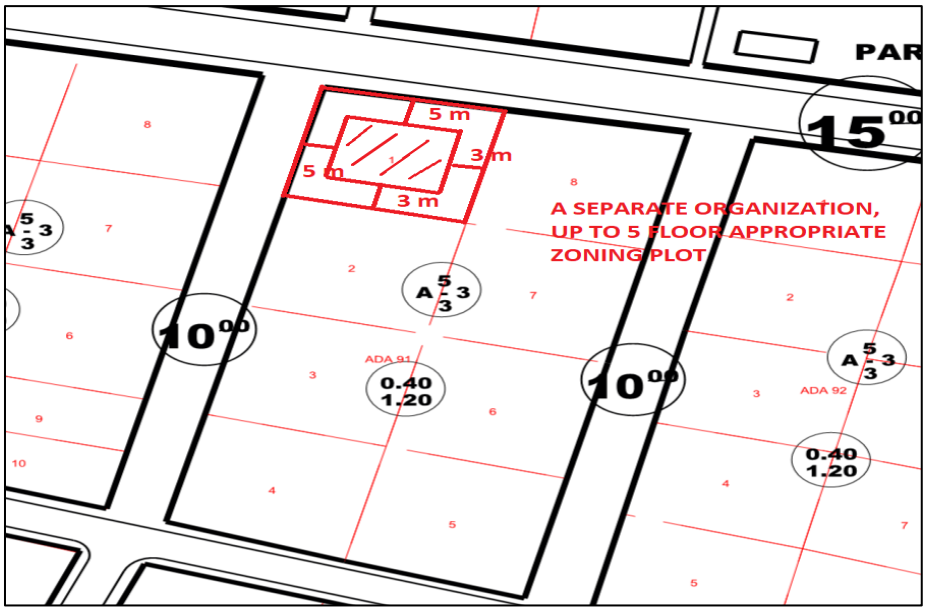

Figure 3. It is a residential area with a maximum of 3 floors and a building zoning island display

In Figure 4, the zoning island is a single parcel and an island. It has the legend of TİCK, which means that a building can be built in the form of shops and upper houses. The internal boundaries of the building floor sitting area were determined by drawing the front distance of 5 meters from one side of the 4 by adding the length technique from end to end. The total construction area is 2 times the title deed area and the maximum number of floors is allowed up to 8 floors.

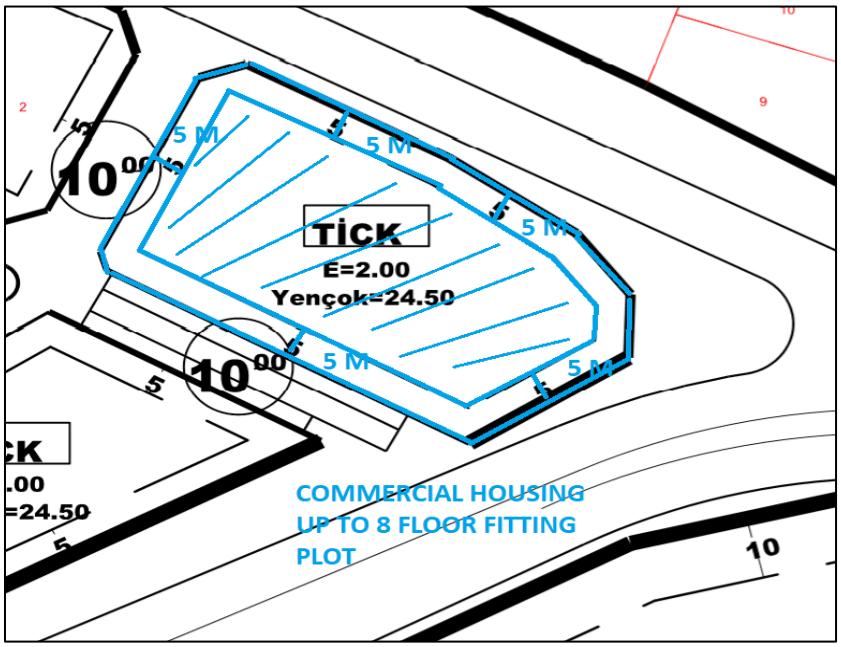

Figure 4. It is a commercial residential area, with a maximum 8 storey permission building zoning island display

In Figure 5, the relevant real estate is a parcel with a single side road border. Relevant zoning island residential area is allowed up to 5 floors apart. In places where the distance to the side garden is up to 4 floors, the floor sitting area is given by drawing a parallel line from the 3.5 meter length technique by increasing 3 meters by half a meter after 4 floors. The distance to the backyard is taken as 3 meters per flat, and the amount of the backyard is determined in parallel, by taking the distance of 7.75 meters, half, by adding the amount of eaves to 0.5 meters, by taking 15 meters on a 5-storey floor.

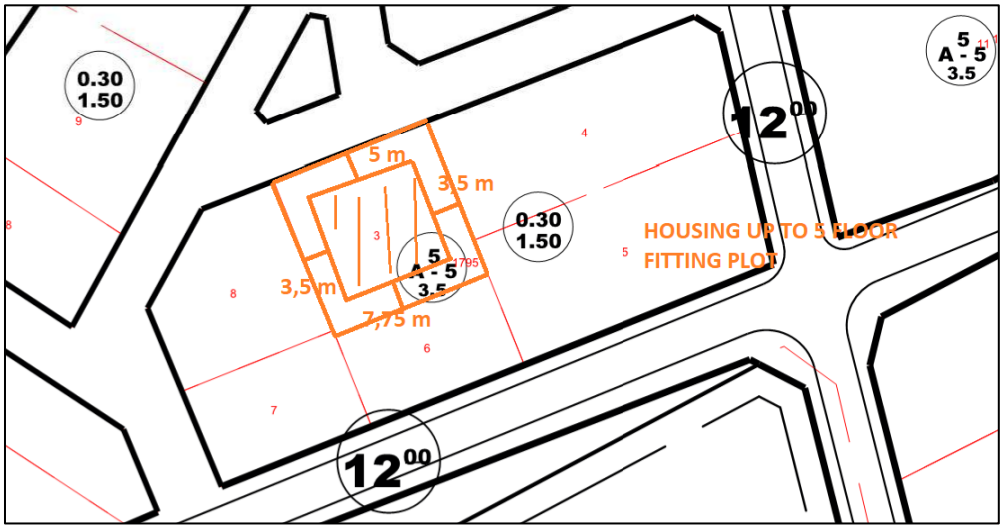

Figure 5. It is a residential area with a maximum of 5 floors and a building zoning island display

In Figure 6, the relevant immovable property is allowed up to 5 floors with 3 facades, and the seating limits of the building's residence area are determined by drawing 5 meters from the parts facing the road and 3.5 meters from the side garden. The floor utilization coefficient is 0.30, and the maximum use of the building floor is obtained by multiplying the title deed area by 0.30.

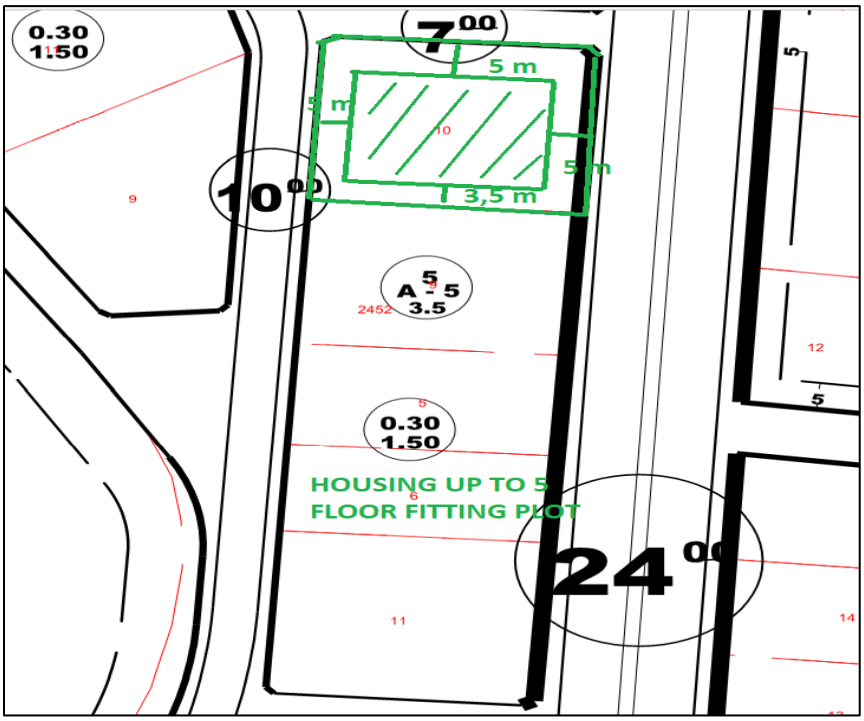

Figure 6. It is a residential area with a maximum of 5 floors and a building zoning island display

In Figure 7, the relevant real estate is allowed up to a maximum of 8 floors, the total construction area is 1.50 times the title deed area, and the front and side garden distances are drawn 5 meters each by adding a length vector in parallel, and the building base settlement area is determined.

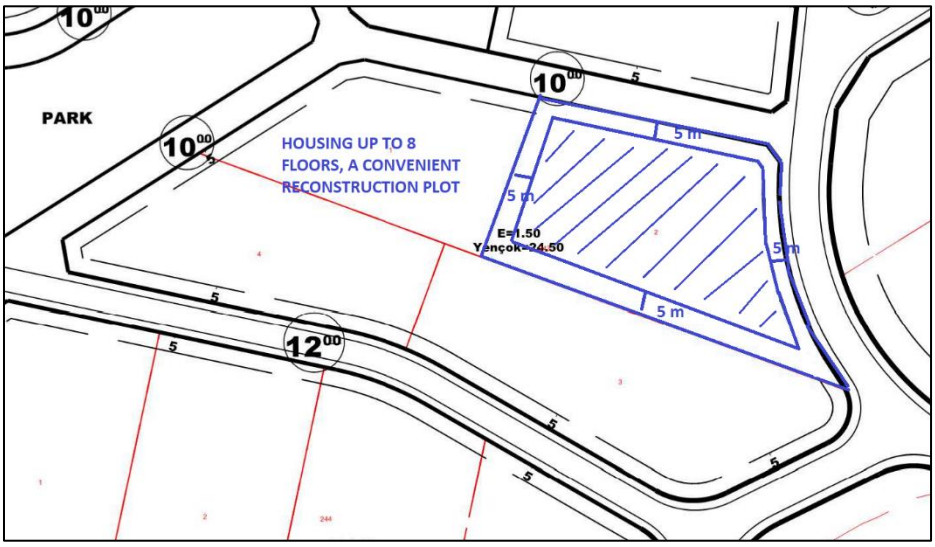

Figure 7. It is a residential area with a maximum of 8 floors allowed building zoning island display

In Figure 8, the relevant real estate is located on an island with a maximum of 8 floors, and since it is single-sided, it was drawn with a parallel length technique of 5 meters from only one part, 5 meters as the side garden is based on 8 floors, and the amount of backyard distance is the minimum rear towing distance. The interior boundaries of the building's sitting area were determined by drawing 3 meters, which is the first one. Since the total construction area has a coefficient of 1.50, it is 1.5 times the title deed area.

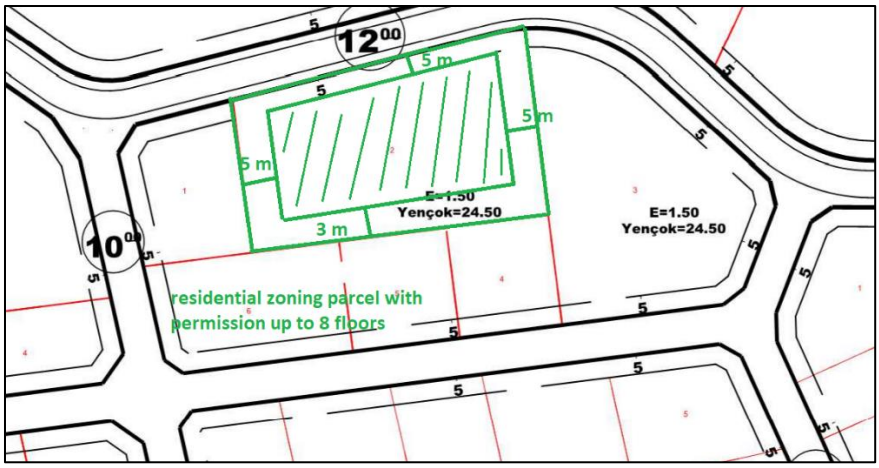

Figure 8. It is a residential area with a maximum of 8 floors allowed building zoning island display

In Figure 9, the relevant real estate is within the commercial + residential area. It is a parcel with a maximum of 8 floors, and the front and side garden distances are determined as 5 meters by drawing parallel.

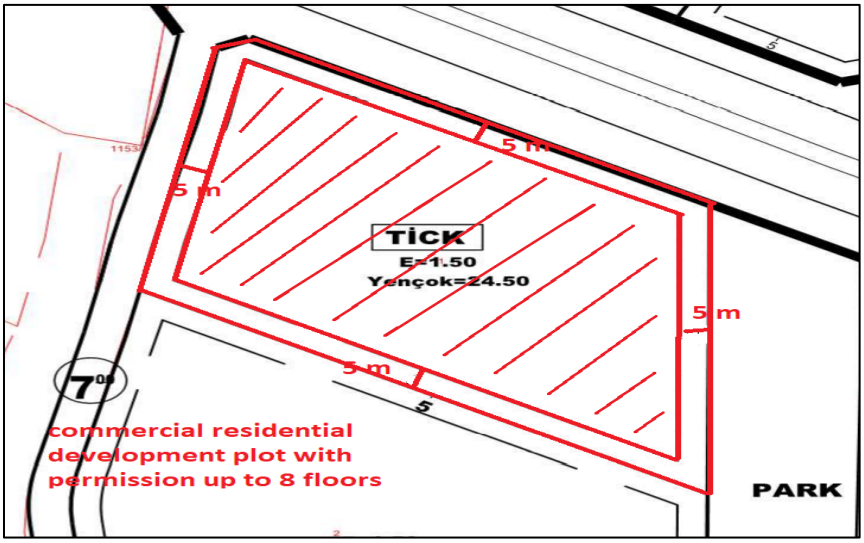

Figure 9. Building zoning island display, which is a commercial residence area with a maximum of 8 floors and a precedent of 1.50

In Figure 10, the relevant area is a permissible area up to a maximum of 9 floors. The sitting area of the building has been determined by drawing the front towing distance every meter and the side garden distance to 5.5 meters. The precedent is 1.80, with a maximum height of 27.50 meters.

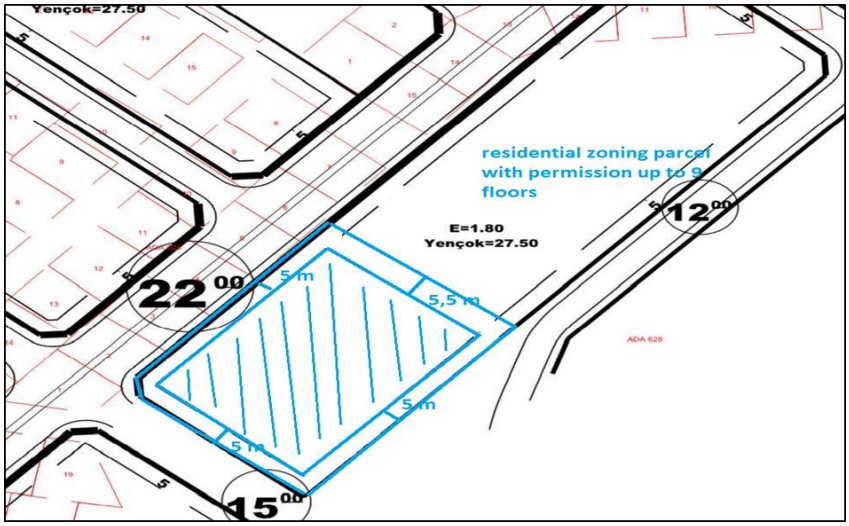

Figure 10. Building zoning island display, which is a residential area with a maximum of 9 floors and a precedent of 1.80

The immovable in Figure 11 is allowed up to 9 floors and its precedent is 2.75. The front garden distance is 5 meters, the side garden distance is 5.5 meters, and the building sitting area is given in the middle.

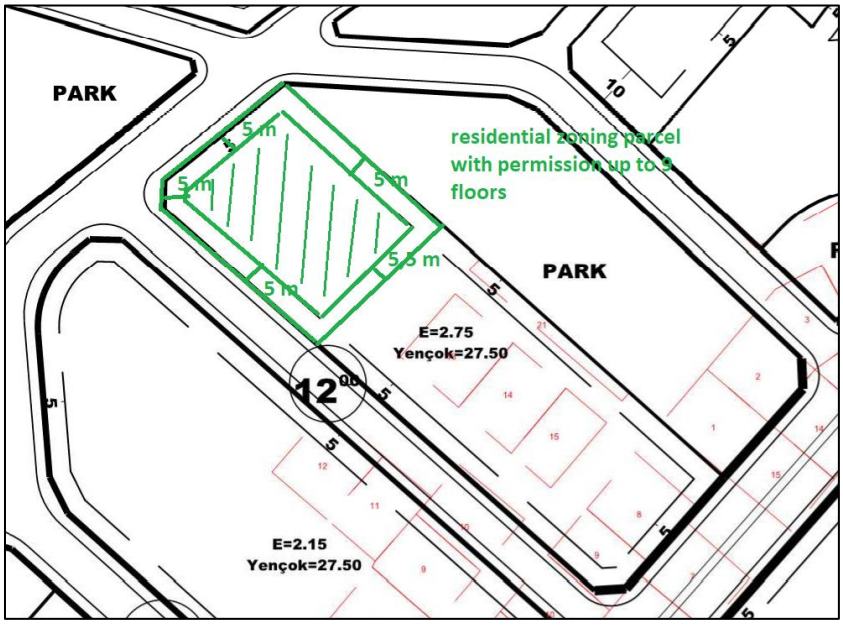

Figure 11. Building zoning island display, which is a residential area with a maximum of 9 floors and a precedent of 2.75

Figure 12 the relevant real estate is a zoning island and parcel with permission up to 8 floors located only in the residential area. Therefore, the interior boundary area of the building is given in the middle by drawing the front and side gardens by 5 meters with the length method.

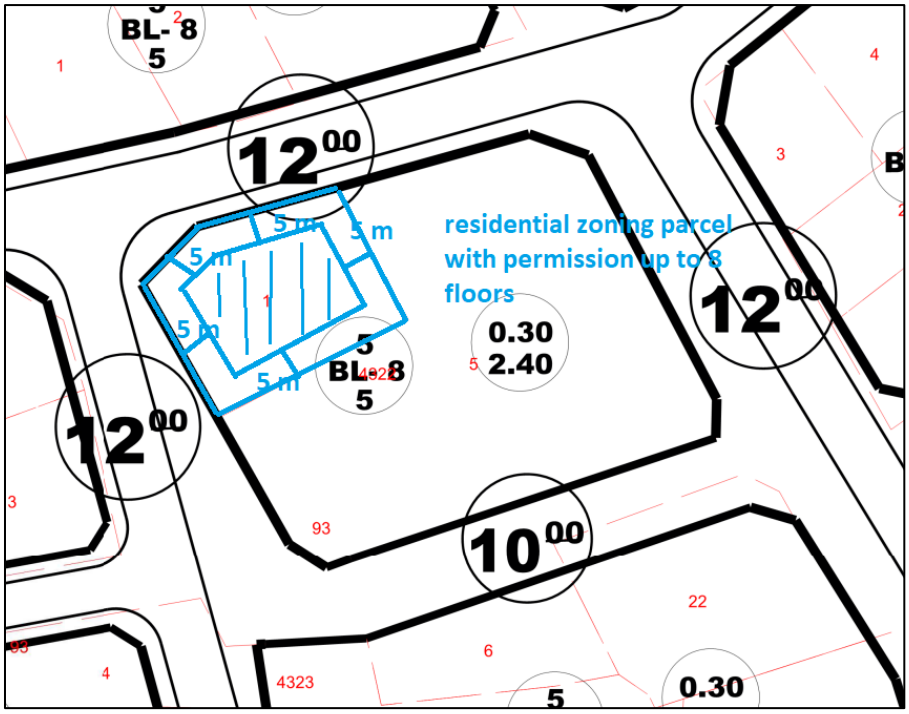

Figure 12. It is a residential area with a maximum of 8 floors allowed building zoning island display

In the zoning plans, the zoning boundaries should be determined and the islands should be designed in a way that can meet the needs of all people from residential to commercial and social areas. In these areas, the purpose is to determine the areas where the building will be placed. This area determination job depends on the amount of population living in residential areas, and the correct provision of distance in commercial areas. The precedent of religious facility areas created in line with the amount of population and the floor areas to be used depend on this. In the findings section, the necessity of giving the construction diameters visually indicated in terms of length in terms of convex geometry has been examined. In line with the planned type zoning regulation and plan notes, the application forms of the pulling distances are shown. Our suggestion, regardless of the area of the zoning diameter, whether the distance approach or the length addition technique, is to be formed in a way that will respond to the need by preventing the concrete from being concretized correctly.

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Author Contributions

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Data Availability Statement

Data usage is not based on any point.

Conflict of Interest

The authors declare that they have no competing interests.

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