Slovenia’s Construction Act and Implementation Plans: A Case Study of Izola IPA-8

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Abstract. The guidelines for urban design in Izola’s IPA-8 planning area, which is earmarked for hotels, apartment complexes, and sports, specify diverse forms of leisure living space required by modern society. The new tourist complex is not a large monotonous hotel complex, but rather a spatial arrangement in which guests experience an authentic local environment and city residents enjoy the new high-quality ambience. The hotel area is defined by three major communication axes from north to south, linking the countryside to the coastal area and opening up attractive sea views in the new complex. Internal east-west links connect buildings and public spaces. Because of the terraced terrain, a large number of paved ramps and internal public gardens have been designed between the structures. The extensions of the communication axes are laid out as squares, named based on the function of the public spaces. Hotel Street is the central axis and main connecting street, with public hotel services and restaurants. The west axis extends into Culture Square, where activities related to Izola’s culture and history are presented; here there is an opportunity to create new galleries, a small local museum, and an exhibition room. Apartment Square is located on the east communication axis, along which only a limited number of trade, catering, and service activities are planned. The plan received first prize in a public competition, and it later developed into detailed municipal spatial plan. In this process, it became clear that Slovenia’s Construction Act (ZGO-1) does not support plans to create terraced buildings.

1. Introduction
The Municipality of Izola is located in south-western Slovenia, on the Adriatic coast of the Istrian Peninsula. It is a medium-sized municipality with a population of almost 15,900 and is one of the three municipalities on the Slovenian coast. The municipal seat is the town of Izola, which is known for its fishing heritage [1]. Today it has many hotels near the sea, art galleries, summer concerts, street performances, and a movie festival. The southwest waterfront has been intensively rebuilt over the last twenty years, including construction of a marina. Seaside resort tourism has been gaining increasing importance since independence in 1991 [2].

A competition was opened in 2007 to gather urban design solutions for areas IPA-7 (a sports park) and IPA-8 (an area south of Tomažič Street) in Izola. The competition was launched to obtain and evaluate the best design solution, based on which a detailed spatial municipal plan for the two internal areas within planning unit T 1/1 would be prepared. IPA-7 is the sports park between the pedestrian path on the waterfront to the north, the Delfin hotel complex to the east, Tomažič Street to the south, and Rikorvo Creek to the west. IPA-8 is an area that comprises a triangle bounded to the north by
Tomažič Street, to the west by the road to San Simon, and to the southwest by Moro Street. To the north it borders the sports park and Delfin resort, and to the southeast individual housing.

The proposal shown in the figure 1 received first prize for the planning area IPA-8 [3]. The guidelines of the awarded urban design proposal, which is earmarked for hotels, apartment complexes, and sports, specify diverse forms of leisure living space required by modern society. The new tourist complex is not a large monotonous hotel complex, but rather a spatial arrangement in which guests experience an authentic local environment and city residents enjoy the new high-quality ambience. The hotel area is defined by three major communication axes from north to south, linking the countryside to the coastal area and opening up attractive sea views in the new complex. Internal east-west links connect buildings and public spaces. Because of the terraced terrain, a large number of paved ramps and internal public gardens have been designed between the structures. The extensions of the communication axes are laid out as squares, named based on the function of the public spaces. Hotel Street is the central axis and main connecting street, with public hotel services and restaurants. The west axis extends into Culture Square, where activities related to Izola’s culture and history are presented; here there is an opportunity to create new galleries, a small local museum, and an exhibition room. Apartment Square is located on the east communication axis, along which only a limited number of trade, catering, and service activities are planned.

Figure 1. Public competition proposal for area IPA-8, which received first prize (by Lučka Ažman Momirski, Miha Bukovec, Nac Žuber, and Gašper Kociper)

Unlike the old town, which is marked by a tight and closed urban fabric [4], the new part of the town is designed as a system of long, narrow, parallel, fan-like buildings oriented toward the sea. The floor levels are G + 2 (ground floor and two upper stories) at the periphery of the area, and G + 3
(ground floor and three upper stories) in the middle of the area. Following the procedure, the plan was developed into a detailed municipal spatial plan after its competition, but with many changes. Hypotheses suggest that not all of the changes were necessary and that they could have been avoided if the legislation had offered greater support for terraced buildings and terraced terrain next to them.

2. Methodology
The answers to the research question are studied by analytically dismantling the proposal and its parts as well as the implementation plans and its parts. Two points are decisive for the analytical work:

- When transforming the competition plan into the implementation plan, the Construction Act of Slovenia (ZGO-1) [5] must be followed. The act defines the ground floor as the part of the building where the rooms are located directly above the ground or no more than 1.40 meters above it.
- The basic guidelines for the area are set out in the spatial plan of the area [6], which also defines the maximum height conditions for new buildings. The spatial plan states that the new urban pattern should follow the existing terrain configuration, which is a slope, and should offer views of the waterfront and main streets (which was respected in the competition proposal). The maximum height of the new buildings is G + 2 (ground floor and two upper stories) for the first set of buildings along Dante Street and Tomažič Street, and G + 3 (ground floor and three upper stories) for the intermediate structure. The ground floor level is considered the level of the existing terrain.

3. Results and discussion
The competition plan proposed seven buildings from west to east indicated as buildings A, B, C, D, E, F, and G (figures 2 and 4). The buildings are connected to each other at the level of the garage. Compared to the competition proposal, the layout of the buildings has slightly modified the course of the north–south direction. The orthogonal edge of the buildings at Tomažič Street, where the regulation allows the arrangement of Mediterranean Street with all of its characteristic public space attributes, is preserved. In the southern part, the building fronts are partially adapted to the course of the streets. Some buildings such as building C are much lower than in the competition proposal because of the developer’s demands.

The terraced terrain, where public gardens are located, was kept as designed in the competition, although the height of the terraces and terrace slopes are higher than in the original proposal. The terraces in competition proposal were 1.50 m high and in the implementation plans 2.15 m high. The basic idea of the soft passages of public gardens descending from Moro Street to Tomažič Street is therefore downgraded because individual terraces are spatially more separated (figure 3). According to the provisions of the Construction Act of Slovenia (ZGO-1) the design of the terrain, in this case the terraced slope, also defines the ground floor of the building. Individual buildings had to be divided into five parts or five buildings. Instead of elaborating one building, the plan separately elaborated buildings A1, A2, A3, A4, and A5; and, instead of working on each of the seven planned buildings as a whole in the implementation document, next to which the terraced slope changes, each building’s strip had to be artificially split into several parts. The separation was not justified by the function, design, or anything else, but only by the provisions of the Construction Act of Slovenia (ZGO-1) regarding the definition of what the ground floor of the building is. Strict implementation of the provisions also affected the design of the terrain and terrace slopes. Cross section D-D in the competition proposal and cross section J-J in the implementation plan (figure 3) show the changes between the two plans. The sections are not exactly in the same plan position, but differences in the shape of the terrain between the two cross sections can be observed.
Figure 2. Plan of the proposed seven buildings from the west (starting with building A at the left) to the east (ending with building G at the right) with marked cross sections for elaboration and highlighted cross section J-J, shown in figure 3.

Figure 3. Cross section D-D in the competition proposal (above) and cross section J-J in the implementation plan (below).
An even greater problem was the location of the central axis and main connecting street: Hotel Street and Hotel Square. The initial design extended the level of Tomazic Street as much as possible into the main square of the new structure. Monumental staircases connected the level of Hotel Square with Moro Street. In the opposite direction at the top of the staircase, the space of Hotel Square opened in the form of a funnel towards the sea. However, the problem was that buildings C and D adjacent to Hotel Street and Hotel Square had their ground floor at a level of 7.20 m; the same buildings adjacent to the public gardens had a ground floor at a level of 9.35 m (10.20 m) and 11.50 m (table 1). To solve this problem in line with the Construction Act of Slovenia (ZGO-1), Hotel Street and Hotel Square had to be redesigned as a slope connecting the lower and higher street (figure 5).

Table 1. Number of floors of separate parts of buildings and adjacent terrain elevation.

| Building Area | A | B | C | D | E | F | G |
|---------------|---|---|---|---|---|---|---|
| Floors m     | m | m | m | m | m | m | m |
| 1             | G+2 | 7.20 | G+2 | 7.20 | G+2 | 7.20 | G+2 | 7.20 | G+2 | 7.20 |
| 2             | G+3 | 7.20 | G+3 | 7.20 | G+3 | 7.20 | G+3 | 7.20 | G+3 | 7.20 |
| 3             | G+3 | 9.35 | G+3 | 11.50 | G+3 | 10.20 | G+3 | 9.35 | G+3 | 9.35 | G+3 | 9.35 |
| 4             | G+3 | 11.50 | G+3 | 11.50 | G+2 | 11.50 | G+3 | 11.50 | G+3 | 11.50 |
| 5             | G+2 | 12.00 | G+2 | 12.60 | G+3 | 13.10 | G+3 | 13.10 | G+3 | 12.60 |

The relevance of the research question is also confirmed by interpretative answers regarding the Construction Act of Slovenia (ZGO-1) on the website of the Ministry of the Environment and Spatial Planning of the Republic of Slovenia [7]. There are two questions in the category Definition of Building Elements. The first one addresses the significance of the correct height of the ground floor of a building on steep terrain: is that the height of the building or the height of the land on which the building will be built? The first part of the answer repeats the definition from the Construction Act of Slovenia (ZGO-1) that the ground floor is the part of the building where the rooms are located directly above the ground, or no more than 1.40 meters above it. The second part of the answer introduces standard SIST ISO 6707-1, which in section 4.8 indicates that the function of the ground floor is the point of the main entrance into the building on the level or close to the level of the ground floor. To determine the ground floor, it is essential to define where the main entrances and access into the building are from the slope without major elevation changes. The second question refers to the interpretation of what can be called a “completely dug basement”: does this also apply to a basement that has an entrance/exit through a cut in the terrain? Article 2 of the Construction Act of Slovenia (ZGO-1) in Section 1.1.3 provides the answer that the basement is the part of the building located below the ground floor. The definition of a “dug basement” is not determined in the regulations, and the Slovenian translation of SIST ISO 6707-1 defines the basement as the useful part of the building that is partly or wholly below ground level. The explanation continues that when defining the ground floor it is necessary to take into account the definition of the Construction Act of Slovenia (ZGO-1) and from SIST ISO 6707-1. However, in this relation the definition of the Construction Act of Slovenia (ZGO-1) actually prevails because it is more detailed.

The second criterion that conditioned not only the division of the buildings into five parts, but also the division of area IPA-8 into five parts, was the basic guidelines for the area set out in the spatial plan of the area, which define the maximum height of the new buildings. The terraced design of the terrain conditions the division of the area into five units: areas 1, 2, 3, 4, and 5. Due to the different lengths and folded strips of buildings, not all of the buildings are a part of all areas. Areas 3 and 4 for buildings C, D, and F are joined into area 3, and area 5 is defined as area 4. Following this kind of display of areas and buildings, the maximum height of the new buildings became clear (table 2).
Figure 4. Plan of the seven proposed buildings from the west (starting with building A at the left) to the east (ending with building G at the right) with marked cross sections for elaboration and highlighted cross section G-G, shown in figure 5.

Figure 5. Cross section C-C in the competition proposal (above) and cross section G-G in the implementation plan (below).
However, following the spatial plan of the area, the ground floor level should be at the level of the existing terrain. The competition plan was deepened in the terrain squares and streets. The building heights followed the regulations and there were more stories to be built, which is a wish of every developer.

Because it was necessary to change the height of the terrain to satisfy the definition of the ground floor in the Construction Act of Slovenia (ZGO-1), the vertical dimensions compared to the competition solution also changed in parallel. At the same time, it was not taken into account that some of the floors inside the building were publicly accessible and public areas open on all sides, which contributes to the quality of the space and its use. Consequently, the design of public floor areas inside the buildings and the construction of luxury apartments (i.e., suites) were amended and abolished. The external appearance of the new building complex was substantially transformed when compared to the competition proposal and did not provide the same quality solutions as the competition proposal. If the legislation had been more supportive of integrated solutions [8], these changes would not have been necessary and could have been avoided.

| Building | Area | Floors | m | Floors | m | Floors | m | Floors | m | Floors | m |
|----------|------|--------|---|--------|---|--------|---|--------|---|--------|---|
| 1        | G + 2 | 17.70  |   | G + 2  | 17.70 | G + 2  | 17.70 | G + 2  | 17.70 | G + 2  | 17.70 |
| 2        | G + 3  | 20.70  |   | G + 3  | 20.70 | G + 3  | 20.70 | G + 3  | 20.70 | G + 3  | 20.70 |
| 3        | G + 3  | 22.85  |   | G + 3  | 22.85 | G + 3  | 23.70 | G + 3  | 23.70 | G + 3  | 22.85 |
| 4        | G + 3  | 25.00  |   | G + 3  | 25.00 | G + 2  | 22.00 | G + 3  | 25.00 | G + 3  | 25.00 |
| 5        | G + 2  | 22.00  |   | G + 2  | 22.00 | G + 3  | 26.60 | G + 3  | 25.00 |

4. Conclusions
In Slovenia the volume of constantly changing legislation is too extensive and is difficult to handle, both in environmental protection as well as in spatial planning and design (each area is covered by about seven hundred regulations). Clarity of the legislative framework is the foundation for successful administrative work by spatial departments and successful protection of developers [9]. These issues have been discussed many times. There is little or almost no discussion about issues of specific requirements for design, such as the definition of a ground floor in the Construction Act of Slovenia (ZGO-1) discussed here. This definition may be effective for designing buildings that are not very complex in the implementing documents. However, in the case study presented it became clear that Slovenia’s Construction Act (ZGO-1) does not support more comprehensive projects, such as the design of terraced buildings.

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