

Evaluating the Spatial and Functional Characteristics of Existing Spa Hotels - Case Study of Serbian Spas

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Abstract: Until recently, the capacities of spa hotels were primarily used for curative treatment and rehabilitation of the sick and injured. Such spa hotels do not meet the needs of today's extremely diverse customers. The continuous rise in the number and type of guests has conditioned their transformation, turning them into destinations adapted to the different groups of tourists they serve. Unlike buildings built during previous eras, contemporary spa hotels no longer represent simple accommodation facilities in the close proximity of public baths, but rather complex structures that offer a whole range of different contents under one roof. As a result of the previously described changes in tourism the majority of existing spa hotels built in the middle of the last century do not meet modern standards. The goal of this research is to determine the level of compliance of the spatial and functional characteristics of the existing spa hotels with the current planning and design regulations related to hotel buildings. Based on the analysis of current domestic regulations, a universally applicable system for evaluation of spatial and functional characteristics of spa hotels is defined and used for comparative analysis of the existing hotels and current regulations.

Keywords: evaluation; hotel architecture; regulations; renovation; spa hotel

1 INTRODUCTION

A spa hotel is a hotel located in an area in which scientifically approved deposits of therapeutic substances may be used (spas) and in which the necessary wellness & spa facilities exist, with the primary purpose of providing individual services and treatments, with a focus on health [1-3]. Before, the majority of spa guests were mostly members of the older and wealthier part of the population that travelled almost exclusively due to health issues, while today spa centres are available to different social categories and the reasons for traveling are diverse. Along with the rise of spa tourism in the world, more attention is being paid to the architecture of spa hotels. Until recently, the capacities of spa hotels were primarily used for curative treatment and rehabilitation of the sick and injured. Such spa hotels do not meet the needs of today's extremely diverse customers. The continuous rise in the number and type of guests has caused their transformation, turning them into destinations adapted to the different groups of tourists they serve. Unlike buildings built during previous eras, contemporary spa hotels no longer represent simple accommodation facilities in the close proximity of public baths, but rather complex structures that offer a whole range of different contents under one roof [4]. As a result of the previously described changes in tourism the majority of existing spa hotels built in the middle of the last century do not meet modern standards. The problem of devastation and functional obsolescence of existing hotels, caused by decades of neglect and the lack of continuous adaptation of facilities to modern needs, has created an evident discrepancy between the current possibilities and new requirements.

From 1975 to 2015, the number of tourists in Serbian spas increased by 12%. However, the largest number of tourists in Serbian spas is recorded in 1980's. The large fluctuations of the number of tourists distinctive for mentioned period are the consequence of a number of socio-political circumstances in the country. This refers especially to the 1990s during which primarily war, political and economic events have had negative effects on tourism in general, and consequently on a severe decline in

the tourist traffic in the spas of Serbia. Thus, in 2005 the total number of tourist visits in spas was about 63% of the one realized in 1985 [5]. In the past decade, tourism in Serbia has been experiencing recovery and accordingly the number of tourists visiting spas is gradually increasing., Data on the number of tourists visiting spas in the past 10 years show a steady growth that was briefly disrupted by the recent pandemic (Fig. 1). However, this positive trend is followed by two negative trends. Notwithstanding the increase in the number of tourists, spa tourism has a decreasing share in total tourism because other locations (primarily big cities, but also mountain destinations) are recording a greater increase in the number of visitors. Despite the large number of registered spas on the territory of Serbia, more than half of the recorded overnight stays were made in only two spas - Vrnjačka and Sokobanja. This leads to a conclusion that other spas are still not used to their full potential. In order to determine the full potential of these spas and their utilization, a careful evaluation of their current state and tourism potential is necessary. To achieve this, it is important to evaluate the existing accommodation facilities in these spas.

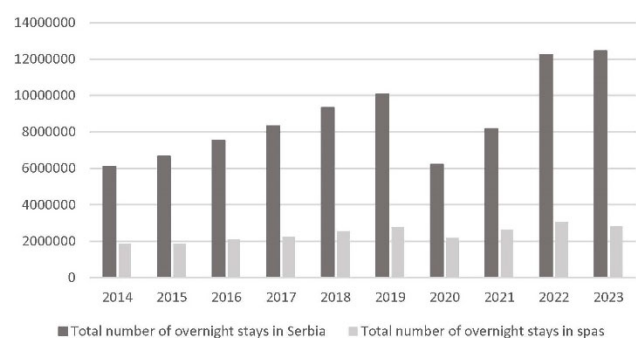


Figure 1 Number of tourists in Serbia from 2014-2023

Spa hotels and their contemporary way of operating are the subject of numerous researches. Various authors investigated different segments of this area, including business models and growth [6, 7], hospitality and tourism terminology [8], elements that affect the choice and impression of guests [9-14], as well as the architecture of

these buildings. Topics of the previous research regarding the hotel architecture are: different hotel zones - lobby [15, 16], hotel rooms [17], wellness area [18] servicescape [19]; types and methodology of applied design [20-22] or even a new type of hotels [23]. When it comes to the literature related to interventions on existing buildings, the most common topics are the reconstruction with a change of function where buildings of some other purpose are converted into hotels [24-26] and the reconstruction as part of the process of urban revitalization [27]. However, the problem of reconstruction of existing hotels aimed at improving their spatial and functional characteristics is not often discussed.

The Republic of Serbia has legally recognized and registered more than 30 spas on its territory, and the majority of their hotel capacities is older than 50 years and have rarely been renovated and updated. The purpose of this research is:

- The analysis of the current planning and design regulations related to hotel buildings;
- Developing a universally applicable system of parameters for evaluation of spatial and functional characteristics;
- The comparative analysis of the existing spa hotels and current regulations;
- Determining the level of compliance of spatial and functional capacities of the existing spa hotels with the regulations.

The goal of this research is to indicate deficiencies of the spatial and functional layouts of existing spa hotels. The data obtained in this study can serve as a theoretical framework for formulating models for eliminating indicated deficiencies through the process of renovation of existing spa hotels.

2 PRELIMINARY RESEARCH - THEORETICAL FRAMEWORK

2.1 Current Domestic Regulation Review

The current domestic regulation that refers to hospitality facilities, including spa hotels, relates to three different aspects of their architecture: spatial comfort, safety and accessibility. Within each of the mentioned areas, there are several documents related to different segments of that area. These documents regulate very different elements of the architectural design, construction and operation of hotels. For the purposes of the research, only parameters related to the spatial and functional characteristics of hotel buildings were selected.

Spatial comfort in hotel facilities is defined by the rulebook on the categorization of hospitality facilities for accommodation [28] and the rulebook on minimum technical conditions for hospitality facilities [29]. The range of elements covered by these documents is very wide, as they define: classification and categorization of hospitality and catering facilities, conditions and way of performing activities, way of providing catering services, minimum technical conditions for arranging and equipping catering facilities, etc. Main spatial relations and requirements investigated in this research are: car parking spaces, main building entrances along with the reception areas, elevators, public facilities along with the public toilets, and the guestroom floor. The previous rulebook in

this area [30] contained a parameter related to the minimum area of bathrooms in hotel rooms. Hence, the research includes this parameter even though the current rulebook does not prescribe the minimum area of the guest bathroom. The research also examined which spa hotels have balconies as a part of their guestrooms. They are not a mandatory requirement, but are a desirable feature in the case of tourist hotels.

The aspect of **safety** in the current regulation primarily refers to the field of fire protection. This area is regulated by the Law on fire protection [31] and numerous rulebooks. The following areas are regulated by separate rulebooks:

- Fire protection of residential, commercial and public buildings [32];
- Fire protection of catering facilities [33];
- Fire protection of tall buildings [34];
- Fire protection of garages [35].

The research examines the requirements that appear in the first two rulebooks. None of the analyzed hotels classifies as a tall building or has an underground garage for cars, therefore the requirements included in these rulebooks are not examined in this research.

Accessibility is the result of the application of technical standards in the planning, design and construction of buildings and public areas, by means of which all users, regardless of their physical, sensory and intellectual characteristics, are ensured unhindered access, movement, and use of services. These standards are formulated within the rulebook [36] as "mandatory elements of accessibility", and define technical measures that determine the size, properties, installations, devices and other equipment within buildings, all with the aim of unhindered movement and access for people with disabilities, children and the elderly. The rulebook is divided into three sections that deal with three different types of accessibility elements. From the first part of the rulebook, the parameters related to the physical characteristics of elements for overcoming height differences, namely ramps, stairs and elevators have been included in the research. From the section on movement in buildings, the parameters related to the dimensions of the entrance part and horizontal communications, as well as public toilets, have been singled out and investigated. Finally, from the last part of the rulebook, the fewest parameters have been covered in the research, and they refer exclusively to the parking area of the hotel complex.

2.2 Updating Existing Hotels - Types of Renovation

As highly functional, commercially-driven buildings, hotels should be permanently renovated in order to avoid the functional obsolescence and to convey a sense of being modern and up-to-date. There are many different factors that explain the role played by renovation in the success of hotels. Renovation work and refurbishing are necessary for the financial health of hotels and, each year, more money is spent on these activities than for the construction of new hotels (Tab. 1) [37].

There are few attempts in the literature to classify different types of renovation [38-40], and in all of them there is a classification into three basic types: minor, major, and master renovations.

Table 1 Renovation cycle of existing hotels [37]

Stage	Cost/Room	Scope
6-year refurbishment	6000-15000 \$	Replace carpets, fabrics, vinyl wall covering, repaint
12-year refurbishment	25000-45000 \$	Repeat above plus upgrade systems and equipment
50-year refurbishment	> 60000 \$	Repeat above plus change functions, circulations, etc.; consider exterior renovation

Minor renovations are interventions that arise due to the need for regular maintenance. These interventions include replacement or renewal of some non-durable furnishings and finishes without changing the space's use or physical layout in order to maintain the hotel image. About every five years there is the need to replace worn-out soft goods, such as wall coverings, carpets, and drapery. Case goods, including beds, furniture, and some equipment, require replacement every 10 years. Even before materials have become worn, the owners find it necessary to make changes that would be appreciated by their guests [41].

Major renovations include replacement or renewal of all furnishings, equipment and finishes within a space, in order to improve the hotel image, which may require extensive modifications of the physical layout of the space. A common reason for major renovation is the need to comply with new regulations or even reflagging of a hotel. These interventions usually require alterations to meet new rigorous regulations, which might include new bathroom configurations, additional public spaces, or upgraded back of house area to facilitate a new level of guest services. Major renovations may be required in order to expand the capacity of the hotel or to include some new amenities. Hotels are frequently altering existing spaces, such as enlarging a successful restaurant, adding an exercise facility or business centre, or converting an underutilized nightclub to another use. In cases where there is no available space, owners might consider constructing an addition to the existing hotel. These additions allow hotels to meet changing demands and increase profits. The need for supplementary guestrooms, a conference facility, fitness centre, or countless other items can be met by additional construction [37].

Master renovations involve the complete overhaul of an existing hotel or the conversion of another building type for use as a hotel. Ronstedt and Frey stated that a hotel older than 30 years, where only the carpet floors, furniture

and paintwork have been renovated, often only remains useful as a building shell. It has to be fundamentally refurbished and cannot simply be renovated anymore [41]. After 30 years, it is often the case that floor plans do not suit contemporary requirements anymore - that the rooms have become too small, and the back of the house zone is too large. The main factors favouring total renovation over new construction are savings in construction expenses, the lack of prime and spacious sites, time savings, and continuing appreciation for historic architecture by the public [37].

3 THE COMPARATIVE ANALYSIS OF THE EXISTING HOTELS AND CURRENT REGULATION

Establishing the research sample. The basic requirements that an area must fulfil in order to acquire the status of a spa in the Republic of Serbia are regulated by the Law on spas [42]. On the territory of Serbia, there are nearly 50 places that have or had the status of a spa. The research sample includes hotels located in these places - a total of 5 hotels in 4 different spas (Tab. 2). The hotels in the research sample are selected based on these criteria:

- All hotels are older than 30 years;
- All hotels have been out of use for more than 10 years and are not in the process of renovation;
- All hotels have similar size, capacity, spatial-functional organization, and amenities;
- None of the hotels had interventions that altered their spatial concept in the last 30 years (only the Partizan hotel had a reconstruction during which one new floor was added in exactly the same size as existing).

The analyzed structures are illustrative representatives of hotel architecture built during the second half of the previous century, the period from which the vast majority of spa hotels in Serbia originate (Fig. 2).

Table 2 Spa hotels included in this research

Hotel	Location	Construction Year	Capacity
Ozren	Niška banja	1954.	71 rooms 126 beds
Partizan	Niška banja	1935. Rec. 1985.	50 rooms 87 beds
Mir	Zvonačka banja	1988.	56 rooms 92 beds
Kiseljak	Palanački kiseljak	1976.	60 rooms 120 beds
Gučevo	Banja Koviljača	1967.	87 rooms 141 beds

**Figure 2** Photographies of the current state: a) hotel Partizan, Niškanbanja; b) hotel Ozren, Niška banja; c) Hotel Gučevo, Banja Koviljača

More than half of the abandoned spa hotels in Serbia are included in the research. There are two more hotels that

meet the initial conditions, the Zdravljak hotel in Sokobanja and the Ljig hotel in Ljig, as well as the hotel

building in Jošanička banja which was completed but never used. However, there is no adequate archival documentation for these hotels.

3.1 Spatial Comfort Analysis

All analyzed hotels share the same problem - insufficient car parking space (Tab. 3). They all have above-ground parking spaces next to the building or in the relative proximity, with a very small capacity in relation to their number of guestrooms.

Table 3 Spatial comfort analysis results

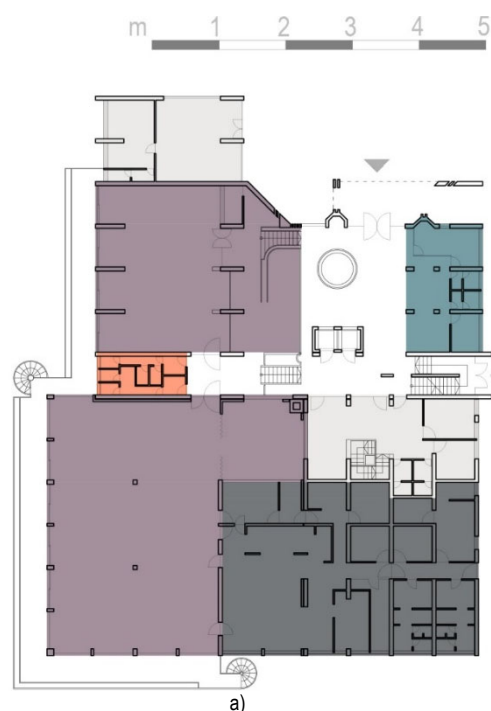
Spatial comfort parameters (from the regulations)	Hotel				
	Ozren	Partizan	Mir	Kiseljak	Gučevo
Car parking space (CPS)					
Underground CPS as a part of the building	-	-	-	-	-
Ground level CPS next to building	+	+	+	-	+
CPS separated from building, but removed more than 300 m	-	-	-	+	-
Car parking spaces per room ratio	<1:5	<1:5	<1:5	<1:5	<1:5
Main entrance (ME)					
ME separated from staff and delivery entrance	+	+	+	+	-
ME with a canopy and vestibule	+	+	+	+	+
Covered driveway access to the main entrance – for cars	-	-	-	-	-
Covered driveway access to the main entrance – for busses	-	-	-	-	-
Separated entrance for luggage	-	-	-	-	-
Reception area (RA)					
RA is integrated into main entrance lobby	+	+	+	+	+
RA is independent room, separated from main entrance lobby	-	-	-	-	-
Elevators					
Guest elevator	+	+	+	-	-
Additional guest elevator	+	-	+	-	-
Staff elevator	-	+	-	-	-
Freight elevator	-	-	-	-	-
No elevator	-	-	-	+	+
Public facilities					
Catering facilities	-	Cafe	Res.	Res.	Cafe
Capacity	-	65	140	116	30
m ² per seat	-	1,6	1,7	1,56	1,51
Other facilities	CH	Shop	Bar Shop	-	-
Legend					
Res.	Restaurant				
CH	Conference hall				
Public toilets					
Toilet cabins (C) and urinals (U)	2C 2C	1C 2C+2U	3C 2C+2U	2C 2C	1C 1C+3U
Maximum number of users	170	80	170	170	80
Guestroom floors					
Single rooms - size (m ²) and category (n*)	10,50 1*	11,97 1*	13,65 2*	11,55 1*	10,47 1*

Bathroom size / m ²	2,17	2,72	2,76	2,95	1,90
Guestroom terrace	+	-	+	-	-
Double rooms - size (m ²) and category (n*)	88%	45%	15,84 1*	/	15,82 1*
	16,5 2*	15,46 1*			
	12%	55%			
	27,56 5*	17,02 2*			
Bathroom size / m ²	2,75	2,72	2,31	/	2,09
Guestroom terrace	+	-	+	-	-
Studio/Apartment - size (m ²) and category (n*)	/	27,43 5*	/	/	30,39 2*
Bathrooms / m ²	/	6,50	/	/	/
Guestroom terrace	/	-	/	-	-

Furthermore, none of the hotels have covered driveway access to the main entrance. Only the Mir hotel has a driveway access, but it is not covered by the canopy or some similar architectural element. However, all buildings have covered entrances with vestibules and a reception area integrated into the main hall, while only in the case of the Gučevo hotel there is no separate staff and delivery entrance.

In hotels Gučevo and Kiseljak there are no elevators and access to upper floors is possible only by stairs. Only the Partizan hotel has a separate staff elevator, while in other hotels there are only guest elevators.

Only two of the analyzed hotels have more than one public facility. The Ozren Hotel does not have catering facilities, its guests ate in neighbouring facilities, but it has one conference hall. Hotels Partizan and Gučevo have only cafes whose capacities are significantly smaller than the number of beds in these hotels. Hotels Mir and Kiseljak have restaurants with accompanying kitchen area (Fig. 3). The results of the analysis of guestroom floor highlighted two problems: the small area of the hotel rooms and the lack of diversity of the room types. Apartments are included only in two hotels, while in Kiseljak there is only one type of hotel room. The guest bathrooms are very small in all analyzed hotels, while only hotels Ozren and Mir have rooms with balconies.



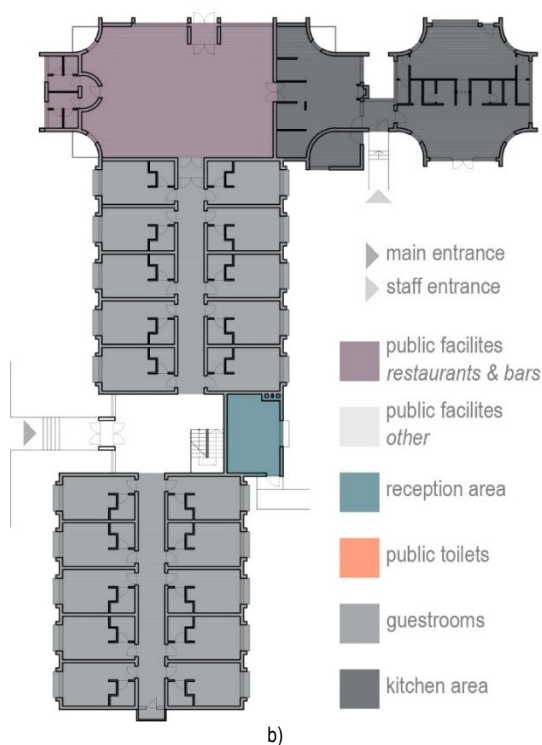


Figure 3 Ground floor plans: a) Hotel Mir, Zvonačka banja; b) Hotel Kiseljak, Palanački kiseljak

3.2 Safety Analysis

The results of the research indicate that the existing hotels show the greatest compliance with the current regulations precisely in the part related to safety (Tab. 4). All facilities have spatially separated zones of technical and storage rooms. The staircases are separated into separate rooms only in the Partizan hotel. However, spatial layouts of these buildings are flexible enough and it is possible to close main stairs into separate room without altering the established circulations. Since staircases are properly positioned and ventilated, all evacuation routes are in compliance with the regulations, except in the case of the Mir hotel, where it is necessary to provide another staircase for evacuation. Furthermore, number and size of all the doors on the evacuation routes is in accordance with the regulations.

Table 4 Safety analysis results

Safety parameters (from the regulations)	Hotel				
	Ozren	Partizan	Mir	Kiseljak	Gučevo
Construction measures for fire prevention					
Storage and technical rooms should be separated into a separate fire sector	+	+	+	+	+
Staircase is separated from the corridor in a separate room	-	+	-	-	-
Access to the elevator is not possible from the staircase area	-	+	+	/	/
The staircase access door opens in the direction of evacuation	/	+	/	/	/
Evacuation routes					
Fire doors of the guestrooms to the evacuation corridor	-	-	-	-	-
Rooms with a single first exit - the distance between the starting point (SP) and the first exit (FE) must be less than 20 m	+	+	+	+	+

Rooms with multiple first exits - the distance between the starting point (SP) and the first exit (FE) must be less than 45 m	+	+	+	+	+
Above-ground floors - the distance between the first exit (FE) and floor exit (FIE) must be less than 30 m	+	-	+	+	+
Underground floors - the distance between the first exit (FE) and floor exit (FIE) must be less than 25 m	/	/	/	/	/
If there is no floor exit (FIE), the distance between the first exit (FE) and the staircase must be less than 20 m	+	+	-	+	+
Rooms for a maximum of 10 users - The minimum clear door opening is 0,9 m	+	+	+	+	+
Rooms for 10-50 users - The minimum clear door opening is 1,0 m	+	+	+	+	+
Rooms for 50-100 users - Must have one double door or two single doors properly distanced	+	+	+	+	+
Rooms for more than 100 users - Must have multiple doors	/	/	/	/	/
The height of all doors on evacuation routes is at least 2,10 m	+	+	+	+	+
The evacuation staircase is ventilated through an opening with a minimum area of 1 m ² located on the highest floor	+	+	+	+	+

3.3 Accessibility Analysis

Due to decades of abandonment, the area surrounding the building is neglected, including the area in front of the main entrance. As a result, none of the analyzed hotels is easily accessible (Tab. 5). In cases of hotels Partizan and Mir, the main entrance is at the same level as the surrounding area, therefore, there is no need for accessibility elements to overcome the difference in height. The ground floor of the Kiseljak hotel is slightly elevated in relation to the surrounding ground. Therefore, there are outdoor stairs and a subsequently constructed ramp in front of the main entrance. The slope and clear width of this ramp are in accordance with the regulations, with only handrails missing. In cases of hotels Gučevo and Ozren, the height differences between the outdoor area and main entrance area were overcome only by outdoor stairs.

Table 5 Accessibility analysis results

Accessibility parameters (from the regulations)	Hotels				
	Ozren	Partizan	Mir	Kiseljak	Gučevo
Ramps					
Ramp for access to the hotel	-	-	-	+	-
The maximum slope of ramps is 5%, or 8,3% for ramps not longer than 6 m	/	/	/	+	/
Ramps longer than 6 m must have landings that have a minimum length of 1,50 m	/	/	/	/	/
The minimum clear width should be 0,90 m for straight run, or 1,50 for switch back ramps	/	/	/	+	/
A protective handrail high must be placed along the full length of ramps	/	/	/	-	/
Stairs					
The minimum width of a stairway should be 0,90 m	1,5	1,4	1,3	1,2	1,3

Table 5 Accessibility analysis results (continuation)

Accessibility parameters (from the regulations)	Hotels				
	Ozren	Partizan	Mir	Kiseljak	Gučevo
Stairs					
The riser should be no more than 0,15 m, and the tread between should be no less than 0,33 m	16,5	17	16,5	17,5	17,5
	30	30	30	30	30
Elevators					
The free area in front of the elevator on each floor should be at least 1,50 × 2,00 m	+	+	+	/	/
The minimum internal elevator dimensions are 1,10 m × 1,40 m	1,20 1,10	1,40 1,20	1,30 1,10	/	/
The door opening should not be less than 0,80 m	0,94	1,08	1,06	/	/
Movement in the building					
In front of the entrance door there is a flat pedestrian plateau with minimum dimensions of 150 × 150 cm	+	+	+	+	+
Clear width of the entrance door at least 183 cm; and the minimum depth of the vestibule is 240 cm	+	+	+	+	+
The area of the vestibule is extended into the interior of the building by at least 90 cm	-	+	+	+	+
the entrance to the building is sufficiently visible and adequately covered with a canopy or similar element	+	+	+	+	+
Toilets					
The clear width of the toilet door must be at least 90 cm	0,7	0,7	0,65	0,7	0,7
Distance of the front edge of the toilet bowl from the wall must be at least 65 cm	-	-	-	-	-
The console washbasin must be at least 50 cm wide and placed at a height of 80 cm	-	-	-	-	-
In toilets with four or more cabins, there must be at least one cabin in both the men's and women's sections for persons with disabilities	/	/	/	/	/
Parking area					
The minimum dimensions of the parking space for disabled persons are 3,70 × 4,80 m	/	/	/	/	/
The minimum dimensions of a double parking space (with a shared access space 1,50 m wide) for people with disabilities are 5,90 × 5,0 m	/	/	/	/	/
No less than 5% of the total number of parking spaces and at least one parking space for disabled persons	/	/	/	/	/

All analyzed hotels have staircases that are wide enough, but whose other dimensions are not in accordance with the regulations - the height and depth of the treads are respectively greater and less than the recommended values. Many public facilities are slightly elevated in relation to the main lobby and accessible only via these not properly designed stairs. However, in hotels with elevators, the size of elevator cabins is in accordance with regulations.

The width of the entrance to the building and the unoccupied area immediately next to the entrance, as well as corridors within the building, are generally satisfactory, and where they are not, it is easy to increase them.

Common problem for all analyzed hotels are the toilets for disabled persons. None of the analyzed hotels has this type of toilets, which is why these zones would have to undergo extensive spatial alterations.

None of the analyzed hotels has a car parking space, consequently the accessibility parameters related to this segment of the hotel building are not fulfilled either. Furthermore, there are no adequately designed spaces for people with disabilities.

4 DISCUSSION

The results of the conducted research indicate several deficiencies in the spatial and functional layout of the existing spa hotels that must be solved through the process of their renovation in order to make them fully adapted for future use (Tab. 6).

Table 6 Identified deficiencies of existing spa hotels

Hotel zone	Spatial comfort	Safety	Accessibility
Car parking space	Insufficient car parking space		No car parking spaces for disabled persons
Access to the building and main entrance area	No covered driveway access to the main entrance for cars		No ramps, entrance accessible only via stairs
Vertical communications	No elevators in every hotel	Not enough staircases for evacuation	No ramps, some areas accessible only via stairs
Public toilets			No public toilets for disabled persons
Guestroom floor	Small guestrooms	No fire doors of the guestrooms to the evacuation corridor	No guestrooms with bathrooms for disabled persons
	Small guest bathrooms		
	No terraces		
	Small variety of room types		

Some of the problems relate to the same hotel zones, therefore they need to be discussed and solved simultaneously. Spatial-functional zones where different problems have been observed are: car parking spaces, access to the building and main entrance area, vertical communications, public toilets and guestroom floors.

Car parking spaces represent one of the biggest problems of existing hotels both in terms of comfort (their capacities are not nearly adequate) and accessibility (there are no designated parking spaces for disabled people). The reasons for this are long-term abandonment and the time of their construction. A decade-long period out of use, and an even longer period without regular maintenance, made the open areas around the hotel facilities completely neglected and inaccessible. Furthermore, all analyzed hotels were built at a time when the number of cars was significantly lower, and mass transportation was much more used for travel. The needs for parking today are much bigger and spaces for people with disabilities are required. Models for

renovation of spa hotels must offer a solution for both observed deficiencies. However, solving these problems can be a challenge considering the dimensions of the plots on which they are located and their locations within protected environmental units. Possible and convenient, but very expensive solution could be underground garages.

Access to the building and main entrance area. All analyzed hotels have deficiencies in the area of access to the building. None of the hotels have covered driveway access to the main entrance for cars. This requirement is not mandatory for lower categories of hotels, but it is necessary in the case of tourist hotels where guests come with large luggage and stay for multiple days, often due to a prescribed recovery. In addition, none of the facilities have access to the service entrance for vehicles, which would enable easy supply as well as disposal of waste. In terms of accessibility, the problem of a walking access to the building is even bigger. Only the Kiseljak hotel is located on flat ground, and it is precisely this building where the ramp appears at the main entrance. All other buildings where main entrance is elevated from the ground can be approached only by outdoor stairs. Since the majority of guests in these hotels are older people often moving with difficulty, it is necessary that models for renovation offer solutions for aforementioned deficiencies through construction interventions on the site or the implementation of modern technical solutions.

Vertical communications. The previous deficiencies are directly followed by the problem of movement inside the building. Public facilities (primarily the restaurants) that are slightly elevated from the main lobby can be accessed only by stairs which make them inaccessible for disabled persons. In terms of safety, only the Mir hotel does not have enough stairs for evacuation because some guestrooms are too far from the only staircase. For this purpose, it is necessary to incorporate another evacuation staircase. However, the biggest recognized deficiency is the absence of elevators in two hotels - Kiseljak and Gučevo. Considering the number of floors and capacities, this is a big handicap for the business of any hotel. As elevators for guests are a mandatory requirement according to regulations, renovation models must include the implementation of a sufficient number of elevators. Further, only the Partizan hotel has a staff elevator, which is not a compulsory requirement, but the existence of such an elevator connected to the kitchen and technical block could significantly improve the business of a contemporary hotel.

Public toilets. Each of the analyzed hotels has a sufficient number of public toilets. However, none of them have toilets that are in accordance with the requirements of the accessibility regulations. This is not surprising since the standards from this area have been present in our regulations only in the last 20 years. A minor problem is the sanitary equipment that definitely needs to be replaced. But the dimensions of the cabins, access corridors and the clear width of the toilet doors are too small to be used by disabled persons. Therefore, it is necessary that the renovation models for these hotels include significant spatial changes of these zones and integrate cabins for disabled persons.

Guestroom floors. In this hotel zone, the most deficiencies were noted. Substandard dimensions of

guestrooms are a common deficiency in all hotels built in this period, including spa hotels. Regarding the minimum size for a single room defined by the regulations, only the Mir hotel fulfils the requirements for a 2-star hotel. In other hotels, single rooms have dimensions at the level of a 1-star hotel. The situation is slightly different when it comes to the double rooms. Only two of the five analyzed hotels contain double rooms whose dimensions fulfil the requirements of a 2-star hotel. The Ozren Hotel has a complete accommodation capacity consisting of such rooms while in the Partizan hotel they make up 50% of the capacity. In all hotels, the bathrooms are extremely small, all smaller than 3m². Also, only hotels Ozren and Mir have hotel rooms with balconies. Another problem detected is the small variety of guestroom types. The Kiseljak Hotel offers only single rooms, while only hotels Partizan and Gučevo have apartments. No hotel offers family rooms (two double rooms connected by a door), a type of hotel room very popular among contemporary tourists. Changing trends in tourism have made spa hotels desirable not only for guests who come for prescribed recovery, but also for whole families. For the purpose of adapting these hotels to the needs of today's guests, it is necessary to increase the size of the accommodation units and include apartments and family rooms in all hotels. In order to achieve this, radical changes in the spatial organization of the guestroom area are necessary. Therefore, renovation models should include schemes for improving the spatial and functional characteristics of this hotel zone. Generally, two basic approaches for implementing these measures are possible:

- Through the extension of existing hotels or
- Without changing the shape of the building, but with reducing the existing number of accommodation units.

5 CONCLUSION

The conducted evaluation of the spatial and functional characteristics of existing spa hotels confirmed a great potential of the analyzed buildings, but also indicated specific deficiencies in their spatial and functional organization. A separate analysis of spatial comfort, safety and accessibility aspects resulted in the following conclusions:

- Despite the significant deficiencies recognized in the spatial comfort analysis, existing spa hotels have a significant spatial capacities that can be updated and reused. In order to attract modern tourists, these hotels must offer a higher level of comfort and a more expansive program that includes variety of public facilities.
- The analysis of the safety of existing spa hotels showed the greatest level of compliance with the current regulations, largely due to modest capacities and compact spatial organizations.
- The analysis of the accessibility showed the largest number of deficiencies and the lowest level of compliance with the current regulations. The architecture of existing spa hotels from the considered period is generally not adapted to people with disabilities. Hence, when defining the models for renovation of spa hotels, special attention should be paid to their accessibility aspects.

The established system for evaluation of spatial and functional characteristics of existing spa hotels includes all segments of design regulations. As a result, it is universally applicable to all types of hotel buildings, both in Serbia and in neighboring countries.

Based on the conducted evaluation, it is possible to define models for renovation of existing spa hotels that will include adequate solutions to all identified deficiencies. The conducted research did not cover those elements of the regulations that refer to the necessary equipment and installations in hotel facilities, which can be the subject of new research in this area. In order to form a comprehensive theoretical basis for defining the mentioned models of renovations, in addition to the evaluation of the spatial and functional characteristics of existing spa hotels, it would be useful to conduct an analysis of the needs and wishes of potential users. Finally, any type of renovation should include an examination of the energy efficiency of existing buildings and recommendations for its improvement, which is another topic that needs to be investigated.

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