ADAPTIVE REUSE OF TID TOWER INTO A FIVE STAR BUSINESS HOTEL

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ABSTRACT

ADAPTIVE REUSE OF TID TOWER INTO A FIVE STAR BUSINESS HOTEL

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Albania belongs to the third world countries of this planet. Being a place in continuous development it has always been distinguished for its favorable geographical position, Mediterranean climate and hundreds of miles of perfect coastline. The capital of Albania, Tirana has captured international investor's attention by bringing in this way the expansion of tourism in terms of hotels and resorts. Business hotels are a whole new dimension for the city importance. Since there is a lack of these types of European standards, having a complete new innovative building would generate not only the importance of embracing European standards, but at the same time will grip new ideas of technology and several aspects of architecture and building design. This study is focused on the main standards of business hotels in terms of design, public spaces, room standards, acoustical, lighting, design for all, management and maintenance where a thorough analysis and different results have been conducted. Moreover recommendations are given in terms of above mentioned subjects. Results of the study have concluded that, by the help of some standards, business hotels can become a total new revolution in Albania in terms of business and tourism. This type of approach and different methods to generate solutions for building something by specific standards will lead to further examination on the development of building through standards and producing superiority hotels in every dimension possible.

Keywords: Hospitality, Business Hotel, safety and security

ABSTRAKT

RIPËRDORIM I PËRSHTATUR I KULLËS TID NË HOTEL BIZNESI ME PESË YJE

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Shqipëria bën pjesë tek vendet e treta sa i perket zhvillimit në botë. Duke qenë një vend në zhvillim të vazhdueshem është dalluar gjithmonë për pozicionin e favorshëm gjeografik, klimën mediterrane dhe mijëra milje vije bregdetare. Kryeqyteti i Shqipërise, Tirana, ka tërhequr vëmendjen e investitorëve ndërkombëtarë duke sjellë në këtë mënyrë një zgjerim të turizmit në aspektin e hotelerisë dhe resorteve. Nje dimension totalisht i ri me rëndësi për qytetin janë edhe hotelet e biznesit. Duke qenë se ekziston një mangësi në këto lloje standardesh europiane, të pasurit e një ndërtese të re totalisht inovative do të çojë jo vetëm në përqafimin e standardeve europiane por në të njetën kohë, do të përqafojë ide të reja përsa i përket teknologjisë dhe një sërë aspektesh të arkitekturës dhe dizajnit të ndërtesës. Ky studim është fokusuar në standardet kryesore të hoteleve të biznesit në aspektin e dizenjimit, hapsirave publike, standardeve të dhomave, akustika, ndriçimi, aksesi për të gjitha, siguria ne hotel, ku është realizuar një analizë e thellë dhe janë nxjerrë rezultate të ndryshme. Rezultatet e studimit kanë arritur në përfundimin se me ndihmën standardeve, hotelet e biznesit mund të bëjnë një revolucion total të ri në Shqipëri në aspektin e biznesit dhe turizmit. Kjo lloj qasje dhe metodat e ndryshme për të gjeneruar zgjidhje duke u bazuar mbi standarde të caktuara, do të çojnë në ekzaminim të mëtejshëm në zhvillimin e ndërtimit përmes standardeve dhe prodhimin e hoteleve superior në çdo dimension të mundshmë.

Fjalët kyçe: Mirëpritje, Hotel Biznesi, Siguria and Mbrojtja

Dedicated to my family

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

INSTAT	Institute of Statistics
HVAC	Heating Ventilation and Air-Conditioning
OSSATE	One Stop Shop for Accessibility in Europe
STC	Sound Transition Class
NR	Noise Rating
TID	Tirana International Development
CoRDA	Center of Research and Design in Architect
NFPA	National Fire Protection Association
EN	European Norms
dB	Decibel

CHAPTER 1

INTRODUCTION

1.1 Objectives

Nowadays the hotel industry has become a substantial part of the universal hospitality industry which is expanding at a great range. In September, 2013, the Forbes Travel Guide Star Awards informed that the numbers of five-star hotels and four-star hotels increased to 83 five-star and 264 four-star hotels, an increase of 9% and 16.8%, respectively, for each in just six months. In other words every week another new luxury hotel was built in the world. Indeed, the hotel industry is an advanced industry noticeable by a powerful competition.

The hotel industry has undergone a considerable increase in the last few years by achieving in this way a brand new sector of tourism development for our country. Since Albania is a minor state but with immense potentials, it has always been on the focus of foreign investors and business mans from all over the region and widely.

This paper generates a whole new aspect of design in every possible extent. The report provides an overview of what standards of a business hotel are in terms of European standards and emphasizes the importance that building by standards has in the world of 5 star category hotels. Moreover the report draws on research on the first business hotel ever build in the capital city of Albania, right in the heart of the city.

Evaluation of the general planning of a hotel, its design, lighting, acoustical, safety standards, design for all strategies, is obtained referring to the theoretical background and the concrete assessment that is acquired from the case study.

The study gives a brief introduction on how to design by affecting every component of design starting with the main principles of planning a hotel. Furthermore the paper is organized in four main chapters that consist on Brief Introduction, the Literature Review, Theoretical Background and the Approach. The literature review is focused on a wide-ranging perception for hotel design through some main authors. Moreover the theoretical background provides quite a lot information on how to deal with every component that make up a hotel overall. The main topics that are discussed are the Rooms and Toilets Design, Corridors and Circulation, Public spaces such as; Entrances, Lobbies, Gathering areas like; Conference Hall and Meeting rooms, Bar and Restaurants, Entertaining facilities like Spa and Fitness Center and Internal Services for example Laundries, Kitchen, Storage, Room service, Outdoor spaces and Car Parking. Moreover the paper focuses on critical features which are acoustical and lighting standards and the way they should be managed in order to accomplish the principles of design. The last chapter includes the approach with a concrete case study that deals with the first business hotel are ever built in Albania.

1.2 Motivation

Five star Hotel category development is still an undiscovered genre in our country. The lack of information and general background leads to new approaches and literature reviews with the focal purpose on streaming with as much knowledge as possible for this area of design in architecture.

One may say that there is an intense rise of international tourism, seeing in the perspective of only a half a century ago to a real universal phenomenon. It must be mentioned that this sector has been able to convert itself in a strong foundation of our global economy, representing in this way 9% of the world's GDP, 30% of facility exports and one in every eleven jobs. Even though people become more adventurous along with the tourism growth, they still claim specific signs of what they are about to experience. Albania is a small but huge opportunity country. As the paradox of quantity lies in terms of hospitality, natural beauty, the nice climate, its geographical position along the Adriatic and Ionian sea, the lakes and all the cultural and historical heritage it possess making the tourism witness quite an expansion in the last few years.

The hotel sector development has increased up to a considerable number making in this way possible for our country to welcome and serve to as many tourists as possible. For instance, the statistics provided from INSTAT show a continued increase in the last 10 years in the number of hotels. A barrier for accommodating more tourists, especially very large groups of tourists, was the low overall capacity. According to INSTAT in its latest survey, during a period of time from 1995 to 2014, the bed places number increased massively when comparing year 1995 with only 2,081 bed places, it had a boom in 2011 recording 18,905, and then during 2014 the records showed 13,351 bed places in the hotels in Albania.

Being a country in development, organizations and congresses taking place in Tirana, having an increase in the number of business travelers flying to Albania as evidenced from opendata.al, 47.574 business travelers visited our country during 2013., The number of foreign visitors entered for holiday and daily visits during the first quarter 2014 was 54,329 while in the same quarter of the previous year, this indicator was 31,020. The number of visitors for personal purpose is increased 26.9 % compared with the same period of previous year. Visitors for business purposes constituted in 1.8%. All these tourists, no matter what their travel purposes

are, they still require better services and facilities, sufficient accommodation capacity and easy, comfortable time sparing ways of getting fast back and forth from the airport (not forgetting that our airport serves also as a transit location for a number of visitors, thanks to our favorable geographical position, which eases the flights of a big number of travelers). This said, hotels in the capital city of Tirana, especially business hotels, are a must, as here is where the most important organizations or business based events take place. Still, we need to take a look at what we serve to these tourists, which means we do admit that there is an increase in the hotel numbers or bed places which facilitates their stay in our country but at the same time we are fully conscious about the issues that need to be solved. We need to take the necessary precautions and strategies to increase the number of tourists in Albania and at the same time to be able to keep what we already have.

One of the most important impressions they will have, at the same time very important for us, will have to do with the hotel too, its facilities, standards, location and other important components that the hotel has. Following these logic, the five star hotel which is the case study chosen will reflect all the ways that are used in order to accomplish all the necessities each tourist has, focusing especially on business travelers but not only. Taking in consideration that Tirana is not famous only as the capital of Tirana but as well for business tourism for its close approach to the Adriatic Sea, a very short distance connecting it with the beach and port in Durres, 252 km from the capital city of Kosovo, Prishtina and only 15min away from the national airport of Albania. Spoiled by the nature, this country still has a lot of work to do when it comes to achieving the adequate standards in terms of hostility.

This paper is conducted through evaluation of the first business hotel ever built in Albania, located right in the heart of the city of Tirana. The focal point of the study is to provide information and methods on how to design a 5 star hotel. Moreover this paper aims to give a complete package of data towards a new background that is focused on the main standards of business hotels. In addition, this information is generated through the general methods of designing a hotel and all the facilities that make it up. As a matter of fact the main purpose of the study is to generate a broad and précised analysis on hotel design and its components. The paper is motivated on giving brief background on how to design a 5 star hotel, starting from the elementary things and concluding with the most specific issues that make up a whole 5 star hotel.

CHAPTER 2

LITERATURE REVIEW

Hotel industry is a business that is developing fast in many countries, especially in those places where tourism has increased in the last few decades. This rapid development has been achieved as the result of the increase of business internationalization which has been followed by the increase in traveling sector the rising of economic wealth, the improvement of transport systems especially the air travel, the advance in advertisement world and lastly the unrestricted visa within the European nations. We are all aware that a hotel functions as a main component of the travel experience. Over the years, the hotel stay is considered as a journey in itself. It begins with the arrival and process of check-in, passing through corridors and public areas to undergo the experience of accommodations and appreciating the other extra facilities. Every moment in this journey creates a key element that helps in producing a complete adventure that can be pleasant, unforgettable and worth repeating at the same time. The intelligent design is the first phase in achieving this journey success.

In order for hotels and related lodging properties to succeed, they both need to equilibrate certain design and functional relationships. This equilibrium depends upon the hotel, inn or resort type. If it's created for leisure or business or group market; if it's urban, suburban or more remote; if it's conventional, modern, or prominently unconventional; whether it operates in an independent way or is part of a chain operation. No matter the above features, each hotel and its functional spaces like lobby, meeting areas etc., need to have a well-realized visual design and be competent and useful. When talking about a small city boutique hotel or a luxury resort they will certainly be more focused on the design and visual end. In the other side, the motels located by the side of the road or low cost city hotel will certainly be focused on a low maintenance surfaces, simple design elements and highly efficient space layouts. [Ingram and Ransley, 2004]

Hospitality is defined as “the quality or disposition of receiving and treating guests and strangers in a warm, friendly, generous way.” An important role in mood setting and atmosphere establishment has also the lighting, whether it is a restaurant, hotel, resort or casino. There is no single formula to abide by or a “one size fits all” approach. It is essential to generate a careful balance between style, simplicity, functionality, and energy efficiency.

Lighting retrofits, on the other hand, are intelligent solutions to the electricity consume issue, as they can decrease according to the initial point, a lighting electricity usage by 50% or even more, and at the same time, they can cut cooling energy requirements by 10 to 20 percent. [Energy Star, 2007]

According to the researches the stress level can be reduced by having a good room acoustics. After the examination of the effect of traffic noise on sleep, it was found that that bursts of volume disrupted sleep more than high density traffic which provides a more consistent baseline level. Study found that introducing a steady sound of 40 dB didn’t influence sleep, while fluctuating traffic noises at the same median level did. [Coghlan, 2007]

The 2010 survey of business traveler reported that the third criteria, ranked just after free internet service and parking, where 56% of guests would most probably stay at a hotel, was due to its soundproof walls [D.K.Shifftlet and Asocciates Ltd, 2016].

The acoustical design of hotels itself incorporates a broad range of issues, starting from control of exterior noise, control of noise from plumbing, HVAC and elevators, sound isolation between guestrooms, isolation of music from entertainment areas, room acoustics of ballrooms and ending up to meeting rooms and effective design of movable walls. [Ismail, 2010]

Regarding acoustics in a hotel project there are several issues which need to be taken into account. They arise from the two types of sound, which need to be controlled: airborne sound and impact sound. Examples of a typical airborne sound are music or talking while football sound of an upstairs guest is a typical impact sound.

When deciding where to go and what to book, the accessibility of available places and facilities plays a key role, as estimated for more than 27% (OSSATE) of the European population.

Considerating people with disabilities, old aged persons, women that are pregnant, and new families and those people with other limitations regarding health or ability to move. It is obvious that a range of 30 - 40 % of all Europeans would profit significantly from better ease of access in tourist amenities and services. Chen (2004) revealed that a big proportion of people with disabilities used accommodation amenities through their travel. She also made a differentiation on her study regarding diverse types of guests with disabilities and their lodging and accommodation predilections. In addition, Turco et al. (1998) pointed out the issues people with disabilities had when making a reservation. They also pointed out issues with the room design saying that it had problems in fixture and appliance use for these people due to the location and layout of certain room features (for instance, appliances that are located relatively high up). Another major problem they revealed were also the showers and bathtubs.

Moreover, Simon and Pheroza (1999) revealed that it is also common for hotels not having enough rooms for guests with disabilities. They point out quite a lot of logistical factors, such as shower seats and adjustable beds that should be in a hotel room specifically for wheelchair users. Mills et al. (2008) investigated how easy was it for people having visual impairments to use the hospitality and tourism web sites.

Hotel areas such as public spaces and restaurant, even elements as the interaction with the staff of the hotel, are disregarded and their attention is basically moved on the hotel room's physical environment. For this reason, the impact obtained is that people with disabilities by and large remain in their rooms and do without the usage of other hotel services. This said, the needs of people with disabilities have not been taken into account, and there is a necessity for an investigative study, which offers basic classification of the experiences.

Nowadays the international hotel industry is broadly exposed to safety and security forces, which are commonly in the forms of crime, terrorism, natural disasters, health, and manmade hazards [Olsen and Pizam, 1999]. Hotel properties generally have bigger vulnerabilities regarding safety and security risks mostly as a result of the fact that guests spend more time in the hotel than they do in other hospitality places. A big part of a guests' stay on the building is when the guests are not on alert with regards to safety and security threats. For instance, the guests are less capable of defending themselves and protecting their personal property while sleeping.

Enz and Masako (2002) propose that safety entails both employees and customers' protection within the hotel property from potential injury or death, while hotel security has to do with protecting guests' possessions and the hotel property. Effects of accidents, dangerous materials, and fire, for instance, are fitted within the safety dimension, while security problems include similar issues as theft and violent crime. With the aim to have an increase safety, many hotel companies have mounted electronic locks, fire sprinklers, smoke detectors, and closed circuit televisions. [Pizam and Okumus, 2005]

CHAPTER 3

THEORITICAL BACKGROUND

3.1. Hotel classifications

Hotel classification is the ranking of hotels, usually by using nomenclature such as stars (or diamonds), with one star denoting basic facilities and standards of comfort and five stars denoting luxury in facilities and services. The purpose is to inform intending guests in advance on what can be expected in order to reduce the gap between expected and experienced facilities and service delivery. [UNWTO, 2016]

Hotel star rating systems are widely recognized as the definitive way to ascertain a hotel's overall quality, but the rankings can differ wildly from one country to another. As it turns out, each country usually has its own way to rank hotels from one to five stars, established by a range of authorities, from tourism bodies to government agencies. But while there's no international standard that hotels across the world adhere to, stars do pertain to a hotel's level of service, amenities, cleanliness, location and price.

In the UK, for example, star ratings place a heavy emphasis on customer service, whereas in France, the ratings focus more on rooms, lobbies and amenities and are enforced by the French Government. Four groups combined in 2007 to create a unified ranking system for Great Britain: the Automobile Association, VisitBritain, VisitScotland and VisitWales. Hotels in Spain, on the other hand, are ranked regionally instead of nationally, while Italian accommodations emphasize cleanliness in their system, which was established in 2009.

In Turkey and Portugal, properties are inspected by the Ministry of Culture and Tourism and the Ministry of Economy and Innovation, respectively. In the US, there are a number of competing systems, from the American Automobile Association to local councils. But are there any

expectations that hold universally across three, four or five star hotels? Generally, several criteria can be agreed upon across borders. [dailymail.co.uk, 2016]

One-star hotels

The hotel is usually small to medium-sized (five letting bedrooms must be available to qualify) and conveniently located to moderately priced attractions. The facilities typically include telephones and TV′s in the bedroom. Some hotels offer limited restaurant service; however, room service and bellhop service is usually not provided. [hotels.com, 2016] The hotel must also be open seven days per week during its operating season and staff must be available during the day to receive and check-in guests. Occasionally, bathroom facilities will be shared and there will likely not be any sort of restaurant or bar on-site. [dailymail.co.uk, 2016]

Two-star hotels

Typically smaller hotels managed by the proprietor. The hotel is often 2 - 4 stories high and usually has a more personal atmosphere. It′s usually located near affordable attractions, major intersections and convenient to public transportation. [hotels.com, 2016] While room options will likely still be basic at these properties, Furnishings and facilities are clean but basic, there will usually be television and phone in the room, as well as private en suite bathrooms and an in-house bar or restaurant. There will also be higher levels of cleanliness, maintenance and services delivered that the hotel must maintain. Public access, past certain hours, may be restricted. [dailymail.co.uk, 2016]

Three-star hotels

Typically these hotels offer more spacious accommodations that include well appointed rooms and decorated lobbies. Bellhop service is usually not available. They are often located near major expressways or business areas, convenient to shopping and moderate to high priced attractions. The hotels usually feature medium-sized restaurants that typically offer service breakfast through dinner and a conference room or business centre available. [hotels.com, 2016] Room service availability may vary and wifi must be offered in public areas. Valet parking, fitness centers and

pools are often provided. All rooms will include en-suite bathrooms and an internal telephone system for guests to reach reception. In the UK, to qualify as a three-star hotel, residents must have access to the property at all times during the day and evening, without use of a key. [dailymail.co.uk, 2016]

Four-star hotels

Mostly large, formal hotels with smart reception areas, front desk service and bellhop service. The hotels are most often located near other hotels of the same caliber and are usually found near shopping, dining and other major attractions. The level of service is well above average and the rooms are well lit and well furnished. [hotels.com, 2016] Here, the expectation for higher quality level of service is the norm across all departments. Higher staffing levels are also expected. There will be several room options available, including suites. [dailymail.co.uk, 2016]

Restaurant dining is usually available and may include more than one choice. Some properties will offer continental breakfast and/or happy hour delicacies. Room service is usually available during most hours. Valet parking and/or garage service is also usually available. Concierge services, fitness centers and one or more pools are often provided. Wi-Fi, or another internet connection, will be provided in all bedrooms and all en-suite bathrooms must contain a thermostatically-controlled shower. [hotels.com, 2016] [UNWTO, 2016]

Five-star hotels

At a five-star property, accommodations will boast all of the facilities included in a four-star hotel, as well as excellent staff with exceptional levels of proactive service and customer care. [dailymail.co.uk, 2016] These are hotels that offer only the highest level of accommodations and services. The properties offer a high degree of personal service. Although most five star hotels are large properties, sometimes the small independent (non-chain) property offers an elegant intimacy that cannot be achieved in the larger setting. The hotel locations can vary from the very exclusive locations of a suburban area, to the heart of downtown. The hotel lobbies are sumptuous, the rooms complete with stylish furnishing and quality linens. [UNWTO, 2016]

[hotels.com, 2016] Amenities typically include gourmet dining, luxury spas, and full-service health clubs with lavish locker rooms. Staff members are generally polished, anticipate guest needs, and consistently address guests by name. Features may include upgraded check-in, a welcome amenity, and butler service on all or select floors. Guestroom decor is often elegant and may include coordinated fabrics on drapes, chairs, headboards, and duvets. Electronic features sometimes include bedside controls for drapes, lighting, and surround-sound. Oversized bathrooms are often clad in marble, with premium, custom-built features, dual-sink vanities, enclosed toilets, premium spa-brand toiletries, and fresh flowers or live plants. Five-star resorts typically offer signature golf courses, tennis centers with choice of playing surfaces, health clubs with personal trainers, luxurious spas, cultural activities, and children's day camps. [expedia.com, 2016] [quora.com, 2016] [UNWTO, 2016] The hotels feature up to three restaurants all with exquisite menus. Room service is usually available 24 hours a day. Fitness Centers and valet and/or garage parking are typically available. A concierge is also available to assist you. There are some other interesting features and facilities included as follows. In every guest room, three phones (one in the bathroom), fresh flowers, ice bucket and glasses are high quality (glass, metal, stone etc.), with tongs which are clean and hygienic.[quora.com,2016]

In recent years, there's also been a move toward further exaggerating the luxurious amenities on offer at some particularly high-end hotels. For example, the Burj Al Arab Hotel in Dubai is widely recognised as having seven-star service, despite its official BAA five-star rating. [dailymail.co.uk, 2016]

3. 2. General Overview - Planning and Programming a Hotel

When planning a hotel it is necessary that the needs of its customers, staff and owner are taken into consideration, therefore there are three factors that would need to be put in a balance such as layout, function and aesthetics in order to create something that meets the needs of the above mentioned groups. Practically, the community areas in five-star hotels have a design oriented approach; with all the functional features integrated in order to improve the usage of space. Still, the developer needs to be aware of equilibrating the following things when designing the spaces:

- Overall design philosophy
- Site layout and site planning
- Public circulation and lobby
- Guestrooms
- Food and beverage areas
- Meeting space and circulation
- Recreational amenities
- Service areas

Programming refers to the procedure of identifying the actions that will occur inside a hotel, by defining the spaces and creating associations among them. In general, the activities taking place at a specific place are usually the determinants of the space interactions, the building situation on a site, its vehicle and pedestrian circulation and the adaptation with the external. As soon as the activities are defined the interactions between them are established. [deRoos, 2011]

In the early stages of a project it is of major value having information about the estimated amount of space that will be given to the main tasks in a hotel, particularly the estimated equilibrium between public facility and service (support) areas and guestrooms. This varies from a lesser amount of 65% of the guestroom in big conference and resort assets, where both public spaces and support spaces are vital in allowing the assets to achieve market share, to more than 90% guestroom area in budget properties and many motels, where there is certain or no food and drinks, conferences, or back-of-house meanings. *Table 1* shows these extensive area distribution percentages for a variety of lodging facilities. [Ingram and Ransley, 2004]

Table 1. The space program of the hotel and the percentage in guestroom floors, public areas, and service areas. [Ingram and Ransley, 2004]

	Number of Guestrooms	Guestrooms	Public Areas	Service Areas
Motel, Economy hotel	<100	90	5	5
All-suite hotel	100-200	80	12	8
Urban Business hotel	100-300+	75	14	11
Resort	100-500	70	16	14
Conventional hotel	300-1000+	65	20	15

Four distinct types of areas are involved: guest rooms, public areas, administration offices and 'back-of-house' facilities. Relationships between these areas must be planned to provide separation of customer and back-of-house areas but also allow efficient service without cross-circulation or distraction. *(Fig. 1)*

Layouts depend on the location and surroundings, the area, contours and cost of site, plot ratios and other planning conditions, and the required size (number of guest rooms) and sophistication of hotel.

Guest rooms are sited to take advantage of the best views and orientation while minimizing noise and disturbance. This also applies to those public areas in which daylight is essential: from restaurants, small meeting rooms and foyers or lounge areas to larger convention halls. [Pickard *et. al*., 2002]

The lobby for instance should be considered as a central meeting point serving both the public and private areas. One time the activities and their relations are established, only then the most suitable space distribution can be conducted. For instance, a hotel needs are not based only on its space for the guestrooms, but at the same time on infrastructure such as staircases and lifts, horizontal passage such as passage and hallways, and other service zones for maintenance, laundry and other facilities. All the activities and their relations within each other together with the space distribution make up the building program.

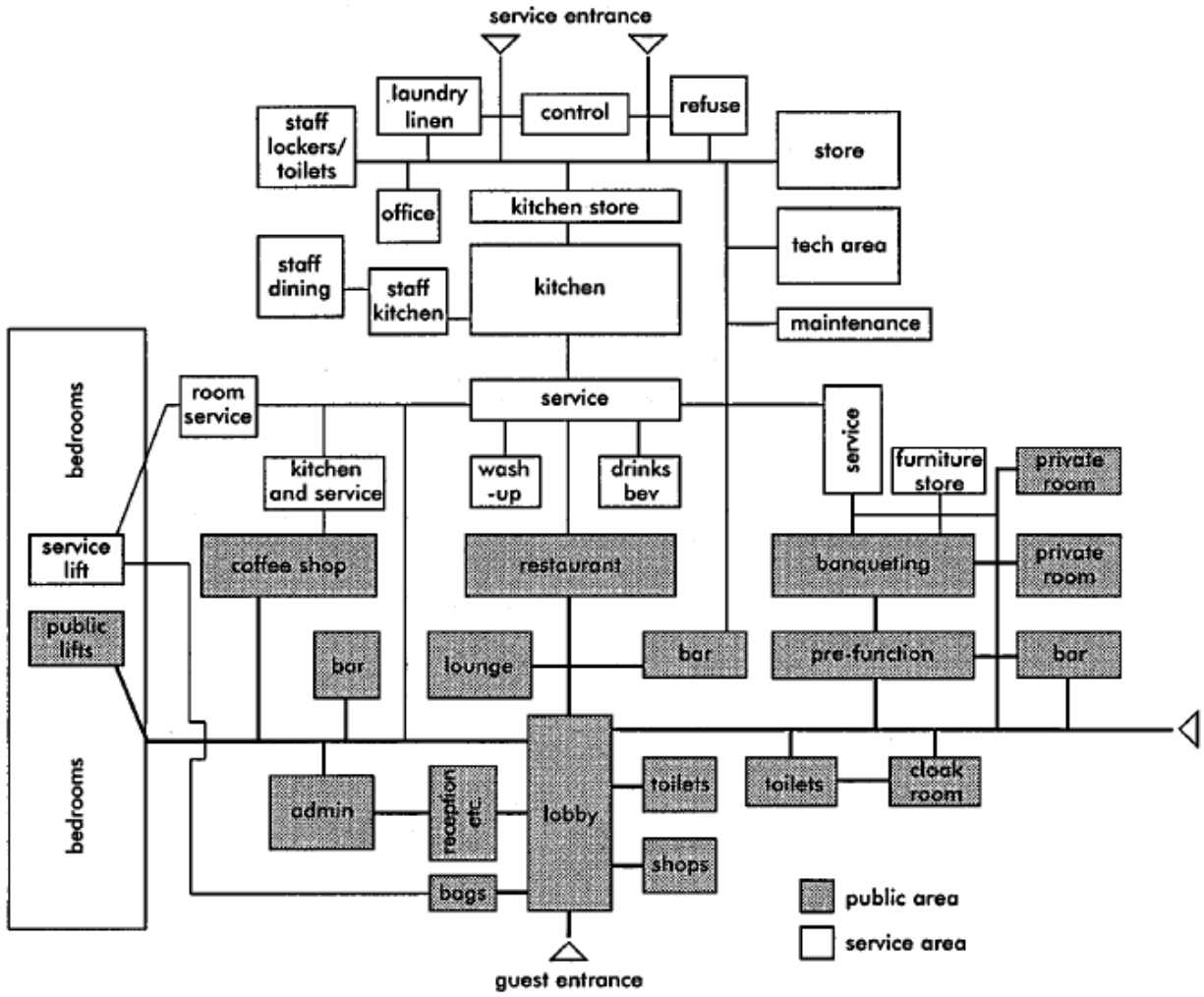


Figure 1. Flow diagram for typical hotel [Pickard *et. al*., 2002]

3.3. Programming Public Areas

The lobby, the public circulation are, the outlets regarding food and drinks, and the conference or assembly spaces are some important public areas that need to be programmed. They frame the image of property, set the stage for other activities, add curiosity and facilities to the guest experience, and offer space for the formal and not formal assemblies that are organized in every lodge, for this reason they are considered as the hotel's "living spaces".

3.3.1. Entrances

It is important for the main entrance to be evident and eye-catching. In addition to that, the public space must provide for all its users, not only for people walking around but also for the ones that descend from vehicles, for the numerous luggages of the group guests and so on. As a solution to this larger hotels are using revolving doors or a draught lobby with self-opening doors. Furthermore, there is always the need to consider another way for the entrance of the baggage, the entrance of persons with disabilities and routes in case of fire. [Pickard *et. al*., 2002]

One of the most important entrance elements is the portecochère, the entrance shelter projected to shelter lodgers from bad weather and to offer visible accent to the entry. (*Fig.2*) The design needs to involve both lighting and signage and a have an appropriate height for both buses and emergency vehicles. [Ingram and Ransley, 2004] Height must be a minimum of 4 m and the covered pedestrian access to the porte cochere from the hotel entrance must be 3 m minimum width and clear of obstructions. The area under the porte cochere must be a decorative non-slip surface paving such as brick, stone, tile pavers or color stamped concrete. [HBS-E, 2014]

Decorative paving in driving areas must be sealed and cleanable the road below the porte cochère should be of a minimum of two lanes broad, if possible 3 lanes, or more in distinctive circumstances, to ease highest numbers of arrivals and departures. [HBS-E, 2014; Mai-BS

Hospitality Group, 2013] The entry should provide an easy movableness and entrance for the buses. [Mai-BS Hospitality Group, 2013]

The sidewalk as an areas where loading and unloading of baggage occurs, including tour or airport buses, it also serves as an area to lodge guests that are waiting for taxis. Therefore, a number of essential operational planning elements on the spot need to be addressed, previous to guests arriving in the lobby, or incoming goods reach the receiving area. [Ingram and Ransley, 2004]

Figure 2. Jumeirah Grand Hotel Via Veneto, Roma - porte cochere [abouttimemagazine.co.uk 2016]

3.3.2. Lobbies

Hotel lobbies have become the most iconic of all hotel spaces. The lobby must function not only as the hotel's "front office," but also as an important transition space. The transition from an often hectic and arduous journey to the security and serenity of the hotel takes place in the lobby. If you think about it, the best lobbies work so well that guests do not even notice the attention to program and planning detail. Ranging from high - grade city hotels (about l m^2 per room), [Pickard *et. al*., 2002] often spectacular in design, *(Fig.3)* the lobby includes a front desk, lounge –waiting area, public telephones, cloakrooms and facilities for luggage handling and safe deposit. In larger hotels, this may extend to individual or arcades of shops, concierge, currency changing, telephone exchange, bell-captain, group registration and other services.

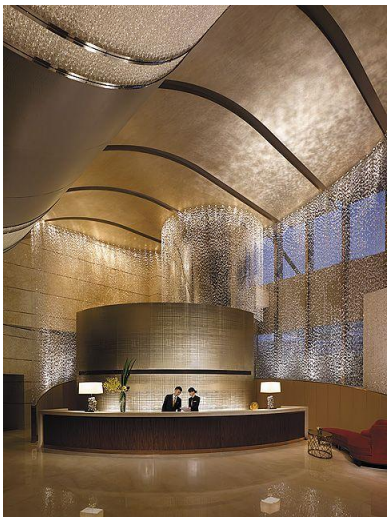


Figure 3. Jing An Shangri-La, West Shanghai - Lobby Reception [hotelnewsresource.com 2016]

It is essential for every development team to create their own priorities for planning the lobby and circulation spaces. And they usually consists of:

- *Circulation:* offer plain paths to front desk, lifts, F&B outlets, functional space etc.

- *Front desk*: should be placed in an easy visible place where the guests entering or to the hotel or those coming from the elevators can easily see; it must have enough queuing space; offer direct entrance to front office

- *Luggage:* there must be enough space for bellman, storing the luggage, and other locked storage.

- *Seating:* arrange for seats close to front desk and main entrance; study the usage for lobby lounge.

- *Support functions:* localize trade outlet, desk of concierge, public toilets, phones for outside calls, coatroom etc. useful to the lobby.

- *Décor*: there should be millwork, furnishings, artwork (paintings sculptures etc.), illumination, signage etc. suitable to locale. [Ingram and Ransley, 2004]

3.3.3. Reception

Part of the lobbies is also the front desk, which is placed backside at a minimum of 1.2 m from the movement areas and sustained by a front office. It includes reception, cashier and information (concierge) sections and is close to the telephone switchboard, meter and alarm indicator panels. Regarding the working space behind the desk: 1.2 -1.5 m and desk lengths: 50 rooms, 3 m; 100 / 150 rooms, 4.5 m; 200 / 250 rooms, 7.5 m; 300 / 400 rooms, 10.5 m. A separate area for convention reception information may be required. The reception desk is evident and appealing, in spite of which entrance the guests use. Guest can freely move on other areas across the hotel without feeling disoriented or being afraid of getting lost. [Pickard *et. al*., 2002] The desk is planned in such a way that it hides as much as it cans the presence computer equipment. A minimum clear aisle space of 1.5 m behind the front desk is required. [HBS-E, 2014] *Figure 4* indicates a typical reception desk with spaces and dimensions required for 300-400 rooms.

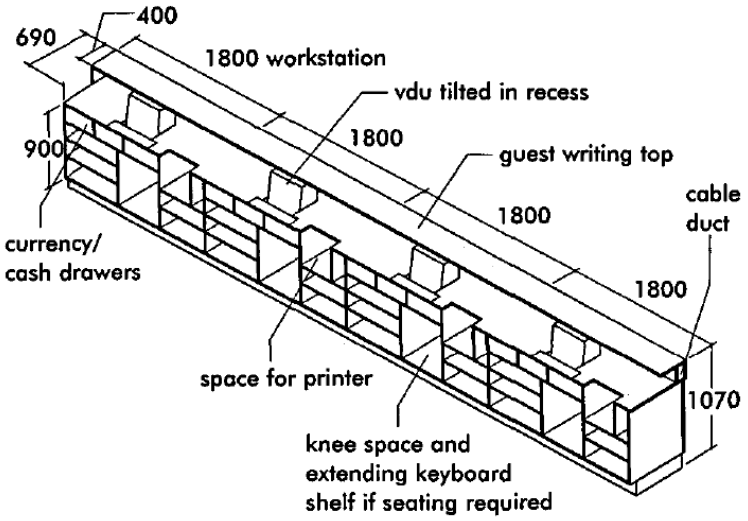


Figure 4. Typical reception desk for 300-400 rooms. [Pickard *et. al*., 2002]

3.3.4. Luggage Room and Safe Deposit Room

A room used to store luggage separated from the other spaces needs to be designed and located next to the entrance of the primary lobby and also have a direct access to the registration area.

The required space to provide this service is 0.07 m² per key or a minimum 18 m² of storage for luggage. In those cases when more than an area for registration is provided each of the areas must have a luggage storage space. The lobby should always allow an access to the luggage room. [HBS-E, 2014]

Position the entry to this room so that so that permission is provided to easily bypass the bellman's desk with luggage carts. Furthermore, all entrees to these areas need to be secured with electronic devices or proximity readers. Space for storing the luggage cart when they are not being used should also be planned. The requirements for the luggage room door are that it needs to be a minimum of 1.1 m wide and 2.04 m high with a door closer with a hold open feature. [HBS-E, 2014]

Another must are also the safety deposit boxes, how much will be needed and the corresponding size depend from the number of rooms and market. In any case, different sizes should always be provided. The lowest amount of safe boxes in the safe deposit room is one safe deposit box for each 20 rooms. The room itself must be at least of 2.8 m², and it should to be constructed in such a way that it permits having a plain view of all safe deposit boxes throughout a tempered glass, vision panel. The glass wall must have a pass-through to accommodate the largest safe-deposit box available. [HBS-E, 2014]

3.3.5. Food and Beverage Programming

The hotel's design and amount of food and beverage outlets differs widely. These outlets are constantly under the struggle of competing with other local outstanding rivals; many small and select-service hotels may have only one, multi-use space that serves as a combination breakfast room, coffee bar, and sandwich delicatessen during the day, and converts into a casual bar and limited-menu dining setting in the evening. The best designs make guests feel more comfortable, while providing a space- and work efficient place. For bigger hotels running generates a general idea for the F&B operations, particularly those that are resort or convention oriented. The multiple outlets must provide diversity, value, and enthusiasm; normally, the program includes fine dining, casual dining, and a set of beverage-oriented outlets with diverse subjects, from quiet

lounges to nightclubs. A growing tendency is the collaboration between hoteliers with celebrity chefs which helps creating signature dining outlets within the hotel. The celebrity chef can open a restaurant, and the hotel gets access to customers seeking a unique dining experience, as the restaurant serves both to its guests and to the local clientele. [deRoos, 2011]

The relation between hotel food service and its customers, in this case the public, have been through alternating phases of reputation. Starting from the middle 1980s, with the need to create as much earnings of the hotel as possible, there has been a big effort in creating contemporary bars and dining rooms. Having a well visualized food and beverage outlets will eventually have its influence in the orders for guestrooms, meetings, general public and produce in these way extra income. Varying so much in terms of quality and character, these outlets need a programming and design that is created on an individual base while keeping into consideration the survey of the competition and regional market and present competition. [Ingram and Ransley, 2004]

Figure 5. CUAN Hot Pot Restaurant, Grand Hyatt Shenyang [tripadvisor.co.kr 2016]

More than one food outlet is offered by high-grade hotels, typically designed as the main restaurant, a coffee shop, theme, ethnic or specialty restaurant and a cafe-bar for more casual day or leisure area use. The largest restaurant or coffee shop is adapted for more concentrated breakfast service. *(Fig.5)* Typically the public amenities include a refined cocktail bar, adjacent

to the main restaurants, and a separate main bar designed to create social interest. Food and drinks are also served in the lobby lounge. According to the extent of non-residential demand, group travel and room service you can also tell the ratio of covers (seats) provided per room. It is recommended for city-center hotels, 0.8-1.2 seat per room. [Pickard *et. al*., 2002] The number of restaurants and capacity will be an adequate regarding the number of beds in the hotel and the forecasted occupancy, local customers and groups.

Principal restaurant

City hotels 1 m^2 x room available plus 100 m^2 space for the buffet and scullery. The main restaurant should have the largest capacity, because this is where the main meals will be served with a buffet service and show cooking. In accordance with the layout of the premises should be the furniture positioned. It needs to be supplied with service sideboards, trolleys for presenting desserts, cheese and special dishes. Lastly, the buffet must be made of high quality materials. [Mai-BS Hospitality Group, 2013]

Speciality and A la carte restaurants

In a la carte restaurant 15 tables recommended capacity in a closed area with air-conditioning Luxurious decoration in harmony with the intended ambience and lighting with intensity controls. There must be a waiting hall with sofas and bar service. The menu should be displayed on a stand by the entrance. Show cooking can be optional and in a la carte restaurant, gourmet cuisine with renowned chef is recommended. [Mai-BS Hospitality Group, 2013]

Developers usually provide supplementary outlets in those cases when the hotel increases its size in order of the restaurants or lounges not to become overbearing. This said, it includes the restaurants where three meals are served, cafes or restaurants known for their specialties. Each of them has its own image it attracts not only the guests of the hotel but also other people that would go somewhere else to eat.

Different ways used from hotel operators to intervene in the operations are seen, for instance some of them try to decrease overheads and make their operations simple, many try to decrease

the amount of diverse operations and create only one multipurpose restaurant. [Ingram and Ransley, 2004]

The lobby bar (also known as lounge) gained “name” between the 70s and 80s to generate activity and pleasure. Open to the lobby area, the lounge offers a small bar, food or tea service, at specific cases also entertainment, and lounge seating that can be used adaptably to enlarge the volume of the lobby. [Ingram and Ransley, 2004]

A cocktail bar or entertainment room is often the second beverage outlet. It is completely private, has lower light levels and closer spaced seating. Separated sections can be seen in the lounge, this is related to the theme. It may contain a sit-down bar, an entertaining or games space, and quieter seating recesses. [Ingram and Ransley, 2004]

Restaurants and lounges are the two spaces that create more challenges in relation to operation and design as they are constantly under the pressure of outer competition. Even if the designer has innovative and sophisticated concepts about this subject, he still must try to meet many commonly accepted planning and operational objectives.

- Offer fine-dining sites with direct access to outside to maximize street presence and to enhance the restaurant's positioning as a local eatery.
- Locate the hotel's main casual dining restaurant as suitably as possible in the hotel's main circulation patterns to exploit internal business.
- Preserve back-of-the-house space by sharing kitchens among F&B outlets, except for a kitchen used by a celebrity chef.
- When possible, provide a shared restaurant and banquet kitchen, again for economy of construction and operation.
- Provide satellite bars with a suitably sized service area for preparation, storage, toilets and backup.
- Design restaurants and bars so that sections can be closed off during slow periods to create more intimate areas.

- If possible, provide separate restrooms for each outlet. This is particularly true for high volume beverage operations. [deRoos, 2011]

3.3.6. Function Areas

This space was initially used to accommodate important civil and social gatherings, back in the middle nineteenth century, while now it serves more for corporate and association meetings. Mainly the association market needs services for large group meetings, extensive exhibition space, and smaller rooms for the seminars and workshops. On the other sides, local organizations use these functional areas for a diversity of assemblies, formal dinners, and receptions. Generally small middle price hotels have only one ballroom that can be used for different purposes, with a simple decoration and furnished in such a way that can be engaged in a variety of events like small meetings, community lunches, wedding receptions, but it rarely serves to attract group room business.

The number of meeting rooms the hotel will provide will vary on its capacity and the market research that has been carried out. In urban hotels the minimum function space may be 3.5 m^2 per guestroom and a maximum 9.3m^2 per guestroom**.** [HBS-E, 2014] It is recommendable having a main meeting room that can be divided into smaller ones.

Breakout rooms should also be provided from the hotel. The total capacity of all these rooms must be equal to that of the large room. If possible, these rooms should have a capacity for 20 to 50 guests. [Mai-BS Hospitality Group, 2013] Board Room, a top quality meeting room is recommended (wood, leather) with a capacity for 20 persons and fitted with state-of the- art technological equipment (i.e. video-conference) and maximum privacy. It will be preferably located on the Royal Service floor [Mai-BS Hospitality Group, 2013]

All of this led to classical criteria regarding planning and design for meeting and banquet space to provide a more proficient process:

- Entrée: there must be a separate function entrance from street or parking; supply with public and service access for each room and subdivision, and display access to ballroom and exhibit areas.
- Support areas: they must be supplied with sufficient toilets, coat rooms, and public telephones; also provide banquet pantry, furniture and audio/visual storage, service corridors, etc.
- Structure: spaces without columns in the middle should be provided; ballroom and grander meeting rooms should be located independent from the guestroom tower.
- Ceiling height: determine need for projection booth; consider implications of high space on second floor. [Ingram and Ransley, 2004]
- Lighting; meeting rooms should always, when possible, receive natural light and fitted with extra thick curtains to darken the room whenever required. The ceiling lights need to be easily controllable through the adjustments in the intensity with the remote control. Lighting controlled and programmed by sections with a control unit [Mai-BS Hospitality Group, 2013]
- There needs to be an access from the kitchen or banquet pantry, for food service, to all meeting rooms. This access may, in part, be through the pre-function area or banquet related guest circulation.

It isn't acceptable for ballrooms and meeting rooms to be more than twice as elongated as its narrowest measurement. When these facilities are not located on the ground level of the hotel, grand staircases, escalators and separate elevators must be provided. Additionally, the ballroom and some of the meeting rooms is necessity to be on the same level and if it is possible the ballroom and meeting rooms must be positioned on the same level as the primary kitchen or these spaces must have a direct connection with the main kitchen. Direct entrance through the service hallway should be provided from the kitchen or ballroom pantry for food and beverage service to the ballroom. This entrance must not cross guest corridors. The minimum ceiling height for ballrooms of 465 m² and below must be 4.9 m at operable partitions, increasing to not less than 5.5 m within ceiling coffers. *(Table 2)* [HBS-E, 2014]

Table 2. Ceiling high requirements for meeting rooms [HBS-E, 2014]

Area	Finished Ceiling Height
Up to 45 m²	2.7 m
45-90 m²	3 m
90 – 270 m²	3.7 m
270-450 m²	4.6 m

Meeting room's entry doors must be a pair of doors without mullion; each leaf should be no less than 0.9 m wide and 2.4 m high. While all the service doors must be no less than 1 m wide and 2.4 m high. Doors must have hardware to allow them to swing flat and be held open against the pre-function wall. Provide 3.65 m wide and 4.9 m high doors for vehicular and large exhibit access in larger ballrooms and/or specific markets. [HBS-E, 2014]

The guest's experience or the operational effectiveness can be considerably improved through little details regarding design. For instance, experienced designers may indicate a ballroom carpet with a pattern repeat of around 55 cm to help the housemen quickly set chairs in straight rows (both rows of stacking chairs and the aisles between them precisely align with the carpet pattern). Samples of such seemingly irrelevant design issues, each of which improves guest satisfaction or reduces operational inefficiencies, are listed in the following checklist:

- Floors: choose carpet pattern to help in room setup; use portable dance floor for special functions
- Walls: apply chair rail to protect wall finish; add fabric panels to improve acoustics and upgrade appearance.
- Ceiling: consider flexible lighting including decorative chandeliers, track, and fluorescent fixtures; provide fully dimmable lighting system; organize HVAC, sound system, fire protection, and other systems into a unified design.
- Furniture: select balance of rectangular classroom tables, round or oval banquet tables, stacking chairs, risers, lecterns, etc.; select high quality chairs for upgraded conference rooms.

- HVAC systems: separate the mechanical, electrical, and sound systems for each room division.
- Communications: include TV, telephone, recording, data lines in each function and control room. [Ingram and Ransley, 2004]

When the operable partitions aren't being used they need to be stacked behind a concealed door in a closet, whose doors must match the surrounding wall finish. Partitions must contain single passage doors between the various rooms. Acoustical seal all wiring and piping penetrations above operable wall. Operable partitions are allowed to be covered with decorative acoustical fabric, wall covering or timber finishes. Discrete metal edging strips must be used to protect the finishes. [HBS-E, 2014]

Lighting must be recessed with both direct and indirect fluorescent lights, four-scene preset dimmer controlled with local bypass switching, direct lights and wall wash to provide lighting for perimeter of room. *(Fig.6)* Local dimmers should be used to control lighting for divisible meeting rooms allowing in this way combined dimming control of subdivisions. Electrical outlets, every 6 m on permanent walls, must be available for display purposes. Provide four floor electrical outlets per every 56 m². Projection screens, projector, conferencing telephone, DVD/CD player, microphones, lectern etch must be provided in each meeting room. [HBS-E, 2014]

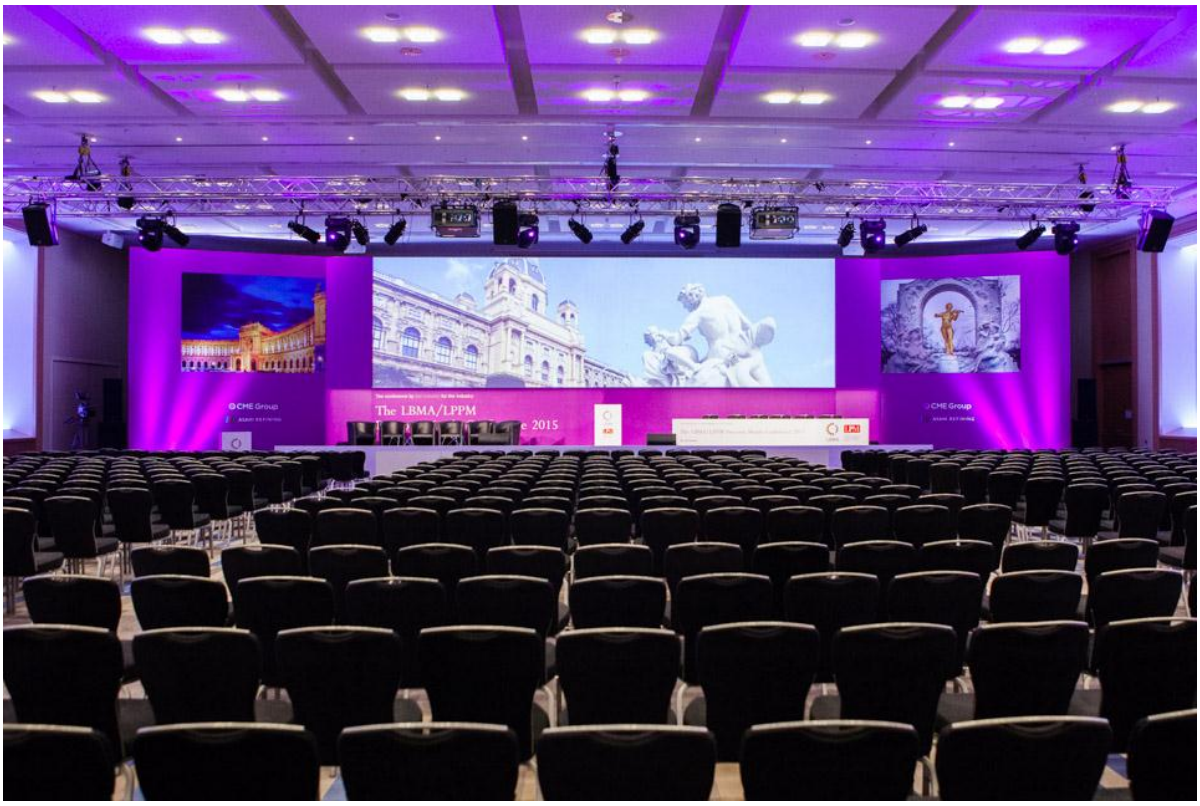


Figure 6. Hotel Hilton Vienna Stadtpark conference room [bernhard-av.com 2016]

Equip the room with quality distributed sound reinforcement system suitable for speech reinforcement and background music. All speakers must be recessed ceiling type, inset wall mounted or of similar configuration. Spacing of loudspeakers must be approximately 1.0 times the distance from the ceiling to the floor. Amplification systems must be rated such that the number of loudspeakers connected to an amplifier constitutes no more than 60 percent of the rated output of that amplifier. The system must provide for multiple microphone and line level inputs from each room as well as providing for at least one line level return to each room for the purpose of in-room session recording. Projection and large screen display of Internet access and laptop computer screens, video images from DVD players or cable television, digital visualizers, electronic overhead projectors, video conferencing, including all necessary auxiliary inputs, audio support for all of the above listed plus a five disc multi-changer CD and audio cassette, lectern, microphones, radio microphones and wired microphones including all necessary auxiliary inputs. [HBS-E, 2014]

3.3.7. Recreation Facilities

It is important to determine what should be put in the center when developing the conceptual design for the construction of the wellness spa and its equipment in both small and large hotels. Beside some of the essential elements such as an entryway to the dressing room, toilets and showers, some with sauna, Turkish bath, then, space cooling (cold showers, ice machine, cold water pool), Jacuzzi, a relaxation area and to serve different beverages, to be determined in accordance with the capacity of the hotel, the other important part that needs to be predicted in advance, has to do with the fact if the wellness will be only for hotel guests or if it will be opened to other visitors too.

During the design stage, the rapport among the spaces is considered as one of the biggest vital efforts. By means of a spatial function figure, the order of the functions should be strong-minded and planned according to it. *(Fig.7)* Below you will find some of the main spaces that need to be found in Spa centers;

- Waiting areas and front desk
- Managerial/Administrative workplaces and staff relaxation spaces
- Fitness Area (Optional)
- Swimming pool (Elective) In and / or out-of-doors
- Dressing rooms (one for men and another one for women)
- Relaxation areas for men and women
- Beauty units areas (hairstylist, rooms designed for the skin care, solarium etc.)
- Massage areas (these units can be spread, for instance Thai or VIP massage areas etc.)
- Coffee bar and vitamin bar
- Wet areas and baths (Sauna, Jacuzzi, Steam bath etc.)
- Storing and technical spaces [Rančić *et. al.*, 2013]

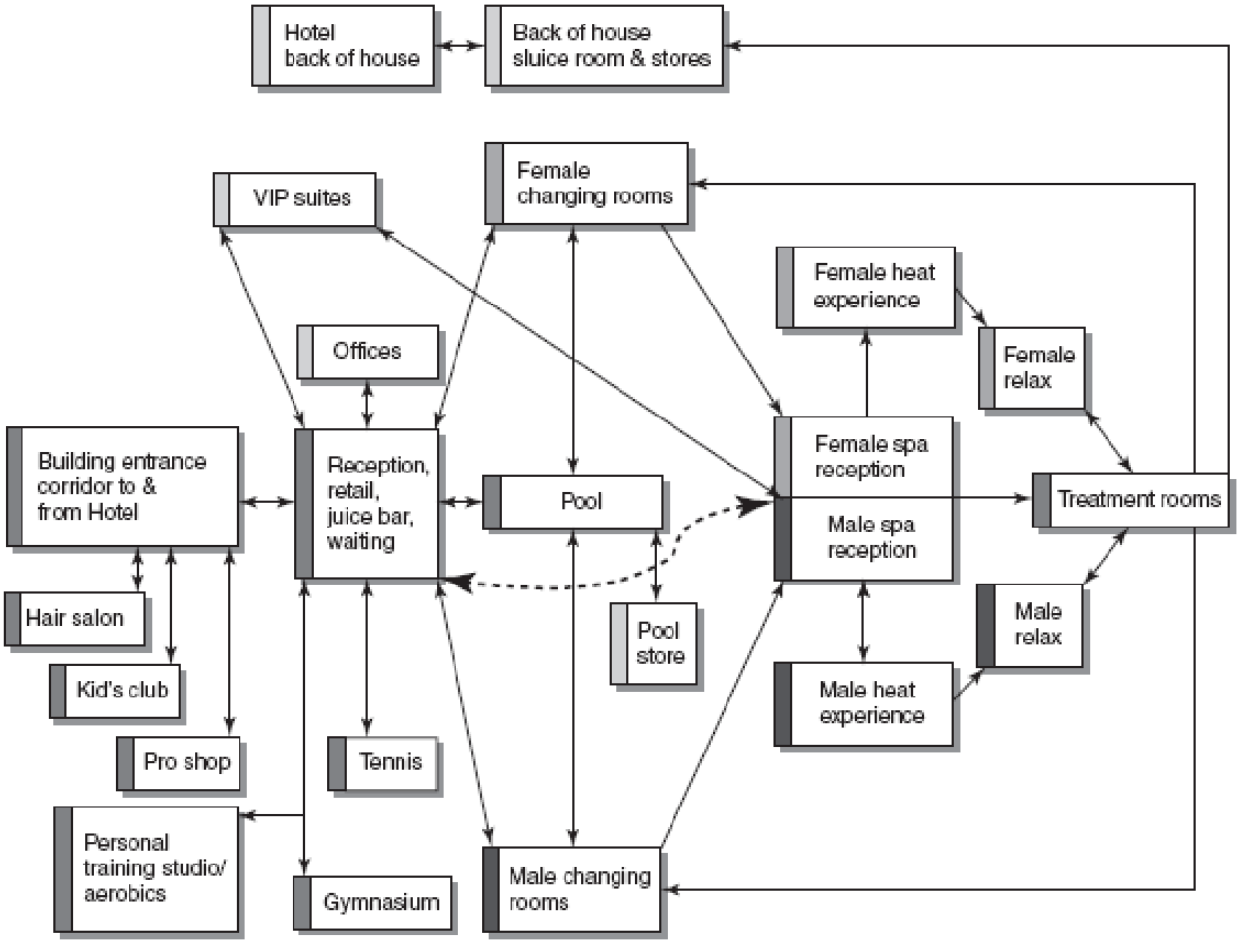


Figure 7. Flow diagram for typical SPA [Pehlivanoğlu, 2012]

The entrance to the reception area is a place where the customer has the first direct contact with the spa personnel. There is acquired first, stronger and more concrete impression of the facility in which it came. Reception, in addition to receiving and informational, has security function. It consists of a desk, behind which there is all the technical equipment needed for the functioning of the reception and the staff is responsible for receiving, customer service, information and greeting guests. Very often in the reception department beside reception there is a rest area with armchairs. [Rančić *et. al.*, 2013]

Wardrobe (locker room) is a very important part of the wellness spa center, especially in terms of the security. Men's and women's locker rooms are separate, and there can be located toilets.

Showers and toilets are an essential part of any wellness center. Usually they are located next to the dressing room (also separated male from female).

Fitobar is a part of spa center, which is used for serving food and drinks. Here guests can refresh themselves after training or treatment. Usually provides energy services and healthy drinks and low-calorie meals in the form of biscuits, fruit and so. [Rančić *et. al.,* 2013] The vitamin bar needs to be located close with but not openly connected to the relaxation area, as relaxation areas are intended to provide privacy and quietness. Additionally, storing spaces should be well-thought-out for the bars. [Rančić *et. al.,* 2013]

Massage rooms should have a temperature from 24 to 25 degrees Celsius. Massage bed should not be less than 2 meters extended, 0.7 m widespread and 70-80 cm in height. The upper surface is covered with a spongy rubber material from which is suitable for washing. In addition, the bed should be equipped with several roller pads which should provide ideal rest position. [Rančić *et. al.,* 2013] The non-natural lighting in this area can be provided through lights whose strength can easily be lowered or increased through dimmer arrangement. The colors used in the massage rooms must not be hot or even cold colors. [Rančić *et. al.,* 2013]

Water facilities are mainly pools of different sizes. They can be for children and adults, with hot or cold, fresh or salt water. Also, the water facilities are hot tubs and Whirlpool. This type of pool is often named Jacuzzi. Whirlpools are small pools with air underwater massage, filtration, heating, (and frequently) disinfect water system. *(Fig.8)* Most models are fitted with the underwater spotlights as standard. [Pehlivanoğlu, 2012; Rančić et. al., 2013]

Figure 8. A luxury Spa in Barcelona at Hotel OMM [designhotels.com 2016]

Finnish sauna is a room designed as a place for dry or wet body heating. Sauna room is paneled in wood. In addition to the sauna walls are built of wooden benches that can be in one or more levels are used for sitting and lying. When there are multiple levels, staying at a different level allows to the patient using different degrees of heating of air. Sauna has no windows, but the door is opening that is glazed with a thermostable glass to be able to see and control what is happening inside the sauna, what is the health status of people who are inside. In addition to the sauna is a small pool or showers with cold water. There must be a room with cold drinks, and holiday refreshments. [Rančić *et. al.*, 2013]

Russian bath is kind of sauna made of wood where temperature reaches 100 degrees Celsius. It provides a special pleasure vapors with the scent of medicinal herbs. In a separate wooden liner saves water with various medicinal herbs, which slowly pours on the burning rocks in the bowels of the furnace where the volcanic rocks. Thereby there is expanding steam, with special, delicate and intoxicating fragrance. [Rančić *et. al*., 2013]

Turkish bath or hamam comes from the Middle East, and the room intended for the hamam is mainly decorated in oriental style, to gain an impression of their culture. It is a kind of sauna bathing in steam, where the air is saturated with moisture, and the temperature goes up to 50^{o}C. Steam consists of dry and steam filled chamber, and in addition owns and pays for relaxation and massage. Due to the temperature of 50^{o}C and humidity of 100% compared to the sauna, which is 80^{o}C and humidity from 2% to 30%, Turkish bath is more comfortable stay. The hamam has heated floors, walls and benches, and does not create heavy and foggy vapor, visibility has fallen, though the humidity reaches almost 100%. [Pehlivanoğlu, 2012; Rančić et. al., 2013]

Kneipp Bath is most famous water treatment, whose creator is called the father of wellness. German Catholic priest-physician Sebastian Kneipp (1821-1897) developed this type of therapy with water. The simplest is sitting Kneipp bathroom with two ceramic bowls for dipping feet of water with different temperatures. With a hot water faucet guest can optionally regulate water and harmonize with his strength. After a while, he can move from hot into cold water. [Pickard *et. al*., 2002]

Tepidarium is a Roman invention for total relaxation, and socializing. It is anatomically shaped with heated stone beds, which are perfect for tense back muscles. The walls of tepidarium are made of stone, lined with tiles or marble. The air humidity is medium. The barely exceeds the body temperature and feel very comfortable to the body. Blood vessels expand and that in remote parts of the body improves blood flow and the body is heated without sweating. The heat that comes out of the walls, floor and deck acts on the vegetative nervous system. [Rančić *et. al*., 2013]

Ice cave (ice room) - more hotels and wellness centers have ice making device used to cool and refresh the body. Cooling this way not only feel nice, but has a healing effect. This drastic change in temperature shrinks dilated blood vessels, which improves blood circulation in the body and gives blood vessel elasticity. Ice is used after using the sauna or steam bath. This is the final phase of the "hot bath", and is a much better hygiene solution than traditional immersion in a cold pool. [Rančić *et. al.*, 2013]

Shower of experience is tropical rain and cold fog showering system, with fragrances and colors. Properly designed shower must be an integral part of overall wellness center. [Rančić *et. al.*, 2013]

A logical design process is required when designing the Spa, as certain areas need to be separated from each other due to their function. For instance, areas evaluated as noise producers such as service areas need to be apart from areas where silence is a priority, in the same way, the areas where the ground might be slippery like the wet zones need to be separated from the dry areas. It is important to design rest areas in a way that avoids eye contact in the room. In these spaces designated for the guest to be on his own and have a mentally and physically relaxation, different elements such as smells, sound and colors should be used to create the sense of peace.

The key to obtain all of this is "material", which means that soft color palettes, natural materials and large areas (for some people the concept of luxury means larger areas) should be used in design. The comfort sensation is also a very important design characteristic that a spa must have. [Pehlivanoğlu, 2012]

The spa area is considered as an important unit when it comes to the selling of specific products and for this reason when designing the area a special attention needs to be given to the way the products are displayed. These products are mostly sold based on professional advice that customers get. Following this logic, product display stands need to be placed in each of the following areas: the reception, beauty related units, massage rooms and rest areas.

Regarding fitness areas, it is preferred for these areas to receive daylight and certain fitness equipment, for instance treadmills, need to be located towards the landscaping and green area. The gym section can also be placed more inside. Yellow light is considered an appropriate lighting for the fitness area. Spinning, aerobics and meditation rooms can also be considered. As previously mentioned, it needs to be taken into consideration that high energy areas such as salons and fitness should be acoustically separated from the tranquil lounge and treatment areas. [Pehlivanoğlu, 2012]

In the meeting point for different resting areas such as sauna, Jacuzzi etc., it is recommend to be the place where lounge chairs or furniture used for lying should be positioned. *(Fig.9)* These rooms can be designed either as lodges, which can accommodate several people or as single lounge chairs or heated reclining chairs.

Figure 9. Spa area of Esperanza Hotel in Mexico, Lounge chairs divided from other spaces and made with natural materials. [Pehlivanoğlu 2012]

The area should be designed in such a way that between the dry and wet area there is always a semi wet area, which means no cross circulation zones. Particular attention on the wet areas must be given to the application of a suitable flooring.

It is important to have a proper lighting and a color of light that is properly adjusted. When choosing colors, relaxing colors are the ones preferred in such cases. [Pehlivanoğlu, 2012]

3.3.7.1. Pool

The swimming pool holds a special importance in the hotel, this can be easily evidenced with hotel operators requiring from contractor to include a swimming pool, no matter what size it has. Still, It needs to be separated from the public part of the hotel, so guests dressed in bathing suits, don't have to go through the lobby. [Rančić *et. al.*, 2013]

Recreational facilities create noise or other negative impacts and, as a result, need to be separated from public areas and, perhaps, guestrooms. For example, meeting rooms should be kept away from racquet courts or the swimming pool but the three-meal restaurant might benefit if it features views of the pool area. [Rančić et. al., 2013; Rutes *et al*., 2001]

It should be organized in such a way that the guests can get to it from their rooms by elevator or stairs. If possible, exposed to sun throughout the day; Size should be large enough for swimming and sunbathing, but not less than 6x12 m with at least 3 m of space for deck chairs on all sides; The pool must provide some extra facilities such as toilets, lockers for leaving things, stand for the issuance of towels, snack bar and vending machines for drinks, a room with equipment and space for additional equipment and deck chairs; There should be no jumping board, ensure non-slip surface, water deep marks, notice of the rules of conduct at the pool in case of Indoor pool a glass roof to provide solar transmittance and easier ventilation is needed. [Rutes *et al*., 2001]

Common pools are 25 x12.5 m (multiple purposes with stands), and the smaller hotels and other hospitality establishments have pools measuring 15 x 8 or 9 h 4.5 m. The bottom is usually angled, shallower portion is about 1 m and deeper is 1.8 m deep. Pool should be protected from cold winds, facing the sun, protected from the visual surrounding roads and buildings, from dust and leaves.

The pool area can be grouped as a unique space, recreational facilities, sauna, solarium, gym, massage and courts (tennis, squash and the like). Pool surroundings have certain standards. Surface around the pool should be paved for sunbathing, with efficient drainage canals, not slippery, easy to clean (debris, oil, sun, etc.) no bumps, of durable material, acids, detergents,

moisture and drying, high temperature, cold, shock and scratch resistant. The most commonly used are stone tiles, marble, mosaics, ceramics and more. [Rančić *et. al.*, 2013]

3.3.8 Parking

Besides to designing the hotel building itself, the architect is in charge for coordinating the development of the site plan including vehicular circulation, landscaping, and outdoor sports areas. For most lodging properties parking is the most important of these, including the design of the approach, driveways, sidewalks, receiving area, and emergency access. The parking necessity is specified in the local zoning ordinance and may need, especially in smaller cities and suburban locations, more than one parking space per guestroom. In major urban areas, where a large number of guests arrive by taxi, the final parking agreement may be negotiated between the developer and the city. Hotels should provide 0.4 to 0.8 parking spaces per room in large cities, and 1.2 to 1.4 spaces in smaller cities where guests rely more on their automobile. [Rutes et al., 2013] Providing sufficient parking is vital if a hotel aims to catch the attention of banquet and dinner business and, therefore, the developer must cautiously examine and balance the real need for parking against its cost. [Ingram and Ransley, 2004]

Garages must be located within a short distance from the main hotel entrance. Parking garages must have a minimum clear ceiling height of 2.4 m .They must be provide positive drainage to avoid standing water. Floor must be steel trowel finished concrete, hardened and epoxy sealed. The areas exposed to external elements must be waterproofed, while walls and ceilings should be painted. The Parking area must be well lighted and sprinklered for fire protection. [HBS-E, 2014]

3.4. Planning Guestroom Floors

When planning bedroom floor plates, one of the most important criteria is the reduction of the area for circulation and service space and the increase of the space for guestrooms. Separate but evenly essential are guestroom width to length and height per floor. What we also need to know is that the above mentioned factors have a direct impact on the overall costs of the building, as construction costs relay directly to volume and area. Considering this, the overall costs of the building will be lower as long as we have a greater efficiency in planning bedroom floor plates.

There is a directly proportional relationship between the width against length of a room, because as the room gets wider there is an increase in the requirements in length or size of site area. If the front façade has a shorter length even the cost of the construction will be lower. The other important step after arranging the most effective guestroom plan form is deciding about the guestroom floor plate form. Guestroom floor plate form is affected by many different topics relative to the site plan, planning and building regulations or norms, the orientation to the sun etc., [Ingram and Ransley, 2004]

Table 3 shows the suggestive efficiency of different building shapes for bedroom floor plates by calculating the total floor area of the building assigned to guestrooms. As showed, this diverges from 62% for an atrium plan to 72% for an offset slab plan form. The greater the fraction the lower the building price per room. [Ingram and Ransley, 2004]

Table 3. Guestroom floor analysis [Rutes, *et al*, 2001]

Configuration	Rooms/floors	Dimensions	Guestrooms	Corridor
Single-loaded slab	12-30	10m x any length	65%	7.5m^2
Double-loaded slab	16-40	18m x any length	70%	4.2 m^2
Offset slab	24-40	24m x any length	72%	4.6m^2
Rectangular tower	16-24	34 x 34 m	65%	5.6m^2
Circular tower	16-24	Diameter 27-40 m	67%	4.2-6 m^2
Triangular tower	24-30	Varies	64%	6-7.9 m^2
Atrium	24+	27+	62%	8.8 m^2

Each guestroom floor configuration has certain characteristics that have an effect on its potential planning efficiency. The table **s**hows the basic building dimensions, the usual percentage of floor area devoted to guestrooms, and the amount of area per room needed for corridors. For example, from the table you can see that the offset double-loaded slab is the most efficient in terms of guestroom area percentage and that the atrium configuration is the least economical, mainly due to the high amount of corridor area needed per room.

The limiting factor in most countries for double-loaded slab is the obligation to limit the maximal expanse between fire escape staircases. In tower plan configurations the critical planning element proves to be keeping the vertical circulation core to minimum areas, as this also reduces the corridor area, the most efficient number of rooms per floor is between 16 and 24 rooms. [Ingram and Ransley, 2004]

3.4.1. Programming Guestrooms

The guestrooms are considered the most important part in planning a hotel. As the hotel experience depends directly on them. Creating an efficient and operative design of these spaces is fundamental for the first development finances, but at the same time is the basis to long-term guest satisfaction and effective functioning.

Sitting and orientation of the guest room to be visible from the road, view rooms command a price premium. Guestroom structure must be positioned in such a way that it limits its structural impact on the ballroom and other major public areas. Guest rooms are always intended to regular persistent components easing the building of the system and the beforehand fabrication, faster production, mass purchasing and competent general care and maintenance. [Pickard *et. al*., 2002]

Positioned in a central location on the guestroom floor must be the service elevator, linen storage and vending. Bathrooms must be placed back to back in order to save money for plumbing and space of the shafts needed for each bathroom. Handicap-accessible guestrooms must be located in the lower levels and near the circulation and elevators. [deRoos, 2011]

Even if humans cannot explain why, their instinctive reaction to space is very strong. They immediately know when entering a room, whether they feel comfy or not. The initial most important step of this procedure is related to planning, having and using in the right way the space makes the left part of the design to come into line easy. The de Luxe's bedroom modules vary about $32m^2$, still whatever the size of the room is there are a certain necessary items needed. [Ingram and Ransley, 2004] These includes:

- A bed
- Somewhere to sit, such as a chair or couch
- A working desk
- Wardrobe
- Television
- Telephone
- Hair dryer and mirror
- Safe box

These are the general requirements but there are cases where not even all of these things are incorporated in the guestroom. It's the duty of the designer to come up with creative and interesting ways of merging these elements in every room, no matter its size. With small spaces there is a bigger challenge when it comes to designing, because it must not give the feeling of overcrowded space and it should also maximize the space. On the other side, larger rooms have also issues as it isn't that easy to fill a large room and a large room with empty spaces can give the person the feeling of being small. Another time we can tell that balance and proportion are very important. [Ingram and Ransley, 2004; Rutes, *et al*, 2001]

Table 4. Hotel space programme. Floor area per guestroom [Ingram and Ransley, 2004]

	Guestroom net area (m2)	Guestroom gross area (m2)	Total hotel gross area (m2)
Motel, Economy hotel	28	35	39
All-suite hotel	40	55	70
Urban Business hotel	32	45	60
Resort	36	50	72
Conventional hotel	32	45	70

In *Table 4* guestroom net area is the usable area including vestibule and bathroom. Guestroom gross area is the usable area including walls, stairways, corridors etc. on the guestroom floors. Total hotel gross area is the entire hotel, excluding parking.

Even if hotels are different from each other, however, they all offer varied types of rooms with different size, luxury and also amenities. A hotel room offers to its guest privacy, security and definitely comfort. Regarding occupancy, they are classified in:

1. Single (Room with one single bed, strictly for one adult only),

2. Twin (Room with one single bed, strictly for one adult only),

3. Double (Room with one large Queen or King sized bed to accommodate two adults)

4. Double for Single Use (Room with one large Queen or King sized bed to accommodate one adult only) *(Table 5)*

Table 5. Guestroom occupancy in percentage [Ingram and Ransley, 2004]

Type of hotel	Double-Double (%)	Single king (%)	Suites (%)
Business (downtown)	30	60	10
Boutique hotel	10	80	10
Suburban/airport hotel	50	45	5
Budget hotel	80	20	0
Resort/family oriented	75	20	5
Resort/couple oriented	20	75	5
Convection hotel	55	35	10
Conference center	30	65	5
All-suite hotel	30	70	0
Super-luxury	20	70	10
Casino hotel	40	40	15

Standard room

This is the classic type of room. Known as single room, sets the bar for the estimation of the prices for other types of rooms in the hotel. Both level and range of services that are available for the standard room indicate the luxury of the hotel, for instance, in addition to daily cleaning the room can be served by a few more people. The view of the room, the furniture, and the accessories available will all have their effect on the price. In addition to this, it is expected but it is also necessary, the presence of artworks in the room. Part of the standard room is the separated bathroom which has a regulated length of the bath and cannot be less than 160 cm. Usually this types of rooms have a double bed and their minimal size of the room is 16 m^2 in both Europe and United States. The standard room has the basic amenities, usually a television, coffee maker, telephone, working desk and chair, an armchair, closet and private bathroom.

Superior Rooms

Hotels use the superior category to mean superior to a standard room in both size and furnishings, but it can also refer to just the view and location of the room.

Deluxe room

Its notion can imply various grades of comfort for different hotels, it belongs to one of the most expensive rooms in the hotel. Still, the most common attribute related to the deluxe rooms is the size. According to the recommendations of the World Tourism Organization the minimal area is about 35 m^2. This type of room consists of several rooms including a bedroom and a living zone. Additionally this type of room offers a specific view from the windows. *(Fig. 10)*

Figure 10. King Deluxe Guestroom, Hilton Milan [3.hilton.com 2016]

Suite room

Usually two or more rooms clearly defined: a bedroom and a living or sitting room with a dividing door. At times, a suite can offer a balcony, lanai or patio. Standard suites vary between

28 m^2 to 40 m^2 and are equipped with standard amenities. The smallest sized are the junior suites.

Serviced Apartment

This room serves as a small apartment that may accommodate families or large parties. Composed of a bedroom, a living room with a dividing door, fully equipped and kitchenette included.

Executive Suites

The executive suite is spacious and elegant. It often offers a full kitchen, a private bar, dining and living areas. It contains an oversized bedroom with a wardroom, a master bath and half bath for guests. Extra facilities as a fireplace, a grand piano or a media room are suggested.

When selling a room night the underlying guarantee includes a comfortable sleep at night, and of course a clean bath or shower room. In a budget hotel this is provided in quite a basic way, with no frills or attached fashion, even though the budget sector is now becoming more competitive, with operators vying for trade by gradually increasing the offer. On the other hand, the core offer is just the room product, and guests in provincial town budget hotels may feel that they are getting a rational value. As the spend per night increases, so do the expectations. [Ingram and Ransley, 2004]

If a guest is paying a premium city center rate, he or she would want to get inside the room and be able to immediately see "comfort". They don't have to go to bed to check its comfort factor; instead the room itself should ooze comfort. It needs to be visible, whether achieved by lots of puffy cushions on the bed, and soft sumptuous fabrics swaged around the room, or by a clean uncluttered minimal scheme, with tactile fabrics and beautiful textures of a more modern scheme.

To the other elements of comfort required belong also the physical ones. For instance, a chair should be comfortable to sit in but it should also be comfortable to move. A room that is entirely

comfortable, whether budget or luxury is one where everything serves for what it should, efficiently and effectively. A desk, in a business hotel targeted at the busy executive, should provide good, clear working space, with effortlessly accessible data ports and power sockets and not have the guest scrabbling around on the floor in danger of tripping over cables. [Ingram and Ransley, 2004]

A similar issue as with the ease of use of the hairdryer is also with the iron and ironing board where provided, which is often absolutely not useful to someone who is left handed or traps the user in the bedroom lobby until the job is done. Careful consideration should also be given to light switches. They should be sited with a tired disoriented guest in mind, so they are easy to locate and the switching programmed logically. Two-way switching is a great thing, unless you get into bed thinking you only have to throw the switch over the nightstand, to find you have to get out of bed again.

Strength requirements are normally set by the owner or operator, as the length of service of every element of the room will be dictated by their financial parameters. It is also related by the type of hotel product and by staffing standards. A high volume budget hotel is going to take some hard wear and staffing levels are generally low. Thus every component of the room should be highly durable. It should be clear therefore that a cream carpet would not be suitable but less obvious is how the carpet fitting is detailed. Will it run under the skirting in traditional fashion or should it be wrapped up the wall and used as skirting. Considering that while the cleaner is in a hurry, he or she can cause painted softwood skirting a lot of damage over time. Even if a table may be made of a durable material the real question is if the legs are stable enough to take a knocking. [Ingram and Ransley, 2004]

3.4.2. Bathrooms

Before the bathroom was considered more as a functional, almost functional space, but today it has been elevated to more of a relaxation room, a shelter of tranquility or even a complete wellness center. These days this transformation can be all-inclusive with so many potentials in style, furnishing, ornaments and finish. [deRoos, 2011]

Bathrooms are mostly placed on interior walls, using mechanical ventilation. For minimum building width, bathrooms may be one behind the other between rooms. Luxury bathrooms or economy shower rooms may be against external walls. Adjacent pairs of rooms are arranged mirror image to share common vertical ducts and isolate bathroom noise transmission. [Pickard *et. al*., 2002]

Typical fitments are bath, with grab bars, shower spray, retractable clothes line and curtain/screen; WC and washbasin. High-grade hotels use bigger bath, twin basins set in vanitory surrounds, WC and bidet. Luxury units include separate dressing area and shower. [Pickard *et. al*., 2002]

Hand showers adjacent to the water closet must be considered when bidets are not installed in consideration of regional and cultural requirements. 60% of double rooms must have showers. Other mixes will be considered based on market conditions. [HBS-E, 2014]

The bathroom's size will be according to the local background and taking into consideration the sizes used by competing hotels, even though they must not be less than 6 m^2. For handicapped guests, the surface area of the floor should include an area totally free of obstacles measuring 1, 5 m in diameters and 1.07 beside the toilet. Suites will be fitted with a Jacuzzi bath. In Suites and Royal Service rooms the toilet and the bidet should be in a closed area separate from the rest of the bathroom.

Finishing's of the walls with ceramic, marble, stoneware or typical local tiles. Floors covered with non-slip ceramic, stoneware or marble tiles. [Mai-BS Hospitality Group, 2013]

Clear width of door opening, when fully open, must be 0.8 m or greater and a minimum door height of 2 m. The minimum shower receptor dimensions must be 1.5 m x 0.76 m or 1.5 m x 0.85 m. Shower receptors are required in new construction and where possible in renovations. [HBS-E, 2014] Glass shower enclosures must be tempered or laminated safety glass. All hardware must withstand a wet environment. Sliding door must not be a continuous bottom track. Swinging door must not conflict with other doors. Shower door undercut must clear a floor mat when opened and swing out. [HBS-E, 2014] Heated towel rail, in stainless steel, fitted at the end of the bath or net under the tiles for heating the bathrooms is required. [Mai-BS Hospitality Group, 2013]

All bathrooms private and en suite must be set with:

- Internal lock or bolt on all private bath or shower rooms (not necessary for en suites).
- A mirror situated above or adjacent to the washbasin.
- Bath or shower.
- A lidded WC (bidet optional).
- A lidded sanitary disposal bin and sanitary bags.
- Toilet paper and holder plus spare toilet paper
- Adequate storage with space for guest shown toiletries.
- Non-slip surface or mat for use in bath or showers.
- Hook for clothes.
- Tissue dispenser
- Towel rail or equivalent sufficient for the number of guests in the room.
- Conveniently located electric shaver point, with voltage indicated or adaptor for use in bedroom.
- Excellent light intensity overall, especially at the mirror.
- Excellent heating, ventilation and extraction.
- A range of towels which includes bath sheets, robes and face cloths of excellent quality and condition.
- Hairdryer and a makeup mirror (zooming mirror)
- Telephone, music relay
- Tiled walls and acoustic ceiling

- Non-slip, drained surfaces
- Alarm button in case of emergency in shower or bath

Into the transformation there must be included a careful lighting design and choice of fittings. The first one serves to attain sufficient light for the purposes of the building, balancing factors of initial and operating cost, appearance, and energy efficiency. Comprehensive lighting design needs consideration of the amount of functional light provided, the energy consumed, as well as the aesthetic impact supplied by the lighting system. Beyond its functional usage the bathroom is also regarded as a zone of comfort, particularly in a 5 star hotel. Therefore, it is essential to accomplish every standard set, while keeping in mind the aesthetical aspect.

3.4.3. Circulation Corridors

Gross factors can range from less than 5 % for chalet and lodge type buildings with external entrances, through 20 - 30 % for 'double-loaded' central corridors accessed by lifts and stairs, up to 35- 45% for single-loaded side corridors and tower buildings. [Pickard *et. al*., 2002]

Generally the emergency stairs are positioned at or near the ends of the corridors. As précised in local codes the corridors' extents are restricted by moving distances to sheltered fire escape stairs. A maximal distance varying from 45m to 65m is used for hallways having sprinkler systems and fire exits at near opposite ends permitting two directions of getaway (with smoke doors at 30m). In those cases where a portion of a corridor in which the travel to an exit is in one direction only, it is restricted to 7.6 meters and a walking distance inside by suites of rooms to 9 m. The minimal fire resistance periods for division of exits like stairs are generally: 1h for buildings up to 3 floors, 2h for four floors or more. Flammable material and surface flame ratings of linings in exit routes are controlled. [Pickard *et. al*., 2002]

The best positioning of the guest elevators is away from the main lobby but still within the control of the front desk. Guest and service elevators, generally in the following ratios: 2:1, 3:2 or 4:3, are frequently positioned back to back for saving, the service elevators rising from the back areas of the house and opening into an alienated service lobby on every level. Elevator / lift

lobby must have no more than four elevators / lifts in a row (adjacent to one another). Large and high grade hotels often require specific provision for luggage handling. [HBS-E, 2014]

Corridor widths must be 1.65 meters minimum, in order to be appropriate for double loaded. All guest corridors will incorporate feature lighting to dramatize the circulation routes, featuring such elements as color lighting changes, artwork etc. as part of the overall design concept. Long, straight corridors must be visually broken up. The use of offsets, pilasters, carpet insets, breaks in the ceiling plane and cove lighting are required. [HBS-E, 2014]

Width of emergency stairs as required by local authorities with smoke lobbies at every level with automatic fire doors and / or as per local fire officer's requirements and with handrails on each side. Linen chutes should be incorporated. [deRoos, 2011]

Door drops must be grouped and coordinated in a rhythmic fashion. Door drops must be accentuated with special treatment of the lighting, walls, ceiling and floor areas. Provide a minimum ceiling height in guestroom corridors of 2.4 m. [Mai-BS Hospitality Group, 2013]

3.5. Acoustical Design and Requirements

The 2010 survey of business traveler reported that the third criteria, ranked just after free internet service and parking, where 56% of guests would most probably stay at a hotel, was due to its soundproof walls. The acoustical design of hotels itself incorporates a broad range of issues, starting from control of exterior noise, control of noise from plumbing, HVAC and elevators, sound isolation between guestrooms, isolation of music from entertainment areas, room acoustics of ballrooms and ending up to meeting rooms and effective design of movable walls. [Ismail, 2010]

Regarding acoustics in a hotel project there are several issues which need to be taken into account. They arise from the two types of sound, which need to be controlled: airborne sound and impact sound. Examples of a typical airborne sound are music or talking while football sound of an upstairs guest is a typical impact sound. [Acoustics.com, 2016]

First thing to start with, is the perimeter of the wall and the perimeter of any penetration; they both need to be sealed air-tight with a non-hardening acoustic sealant. When possible do not mount back-to-back penetrations, for instance light switches or outlets and mount a putty pad to the back of all outlets in party walls.

Plumbing noise can turn into a consistent noise complaint from guests, although the building code might not address it. This kind of noise can be both airborne and structure borne. A practical solution to this is by resiliently mounting pipes, which means, sufficiently insulated from their supports. They also need to be wrapped with pipe lagging material. In addition to this, always make sure that you analyze any roof-mounted equipment for a possible noise or vibration impact. [Acoustics.com, 2016]

Any time acoustic standards and isolation design of a hotel is planned, various requirements need to be taken into account, for instance; we need to think of the hotel as the place where guests rest, sleep, eat, meet and work. All these applications and activities provide the basis for architectural acoustic standards and isolation design in hotels. A common problem between

rooms is when from one room you can hear the TV from next door while one is trying to listen to their own TV probably watching a different program or in those cases when one is just trying to sleep or rest. This sound intrusion must have a STC (Sound Transmission Class) rate greater than 60, which are more difficult to control. Ideally, the offending sound should be reduced to at least 10 dB below the background sound, which includes the sound of the listener's television or other local sound, in the listener's room. A greater NR is also needed to prevent this issue. To diminish the sound from, for example, 90 dBA in the source room to 10 dBA below a typical 40 dBA background in the receiving room requires a 60 dBA reduction. This is possible, but it needs difficult and expensive measures. Moreover, draconian measures would be the only possible way that would reduce from 90 dBA to 10 dBA below a nighttime sleeping environment of 25 dBA.

Whenever non-speech sounds become a concern, the common wall must have an STC rating of 60 or greater depending on the specific circumstances. Privacy ratings are not absolute, but rather are a continuum. [Weissenburger, 2016]

Liu [Xiaotu, 1988] conducted a survey of nearly 20 hotels of different classes in several cities in China. The survey included acoustical measurements and interviews of more than100 users. Liu chose the average (or equivalent) sound level *Leq* and articulation index *AI* as ratings. The advantage of rating implementing the equivalent sound level is that it accounts for various noise sources for different segments of time. Liu found that a person assessment of the annoyance appears to be closely related to the ratio of the intrusive noise level to the ambient noise level, and does not depend only on the absolute level of the intrusive noise itself. The approximate relationship between *Leq* for the daytime and resting or working is found as shown in *Figure 11*. [Weissenburger, 2016]

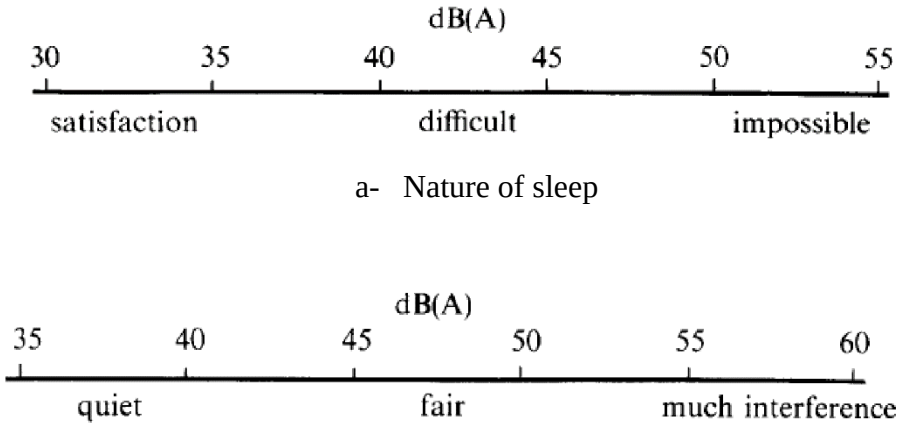


Figure 11. Approximate relationship between Leq and a) Nature of sleep, b) Rest or work [Xiaotu, 1988]

The purpose of acoustic hotel design standards is to offer acoustic conditions across hotel spaces, to guarantee the top quality of rest for its guests and provide a feeling of world class accommodation. All standards designed for hotel noise reduction and limits are to step down the following targets:

- Internal ambient Noise Level
- Airborne sound insulation between spaces (walls, and floors)
- Impact sound insulation of floors
- Reverberation times in various and important spaces

It is essential to create noise levels design criteria in terms of maximum allowable noise levels for both external noise sources and building services noise, some of hotel operators provide these standards to be met. *Table 6* represents the maximum internal noise levels allowed in a hotel development. [Ismail, 2010]

Table 6. Maximum internal noise levels allowed in a hotel [Ismail, 2010]

Location	Internal Noise
Public spaces	40 dB L_{Aeq}
Guestroom – nighttime	27 dB L_{Aeq} , 45dBL_{Amax}
Guestroom – daytime	32 dB L_{Aeq}
Meting facility – daytime	35 dB L_{Aeq} , 50 dBL_{Amax}
Leisure and fitness - daytime	40 dB L_{Aeq}

Sound insulation between spaces is given in terms of a weighted standardized level difference, a single figure generated by comparing the DnT with a reference curve. The DnT is calculated using the following equation, where T0 is the reference reverberation time. *Table 7* demonstrates a relationship matrix for sound insulation standards between various spaces in a hotel development. DnT,w+Ctr is the same level difference but including an additional correction for the assessment of low frequency noise, this figure presence in the table below is an indicator for a probability of low frequency noise content to be transferred from one space to another according to activity performed. [Ismail, 2010]

Table 7. Airborne sound insulation Matrix [Ismail, 2010]

	Guestroom	**Corridor**	**Corridor (+door)**	**Public areas**	**Meetings/ Conference**	**Bar/ Restaurant/ Banquet/ Leisure facility**	**Back of house**
Guestroom	50 dB DnT,w+Ctr	50 dB DnT,w	40 dB DnT,w	50 dB DnT,w	50 dB DnT,w+Ctr	60 dB DnT,w+Ctr	55 dB DnT,w
Corridor	50 dB DnT,w	N/a	N/a	50 dB DnT,w	50 dB DnT,w	60 dB DnT,w+Ctr	50 dB DnT,w
Corridor (+door)	40 dB DnT,w	N/a	N/a	50 dB Rw	50 dB Rw	40 dB DnT, w	40 dB DnT,w
Public areas	50 dB DnT,w	50 dB DnT,w	50 dB Rw	N/a	50 dB DnT, w	N/a	50 dB DnT,w
Meetings/ Conference	50 dB DnT,w+Ctr	50 dB DnT,w	50 dB Rw	50 dB DnT,w	50 dB DnT,w+Ctr	60 dB DnT,w+Ctr	55 dB DnT,w
Bar/ Restaurant/ Banquet/ Leisure facility	60 dB DnT,w+Ctr	60 dB DnT,w+Ctr	40 dB DnT,w	N/a	60 dB DnT,w+Ctr	60 dB DnT,w+Ctr	55 dB DnT,w
Back of house	55 dB DnT,w	50 dB DnT,w	40 dB DnT,w	50 dB DnT,w	55 dB DnT, w	55 dB DnT, w	N/a

RT, reverberation time value, is a key descriptor for a feeling of ambience. The RT quantifies how sound decays in a space, high values affect the speech intelligibility, thus it is a key characteristic descriptor for the impact of the surrounding materials in a specified space, specially where speech and communication is the activity. Operators tend to strict the RT values for Conference rooms and leisure facilities to be less than 1 second in any single frequency octave band in the frequency range 500 to 4,000 Hz. In corridors the RT should not exceed 0.7 seconds, and 1.7 seconds in atria and reception areas. [Ismail, 2010]

3.6. Lighting Design and Requirements

Energy savings

1⁄4 of the overall electricity consumed in a hotel is due to lighting, not counting its effect on cooling loads. Lighting retrofits, alternatively, are a wise solution for the electricity consuming issue, as they are able to reduce lighting electricity use by 50 percent or more, depending on the starting point, and at the same time, they can cut cooling energy requirements by 10 to 20 percent. Furthermore, different type of spaces in hotels or motels have different requirements related to the illumination. *Table 8* will describe some of the recommendations of the Illuminating. In general, outdoor night light levels are moderately low, depending on the activity level and possible threats but they may also depend on local rules. [Energy Star, 2007]

Table 8. Space illuminance in Lux, [Energy Star, 2007]

Space type	Illuminance level (Lux)
Guestroom general lighting	110
Guestroom working desk	320
Bathrooms	320
Bathroom Counter Top	500
Corridors & stairs general lighting	100
Exit stairs	200
Front desk general lighting	500
Lobby general lighting	200
Restaurant/Cafe	300
Conference room	500

Day lighting

When considering any lighting renovation make sure it starts with the usage of day lighting. It is known that natural daylight not only enhances the hotel's internal environment but it also reduces the energy use and peak demand. Especially midscale and upscale hotels can use it in lobbies; it will not only help in decreasing energy cost but also in improving lighting quality. For example, dimmers and daylight-harvesting sensors at the Mandarin Oriental in New York adjust the interior lighting levels in the restaurant, bar, and hotel suites in response to the intensity of natural light.

It is an outstanding approach the usage of day lighting for other areas also in the hotel. For instance, at the Gaia Napa Valley Hotel in California, designers wanted to increase visual comfort while reducing the use of electric lighting. They used in a corridor area a continuous clerestory that wraps around all four wings of the hotel. Tubular skylights illuminate the lobby, hallways, and guest rooms. [Energy Star, 2007]

Electric lighting

Creating a lovely and comfortable environment appropriate for different tasks can easily be done by using a combination of light sources. For instance, it can be done by coordinating the electric lighting with a day lighting scheme or just by adjusting the electric lighting in response to the day lighting. After that, mixing both direct and indirect electric lights creates an even and at the same time soft illumination. Areas such as kitchens and office space, incandescent and T12 fluorescent lamps can be replaced with compact fluorescent lamps (CFLs) a combination that can reduce lighting energy consumption by 35 percent. [HES, 2011]

Compact fluorescent lamps decrease the use of energy by two-thirds and produce savings of up to $20/lamp/ year; they are turning into the standard for table, floor, and reading lamps in guest rooms and in recessed and vanity lighting in the bathroom. The Doubletree Hotel in Sacramento, California took a convenient decision when they decided to replace their 60-watt incandescent desk lamps in guestrooms with the new compact fluorescent lamps. This helped save money and

at the same time it improved their guests' experience: their regular customers liked the change but also the complaints regarding inadequate desk lighting declined. Additionally, instead of the other lamps in the rooms, guests prefer using the brighter, more efficient desk lamps, positively influencing in this way the Doubletree's energy savings. Another positive side is that they help in saving time needed to change lamps as they last longer than incandescent lamps, which means labor savings. [Energy Star, 2007]

Many hotel can use CFLs in wall sconces and in recessed down lights for their public areas, including corridors and hallways. High-intensity fluorescent lighting is considered to be the best choice when used in parking lots and outdoor applications. Their lamps need to be enclosed when used outdoors especially in cold environments. High-efficacy fluorescent fixtures can provide more equal illumination with fewer fixtures when used in parking garages. Moreover, light-emitting diodes provide specific lighting effects when used restaurants. [Energy Star, 2007]

Controls

The lighting controls usually are composed of occupancy sensors and scheduling systems. The first ones help in saving energy and reducing the maintenance costs as the time needed in changing lamps is much longer and are also appropriate to be used in meeting rooms and back rooms, where selected modifications can increase guest comfort. In the hotel's hallways it is highly suggested the practice of arranged lighting and dimming and also occupancy sensor controls after hours. It is wise dimming lights in unoccupied hallways and stairwells and then turning them up to complete brightness when someone enters, even though this might not be the most comfortable solution for the customers.

As an example of the lighting of the hallways we can take Saunders Hotels' Comfort Inn & Suites Boston/Airport, where the amount of overnight lighting in the guest hallways was reduced by half. It resulted not only economically beneficial but at the same time guests complains about noise were even reduced. This is explained with the fact that as they are walking across the hallway and it's late at night, the lighting levels will also be reduced, this will help them understand that is that time of the day when they need to be quieter and as a consequence will

result in a decreased number of cases when guest are disturbed from other guests that walk in the hallways at night. [Energy Star, 2007; HES, 2011]

The lighting design in the toilets is of major importance. Toilets should have sufficient lighting (natural lighting and/or artificial) that fits to the specific functions during usage. Beside the functional and aesthetic effects, a successful lighting represents a significant factor in the initial costs and operational ones when using the toilets. The artificial lighting should be spread evenly and shouldn't have glare during use. The used materials (white) risk to create blinding areas.

Furthermore, the most important space in the toilet is the area next to the sink and the mirror, since in this area many functions are carried, like make-up, shaving etc. Scientific studies show that the correct lighting in this area affects the psychology of the users during the day (Perez 1998, Einchen 2010). It's important to mention that the central lights on the ceiling will create shade while using the mirror. The usage of lights in the mirror (parallel sideways or above) helped in solving and eliminating this problem. [Energy Star, 2007; HES, 2011]

Lighting of specific objects: as the name suggests, this type of lighting (for example: from above or from the both sides of the mirror) performs special duties, as said in the mirror it helps when doing make up or shaving. In this case, the shades and reflections are avoided.

3.7. Design for all

In Europe, the tourism sector is facing a period of increasing requests from tourists asking for more appropriate access in hotels, whether related to specific places or attractions. They are also expected to have developed certain expectations regarding their traveling and the destinations they have chosen to visit. Furthermore, with an increasing in the number of travelers over 55, we need to keep into account that this target group primarily requests the basic accessibility features, which includes having menus in restaurants printed in a larger size, toilets easily accessible by them and other things the +55 group or the disabled customers and their families might need to access. For these reason, tourism providers wanting to catch the rising tide of accessible tourism, should be ready to provide the requested services.

When it comes to taking the decision of where one should go and what they should book, for more than 27% of the Europeans, it is influenced by the chance whether there are accessible settings and facilities. Having a better accessibility in tourist facilities and amenities is very beneficial to a different groups of people, just to mention people with disabilities, older people, pregnant women, and families with young children and those who have other functional, health or mobility limitations. *Figure 12* indicates some of the target tourist groups. [Steven and Ivor, 2016]

Figure 12. Literature promotion for accessible tourism. [Steven and Ivor, 2016]

Yet, the focus of the industry on the accessible tourism is still pretty low and there is still much more to be done. According to the Member States of the European Union Survey it was concluded that the number of services that could be accessed from people that use wheelchairs was quite low, for instance 1,5% of restaurants & catering amenities, 6,5% of accommodation establishments and 11,3% of attractions. To conclude, even if the service potentials are high, the industry itself is far away from the accomplishment of its customers' access needs. [Steven and Ivor, 2016]

Nowadays, for many disabled or old customers, the majority of hotels, tourist sites and transportation facilities aren't physically accessible. Additionally, there is a lack of correct (and available) information concerning the access features of settings and places. In general, it is also rare for personnel at tourist venues to be trained in how to "meet and greet" people with a disability. [Steven and Ivor, 2016]

To a certain extent, the lack of progress in this area from the private sector can be explained with the deficiency in policies and strategies created from the government that would advertise and promote the accessible tourism. An example to this is that only some of the national tourist boards in EU Member States have efficient information, implements or inducements that can support tourism businesses to power the accessible tourism market. Mostly good practices are not acknowledged as worthy models that need to be followed and in the other side the business profits of developing accessible tourism are little highlighted in the policies regarding the development of the tourism. [Steven and Ivor, 2016]

Most studies on hotel tourists with disabilities, center on the hotel room's physical environment and virtually ignore other hotel areas (such as public spaces and restaurants) as well as elements such as interaction with the hotel staff. Thus, the impression provided is that people with disabilities by and large remain in their rooms and forego use of other hotel facilities. Thus, as, to date, encompassing hotel experiences of people with disabilities have been virtually ignored, and there exists a need for an exploratory study, which provides basic taxonomy of the experiences. [Poria, *et. al*., 2011]

Accessibility needs a good design because when products, buildings and environments are designed in such a way that every possible request and need of its user is taken into consideration, it will not need future intervention in order for it to be more accessible. People refer to this kind of design with terms such as ‘Design for all’ or ‘Universal Design’.

“Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design”

Ron Mace, *founder and programme director of The Center for Universal Design*

Accessibility belongs to every citizen and it is one of their social rights. It equally applies to everyone and it does not include only disabled people but also families with small children, people with a mental impairment, people suffering from different medical conditions, old people etc. Definitely everyone profits from an accessible surroundings and society: Accessibility creates more value, more well-being, and more safety.

Parking and approach to building, this area must supply with a minimum of one available parking space in each 25 parking spaces. It must be positioned within 30 meters from main entrance door, with an accessible route, that is level or gently sloping and minimally 1200 mm wide, leading to the building entrance. This route to the entrance from the parking must not require the user to cross any vehicular monument. In addition to this, for those cases of underground parking, accessible parking bays should be located closest to the elevator leading to the lobby level. Accessible parking bay should be 4800mm wide, out of which at least 1200mm, on both the sides, is used as transfer bays. The transfer zones, both on the sides and the rear should have yellow or white crosshatch road markings. [NID, Ahmedabad, 2016]

Another important part is the signage, the symbol should be large enough to be easily visible by person looking for the accessible parking. Recommended size being 1000mm x 1000mm, also the sign painted on the floor should contrast with the floor color (preferred colors, white and blue). *(Fig 13)* There should also be a signboard with the international symbol of accessibility at the height of 1200mm from the floor right at the end of the parking. [NID, Ahmedabad, 2016]

Figure 13. Parking signs for people with disabilities [NID, Ahmedabad, 2016]

The approach to the building entry should be visibly defined. The surfaces should be firm and even, with a finish which is slip resistant in all weather conditions. A recommended clear width of 1800mm will allow two wheelchair users to pass each other on path. [NID, Ahmedabad, 2016]

The main entrance or entrances should be accessible to people with disabilities, including wheelchair users. Where this is not practicable, an alternative entrance, intended for general access, should be accessible. [MEI, 2005] Any kerbs in the route should have appropriate drop kerbs to allow access to a wheelchair. The main entrance should be easy to be found and adequately signposted. It is important that the doors (consider installing automatic or semi-automatic doors) should be easily identifiable and contrast visually with the surrounding wall. If doors are used, they should have color strips or other markers and the floor texture directly next to the door should be different from the surrounding floor texture. A landing of at least 1800mm x 1800mm immediately next to the door should be planned. [NID, Ahmedabad, 2016]

The reception should be designed, so as to accommodate both standing and sitting guests. A minimum clear floor area of 1200 mm depth and 1800 mm width is required in front of any

reception desk or counter (with a provision of 500 mm deep knee recess) to enable sufficient maneuvering space for wheelchair users. If there is no knee recess provided, then the minimum maneuvering space required is 1400 mm deep and 2200 mm wide. The face of the receptionist should be evenly lit. The surface of the reception counter should be non-reflective. There should be a hearing enhancement system such as a loop induction unit, the availability of which should be visibly indicated with a symbol at the reception. The lobby should be leveled, while split levels should be avoided. Adequate circulation space for guest on wheelchairs or a person with heavy luggage is also another important part of the design. [NID, Ahmedabad, 2016]

In those places where *an elevator* is provided there should be a clear landing at least 1.5 m wide and at least 1.5 m long in front of every entrance to the lift. The lift door or doors should have a clear opening width of at least 800 mm while the width of the lift car itself should be at least 1.1 m and the length at least 1.4 m. Controls in the lift car and the controls at each landing should be at a height of not less than 900 mm and not more than 1.2 m above the car floor and the landing respectively. Controls should not be located in corners and should be at least 500 mm from any wall or projecting surface. Suitable tactile indicators to indicate floor numbers should be provided on or adjacent to lift buttons within the lift car and on the landing. *(Fig. 14)* [MEI, 2005] There should be grab bars placed horizontally, at a height of 900 mm from the floor level; it should be fixed on both sides and at the rear of the elevator. The call buttons should contrast in color and tone from the background wall, should have lettering in Braille and also in raised letters and be illuminated. Elevators should connect all floors, including basement parking. [NID, Ahmedabad, 2016]

Lift car should provide both visual and voice indication of the floor reached if it serves more than three floors. It is important that lift doors stay open for at least eight seconds so disabled person can enter. A half-length mirror should be installed to provide a wheelchair user with a rearview to safely reverse out from the lift car. [MEI, 2005]

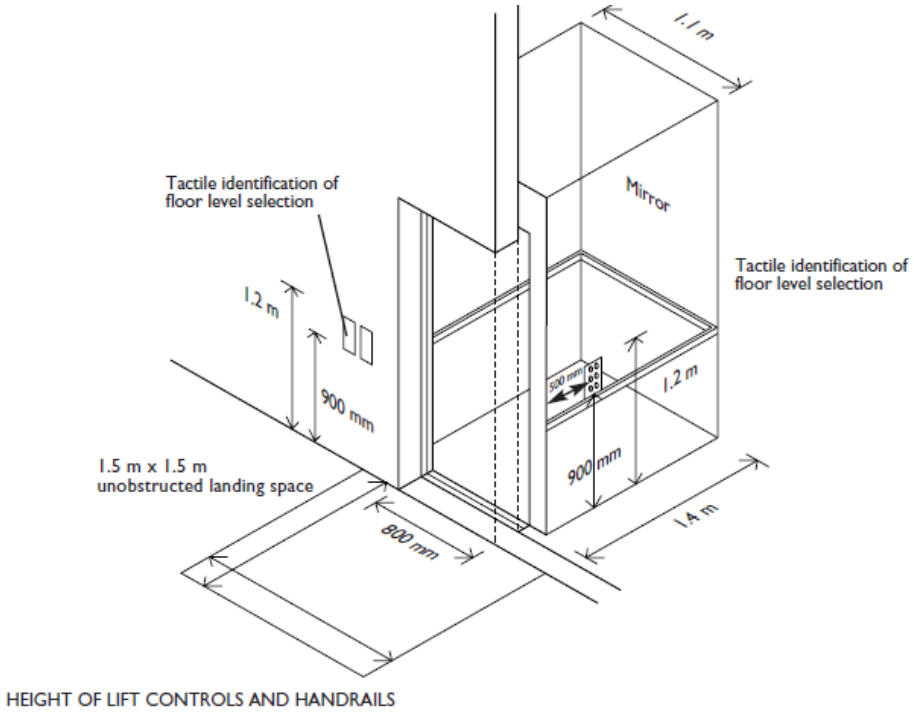


Figure 14. Elevator minimum requirements for disabled people [MEI, 2005]

Ramps should ideally not be steeper than 1:15. Steps should always accompany a ramp and vice-versa. Circular handrails should be installed at a height of 900 mm from the ramp surface on both sides of the ramp and fixed with L-shaped brackets. Ramps should at least be 1500 mm wide, and have landings every 5 meters run and at the top and bottom of the ramp. Ramp surface should be slip resistant. Provide a maintenance illumination level of at least 150 mm on the ramp surface. Tactile warning blocks should be installed at the beginning and end of the ramp. [NID, Ahmedabad, 2016; MEI, 2005]

Stairs must have color contrasted nosing of 25 mm at the edge of all treads. Open risers must be avoided. Handrails must be circular, and that contrast in color from the background wall, should be installed on both sides of the stairs, fixed with L-shaped brackets, at a height of 900 mm from the furnished tread level. They should be continuous on both sides, even on landings, and extend 300 mm beyond the top and bottom of staircase. Tactile warning blocks should be installed at the beginning and end of each flight of stairs. The under stair area should be covered and demarked

from the circulation area. Provide a maintenance illumination level of at least 150mm on the stair surface. . [NID, Ahmedabad, 2016; MEI, 2005]

Corridors should provide the circulation routes that allow easy movement and provide a sense of direction. The corridor should be wide enough to allow easy access to people carrying cases, parents with prams, people on crutches to pass each other on route. The minimum width of the corridor should be 1500mm.There should not be any protruding objects up to a height of 2 meters from the floor surface. Steps, where unavoidable, should be accompanied by gently sloping ramped access. Incorporate adequate visual contrast between critical surfaces i.e. walls should contrast in color and tone from the floor and ceiling. Provide a maintained illumination level of at least 100 lux. Floor finish should be non-slippery and non-glary. [NID, Ahmedabad, 2016] Internal lobbies should be so designed and constructed that there is sufficient space to enable a wheelchair user and the person assisting the wheelchair user, to move clear of one door before using the next one. [MEI, 2005]

Doors should contrast visually from the immediate surroundings, such as the door should contrast in color from the surrounding wall. They should provide a minimum clear opening width of 90 0mm. An unobstructed wheelchair manoeuvring space that is at least 300 mm wide should be available on the side next to the leading edge of the door. The closures should be adjusted so that the doors do not require an opening force of more than 22 Newtons. Glass doors should be marked with colour strips or other manifestations. Thresholds should be avoided and, where unavoidable, these should not exceed 15 mm in height and must be beveled.

All door operating hardware should contrast in color from the door and be installed between the heights of 900 mm and 1100 mm from the floor level. Lever handles are preferable to round knobs. Room numbers and other signage should not be installed on the door but on the adjacent wall between heights of 1400 mm and 1700 mm from the floor surface. The signage should incorporate raised letters and, where possible, Braille. [NID, Ahmedabad, 2016; ADA, 2010; MEI, 2005]

Guestroom location of the accessible room should be decided taking the following points into consideration:

- Ease in evacuation; therefore a lower floor room may be better.
- Easy and direct access from the guest elevator.
- Easy to locate on the floor.
- An interconnected room with the accessible room that may be used by a companion.

There must be a sanctioned provision which regards those guests that have disabilities and to whom there must be created an ease of access to the elected rooms, this is generally considered to be 2 percent of the total in conjunction with the public areas. For instance bathrooms need a turning space for the wheelchair of 1.52 meters and a width of 2.75 meters, equipped with purposely designed fittings and grab bars. The height of the wheelchair eye level is 1.07-1.37 m. Furthermore, doors 815 mm clear opening with lobbies 460 mm wider than the door on the latch side. *(Fig 15)* [Pickard *et. al*., 2002]

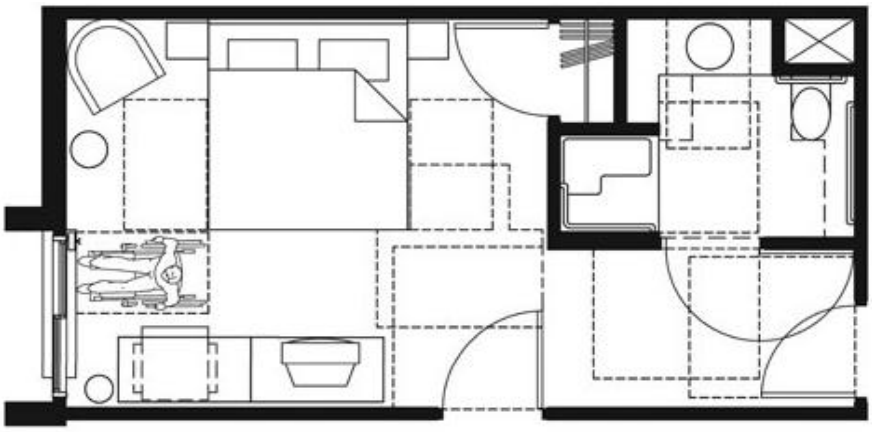


Figure 15. Typical room layout for people with disabilities [ADA, 2010]

The following points should be taken into consideration while designing the space and the furniture of a disabled guest room:

- There should be an accessible route from the lobby with a clear opening door width of at least 900 mm. The highest point of card swipe should be no more than 1100 mm from the floor.

- The room door should be light to open with a magnetic stopper, key hole should be between 900 mm to 1000 mm.
- Room identification number should be in Braille and embossed on the wall, not the door.
- There should be 1800 mm x 1800 mm turning space in the room and within the room there should be 900 mm wide unobstructed route to all furniture.
- Twin beds should have minimally a 900 mm wide space between them.
- Bed height should be about 500 mm from the floor including mattress.
- There should be a space of 1100 mm in front of the wardrobe with adjustable clothes rod height.
- The study table should be minimally 900 mm wide, 700 mm deep and 760 mm high with a clear knee recess 750mm high under the table.
- All knobs and handles should be lever type.
- All amenities such as a hair dryer and magnifying vanity mirror should be between 800 mm to 1100 mm from the floor.
- Tea counter to be at a maximum height of 850 mm with cordless kettle and light weight cups.
- There should be adequate color contrast between the floor and the wall and the wall and the furnishings.
- There should be an emergency alarm operable from the bed and also from the adjacent floor.
- Fire alarm provided should be both audible and visible.
- Doorbell should have a visual indicator.
- All sockets should be between 400 mm and 1000 mm from the floor and 350 mm from the wall corner
- All switches and controls should be between 750 mm and 1100 mm from the floor and should contrast in color from the wall. [NID, Ahmedabad, 2016; ADA, 2010; Rogers, 2012; MEI, 2005]

*Bathroom**;*** an accessible guest room should have an en-suite accessible shower room. The minimum dimensions of an accessible shower room with a water closet and wash basin are 2300 mm x 2400 mm. *(Fig.16)* The following points should be taken into consideration:

- The door of the shower room should either be outward opening or sliding in nature. The minimum door width should be 900 mm.
- It should be capable of being locked from the inside by a device that is operable by one hand, activated by a force of not more than 22 Newtons and which does not require fine finger control, tight grasping, and pinching or twisting of the wrist.
- The floor used should be slip resistant and should contrast in color with the wall. Luminance should be minimally 150 lux.
- Emergency assistance alarm with a reset button operable from the water closet should be provided.
- In case of bathroom with bathtub width to be 700 mm and the length between 1600 mm to 1700 mm and at a height of 480 mm. While in case of shower must have a seat with minimum dimension 400 mm wide and its top 480 mm from the floor which folds up after use.
- The width of the bathtub to be 700 mm and the length between 1600 mm to 1700 mm and at a height of 480 mm
- Taps should be mixer type with lever type faucets.
- Vertical grab rails, 500 mm long to be installed at the tap side of the bath, at a distance of 600 mm from the wall and at a height of 680 mm from the finished floor.
- Horizontal grab bar, running across the length of the bathtub (and the transfer seat if any) is to be installed at 555 mm to 580 mm from the finished floor,
- Alternately the horizontal rail can also be cranked at a maximum angle of 13 degrees to the horizontal from the center.
- Towel rail should be installed between 900 mm and 1100 mm from the floor level. [NID, Ahmedabad, 2016; ADA, 2010; Rogers, 2012; MEI, 2005]

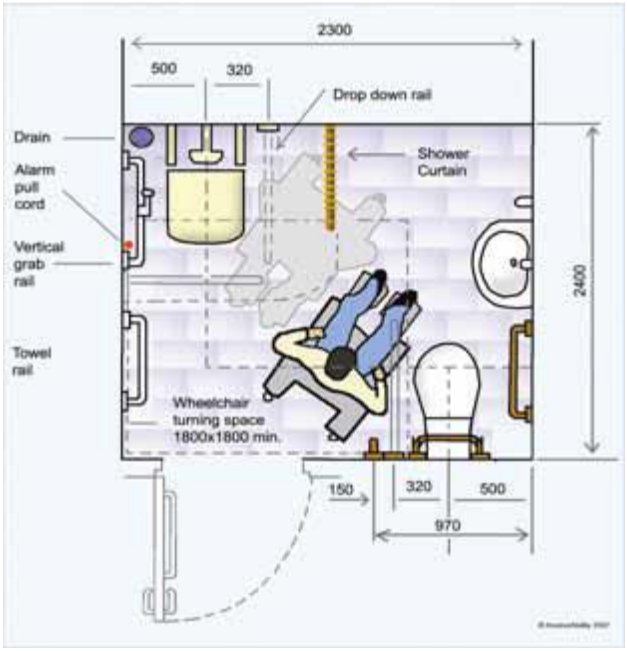


Figure 16. Typical bathroom layout for disabled people [NID, Ahmedabad, 2016]

Business center and conference room facility, both these facilities must have an accessible route leading to them. In case these facilities are not situated on the principal floor, they must be accessible by guest elevators. Both conference and banquet halls should be at one level. The podium must be accessible to wheelchair users by a ramp. Have a lower lecture stand available with a maximum height of 800 mm. The lecture stand must have a provision for local light. There must be an accessible toilet in the area where banquets are provided.

Furniture should not be fixed but movable, to allow creation of extra space, if required. Seats, both with and without arm rests, should be available at such facilities. The seat height should range from 450 mm to 475 mm. There should be a clear unobstructed space under the table of 750 mm. Furniture should contrast with the floor and use of heavy patterns should be avoided on the furnishing. The lighting at a conference facility should range from 300 lux to 500 lux, especially on the podium.

The background of the podium should be lit in a way that a sign language interpreter on the stage is clearly visible. [NID, Ahmedabad, 2016]

Restaurant, Bar, Pub and Lounge areas must internally be at one level with adequate circulation space for wheelchairs. All areas of the facility should be accessible, including the buffet and the bar counter. The facility, if not on the principle floor, should be accessible by a guest elevator.

The furniture should be removable, and contrast in color from the floor and from the crockery used. There should be a provision of chairs with and without arm rests. The tables should have a knee recess of 750 mm height. There should be lowered counters that are 760 mm high at the bar. There should be a maintained illumination level of 50 lux to 200 lux and the lighting should not cause glare. Avoid thickly piled carpets and heavily patterned flooring or carpets. Flooring should be slip resistant. Menu cards should be available in large print and in Braille. At least one staff member in each shift should be able to communicate in basic sign language. [NID, Ahmedabad, 2016; ADA, 2010]

Recreation Areas such as pool, spa fitness etc shall provide access for people with disabilities too. Bare feet on wet floor surfaces make movement both difficult and dangerous for the ambulant disabled person, therefore the floor finish in the pool and shower area should be carefully selected to be slip resistant, even when wet.

For a pool, less than 91 linear meters in length, at least one accessible mean of entry should be provided (like a swimming pool lift or a sloped entry). There must be a provision for accessible toilets, shower areas and dressing rooms in close proximity to the pool. Changing areas should be clearly signposted. Locate signs on wall adjacent to door edge to allow easy identification of the changing facilities. Sufficient space should be provided for maneuvering wheelchairs – minimum clear turning diameter of 1800mm. All benches must have a minimum depth of 450 mm (ideally 500 mm) and be set at a height of 480 mm to allow easy transfer from a wheelchair. These should have a smooth finish to surfaces and no sharp edges. All treatment rooms of the spa should be wide enough to accommodate wheelchair users. There should be adequate color and tonal contrast between fittings, walls, ceilings, floors and so on, to assist persons with vision impairments. [NID, Ahmedabad, 2016]

Surface *finishes* should generally be smooth and uniform, avoiding any abrupt changes in texture, reflection index or levels. Choosing the floor finishes and their layouts appropriately can enhance accessibility for disabled guests. Surface materials can offer different sound qualities and textures as an aid to locating the route. The floor surfaces next to entrances, internal doors, ramps, stairs and any other unavoidable permanent fixtures in the circulation route (such as pillars and lobby centerpieces) should be different from the rest of the surrounding areas, in color and texture, to highlight the desirable features. Surface materials for stairs and ramps should be of a different texture and contrast visually with the landings.

Avoid too many patterns or textures on floor finishes and carpets, as these tend to confuse people with vision impairments and those with cognitive disabilities. Floor surface finishes with patterns that could be mistaken for steps or changes in level should be avoided. If floor surfaces are carpeted, they should be firmly fixed with no loose edges, so as not to provide a tripping hazard for ambulant disabled people or people who are visually impaired. Deep piled carpets should be avoided. Whilst the surface finish should be as smooth as possible to prevent tripping hazards and to provide an easy travel surface for wheelchairs; it must also be slip resistant, especially when spillage occurs.

Acoustic qualities of surfaces, such as sound absorption, become imperative when choosing floor finishes for lobby areas and conference halls / meeting rooms, as these can enhance or diminish independence of guests with hearing impairments. Surfaces that are highly reflective, especially when polished, have an adverse effect on people who cannot withstand glare. This factor should be given utmost consideration when deciding floor finishes for the lobby. Moreover, reflections can mislead people, particularly those who are visually impaired. [NID, Ahmedabad, 2016; ADA, 2010; MEI, 2005]

3.8. Security and Guest Safety

About 265,000 hotels around the European Union could provide, during 2006, 13.9 million bed places, employing in these industry nearly 1.8 million people and having 1.75 billion Overnight stays recorded. Taking into account the above mentioned data, this industry can be clearly considered a big force in the European Labor market and facility sector. Considering these data, we can also claim that a very important sector for both consumers and hotel owners is the safety of the hotel. Basically, customers need to be sure that they won't get any avoidable injury or damage during their stay in a hotel. Certainly, as the hotel's personnel's safety is broadly protected by Community and national safety at work and work environment legislation, while the customers aren't defined as a comprehensible object to protect and support legally, knowing tis, we will primarily acknowledge hotel safety as the health and physical integrity of hotel guests. [Eurostat, 2016]

Safety and security are the two main categories that the hotel's safety can be divided into. Safety is considered as an element related to the facilities provided, which means for instance that the hotel in terms of the building is safe, and that the foodstuff provided can be eaten safely. On the other side, security has more to do with the threats that can be caused by people, which means that it hangs on on the person that causes a threat related to security, and it cannot be predicted. We can divide safety into fire safety, and all other aspects of hotel safety, food and swimming pool safety included. [Ballester, 2013]

Hotels themselves serve not only for providing a good accommodation to their users but also as a place where different activities and services are provided and take place. It is a place where you can eat in the restaurant, organize a conference, participate in leisure activities such as swimming pool, gym, spas etc. Saying this, it can be understood that the risks and threats that can occur during the stay in the hotel vary from one hotel to another, some of them where identified through studies related on safety and responsibility problems relating to package travel and statistics, also interviews with the hotel industry, consumer organizations and fire safety spokespersons. Moreover, they can be categorized into: safety risks, and security threats. Security threats are dynamic, depending on the person that poses a risk to security, and can't thus

continuously be predicted, safety risks are more static they comprise fire safety (fire, suffocation etc.) and CO safety, which are rare but still very danger posing everyone to life threatening disaster and need to be identified through a careful assessment of the risk. It also includes health and safety questions like swimming pool safety (drowning, slippery floors); poor lighting leading to for instance falling down; lifts; and illnesses, particularly gastroenterological illnesses that are due to the reduced hygienic conditions. The above mentioned safety risks may have smaller consequences when compared with the risks of fire and CO poisoning, but they are still more commonly encountered in these environments. [Sylvest *et. al*, 2008]

Scientific developments, new tools and better engineering solutions play a major role in the reduction of the number of accidents that are related to fire in hotels, especially when taking into account the statements of the fire safety officials, which state that the threat from fire in hotels has increased especially with the increase in the usage of inflammable material, such as plastic, in the interior of the hotels. Controversially, when looking at the statistics regarding the fires on hotels in the United Kingdom it can be concluded that there has been in 2003.

Another problem is the lack of standardization in fire alarm systems, for instance there are different alarm tones in different member states. Moreover, the smoke detectors and other detection devices are only completely operational when they are incorporated with alarm systems. The swimming pool safety has experienced continuous improvements in the last 20 years. This was thanks to the renovations in Member State legislation and the new CEN standards on the design and operation of swimming pools. The new CEN standard, directed at those concerned with the operation and management of classified swimming pools, states safety necessities for the operation of classified pools, it provides directions about the risks for staff and users and identifies the safety measures that are required to maintain the public swimming pools safe. [Sylvest *et. al*, 2008]

In general the hotel industry is strongly focusing itself in risk prevention, driven mainly by the market and insurance industry. Reflecting in this way the expectancy that hotels look after broader scale threat compromising terrorist acts and natural catastrophes, and on the other side the evolution on the culture of getting compensated, with clients being more informed about

what belongs to their rights and how and when to ask for compensation. It is difficult to report the changes that are related to the European hotels in terms of risks and threats as there is little information concerning accidents or injuries that have happened in the EU hotels. What still can be identified is that there is a diminishing number of accidents due to fire, drowning or food intoxications in the EU hotels and this, thanks to the achievements arisen from the technology and the rigorous efforts from the hotel industry, consumer organizations, fire safety officials, and national authorities. At the end we are all conscious that these risks can never be completely removed. [Sylvest *et. al,* 2008]

CHAPTER 4

APPROACH

4.1 Overview

Albania is a third world country which has been blessed by a unique and favorable geographical situation. The capital city, Tirana has continuously detained international attention by fetching a rapid growth of tourism. European standard hotels development is the main key to succeed in the world of tourism. Since the city has a lack of high quality hotels generation of a new modern European hotel will lead to new architecture approaches and technology development. The aim of this study is to provide information related to the main standards of business hotels in terms of design, public spaces, room standards, acoustical, lighting, design for all, and security and safety issues. This is supported with an actual case study which implicates a concrete approach throughout a whole procedure of business hotel development from the roots up to the final product.

The case study is organized according to 3 main categories. The first one is a general description of the hotel sector in Tirana and a brief explanation of the tower by mentioning its main characteristics and the design approach in general. Something that must be mentioned here is the readapted character from office oriented building to a 5 star hotel. The second part of the case study generates the interior design and planning of the object as a whole. Focused on the interior planning of the spaces inside the Plaza, the study develops a structured analysis about the design of public facilities, guestrooms, bathrooms and corridors design.

The last part of the case study is based on the performance design of the object. This chapter includes the Lighting, Acoustics, Design for all and Guest Security and Safety design.

The entire case study is principally based on real measurements and conducted analysis on site with the main purpose of obtaining concrete application standards on a real building.

4.2 Case study description

4.2.1. Tirana and hospitality

Recently Tirana is being considered from tourists a real gem with all the best bits of Europe, with its Albanian charm and on the other side its affordable prices. It's obvious that quality standards and accreditations give travelers staying in Tirana the assurance of staying in accommodations run by owners who are serious about providing customers with good value and high quality experiences. Recent trends in tourism and travel clearly show that an increasing numbers of travelers seek authenticity and enjoy experiencing a genuine connection with people in the country they visit. Because many are run by owners and employ staff who grew up in the area, these hotels and guesthouses are known to go out of their way to please their clients. Moreover, the traveler's culture all over the world is strongly related to internet. Before choosing any specific offer, they tend to surf in the internet and gather as much information as possible, and basically base their bookings on other travelers' experiences. From a thorough investigation of the 84 Tirana hotels reviews made at tripadvisor.com, it was concluded that the top rated hotels where all centrally located, most 4 star hotels with an average price ranging between $60 and $190. The average number of rooms was around 63 rooms and all had the majority of the amenities corresponding to their star rating, for instance:

- Wheelchair access
- Pets allowance
- Restaurants and Bars
- Pools
- Fitness center with gym
- Free internet
- Business center with internet access
- Room service
- Dry cleaning
- Meeting rooms
- Airport transportation

- Laundry service
- Concierge
- Banquet rooms
- English speaking staff and conference facilities.

The most positive aspects of hotels located in Tirana according to tourists' reviews had to do with the delicious food, the clean rooms, the hotel's central location, and the English speaking, qualified and friendly staff. Travelers who stayed in Tirana for business purposes where satisfied not only from the general hotel services but also from the facilities found in the rooms that made working inside comfortable and efficient. They also provided a travel agent and car rental agency on site as well as lots of meeting rooms. Still there is a lot to be done in terms of design, lighting of the rooms, having a better acoustics, which is also a big complain of tourist staying in Tirana and of course issues that have to do with the security and safety of the guests. A lot of complains are associated with the false star placement in hotels, as they don't fulfill the necessary requirements to have the number of stars they advertise to have, conflicts between owners and staff and breakfast served in hotels, where there's still a lot to improve. In general, the last years have brought a wide range of improvements in all hotels' aspects in Tirana but there is still a lot of work to be done in the above mentioned areas.

4.2.2 Design and construction of the tower

The high-rise building is located in the center of the capital city of Albania, Tirana. It is exactly positioned in the north-west side of the city center, between the 28 Nëntori Street in the north, George W.Bush Street in the east and Abdi Toptani Street on south.

TID Tower firstly designed to be an office building, specified from the French plan as "1 J" Tower, it is part of the study and master plan of the ARCHITECTURE studio for the boulevard and Tirana's central area, this studio also planned the construction of 10 towers in both sides of the boulevard "Dëshmorët e Kombit".

TID Tower, conceived and designed from "51N4E" studio, is the leading and main part of a structure composed of three modules. The main purpose of the architects was to attain and maximize the light of the city inside a high-rise building and as a solution to this; the tower's volume starts as a perfect ellipse on the base and ends as a rectangle on the very last floor. *(Fig. 18-a)* [51n4e.com.] The subtle transition between these two basic shapes makes a grand tower which fully captures the Mediterranean light. In the angular sides from the bottom up, the facade is steep with a 5.7 m displacement; this fusion comes smooth due to the change in form of the building in each floor.

The site for the tower qualifies as a prime location: it can be seen from the main boulevard and also the main street that connects the airport and the entrance into the city. Seen from Tirana's central square, the shape of the tower gracefully complements the urban ensemble consisting of the mosque "E'themBehu", the clock tower and the cultural palace and –at the foot of the tower- a memorial tomb for the city's founder Kapllan Pasha. *(Fig. 17)* Taking into consideration that Albania and Tirana are prone to earthquakes, the usage of a system or of a network of diagonal columns was considered very effective, this would also enhance the three dimensional development and the changeable part of the facade.

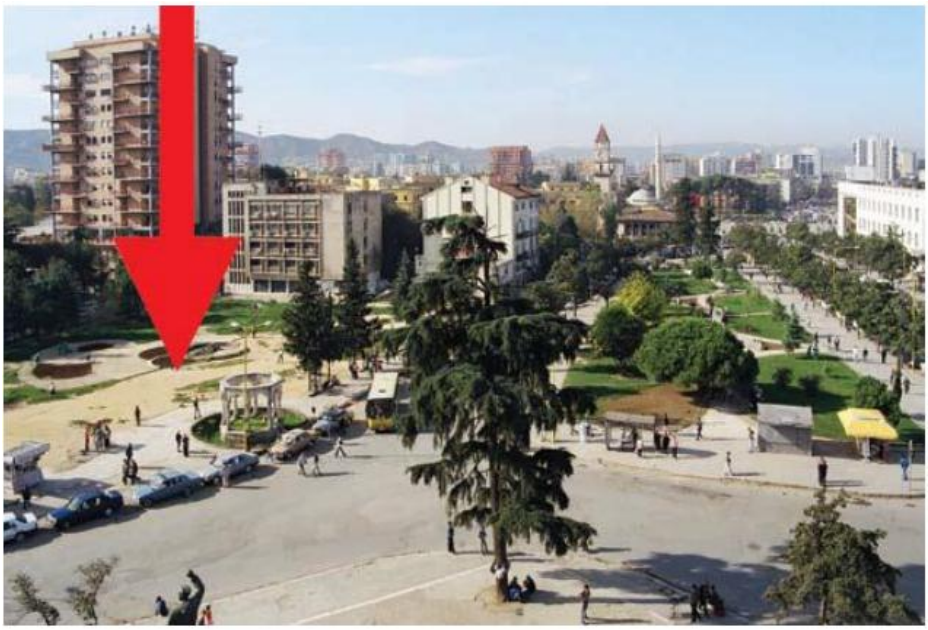


Figure 17. Area of construction and the monument dedicated in memory of Kapllan Pasha, founder of Tirana. [TID archive, 2016]

The central positioning of the object requires the facade to be effective not only in an urban but also in a private level, according to its internal usage. It should be composed of different elements that correlate to the Mediterranean conditions for a country like ours, in both its outdoor and indoor part, creating elements like small balconies, shading effects, different textures that create different effects based on the falling light.

An influential element in the design of the tower was the memorial tomb of the city's founder Kapllan Pasha, an abandoned and almost destroyed memorial. Not only due to its closeness to the area where the tower was going to be constructed but also due to its historical and enormous significance for Tirana, it deserved a special consideration when designing the tower. It was decided to have a special place, to be able to return to the memorial its importance and dignity by creating a dome sector, in form of an urban shelter that would serve as an object of identification and protection for the memorial. The circular, three-dimensional cut out of the base of the tower created an almost ethereal aura for the tomb. This idea on the other side turned to an object of polemics after the competition.

a-) b-)

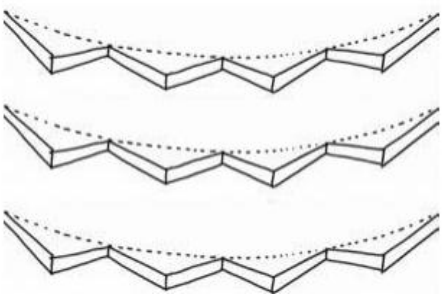
Figure 18. a-) the aberration that occurs from the elliptical to the rectangular form, b-) the first façade proposal with diagonal columns [51n4e.com 2016]

The first design was composed of a diagonal network and colons that the architects considered as the most effective solution for the possible earthquakes. *(Fig.18-b).* The designers took in consideration the fact that more than 70% of the Albanian population is Muslim and intentionally designed the facade. Although during the communism the religious practice and symbols in the

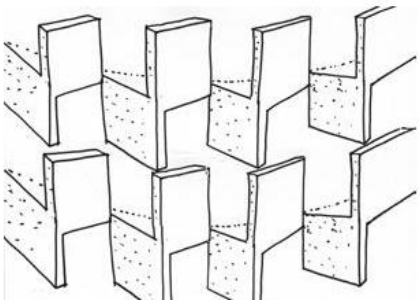
country were not allowed, that faded the approach of the citizens towards them. After several attempts on giving the appropriate place and dignity to the Kapllan Pasha memorial, the discussions were focused on the building's facade, identifying it with oriental elements, Muslim, somehow were considered closed and cheap. *Figure 19* shows first mock up building with the usage of the network diagonal columns in the part of the facade.

Figure 19. First Mock-Up of the building [TID archive 2016]

Muslim motives of the facade were considered as not as the future image of Tirana. For this reason was reflected and architects came out with a new idea, where the idea of diagonal structure were replaced with prefabricated panels. A simple and effective solution was found, standardized elements of the facade were used to cover the object's volume. Every floor has 44 identical isosceles triangles. *(Fig. 20-a)*



a-)



b-)

Figure 20. Schematic drawings a-) Isosceles Triangles on the slab b-) the panels installed in the triangles [51n4e.com 2016]

In the base, the triangles of the facade have a right angle and they keep on opening up towards the last floors. In the same way as the saw teeth they distort in a straight line. Even if the triangle changes, the dimensions of the two edges of the triangle that widen up don't change, enabling the placement of the panels with the same size for the covering of the facade. All the floors have the same height, helping the panels have the same dimensions to finish the entire facade. The panels have height about almost half a story and are connected to the floor not with each other, creating some hanging “legs” and “balconies”. *(Fig. 20-b)* When seen from inside they can be perceived as disconnected, by creating a horizontal artificial line.

Another basic elements of the tower is the dome over the tomb of Kapllan Pasha, returning to the memorial its significance and grandeur. The citizens of Tirana finally assessed this gesture more than the tower itself.

Figure 21. Second Mock-up of the building according to the project with the panel version [TID archive 2016]

The space between the panels allows enough building tolerance during construction and in the same time the reading of the facade remains unified, it also permits the "light" of Tirana to project itself in the indoor areas. To concretize this theory, a similar model with the tower, with a height of two floors, was built. It also served to test the way and process of construction. This built model helped to test many processes and materials that were going to be used in the construction of the tower. *(Fig. 21)*

Figure 22. Mounting of panels starting from the top to the bottom, 1996 panels 600 kg each. [TID archive 2016]

Black basalt stone and white cement with white quartz were the composing elements chosen for the panels. Seen from the distance, the panels look like an abstract color that tends to merge with the sky, *(Fig. 22)* and in overall it looks like a form composed of some particles or pieces not easily interpretable in an urban level. The specific position of the building in the cityscape works on two scales: on an urban scale and on a private scale.

The façade is developed as one system, emphasizing the tower as a whole, while allowing for diversity and variation when zooming in. It becomes a mediator between the public and private. The facade generates diverse conditions in response to the inside and outside environment. As important as its silhouette, is the base of the tower. This base is organized around a central open gallery, covered by a cantilevering roof. The tower structure is made of a central nucleus, where are positioned the elevators, shafts and emergency stairs and 24 inclined cylindrical perimetral columns. The beams are hidden and the slab is thermo isolated with polysterol. Glass window covers all the building's perimeter. Hanging panels that are fixed in the triangular slabs are very dominant in the room but untouchable because of the glass facade.

TID Tower is the first project in the country from this category that was developed or built in accordance to the legal rules of fire. The Tower is the only building in Albania, which is being constructed according to NFPA regulations, pre-approved on site by FPC consultants.

Structural nucleus structure is 2 hour (120min) fire rating. To evacuate the building two means of escape provided by scissor stairs that are completely separated by each other by a 2 hours fire resistive construction. Access to these stairs is granted via two separate openings at opposite side of stairs; and one of these scissor stairs gives out directly to the outside via a protected corridor.

4.3. Interior planning and design

December 2013 the investors decided to change the TID Tower from the projected destination for offices. Soon it was decided that the tower should be embraced in a 5 * Hotel, and after this step it was necessary to obtain preliminary measures for analyzing the object and its conditions, in order to easily adapt to the new function in accordance to the criteria of 5 * hotel but at the same time, the possible inevitable interventions that would arise, had to be in the minimum. Since the structure of the building was designed from the beginning by predicting a possible adaptation in time, it facilitated the decision taking for changing it into a hotel.

Advantages of being a hotel:

- The Tower is next to Tirana's historical square
- Next to all local/central governmental offices and private institutions.
- Pedestrian accessible from north, south, east and west.
- Car accessible from north, east and south
- 370 underground parking spaces designated only for the building
- All corners of Tirana are interconnected as a result of over 10 bus lines crossing their routes only by the TID Tower.
- The only building that can be seen within a 10 km radius, at 85 m height TID Tower is the highest building in Albania.
- It has become a reference point and a tourist attraction… a must see…picture perfect…in every Tirana postcard.
- From the grounds up TID Tower has become one of Tirana's most admired landmarks…
- All rooms with city view

After analyzing the entire building as a whole and its composing components in particular, a schematic program of the initial distribution of the spaces was created. Being positioned in the city center with all governmental buildings around the decision was to be a business 5 star hotel. Starting from this moment the first steps in creating the project that was a subject of change till its last version, were made. During this period of time, many variants and different concepts regarding the room layout plan were developed, starting with the number, surface, category, model, quantity etc. The selected studio to finalize the program was a Turkish architecture studio ALI CICEK MIMARLIK of the architect Mr. Ali Çicek. This studio collaborated closely with TID team and their local partners CoRDA. Together they decided for the last version on the number and composition of the rooms for the floor type**.** Alternatives of 8, 10 and 12 rooms per floor were proposed. One mock up floor was build. Where were tested all the components of the rooms, especially the toilets. Different layouts were created, materials were tested (marbles, tiles, glass, washbasins etc) Parallel to the mock up floor research and analyze of the hospitality in Tirana were made. Hotels like Rogner, Sheraton, Tirana International, Coton, Xheko Imperial, The Rooms etc were investigated in terms of spaces, material used, luxury etc especially in toilets. *Table 9* shows the areas of the standard toilets in the main hotels in Tirana.

Table 9. Luxury hotels in Tirana, toilet areas compared with The PLAZA Tirana

Hotel Name	Rogner Hotel	Sheraton Tirana	Tirana International	Koton Hotel	Xheko Imperial	The Rooms	The Plaza Tirana
Area of Standard Toilet	3.9m2	4.5m2	3.5m2	5.5m2	4m2	5m2	5.6m2

The process of constructing the rooms and bathrooms and the programing of other facilities was made clear at the end of the testing made after the approval of the layout. *(Table 10) (Fig. 23)* Still, the investors asked for much more in the aspect of design and internal finishing, they wanted something more modern and contemporary from what was tested in both rooms and bathrooms.

For this reason the investor hired three architecture studios two Italian architecture studios for the rooms and the breakfast and restaurants and the studio that design the tower for the public areas like conferences reception lounge business areas etc.

Additionally a vertical dissipation scheme of the spaces and facilities of the hotel was redefined. This would help the studios in charge for the redesigning, to have a more clear information about the spaces, categories and their functions. The architect that had to be engaged with the rooms had to redesign the finishes and the furniture's of the approved layout of the hallways, rooms and bathrooms, while the other two studios had to design from the beginning everything.

Table 10. Total area distribution for guestrooms public facilities and services

The PLAZA Tirana	**Number of Guestrooms**	**Guestrooms (%)**	**Public Areas (%)**	**Service Areas (%)**
Area distribution %	190	55	22	13

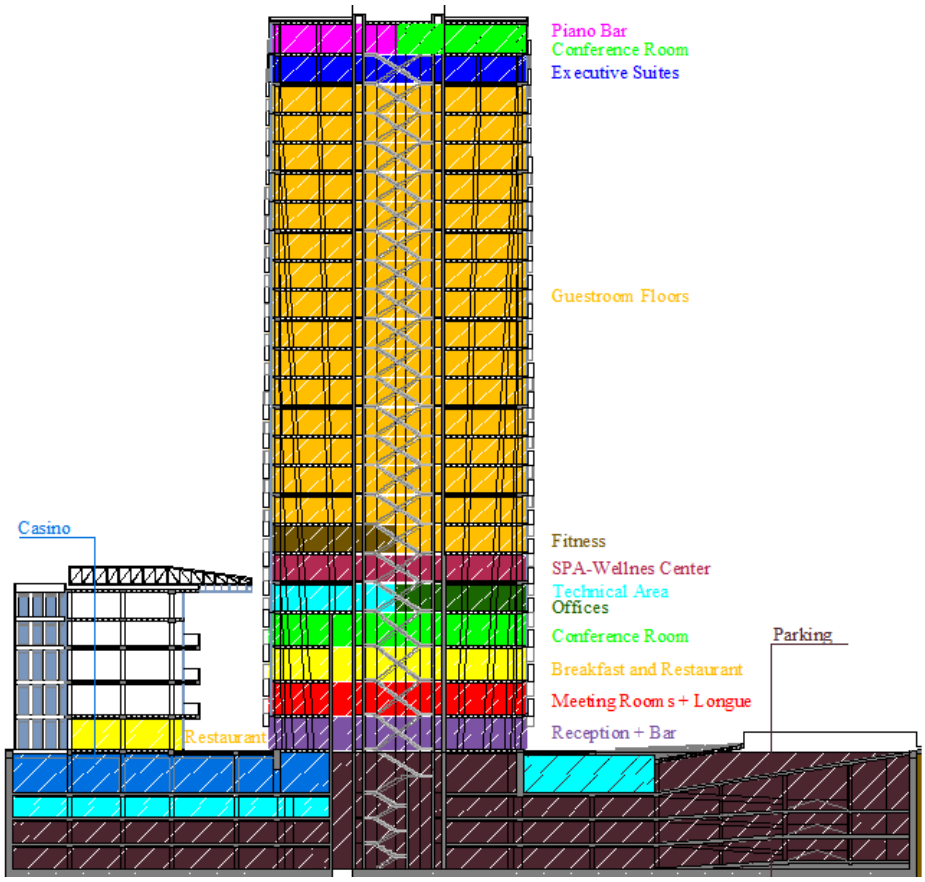


Figure 23. Section of the tower with function distribution

4.3.1. Planning a design of the public facilities

The PLAZA Tirana building is a group of buildings in its self-made by the three floor black concrete building with the quarter cupola over the tomb of the Tirana's founder which is attached to the 23 floors tower. The third building is a four floor building with a total glass facade. This building is separated in the ground level from the two others creating a public passage which is covered in the fourth floor by a canopy. All these three buildings are connected to each other by the four underground floors which share a common spaces. The four floor building will only function partly for the hotel, one restaurant in the zero floor while other parts will work separately from the hotel.

The entrance in the hotel is from the third floor building. There are two entrances with canopies which are simple in design and lighted with barisol light. *(Fig. 24)* The main entrance is positioned in the side of `28 Nentori` street while the other on which the VIP entrance is located is more private and positioned in the public garden side of the tower. The interior of the lobby is designed not to impress, but to invite, engage and embrace.

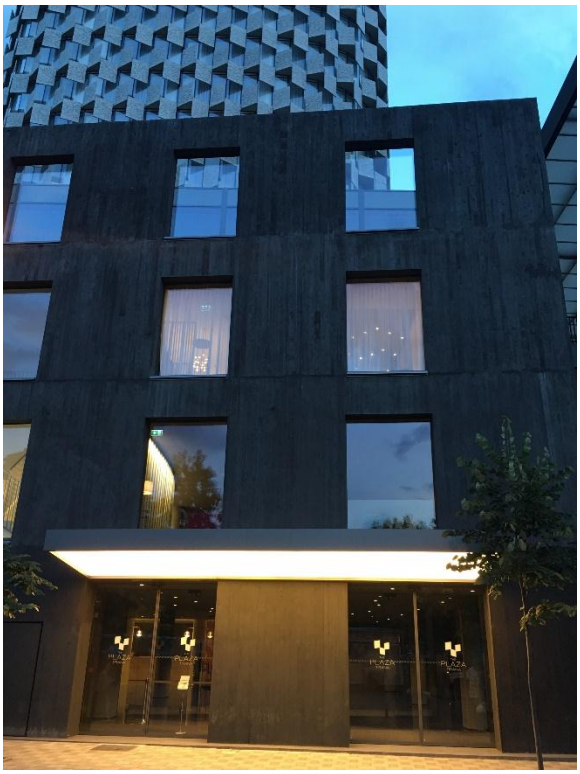


Figure 24. Hotel PLAZA Tirana main porte cochere

The concept of the public areas is opened and inviting to the city not in contrast with it. The spaces are designed to be flexible and appealing for the costumer at the same time. Calm and natural interior as a background. Interiors are not looking for unity, but for contrast and bizarre as Tirana in itself. Once you enter the building you face a dark atmosphere and right before it's endure the emphasis is put on the bright part of the lobby which is represented by the reception.

The reception is positioned in front of the main entrance of the hotel, next to the nucleus of the tower where the elevators to the guestrooms are positioned. The reception is simple in design but functional.

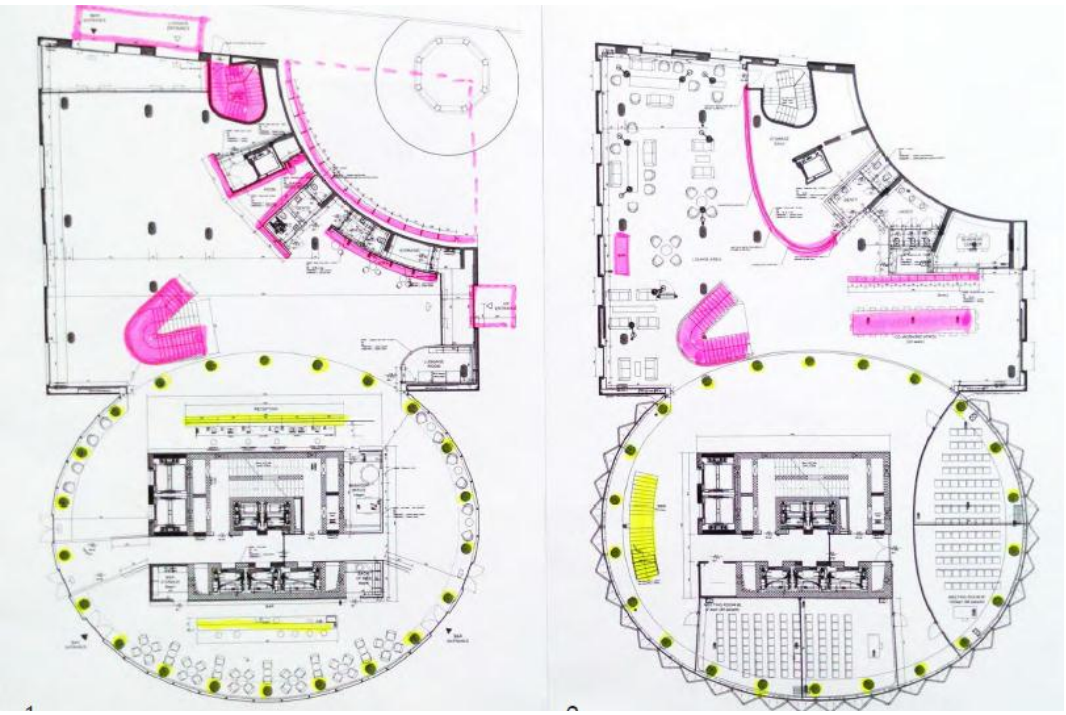


Figure 25. Plans of ground and first floors, marked the specific elements such as entrances, reception, iconic stairs, kiosk, bar, Business corner etc [TID archive, 2016]

The lobby area is composed of a kiosk and sitting places with different characters. On the other side of the nucleus the lobby bar is positioned. A specific element of the lobby are the iconic stairs that sent you in the lounge and the meeting rooms. They are U shape and hanged with column in the middle. *(Fig. 25)* A transparent curtain which its color is gradient from up down covers the stair. The idea of black and white is used for the materialization of the lobby, the concrete 3 floor building is dark while the area of the tower is lighter in the choice of material. Differentiation is done in the marble used for the floors and the ceiling paints. On the other hand the walls of the nucleus are covered with marble tile. The walls of elevators lobby which is in the middle of the nucleus are totally covered in wood to make the differentiation of the materials according to space configuration, while the external part of the nucleus is covered in marble.

In the first floor, the Lounge bar and 2 meeting rooms are positioned. There is an area dedicated to the foyer right before the entrance in the conference room. The two meeting rooms have the opportunity to be divided in two zones by portable acoustic panels. The specific element in this

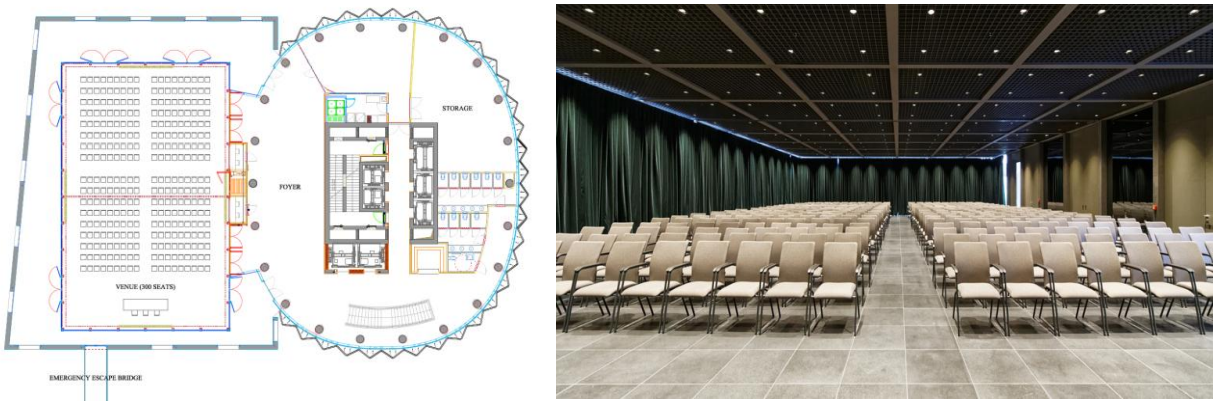
floor is the library which is characterized by a big working table and a private business corner inside.

The breakfast and hotel restaurant are positioned in the second floor. The accessibility is obtained from the guests by the elevators of the guestroom floors. Breakfast is all around the tower while the restaurant and the kitchen are located in the three floor building. Furthermore breakfast tables are arranged around the façade and the nucleus of the tower. The total capacity is 130 seats which are arranged in places with 2, 3 and 4 seats, with the opportunity of some places to be combined into larger tables. The breakfast buffets are located near the kitchen which offers an easy access for the service. The ceiling is flat and white in color. The only interference are the black strips created from the connection columns.

The Gourmet restaurant is one of the most fascinating areas and private at the same time. It is located in the cupola building and has the capacity of 54 persons with a variety of seat arrangement. The floors are covered in parquet while the ceiling is an entirely elaborated with lighting fixture hanged from the ceiling. *(Fig. 26)*

Figure 26. Gourmet restaurant positioned ne the cupola building, second floor

At the top floor of the cupola building the main conference room is located. The conference room is 370m2 with capacity for 300 persons. It is made of a steel construction and full glass facades constructed on the roof of cupola building. *(Fig. 27-b*) The area is represented as a full glass box 24m x 15m with a height of 4m. The walls of the façade are extended in order to retain the same concept of design and material usage. All around the conference room an exterior space is created as a result a trapezoid plan derivative of the building and the conference room at the same time. To provide easy escape in case of emergencies a bridge that connects the conference room with the balconies of the four floor building is constructed. Extra functions of the conference room such as foyer, kitchenette, cloakroom, storage, toilets etc. are provided in the areas of the tower in the same floor. *(Fig. 27-a)*



a-) b-)

Figure 27. Main conference room a-) layout of the conference with its facilities b-) image of the conference room [TID archive, 2016] [plazatirana.com 2016]

At the top floor of the tower the total view of the city is reserved and dedicated to a piano bar and a hosting area for different activates. The piano bar is called the View Lounge and offers a 360 degree city view from every corner at the highest floor ever built in the city. The area is perceived as a social activities holder and has the flexibility to offer the half of the area and be converted into meeting room, banquet, ceremony reception, or others by the usage of some

openable panels that may be used according to the occasion. On the other hand in other cases the entire floor can be used as the whole in order to enjoy the city view or a moment at the lounge.

Spa is located in the 5th floor of the tower. Total area of the spa is 440m^2 together with 220m^2 of the fitness which is located one floor above. The areas are separated from one another by different floors. The entrance to the reception zone is a place where the customer has the first direct contact with the spa. For this reason the design concept is stronger with the purpose of impressing the clients for what comes next. Reception desk is onyx marble which is lighted inside the back part. *(Fig. 28)* Furthermore the logo of the spa is curved in a brown marble. Beside reception there are two different areas one dedicated to the rest spot furnished with armchairs and the other belongs to the personnel. Dressing rooms and toilets are grouped together in one zone near each other. A beauty center is positioned near the waiting lobby.

Figure 28. Reception of the SPA [plazatirana.com 2016]

The spa is composed of three massage rooms, two individual and one with double massage beds. Each of them has a shower and a wash basin integrated in the boiserie furniture. Salt room contains salt rocks from Himalaya Mountain which helps to relax. *(Fig. 29 –b)*

Finish sauna is a room for dry or wet body heating in wooden benches. Sauna door is glazed with a thermo stable glass to be able to see and control what is happening inside the sauna by controlling any incidents that may occur. In addition to the sauna are showers with cold water and the ice machine. Moreover spa has one Steam Bath and a Mediterranean Bath.

Shower of experience is tropical rain and cold fog showering system, with fragrances and colors. The comfort sensation is also a very important design characteristic that a spa must have. Rest areas are designed for the guest to be alone and to reach the physical relaxation without being disturbed by others using the spa facilities. The key to obtain all of this is the "material", which means that soft color palettes, natural materials are used in design of the spa.


a-)

b-)

Figure 29. SPA a-) Relaxing areas b-) Salt treatment Room [plazatirana.com 2016]

Resting areas furnished with lounge chairs or furniture aimed for lying are located at the common points of such areas as sauna and Jacuzzi. *(Fig. 29-a)* Near the Jacuzzi a kneipp bath of hot and cold water is positioned. A big sliding door covered with mirror closes in order to create a private zone of the spa. Private spa has Finish sauna, steam bath, cold storm resting areas etc.

4.3.2. Planning and design of the guestroom floors

4.3.2.1. Planning guestroom layouts

The organization of the hotel's type floor consists of 12 guestrooms for each floor, with a surface that varies from 30m^2 the smallest (standard room) to 52m^2 for the rooms located in the corners, for the 7th floor, (a surface that was going to increase from the bottom to the upper floors because of the shape of the building) and a service room for the housekeeping. The delivery into guestrooms is conducted through a perimeter corridor with a width of 170 -175 cm. Being an ellipse in the bottom and a rectangle up the half of the plan (six rooms) were mirrored to create the other half of the guestroom floor layout. *(Fig. 30)*

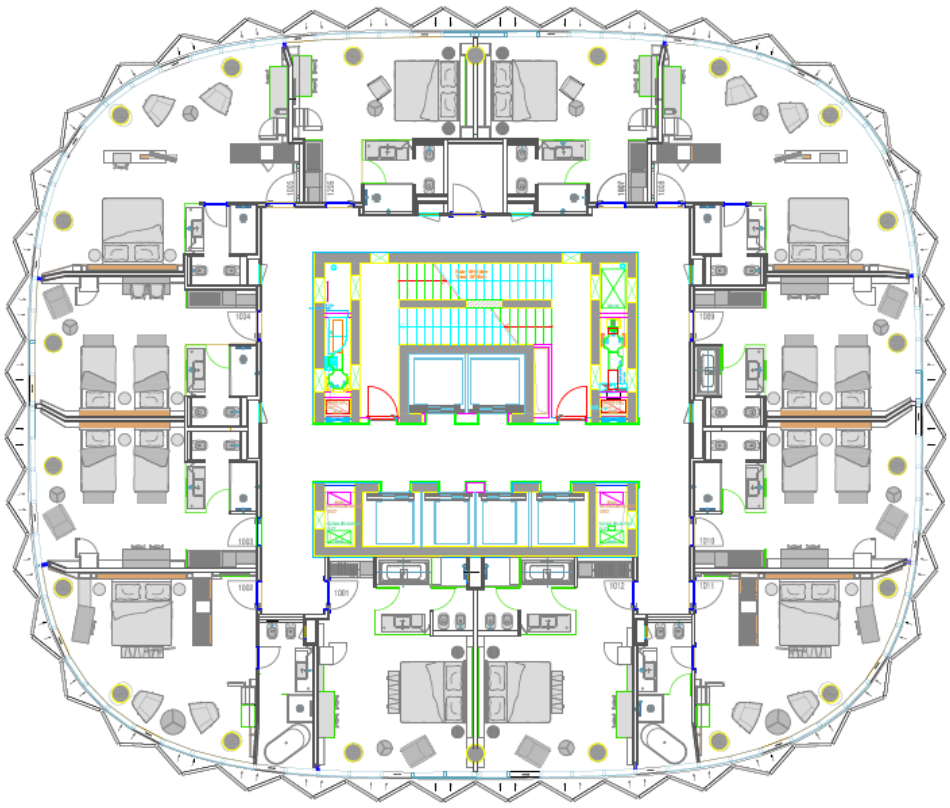


Figure 30. Typical layout of the guestroom floor, 9th floor [TID archive, 2016]

The room structure consist of 6 standard rooms (Business Rooms) 03, 04, 06, 07, 09, 10, where rooms 06 and 07 are king size bed and others twin bed. *Table 11* shows the bed percentages in the hotel where more than the half are single king rooms. The rooms have a surface between 30-37 m^2, and they consist of an entering corridor with wardrobe, a bathroom with shower or bath tub, and the room's space with the bed, working desk, mini bar, armchair etc.

Table 11. Percentage of room types according to beds

	Double-Double (%)	Single king (%)	Suites (%)
The PLAZA Tirana	37	52	11

Room 01 and 12 (Superior Rooms) with area 39m^2, each with double bed, bathroom with shower and bathtub. Bathtub and the wash basin are visible from the room as the separating glass is transparent. In the middle of the glass a double sided full length mirror is positioned. Shower WC and bided are more private as they have a door of tricot glass which is not transparent.

Room 02 and 11 (Deluxe Rooms) with area 40m^2 -52m^2 (being corner rooms the area changes floor by floor). The room consist of an entering corridor with wardrobe, a longitudinal bathroom with a view to the city, shower and a bath tub near facade. The room's space with the bed, working desk, makeup table, mini bar, armchair etc.

Room 05 and 08 (Suites) with area 50m^2 -65m^2 (being corner rooms the area changes floor by floor) The room consist of an entering corridor with wardrobe, living room with working desk, makeup table, mini bar, armchair etc. a separated bedroom from the living and the bathroom with shower. *(Table 12)*

Table 12. Guest room typologies at the PLAZA Tirana

The PLAZA Tirana	Business Rooms	Superior Rooms	Deluxe Rooms	Suites	Suite/Serviced Apartments	Executive Suites
Room typology percentage	51%	24.2%	14.2%	3.1%	5.3%	2.2%

Figure 31. Serviced apartment with the kitchenette [plazatirana.com 2016]

From floor 16 to 21 suite rooms 05 and 08 increase in area and give the opportunity to have one kitchenette and a dining table. The kitchenette is closable which means that the management can sell the room as suite (kitchenette closed) and as a serviced apartment with kitchenette by the client's choice. *(Fig. 31)*

Executive floor positioned in the 22nd floor is composed of four suites; Presidential suite, gym suite, spa suite and studio suite. Each of the suites has its own character that corresponds to the label. In addition the executive suites are the largest rooms of the hotel and their design is emphasized in every detail of the interior. For instance the presidential suite is the largest suite in the building covering a total area of 200m². It owns a living and a dining room, a large bedroom with a full faced wardrobe. The bathroom is part of the bedroom and is composed of a sauna facility and a vast bath tub. Despite the suite offers a studio office and a media room at the same time. Together with the suite there is one certain bedroom connected to the areas of the suite used for companions. The design in this area has taken a particular highlighting since it is the best room that the hotel preserves. The combination of latest technology with the high quality materials gives this suite the name that is holds. *(Fig.32)*

Figure 32. View from the Presidential Suite

The gym suite is that kind of space that covers up to 100m² surface and owns a gym area inside. The room is composed of a bedroom with its own private bathroom, a mini bar, a living and a dining room. The suites are all equipped with a main bathroom in the entrance.

The spa suite is that type of suite that owns spa facilities such as a sauna and a Jacuzzi. It is composed of a bedroom with its private bathroom, a living and dining room, a minibar and a bathroom at the entrance of the room.

The studio suite is same as the other suites, which possesses a studio office. The room is around 100m² and offers a bathroom at the entrance, a living and dining room and a bedroom with its own bathroom at the same time. Here as well the bathroom in the entrance is also present.

Table 13. Hotel the PLAZA Tirana space programme. Floor area per guestroom

	Guestrooms net area (m2)	Guestrooms gross area (m2)	Total hotel gross area (m2)
The PLAZA Tirana	41	53	98

Guestroom net area in *Table 13* is average area of all the rooms including vestibule and bathroom. Guestroom gross area is the area of room walls, stairways, corridors etc. on the guestroom floors. Total hotel gross area is the entire hotel, parking area is not calculated.

4.3.2.2. Design of the guestrooms

The PLAZA Tirana room concept was created based on the interpretation of the building's spaces. All the rooms have a panoramic view. At least one of the boundaries of the room, is completely glazed and offers an overlooking of Tirana. The view is formed by large panels of granulated stone fixed in the triangular perimetral slab that separate the floors.

This matrix type graphic is very present and dominates in the visual aspect within the room. The Tower has a strong and contemporary architectural language; the rooms have attempted to relate to the continuation of this language, but in accordance with the comfort that a five star hotel should have. The building changes its shape from bottom up, from an ellipse to a rectangle. This expansion affects the continuous changing of the rooms in the corner, creating a difficulty in terms of designing of the rooms in the corners. On the other side, rooms in the corners offer a more interesting view due to their positioning and their bigger surfaces when compared with the other regular rooms.

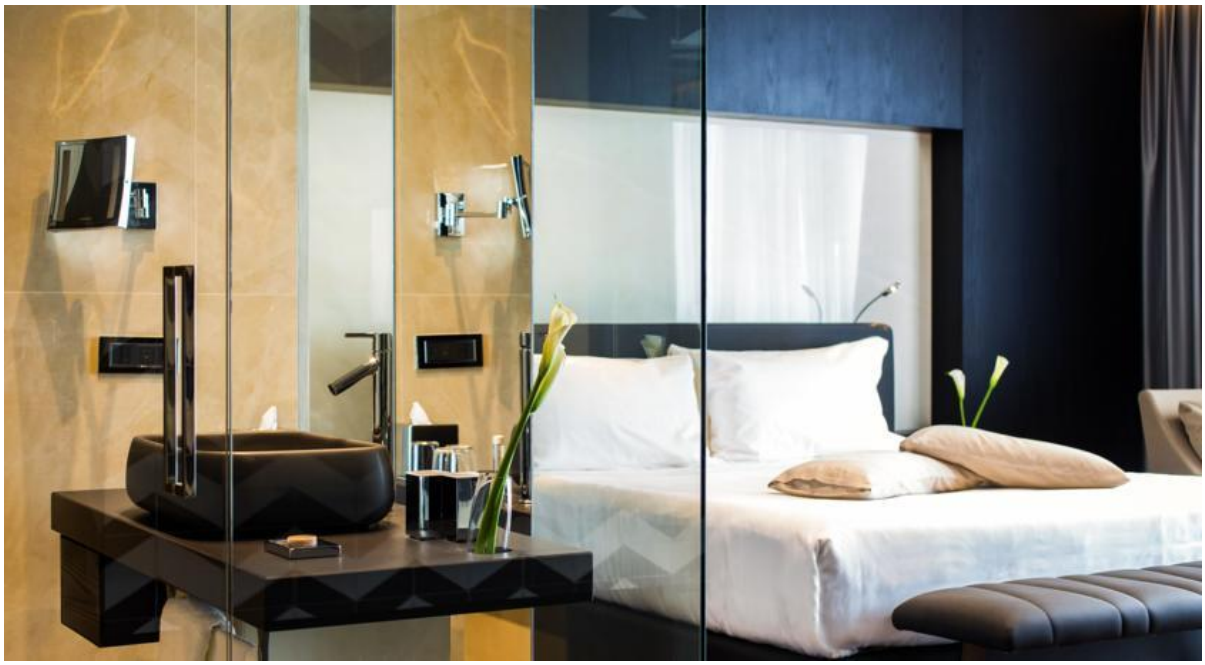


Figure 33. Superior room in dark colors [plazatirana.com 2016]

Two concepts were predicted for the rooms. They consisted in a change in color and material that alternates in every floor. According to the first concept, the room should have dark and warm color tones, *(Fig.33)* that will help to achieve a greater reduction of the sunlight coming from outside and combining it with metallic surfaces, dark wood, bronze mirrors, leather, glasses etc. They intend to achieve a relaxing effect and comfort sense by carefully equilibrating the order between elements, contemporary design and the mode of expression.

Figure 34. Deluxe room in the bright color [plazatirana.com 2016]

The second concept is about bright colors and smooth tones. *(Fig.34)* The orientations allow these rooms during the day to have a strong and vivid light. Decreasing the intensity of the colors in these rooms transmits relaxation, clarity and a different character. The materials are almost the same as in the dark rooms, the only difference is their color. The development project passed through an analysis that scanned the conditions and spaces of the constructed rooms. The landscape viewed from the rooms makes you spend more time in the room, help you relax and start meditation, for these purpose each room is equipped with a cozy poltroon *(Fig.35-a)* and sectional sofa. Even the minibar is positioned in the eye levels, being partially visible. The minibar comes out as a volume from the boiserie wall, making it evident and present in the room.


a)

b)

Figure 35. Suite Room a-) living area, b-) bedroom [plazatirana.com 2016]

Beside the refrigerator as a necessary element or equipment in the room, this volume offers a useful space where different drinks can be placed, which means, the possibility to be used as a minibar inside the room. The working desk is designated to be useful and operative. In the corner rooms there is also a make-up and self-care table. The bathrooms open towards the room, with the aim to create a more spacious place with more direct light coming from the glass facades. *(Fig. 35- b)*

The artificial lighting concept inside the room tends to accomplish the required functions of the room but also to create pleasant or interesting spots inside the room. There are 2 flexible lamps in the head of the bed for reading and to create the decor during the room presentation.

4.3.2.3 Design of corridor in guestroom floors

From the point of view of the finishing of the surfaces and materials, the hallway design concept it's a continuation of the room's design, of course by taking into consideration all the variables that make it different from the rooms, like the function, space, circulation ways or movement directions, and also taking into consideration the fire codes etc. In the central zone of the hallway where the elevators, emergency exit stairs are positioned and where the biggest movement flow is supposed to be, a security node was created according to the fire code, it is confined with two anti-fire curtains according to a specific scheme in case of fire. This central hallway is thought to have a different treatment in relation to the perimetral hallway for the above mentioned reasons, for example the ceiling is treated with gypsum, or the panels are made of holed wood, and where only necessary buzzers and lights will be placed. The floor is paved with black granite while the central part is thought to have a layer of bronzed metal.

Figure 36. Guestroom floor corridor

The walls, the frames of the elevator's doors, shaft doors and emergency doors are treated with vertical metallic elements that come from the wall plan, which alternates according to the openings in the walls that goes up in the ceiling and merges in its lightning, the remaining wall is treated with dark stucco. The perimetral hallway that serves as a room allocator, it's treated with a closer spirit and philosophy to that of the rooms. The floor is paved with parquet while in the central part with carpet, which is nearly imperative to prevent or minimize the noises that can be caused when moving in the hallway. The ceiling is treated with two materials; gypsum and holed wood panels (acoustic panels), which can be opened and accessed for the installations located in the ceiling.

The perimetral wall that confines the rooms is treated with MDF with oak veneer which alternate according to the door and shaft openings. Between these wooden elements, bronze mirrors are placed, giving an interesting effect when lightened from the artificial lights. The door itself has a strip of mirror making it part of the panels of the wall. On this mirror the door number is installed and lighted with a spot light from up. The core of the tower which at the same time is

one of the walls of the corridor is treated with a three dimensional handmade black shiny tile. *(Fig.36)* They are lighted from the ground which creates in the ceiling a game of shadows.

4.3.2.4. Design of Bathrooms

Positioning the toilets on the inner side between the hallway and the rooms is a very convenient and functional solution in terms of space utilization and distribution of installation networks, thus facilitating the implementation but also the maintenance. Being considered as the space with the most useful (service) character in the hotel's story, the toilets can be further analyzed based on four criteria:

- The ratio of the room's surface to toilets.
- Positioning of the equipment in a functional way in the wet environment.
- Character (the feeling through the concept) of the toilet.
- Usage of natural and artificial light in the toilets and assessments according to spaces and functions.

According to the first criteria, the toilets create different ratios due to the surface's change in the rooms. Among the standard rooms, being evaluated by space in the rooms 03, 04, 09 and 10 (type toilets), this ratio is different from room 06 and 07. The ratio at room 03, 04, 09 and 10 is in favor of the room, but when you take into account that these rooms can potentially be used from two separate persons, this ratio seems fair enough. At room 06 and 07 (type toilets) this ratio turns in favor of the toilet, this can be concerning when the room is used from a couple and less if it's used from one person. Considering it from the managing side, this offers diversity on the typology presented to the client. The usage of type toilet at room 05 and 08, which have larger surfaces than that of the standard rooms can be considered as not proportional when the room's typology is taken into account. At 01, 02, 11 and 12 rooms, this ratio takes ideal sizes, leaving the wet space together with the entrance in one third of the total room's surface.

Figure 37. Deluxe room top view with the city view bathroom [TID archive, 2016]

Positioning the equipment in the bathrooms creates a subdivision of the type of the spaces inside the bathroom. Referring to the Type toilet, but also but also that of the toilets in room 01 and 12, at the separation of the clean equipment like the sink and shower from the bidet and WC, helps in the zoning that a bathroom should contain. At T3 (room 02 and 11) this zoning is more prominent due to its linearity, where the WC and bidet are hidden behind the door; the sink is placed where it ideally should be, in front of the door. The shower with the bathtub is separated creating a different mini atmosphere related with the outer facade, where next to it an oval bathtub is placed. *(Fig.37)* The usage of the WC and bidet on the same side seems a more functional solution than placing them facing each other as seen in type toilets.

While the ratio of the toilet's surface to the room helps on the physical perception, the positioning of the equipment help in the usage of the space, the general concept helps more in the mental conceptual perception than in the functional one.

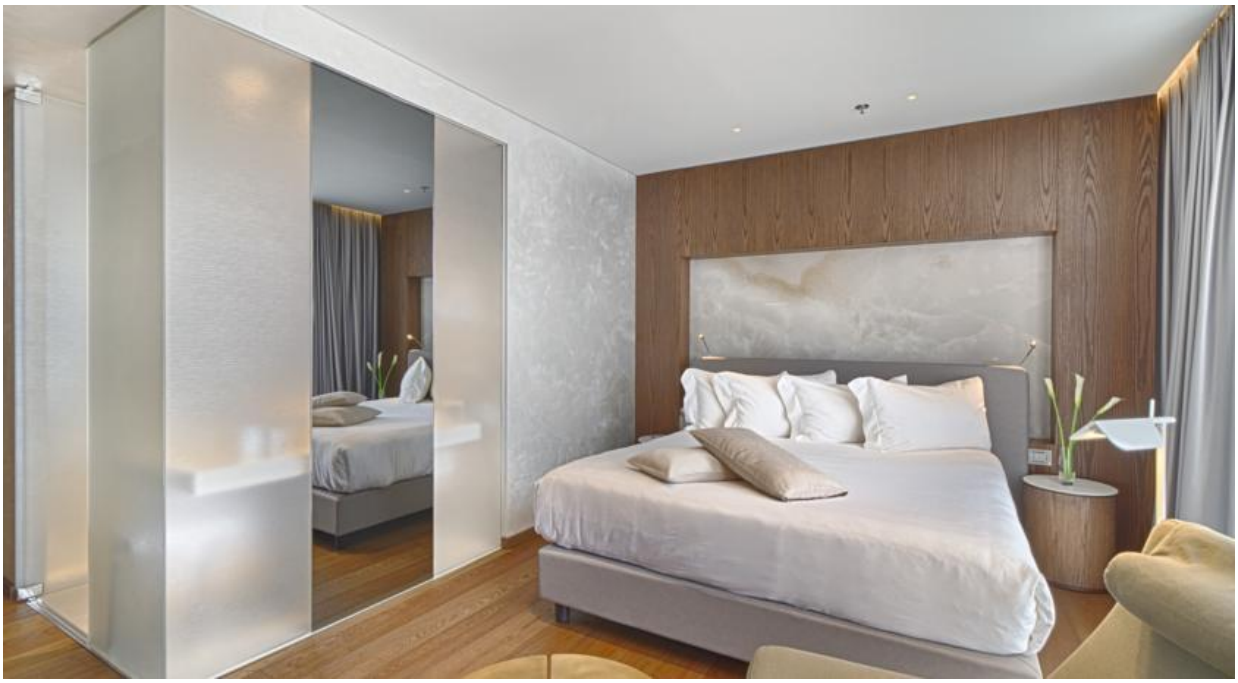


Figure 38. Business room, toilet in tricot glass [plazatirana.com 2016]

Toilets having a glass surface have an impressive perception in the room. *(Fig. 38)* There's no doubt that it's very positive the usage of glass in places where light isn't sufficient. Moreover, the glass connects the two spaces enlarging in this way the whole space. At the same time, due to its transparent character, the glass helps in the visual communication between the two spaces. The usage of the texture glass (tricot glass) creates the required privacy in the toilets.

4.4 Performance design

4.4.1. Light

Initially the tower was based on a design concept whose one of the main purposes was to receive the maximum capacity of the city natural light. Even though the function of the building changed its destination, the natural light fusion inside the object retained the starting concept. In terms of guestrooms this conception was of a great deal because all of them have minimum one city view, and the corner rooms own two views. The idea of natural light had a priority not only in the room space but at the same time in the toilets. Indeed, the presence of a façade inside a room had a great impact on their bathrooms because being exposed to natural light, with the usage of glass materials as a cover, the natural light fusion can be obtained directly. The main advantage for the daylight presence inside the guestrooms is the reduction of the artificial light consumption during daytime.

As soon as the lighting design process started there were more than a few factors taken in consideration. The size and the shape of the space, the intended use of the space, the intended audience, and the intended message that the space conveys. Elements such as; color, materials, reflection, contrast, and energy efficiency had the biggest impact in this design process.

Regarding the artificial light inside the building the four types of light used generally in hospitality lighting were taken into account. General lighting, task lighting, accent lighting, and decorative lighting. Combination and creation of a balance between these lights offers interesting visual perception of the spaces inside the hotel and creates more attractive, exiting and inviting environments.

Lobby being as the first invitation card inside the hotel has attained a balance in terms of warmth and space. The usage of general lighting for the area, serves as the main light source, while there is a concentrated usage of light in several spots in order to emphasize every space character inside the Lobby area. For instance, in the waiting areas, reception the layout is based on a focused, localized, and higher level of illumination. *(Fig. 39)*

The usage of materialization contrast highlights the reception area by drawing guest's attention to the front desk. The surfaces with a higher reflectance of reception zone, reflects light back into the space, and higher luminance levels are created. The general lighting of lobby is measured 220 Lux.

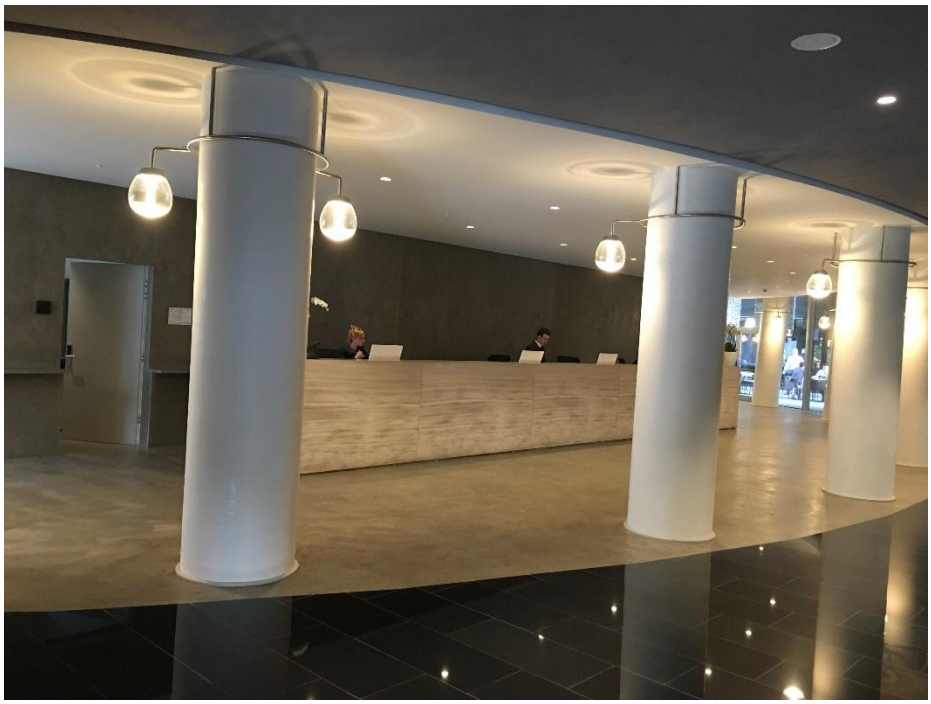


Figure 39. Reception area illumination 380 Lux

The conference room concept is based on a full glass box. Being illuminated by the natural light completely, the internal artificial light is based on 2 main concepts. The establishment of the contrast by the usage of materialization contrast which in this case are the dark curtains. The other concept is the creation of a regular lighting scheme which consists of spots fused into the metallic structured ceiling. Further, the lighting inside the space is dimmable with the purpose to differ the illuminance level for the space functions. The total amount of light reaches 650 Lux in total. *(Fig.40)*

Figure 40. Main conference room illumination 650Lux

The breakfast service restaurant positioned inside the tower is situated in a perimetral form in order to obtain the full light that comes from the glass façade. This fact makes possible for the entire area to avoid the artificial light during the day. In this way the usage of artificial light in here is minimal and consists of a continuous perimetral LED stripe throughout the whole nucleus of the zone, every single column is enlighten by a static light, and we have the domination of small spots fused inside the darker part of the ceiling.

The Gourmet restaurant is based on the concept of light which is supported by small round spot elements hanged from the ceiling in each table of the space. The concept of light here is dominant since every dining table owns its private element of lighting.

Hallways and corridors serve as the connection part of the lobby to all other areas of the facility. The safe, navigational, and energy conserving light level of the corridors is around 50 Lux. Moreover the corridors remain continuously illuminated for safety and clear passage of the guests; therefore, energy efficient lighting are used and dime rated with sensors. General lighting of the guestroom corridors is provided by uniform distributed spot lights. Despite, the Accent lighting over the doors emphasis and creates a focal point for door numbers which are on the guestroom door. With the addition of this type of lighting the light level reaches 83 Lux. Decorative lighting on the ground to light the 3 dimensional tiles that cover the nucleus of the building have a dual purpose: the contribution of the lighting to the corridor and the enhancement of the space look as a design element.

The arrival of the guest in their room must be accompanied with the sense of total privacy, safety, and comfort. The lighting facilities inside the guestrooms are easily accessed once the entry inside. The main source of light in wardrobe lobby is the opened wardrobe that is equipped with a single spot and a cloth hanger with an integrated led light inside. Parallel to this the bathroom itself offers its light throughout the glass door illuminating in this way the path to the sleeping area. The room lighting is obtained from the ghost light spots in the ceiling that offer a general type of lighting together with the LED strip inside the curtain cove that washes the curtains and gives the enlargement perception of the room. In addition to this at the bed headboard we have the presence of reading lights from each side and a static light nearby the relaxing armchair. Another source of light is the static light fixture at the working desk that offers a total of 350 Lux. In this way the room in itself with all the lighting elements reaches an amount of 220 Lux.

The lighting design in the toilets is of major importance. Toilets should have sufficient lighting (natural lighting and/or artificial) that fits to the specific functions during usage. Beside the functional and aesthetic effects, a successful lighting represents a significant factor in the initial costs and operational ones when using the toilets. In this aspect, regarding the natural lighting, the transparent glass, beside the above mentioned functions, allows sufficient natural lighting during the day, which directly reduce the costs during the operational phase of the building. *(Fig. 41)*

Figure 41. Superior room view from the entrance door, toilet glass transparent [plazatirana.com 2016]

The artificial lighting is spread evenly and doesn’t have glare during use. The usage of lights in the mirror helped in solving and eliminating this problem. Light at the bathroom mirror is 540 Lux while the general lighting of the bathroom is 350 Lux.

The decorative lighting or the indirect one, used at the showers highlights the architectural volumes and is less disturbing when used by clients that are sleepy and use the toilet late during the night, and it doesn't interfere in their inconvenience from the basic strong light of the spots.

4.4.2. Acoustics

Effective noise control is vital to any hotel's success as a business. Hotel guests expect a good night's sleep. They also expect the best atmosphere in the hotel's restaurants, private dining rooms, ballrooms and conference suites. Yet problem frequently arise, from traffic noise in busy urban position of the tower. Noise and vibration effects related to both people and the buildings has been considered throughout the design and build stages of the tower.

The tower is fully glass façade which makes difficult the insulation of the noises from the traffic noise. Facade panels help in the refraction of the traffic noises as well. Moreover the glass façade has a sound insulation of 38 dB which with the help of the panels can be higher as a value.

The effects of the selection of materials with different acoustical absorption characteristics was very important in the preliminary design stage for that acoustic absorbent finishes are proportionate to their respective spaces area. At the Plaza Tirana acoustic comfort is achieved by trying to minimize noise transmission from one guestroom to another as the guestroom floors are separated by the other public facilities because of the shape of the building. Public facilities are positioned in the lower levels of the tower and the cupola building. The main acoustical principles in the building are based in the usage of standardized materials. In the public areas for instance, in the Lobby the walls, the floors and the columns have a certain texture that are capable of absorbing different sounds. In the lobby bar we have the presence of clineo acoustic ceiling type and the usage of sound proof curtains.

In the meeting rooms we have the domination of total glass façade and the solution for the acoustical issues is mainly focused in the usage of sound absorption materials in the floors and ceilings at the same time and the presence of sound proof curtains as well.

While on the conference room the usage of a metallic grid ceiling, the sound absorption curtains and the sound reflection ability of the marble floor make possible the appropriate sound insulation.

The corridors are equipped with a sound insulation panels in the ceilings. In order to eliminate the acoustical pollution between the hallways during the room experience a certain carpet. Separation walls between guestrooms and corridor are of dry wall systems with thickness 15.5 cm, 4 gypsum boards (2 per each side) and 10 cm mineral wool inside. This wall have a sound insulation of 59db.

The door of the guestroom is 102x224cm and 8.3cm thick. The weight of the door measured in laboratory, with lock, hinges and part of a self-closing device mounted on the upper part of the leaf is 96, 4 kg. The surface finish of the door is oak veneer and painted against fire. Inside the door is composed of:

- LGT Fipro board 32mm with density 500kg/m3,
- both sides MS Fipro 8mm for fire protection
- both sides cork 3 mm, density (150-220) kg/m3
- both sides HDF 5 mm, density 720-800 kg/m3
- one side board H/B 18 mm, density 649 kg/m3

The door has a boxer for self-close, three inset hinges, 2 retractable threshold seals, 2 acoustic gasket one on the door leaf and one in the frame and 1 fire gasket on the frame. Spy eye is made of pyrex glass (fireproof) installed at height of 1.5m The hasp (lock) is electronic and is part of the system of the hotel. Two guestroom doors were tested and certified for acoustic isolation. One door for 38 dB with one retractable threshold seal and one for 45 dB with a fixed threshold. As the threshold was unacceptable because is a barrier for the guests with luggage and not only, the 38 dB door is installed. In order to have a better acoustic performance a second retractable threshold seal is added.One of the most important things of the door is the installation. Considering that the door has a weight of near 100 kg it was very important that the door frame to be fixed directly in the metallic profile of the wall. In order to avoid acoustic bridges during installations door frame is filled with silicon against fire in both sides and foam in the middle. The connection between the doorframe and the parquet could be a reason to have acoustic loss, for that this gab is filled with silicon in the same color of the wood for isolation.

4.4.3. Design for all

A good design is an important criteria for accessibility. Design for all has had quite an important role in the overall design of the hotel. Generally the main strategy of the hotels is based on their ability to welcome every genre of people. For this reasons and others the entrance inside the hotel avoids any kind of steps that may interfere in the general accessibility of the building. The accessible parking space is provided in the underground part via the elevators while on the ground floor the access to the inside is very easily reached.

All the public areas inside the hotel are furnished with individual handicapped toilets. Moreover the public facilities such as bar, restaurant, meeting and conference rooms are adequate for wheelchair. Inside these areas are accessible through the guest elevator. Initially the lobby area is quite appropriate to accommodate wheel chair users.

For instance the sitting areas provide access for them and have sufficient space for their movement. In case of emergency the elevator can be reached directly. At the front of the elevators the landing spot is 1.85 m wide. Right before the entrance the elevator is equipped with a touch monitor that serves as a guide to reach the floor. The dimension of the elevator entrance is greater than 1.2 meters that is the minimal requirement.

The elevators are fully equipped with call buttons, specific signs, grab rail and an additional facility that involves a voice announcement that designates the arrival at the required destination. The corridors between the rooms are 1.7 meters wide, which overcomes the standard requirement for universal design.

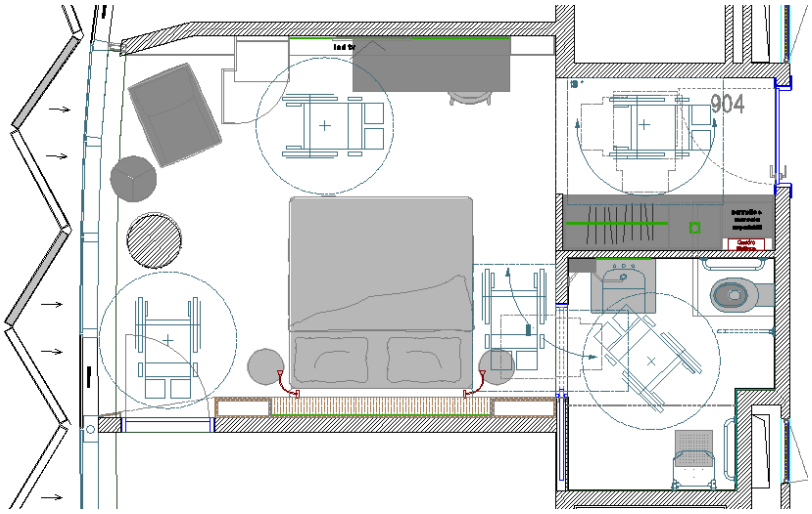


Figure 42. Room layout for the disabled people [TID archive, 2016]

2% of the total guestrooms area is dedicated to handicapped. These rooms are interconnected with another room that may be used by the companion via a connection door. They are located on the 8th floor of the building which is considered a low floor that can easily be accessed from the ground. The contact from the elevator to the room is directly achieved. In addition the rooms have a sliding door for an easy access to the bathroom. Actually the bathroom has an accessible shower with a sitting chair, emergency system alarm, vertical grab rails, wash basin, movable mirror and WC lit and any other accessory necessary for this category. The wardrobe inside the handicapped room is specially designed to be accessed. *(Fig. 42)*

4.4.4 Guest Safety and security

Safety of guests in the event of a fire is the top priority. It is not always possible to prevent fire, hence hotels must be designed with adequate active and passive fire protection systems. Fire protection helps in achieving three goals: life safety; property safety; continuity of operations. Fire starts when a flammable and/or a combustible material along with adequate supply of oxygen or another oxidizer are subjected to enough heat. Removing any one component from the triangle will prevent a fire from starting or will douse it.

Active measures directly work towards controlling the fire, for example smoke alarms and sprinklers.

Passive measure control the spread of fire from one side of the surface to the other. Using materials with limited or no contribution to spread of fire, and using compartmetation (walls) to curb an existing fire. The spread of fire within a building can be restricted by sub-dividing it into compartments separated from one another by walls and/or floors of fire resisting construction. The objectives are:

- To prevent rapid fire spread which could trap occupant's in the building.
- To reduce the chances of fires becoming large, which are more dangerous not only to occupants and fire service personnel, but also to people in the vicinity of the building

4.4.4.1. Passive Measures

TID Tower is the first project in the country from this category that was developed or built in accordance to the legal rules of fire. The Tower is the only building in Albania, which is being constructed according to NFPA regulations, pre-approved on site by FPC consultants. The building is constructed as prescribed in NFPA5000, Building Construction and Safety Code. In particular, the construction will meet all of the requirements of chapter 33 'High-Rise Buildings'.

Special occupancy construction requirements as stated in the occupancy chapters of NFPA 101 – Life Safety Code – is met. Since the building will be used for multiple occupancies, the most stringent requirements are applied.

Horizontal separation distances between the exterior walls of the 5 stories detached building and the high-rise building, is approximately 10 m. From balconies to exterior walls, the minimum distance is ca. 7 m. For all proposed occupancies (other than industrial), fire resistance rating for exterior walls of adjacent buildings is not required.

All exit enclosures, staircases and vestibules have a minimum 2 hours fire rating. The doors, giving access to the exit enclosure, have a fire protection rating of 1 ½ hour. All elevator shafts have 2hr fire rating. The elevator doors have a minimum fire protection rating of 1 ½ hour (No special requirement for smoke proofing rating). One elevator is available for the fire-fighter. The fire fighter elevator accessed by a compartmented elevator lobby. The elevator lobby can be achieved by adding two extra fire doors as indicated in *Figure 43.*

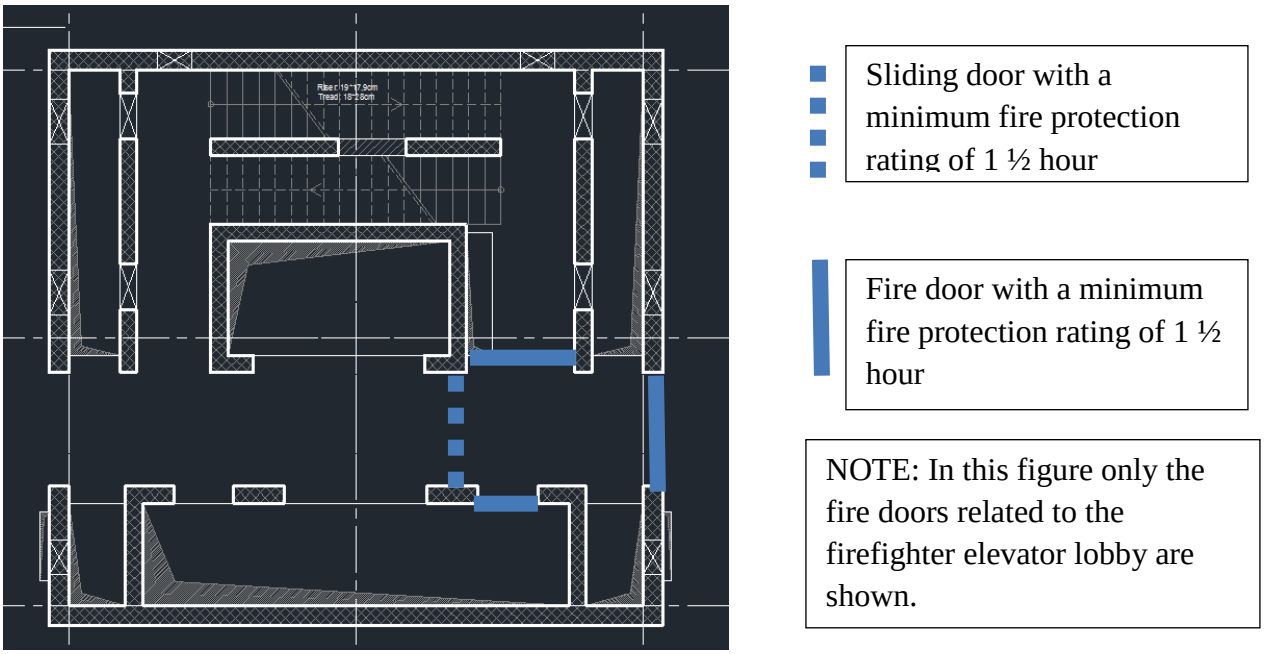


Figure 43. Extra fire doors for the firefighter elevator lobby [TID archive, 2016]

The high-rise part of the building is provided with 2 separate smoke proof vertical exit stair enclosures as required by:*NFPA 5000, National Building Construction and Safety Code.* Therefore, a scissor stair arrangement is used. Both scissor stairs are completely separated from each other by a 2 hour fire barrier. The entrances to both stairs are remote located from each other, with a separation distance of 1/3rd of the overall diagonal length of the floor. One exit staircase directly gives out to the outside via a reception area, separated from the remainder of the building by a 2 hours fire barrier, as not more than 50 percent of the required number of exits, and not more than 50 percent of the required egress capacity, shall discharge through areas on the level of exit discharge.

All exit staircases are constructed as smoke proof enclosures and provided with an approved engineered system with a design pressure difference of not less than 12.5 Pa for sprinklered buildings. The minimum required stair width meets the minimum 1120 mm width requirement, since the stairs will serve less than 2000 occupants (cumulative) each. Both the internal stairs of the high-rise building have a nominal width of 1200 mm.

For the partition walls of the guestroom floors and also in the public areas dry system of gypsum board are used. Using these systems gave us some big advantages in construction such as;

- Lightweight systems 8 to 10 times lighter than conventional systems like Brick
- Faster construction – Five to eight times faster.
- Superior acoustics performance in terms of insulation with rating upto 74 dB.
- Tested and certified systems to give between 1/2 – 4 hour fire rating.
- Smooth finish, aesthetically beautiful crack free surfaces.
- Flexibility in terms of modifications and refurbishment at some point in time.
- Green and recyclable product.

As the tower was designed to be open offices loads of the walls that will separate the rooms were not calculated at all. Dry wall systems which are lighted systems compared with brick walls was the solution. This system full filled even the other criteria needed in in terms of flexibility, sound insulation and fire rated.

Partition walls room to room and room to corridor are of fire rating of 90 min and sound insulation of 59dB. *(Fig.44)* This wall is composed of 4 fire board layers two per each side, 2 layers of mineral wool with high density and double construction profiles CW 50 connected with each other by a sound insulation layer. Thickness of this wall is 15,5cm

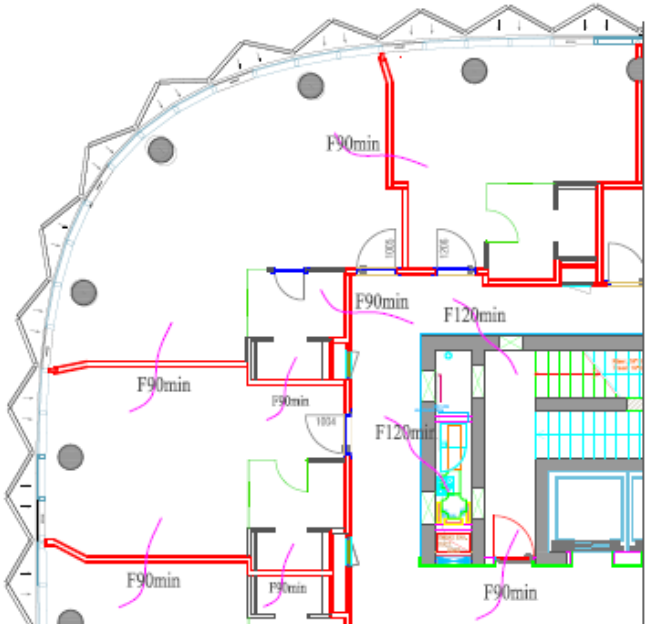


Figure 44. Guestroom and corridor walls fire resistance between each other

Walls corridor to toilets are sound insulated fire proofed and also against moisture. In the toilets aquapanel plates are used which are stronger as a material and more resistant. Partition walls between room and toilet are simple walls against moisture in the side of the toilet. Ceilings are of single gypsum board, in toilet gypsum against moisture is used.

4.4.4.2. Active Measures

The Plaza Hotel represents the main part of TID TOWER object, composed of a 4 floor building with the purpose of offices and a 23 floor tower, constructed as a 5 star hotel. Both objects are connected with each other through 4 underground floors, mostly parking, and also different service areas for the hotel. The total surface is 40282 m^2, from which around 37.332 m^2 belong

to the hotel, including the underground floors with a surface of 16.343 m^2.The building belongs to the category "High-rise buildings", 85m high constructed with reinforced concrete, glass facade and shading from granite.

Function distribution of the floors:

- Underground floors: Kitchen and canteen for staff, laundry, technical, electrical and mechanical areas, etc.
- Floors 0 - (+3): Lobby, Conference hall, Bar, Restaurant-kitchen.
- Floor + 4: Technical areas, offices.
- Floor + 5, +6: Spa center, Gym, partially hotel.
- Floors (+7) - (+22): Hotel rooms.
- Floor + 23: Auditorium, Bar.

When projecting the hydro and mechanical systems of the fire protection, the Albanian laws, rules and the current rules on protection against fire, PMNZSH, the European norms EN and also the Italian rules UNI were taken into consideration. According to rule EN 12845, buildings of any type are divided into categories according to the fire dangerousness and protection with sprinkler system:

LH Category..... Light hazard (low dangerousness)
OH1 Category..... Ordinary hazard (with usual dangerousness 1)
OH2 Category..... Ordinary hazard (with usual dangerousness 2)
OH3 Category..... Ordinary hazard (with usual dangerousness 3)
OH4 Category..... Ordinary hazard (with usual dangerousness 4)

In particular buildings and cases, the **HH** (High hazard = high fire dangerousness) category rules are used. To support the above mentioned rules, the fire dangerousness category of particular environments was defined. According to this categorizing was also chosen the type of the systems for these environments.

Underground parking..... OH2 Category

Hotel's guest rooms …….....OH1 Category

Bar-Restaurants, offices.....OH1 Category

Kitchen, Laundry..... OH2 Category

Conference halls, Lobbies.....OH1 Category

Service areas..... OH1 Category

Auditorium..... OH4 Category

Table 14. Sprinkler System, technical norm [EN, 2009]

	OH1	OH 2	OH 4
Max working pressure of the system	12	12	12
Density of water discharge (lit/min.m2)	5	5	5
Maximal operation area (m2)	72	144	360
Water capacity (m3/hour)	21.6	43.2	108
Maximal working area of one sprinkler (m2)	12	12	12
Minimum number of sprinklers in operation area	12	12	12
Minimum pressure in the head of the sprinkler (bar)	0.35	0.35	0.35
Functioning time (min)	60	60	60
Min-Max Distances between sprinklers (m)	2-4	2-4	2-4
Min-Max Distances from perimetral walls (m)	1.5-2	1.5-2	1.5-2
Min-Max Distance from the ceiling (cm)	10-30	10-30	10-30
K – factor	80	80	80
Operation temperature of the sprinkler (^{o}C)	68	68	68

The underground parking according to EN 12845 rules, belong to OH2 Category of fire dangerousness. Except the automatic system sprinkler, *(Table 14)* according to EN UNI 10779, in the parking are predicted and powder fire extinguishers. In our case, hydrants dhe fire extinguishers were estimated and selected according to " Norme di Sigurezza per la Costruzione

e l'EserciziodelleAutorimesse e Simili" (" Security norms for the construction and usage of parking and similar").According to these norms, in the parking it is predicted:

a- Portable fire extinguishers with powder, with not less than 4 kg:

One fire extinguisher for 5 cars, for the first 20 cars. For the rest, till 200 cars, one fire extinguisher for 10 cars.

b- Hydro plants against fire:

In the underground floors of parking, it is used a firehydrant type UNI 45, with flow 120 lit/min and with minimal pressure 2 Bar, for every 30 cars. The automatic water system Sprinkler for quenching the fire, has a water discharge of 5 lit/m^2.min and a minimal predicted action surface of 144 m^2. Sprinkler type is universal, discovered, with head - up direction (thus, water current hits the parking's ceiling) with a temperature +68 ^oC of glass bulb breakage, and a maximal covering surface of 12 m^2 .The duration of system's function (water reserve) is considered 1 hour. The pipe network system of sprinkler is separated from the one of fire hydrants. This means that each system have individual pipe networks. The pipe network of the sprinkler fire protection system has an annular type, while the one of fire hydrants branched type.

Parking's mechanical ventilation

Part of the measures for the fire protection in underground parking (closed) is also the prediction of a natural, mechanical or combined, of a ventilation system according to the parking construction. The parking in -1 and -4 levels have a mechanical aspiration system realized according to a special project.

The aspiration was projected according to the corresponding European norms and serves for both usual ventilation, according to the carbon dioxide concentration produced from the cars, and in cases of fire, by doubling the volume of air aspired to 10 volumes/hour in the liable floor. The parking's ventilation was conceived according to "Impeller ventilator" (Jet Fans), which it is based on induction of the surrounding air. A specific draught is absorbed from the ventilator and is displaced in frontal form, with high velocity by moving forward the air and drawing it towards itself. In this way, the air will be in movement and it's conducted in a considerable length,

without using pipes. Thus all the parking space serves as an air canal. The ventilators work through the intelligent commanding, based on the information for the monitoring the dangerous gases like carbon monoxide, CO. The usage of Jet fans type, in comparison of traditional systems with concentrated ventilators and metal sheet pipes, has many advantages:

- The installations in this type of system save space and are very flexible. The system can be programmed in different ways, where only the ventilators in polluted areas are tuned on.
- Better air quality, due to its equal distribution without creating "dead" spaces.
- Avoids high carbon monoxide levels, in specific places.
- Doesn't need canals.
- A long term decrease in electric energy costs, more than 30% in comparison to the traditional systems.

The parking's ventilation functions according to the concentration of carbon monoxide. This function is realized through the detection plant, composed of carbon monoxide sensors, which evaluate the carbon monoxide concentration in the dangerousness levels. The detection plant ends up with the information processing center. The automatism plant enables the execution of the alarms transmitted form the center of carbon monoxide detection, under the ventilators control, according to the air circulation. All the installed system's equipment fulfill the corresponding European norms for the selected purpose.

The fire protection system for the environments above the ground is a central type, thus, with common water deposits and pumps of fire extinguishers for all the spaces, regardless their destination. The system against fire is divided in two; *a-)* the fire hydrants which are installed in the lobby of elevators near the emergency exit doors and in the exterior areas of the building b-*)* the automatic system of sprinklers which covers all the building's surface from level -4 till level +24. The water is considered for the simultaneous functioning of the automatic system (sprinkler) and a part of the hydrants in the respective floors. *Figure 45* shows the guestroom floor layout with the distribution of sprinkler system on the ceiling and on the wall in guestrooms and corridor.

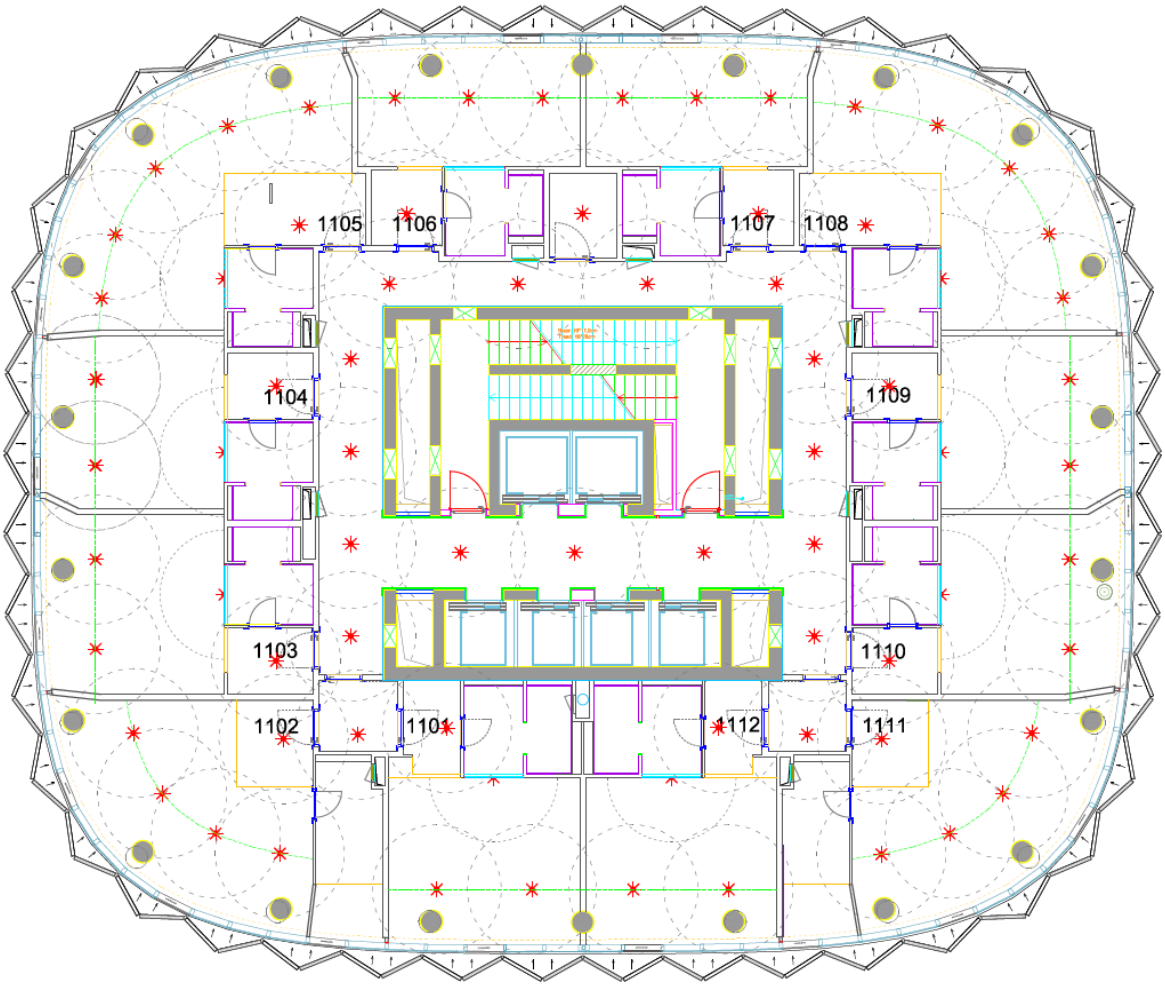


Figure 45. Guestroom floor layout sprinkler distribution on ceiling and on the wall [TID archive, 2016]

The areas where the "Sprinkler" system are installed belong to the "Ordinary Hazard" Category, of OH1, OH2, OH4 groups. Internal fire hydrants will be cassette type installed inside the wall and tube till 20 m. In the Cassettes are also provided for the deployment of the mobile fire extinguisher 6 kg, pulverized, with hand use. These hydrants can be used by hotel staff after a relevant instruction in the emergency stairs cages are installed hydrants DN70 mm, which is used only by the fireman. In the outside territory 4 fire hydrants of type underground and on surface DN100/70 mm where placed, where the fireman car can be connected.

The water pumps are installed in the level -4. These pumps were selected based on EN 10845 norm, with a capacity of 155 m^3/hour and a pressure of 164 m. Based on EN 12845 norm, there are installed two electopumps (a primary and a reserve) and a pilot electropump. The electropumps have an independent current supply from the current network and emergency generators, with lines dedicated only to the pumps. The fire quench reservoir in -4 level is in common with the drinking water, by saving the necessary level in cases of fire quench.

Since the water supply network in the city is unable to consistently meet the demand for water firefighting facility, it is anticipated the construction of a reinforced concrete reservoir in level -4. The reserve of water is considered as V, which is determined by a specific hydraulic calculation program, for a time extension function for at least 1 hour.

V min = 155 m^3

The constructed reservoir has a volume of 266 m^3. From these reserve, only a volume of 93m^3 will be used for drinking purposes. Thus the water reserve for fire quenched purposes remains to 170 m^3, enough for the anti-fire system requirements. (155 m^3).

Hotel emergency stairs cage and cage of emergency elevator are provided with air to create an overpressure in them, not allowing that fumes from the rooms and corridors to penetrate the streets of evacuation of people. There are 4 ventilators installed in the hotel's terrace in +85m, capacity of each is calculated individually for:

- Emergency stairs cage pressure
- Emergency elevator pressure
- The ventilator of air Compensation in the Corridors of the guestrooms
- Smoke aspirators in the corridors of the guestrooms.

In all the hotel's area there is a detecting and alarm system against fire. On the above mentioned objects the "intelligent" fire alarm system is applied. These systems offer benefits regarding the speed on fire detection, identification and localization of fire, an easier maintenance, and even a

tolerance on the mistakes done when connecting the system. This system uses only one copy of conductors to connect a large number of system's equipment resulting in a decreasing of the costs. In these systems the connections are made according to a closed circuit, where both ends are connected to the control panel. The circuit is controlled from the two ends, and if a rupture occurs at any point, none of the equipment would be out of control. The detectors need to be positioned according to the standard BS5839 part 1, 2002.

Parts of the system are:

- The smoke detectors are approved from EN54 – 7:2000 (Amendment 1), MED 96/98/EC (Amendment 2009/26/EC) and LPCB, VDS
- In the area above the hanging ceiling where a lot of cables are positioned, smoke detectors equipped with LED signalizing lamps where positioned under the ceiling to demonstrate the situation of the alarm.
- In the cooking area of the kitchens, smart sensors with 4 technologies are applied to avoid false alarms which are common in these areas.
- In the electric panel area and rack area a smoke detector and heat detector are placed.
- Buttons used with hands with glass break in cases of alarm situations. These are placed next to the stairs in visible places in a height of 1.4 m.
- Optic alarm elements (flashing light) and sound (bell)
- Modules 24V d.c. to control the fire doors.

The cables used to connect the detectors and the other elements of the system against fire should be made of cooper, fireproof (maintains its function for 90 minutes in 750 degrees Celsius). Their type if given in the drawings. Cables with the same characteristics should also be used in the system which notifies for evacuation and for the direction lighting lines in case of emergencies.

All the materials and equipment used in the object for the hydro and mechanical plant for protection against fire have a high quality. Providing in this way guaranty, longevity, and a good functioning of the system. They are produced and certified according to the current EN norms.

4.4.4.3. Means of egress

Each guestroom is fire protected by active and passive measures. As mentioned above rooms are F90 min from each other and the corridor. The longest distance from guestroom to the safe zone of the emergency stair cage is less than 18m. The emergency door is F90 min with push bar and the sign of exit as well. Two egress means are provided separated from each other with F120min walls. Rooms and corridors have all the surface covered with sprinklers. In the guestroom sprinklers are positioned in that way that in case of fire they wall the glass façade too. Smoke detectors are provided in rooms and corridors.

Figure 46. Corridor equipped with signs for an easy escape in case of emergencies

Each guestroom has at least two speakers one in the room and one in toilet for announcements in case of emergency. Every shower or bathtub has its own emergency button and telephone in to be used case of accidents or health problems. Signals that show the way to the exit are installed in corridors, each room has its own evacuation plan inside, which is visible from each guest. In corridors fire alarm button and light are installed in the high 120 cm and 220cm from the ground. Emergency elevator will be used only by the fireman in case of the emergency. Portable fire extinguishers with powder and fire hydrant with tube 20m are provided nearby the emergency exit doors. *(Fig. 46)*

CHAPTER 5

DISCUSSIONS

Results of the existing situation of the Plaza, Tirana have indicated that the building is a concrete example of a standardized hotel. The adaptation of the building into a business hotel was quite a challenge. Based on the appropriate strategy and mechanism, today the building delights the total quality of a superior 5 star hotel, one of its kinds in the country.

Since the building first was projected to be utilized as office building, the adaptation of the tower was based on the main needs of the investor and its fundamental purpose by developing a diagram platform of the original dispersal of the spaces inside.

The interior areas of the building were all figured out based on the probable amount of space that will be given to the main functions in a hotel, achieving in this way the balance between public, service spaces and guestrooms.

The graphic below indicates the percentage of the distribution that each space has on the Plaza. Based on the standards, the guestroom areas are required to cover almost 75% of the total area of the hotel. Meanwhile, in the Plaza they cover around 55%, which means that the rooms offer a larger area and larger spaces for public space usage. Seeing from the business profit view this is an advantage for the customers and a disadvantage for the owner of the building on the other hand. The public areas require 14%, while in the building these areas cover 22%, meaning that the public areas have larger area and offer much more facilities, which is a positive aspect for the hotel. *(Fig. 47)* The more public areas we have, the greater the opportunity to develop social activities, which means that a larger amount of people will attend the hotel.

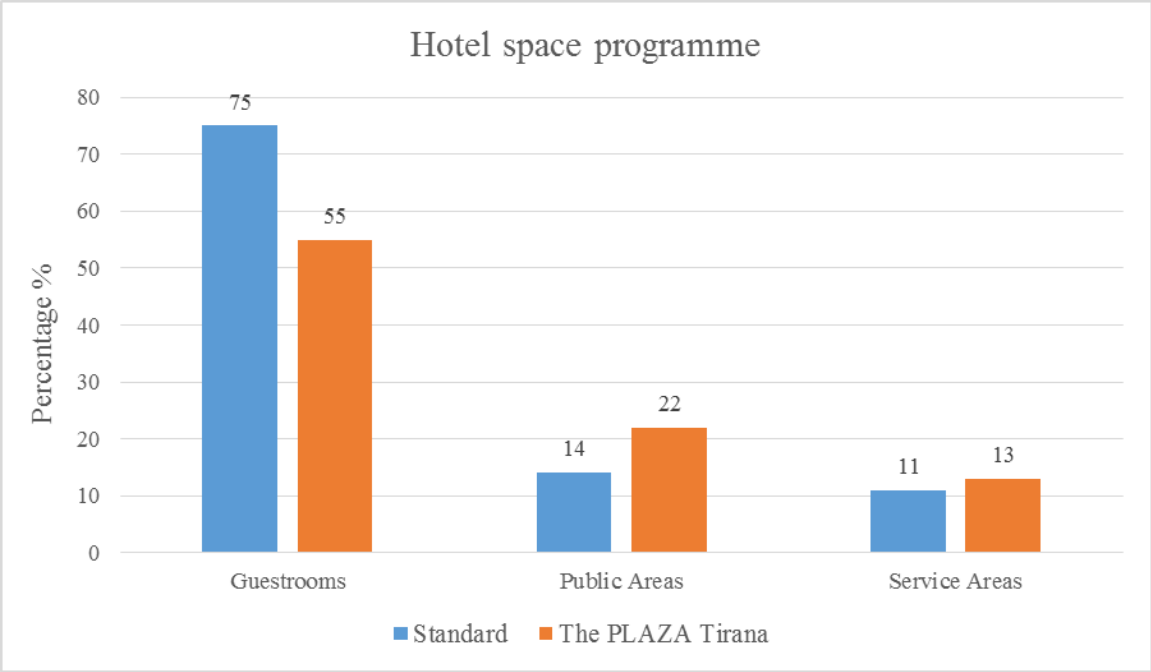


Figure 47. Hotel space program comparison between standards and The PLAZA Tirana Hotel

Moreover the service areas have a standard of 11%, while on the building they occupy 13% of the total area. The difference here is quite small, 2 %, thus since there is a lower percentage on guestroom areas (55% out of 75), the service area have the possibility to take the space left from the guestrooms. One may say that in terms of space requirements The Plaza is quite standardized and the space is very well distributed.

Guest rooms are considered as the main part of the hotel and since the standard requirements need the best sited position in order to obtain the best views and orientation, all the rooms in the building offer city view and exposure to nature light. Their importance is based on 2 main features: The area and occupancy distribution. Moreover the rooms are equipped with latest technology features and are quite flexible to be used by the guests. In addition there is a richness in material usage which are all certified based on their quality, safety and durability.

The distribution of the guestrooms area in the Plaza in terms of square meters is 41m² room and toilet (an average taken from all room typologies) out of 32 m² for the guestroom net area. Regarding the Gross area, in which the corridors and stair ways of the guest floors are included

the amount is 53 m² out of 45 m². Whereas the total area of the hotel excluding parking area is 98 m² out of 60 m². *(Fig. 48)*

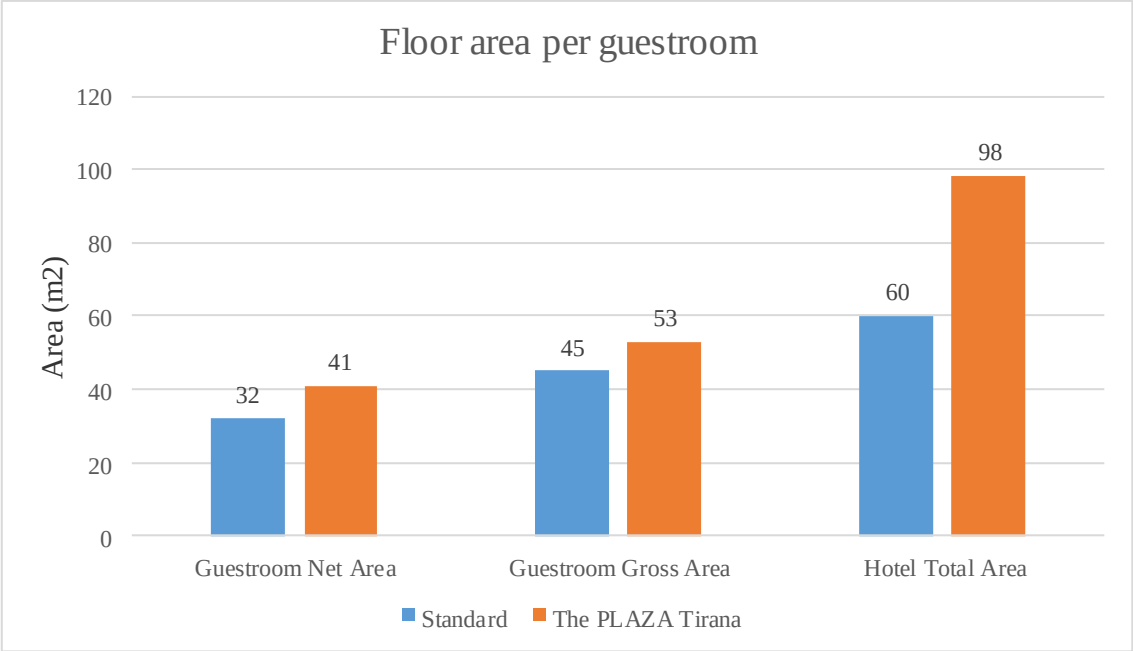


Figure 48. Comparison chart of standard and PLAZA Tirana regarding floor area per guestroom

While in terms of occupancy the hotel has reached the main requirements in the distribution percentage. Whereas on a requirement of 30% for the double room it offers 37% of this typology, out of 60% for the Single King it has a 52% and regarding the suites out of 10% it fills 11% of the total guestroom occupancy. *(Fig. 49)*

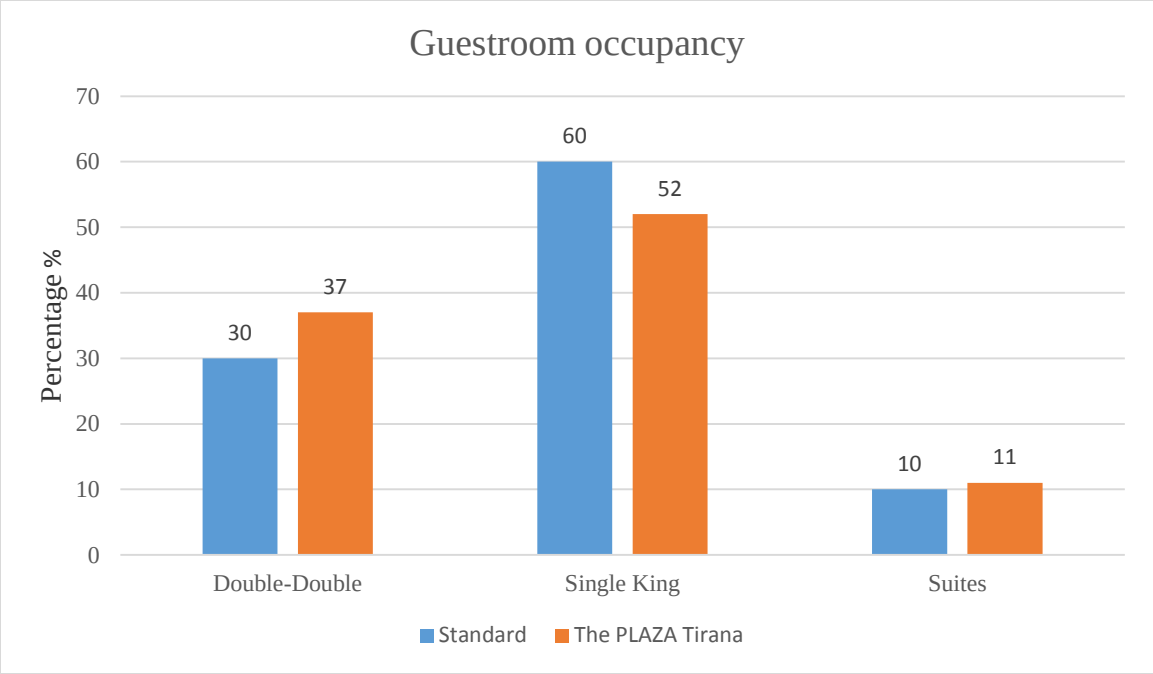


Figure 49. Guestroom occupancy comparison chart

The room classification is a true indicator of the Hotel quality. According to the standard requirements the distribution of room typologies is attained. Since the hotel has a business character, the Business rooms occupy the largest amount of space (51%), followed by Superior rooms with 24.2%, 14.2% Deluxe Rooms, 5.3% Serviced apartments, 3.1 Suites and lastly 2.2% for Executive suites. *(Fig. 50)* As it can be perceived the Business room is the most influential type of room. The typology distribution is a reflection of hotel main character. In our case the Business hotel offers a larger amount of business rooms and a proportional distribution for the other room typologies.

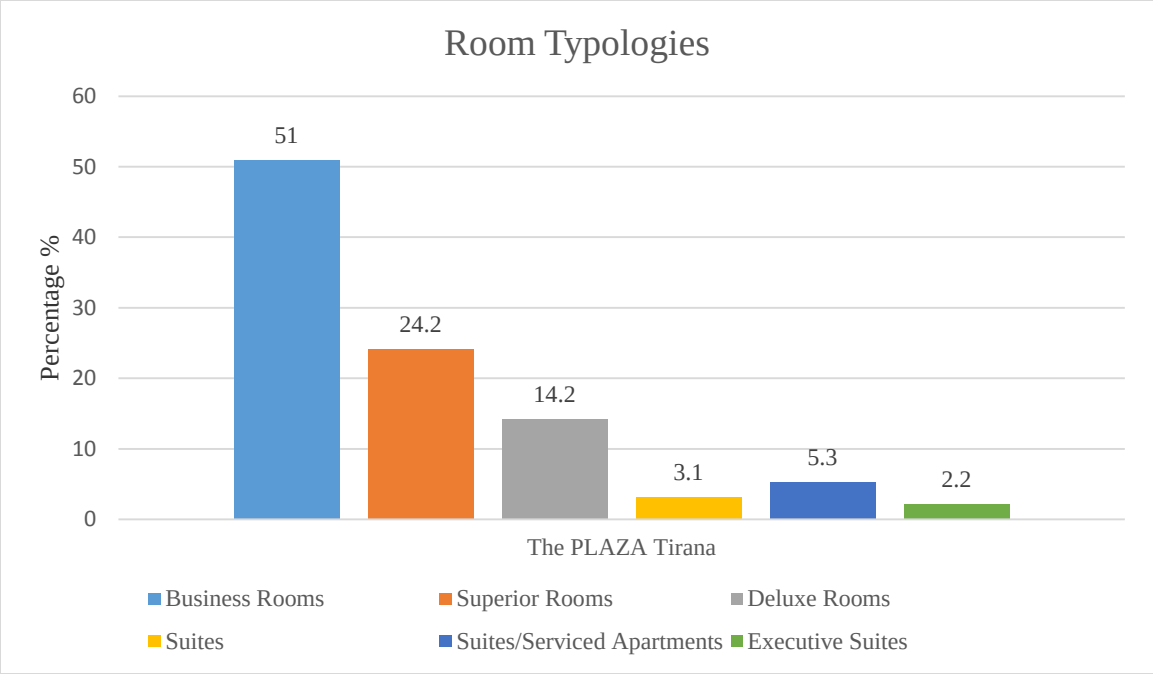


Figure 50. Percentage of room typologies at The PLAZA Tirana

When it comes to noise control the importance of a good night sleep in hotels is crucial. In Plaza's case the challenge in terms of acoustics is doubled. Since the tower is dominated by its glass façade, the insulation of the noises is a real encounter. The intelligent solution lies in the use of concrete panels which make possible the refraction of the noise. Indeed the glass façade sound insulation is 38 dB where the optimum is 40Db. With the panels solutions the amount of sound insulation reaches even a higher result.

The acoustic comfort is accomplished by focusing on the reduction of noise transmission from one guestroom to another. The guestroom floors are separated by the other public facilities. Certainly all the public services are situated in the lower levels of the tower. Based on the graph below, the standard dB for sound insulation from one guestroom to another is 50 dB and in our building this rate is 59dB. This has come as a result of thicker wall usage (which is translated in 4 gypsum boards meaning a higher cost spent). In other words the sound comfort has drawn a special attention in design and construction.

The insulation obtained from the guestroom to corridor is as well 59 dB out of 50 dB that is the standard amount. Here is used the same type of wall as between guestrooms. Actually a more appropriate type of insulation has been used. Whereas between the Guestroom and the exterior façade the amount is 38 out of 40dB that is the required amount. Even though there is a small difference in this case it does not mean that the insulation comfort is not reached. Otherwise, the Façade insulation is a challenge that has been accomplished in the most efficient way possible. *(Fig. 51)*

While from Guestroom door to corridor the amount of decibels is 38 out of 35. Two guestroom doors were tested and certified for acoustic isolation. One door for 38 dB with one retractable threshold seal and one for 45 dB with a fixed threshold. As the fixed threshold was unacceptable because is a barrier for the guests with luggage and not only, the 38 dB door is installed. In order to have a better acoustic performance a second retractable threshold seal is added to the door.

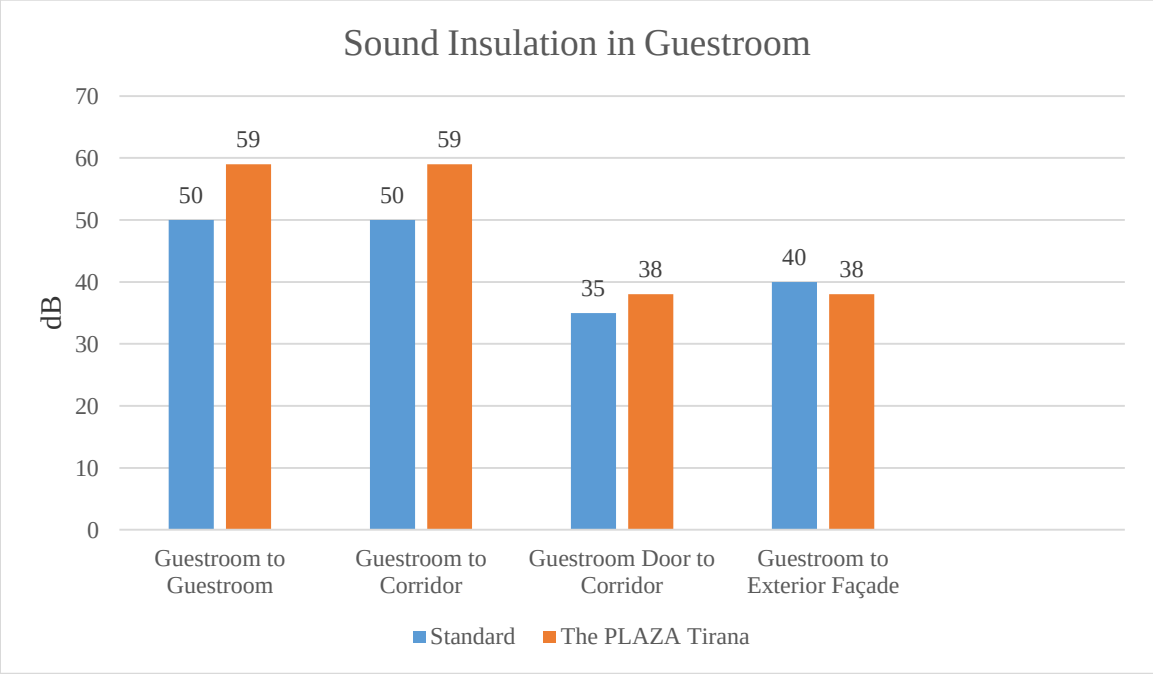


Figure 51. Guestroom sound insulation, comparison between standards and the case study

Design for all is another crucial aspect of hotel design. The general hotels must be able to accommodate people with any kind of issues. The Plaza has put a great emphasis on design for

all strategies. The hotel is equipped with two main handicapped rooms which are connected together via interconnection doors. They are located on the 8th floor of the building which fulfills the requirements to be accessible at a lower floor. The rooms are equipped with a sliding door for an easy access to the bathroom. As regards to access the existing elevators are designed according to handicapped requirements. To assure their safety in case of fire there is an emergency elevator. The entries and approaches to the hotel are designed in such a way to prevent any kind of difficulty or mislead in the direction of the entrance. Public restrooms are all equipped with a handicapped toilet. All the doors meet the design requirements above 80cm. In this way the Hotel has met all the requirements for handicap design and is capable of attending everyone without any distinguishes.

In terms of fire and safety, TID Tower is the first project in the state that is based on concrete authorized fire standards. Being the only building in the country to be constructed according to NFPA regulations, meeting in this way the required standards of fire safety, the building fulfills all the criteria and standards in terms of safety. The presence of standardization in fire alarm systems makes the building even safer. Indeed the evacuation of the building is reached though the separated scissor stairs, which are completely independent from one other and have the ability to resist fire up to 2 hours.

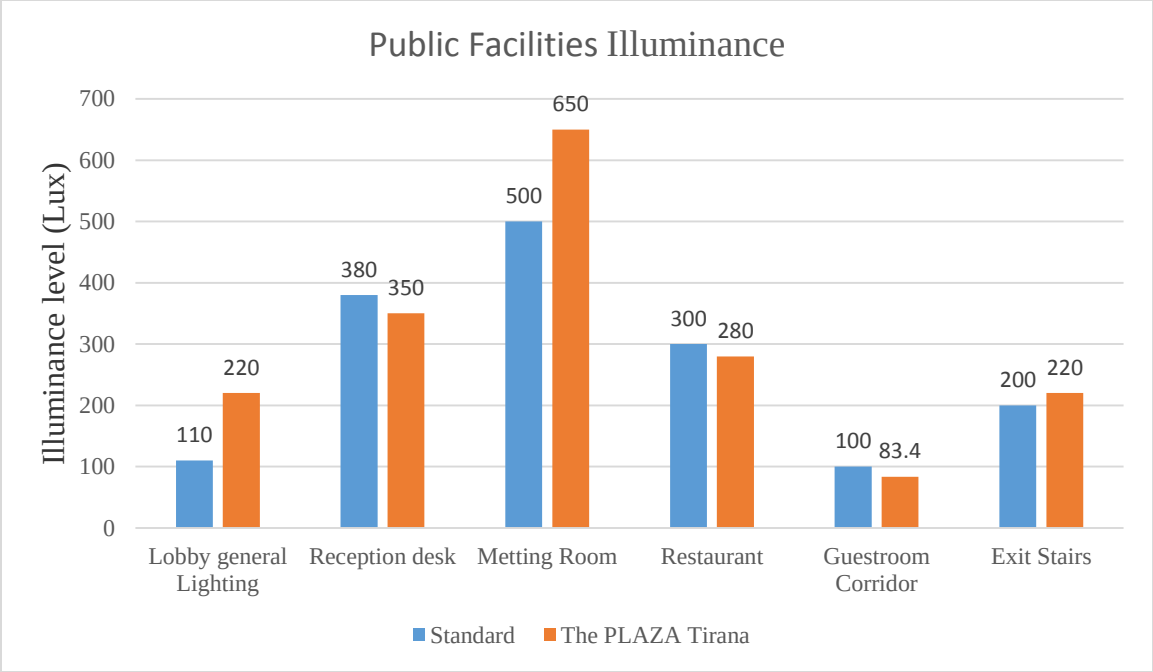


Figure 52. Public Facilities Illumination compared with the standards

Lighting standards has been one of the main design concepts in the tower. The focal point was to obtain as much natural light as possible and for that reason the building in dominated by a total glass façade. In this case guestrooms are favorable to obtain natural light during daytime.

Public spaces such as the lobby serve as the first contact with the building and for that reason the usage of general lighting is quite high. The fact of coming from a dark region from the lobby directly to a bright zone in the reception indicates the presence of light in this area. According to the measurements the amount of light in lobby areas is 220Lux out of 110Lux that is the minimal requirement. The presence of dark and non-reflecting materials needs more illuminance in order to perceive as a normal lighting, for that the amount of light in lobby is double compared with the standard. At the reception desk the lighting starts to become warmer by reducing its amount into 350Lux out of 380Lux.

Furthermore the meeting rooms are generally exposed to full natural light. Their illuminance amount reaches up to 650Lux out of 500Lux and since their main function is related to private non-disturbing activities, the artificial illuminance is done through the establishment of materialization contrast such as the usage of dark curtains and the application of a regular

general lighting scheme that involves lighting spots fused into the metallic structured ceiling. The restaurant on the other hand has a rate of 280Lux out of 300Lux. Since the area in completely exposed to natural light the presence of artificial is reduced. *Figure 52* compares the standard and the values measured on The PLAZA Tirana public areas.

In the guestroom corridors the lighting has another impact. They are generally illuminated for safety purposes and for clear passage of the guests. The amount here is 83.4 Lux out of 50Lux. For this reason general lighting of the guestroom corridors is provided by a regular distribution of spot lights.

While the presence of artificial light is implied in the room the general lighting obtained is 170 Lux. Compared to the minimal standard amount that is 110 Lux one may say that the artificial light produced in the room is quite optimal. Since the materialization of the room interior has a dark tendency in color the presence of such amount of light is done on purpose in order to compete with the darkness implied by the furniture's and the room finishes.

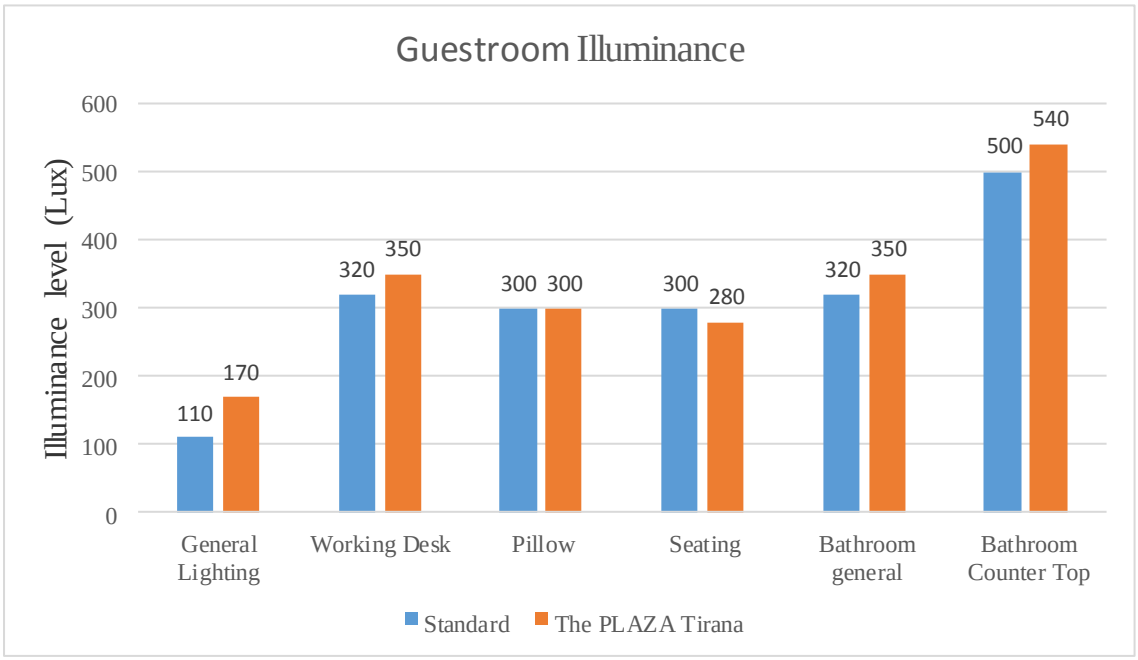


Figure 53. Guestroom Illuminance in Lux compared with hospitality lighting requirements

The creation of a balance between room darkness and total illuminance of the guestroom is accomplished. In addition, the bathroom has its importance in terms of daylight. Since their design includes a glass panel in order to obtain natural light that derives from the room, the general bathroom illuminance is 350Lux out of 320Lux. The usage of light at the counter top offers a higher amount of the illuminance inside this space, 540 Lux. *(Fig. 53)*

CHAPTER 6

CONCLUSION AND FUTURE WORKS

6.1. Contribution

Tourism has become an important sector in Albania in the last few years. The increase in the number of visitors and the development of the country in terms of hospitality, culture, natural beauty is directly related to hotel industry and the new approaches towards innovative hotels and their distinguished characters.

The Plaza, Tirana is a concrete model of a building based on standards and codes. The development of this structure in terms of design program, acoustical and lighting standards, design for all and security and safety approaches leads to new innovative methodologies towards the building sector and further.

This study can be used as a standard book for every new designer that dares towards standards and building on base. Moreover the paper focus is clear and gives the opportunity to be informed for the basic equipment.

Another aspect of this paper contribution can be seen from governmental point of view. Since the study is a pure reflection of building by codes and standards, it can serve as a manual for building criteria based on European criterions. Our need for building by codes is a must. The application of new technologies that are directly related to our daily life and living standards can and should be applied; otherwise we will have buildings rise without any criteria that don't fulfill even the elementary needs.

The study may serve as a guide for Albanian construction standards not only in the hotel sector but in any other field related to building and design. Through the power of standards great products can be accomplished.

6.2. Future Work

This study may contribute to future researchers in developing specific topics related to hotel design and not only. Actually, it may serve as a source for further expansion of researches or studies that deal with design of hotel sector and their development in terms of standards and design manuals. Today, the Plaza, Tirana built right in the heart of the city can serve as a true inspiration to look forward and get the best out of the best.

This whole study was thought as a total process based on the design standards comparison. Business hotels are not the only ones that need to be developed in the city and widely in the country. Indeed the paper can be a good starter to push other to seek new strategies that lead towards building by codes and standards. In this way the hotel industry will rise in all of its dimensions and not only for business reasons.

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APPENDIX A

ILLUMINANCE MEASUREMENTS FOR SOME MAIN SPACES AT THE PLAZA TIRANA

a-) Emergency stairs 220Lux

b-) Washbasin in Bathroom 540Lux

c-) Lobby 220 Lux

d-) Meeting Room 650 Lux

Figure 54. On site illuminance measures

APPENDIX B

ROOM INVENTORY

Table 15. The PLAZA Tirana guestroom Inventory

Floor	Room number	Room Type	Setup	
6 White Floor	**607**	Business	Double	SR
	608	Deluxe	Double	
	609	Business	Twin	SR
	610	Business	Twin	
	611	Superior	Double	
	612	Superior	Double	
7 B&W Floor	701 - B	Superior	Double	
	702 - B	Business	Double	
	703 - W	Business	Twin	
	704 - W	Business	Twin	
	705 - W	Business	Double	
	706 - W	Business	Double	
	707 - B	Business	Double	SR
	708 - W	Business	Double	
	709 - W	Business	Twin	SR
	710 - B	Business	Twin	
	711 - B	Business	Double	
	712 - B	Superior	Double	
8 White Floor	801	Superior	Double	SR
	802	Superior	Double	
	803	Business	**Disabled**	
	804	Business	Twin	
	805	Deluxe	Double	SR
	806	Business	Double	
	807	Business	Double	SR
	808	Deluxe	Double	
	809	Business	Twin	SR
	810	Business	**Disabled**	
	811	Superior	Double	
	812	Superior	Double	
9 Black Floor	901	Superior	Double	SR
	902	Superior	Double	
	903	Business	Twin	
	904	Business	Twin	
	905	Deluxe	Double	SR
	906	Business	Double	
	907	Business	Double	SR
	908	Deluxe	Double	
	909	Business	Twin	SR
	910	Business	Twin	
	911	Superior	Double	
	912	Superior	Double	
10 White Floor	1001	Superior/ Family	Twin	
	1002	Superior/ Family	Double	
	1003	Business	Twin	
	1004	Business	Twin	
	1005	Deluxe	Double	SR
	1006	Business	Double	
	1007	Business	Double	SR
	1008	Deluxe	Double	
	1009	Business	Twin	SR
	1010	Business	Twin	
	1011	Superior/ Family	Double	
	1012	Superior/ Family	Twin	

LEGENDA SR = **Smoking Rooms** (Total 68 smoking rooms)

122 NO SMOKING ROOMS

97	Business Rooms
46	Superior Rooms
27	Deluxe Rooms
6	Suite
10	Suite/Serviced Appartments
4	Executive Suites

Floor	Room number	Room Type	Setup	
15 Black Floor	1501	Superior	Double	SR
	1502	Deluxe	Double	
	1503	Business	Twin	
	1504	Business	Twin	
	1505	Suite	Double	SR
	1506	Business	Double	
	1507	Business	Double	SR
	1508	Suite	Double	SR
	1509	Business	Twin	SR
	1510	Business	Twin	
	1511	Deluxe	Double	SR
	1512	Superior	Double	
16 White Floor	1601	Superior	Double	SR
	1602	Deluxe	Double	
	1603	Business	Twin	
	1604	Business	Twin	
	1605	Suite	Double	SR
	1606	Business	Double	
	1607	Business	Double	SR
	1608	Suite	Double	SR
	1609	Business	Twin	SR
	1610	Business	Twin	
	1611	Deluxe	Double	
	1612	Superior	Double	
17 Black Floor	1701	Superior	Double	SR
	1702	Deluxe	Double	
	1703	Business	Twin	
	1704	Business	Twin	
	1705	Suite / Serviced Apartment	Double	SR
	1706	Business	Double	
	1707	Business	Double	SR
	1708	Suite / Serviced Apartment	Double	SR
	1709	Business	Twin	SR
	1710	Business	Twin	
	1711	Deluxe	Double	SR
	1712	Superior	Double	
18 White Floor	1801	Superior	Double	SR
	1802	Deluxe	Double	
	1803	Business	Twin	
	1804	Business	Twin	
	1805	Suite / Serviced Apartment	Double	SR
	1806	Business	Double	
	1807	Business	Double	SR
	1808	Suite / Serviced Apartment	Double	SR
	1809	Business	Twin	SR
	1810	Business	Twin	
	1811	Deluxe	Double	
	1812	Superior	Double	

Room Inventory

11 Black Floor				
	1101	Superior/ Family	Twin	
	1102	Superior/ Family	Double	
	1103	Business	Twin	
	1104	Business	Twin	
	1105	Deluxe	Double	SR
	1106	Business	Double	
	1107	Business	Double	SR
	1108	Deluxe	Double	
	1109	Business	Twin	SR
	1110	Business	Twin	
	1111	Superior/ Family	Double	
	1112	Superior/ Family	Twin	

19 Black Floor				
	1901	Superior	Double	SR
	1902	Deluxe	Double	
	1903	Business	Twin	
	1904	Business	Twin	
	1905	Suite / Serviced Apartment	Double	SR
	1906	Business	Double	
	1907	Business	Double	SR
	1908	Suite / Serviced Apartment	Double	SR
	1909	Business	Twin	SR
	1910	Business	Twin	
	1911	Deluxe	Double	
	1912	Superior	Double	

12 White Floor				
	1201	Superior/ Family	Twin	
	1202	Superior/ Family	Double	
	1203	Business	Twin	
	1204	Business	Twin	
	1205	Deluxe	Double	SR
	1206	Business	Double	
	1207	Business	Double	SR
	1208	Deluxe	Double	
	1209	Business	Twin	SR
	1210	Business	Twin	
	1211	Superior/ Family	Double	
	1212	Superior/ Family	Twin	

20 White Floor				
	2001	Superior	Double	SR
	2002	Deluxe	Double	
	2003	Business	Twin	
	2004	Business	Twin	
	2005	Suite / Serviced Apartment	Double	SR
	2006	Business	Double	
	2007	Business	Double	SR
	2008	Suite / Serviced Apartment	Double	SR
	2009	Business	Twin	SR
	2010	Business	Twin	
	2011	Deluxe	Double	
	2012	Superior	Double	

13 Black Floor				
	1301	Superior/ Family	Twin	
	1302	Superior/ Family	Double	
	1303	Business	Twin	
	1304	Business	Twin	
	1305	Deluxe	Double	SR
	1306	Business	Double	
	1307	Business	Double	SR
	1308	Deluxe	Double	
	`1309	Business	Twin	SR
	1310	Business	Twin	
	1311	Superior/ Family	Double	
	1312	Superior/ Family	Twin	

21 Black Floor				
	2101	Superior	Double	SR
	2102	Deluxe	Double	
	2103	Business	Twin	
	2104	Business	Twin	
	2105	Suite / Serviced Apartment	Double	SR
	2106	Business	Double	
	2107	Business	Double	SR
	2108	Suite / Serviced Apartment	Double	SR
	2109	Business	Twin	SR
	2110	Business	Twin	
	2111	Deluxe	Double	
	2112	Superior	Double	

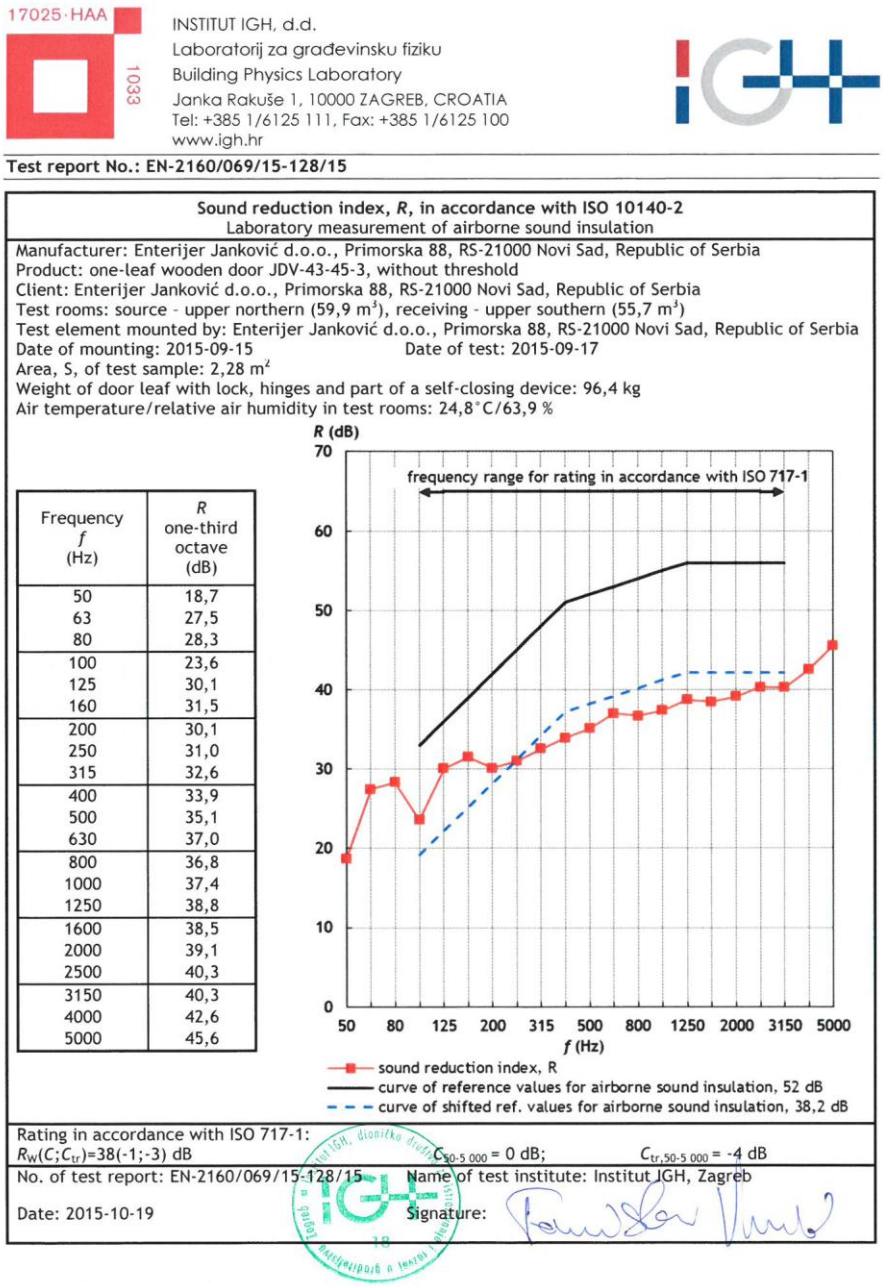
14 White Floor				
	1401	Superior/ Family	Twin	
	1402	Superior/ Family	Double	
	1403	Business	Twin	
	1404	Business	Twin	
	1405	Suite	Double	SR
	1406	Business	Double	
	1407	Room Service		
	1408	Suite	Double	SR
	1409	Business	Twin	SR
	1410	Business	Twin	
	1411	Superior/ Family	Double	
	1412	Superior/ Family	Twin	

22 Executive Suites Floor				
	2201	PRESIDENTIAL SUITE	Double	SR
	2202	GYM SUITE	Double	SR
	2203	SPA SUITE	Double	SR
	2204	STUDIO SUITE	Double	SR
	2200	Business room / connected with 2201	Double	

December 2, 2015

APPENDIX C

GUEST ROOM DOOR ACOUSTIC CERTIFICATE



17025·HAA 1033

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Tel: +385 1/6125 111, Fax: +385 1/6125 100
www.igh.hr

Test report No.: EN-2160/069/15-128/15

Sound reduction index, *R*, in accordance with ISO 10140-2
Laboratory measurement of airborne sound insulation

Manufacturer: Enterijer Janković d.o.o., Primorska 88, RS-21000 Novi Sad, Republic of Serbia
Product: one-leaf wooden door JDV-43-45-3, without threshold
Client: Enterijer Janković d.o.o., Primorska 88, RS-21000 Novi Sad, Republic of Serbia
Test rooms: source - upper northern (59,9 m^3), receiving - upper southern (55,7 m^3)
Test element mounted by: Enterijer Janković d.o.o., Primorska 88, RS-21000 Novi Sad, Republic of Serbia
Date of mounting: 2015-09-15 Date of test: 2015-09-17
Area, S, of test sample: 2,28 m^2
Weight of door leaf with lock, hinges and part of a self-closing device: 96,4 kg
Air temperature/relative air humidity in test rooms: 24,8°C/63,9 %

Frequency *f* (Hz)	*R* one-third octave (dB)
50	18,7
63	27,5
80	28,3
100	23,6
125	30,1
160	31,5
200	30,1
250	31,0
315	32,6
400	33,9
500	35,1
630	37,0
800	36,8
1000	37,4
1250	38,8
1600	38,5
2000	39,1
2500	40,3
3150	40,3
4000	42,6
5000	45,6

Rating in accordance with ISO 717-1:
$R_W(C;C_{tr})$=38(-1;-3) dB $C_{50\text{-}5\,000}$ = 0 dB; $C_{tr,50\text{-}5\,000}$ = -4 dB

No. of test report: EN-2160/069/15-128/15 Name of test institute: Institut IGH, Zagreb

Date: 2015-10-19 Signature:

Figure 55. Certification of the guestroom door for sound isolation

APPENDIX D

AREA CALULATIONS OF HOTEL THE PLAZA TIRANA

Table 16.Calculation of area distribution per facility in m2

FACILITY	-4	-3	-2	-1	0	1	2	3
Entrances					42			
Recepsion					340			
Waiting Areas					277			
Lugage Room					11			
Kiosk					15			
Office					14			
Corridor					30	62	26	48
BAR					115			
Breakfast							430	
Restorant							195	
Longue						210	40	
Kitchen			790				273	
Meeting Rooms						187		370
Co Working Area (table)						82		
Business Corner						15		
Foyer						263		290
Outdoor Foyer								220
Cloakroom								8
Toilets (Public)					13	30	38	43
Stairs					22	34	12	12
Emergency stairs	25	25	25	25	38	38	38	25
Elevator								
Storage	50	30	40	60	17	58	6	90
Technical Room	540		200	315				
Technical Area (shafts)	14	14	14	14	14	14	14	14
SPA								
GYM (+shower+toilets)								
Room 01								
Room 02								
Room 03								
Room 04								
Room 05								
Room 06								
Room 07								
Room 08								
Room 09								
Room 10								
Room 11								
Room 12								
Service Room								

FLOORS									
4	5	6	7	8	9	10	11	12	13
165									
62	74	89	82	82	82	82	82	82	83
25	25	25	25	25	25	25	25	25	25
		8							
275	21								
14	14	14	14	14	14	14	14	14	14
	440								
		210							
			37	37	37	37	37	37	37
			41	42	43	44	45	46.5	48
			33	33	33	33	33	33	33
			33	33	33	33	33	33	33
			47	47	49	51	53	55	56
			30.5	30.5	30.5	30.5	30.5	30.5	30.5
		30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5
		47	47	47	49	51	53	55	56
		33	33	33	33	33	33	33	33
		33	33	33	33	33	33	33	33
		41	41	42	43	44	45	46.5	48
		37	37	37	37	37	37	37	37
		4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2

14	15	16	17	18	19	20	21	22	23
83	83	83	83	83	83	83	83	84	23
									310
									220
									10
									40
25	25	25	25	25	25	25	25	25	25
									29
								7	
14	14	14	14	14	14	14	14	14	14
37	37	37	37	37	37	37	37	200	
49	50	51	52	53	54	55	56	102	
33	33	33	33	33	33	33	33	99	
33	33	33	33	33	33	33	33	100	
57	58	59	60	61	62	63	64		
30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5		
30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5		
57	58	59	60	61	62	63	64		
33	33	33	33	33	33	33	33		
33	33	33	33	33	33	33	33		
49	50	51	52	53	54	55	56		
37	37	37	37	37	37	37	37		
4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	19	

APPENDIX E

PUBLIC FACILITIES AND GUESTROOM FLOOR LAYOUTS

Figure 56. Ground Floor Plan Layout (Entrances, Lobby, Reception, Lobby Bar etc.)

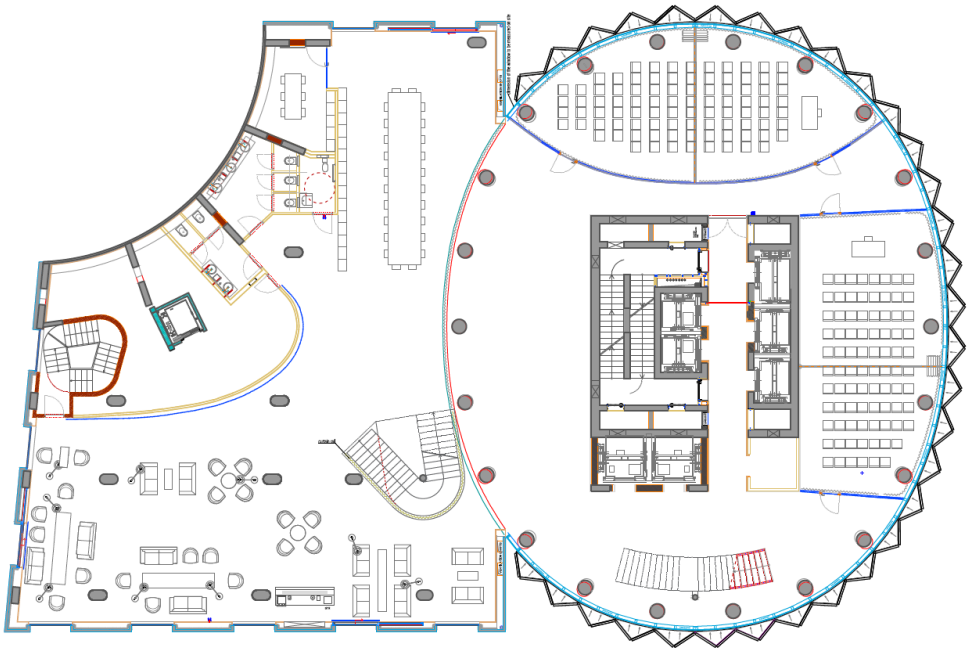

Figure 57.First Floor Plan Layout (Lounge, Business Corner, Meeting Rooms)

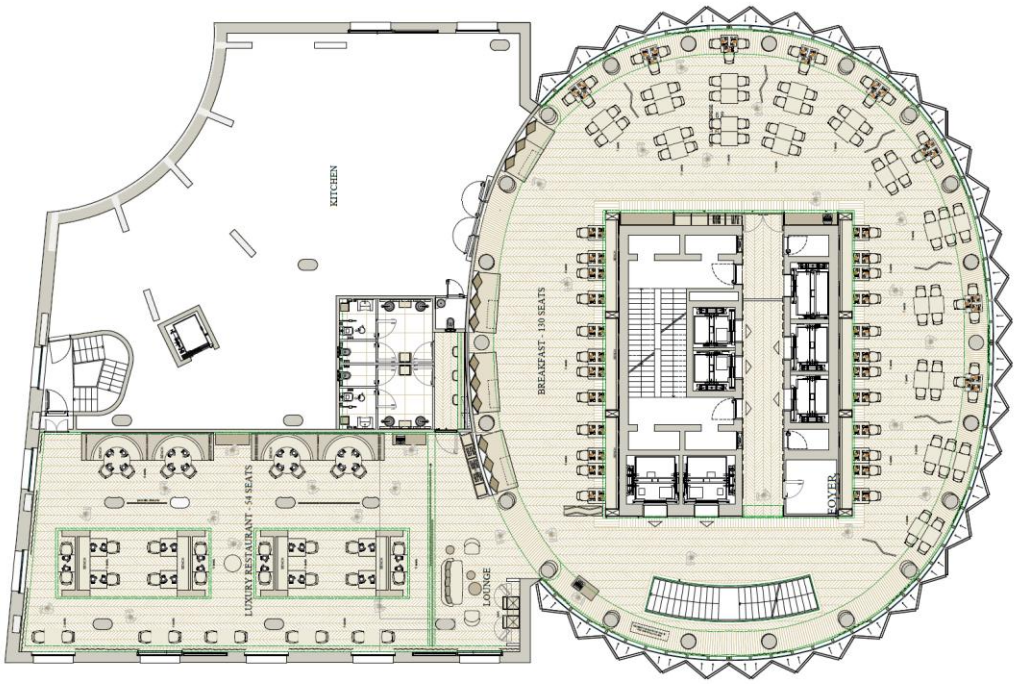

Figure 58.Second Floor Plan Layout (Restaurants)

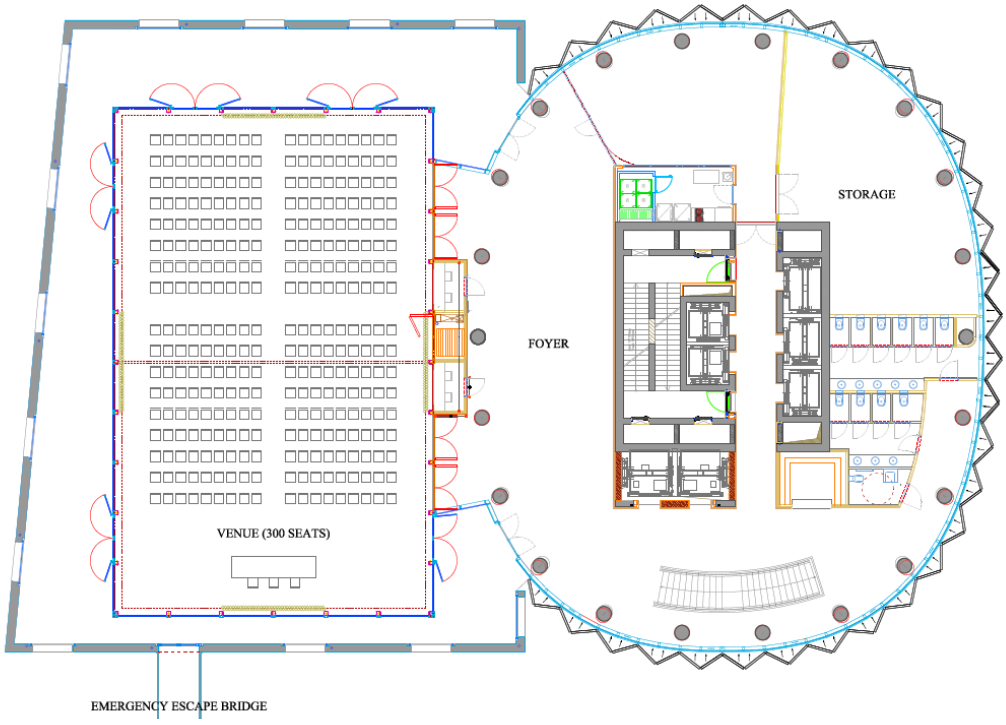

Figure 59.Third Floor Plan Layout (Main Conference Room, Foyer)

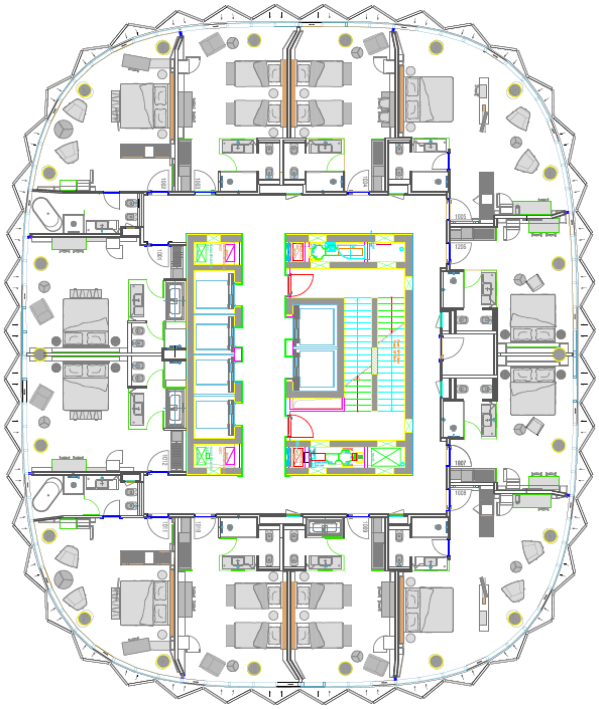

Figure 60.Guestroom floor layout typical floor plan (Floors 7-13)

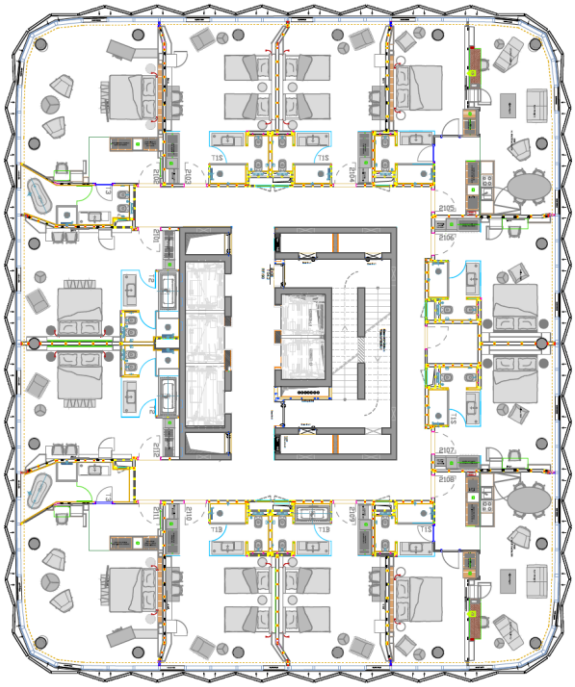

Figure 61.Guestroom floor layout typical floor plan (Floors 14-21)

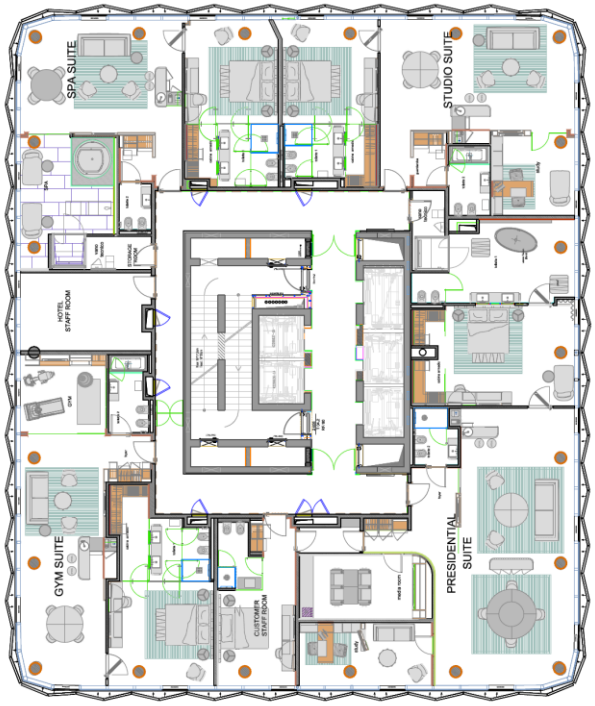

Figure 62.Floor 22- Executive floor layout (Presidential Suite, Gym Suite, Spa Suite, Studio Suite)

Figure 63. Floor 23 Layout (Conference room and Piano Bar)

APPENDIX F

MINIMUM REQUIREMNTS FOR 5 STAR HOTELS ACCORDING HOTELSTARS BY HOTREC

Table 17.Minimum requirements for 5 star hotels

MINIMUM REQUIREMNTS FOR 5 STAR HOTELS ACCORDING HOTELSTARS BY HOTREC –(Hotels,Restaurants & Café in Europe)	
Building / Rooms	
	Cleanliness and a hygienically perfect offer are basic conditions in each category
	All mechanisms and equipments are functional and in faultless condition
	In particular furnishing and equipment are luxurious and offer highest comfort. The optical general impression is constantly harmonized in form, colour, and materials.
	Separate, independent reception desk
	Size of rooms (incl. bathroom) bigger or equal to 30m2
	Minimum 2 suites, Junior suteis are not calculated
	Min. 50% of the rooms are non-smoking rooms
	Separated non-smoking area in the breakfast room
	Spacious reception hall with several seats and beverage service
	Bar separated from restaurant (opened on at least 7 days per week)
	Garage
Furniture / Equipment	
	Elevator - If more than three floors (incl. ground floor)
	100% of the rooms with shower/WC or bath tub/WC
	Shower with shower curtain/shower screen
	Washbasin
	Washable bathroom rug
	Appropriate lighting at the washbasin
	Mirror
	Power socket near to the mirror
	Flexible vanity mirror
	Towel rails or towel hooks
	Heating facility in the bathroom
	Tray of a large scale
	Toothbrush tumbler
	Soap or body wash
	Bath essence or shower gel
	Shampoo
	Personal care products in flacons
	Additional cosmetic products (e.g. shower cap, nail file, cotton swabs, cotton wool pads, bodylotion)
	Cleansing tissue
	Toilet paper in reserve
	1 hand towel per person
	1 bath towel per person
	Bath robe
	Slippers
	Hair-dryer
	Stool in the bathroom
	Waste bin
	Single beds on the scale of min. 0,90 m x 2,00 m and double beds on the scale of min. 1,80 m x 2,00 m
	Modern and well-kept mattresses of minimum 13 cm thickness
	Washable bedside carpet
	Wake-up call device

	Modern and well-kept blanket
	Modern and well-kept pillow
	Two pillows per person
	Various choice of pillows2
	Additional blanket on demand
	Possibility to black out the room completely (e.g. shutter or blackout)
	Adequate wardrobe or clothes niche
	Linen shelves
	Adequate number of hangers
	Wardrobe or clothing hooks
	Possibility to hang up a suit bag (outside the wardrobe)
	1 seating-accommodation per bed, at least a chair
	1 comfortable seating-accommodation (upholstered chair/couch) with side table/tray
	1 additional comfortable seating-accommodation (upholstered chair or twin-couch) in double rooms or suites
	Table, desk or desk top with a free working space of min. 0,5 m2 and an appropriate lighting
	Power socket in the room
	Additional power socket next to the table, desk or desk top
	Appropriate room lighting
	Bedside table/tray
	Reading light next to the bed
	Bedside power button for the complete room lighting
	Power socket next to the bed
	Dressing mirror
	Place to put the luggage/suitcase
	Waste paper basket
	Central safe (e.g. at the reception)
	Safe in the room
	Radio- it can also be organized via TV or a central telecommunication system of the hotel
	Loudspeaker in the bathroom
	Colour-TV in an appropriate size to the room together with remote control, a configuration of the program survey, and a TV agenda
	Facsimile at the reception
	Publicly available telephone for guests
	Telephone in the room along with a multilingual instruction manua
	Internet access in the public area (e.g. broadband, WLAN)
	Internet access in the room (e.g. broadband, WLAN)
	Internet-PC in the room on demand
	Multilingual service manual A-Z (The service manual A-Z has to be added to the application.)
	Regional information material at the reception available
	Guest magazine in the room
	Writing utensils and note pad
	Correspondence folder
	Laundry bag
	Sewing kit in the room
	Shoehorn in the room
	Shoe polish utensils in the room
	Shoe polish machine in the hotel
Service	
	Daily room cleaning
	Daily change of towels on demand

	Change of bed linen at least twice a week
	Daily change of bed linen on demand
	Beverage offer in the room
	24 hours beverages via room service
	Minibar
	Breakfast buffet with service or equivalent breakfast menu card also via room service
	Breakfast menu card via room service
	Three-course menu with choice or "à la carte" or buffet
	Food offer via room service during 24 hours
	À la carte"-restaurant40 opened at least 7 days per week- min 1
	Reception opened 24 hours, accessible by phone 24 hours from inside and outside
	Multilingual staff (German, English and at least one more foreign language)
	Photocopier or the possibility to get photocopies
	Doorman-service or valet parking
	Concierge
	Page boy
	Luggage service
	Secure left-luggage service for arriving or departing guests
	Ironing service (return within 1 h)
	Laundry and ironing service (delivery before 9 am, return within 12 h)
	Credit cards
	Debit cards (e.g. electronic cash or debit advice procedure)
	Professional support for in-house IT
	Up-to-date magazines
	Daily newspapers
	Sewing service
	Shoe polish service
	Shuttle or limousine service
	Offer of sanitary products (e.g. toothbrush, toothpaste, shaving kit)
	Personalized greeting for each guest with fresh flowers or a present in the room (not only a welcome message on the TV-screen)
	Turndown service in the evening as an additional room check
Leisure	
	Library (separate location)
	Children's area (playroom/playground)
	Systematic complaint management system
	Systematic guest questioning5
	Mystery guesting (A proof has to be added to the application.)
	Quality management system according EHQ
	Homepage with meaningful, realistic pictures of the hotel
	Direction sketch / location plan on demand or in the internet
	Fitness room with at least four different exercise machines (e.g. ergometer, dumb bell, machine for weight training, treadmill, rowing machine, stairmaster)
	Spa center with sauna, jacuzzy,solarium, massage rooms, beauty center,changing rooms
In-house conference facilities	
	Conference room(s) larger than 250 m2, ceiling height of at least 3,00 m
	Group work rooms
	Projection screen (appropriate to the ceiling height and room size, at least 1,50 x 1,50 m)
	Workshop material
	3 pin boards per conference room

	1 flip chart per conference room
	Speaker's desk
	Daylight in the conference room and possibility to darken the room
	Appropriate lighting with artificial light
	Individual adjustable air conditioning of the conference rooms