UNIVERSIDADE DA BEIRA INTERIOR
Engenharia

The Hotel that sings to the sea
The connections of a 4 star hotel project and the musical culture and history of Jurmala, Latvia

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Dissertação para obtenção do Grau de Mestre em
Arquitetura
(2º ciclo de estudos)

Orientador: Prof. Luis Miguel de Barros Moreira Pinto

Covilhã, Julho de 2012

Special thanks

I would like to show my appreciation to my tutor and mentor Prof. Luis Miguel de Barros Moreira Pinto for his understanding and advice while guiding me through my research and evaluation processes.

I would also like to offer special thanks to Arch. Sergiu Dinulescu for his initiative, devotion and interest in training me, teaching me how to act as a professional and pressuring me to chalenge myself.

I want to mention my appreciation the some of the many professionals and professors that guided me through my learning process and trained me, my mentors and friends: Prof. Hanne Miller (Aarhus TECH, Denmark), Arch. Peter Stellfeld (Aarhus TECH, Denmark), Eng. Niels Bisgaard (Aarhus TECH, Denmark), Prof. Roger Howard Taylor (VIA University, Denmark), Prof. Adrian Ioanas (Arad School of Art, Romania), Arch. Nicoleta Dinulescu (GEOMETRICA S.R.L., Romania), Btech. Stan Constantin (GEOMETRICA S.R.L., Romania).

Thanks to my family and friends for their support and care.

Summary

My thesis will explain the research process that I have been practicing in paralel with a public contest project.

The project treats the symbilisation of music thourgh a Hotel in Jurmal, Latvia. My research is composed by 4 processes:

A study on symbolism, touristic research about the culture and music of jurmala Latvia, a comparison between the contries where I have practiced (Denmark and Romania) and the choice of a sustainable material for the hotel and the study of its' sustainable qualities and prices.

Keywords

Hotel, music, culture, music themed hotel, Latvian culture, Latvian hystory, equalizer, daina, Danish construction, Romanian construction, symbolism, sustainable concrete, tourism, passive construction standards.

Abstract

In this dissertation I will focus my reasearch on the impact of musical culture and hystory in turism and the way it can affect simbolism in the process of designing a hotel in Jurmala, Latvia, henceforth to be referred to in this assignement as ”the hotel”.

I will start my research by doing a study about symbolistics and the role they play in Architecture.

The next step will be gathering information about the musical culture and hystory of Latvia and Jurmala; music has always played a very important role in the life of humans, from primitive ages tribes of men gathered to sing, dance and feast, for either celebration, prayer or even mourning. The evolution of a culture in hystory has always been affected by music.

When designing a music themed hotel there are numerous goals that have to be set and rules that have to be kept: during my assignment I will take advantage of the experience learned by living in 3 different countries by observing the ways that music has affected turistic areas, it will be essential to understand the logistics of a hotel and learn how to combine vision with function.

Finally I will study the sustainable properties of the main construction material chosen for the hotel.

Keyquestions

- ***How do I symbolize music?***
- ***Are concrete construction elements a good sustainable choice?***

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ARCHITECTURAL SYMBOLISM

«*Symbolism is the practice of representing things by symbols, or of investing things with a symbolic meaning or character*.»[1]

Symbolism has always been manifested in arts and religion. The most often in literature and visual arts. As a result, an artistic movement with the same name has started in the late nineteenth century, most notably originating in French, Russian and Belgian poetry.

The first signs of symbolism as an artistic movement have been noticed in the publication "*Les Fleurs de mal*" by Charles Boudelaire in 1857.
Symbolism as an artistic current is related to the Gothic components of romanticism.
The representations in both literature and visual arts have always been rather morbid ilustrations, that intended to send a message to the viewer.

In architecture, symbolism has manifested mainly in the building of churches, mosques and museums. Buildings that by their construction and layout send a message to the viewer.

For example the altar, the court, the yard, the main chappel and praying rooms in a church can be positioned in such ways that they can be read as symbols. Their size and position in the complexity of the church are revealing subtle messages.

Another common way of subtle symbolism can be represented by the absolute orientation of the above mentioned building parts according to cardinal direction (North, South, East, West). In some cases towers were built reaching for the skies to symbolize prayer to God.

[1]Dictionary.com : http://dictionary.reference.com/browse/symbolism

Case example: The Minaret

> ***The Minaret is an emblematic of the Mosque, because it is a functional part of it. By extension of this function it can be taken as the symbol of prayer, the symbol of an islamic town or of Islam itself.*** [2]

But, the Minaret (Fig 1) does not have a specific shape, this means that it's function in the Islamic culture is what it gives it the symbolism.

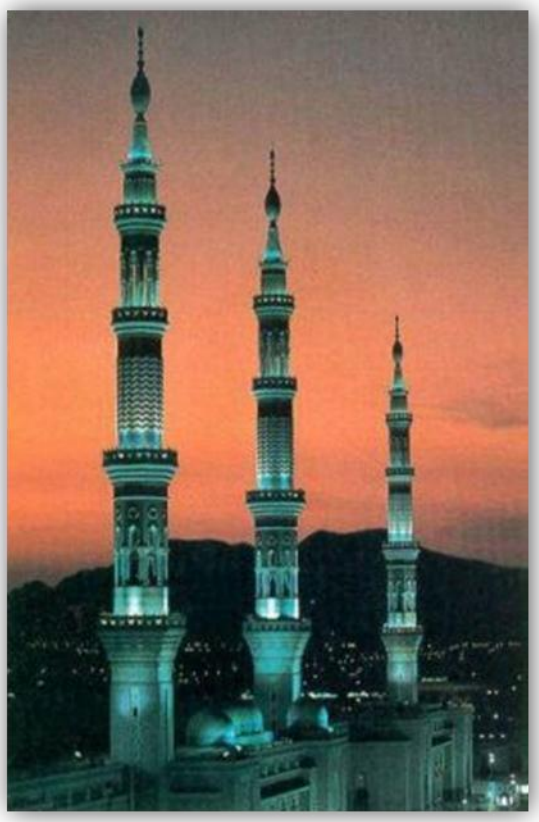


Fig 1

People that are not familiar with Islamic culture might not understand the message of the Minaret, as a result, history provided us with examples of buildings with decorated facades and interior finishes, widows, ledges, roof material, atics, columns and carved external walls.
Artistic forms of expression through the detailed design of facades and remote building components.

Todays' construction examples are many, there are many recent buildings that are simple in construction, but very complex in design.
From organic, to minimalist style buildings that have **strong logistics and rather simple shapes but expressive facades**, like the designs of *Tadao Ando, G. Natkevicius* or groups like *Jensen & Skodvin* and *Guz Architects.*

In the publication "*Architecture beyond architecture*"[3] I have come accross an Aga Khan award winning article which consists in a debate about the symbolism of a hospital and a mosque in contrast with the importance of room layout logistics in such buildings.

The participants of the debate were deciding wether the architect should dismiss logistics and just concentrate in design, meaning that the rooms might be arranged in rather unpractical ways to help design.

[2] Katz, Jonathan G., ed. 1980. Architecture as Symbol and Self-Identity. Philadelphia: Aga Khan Award for Architecture. **(Appendix 1)**
[3] 1995 Award Master Jury. 1995. The Question of Symbolism. In Architecture Beyond Architecture. Cynthia C. Davidson, and Ismail Serageldin, eds. London: Academy Editions. **(Appendix 2)**

At the end of the debate they concluded that room-layouts should be set according to logistics and independent shapes can be used to form the symbol and the message that the architects wanted to send through the design of the building.

From this I conclude that it is important to respect the practicality of the room layout and concentrate on the design of the facade when designing the hotel.

In the two years studying in a Danish educational system I have been trained to do the same.
In Danish construction, the architect rarely disregards the engineers' point of view, building technicians and constructing architects work together, combining their experience and knowledge to design buildings that are at maximum practicality and functionality, while also respecting rational structure and exterior design.

Examples vary from home construction to apartment multiplexes like The Viborg Halls of Residence (Fig 2) and The Vejle Wave (Fig 3), hotels and even corporation buildings like the Tivoli Conference Center and Hotel in Copenhagen. (Fig 4, 5)

Fig 2

Fig 3

Fig 4

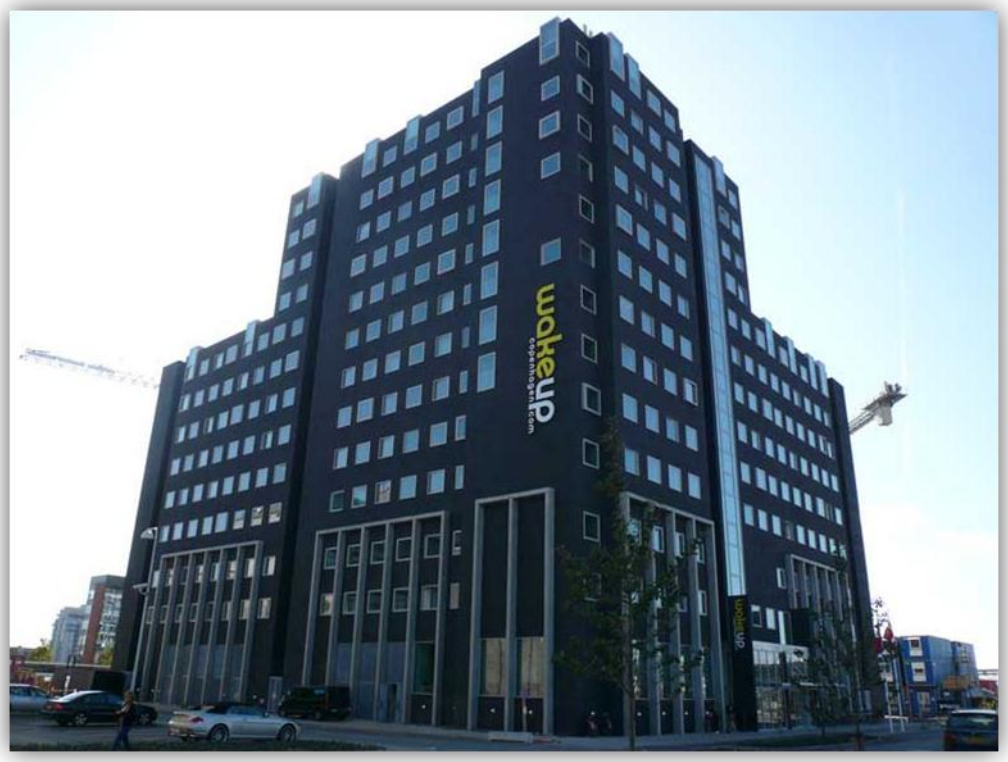


Fig 5

SHORT HISTORY OF MUSIC IN LATVIA

Music has always been an important part of latvian culture, cultural events and music festivals are not at all rare in Latvia and especially in Jurmala, the site of the hotel.

The Lonely Planet guide to the region states that one of the highlights of musical culture in Latvia is the *Midsummer Festival* [4] in June, celebrating the longest day of the year. The 'Jaunais Vilnis' New Wave (competition) music festival showcases the latest music from all over Europe.

Traditional Latvian music is often set to traditional poetry called dainas, featuring pre-Christian themes and legends, drone vocal styles and Baltic zithers.

Dainas are very short, usually only one or two stanzas, unrhymed and in a four-footed trochaic metre.

Lyrically, dainas concern themselves with native mythology but, in contrast to most similar forms, do not have any legendary heroes. Stories often revolve around pre-Christian deities like the sun goddess Saule, the moon god Meness and, most notably, the life of people, especially its three most important events - birth, wedding and death (including burial).
The first collection of dainas was published between 1894 and 1915 as Latvju Dainas by Krišjānis Barons.

Accompaniment to the village songs is played on various traditional instruments, the most important of which is the kokle, a type of zither related to the Finnish kantele.
In the 1970s, artists like Jānis Porikis and Valdis Muktupāvels led a revival in kokle music, which had only survived in the Courland/Kurzeme and Lettgallia/Latgale regions.

The Latvian-exile community abroad, especially in the United States, has also kept kokle traditions alive. In the last hundred years a new kind of kokle was developed, with many more strings, halftones levelers and other improvements that expand the capacities of the instrument to play not only modal music but, in other point of view, displeased more traditional musicians. This kind of instrument its called "concert kokle".

However, there is currently only one concert kokle maker left, though he is to begin training apprentices with the help of EU grants.

[4] Jurmala,Official tourist website: http://www.latvia.travel/en/midsummer-festival

During the Soviet coaching, rock music became extremely popular, because it, as well as folk songs, offered a chance to rebel against the local authorities. Imants Kalniņš was the most important composer of the time, and his songs were extremely popular.

He also wrote music for the movie originally called Četri balti krekli ('Four White Shirts'), later given the title Elpojiet Dziļi! ('Breathe Deep!'), which spoke about the need of freedom and was therefore banned. One of the most important social gatherings of the time was the annual Imantdiena ('The Day of Imants (Kalnins)'), forbidden on grounds of interfering with hay-gathering. The tradition continued informally at the composer's house.

The songs of Imants Kalniņš were best known as performed by the Menuets group which only played songs by this composer. Most of the members of the group moved on to form another group, Pērkons ('Thunder') later. Pērkons was a symbol of rebellion. They played rock and roll music, using poems mostly written by Māris Melgalvs.

Many of those were strongly disapproved by the Soviet authorities, as they implied the ridiculousness of the system. The most famous concert by Pērkons resulted in the destruction of a train compartment by the young people who had attended the concert. This, as well as other events, is portrayed in the movie Vai viegli būt jaunam? ('Is It Easy to Be Young?') by Juris Podnieks.

Acts such as Pērkons certainly played an important role in the lives of the youth of the time and were a serious challenge to the Soviet system.

Nowadays, the pop music sphere is dominated by pop music (e.g., Prāta vētra, also known as Brainstorm) and alternative rock.

Latvia is a land of music. Nearly one of every two of its residents has studied at a music school, sings in a chorus or plays a musical instrument. This means there is a busy concert and festival schedule in Latvia: from opera productions to early music festivals, to the Song Festival, to jazz concerts, world music performances and events featuring every genre of contemporary music.

Music lovers in Latvia often have a tough choice to make - which performances to see - especially if major and interesting events are taking place simultaneously. It is not only in the summer months that there is an abundance of musical events – when weekends are abuzz with concerts, festivals, musical theatre productions in every corner of Latvia – but also in the autumn, winter and spring, when Latvia is filled with the sound of music in harmony with the rhythm of nature and seasonal patterns.

In early June, the Latvian National Opera closes its season with an Opera Festival where you have another chance to watch the new productions of the preceding season or savour the golden classics of the opera world. The Liepāja Symphony Orchestra, in turn, invites music lovers to enjoy the summer and music in Liepāja: you can hear a special summer programme there in July at the Liepājas vasara (Liepāja Summer) festival.

Also during the summer, the Dome Cathedral in Riga and Liepāja host international organ music festivals which often surprise listeners with the acoustic capabilities of this ancient and rare musical instrument.

There is also a unique annual event in Latvia called Dabas koncertzāle (Nature's Concert Hall), a synthesis of music, science and art over several hours outdoors, which aims to bring human senses closer to nature via the medium of a specific object.

In early June the traditional Early Music Festival is held in Riga and at the Rundāle Palace where the best performers from Latvia and the world offer Gregorian chanting and Renaissance and Baroque music. Additionally in mid-July, fans of contemporary music from all over Eastern Europe make their way to the coastal town of Salacgrīva to take in performances by some of the world's top and up-and-coming pop and rock acts, as well as the sun, the sea and the creative freedom brought by the largest music festival in the Baltics, Positivus.

The middle of July also abounds with jazz events: that is when the summer session of the international Rīgas Ritmi festival culminates in an extravagant spectacle and the international Saulkrasti Jazz Festival opens.

Another weekend has to be spent in the western capital of Latvia, the birthplace of the wind and Latvian rock music, Liepāja, where the Baltic Beach Party has been held for the tenth time now, featuring many world-renowned pop acts.

In early August another beautiful Latvian town, Sigulda, invites you to the Opera Fest, which is taking place for the 18th time this year.

The middle of August has to be reserved for Liepāja once again: this is when the Fontaine Festival, organised by the free-thinking Dane Louis Fontaine, takes place, usually attracting an equally free-thinking audience and guest artists from exotic places. In late August in Riga the Spīķeri Festival takes place in the refurbished warehouse district of Spīķeri: a high-quality musical mix that involves both treasures of Latvian chamber music and improvisations on American standards.

Yet besides festivals, which significantly enrich the musical taste of Latvia, everyday life also offers plenty of concerts and concert series. For example, the creative and young Sinfonietta Riga orchestra offers its faithful listeners and amused friends performances ranging from the Baroque to the extremes of contemporary acoustic arts. It is a musical collective of the highest class which annually manages to produce about six large-format premiers, more than 20 concert programmes and participate in all the major musical events in Latvia.

In the autumn season the large film festivals in Riga face stiff competition from the Autumn Chamber Music Festival, Winterfest, organised by the Hermann Braun Foundation and the European Christmas festival.

The biannual Viennese Classics festival takes place in February, featuring pieces by Haydn, Beethoven and Mozart. Also in February, Saxophonia, an international saxophone music festival, brings fans together. Whereas in March, Liepāja plays host to the international Pianism Stars festival, which usually attracts the world's best pianists.

These are just a few examples provided by Latvian touristic websites [5], concert life being the main source of entertainment and main attraction for tourists.

The client of the hotel assignment wants to invest into this and open a hotel that is symbolises the musical atmospher of Jurmal and Latvia.

It is my job as consultant architect to attain this.

[5] Latvia, «best enjoyed slowly» - http://www.latvia.travel/en/music

WHY I CHOSE THIS SUBJECT

Sergiu Dinulescu a romanian architect, a friend and a mentor has once told me why he became an architect.

When visiting Moscow with a rather large tour group, the guide was rushing everyone from one touristic place to the other, he was tired of the lightning visits and while arriving in Red Square he decided to leave the group and have a rest in the square.

While sitting on a bench and staring for hours at the hugely significant buildings surrounding the square he had a revelation, the buildings spoke to him. He then realised that they have a message, a story, and that everything that surrounds us is a symbol.

Wether a building is a symbol of power, peace, love or a symbol of sadness, fear or war, it depends on the cultural and hystorical backround of the respectiv building. Through my research and work in this assignment I will introduce a hotel with meaning, a hotel that sings.

My general point of interest is one of the clients demands in this assignment, the consultants (architects) will have to propose economical and sustainable solutions for this assignment.

Since my interest in architecture was born my main concetration point has been sustainability and passive construction, I have made it my goal in life to promote passive construction and green building.

In this assignment I will choose a field in passive construction and green building to, finally, propose one specific solution to cut costs and increase heat values throughout the building.

PRESENTATION OF THE PROJECT

The hotel is a 4 star hotel that symbolizes music in a simple technical way, my intention is that every person that lays eyes on the building, without an architecturaly trained eye, can see the message that it sends, a musical one.

I intend to logistically arrange the hotels' service area, which will be the new section of the hotel.
In the next chapter of my thesis I will present a briefing of the clients' demands to form a better understanding about what my limitations are as a consultant architect.

Vision. The history of Jurmala has long been tied together with the musical character of the Baltic Sea – the sound of waves crashing on the beach, the whistling of old pine trees in the wind, the shrieking seagulls in the sky, the shifting sand under your feet, and even the distant chime of the leaving train – all of this and more creates a whole symphony in the memories of everyone who has ever been here. (Fig 6)

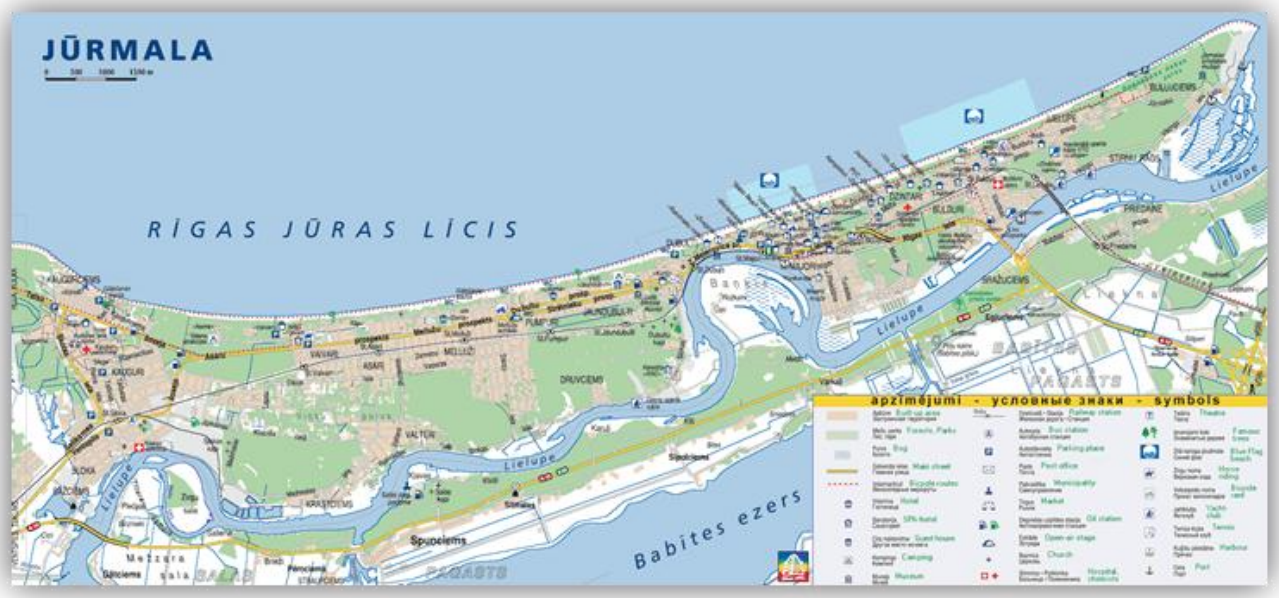


Fig 6

Thanks to this naturally musical setting, Jurmala has become a centre for concerts and other musical life of Latvia, and a place where composers, poets and singers come to find inspiration.

Building on this theme, the concept of the new hotel will be rooted in the world of music.

Just as music itself is considered the universal language common to all people on earth, so the hotel will become a new, loved place in Jurmala for guests from all around the world.

From the moment of entering the hotel, guests will be immersed into the world of music and its history, styles and music-related personalities, and this journey through music and its architectural language will continue all throughout the hotel, starting from the lobby and ending with the kitchen.

Program. The project will be a full service 4-star hotel with a restaurant, bar, conference area, swimming pool and leisure area.

The hotel shall have a parking adjacent to the territory, a children's playground, and a space for outside café / terrace for summer months.

Existing Structure. There is currently an existing hotel building located on site. It is highly preferred to keep and reuse the structural system/parts of the two highest volumes of it.

CAD plans **(Appendix 3)** of these two volumes were made available by the client. The rest of the building is of no architectural or historical value, thus the participants are advised to disregard it.

Sustainability. Consultants are expected to submit environmentally concise proposals, although no specific environmental features or systems are required.

Detailed Program Description

Rooms:

The hotel shall feature not more than 120 rooms, preferably situated in the existing main tower building and proposed extension, and shhould be divided into the following categories:

- 70% of the rooms - standard class with average size of 21 - 23 m^2
- 15 % of the rooms - family rooms with average size of 27 - 30 m^2
- 10% of the rooms - business class rooms average size 30 - 33 m^2
- 5% of the rooms - junior suites rooms with average size of 43 - 47 m^2 and consisting of 2 separate areas.

Standard rooms, as well as **Family** and **Business rooms** will consist of the room and a bathroom (shower, sink and toilet).
Junior suites will consist of 2 separate areas, and a bathroom (bath, sink and toilet), and a toilet (toilet, sink).

The top floor of the hotel shall be reserved for a presidential suite (Fig 7) and the tower area will have a room for security.

Fig 7

The client also asked to provide a conceptual idea of a potential future expansion of the hotel (another 50 – 60 rooms). This is not to be a part of the main design, rather an aspect to keep in mind and solve only conceptually.

Restaurant:

Capacity of the restaurant shall be suitable for hosting 70% of maximum amount of guests at the hotel, based on approximately 1,5 m^2 per seated guest.

The restaurant shall consist of two parts: a main all-day restaurant and a breakfast area with built in furniture for buffet, separated from each other by a moveable wall or other partition or décor element. Both parts shall have easy logistics and shall be possible to combine into one large area when necessary.
The breakfast area should take 40% of the total restaurant space.
The clients' demand in this case was to provide a conceptual idea of how a potential future extension of the hotel can be facilitated while maintaining the connection between all rooms and the restaurant.

Kitchen:

The kitchen itself shall cover the area of approximately 35% of total restaurant area, and have the following adjacent separate rooms with the average size of 15 – 20 m^2 each:
- Chef's office
- Liquor storage
- Dry storage
- Cold storage
- Table cloth and chinaware storage

The kitchen area shall be divided into hot food area, cold food area, dishwashing area, and service area.
Logistics of the kitchen shall provide an easy access for the staff and food circulation both to restaurant, lobby bar and conference and banquet center area.
The kitchen must have easy delivery area to the storage from the street level and a separate garbage area outside the premises.

Conference and baqueting center:

The conference center shall be a multifunctional space, with soundproof movable walls, to maximize the space and easily transform the venue according to client requirements.

The main conference space shall have a capacity of up to 200 persons (250 – 300 m^2), with the possibility to divide it into smaller rooms according to demand; it shall also have the possibility to be transformed into an acoustic concert hall, fitting with the overall musical concept of the hotel.

The conference center must feature an easy connection with the main kitchen for food delivery for banquets.

The conference center must include a technical room/storage of up to 50 m^2.
It is preferred that the conference center will have direct daylight access.

Lobby bar:

The lobby bar shall have the capacity of 20 – 25 seats, and shall use the open public space on the ground floor adjacent to the reception area.

Active leisure area:

The active leisure area shall include a swimming pool (Fig 8) with the minimum length of 20 m, 2 saunas with an average capacity of up to 10 persons each, 2 hot water tubs (jacuzzis), body temperature stabilisation stations (Fig 9) , and a gym with a capacity of up to 15 persons.

Fig 8

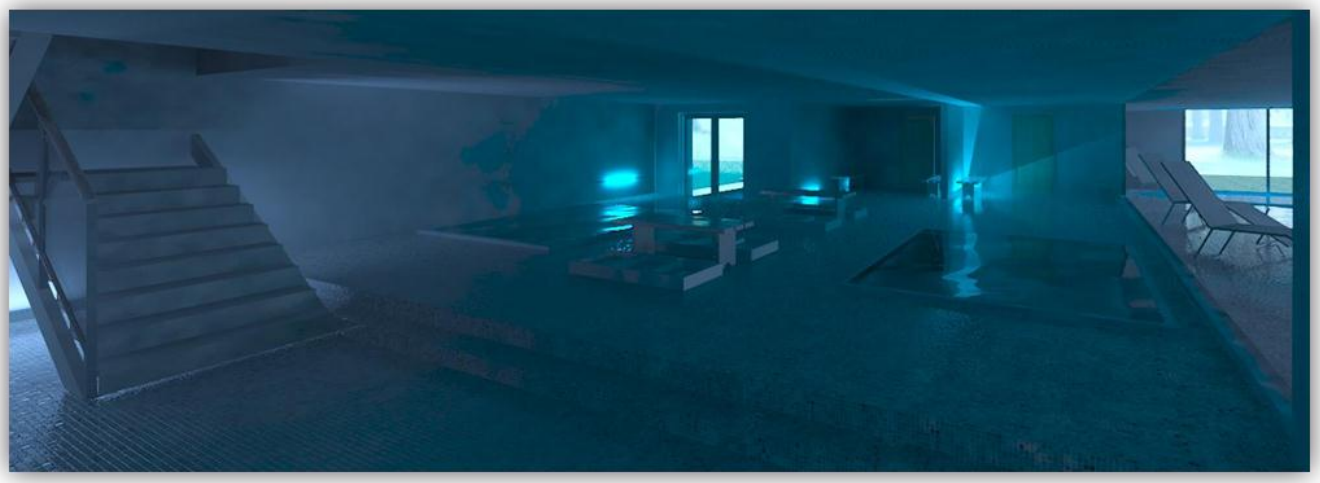


Fig 9

There shall be 3 massage cabinets with the minimum size of 15 m^2, and a staff area which would include storage, approximately 30 m^2.

The leisure area must include female/male lockers for up to 40 persons in each part.
Outside the building, there will be a children's playground with a capacity of up to 10 children.

Inside the leisure area there will also be an area for children.

Administrative area:

The administrative area shall be placed on the ground floor, adjacent to the reception area, and must have a space of approximately 70 – 90 m^2.

Staff area:

The staff area shall be on the ground floor, and will include female/male lockers for approximately 70 persons and a staff canteen of approximately 50 m^2.

Technical area:

The technical area shall consist of a space for mechanical and electrical systems, room for IT servers, and rooms for security of up to 15 m^2. It will be placed in the tower area.

Housekeeping area:

The housekeeping area must have easy access to the guest floors, shall have a main storage area, and a laundry area of 50 – 60 m^2. The smaller storage areas will be spread throughout the building for faster and more efficient service.

Elevators:

The hotel shall have 1 presidential elevator, 2 guest elevators and 1 staff elevator.

Parking:

There will be a comfortable parking space for a minimum of 30 cars and 2 buses adjacent to the hotel.

Plot and surrounding areas:

The site for the Hotel is located in Pumpuri, a relatively quiet part of the city of Jurmala, on the coast of the Baltic Sea, 27 km from the capital of Latvia – Riga. (Fig 10)

Jurmala is a resort town located on the Latvian coast of the Baltic Sea, in the Gulf of Riga. The city is half an hour’s drive away from the capital of Latvia - Riga, and less than half an hour’s drive from Riga International airport.

Fig 10

Jurmala can be described as a polycentric, linear city between the Gulf of Riga and river Lielupe, formed of several historical fishing villages which from the 19th century onwards have transformed into seaside resorts.
Its main focus nowadays is on leisure and its related programs – retail, cultural, entertainment, and health – which are mostly clustered around several centres, most notably Dzintari and Dubulti, to the east of the site.

Most of the city's current built fabric consists of historical private summer houses, a substantial part of which are considered listed buildings of various levels of importance.

Pumpuri

Pumpuri is located slightly west of the centre of Jurmala, and marks the transition to a quieter zone of the city that stretches for some 10 km. The built fabric here is low density and comprises of historical wooden single houses and a few hotels; there is a very high percentage of green space, although mostly private.

Expected effect

The new hotel is expected to create another active point within the city, altogether continuing the traditional linearity of Jurmala while activating the currently relatively quiet areas in its direct vicinity.

Working together with other hotels and guest houses scattered around the city, the new project will extend the active area of Jurmala westwards, while preserving the low density of people, which is crucial to the quiet resort qualities that the city is mostly renowned for.
The hotel will diversify the city's offer which currently consists of health – related spas and hotels, by playing on the city's musical character and history.

Climate and Weather

Jurmala is located in a temperate coastal climate zone, which means a clear distinction between four seasons, but with no extreme temperatures.
Extremes are usually reached in July and January, the average day (night) temperatures for each month being +22℃ (+11℃) and -4℃ (-10℃) respectively.

As the city is located on the very coast, strong winds are very common, although the site itself – at least on the ground level – is shielded by trees.
In winters, heavy snowfalls are common.

Population

Jurmala is the fifth largest city in the country with a population of 55,580 (Riga 706,413, Latvia altogether 2,245,357), and with a population density of 554/ km2 (Riga 2,299.7/km2, Latvia 34.3/km2).
The population rises considerably during the summer months as many tourists and seasonal tenants move in from both the rest of the country and from abroad, most notably Russia.

Transport

Pumpuri is located 22 km, or less than half an hour's drive away from the Riga International Airport (RIX).
The main road that the site is located on - Dubultu Prospekts - is Jurmala's direct connection with Riga, and the drive to central Riga (27 km) takes around 40 minutes.

The drive to Dubulti – the perceived 'centre' of Jurmala – is just around five minutes, so within walking distance.

There is a rail connection with central Riga which is served frequently, especially in the summers, and also a frequent bus service.

There is also a dedicated bicycle route connecting Jurmala with central Riga, and the city as a whole can be considered quite bicycle- and pedestrian-friendly.

Access

Most guests to the hotel will arrive by car, and the hotel should be planned accordingly.
The preferred main access to the hotel would be from Dubultu Prospekts; the participants are encouraged to design accordingly. (Fig 11)

Side streets (Gaujas Street and Salacas Street) can be used for outgoing traffic and services.
No boat access from the water is planned or possible in the nearby area.
Pedestrian access to the sea can be arranged through the side streets (Gaujas Street and Salacas Street).

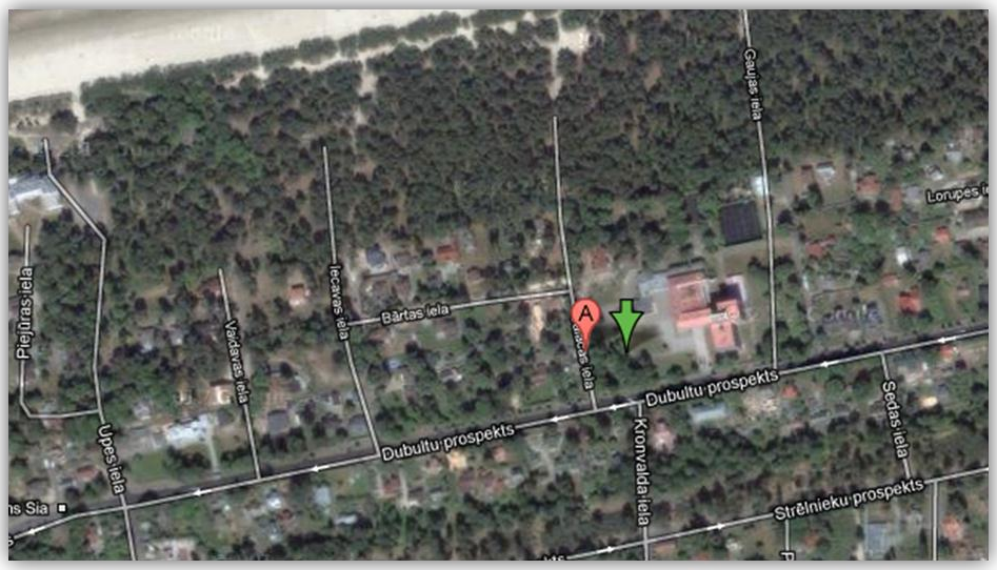


Fig 11

Terrain

The terrain of the site is mainly flat. There are sand dunes, typical to the area, separating the site (and the wooden summer houses) from the sea, of an approximate height of 5m from the surrounding terrain. These are largely covered with pine trees.

The water table on the site is very high, thus the participants are encouraged to avoid any underground floors or structures in their designs.

Local regulations

The Maximum Land Use Density (the relationship between built area on ground level and site area) is restricted to 30%. It should be noted that this indicator is quite high; the participants are not asked to attempt to reach the maximum.

Maximum building height is 37m, and maximum number of above-ground floors is 10.

Restrictions

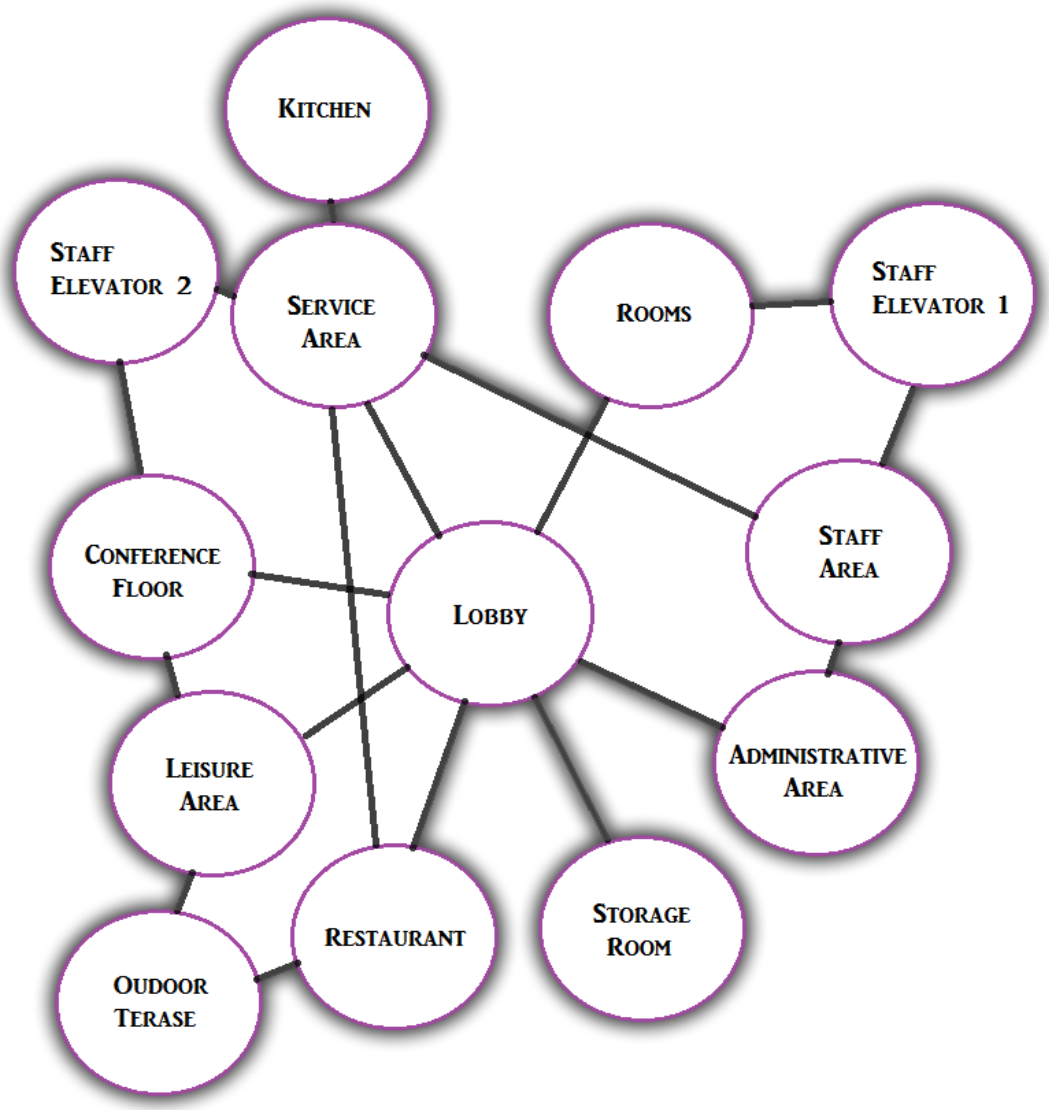
All of the proposed building volumes must be set within the site boundary. Additionally, they must fit within the 'red lines' around the site – lines around roads and other infrastructure objects drawn by the city council.
There are several old trees on the site, which have natural and historical value to them, they will not be removed.

Logistics, Brain storming process

The brain storming process consists in the logistical design of the room layout in the project.

By creating a mind map of the required spaces and the access and connections between them we can realise which is the most functional and practical way, logistically speaking, to arrange the rooms in the building.

Mind map



Design process

I have been advised that as an architect, I must figure out my personal style as soon as possible, if I do this I will have order in my work, and it will represent me as a professional and an artist.

As soon as I realised what my personal style was I started working on it and perfecting it, in this way it will be cizeled and perfected.

I have come to learn that my tastes evolve around minimalist and brutalist architecture. This means that I will combine the two styles in my future projects.

As a result, the hotel has been given a look that reflects both minimalist and brutalist styles.

The shape of the hotel was defined by the clients demands considering the logistics of the building. The client has made it clear that logistics are of top importance in the assignment.

The other important part of the design process was the theme that has been imposed.

As mentioned earlier, the building must symbolize music, and will symbolize music in a very technical way, as a result of the styles that I use and the phylosophy «too much is never good»

I was certain that some proposals from other consultants would consist of enormous structures, organic shapes and maybe even tacky musical instrument shapped volumes.

My training in a scadinavian school has thought me to work with technic and always think about the building physics and construction.

The main shape of the buiding towers will stay the same but the facades will be replaced with prefabricated concrete sandwich elements.

The finish will be a direct finish on the concrete layer of the sandwich elements, there are contractors that have the technology to alter the color and design of sandwich plates in mass production.
This meaning that the prices are similar or exactly the same as the sandwich elements that are designed with a finish layer, and much cheaper then hiring contractors for the application of a separate finish.

Blurred vertical glass fiber curtains will cover the balconies from ground level to roof level, allowing a smooth line in the perimeter of the tower buildings.

Also allowing electrical contractors to install lightnig effects, to fully support the musical and concert lifestyle that the hotel is meant to promote and support.

The main facades of the hotel will consist in pergolic structures of dark transparent glass covers in straight lines and 90 degree angles in contrast with natural gray concrete and dark gray design structures.

The separation lines between the floors of the service building will take an equalizer shape that cuts through the construction. This is the technical representation of music in musical technology. It is a shape that everyone can recognize.

The wooden pergolic structure on the main facade will consist in 5 paralel horizontal lines of white oak, a subtle representation of the musical portative.

In its' simple design it will form a technical representation of music.
I intend that every person that lays eyes on the building can recognize the message that it sends.

Architecture is a visual art, and music is an acustic art. I had to figure out a way to simbolize sound with design. And it was a very easy challenge, the answer is not an artistic one, the answer is science.

To find a solution, a connection between the visual and the acoustic I asked myself the next question:

What do arts have in common?

The answer is science, physics. No building can stand if it doesn't respect the laws of physics, and no sound can be produced without a technique.

To my advantage, a technical representation of sound is in perfect contrast with the brutalist and minimalist styles.
This is why I chose the equalizer to be the representation of music across the building.

Everyone can get the message of the building, and it will be a serious one, instead of a singer, the hotel will be a composer.

A musician that is working on a new song for the sea, so that the person who gets the message can sing it.

The design process has been a long and tiring one, considering that this has been my first multi-story building project I have ever worked on, also my first individual assignment, but with this occasion I learned a good deal about time management and how to control my own work and deadlines.

In the **first** design phase I haven't changed much of the main building (Fig 12), I was concentrateing more on the logistical part of the assignment, the supporting structure of the building is a rather twisted one, and it was hard to achive all the demands of the client.

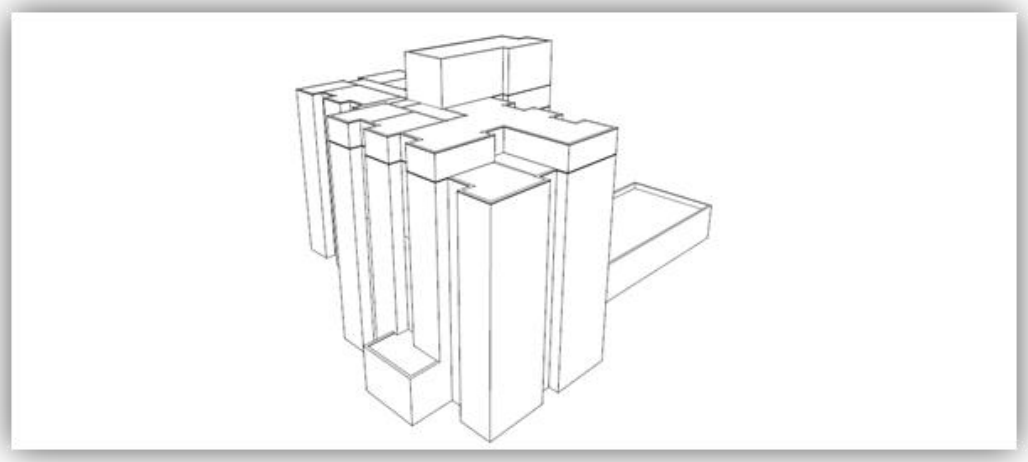


Fig 12

The **second** phase of my design process was the phase where the brain storming about volumes started, I started experimenting with diferent shapes and methods of symbolizing (Fig 13, 14), I have come in contact with a professor of symbolistics and symbolism and I was shadowing him around in his normal life, having breain teasing conversations about my subject and short lessons whenever it was spontaneous for him.

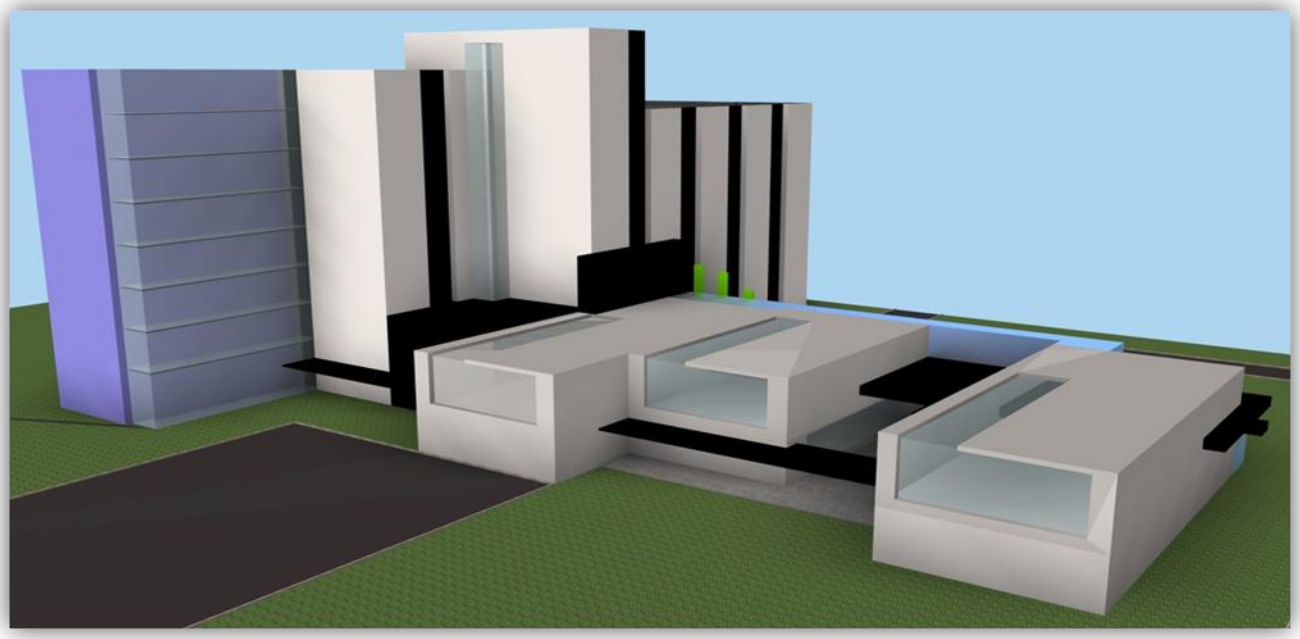


Fig 13

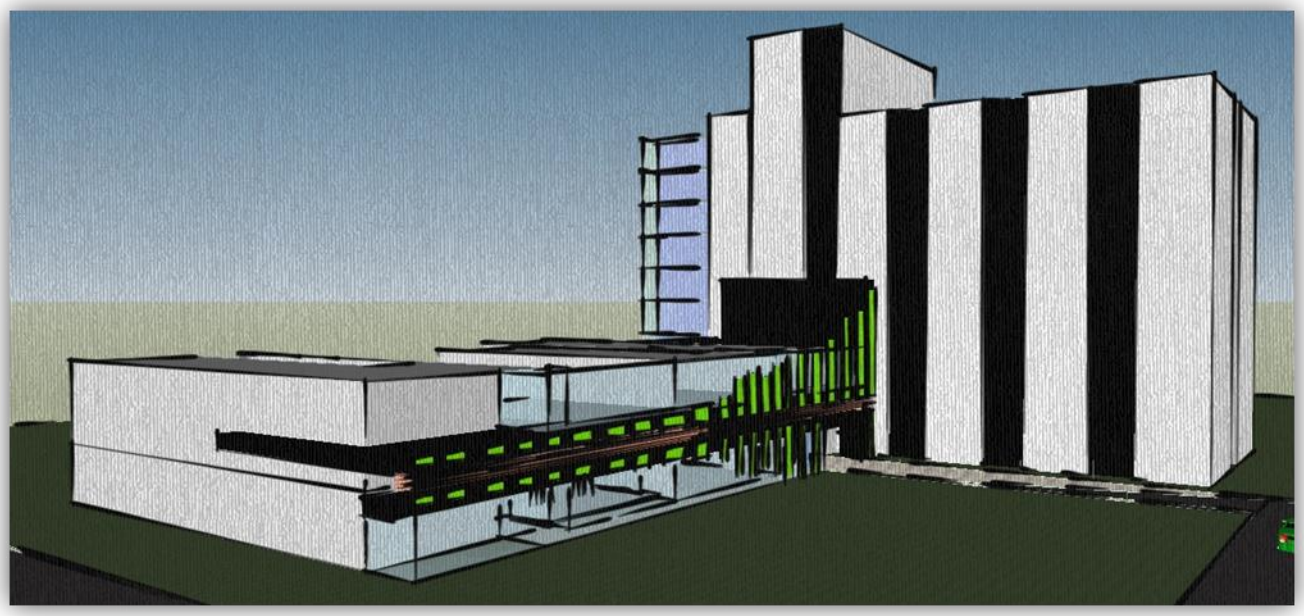


Fig 14

The final (**third**) phase of the design process was the part where I had to conceed and makes some sacrifices about the design because I was getting very close to the dead-line.

My priority was to have correct measurements and matching modular lines, thus, I simplified the design to some extent. (Fig 15, 16)

Fig 15

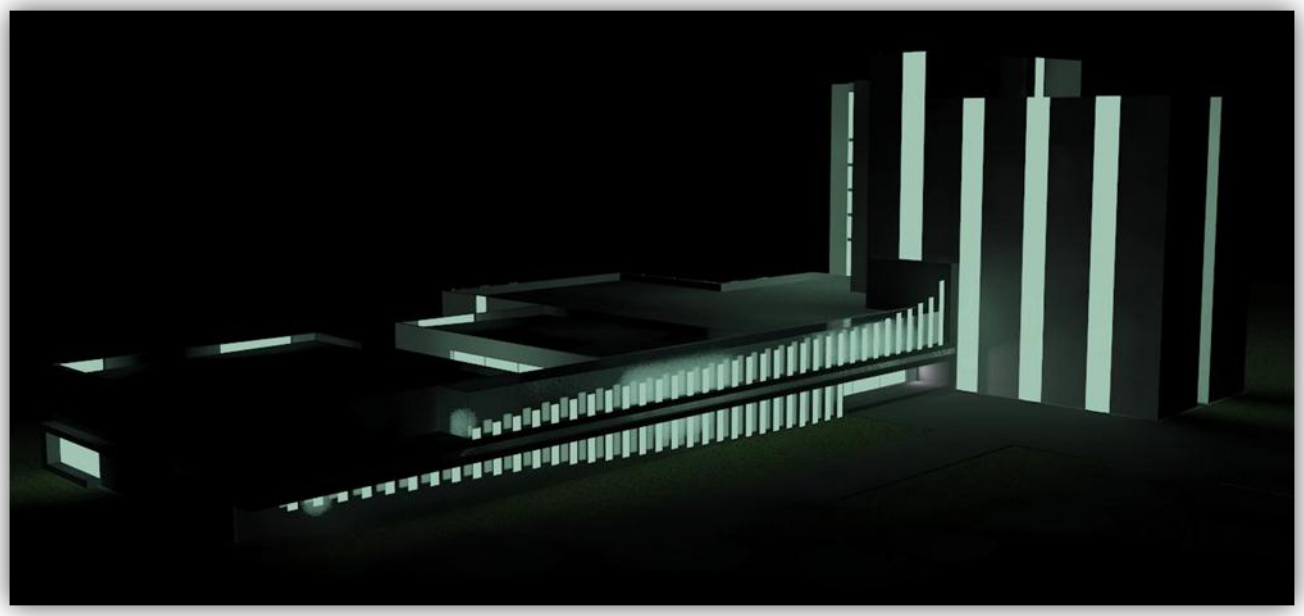


Fig 16

Comparison of construction methods according to standards in 2 different countries

I have studied in Denmark and worked in Romania. This gave me the opportunity to explore two different work methods.

From what I aknowledged, Latvian construction methods and building regulations are very similar to the Danish ones, respectively, Romanian construction methods are very similar to Portuguese ones.

In Danish construction all the processes are systematic and efficient but when it concerns the artistic side of this area it lacks in a few areas. After a long conversation with a Danish architect she suggested that I should read the first book she was given to read when she was a student, the book is called "***How to NOT be a famous architect***."
This didn't leave a positive impression on me, but eventually I realised that I have come to like simple designs that benefit structural engineering.

In Denmark most big projects are built in a puzzle system, using prefabricated sandwich elements and bracing systems. I learned that this method is very economical, it has a fast construction period and it is easily customizable. In other words, very practical.

When I was working in a Romanian architecture firm I realised that the architect and the egineers work separately. The architects invent outrageous design very often and the engineers must find ways to bind the laws of physics to guarantee the safety of the building.

Also, the architect only designs the building and never goes further form Scheme Design proposal phase. (Concept design phase)

In Denmark the architect must design technical installations plans (electrical systems, heating systems, water supply, drainage, firesafety plans, etc.)

In Romania the architect sends the project to the authorities and the authorities find contractors to revise the project and provide technical plans, for example: fire plans are design by pirotechnicians that are, basically, employees of the fire brigade. Electrical plans are design by electrical technicians, and so on.

The prefabricated element technology is also less popular in Romania, considering that parts of Transilvania and Southern Romania are classified as code yellow seismic areas the main construction system is reinforced

concrete skeleton buildings with lecha brick façade fillings. Very solid buildings, but also extremely expensive and time consuming in the construction process.

In Denmark u-value standards are rather high, they have developed a wall system with inner and outter leafs, no cold bridges and very stron insulation. They are also int he race for passive construction promotion.

In Romania the main body of the building is built and insulation is added on the exterior of the wall in the form of expanded polistyreen. This means that an exterior finish has to be added, which adds to the costs and is not very durable.

Danish sandwich elements (Fig 17, 18) are economical because the outer leaf can be cizeled and no extra finish layer is required. Most external leafs are red bricks and cizeled concrete. Or, in some cases, wooden, stud-based walls.

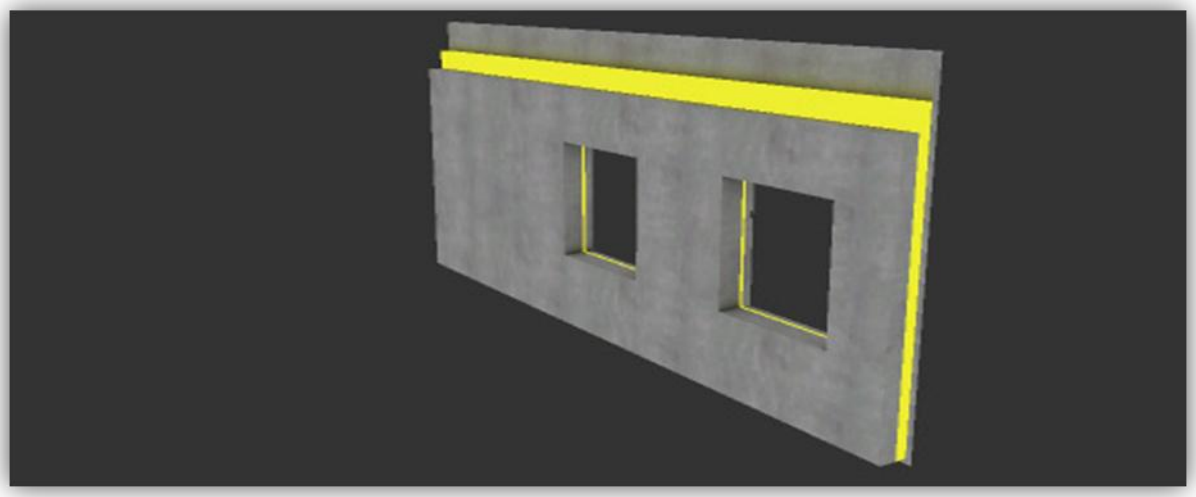


Fig 17

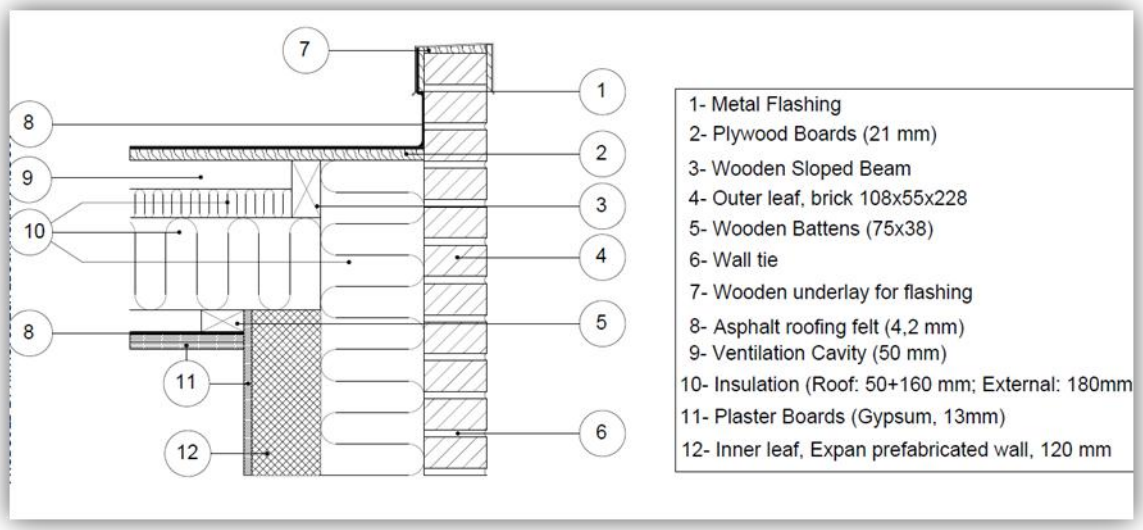


Fig 18

Another characteristic of Danish design is the choice between incredibly huge windows (triple layer, high energy glass usually, which, in the present day, can only be ordered from copyrighted contractors located in Germany) and very small but very densely positioned windows.

Romanian facades are usually more intimate, only the strictly necessary amount of windows needed for sunlight, this is also something I have found common in Latvian design.

Nevertheless, it is understandable for me that some privacy is needed, in Denmark curtains and blinds are not at all common, most homes or institutions are completely open to the outdoor.

Not a very good choice for shy people.

In my assignment I combined the two styles, I have created large stained glass facades that stretch from the ground to the top of the building, but their functional property has the role of blinds that cover the actual windows hidden behind them.

Mostly tight windows, but tall, stretching from floor level to ceiling level.
This way, the feeling of intimacy is kept but sunlight access and the feeling of space are still provided.

Construction process

The construction shall be a fast mounting process. Using mounting contractors that will transport and mount the facade elements on site.

It shall be the fastest way to replace the current facades of the buildings.

According to my research there are mounting contractors in Latvia that are also sandwich element producers. This could be very practical if a quick, efficient and cheap construction is needed.

In Danish standards the birth of a building has 6 phases:

Outline proposal, the client contacts the architect and they consult about the project, the architects responsibility on the Oultine Proposal phase is to come up with a concept design of the building, the main volumes and styles, a rough sketch of what the building is going to look like.

In **scheme design proposal**, the architect makes a more complex presentation of the building, it includes furnishing plans, a price estimation, final design, and master drawings (Floor Plans, facades and location plans).
This is the phase of the hotel at this moment.

Design Detail I is the stressful one, the architect office has to draw sections, isometric details, construction details, technical drawings, safety proceedures, they have to calculate the static of the building, the heat resistance and the moisture proofing.
After all this they must apply for an construction permit.

Next comes **Design Detail II** or **Tender**, this is when the building contracts are introduced to the contractor market, the contractors will auction for the construction rights.

The next phases don't concern the architect office, except for the paper work and Building Inspections.

The **Production** process is the phase where the building materials are prepared for the construction, ordered and logistically calculated to get to the next phase, the **construction**, or in some cases, the **mounting** phase.

From past experienced I realise that, considering the type of construction the hotel will be, the best choise of material in my opinion will be concrete.

I will use passive standard sandwich elements. (Fig 19)

Because of this I researched passive concrete solutions, to find out if it is really much more efficient to use concrete instead of any other construction material.

Sandwich elements (420 mm)

Thickness mm	Front panel etc.	Insulation mm	Backplate mm	Concrete type of backboard	U-value W / m² K
420	65	175	180	C	0.21
420	65	200	155	C	0.18
420	65	225	130	C	0.16
420	65	250	105	C	0.15

Fig 19

STUDY ON CONCRETE CONSTRUCTION

Concrete is a composite construction material, composed of cement, aggregate (generally a coarse aggregate made of gravel or crushed rocks such as limestone, or granite, plus a fine aggregate such as sand), water, and chemical admixtures.

Sometimes concrete can be reinforced or used in mixtures to improve design, usability, durability or sustainability.

Dating back to roman antiquity, concrete has been one of the strongest and most used construction materials in human history. The Roman Pantheon dome still holds the record for the largest un-reinforced concrete construction in the world. (Figure 20)

Fig 20

Short hystory about concrete

First evidence of concrete use has been found in ancient Mesopotamia where the Assyrians and Babylonians used cement and clay as bouding materials.
The Egyptians also started using cement for binding, they improved lime and gypsum cement for construction.

In 1756, British engineer, John Smeaton made the first modern concrete (hydraulic cement) by adding pebbles as a coarse aggregate and mixing powered brick into the cement. In 1824, English inventor, Joseph Aspdin invented Portland Cement, which has remained the dominant cement used in concrete production. Joseph Aspdin created the first true artificial cement by burning ground limestone and clay together. The burning process changed the chemical properties of the materials and Joseph Aspdin created a stronger type cement than what using plain crushed limestone would produce.[6]

Joseph Monier invented reinforced concrete in 1849; it was accepted by a patent office in 1867. Joseph Monier was a Parisian gardener who made garden pots and tubs of concrete reinforced with an iron mesh. Reinforced concrete combines the tensile or bendable strength of metal and the compression strength of concrete to withstand heavy loads. Joseph Monier exhibited his invention at the Paris Exposition of 1867. Besides his pots and tubs, Joseph Monier promoted reinforced concrete for use in railway ties, pipes, floors, arches, and bridges.

Why concrete?

Last year, I have been concentrating on wood and concrete materials, since I used prefabricated elements in my 3rd semester project. As a result I have delved into deeper research about the concrete construction industry.

Since I started studying in this programme, I have developed an interest in sustainability, green building and passive housing techniques.
I have come to learn that concrete plays a key role in green building design and in helping owners, designers and contractors create facilities and infrastructures we need today.
But when it comes to this domain, I am still wondering what methods are used in concrete production and construction to facilitate usability and especially sustainability.

To find out and learn more about this, I have done thorough research about concrete construction methods, about concrete in general and its uses in sustainable architecture.

To have a more concise and *concrete* result I want my report to answer the following key questions:

[6] About.com - **The History of Concrete and Cement** By Mary Bellis

-What are the most economic concrete types?

-How does concrete construction help sustainability and green building?

Concrete types

Modern concrete mix designs can be complex. The design of a concrete building component, or the way the weights of the components of a concrete construction are determined, is specified by the requirements of the project and the various local building codes and regulations.[7]

According to building regulations, the weather conditions that the building will be exposed to and the required design strength are the main influences for durability.

Many factors need to be taken into account, from the cost of the various additives and aggregates, to the tradeoffs between, the "slump" for easy mixing and placement and ultimate performance.

A mix is then designed using cement, coarse and fine aggregates, water and chemical admixtures.

Various types of concrete have been developed for specialist application. Some examples that I would like to state are:

Regular concrete

Regular concrete is produced to yield a strength that varies between 10 MPa and 40 MPa, ranging from binding to structural concrete types.
According to wikipedia, 1-cubic-foot of concrete would be made using 10.0 kg cement, 4.5 kg water, 19 kg sand, 32 kg stone. This would make 1-cubic-foot (0.028 m3) of concrete and would weigh about 65 kg. The sand should be mortar or brick sand (washed and filtered if possible) and the stone should be washed if possible. Organic materials (leaves, twigs, etc) should be removed from the sand and stone to ensure the highest strength.

High-strength concrete

High-strength concrete has a compressive strength generally greater than 6,000 pounds per square inch 40 MPa. High-strength concrete is made by lowering the water-cement (W/C) ratio to 0.35 or lower.

HPC

High-performance concrete (HPC) is a relatively new term used to describe concrete that conforms to a set of standards above those of the most common applications, but not limited to strength. While all high-strength concrete is also high-performance, not all high-performance concrete is high-strength.

[7] Wikipedia.org – **Types of concrete**

There is a very wide range of concrete types varying from self-consolidating concrete, to polymer based concrete types, rubberized concrete, asphalt concrete, shotcrete, pervious concrete, cellular concrete, vacuum and glass concrete, roller-compacted and refractory concrete, limecrete, cork-cement composites and the list goes on.

There have been on-going studies and developments concerning innovative concrete types. But which ones are the most environmental ones? Which ones improve sustainability the most?

Sustainability of concrete

Since the summer of 2003 global warming and climate change scenarios have come to dominate the agenda worldwide. This is because in 2003 Europe has experienced the most intense heat wave ever recorded.

Concrete producers have become a huge point in the eyes of ecologists, obviously because of the environmental impacts embodied in the quarrying of raw materials, which will eventually dissipate as all the other resources, meaning that recycling would become a must in this domain as well.

However, according to representatives of the British Concrete Industry Sustainable Construction Strategy, the cement and concrete industries are frequently and mistakenly perceived as 'arch polluters' in the industrial landscape - a perception which scientific research disproves.
In fact, both of these industries are far from complacent in the face of the need for further improvement in environmental performance.

During the creation of concrete the amount of polluting and greenhouse gases emitted are rather reduced compared to other types of materials. Concrete is largely produced using recycled materials, including by-products from other industrial processes and re-using waste and other secondary material like water, aggregate, fuel, etc.

By re-using old materials, the amount of energy consumed by quarrying and transportation is also reduced.

But the most important fact is that concrete types like re-enforced and impervious concrete have a much longer life-span than other building materials like wood or bricks.

Also, the mass and damping qualities of concrete allow good acoustic performance and minimise movement, reducing floor vibration.
Concrete is non-combustible and has a slow rate of heat transfer which makes it a highly effective barrier to the spread of fire. The nature of the material also ensures that it is resilient to flood damage.[8]

[8] Sustainableconcrete.org.uk – Popular beliefs vs advantages of concrete

Costs of concrete

After studying the catalogues of some of the biggest suppliers of construction parts and construction materials and thanks to an article written by forensic Architect Gary Kleier, I came to the conclusion that after any calculation or comparison between concrete construction elements and other construction elements, concrete is the most economical.

No matter of the domain it is used in, in examples ranging from, buildings, bridges or even street pavement, concrete turns out to be the cheapest choice.

By using concrete instead of other elements, costs are reduced from either the initial purchase or on the long run or cut out from the mounting price or construction price.

Fig 21

Final choice

According to *Austin Business Journals*[9] concrete economics cast a positive eye on future, as soon as the economical recession was officially declared construction material sales have shifted from the constant balance from before the recession... to concrete.

The big and famous contractors and architecture offices from American and Asian countries have reduced normal construction and started working allot more with precast and reinforced concrete types, obviously this has changed sales and the economic perspective of concrete. If professionals prefer concrete it was obvious that concrete is the most economic out of all the materials.

Up until now I have talked about all the advantages of concrete, it is durable and strong, more expensive than wood, but lasts allot longer thus, cheaper on the long run.
One cubic meter of concrete is a third of the price of 1 m^3 of bricks, so obviously cheaper than bricks.

When it comes to sustainability and passive construction, concrete types can be used everywhere: from the foundations to the ground floor, up to roof tiles. Of course some changes have to be made to the composition of the concrete but modern technology has come up with unlimited possibilities of innovative concrete types that improve heat values, permeability, insulation and air-tightness.

An independent study for the Irish Concrete Federation, shows a cumulative improvement in energy performance of over 50% for an A-Rated house over a typical 2005 Building Regulations dwelling. Improving a Building Regulation compliant dwelling to an A-rating will typically reduce primary energy consumption from around 160 kWh/m^2/yr to less than 75 kWh/m^2/yr.[10]

During my research and while writing this report I have come to obvious terms that concrete is the best choice when building a sustainable, durable and yet cheap building and that there are unlimited possibilities of choices when it comes to types of concrete.
This was a huge help in my mission to learn and promote sustainable and passive architecture and it will be good inspiration in my future professional plans.

[9] Austin Business Journals - **Concrete economics cast a positive eye on future** by Steve Habel
[10] Publication by Irish Concrete Federation - **The A-Rated Energy-Efficient Concrete Home**

CONCLUSION

Designing a musical themed hotel can be easy, if you have the experience. But it is fascinating to design it if you dont have the experience.

What I learned from the experience of working on this assignment is a recipe. A system that could be used by future architects, like me, to train their knowledge and maybe even their professionalism.

I concluded that it was rather useful for me to challenge myself.

I trained my time management skills, I discovered new drawing techniques and even acted as a journalist or detective to discover symbolism and the culture of a foreign land.
Because I believe, what I was thought, that every building should send a message.

I also discovered that concrete is very cheap and efficient, it is a good sustainable choice because it can be produced out of recycled building material and it can be chemically altered to resist temperature or humidity, reinforced or lightweight it takes any shape, with this I trained my goal of promoting passive construction in the countries where it is not common.

In conclusion, symbolizing music with a hotel could be easy or it could be complicated depending mostly on the cultures that surround that certain music.

Appendix