

Fórum Guitarra

Jehann Gisli Brunk, Charlotte Depner

MSc4 2013

Department of Architecture, Design + Media Technology, Aalborg University

Supervisor: Claus Bonderup

Technical supervisor: Poul Henning Kirkegaard

Number of pages: 47 Number of copies: 5

Index

Introduction	5
Location Meeting Culture Functional Program	6 10 11
Site Characteristics	12 13
	15
Svstem	14 15
Landscape Design	16
Context Integration	18
Translation into Building	23
Functions	24
Facade	28
Light	32
Light Studies	34
Materials	38
Classrooms	39
Construction	41
Acoustic	42
Stairs	43
Review	45
References	46
Illustrations	47



Introduction

This project seeks to find a new suitable use for a vacant site in central Lisbon, Portugal. It is not based on a competition or any other preexisting intentions to build there, but on our personal belief that a new use would enhance the quality of the neighborhood a lot.

Being visible as a green lung from several spots in the inner city, the site has a strong presence in the cityscape of Lisbon. From far it awakes expectations of enhancing the quality of its surroundings. Coming closer, it is disappointing that the site is not only inaccessible, but entirely shut off from its surroundings. Enclosed by a high wall, it forms a vacuum in Graça.

Furthermore, the prominent placement of the site on a slope towards the city center and the river offers astonishing vistas. This project explores the idea of making it accessible for the public to convert the vacant green spot into a qualitative destination. The design plans to convert most of the area into a park to enhance the green character of the site. Inside this park, a building inhabiting a small sized public function is planned to work as a new forum.

The project is based on the principle that architecture should be designed in a sensitive relation to its context. As the area is already dominated by a convent, a castle and several churches, the design does not seek to create another landmark for Lisbon. It rather integrates itself gently in the context.

Considering architecture as a part of social culture, it was important for us to choose a function that is able to attract people in their everyday life.

A research trip to Lisbon in the beginning of the project phase was made to understand the context. The gained experiences form the basis for the development of the functional program as well as created architectural language and the mood of the design.



Location

Around the world several historically important cities claim to be build on "seven hills". Portuguese legends and myths also refer to Lisbon as "A Cidade das Sete Cloinas" (the city of Seven Hills).

The project site is located in the former district of Graça that lies on the northeasterly periphery of the historical city center of Lisbon and occupies the hill of Santo André, one of the seven hills.

The relatively steep hills that characterize Lisbon's topography are also predominant for the terrain in Graça that mainly covers the hill slopes of Santo André. The hilly cityscape of Lisbon offers many scenic viewpoints. The view on Graça is dominated by the view on the Convento de Graça and its connected church "Igreja de Graça" on Santo Andrés hilltop.

Characteristic for the atmosphere in Graça are the ancient typologies combined with the very narrow, windy and sloping roads, paths and stairs that branch through the whole district. In this network that occasionally opens up to smaller squares you see elderly locals to stop for a talk with neighbors and in the afternoon young children play. During daytime a few tourists cavort on the hilltop in Graça. They take the historical tram to visit the viewpoints and the church Igreja de Graça. It is obvious that the people that live in Graça are part of the more socially deprived inhabitants of the city. The economical problems of the country, the hight unemployment rate that reached more than 15% and the fact that the population of Graça is shrinking is readable in the many vacant, partly abandoned and run down buildings.

Never the less the social life that takes place on the streets does not suffer from the global situation of the crisis. Knowing that 42.5% of the countries population lives "at-risk-of-poverty" it is noteworthy that in the past years a change in the consumption structure occurred. This might be caused by a mix of the portuguese sociocultural background and the economy that forces more deliberate expenditure. While the increase of expenditures on housing, electricity, water and fuels are dictated by the global market the population has more influence on other expenditures. Among others the expenditures on furnishing, household equipment, clothing and tobacco declined while expenditures on for instance communication, recreation, culture, restaurants and education slightly increased. (INE, 2012) This illustrates how social life, pleasure and well- being are prioritized higher than for example materialistic status.







Meeting Culture

As many southern European countries, Portugal has a very strong meeting culture in the public. People meet in the streets to talk and go out for dinner often. Dinners in a restaurant do not need a special occasion and even young people with a low income go out in groups to eat.

The restaurant becomes a normal part of the daily life and people often stay longer to spend the evening together with a glass of Port Wine or Moscatel. In some restaurants, this social gathering expands into a typical cultural event. People enjoy the late evenings with Fado performances.

Fado is a Portuguese music style with its origin in small bars of Lisbon's working class neighborhoods like Graça. It expresses Portuguese culture and attitude to life very strong. The music is traditional not played in front of an audience in a concert hall, but in bars and restaurant where the singers and musicians are part of the audience. The characteristic mood in the music is described by the Portuguese word "saudades", which has no direct translation into English but describes a feeling of sadness, nostalgia and longing for someone or something mixed with the happiness of good memories. Usually Fado is accompanied by a Portuguese guitar, a classic guitar and often a bass guitar. Up to several singers stand up from their seats to sing a verse after each other. The atmosphere is very personal and emotional. Even though Fado became interesting for tourists and is nowadays also played in a professional way on bigger stages, traditional Fado evenings in restaurants are still very popular for local people.



Functional Program

The intention of this project is to open the site for the public and to establish a new function that blends in Portuguese culture and offers people a place to be and to meet.

Even though, people meet in the streets anyhow, the possibilities of architecture as a mood and space creating element can open up spaces with new qualities for the neighborhood. People, also from other parts of the city, would be attracted and the surrounding neighborhood is upgraded.

The chosen function as a core element in the new park takes up the importance of guitar music in Portuguese culture. Intended is a guitar forum consisting of a guitar school, a restaurant and performance space and a music library. The combination of school, restaurant and performance space ensures a use of the building throughout the day until late at night as well as a mix of different people. While the guitar school might attract people from the neighborhood, the specialization of a library for music attracts musicians from other parts of Lisbon as well. The restaurant and event space invites to stay longer and interact with other musicians but also attracts people who do not play music by themselves. This can be local people as well as tourists.

The traditional place to play Fado is in the restaurants. Therefore the restaurant and the performance space are not considered as two different spaces but as one open space where everything happens. It is thought as a flexible space that can expand its boundaries to lobby and the connected terrace.

lobby	120m ²
dining and performance space	240m ²
additional restaurant space (kitchen, storage, staff)	130m ²
storage (performance space)	30m ²
library	200m ²
rehearsal rooms $7 \ge 20m^21 \ge 25m^21 \ge 30m^2$	195m ²
recording studio	40m ²
storage (school)	15m ²
administration	40m ²
tea kitchen	30m ²
toilets	45m ²
technical space	40m ²
	1125m ²
+ circulation area: approx 1/3	375m ²
	1500m ²
terrace	100m ²

The chosen project site belongs to the former garden of the `Convento da Graça'. It is located on the steep west facing slope of the hill `Santo Andrés' and stretches over a projected area of 13.000m². The topographical difference is 30m on the site.

As many other religious buildings, the convent was converted into a public facility during the Pombaline era. (Lages, 2013) It inhabits military facilities of the National Republican Guard and is therefore not accessible to the public. It is visible from a lot of spots in the city due to its location on the hill top. The site is bordered by the convent in the east, dense residential dwelling in the north and west and a public stairway and dwellings in the south. The border between the stairs and the site as well as gaps between the dwellings are closed by a high wall that does not allow a direct view or physical connection to the site. The closest spots to get a view onto the site are the viewpoint in front of the `Igreja de Graça', and a street with a higher level close to the northern border of the site.



Characteristics



The whole area is covered with different kinds of plants as palm trees, orange trees, bushes and smaller trees. As the building density is generally high in the city center of Lisbon, it forms a green spot in the panorama. Furthermore, its west orientation in combination with the slope provides direct sunlight during almost the whole day.

Resulting from the steep vacant slope towards the city center, the site offers a beautiful view over Lisbon, the Moorish castle on the neighboring hill and in the distance the river Tejo, the bridge of the 25th april and the famous Jesus statue on the opposite riverbank.

Considering building on the site, the advantages of topography and view also create limitations and ask for a completely other consideration of the relation between building and outside spaces then a building on flat topography does.

Practical factors are firstly the placement of the building in relation to the topography, as the full view is only enjoyable from a height above the roofs of the neighboring houses. Furthermore, a rethinking of the access is necessary. A classical division in a ground floor to access with upper floors does not exist on such a steep slope. But most important is maybe the awareness of a strong orientation to one side. The slope facing and the hill facing façades (or better articulated as outer walls, as a classical façade with openings cannot be considered everywhere) ask for a completely different treatment.

To utilize the sloping site, it is necessary to modify the topography in order to create usable spaces.





Concept

The concept understands the whole site as one architectural design without distinguishing between building and landscape. The whole site will be structured with smoothly curved walls that appear and disappear like a breeze of music and blends in the existing topography.

Modeling the topography by pushing and pulling creates terraces to be on and volumes underneath to be in. The soft architectural language of meandering walls with a smooth curvature integrated in the topography of the slope, aims to manifest the dynamic language of nature and music into built architecture.



System

Architects often try to put shapes and dimensions into one overall simplified system in their design. One reason is to make the construction process easier if the single pieces are standardized but a system also strengthens a design from an aesthetical point of view. In the same way as a harmonious song is created out of a repeated basic pattern, a basic element in architecture makes a design harmonious in itself. A plan becomes clearer and therefore stronger if the used shapes are based on a system instead of being randomly arranged.

The use of systems can already be found in traditional Chinese architecture from the 11th century where the size of one building unit dictates all dimensions of the whole building. (Beim, 2004) Another more contemporary example working with organic shapes is the outer shape of the Sydney Opera House of Jørn Utzon. Even though the shape is very unique, all shells have the same curvature and are created of a repetitive system of modules.

To strengthen our design and to link the system with the use of the building, we created a circle system based on the tuning of the Portuguese guitar. The whole design is based on 3 circles whose radii have the same ratio than the intervals between the guitar strings of a Portuguese guitar tuned in Lisbon tuning. The Portuguese guitar has 12 strings arranged in 6 pairs. The lowest 3 pairs are tuned with an octave difference while the higher 3 string pairs are tuned equally. Starting from the lowest string pair, the strings are tuned in D, A, H, E, A and H. This creates an interval sequence of a fifth, a second, two fourths and a second. The relation of 2, 4 and 5 is translated into a system of 3 circles with a ratio of 2, 4 and 5.

To translate this into the scale of the building site, the radii are multiplied by the factor 6. We therefore get 3 circles with radii of 12m, 24m and 30m, which are used to generate the smooth curvature of the walls on the site.





Landscape Design

Based on the belief that "landscape design is the art of balancing existing and desired land uses for an area" (Waterman, 2009), the design of the park uses given conditions but makes it usable and accessible and enhances characteristic qualities.

The curved walls are used as a tool to underline the already given qualities of the site by forming places to experience the diversity of the given topography and vegetation. The landscape plan reacts to the current situation by keeping most of the vegetation, creating spaces in between and connecting those to the urban fabric. It therefore consists of the layers of topography, vegetation and paths which are linked together by the curved walls. The vegetation and the topography already characterize different zones on the site. Roughly, it can be divided into the steep slope and a flat area below it. More defined, the lower part consists of three smaller zones. The first part, formerly used as garden area of the neighboring houses and located in the corner of two streets, is characterized by wild bushes with purple bloom, i.e Wisteria. (1) The bordering houses and the border to the street form a geometrical defined relatively small space in relation to the rest of the site. The whole part is elevated 7m above the street level. Next to it is a formerly cultivated part with orange trees planted in a grid (2) that forms a transition to an open area with few freestanding trees which stretches until the base of the steep part of the slope (3). The slope is divided into a small area with different palm trees in the south part of the site (4), a steep area with bushes and small trees (5) and the upper part where higher trees are growin close to the convent (6) .



The northern border is formed by a curved street followed and a curved wall separating the site from the street and pushing the topography strongly. Here the hill becomes very steep and is additional supported by a second concrete wall.

Two straight walls reaching perpendicular from the convent down to the urban fabric divide the far south of the side into thinner strips.

The design reacts to the different characteristics of the zones with little interventions. Smaller sitting places are located in intimate zones with interesting vegetation while a bigger meeting place is connected to the open area. The meeting place with tables and a boules pitch is located at the base of the earth supporting concrete wall with view over the flat area and a good placement to catch the evening sun. It is cooled by a waterfall, dropping down from the concrete wall and from there the water runs into a small lake that defines the flat plane.

The building is placed on the higher part of the slope to ensure interesting vistas from the inside as well as from the connected terraces. Pulling the volume out of the topography creates a panorama terrace on the roof top. The main entrance connects to the street in the north of the site. It is accentuated by a small plateau with a first view towards the south. From here a seating stair similar to those found in amphitheatres leads up to the roof of the building. The southern access opens to the park and a terrace. The high site surrounding walls are pierced at several spots to access the site. The southern entrances are defined by the connection to the public stairs next to the site while the northern entrances react to the building and its terraces. One additional entrance in the west at the lowest point of the slope is created to connect the park to the lower part of the neighborhood. A network of curved paths of different hierarchies connects the entrances with the building but also allows different routes for a walk through the park. Intersections of the paths and the curved walls are formed by an overlap of two walls that gives room for stairs to overcome the difference in height. In this way, they blend the vertical movement into the horizontal flow of the walls.







Context Integration



Palette of colors extracted from the existing walls that cut through the site from east to west.

The site is very visible spot from several other viewpoints in Lisbon. This makes the perception of the design seen from a distance crucial. The perception is influenced mainly by the dimension of the elevation (the height of the walls) and the materiality and color of those. The long elevations of the walls do not exceed the height limits of the site's topography to respect the importance of the monumental convent above.

Regarding materiality and color, rough beige concrete as a heavy appearing material with a depth in texture in chosen. The heaviness and roughness combined with a warm color creates a connection to the nature of the park and blends in the color scheme of Lisbons panorama which is dominated by white, red and beige tones. The specific beige is generated out of the colors extracted of the existing walls that cut perpendicular to the convent through the site. Different alternative colors were evaluated according to its appearance seen from a distance.

To evaluate the effect of the different colors on the site and its context this visualization was used. It shows a view on to the site from the district of Bairro Alto. This image is one of several samples and represents the desired color tone in an abstract way, since the texture of the actual material and real light conditions are missing to give a more accurate impression.





Diagram showing how the best views from the site are possible from a height above the neighboring houses and the hight limit for new construction so view on the existing convent is not blocked.









Translation into Building

As the building is part of the overall concept and in its appearance is an integrated part of the park, it was a natural consequence to use the form generating parameters of the park also for the footprint of the building it self. In other words the smooth weaves that create the dynamic flow through the site are experienced as much in the building as in the park. As the wavy lines throughout the park where generated by a system of circles, the same system was used to generate a more dense/compact envelope of meandering walls that embrace the main functions of the building.

At the same time it was important that the shape allows a dynamic flow through the building, as if the walls of the building open up for the paths of the park, so they can meander through the building and let the visitor exit on the opposite side without an interruption of the movement. This allows a visit of the buildings inside without being trapped in its interior but rather presenting the different qualities of the site and the building on a journey through it.

As a contrast to the upper part of the park the scenic view is not an omnipresent feature inside the building. It is given more importance by showing only selected framed views from particular points in the building. When arriving to the building the large wall of the facade seems to peel away to let people enter the place behind it, inside the hill. On the inside this anticipated comparably dark entrance then reveals the large open, almost cave like spaces illuminated from above.



Functions

The arrangement of the spatial program is build up around two anchor points. The restaurants and the library with the guitar school.

Following the meandering flow, as parti of the park as well as the building, the circulation occurs on the upper level of the building. While promenading through the building the circulation winds with changing direction around the anchors like the shape of a half 8. In this way the path through the building presents distant views over the city as well as views to the interior life. Utilizing the describing image of the figure 8 to describe the organization of the building, the two positive white spaces within the figure make out the main functions of restaurant and library being two oval shaped, double high spaces.

In the upper floor those are surrounded half with the circulation. Technical spaces and an administrative office on the side with the restaurant and rehearsal rooms on the side of the music library complete the other half of the 8.







While the interior in the upper floor is experienced as a more open space, the main functions are placed in the bottom to create two individual volumes separated by a heavy core accommodating toilets, storage and elevator. The access to those differentiated rooms happens from the middle of the building. The intersecting line in the 8 becomes a junction where the visitor is lead down to either of the two destinations.

The restaurant as the more representative function is located closer to the main access from the street. Taking up the natural movement of the path, a stair carves its way down to the restaurant. While moving down the stairs the visitor gets an over view of the space, first the bar and gradually more of the whole restaurant. The way down the turning stairs ends, facing the large opening in the facade to the restaurants terrace, presenting a view over the city. For larger events the performance space can extend its boundaries up the wide stairs to parts of the restaurant surrounding path on the upper floor. In the lower floor the dining space is half embraced by a linear organized kitchen with the dilivery access close to the street. Smaller windows in the wall between kitchen and dining space allow visual interaction between the two rooms.

The library and guitar school is located on the south end of the building, closer to the southern park entrances. Arriving from there, the path inside the building describes a curve along the back wall inside the hill from where a visitor has the view down to the library and at a distance can glance into some of the rehearsal rooms. Opposite to the restaurant stair in the narrow and intersecting middle of the building, again a curved stair continues the natural movement of the flow down into the music library that is surrounded by the rehearsal rooms, the recording studio and the tea kitchen of the guitar school. The library opens offers different places to sit and opens up towards the park.





Facade

The building is conceptually and visually part of a system of walls structuring the topography. As consequence, the building has only one visible façade that does not end abrupt but blurs into the hill towards the sides.

For the facade it is important that the wall expresses its heavy and massive character but still supplies the interior with daylight and views to the outside. It should therefore not be pierced with a lot of openings but with a few well placed openings at spots were a view and direct sunlight should be provided. Indirect light can be gained through the roof.

The facade openings are designed inspired by the predominant traditional facade principles in Lisbon. Typical for Lisbon and many southern European cities are very high vertical oriented windows that are accentuated by a light window surround of stone or plaster.







Different facades in Graça that show clearly the window surrounds that are typical many southern European cities.



The proportions and the window surrounds are picked up in the design but reinterpreted according to the use of the building. The window proportions remain but are partly scaled to accentuate the restaurant and the library and to allow daylight to penetrate deeper in the rooms. The white surrounds are not only used as a decorating element around the window but form a whole window case that sticks out on both sides. Thus it works as a shading element in the summer and creates a wide window bench as a furnishing element.





Working models for the testing of the facade expression. One facade showing openings where most of the daylight that is needed comes through the facade. The other conceptual model shows the desired expression with limited openings.





Light

Building on steep sloping topography has clear qualities as i.e. scenic views to the surroundings, but it certainly also brings challenges into the project.

Often the roof of a building is referred to as the fifth facade. Since the building only shows one elevated facade the roof becomes the second facade.

The roof top is a terraced part of the park. At the same time it is of elementary importance for the buildings interior. Together with the large windows in the facade, the openings in the roof are making it possible to naturally ventilate the building in the warm portuguese summers.w

Not of less importance is the possibility, to let daylight illuminate the parts of the building that are not directly connected to the facade. Different options how the light could enter the interior have been considered.



Inspired by the two large, pyramid shaped exhibition spaces of the Casa das Histórias - Paula Rego in Cascais, by architect Eduardo Souto de Moura and the dominating conical kitchen chimneys of the Palácio Nacional de Sintra, two major sky lights where designed. Each one of them placed centrally over the two main spaces of the building, supplying them with daylight from above. To defuse the sunlight the Skylights reach up to a hight of more than 4m over the roof surface. In this way the reflected defuse light travels towards the buildings interior before the trumpet shaped skylight opens up to spread the light in to the volume that lies underneath it. Looking from the inside the white plane ceiling funnels up towards the sky and into the light source.

On the roof it seems like the two light tunnels grow out of the

ground of the park, as two over dimensioned sculptural tree trunks. In this way the two main spaces also become visually accentuated from the outside on the buildings second facade.

The smaller, closed spaces of the building, as the rehearsal rooms in the upper level, have a small skylight in addition to the large window facing the main spaces that are illuminated by the large skylight.

These small skylight lead the light directly into the particular room and are dimensioned according to the size of the room. Large windows towards the library void are placed opposite to the skylights in extension to the entrance of the rehearsal room. To maximize the light reflecting effect, the large interior windows start at floor level and are aligned with the white wall.

Small skylights above the rehearsal rooms in the lower level provide the rooms as well as the path through the building with daylight.

In comparison to the rehearsal rooms in the upper level the rehearsal rooms in the lower level have a different atmospheric character. They don't have a direct connection to the outside. Towards the front of the room the ceiling opens up to an interior skylight that reflects daylight into the space. The walls in this opening of the ceiling are extended to optimize the reflection into the room and at the same time act as balustrade for the path above.

The few but deliberately placed large windows in the facade let light enter the building from the west.

The principle on this facade is similar. As described two very large facade openings mark the main spaces in the interior. Smaller, equally proportioned windows supply the restaurant and the reading chairs of the library not only with plenty of daylight but also reveal vistas on to the river Tejo and the cityscape of Lisbon. In the evening hours when the restaurant will be used the most the setting sun will cast its light deeper in to the rooms.

Pictures taken on the a daytrip to to the Atlantic coastline showing the conical kitchen chimneys of the Palácio Nacional de Sintra from the 15th century and the contemporary Casa das Histórias - Paula Rego in Cascais







section 2



0 1 5 10

section 3

Light Studies

According to various regulations different functions or environments require different light conditions. Those numbers are rationalized but don't consider any sensuous space experience. The experience of an illuminated space is also influenced by its materiality and the visible surroundings. To compare the sensuous experience of light in different rooms a small phenomenological investigation was carried out. In this way more rational facts could be compared to the actual experience of the quality light gives to specific spaces. This approach leads us to the conclusion that in conditions as in smaller rehearsal spaces, bright light conditions are not necessarily benefiting the desired atmosphere. In our case, a calm, more enclosed intimate place, without visual distractions but atmospheric light conditions creates more focus on the essential use of the space – the practice of music.



Scenario 1

External Illuminance 65'000 lx · Shutterspeed 1/100 · Aperture 4.0 · iso 800

Internal Illuminance 350lx · Daylight factor 0.5

Internal Illuminance 550 lx · Daylight factor 0.8

An enclosed space with indirect skylight without view, similar to the rehearsal rooms with a comforting refuge like spatial experience. White rough walls distribute the light equally. Disregarding the very low illuminance the white walls create a bright atmosphere. The wood contrasts the walls and creates a warm environment that invites to stay.



External Illuminance 65'000 lx · Shutterspeed 1/100 · Aperture 5.6 · iso 800

Internal Illuminance 350 lx · Daylight factor 0.5

Daylight light from 2 opposite sides makes this corridor like space noticeable darker in the middle. Still the white walls reflect light and distribute the light more equal in the room.







Scenario 3

External Illuminance 65'000 lx · Shutterspeed 1/100 · Aperture 3.5 · iso 400

Internal Illuminance 700 lx · Daylight factor 1.1

Internal Illuminance 1100 lx · Daylight factor 1.7

Internal Illuminance 400 lx · Daylight factor 0.6

This larger open space with a skylight far above the floor appears as welcoming bright space. Interesting also here is that the actual measure results of the daylight factor are numbers of slightly dimmed spaces. Wooden floors and wooden walls intensify the friendly and protected atmosphere.

Scenario 4

External Illuminance 31'000 lx \cdot Shutterspeed 1/100 \cdot Aperture 3.5 \cdot iso 2000

Internal Illuminance 80 lx · Daylight factor 0.1

A very dark room with a door sized opening to a white and bright room. The dark walls absorb the light and enhance the contrasting experience. Not suitable for visual activities thoughnot uncomfortable to experience after a short time of acclimatization.





Materials

The materials for the inside space are chosen to create a warm and protected atmosphere as well as to reflect the indirect light coming from the skylights.

The surface of the two outer walls continues as beige rough concrete from the outside into the inside to underline the idea of the building being part of the landscape. It continues on the inner core of toilets and storage space which forms a heavy block dividing the two main areas.

All inner walls are built as white plastered in-situ concrete walls to give the stable perception of a solid wall while reflecting the atmospheric light from above.

The open inside space is dominated by a visible timber construc-

tion in eucalyptus wood. Eucalyptus trees cover 21% of Portuguese forests and are among wild pine and cork oak one of the most common trees in the country. Besides being very suitable as construction timber, the wood is chosen because of its warm slightly reddish color and smooth fiber pattern to create a soft and warm atmosphere.

The flooring in the hallways of the entrance level is considered as a transition space and made of smooth simply grey concrete while the flooring in the classrooms and the whole lower level, considered as places to stay, is made of eucalyptus wood. Smaller additional elements as the doors and the railing of the stairs are made of cork oak wood, as it has a very characteristic pattern to set accents to the plain white walls.

Classrooms

The classrooms in the lower level are very introverted spaces. They are refuge spaces without distraction from the bordering library.

Atmospheric daylight from above illuminates the room. Wooden materials as the eucalyptus flooring and the cork oak door reflect

the light warmly that penetrates the room trough a skylight over the door. Here, the room with its high ceiling opens over the whole width towards the light which is reflected of three walls and gives the room a spiritual character.







load bearing construction upper floor

0 1 5 10

load bearing construction lower floor

Construction

The structural system of the building consists of the outer walls as heavy load bearing concrete walls, also supporting the soil of the slope, and a visible timber construction in the inside.

The timber construction is made of eucalyptus-timber. Eucalyptus is a local hardwood with the strength class D50 (coste53, 2010) and a warm appearing smooth surface.

The primary load bearing elements are the two outer walls and two lines of timber columns following the two voids. The upper level and the roof are carried by split timber beams. The beams span from the columns to the outer walls with a span of maximum 6,60m and leave the inner void open to keep the perception of the high room.

The concrete roof over the void spans 7m in maximum to ensure that the structure does not start to move if people walk on the roof.

The visible pattern of the split pairs of beams follows the outer wall perpendicular and forms not only a construction element but a design element at the same time. The splitting of the beams makes the pattern diverse and reminds on the paired guitar strings of a Portuguese guitar.

To carry the load of the accessible and green roof and the upper floor, the beams are not just attached to but embedded in the surface of the column. Therefore, the loads are carried directly from wood to wood and the joint is able to take big loads.



Acoustic

As the building accommodates a guitar school, a library and a musical performance space, acoustics are consequentially part of some considerations in this project.

The restaurant is also the main space for musical performances. Hence the circumstances for a good acoustical performance have to be given.

Larger spaces often have a disadvantageous effect on the reverberation sound and can result in echoes. (Grueneisen, 2003) Aiming for a reverberation time of around 1.8 in our given volume, the surface area inside the volume, as well as the absorptions coefficient of the materials that are used, have an influence.

Simplified calculations on different materiality scenarios showed that it is not complicated to reach the desired reverberation time in the performance space. This lead to more freedom in the choice of materials so the architectural experience and spatial perceptional of the room could be in the focus. However the element placed inside the large central skylight of the restaurant is not only a light diffusor but functions also as reflector to optimize the distribution of the sound.

Smaller spaces are more likely to have a stronger natural resonance. (Grueneisen, 2003)

The rehearsal rooms are designed to avoid problematic resonance conditions. The rooms are proportioned acoustically appropriate and the slightly conical shaped rooms with the curved end walls additionally prevent an overlap of the sound waves with the same resonance.



Reveberation time of restaurant comparing different materials

scenario 1:

wooden floor, smooth plastered inner walls and ceiling, smooth concrete outer wall

scenario2:

wooden floor rough plastered inner walls and ceiling, smooth concrete outer wall

scenario 3:

wooden floor, rough plastered inner walls and ceiling, rough concrete outer wall

Stairs

The two central stairs are the connection between the two anchor points and the circulation in/through the building.

The stairs had to lead away directly from the path that lead throughout the building and be understood as part of the natural movement. Never the less they should not distract the main flow but stand as a visible alternative. It was important to create a staged arrival that presents the space to be entered on the way down and direct the final arrival towards the view out to the city respectively in the center of the library.

The movement that leads down had to be simplified and rationalized according to other parameters given by the building. In terms of functionality the stair had to be easy accessible. Therefor the form finding took offset in the shape of the footprint that was created by the circular principle. In this way it was possible to determine a central and appropriate placement and to design a stair that aesthetically plays together with the over all concept.

The stairs are the connection between dynamic path and anchor point. Starting on top of the intersecting midpoint of the building, the stair carves its circular way through the dense monolithic core.

The connection between those two places is also reflected by the materiality of the stair. As part of the buildings circulation the stair has the path as a reference. The slow rising and wide stair is cast out of concrete. The side walls and the handrail of the stair refers to the main space and is made out of solid wood.





Review

This project intends to show that architecture does not have to be an outstanding landmark to create quality and to be an alternation to the common buildings in the city.

Instead of competing with its surroundings this design blends in. The characteristic landscape does not have a negative or compromising effect on the architecture of the project. The architecture is rather strengthened by committing a symbiotic relation to the landscape. In this way the architecture does not make compromises.

Building in the landscape actually becomes building with the landscape. Following Zumthor's belief that "a new building must make us see what already exists in a new light", (Zumthor, 1998, p.20) the architecture underlines and enhances the given qualities of the topography.

Furthermore, the functional program does not imply something strange to the area but just forms a forum for the already existing culture.

For the process it was important that the dialog between architecture and context goes beyond the overall idea of the design but continues into the detailing. This is i.e. valid for the choice of materials, as well as the reduced expression that trace back to Portuguese culture.

Reviewing this way of working, it becomes crucial to know the characteristics of the context already right from the beginning. The experiences of the trip to Lisbon in the beginning of the project phase formed the basis for the overall design parameters. Understanding the local culture was of high importance to understand the mood this project should create. As a result, all smaller decisions in the design process could be made on the background of the gained experience.

References

Beim, Anne – tectonic visions in architecture – Kunstakadimiets Arkitektskoles Forlag – Copenhagen, Denmark – 2004

Waterman, Tim – The fundamentals of landscape architecture – AVA Publishing SA –Lausanne, Switzerland – 2009

Grueneisen, Peter – Soundspace, Architektur für Ton und Bild – Birkhäuser Verlag – Basel, Switzerland - 2003

Zumthor, Peter – Thinking Architecture – Lars Müller Publishers – Baden, Switzerland - 1998

Statistical Yearbook of Lisboa Region 2011 - Instituto Nacional de Estatística, I.P. – Lisboa, Portugal – 2012

Fernández, Ronald Louis - Playing the Lisbon Portuguese Guitarra - 2000 www.fernandezmusic.com (20.05.2013)

www.coste53.net/.../COSTE53-ConferenceLisbon-Presentation-all.pdf

www.lonely planet.com/portugal/lisbon/history (24.2.2013)

personal interview with Pedro Lages, Architectural Institute, Universidade Técnica de Lisboa (19.2.2013)

Absorbtion Coefficients self estimated on the basis of: chart given by Poul Henning Kirkegaard and Engeneering Noise Control - Bies + Hansen - 1988

Illustrations



www.google.com



www.staedte-reise.de



www.bing.com



portugalembassy.org.tr

All other illustrations are owned by the authors.