Graduation Report

A revitalization through the transformation of the former power plan of The Hague
Reader Graduation Report

This graduation report comprises five parts and appendices. The five parts together form a comprehensive document of my graduation project. The different parts were composed next to each other during my graduation project and in this report all the parts are bundled together to give a total overview.

The first part is the ‘Position Paper’. This part reflects upon my own research that is performed in the first two months of the project. The points of departure of the research are made explicit as well as the related research method and are positioned in relation to the episteme which will be discussed.

The second part contains the research results made after the first three months. The research is done both on the urban scale and the scale of the building. The latter implies the architectural and building technology analysis. My whole research had a wider scope, but in this report only the results are wrote down which were crucial and important for my design project and final design.

The third part can be seen as the first steps toward my architectural design. By means of my research I made the ‘masterplan’ for the direct context and determined the program. This part is a brief description of de masterplan design and the decision of the program.

The fourth part is the core of the whole design process. This part describes the entire design from the theoretical scale towards the technical design. The majority of the final drawings of the design can be found in the appendices.

The fifth and last part reflects my personal process.

The appendices contain all the final and technical drawings.
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1. POSITION PAPER

1.1 Introduction Studio

There are many new building projects in the Netherlands. Due to the crisis, which started in 2008, this amount decreased somewhat. But this number is still remarkable in comparison with the number of vacant square meters in our country. Some questions raised: Why should we build new buildings instead of making use of the vacant spaces? Like Jo Coenen mentioned: ‘The primary objective is no longer to build the new, but to add to the existing structures’.

Besides the facts that it is more economical and sustainable to re-use old buildings, in my opinion old buildings own layers of history which gives the buildings an identity and a sense of place, which is, in my opinion, a quality of its architecture. Since RMIT focuses on transformation of the existing buildings, using the existing buildings instead of designing new buildings, I have chosen a project in which this expertise is present.

RMIT means Renovation, Modification, Intervention and Transformation. Within this studio I have chosen a project which focuses on the vacant spaces in The Hague. Nowadays there is a huge amount of vacant real estate. In the near future this problem will become even worse. The studio is engaged in innovative strategies to improve the existing stock and finding answers for questions such as: which is the potential of the vacant buildings? Which are possible programs for the reuse of the selected building? Which programs should be made to create the necessary and desired changes?
1.2 My personal interests

During the start of the project I was looking for an interesting vacant building in the area of The Hague. After a little research of the vacant buildings in the city I chose the former ‘Energiecentrale’ in The Hague as my graduation project. This type of building belongs to the industrial heritage. The ‘Energiecentrale’ has been built in the beginning of the twentieth century.

I have selected this particular building, because I have a special interest in industrial architecture. First of all I made this choice because of the large dimensions of the industrial buildings. The lack of human scale in these buildings is tangible when moving through the huge spaces, giving a displaced, but positive feeling, which intrigue me very much.

Secondly the robust construction materials create a very specific character, which I like. The large spaces require strong and heavy materials such as steel. Steel trusses, beams and columns are often visible, because there was no need to cover the construction for the former industrial activities.

Furthermore industrial buildings mainly belong to the brick-architecture, particularly those which have been built until the ‘50. These materials created the specific historical character, which makes the building in my opinion an interesting subject of my graduation project.

Beyond my fascination for this type of building, I am also interested designing public buildings, particularly hybrid buildings. In the design of public buildings, the demands of the various users must be taken into account. Most building must have different functions, which the architect has to fit into the volume as a puzzle. I am especially interested in how to link and how to optimise these facts. It is an outstanding fact that public functions ask for large spaces: industrial buildings are just that huge.
1.3 The Building

The Former Power plant of The Hague
Over more than a 100 years the building complex on the Constant Rebequeplein in The Hague the factory supplied the city electricity gained out of coals. And nowadays the factory is partly still in use.
At present there is a trend of more focussing on renewable energy and other more sustainable options to produce electricity for the people instead of using fossil fuel such as coals. For my graduation project I make an assumption for over 15 years, when the contract of e-on is expired in ten years and the whole building complex will be totally vacant and offer the opportunity of make a new redesign and transformation for the building complex as a whole.
This is an interesting approach since the building parts are architectural, physical and historical strongly related.
1.4 The Site

The Project site is The Hague, close to the West coast of the Netherlands and part of the ‘Randstad’ a conurbation of the Netherlands.

The ‘Energiecentrale’ itself is situated at the corner of the old city centre on the edge of an old industrial terrain.

This former industrial terrain is no longer in use since the ’80 of the past century. Now an undefined area has remained.

The terrain is divided into three parts. First a park, second a parking place surrounded by some offices and houses and the third part, separated from the rest by a canal, is the area of the actual ‘Energiecentrale’.

The first part, the park, was partly contaminated due to the industrial activities. Therefore this terrain was not appropriate to residential housing, that’s why the municipality decided to design a park in this area. This was a perfect solution, because there was a great lack of public green space in the neighbourhood.

Unfortunately due to the lack of the inner structure and the lack accessibility by the raised level of the park, this green space is not optimally used.

The second part, the parking place, is an open space with low activity, due to its function: It is more or less a deserted area.

The third part, the terrain where the ‘Energiecentrale’ is located, is enclosed on all sides by a canal, a tramline and fences, which are placed around the terrain for safety reasons.
1.5 Problem statement and Research Question

With the description of the three parts, we are able to conclude that there is a poor connection to and from the former industrial terrain, which causes a significant void in the neighbourhood. In order to make the three parts of the terrain and the ‘Energiecentrale’ accessible and a part of the public realm, the current void can be an added value in the neighbourhood. This premise became the subject of my research question.

In which way the new program and the specific characters of the building can ‘provide an input’ for a new design to revitalize its context?
Episteme 1
An important part of the research is devoted to the special character of the building. The characteristics are among others the large dimensions. There is a lack of human scale, which just can be a quality. When there is no connection between the large dimensions and the human scale, the place will feel uninhabitable. To solve this problem I have to look how and where I can implement this scale. Therefore it is important to use a people-focused approach in my design assignment. This research approach links up to the methodology of the theory of the Danish architect Jan Gehl. Gehl Architects focus on the relationship between the built environment and people’s quality of life. They address global trends with a people-focused approach, utilizing empirical analysis to understand how the built environment can promote human flourishing. This people focused approach can be an appropriate tool to implement the human scale in the context of the building and thereby the building is revitalized. Gehl mentioned a few tools: ‘Consider position and distance between functions, consider route principles (fast and slow), enable visible an physical connections between de people, concern protection, comfort an delight in the design and design at eye level’. (Gehl, 2010)

In my opinion it is important to make a design which focuses on the human scale. People need a space to live, and therefore he needs buildings. The way people live should determine the form of the building and not the other way around. First of all a human being need social interaction, a place to meet. This may happen in private space, but the biggest share in this issue is the public space. It is important these places are useful meeting points, which implicates a well-shaped or designed public place. If there are no places to go out or they are too far away, people stay in their houses. So there will be less interaction, which has a negative effect on the society.

The second argument derives from the first one. The public space needs to be safe. Safety means free of violence and crime and also (partly) free of fast traffic. This can be achieved with a well-considered design. A special focus on the pedestrian is needed. Furthermore a sufficient supervision of the surrounding is needed. A design with open facades instead of blind facades contributes to this.

The public realm needs a connection with its surrounded buildings; the buildings have to be in dialogue with their surroundings, otherwise the places will become unsafe and unpleasant. A third argument for creating a public space is the importance having a link between the private spaces. The public space can be outdoor as well as indoor, especially in the cold, northern countries. This should be a continuous link where the human being can easily flow from private to public and back. The further the human being will be in the public domain, the more levels he touches.

People will go from their own private room to the square on the level of neighbourhood, to the level of the streets, the city level. At a bigger level, the human scale is easily forgotten, but in the city the focus should be on the specific lives of the human being, which will make the city comfortable.
1.7 Conclusion

In my opinion it is necessary to have a people-focused approach, in order to make the spaces habitable, accessible, attractive, safe and healthy. The outside and inside space will be a fluent succession of places of the public realm, by interpreting the building as a city and the other way around.

The existing building is not yet a building on the human scale, which is an extra difficulty in the design assignment. This should be carefully well considered while designing. The succeeding depends on the proper implementation of this human scale. With the research of context as a starting point, this will be a good base for the design. Thereby I already know the identity of the place, which gives me the right values, as the specific characters and the historical meaning, for the design assignment.

The human scale will be implemented according to Gehl: consider position and distance between functions, consider route principles (fast and slow), enable visible and physical connections between people, look after protection, comfort and delight in the total design and design at eye level.

The transition between the scale from outside to the inside of the building can be provided by the idea of van Eyck: ‘See the city as a building and the building as a city’. This is not always possible because of the already existing building volumes.

The third tool is to separate the design assignment in different layers, whereby the interventions will be the next layer. In this way I want to create a public area in which the former ‘Energiecentrale’ will be a public hub for its context. This public place will be in direct contact with its surrounding.
In my research I will focus on the missing livability, due to the former industrial function of the area. I also want to focus on how the livability can be improved by a new design for the building. The above mentioned episteme will be a starting point for my design approach. The focus will be people-focused for both the building itself and its environment. The starting point will be the context of the former ‘Energiecentrale’. This environment, which is part of the public realm, will flow fluently into the spaces of the public building.

Research
The first part of the research will be a visit of the site and the collection of the information about the city, site, buildings. This will be the search for the identity of the site. From this point I will be able to research the necessary improvements, needed programs and architecture for the building. In the next step of the research I will analyse the precedents of the already existing solutions of this old type of building, to create a wider perspective for the opportunities for the redesign. I will look at the solutions and opportunities, other architects have found for redesigning the industrial building and its context with extra attention to the quality of the build environment.

Design
The first part of the design will be an investigation of the improving solutions in the direct context of the ‘Energiecentrale’. There will be made a ‘masterplan’. The masterplan is based on the above-mentioned research. The outcome will be the precondition for the redesign of the building.

The second part of the design phase is the determination of the starting point. It will be a design based on a people-focused approach, in which the public realm is a continuation from the outside public area to the inside of the building.
1.9 Research and design process

- Urban
- Architecture
- BT
- Building choice

- Problem statement
- Value assessment
- Masterplan

- Program
- Pre conditions
- Pre conditions

- Specific program requirements
- Architectural themes
- Starting point design
-Concept design
- Design building complex
- Museum design
- Technical design
- Research
1.10 Bibliography

Berlage institute (2010) Schetsen voor een national historisch museum, Amsterdam: SUN.
Eyck A. van (1961) “Kindertehuis in Amsterdam”, Forum, jrg.6 nr. 7 pp.195-235
Hertzberger, H. (2008) Ruimte en leren; Lessen in Architectuur 3, Rotterdam, Uitgeverij 010
Steenhuismeurs http://www.steenhuismeurs.nl/uploaded_files/project/de_architect_ontwerpers_moeten_de_eigenheid_plek_re.pdf
Steenhuismeurs http://www.steenhuismeurs.nl/uploaded_files/project/Artikel_Building_Business.pdf
Ven C. van de. (1989) Museumarchitectuur.Rotterdam, Uitgeverij 010

Film:
2 RESEARCH RESULT

2.1 Urban scale

**History**

Despite we would describe The Hague in general as a governmental city, The Hague has also an important industrial history. The Hague was in the 19th century an important industry city. The industrial development brought new factories and other utility buildings. The Hague have known a lot of voluminous factory complexes. Until the 20th century there were many different branches of industry situated in the city. Due to lack of space in the city centre and the pressure of the government in the centre more and more companies left to move to places outside the city. With this relocation of the industry the characteristic elements also disappear and a large part of the industrial heritage got lost. Only a little of them remain. An example is the furniture factory “Pander” and also the Power plant of the Hague.
Structure & Morphology
The ‘Energiecentrale’ is situated in the ‘Regentessekwartier’. This neighbourhood is located at the corner of the old city centre. The former power plant is not located in the old centre because of the interference of the government in the past. Through the district runs a canal which was in the past essential for transport. Later on there was built a tramline right in front of the building which is now an important connection between train station ‘The Hague Holland Spoor’ and the sea side. Except the good public transport connection there is also a good connection to the main roads of the Hague, since the beltway of The Hague is situated one street behind the old power plant.

The development of the neighbourhood where the ‘energiecentrale’ is situated, started at the end of the 19th century. There already was an industry terrain located just out of the old city centre. The residential buildings were built around the already existed industry terrain within 20 years. Almost all the residential buildings are small houses with a maximum of three stories high. This makes a large scale difference between the small residential buildings and the 35-meter high factory with its even higher chimneys.
After a few decades the industry on the terrain moved somewhere further away. Nowadays there is still the empliness recognizable of the middle part of the neighbourhood, that remained of the old industry terrain. In the present, there is a stretch of grass which covers a significant part of the old terrain, the fences around the ‘Energiecentrale’ and a vacant terrain with some parking places.

**Roads, paths and connections**

Despite the relatively good connection to and around the area, there are scarcely roads within the area of the direct context of the power plant. Even for pedestrian it is hard to find a clear path from west to south.
The green areas in the whole city are concentrated at ‘het Haagse Bos’ and the green area around the ‘Archipelbuurt’. But in the city centre and close surroundings it is hard to find green areas. In the neighbourhood of the former power plant there are only a few green spots, which is in many cases not more than a few trees on a bit of grass on a little square. There are some tree lanes, which gives only a bit of a green character during the spring and summer. The large green area in front of the former power plant has a significant impact.

Green elements in a city, such as a park, can have a huge added value for its neighbourhood and also for the whole city, if it is good accessible. Despite the large green area in front of the power plant the quality of the green elements is poor. It has a weak connection to its surrounding and the whole city.
Borders of the area of the power plant

The area around the power plant and the park, has a very poor connection to each other. Now there is a broad path of asphalt with very hard upright edges. This height difference of the street and the higher situated park does not contributing to a fluent flow from the neighbourhood into the park. This can be an added value for the neighbourhood and the area. To make free flow possible, the liveability would increase.

A possible intervention could be for example a slowly lowering park instead of a hard edge with a fence, what is closing of the park even more.
2.2 Building scale

Building complex
The ‘Elektriciteitscentrale’ of The Hague envelops seven different building parts. There can be distinguished seven different building parts. The most parts of the plant were constructed one by one. Afterwards many parts were demolished to make place for newer building parts, which fit the innovation of the newer technology. The first building parts were built in 1906.

The present situation has a more or less symmetric layout. The turbine hall in the middle part is the oldest left part of the turbine hall with an old saddle roof. The halls on the left and the right side are build later and have a more cubic form. The two highest halls of the total building complex are situated at the west side, where in the past the old kettles were situated. The layout of the building is constructed in accordance with its function of the power plant. So the coals were delivered in the building close to the kettles. The coals were burnt in kettles which caused steam. The steam was further distributed to pumps, and to the turbines in the turbine hall. Turbines transformed the steam into electricity. The gained electricity was transported to the transformers, which converted it to the right voltage right to the houses of the people in the city.
Due to the different building periods of the different parts of the ‘elektriciteitscentrale’ there can be noticed different architecture styles. The oldest part, the former office building, is built in a so called ‘burchtachtige-architecture’ with all his decoration. The latest built volumes show a far more modern plain cubic architecture. This architecture style belongs to the ‘wederopbouw’ architecture. By looking to the whole building complex, you can see the time passing by, represented in the architecture. While the different parts have their own characteristics, the bricks makes the building a whole, despite its different architecture styles.

The power plant, an industrial buildings, had only a function as a shelter for the industrial processes which took place in the complex. That is why it consists mainly of thin facades and a lot of structures in order to support the heavy weight machines which were inside.

An analysis of the facades and structures of the building is given below.
Facades
All the facades have a different tectonic. Some facades have very small openings in the facades, because it was not necessary to have a lot of daylight. Other facades have large windows with a maximum of daylight in order to provide good work conditions. Other facades have straight cubic openings, more traditional windows with arches and alternating stone courses there other facades which are totally enclosed or blind.
The facade of the old office part is the oldest part which remained from the first design of architect Schadee. The facade was designed in an eclectic style, where different architecture styles are visible in the facades, such as neo-classicism, romance and jugendstil. There are also a lot of symbols visible, such as the stork, the symbol of the city The Hague and an image in the large window above the former main entrance. This facade belongs to the ‘burchtachtige’ architecture; it is the Netherlands built in this particular style, which makes the building unique.
-Facades of machine halls
The machine halls are cubic forms with long windows of 24 meter high, which cover almost the whole facades of 25 and 25 meter high. The window frames are made of concrete with a window ledge of steel and singular glass. The window openings are a few meters above street level what blocks the direct view.
-Facades Trafo station
The trafo station has its own characteristic facade, with a specific brickwork pattern and very small window openings. Behind this facade the trafos were situated. The pattern in the design was more important than the height of the window openings. This facade is similar to its south facade so the west and east facade are totally similar. This trafo station was built by the same architect as the other later built machine halls. It has also a more modern cubic layout than the oldest facades of the office building.
- Blind facades
Due to the frequent changes of the building complex, there are a few blind facades at the machine halls. Right now, there is a water tank in front of those three blind facade, that's why the facades are hardly visible.
Structure
The structure in an industrial building is a very important part of the whole building. Mostly the structure is heavy because of the large and heavy machines and the large arch spans, which are made to shelter the large machines.

The building height of the former power plant of The Hague has to span 20 and 30 meters maximum. The maximum building height is 35 meters. In the power plant there is a large part of the structure which function has no function anymore
-Machine halls
The building has two large machine halls. Here the kettles, pumps and turbines were housed. In the middle part, the construction is situated, which supported the earlier pumps. The columns are horizontally connected in two directions, circa every 5 to 6 meters. This ensure the stability of this building part. The width of this stiff core is thirteen meters. The largest open space is spanned by four trusses and spans 30 meters. In this part of the kettle hall the coals were delivered.
The turbine hall in the middle of the building complex, has the already mentioned saddle roof. The other roofs have made place for more modern flat roofs. The saddle roof is supported by six steel frames. Three frames are supported by the walls and three are standing directly on the ground floor. The saddle roof has also a ridge to provide the hall from some daylight.
Materials
There materials in the buildings are brickwork for the facade, steel for the structure and, in the old office building also a wooden structure, but most of the time covered with a false plafond. The floors and foundation are made of concrete. The frames of the windows of the machine and the turbine halls are also made out of concrete and so are the window frames of the trafo station. Furthermore the eaves of this building parts are made from concrete as well.
2.3 Conclusion

The industry is an important part of The Hague's history. The largest part of industrial heritage of The Hague got lost, due to the relocation of the factories and companies out of the city. Because there is not much left of this industrial history in the city, the Power plant of The Hague is an very important building to tell this history to the people.

Despite the fact that the power plant is located in a relatively decorous residential area, the direct context of the building is of a poor quality. There are scarcely roads through the area. There is an undesigned unclear area around the former power plant; a no man’s land. Fences, water and roads and difference of levels in de public space obstruct the flow through and the accessibility to the area around the power plant.

On the other hand the place has a high potential. There is a good public transport connection. The area is situated along the beltway, which makes it good accessible from outside the city. Thereby the area is located at the corner of the old centre, which makes the area a good public outdoor place to hang out. It is possible to walk in a few minutes from the old city centre to this area. Furthermore an other positive element of the area is the canal, which is running along two sides of the former power plant, which gives the side an extra dimension.

Because of the large unbuilt area there is enough space to make a new design. Together with the green park and area with the power plant it is possible to make a redesign for the area together with a new program for the former power plant. The park can be redesigned, to give a new green spot to the public, just out of the old centre. So people can stroll around and the redesign makes the area including the power plant a part of the public realm.

On the building scale, the building are mainly consisted of heavy steel constructions and a shelter made of brickwork. This shelters forms enormous halls which have large heights and other large dimensions, such as the 24 meter high windows.

Out of this analysis there evolved a value assessment, divides into positive and negative elements of the context, the architecture and the building technology elements.

This will be leading elements in the rest of the design process.
3 MASTERPLAN & PROGRAM

3.1 Masterplan

The area around the power plant is for a large part undefined. There is a weak connection to the city centre, because of the beltway and an unclear route to. There is a lot of potential in the area, but which is not yet used.

According to Jan Gelh (A well known Danish architect and analyst, who focuses on the liveability in cities) there must be made a focus on the scale of the non-motorized traffic, the pedestrian, the speed of the human in order to make a well working public space: “Life takes place at foot”.

This was the point of departure of the masterplan of the direct context of the former power plant. The masterplan is a redesign with the theme: linking paths of non-motorized traffic to contribute on the liveability in the area.

First there is made a proper clear route from the city centre to the context of the power plant by making use of the canal, which runs along the two sides of the power plant. This canal has a direct connection with canal around the historical centre. There is made a visible route to emphasize a route from the canal around the city to the canal along the power plant.

The next step is to make a link from the area around the power plant to its surrounding neighbourhood. This means a better access to the park and better routes through the area.

Now the direct context is divided into three parts by fences, height difference and the canal. In the new design the three part will be connected with paths for pedestrians and bicycles. On the south side of the powerplant there will be a square to hang around and in the back hundred parking places for the new function of the power plant. To bring more cohesion in the south part of the masterplan, there will be realised some housing blocks of three stories high, around the new designed square.

For the route along the canal there will be made a path with steps downwards to the water, so people can sit at the water side.
Besides leading aspects in the design process, derived from the value assessment, the masterplan gives also new pre conditions.

With the new design for the direct context of the power plant, the accessibility is increased. The powerplant itself, should be an continuation of the public flow through the area. It also creates a strong connection to its direct context. In order to make this connection visible there should be made more entrance points of the different sides of the power plant.

Furthermore the new possible public spot for the city and abroad, should be influenced by the building which therefore must have a public function. In this way an extra flow will be created during the day and especially during the evenings.

Another precondition for the redesign of the powerplant, is to preserve the building mass.

Pre conditions

- relation with direct context
- more entrances
- public function
- preserve building mass
3.2 Program

Program choice
The program for the former power plant evolves from four different viewpoints. From a personal view, from the view of the building, the context and at last the society and city.

Despite the city is known as a bureaucratically city, the government of The Hague wants to invest extensively in attracting more tourists to the city. Last year this was determined in the new nota of the city council. At the present The Hague is tourist city number two of The Netherlands, but it is still growing, even though there is a crisis in the western countries. There are already renewed attractions in the city developed such as ‘Madurodam’ and ‘het Mauritshuis’ which will increase the number of the tourists in the Hague.

A lot of ideas has to be more worked out, but there is a high ambition. For the redevelopment of the boulevard of “Scheveningen” there is reserved a amount of over a million euros. With all these investments, the government wants to increase the tourism of The Hague until 2020 every year with 3 percent. Thereby wants to increase the overnight in hotels with half a million. This high ambition of the government costs a lot of effort. One of the ideas is having big annual events.

Another focus of the city of The Hague, is to focus on the creative sector in The Hague with the program: Creative City The Hague. The creative city will be a link between the creative industry and the client: the creative economy.

With this focus on tourists and the trend of focussing on the creative industry there can be thought of a program in the tourist and creative sector. A public function, which can be a new important attraction for the city of The Hague.

Looking at the urban situation of the power plant, there can be noticed a good accessible car an public transport. This makes it possible to make a public design on the scale of the city or on national level, or even on a international level. Furthermore the not yet designed area around the power plant, can contribute to the new public function of the building.

Looking at teh level of the building there can be made use of the enormous volumes of the halls. The large volumes asks for large programs. An other important aspects of the building complex are the different dimensions and scales of the different building volumes. The smaller volumes can be used for small programs, whereas the bigger volumes can be used for voluminous programs.

Besides this three viewpoints there is also a personal point of view. As mentioned before, I have a special interest in public and hybrid buildings. Furthermore I’m very intereted in art.

This viewpoints together leaded me to the program choice of an museum plus hotel, with extra public functions. To make it a hybrid dynamic building.
**Museums in The Hague**

The Hague is known for a few art museums such as ‘het Gemeentemuseum’ where important and famous modern art is exposed. There is another art museum which exhibit modern sculptures, named ‘Beelden aan zee’ which is situated in ‘Scheveningen. Another famous museum is ‘het Mauritshuis’ where classical artworks are exposed. There are also three other smaller museums, the Escher museum, The Hague history museum and the museum ‘Mesdag’, with artworks from the past as well. At the present there is not yet a museum only exposing contemporary art.

‘het Gemeentemuseum’ has a little department called ‘het GEM’ but this is a very small part of the museum.

The location of the former power plant is not directly situated in the area of the other existing museums. But with the good public transport connection and its situation next to the beltway it could become very favourable. With the plans of the government to implement the plan of a hop-on hop-off bus within a few years, the location of the former power plant can be directly added in the routes of the busses.

With the vacant falling space of the former power plant, there is enough space to make a museum on its own about contemporary art. This robust piece of industrial architecture can be a suitable decor for contemporary art. Because contemporary art is a modern, dynamic and changeable subject.
**Hotels in The Hague**

There are in total 60 hotels in The Hague. 30 hotels are situated in the centre and 30 in Scheveningen. By analysing the hotels in The Hague, there can be noticed two important types of hotels. In the first place, there are a lot of hotels of medium size with up to 200 rooms of medium price. Secondly there are also a lot of small hotels with circa 40 rooms what means a they have low-priced rates. But nowadays a trend is going demanding for more smaller and personal hotels with special experience for their guests.

The hotel that will be realised in the former power plant can respond on this demand. The hotel will be a small size hotel around 30 rooms. The location of the new hotel is compared to the other existing hotels in the Hague more situated to the west. But only 900 meters walk to the old city centre and a good direct connection to ‘Scheveningen’ what makes it a good interconnected location.

One of the added values for this hotel it is integrated in a building complex with an art museum function.
**The Program**

The program will be involve a museum but not only a museum, it will also be a hotel. This two function will have shared functions, such as an restaurant, a cafe, a multifunctional space, which can for example be used for a special event for hotel guest, or for a temporary extra exhibition space. There also will be housed functions such as a library/study room, an auditorium/cinema, a shop and a rooftop bar. These will be all accessible for everyone.

The museum will be the main function. It will envelope half of the program: 12000 squared meters. The other half is for the hotel and the shared and extra functions.

The museum is divided into a large permanent exhibition and a large temporary exhibition. Next to this two types of exhibition floors there will be a huge exposition hall, where during the year varying art projects can take place. There will be a workshop place and museum shop. And there is a sculpture route through the building which starts in the park, where it is noticeable for people, all the way up to the roof top, where you have a view over the city an back to the park where the route started.
The permanent museum collection
The museum will house, as mentioned before, a temporary and a permanent exhibition. The temporary exhibition will be a varying exhibition with famous and less famous contemporary art from all over the world.

The permanent exhibition will be a collection of contemporary and modern art. During a research for a permanent collection for the new museum I realised that there is a huge amount of valuable artwork, which cannot be showed to the public because of lack of exhibition space. These works are put away in the museum depots. I stumbled upon the fact that Tate Modern in London had to extend their present museum, because of their fast growing collection. Even with the new added building of Tate, there is still a large amount of art works which must be stored in depots, due to lack of exhibition space. I choose the collection of the Tate modern because of the interesting similarity between “de elektriciteitscentrale” of The Hague and Tate modern. Both buildings were former powerplants, and thereby sharing the same grandiosity. With this conclusion I decided to make a design for permanent collection as a dependence of Tate Modern.

The selected artworks are paintings, drawings, sculptures and installations. The covering theme of all these artworks will be abstract art, abstract expressionism, and minimal art.
Requirements for the design

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4.1 Theoretical scale

The most important aspect of the redesign will be the task to combine the large factory scale, made for machines, with the new program for the human scale, made for people. The new design will be a new historical experience which contains the factory scale and the human scale.

**The human scale**

The human scale should be implemented in the building. It is important to consider this carefully while designing because the present situation lacks the human scale.

According to Jan Gelh, the Danish architect and analyst, it is possible to have a proper method to implement this human scale by means of using different principles, which are: integration, assembling activities, open up and at last invite.

To integrate in the design means: put different functions under one roof. This creates a more dynamic place, because every function has its own dynamic and flow of people at different times of the day. The former power plant is a huge building. To create a liveable place here it is important the voluminous building never shuts down during day and night.

To assemble activities in the design means: All the activities in the building will be situated in a way it will make people come across and meet each other.

To open up in the design means: to make different see-throughs and viewing holes people can at the time notice other activity in other places from their own point of view.

The last principle is to invite, what means: Make activity visible from the outside and also from everywhere within the building.

**The factory scale**

The power plant has enormous building volumes with large windows. In the building are fascinating large spaces with huge steel structures. This enormous open spaces can be used for functions where it is preferable to have such high ceilings, or where it is interesting to use the whole depth or width of a space to have a maximum experience of the whole room. This can be interesting in an architectural way.
4.2 Scale of the context & building complex

The recently built small side building, which don’t belong to the main building volume will be removed and thereby also the water tank.

There will be introduced two axis for the main spatial concept.
The first axis is running from the south side to the north side of the complex and will thereby connect the lose standing trafo station.
This axis is situated in the zone of the existing prominent present columns in the middle of the old machine halls.
In the courtyard there will be placed a volume to the south side of the right former machine hall. This will be later on the hotel volume. In this way one of the blind facade is covered. By choosing a different material for the facade from the brickwork of the power plant, a new modern layer is added. The new layer of the complex visible form the outside.
The first axis so called ‘the street’ is the connecting circulation zone of the whole building in a vertical and on a horizontal way. In this ‘street’ there will be all the main elevators an staircases and also toilet blocks. There will be partly open floors in this zone to connect the different building parts horizontally.
With the introduction of the axis different entrances on the South and the North side of the building are realized. This increases the accessibility which is necessary for this very large building volume.
The second axis which will introduced, will be perpendicular on the ‘street’. This axis is running from the west to the east side of the building. It is crossing through the middle of the building where the new central hall is situated. This is the heart of the whole complex. The meeting point: a place to stay, a place to start your journey through the building. This second axis will also provide two entrances to the complex; two main entrances of the building. The first entrance is the entrance at the park side. This is the grand main entrance, emphasized by the new hotel volume. The other entrance is a smaller access in the small scale former office building.

These two axes, together with the new realised entrances, will form the circulation in the whole building. There is realised a free flow from the west side to the east side and from the south to the north side of the building. This public realm of the building, will be directly connected to the public realm outside of the building. So will be an integral part of the public realm of the city.
4.3 Scale of the different building parts

In the design of the building there will be a difference in the architectural experience when walking around. In a project where you have to make a redesign for an existing building, you do not start from scratch. You have to deal with an old situation. The question for the designer is: to what extend do you preserve the old building? And: to what extend do you add new elements to the building? And: by adding a new layer, will this be in contrast with the old building or will it be analogue to the existing architecture?

In my opinion the old building has to be visible to preserve the historical character. On the other hand the new layer has to be visible too. To put these new and old layer visible next to each other, there will arise a tension between the old and the new parts. In one glance there can be seen the history of more than hundred years and at the same time the present, which makes the building lively and vibrant. The next question will be to what extend the old or the new part must be visible. It will alternate in the redesign if the old building or the new layer will be more visible. This depends on the kind of space and architectural experience which is prefered in a particular space.

Furthermore, if the accent in the design lies on the new visible layer, again you have to make a choice between, either a contrast or an analogue with the old building. To what extend this will realised, depends also on the desired characteristics in the space.

In the design there can me made a clear gradation from the more preserved building part toward the newer designed building part, to ultimately, the totally new added building volume, the hotel.

The ‘street’ in the design is the building part, where the old architecture will be most visible. Where ‘the street’ is the most preserved part the newest part of the design, as mentioned above, is the hotel volume. In this new added building part, the experience in this space would be totally new. Only the facade will be a hint to the old building. Where the kind of material forms a contrast with the old brick facade, the colour is in analogue with one of the colours in the old facade.

The next section of this paragraph will be a description of the different building parts and an explanation to which extend the design will be preserve the old building or if it is more a new designed part. And next to this if there is either made a contrast or an analogue with the old building.
OLD PRESERVE < ANALOGUE > CONTRAST NEW

STREET
- CONNECTION AREA
- INDUSTRIAL AMBIANCE
- OLD STRUCTURE
- ROUGH MATERIALS
- CONCRETE
- STEEL
- VIBRANT SPACE

EXPO HALL
- FREE ENTRY EXPO HALL
- INDUSTRIAL AMBIANCE
- MAXIMUM HEIGHT
- OLD ROOF TRUSSES
- OLD FACADES with openings

CENTRAL HALL
- CENTRAL POINT
- LIGHT, BRIGHT SPACE
- INDUSTRIAL OLD ROOF
- GLASS ROOF
- LIGHT MATERIAL
- FLOOR TILES
- WALLS

OTHER PUBLIC SPACES
- OLD STRUCTURES
- BIG WINDOW OPENINGS
- NEW WALLS

MUSEUM
- NEW MINIMAL EXPOSURES
- OLD STRUCTURE
- NEW WALLS, FLOORS, PLAFOND MATERIALS inside
- ANALOGY KIND OF MATERIAL
- CONTRAST FINISH OF MATERIAL outside
- ANALOGY RED STRIPE
- CONTRAST CONCRETE FACADE

HOTEL
- NEW EFFICIENT VOLUME
- FACADE PERFORATES STEEL
- CLIMATE CONTROL
- ANALOGY WITH COLOR
- CONTRAST WITH MATT BRICK
The ‘street’
When entering the building, the visitor will mostly first enter the ‘street’. In this space the history and the former function of the building is most tangible. When people are moving through the building from one space or function to another, or from floor to floor, the visitor will always be reminded of the industrial history of the building.

The most noticeable industrial aspect is the rough construction. The almost 150 meter long and 13 meter wide zone is on both sides accompanied by columns of more than a meter thick. They are mutual horizontally connected, which makes the construction even more visible. To create a maximum experience of the total volume, there is a free view from the south end of the long hall all the way to the north end. The enormous height of the halls is still visible by creating half open floor field, which provides a view all the way up to the 35 meter high roof.

Three parts
Furthermore there can be distinguished three parts of the ‘street’, the left part, the middle part and the right part. The middle part is situated on the crossing of the other axis. When standing in the crossing of the other axis, the west end as well as the east end are visible. This will give a maximal experience of space and at the same time an overview of the building. In the left and the right part of the ‘street’ the elevators and toilet blocks are situated.

Lightning
The lightning in the ‘street’ is made by big spotlights, fixed on the construction, which gives an almost theatrical affect and a ambience of ‘see and be seen’.
Glass volume
The middle part of the ‘street’ forms the grand main entrance. This is the new glass volume. As well as the skin facade as the roof is made by glass, to create an even lighter space. This makes the entrance space more visible from the outside and thereby the activity of people finding their way through the building. Pv-cells are integrated in the glass roof, which will filter the daylight and will create a subtle shadow effect. The energy which is generated from this pv-cells will be around 15 percent of the energy consumption of the new designed building.

Materialization
The materials, which are used in this space, have an industrial appearance. The ground floor is covered with large gray natural stone tiles. The concrete walls and half open floor fields will be covered with a rough concrete finish in analogy with the former power plant. Together with the preserved steel structure this place will have an industrial ambiance. The old brick façades on the short ends will remain visible. Just like even as the partly broken-through facades.
The expo hall
The next space is the expo hall. Although a lot of old industrial elements will be preserved, in this space there can be find more new elements in comparison to ‘the street’.
In this hall large art projects will take place. The old 24 meters high windows in the west and north facade, will provide maximal daylight.
The expo hall will be preserved in its dimensions and the large steel trusses, which supporting the roof, will be preserved too. Only the south facade will be visible in its original state. Behind this facade the hotel volume will be situated, which makes it an intern wall. The other facades will be insulated on the inside of the facades, which gives the old machine hall a renewed look. The floor will be covered with the natural stone of the ‘street’, so it will form a continuation of the ‘street’. Four large revolving doors, which are open during daytime, will provide access into the expo hall. A long glass strip from the floor up to the ceiling of the hall, is made in the wall bordered at the ‘street’. In this way there is created a view from the street on the several floors to the art project in the hall.
The Central Hall

The next space is the central hall. The heart of the building, situated in the middle of the building complex. In this space the industrial elements are kept in sight and new elements and materials have been added, even more tangible than in the expo hall.

Which will remain is the saddle roof. This is the only remained saddle roof of the building complex. So it is a very important part of the architectural history of the building. The old brick facades in of the long sides of the hall will be preserved too.

Besides this aspects in the space, there will be a new layer of materials, which will bring lightness inside the space. First of all the central hall enclosed by other building volumes. To provide it from daylight, the saddle roof will be covered with a glass roof. This roof will be consist of three-layered glass, to prevent the central hall partly from heating up. There will also be ducts at the ridge to extract the evolved heat, which is collected in this part. The energy from the heat can be reused.
The floor will be covered with natural stone tiles just like in the ‘street’ and expo hall. But in the central hall the tiles will be of a lighter colour, to contribute to the lightness of the space. The short sides of the hall are white stucco walls, which reflect the light even more. The old construction of the saddle roof will be painted white in order to give the space a renewed look.

_A place to sit_
The central hall is the place where people will meet, buy their ticket for the museum, ask information at the reception, hang up their coat, stay and sit down for a time to look around. All the four walls have openings, by which there are created ‘see-throughs’. So you have a view in the street, the museum cafe, and the circulation zone of the museum.

_Stairs_
The building has one big main stair. It starts in the central hall and goes all the way up to the highest floor, where the roof terrace is situated. The beginning of the stair is in the central hall. But from the first floor on the stair continues in the ‘street’ zone. The main stair is the eye catcher of the central hall. Besides of its functions as a stair, it is also a large sit element.
Other public functions

Besides the "street", the expo hall, the central hall, the museum and the hotel. There are also a lot of other public functions in the building. Such as the restaurant, with a large outdoor sun terrace, the auditorium, which function as a cinema at night, the roof top terrace, the library and the study rooms, the museumshop, the workshop for the visitors of the museum and the museum cafe. In the design of these spaces, there can be noticed the preservation of the old elements or the adjustments of new elements, like the walls that will be insulated at the inside of the facades what will cover the old facades on the inside. Some walls will partly broken through, to create useful spaces. This is the case in the museum shop.

The public spaces will be a combination where old and new is visible, both equally present in every space.

Other functions, such as the office spaces for the staff and the depot, should also be transformed for their new function according to their own new requirements.
The Museum

The museum is within the old building volume the newest designed building part what consist out of two wings.

world on its own

The museum has its own ambiance, where the former function of the old building is not directly visible. As well the interior as the exterior of the museum has a new appearance which forms a contrast with the old building. Although there is in some way searched for an analogy to make a subtle connection to the former power plant. The interior of the exhibition spaces has materials which despite of its refined plain finish and detailing have a sturdy and robust character, which forms a link with the old building characteristics.

Also from the outside the new museum parts are clearly visible. All the facades, where the museum floors are lay behind, are covered with all whole new layer. This layer consists of rectangular concrete panels. These panels are reinforced with fibreglass, through which it can be very thin. This makes it suitable as facade cladding. The concrete forms a clearly contrast with the existing brick facade, although they both have a mat appearance. To make a connection with the old existing facade the alternating stone courses of the old facade will be visually extended on the new facade. This will be done at the same height as the alternating stone courses of the old facade. On the new facade there will be made a stripe in the same colour as the alternating stone courses have. This visual horizontal connection makes the building a whole.
Special conditions.
A museum's main function is to conserve and exhibit art. To conserve all the art works it is important to create the right conditions. The choice to situate the museum wings in the actual building parts, was among others derived from that it is preferable to have as least as possible outer facades. Only one of the short facades of the wing is in the present design an outer facade which for that reason will form the intern circulation zone and at the same time it will function as a buffer for the museum. The roof forms the other outer surface. This roof will also have a special design, so it will protect the artworks from direct daylight and UV radiation.

The museum is divided into two wings. In the left wing the temporary exhibition is situated, in the right wing the permanent exhibition. Every wing consist of three floors above each other. The temporary wing have floors with a very flexible layout, so the curator can design a different layout for every exhibition. The permanent exhibition has a fixed layout, which has only the flexibility to make changes over several years.

Art versus Architecture
The most important function of a museum is to exhibit art and show it to the public. To have a full experience of the art works it is very important to consider a proper design where the art works are the main subject of the spaces and the architecture, in which it is showed, is only the decor. But exhibition spaces have to be designed in a way that the spaces are pleasant to walk through and people will fain visit the museum.
In order to give the possibility for the visitor to have a full attention to the art works the exhibition spaces have a plain simplistic look, so there are as least as possible elements to disturb the visitor to focus on the art. The refined designed spaces with the precise detailing and finishing of the materials underlines the importance of the art.

Museum route
The museum floors of the permanent museum wing are designed in a way there is one route possible, so it not necessary to walk twice through the same space, but there is also a possibility to wander around and follow your own path.
To achieve these two aspects the museum has two lower floors are build up out of enclosed spaces and a ‘continuous space’. The continuous space is actually one connected space, which is situated in-between the enclosed spaces. With this layout all the spaces are directly linked to each other and the visitor has the possibility to wander around. These two different spaces would be distinguished by a difference in light intensity. The enclosed spaces have a lower light intensity than the ‘continuous space’. The ‘continuous space will be lightened by cove lighting which shine upwards to the ceiling, the ceiling will reflect the light and will light up the whole space. And because people are guided by light they can orientate through the light.
Besides the light intensity, which will help the visitor to orientate, there will be lines of sight, which makes it possible to see the art works in the next and other spaces which will draw the attention of the visitor and he can choose his route drawn by his own interest.
The upper floor is a different space where filtered light is coming from the double layered glass roof. This space is more open with wall surfaces that
cross each other. The intern vertical connection of the exhibition floors are situated at the short edges of the floors. At this points it possible to have a look into the central hall or have a look outside. These points in the museum route can function rest point, or reset point to avoid an overload, a moment where the visitor has time to contemplate or to think about something else.

Collection layout

The permanent collection of the museum will consist of about hundred artworks selected from the depot of Tate Modern. The artworks can be divided into four parts: outdoor sculptures, large paintings, light installations & sculptures and the 4th category are the drawings.

The museum floors will have its own ambiance. On the ground floor are the exhibition spaces situated with less daylight and spaces with high ceilings, this is why on this floor the light installations and other sculptures, where light plays an important role, are exhibited.

On the first floor there is made an extra floor whereby the spaces become less high, this makes it appropriate for small artworks, this is why on this floors the smaller artworks of the collection are exhibited. The little daylight in the spaces is preferable for the drawings since they only can exhibit with a low light intensity of 50 lux.

The upper floor has more daylight and wider spaces. This makes it appropriate for large paintings and sculptures. The double layered glass roof with an extra ceiling of perforated panels will create a diffuse light in the exhibition spaces. The spaces becomes a light open space, without creating the chance of damaging the artworks.
**The Hotel**
The hotel is a totally new build part. The facade covered with metal panels. In front of the hotel windows these panels are perforated in order to provide an outside view. These panels in front of the hotel windows can be opened by the hotel guests themselves. In this way a dynamic facade is created. At the ground floor and the fifth floor of the hotel, which coincides with the second floor of the whole building, the conference and meeting rooms for the hotel guests are situated. This is also visible in the facade.

During the night the whole facade turns dark except form the strokes where behind the windows are situated.

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**special experience**
The hotel volume is directly bordered at the expo hall. Openings in the facade will be made in order to provide a first class sight into expo hall where the art projects take place. During the night when the museum and the expo hall are closed of by the large doors of the expo hall the hotel guests can see the art project from their own bedroom.
4.4 Technical design

Climate control
The climate control in the buildings and especially in the museum wings is very important to protect the art works.

There are three important values; the light intensity, the temperature and the relative humidity. The requirements for a museum can differ from country to country and museum to museum. But since the museum will house a collection of Tate modern, it is important that the requirements of this museum match with those of the Tate Modern. Every artwork needs its own light intensity. This will be regulated by placing of the art works in de rooms with the right intensity.

The relative humidity has to be 50 percent with a maximum fluctuation of 10 percent. And the temperature has to be between the 18 and the 24 degree Celsius with a fluctuation of 3 Kelvin.

In order to create a hundred percent mixed air there is chosen an all air system, which means to ventilate, to cool, and to heat with air. In the museum floor is chosen for ducts, which are placed above the ceiling, this wil contribute to the flexibility of the spaces. In this way the permanent exhibition can be relatively easy redesigned after a few years, if some adjustment is preferable. Besides the all air system in the exhibition spaces is chosen for a Baopt-system. This will provide a hundred percent mixed air with no drafts which is necessary for the artworks.
The lights are in most case spots that are fixed on the false ceiling. Above this false ceiling the ducts are placed. The small continuous spaces have cove lightning whereby the reflection of the ceiling creates the light.

Although the second floor has natural daylight this floor has also extra spots to light on the specific art works. And above the false ceiling extra lights are placed to compensate if the light intensity outside becomes lower.

The walls are hollow, this will contribute to the semi flexibility of the exhibition spaces. The hollow walls are build up out of C- and U-profiles covered with plaster boards. MDF panels will be attached to these walls, this will be a sound underground to hang the art works on.
The ventilation ducts

The ventilation through the whole building is running from and to the central technical room at the right side of the building complex on the third floor. This is why the ducts at the right part of the building are bigger than the ducts at the left part of the building. A few ducts are running visible through the street below the glass roof contributing to the robust industrial character. The central hall will have an air inlet in the floors along the long sides of the hall and the air will be extract as mentioned before at the ridge of the hall. The street will have air inlets in the frames which support the skin facade and the glass roof of the entrance part. In this way there will be created a right airflow without being disturbed by the several floor fields. The air will be extracted in the ceiling of the several floors.
Construction
The construction of the building is strong enough for all the building parts with their new function. The museum will get new floors, this is why there will be made extra columns to support the different floors.

The roof is supported by the old frames. The roof is build up of a glass roof attached to a supporting frame. Above the existing steel frames castellated girders are placed to create a maximum height for the ducts. Above these girders the second glass roof is placed. The brise the soleil are placed above the roof outside to make an extra protection against the direct sunlight.
5 REFLECTION

5.1 Design Process

My process can be divided into two parts. The first part is about the analysis and the second part is about the design.

Research

In the first period I have made an analysis of the subject of my graduation project on different scales. During the first week I have started the analysis on the urban scale, which was the Dutch city The Hague. The analysis of the city was done with my fellow graduates, in that way we were able to conduct a broad research on all the different aspects in a relatively short period. During this phase I have learned about the history, the different and important structures and the different layers a city consists of. This gave me a better understanding of the context and from that point I have started to form my idea on how my design could interact with the urban context in which it is situated. It was quite a challenge to decide what aspects of the urban context I was going to focus my research on. The fact that I did not make a choice on which building I was going to use made even more difficult. Looking back at the start of the project, it is my opinion that it would have been more fruitful if I had already a chosen building so there could be a clearer focus for the urban research.

In the second week I made several trips through The Hague to look for interesting vacant buildings in the city. Before I started my graduation project I already had an idea about what kind of buildings I wanted to focus on. In particular, I was looking for industrial buildings which are characterised by roughness and a large scale, it allows room for large interventions and program parts for the redesign. Next to this focus on industrial buildings I also looked around for other buildings which comprise a large scale and preferably constructed before 1950. The partly vacant ‘Elektriciteitscentrale’ in The Hague was the building I was interested the most and I have visited the site to see if this building could be an interesting subject to study. When I first saw the building I was a bit overwhelmed by its size. But when I took a closer look, I discovered the different parts of the whole complex and when I entered the already vacant part of power plant I became more and more attracted. I was fascinated by its enormous dimensions and the possibilities that came to mind at the same time.

After I had chosen the building I had a more specific focus for the urban research and focused on the neighbourhood of my building: ‘het Regentessekwartier’.

There were three important conclusions:

The first conclusion was, that the former industrial terrain did not make a connection with the surrounding residential areas. After it had lost its industrial function, the already build residential area lacked any connection with the terrain of the building: the terrain had become an isolated area.

The second important conclusion was the particular situation of ‘de elektriciteitscentrale’ in The Hague: it was located at the corner of the old city centre. This fact has given me the opportunity to connect the building with the old city centre, in order to create a better accessibility of the building.

The last important conclusion was the excellent accessibility of the building by car or by public transport, which imply the opportunity to design the building for a wider scope than only on the level
of the neighbourhood or the city. The fact that the direct context of the former power plant was not yet well designed made my interest in the project even bigger. It allowed me to design the direct context with the building together, so I could make an intervention on the scale of the public realm where the context and the building support and take advantage of each other.

The analysis continued with the building. The enormous industrial building had functioned for more than 100 years as a power plant in The Hague and provided the city with electricity since 1906. Now it is still partly in use. I made a reliable presumption of the building not being used anymore in about fifteen years, because of the facts and trends of the actual attitude towards fossil energy. I decided to make a design of this future situation in 2030 when the building will be completely vacant. The redesign could than include the whole building complex. This choice made the graduation project comprehensive and a big challenge, but at the same time more interesting in my opinion.

Analysing the building I became aware of two important aspects. First of all the enormous dimensions inside the building. Secondly the rich details and carefully designed in some facades. That means the building comprise rough aspect; a large scale, derived from the industrial machines and activities, and also a subtle aspect; a small scale, noticeable in most of the old facades of ‘de elektriciteitscentrale’.

At the end of the analysis, the conclusions were assembled in a value assessment, which provided me with a clear insight in both positive and negative aspects. The value assessment was the first input the redesign and it created a clear starting point.

Looking back on this research process there was not enough focus on which aspects should have been interesting for my specific project. The lack of focus was caused by the fact that I started with selecting a city, instead of selecting a building first and carefully assessing its possibilities and impossibilities.

Firstly, this resulted a lot of researched aspects which weren’t relevant or of any significance for my redesign. Secondly a part of the research should have been done more carefully, but unfortunately there was no time left for that.

On the other hand, this specific order of research caused a more objective approach which contributed to a more scientific research.

After this research phase I have made a masterplan of the area around ‘de elektriciteitscentrale’ with the concept: linking paths of non-motorized traffic. I wanted to give this isolated terrain back to the people of the city.

The masterplangave insight in the preconditions for my redesign of the building. Like stated earlier in this reflection report, this gave me the input for the starting point of my redesign.

The Program
Next to the starting point, derived from the conclusions I made about the society, the context and the building, I had a fourth important starting point: my personal interests. I have a fascination for public and hybrid buildings and a strong interest in art. This is the reason why I decided to make a redesign for an art museum.
In order to make the design more feasible and successful I decided to include more different functions into the building. My interest in public life and places in a city made that I knew about the Danish researcher and architect Jan Gehl. I used his principles by implement these aspects into my design in order to make a well working, pleasant and lively public place. One of these aspects was to make a hybrid building which houses more functions.

I continued doing research about museums and hotels in The Hague, other art museums in the world and other redesigned former power plants. Next to the continuous research, I started designing concept principles, which would be the point of departure for the redesign.

The start of the design process
For the concept I made a list of requirements derived from the context, the building, building technology requirements (according to the new functions), program themes and architectural themes. I wrote down clearly down all these aspects and this created I the concept of my design. The concept is based upon two perpendicular axis. Which forms the circulation zones. Besides the clear route structure, there will be four main entrances at four different sides of the building, which contribute to the accessibility of the building.

Amount of square meters
Another important decision I made, was about the parts that will be demolished or remained, and where I wanted to add more square meters to the building.

The ground surface of the building, together with the
height, was enough to situate all the required square meters into the existing volumes. I decided to build the hotel rooms into a new building volume, placed next to one of the largest former machine halls. This decision issued from the idea that the hotel guests should experience art in their own hotel room. One of the former machine halls would be transformed into a large expo hall, where during the whole year different large art projects from over the world, could be exhibited. The addition of the new volume of the hotel has to add a new layer to the existing building, which can be seen clearly from outside the building.

Routing
The routing of the different users of the building was an issue in my design process. Due to all different kind of users and the security that must be guaranteed as regard to the art of the museum, it was a long search for the most logical option. The many different heights of the levels which derived from the old structure made it even more difficult to clearly visualize the different floor levels. Another important aspect was to open up the building to have see-throughs and views, so people can feel the activity in the building. This was a third principle to take into account carefully.

Designing the museum wings
Deciding about the role the museum part has in relationship to the rest of the building was difficult. The museum function is the main function of the building. I have visited a lot of art museum in the Netherlands and Germany to focus on particular aspects and solutions. Afterwards, I have compared this with my concept design.
Art versus Architecture
After a lot of research by museum visits and reading literature about museum design, I got an idea about the relation between the art which is displayed in the museum, and the building in which the museum is housed.

I focused on an approach where the art is the central point and the architecture is supporting. I made a selection about approximately, hundred art works of the large collection of the non-displayed art pieces. Afterwards, I made an arrangement of it on different aspects: material, scale, requirements and light. These will be exposed on three floors according their specific aspects.

Another important decision I made in my design process is about composing the exhibition spaces. As stated before, I carefully thought about how to design the exhibition spaces because of the difficult balance between art and architecture.

Because the temporary exhibition wing should be preferable empty floor fields, with a very flexible system where the curator can compose their own layout for every different exhibition, I decided to make a specific design for the exhibited permanent collection in order to do make statement for my position and vision about museum design.

Principles museum design
To make an interesting spatial design I made use of sketch maquette to have a better understanding of the spatial consequences of my design decisions.

I have composed the spaces in volumes and surfaces in order to create floors with the theme enclosed versus continuity. With these two themes I made an diverge route. The light should guide the visitors. The light will differ in the enclosed zones from the ‘in between’ spaces.

After different museum visits during my research I noticed an important aspect that I could implement in my design. It was important to have one route, so it would not be necessary to walk twice through the same space, but the visitor could have their own freedom to wander around a bit. I wanted to incorporate these aspects into my design as well.

Specific technical workout
Although I considered the climate and technical aspects during my whole design process, which provided me to make major design impossibilities, such as not taking the needed floor height into account. I focused more on building technology requirements in the last four months. During the first parts of the design phase I read articles and research reports about climate control and sustainability in museum designs. I made several proposals to make a more sustainable museum, but most of these design ideas I have rejected afterwards because of the problems they would cause in the old existing building and the little feasibility because of financially reasons or climate technical reasons.

One of these ideas was radiant heating. At the end I had chosen an all air system, which gives a better condition of the air where the temperature is more equally divided.

Eventually design process
If I look back on the design process and take a look at the research I have done, there can be noticed a wide range of aspects I have focused on. This gave me a wide range of possibilities. A lot of aspects I have thought of are incorporated in my design. At the same time there are a lot of aspects I have focused on that are hardly or not visible in my
design and in my research. Probably, this is always the case in a research and design process. The focus in my process is most of the time a more wider focus instead of a deep focus. On the one hand, the result of a wide focus brings a better and extensive design. On the other hand, this approach can be missing the depth of the worked through design decisions and ideas to bring the design to a higher level.
5.2 Answer Research question

In my reflection I will answer upon my design and design process to understand the how and why of my design process.

The explained aspects will be first about the relation between the research and the design, secondly about the relation between the theme of the studio RMIT and the ‘Elektriciteitscentrale’ of The Hague, thirdly about the relation between the methodical line of RMIT and my own approach, and at last the relation between my project and the wider social context.

Research Question

My research question for my graduation project is: In which way the new program is able to ‘provide an input’ for a new design to revitalize its context?

To answer this question I had to answer a set of sub questions first.

The sub questions:
- Which subjects in the design of my graduation project can have a positive impact for its context?
  First of all the program is important, furthermore the spatial solution or intervention and at last the architectural interpretation of the building.
- Which kind of program can provide an input?
  It is important to have a lot of variation in the chosen program for my new design. That means the new program will include different functions under one roof. This is important for my chosen building especially because of the huge size of the building. By offering a variety of a lot of activities during the day and night there will be a lot of activity in and around the building, which will also have an impact on its surroundings. Besides that there will be activity during day and night time.

- Which architectural themes will advance an input for its context?
  The architectural theme should be hooked up with the fact that the building should be a vivid and dynamic place. This will imply that the goal of the building is to assemble a lot of people. In the ‘Elektriciteitscentrale’ it is important to make a building which invites people to stay. This can be achieved by implementing/taking into account the human scale while making the design. Particularly for this industrial building the human scale is important, because of the fact that the building was built for machines in the first place. By focusing on the human scale, the building will become an attraction for the whole city and the country or even the whole world.
- Which kind of spatial solution/intervention will advance an input for its context?
  When a building has to influence its surroundings, the building must be connected with its context. The stronger the connection with the building, the more the context will be embedded into the building. For example to continue or link routes from outside to inside the building, or the other way around.
- Which position of architecture will advance an input for its context starting from the view of reuse and intervention?
  The reuse of the building has to comprise a clear visible intervention/new layer. In my opinion it is important to communicate to the public there is something going on in the building; there is development noticeable for the people who pass by the building. In particular, the new contrast that will be present in the new design will express this contemporary bustle, which is going on in and around the building. This will grasp the interest and attention of the public.
- What is the relation between the context and the new designed building and how has this relationship changed?
  In the old situation of the building there was a very weak connection between the city centre of The Hague and the building. And besides that, there was also a very weak connection between the city centre, the neighbourhood and the building.
  In the new design I will link these three locations with a focus on non-motorized traffic.
  To start from the relation between building with its neighbourhood, I made a strong connection between the inside and the outside of the building.
  First of all the program is important, furthermore the spatial solution or intervention and at last the architectural interpretation of the building.
  I made a connection with its surroundings, by opening up, by making a lot of entrances and one new main transparent entrance. Fences are removed from all sides, which makes it accessible from all sides; extra bridges will make it even more accessible. Besides these facts, the direct context of the building will be changed from a deserted place to a well-designed park and square, where the public will be invited to come in the new public realm.
  To link the neighbourhood to the old city centre, I made use of the canal, which runs along the building in the direction of the city centre.

After answering the sub questions, I will give a short answer to my research question.

The following aspects will provide an input to revitalize the context.

First the spatial concept can contribute to revitalize it context. In my design this means linking the city centre with the neighbourhood and direct context of the building, and the neighbourhood and direct context.
context with the building. To create a flow from the city all the way into the building, the visitors will be attracted.

Secondly, the program will contribute by creating an interesting place to go. To offer a wide variety of activities and subjects such as art, culture, dining, drinks, business, hotel, shopping and study places. At last, the architectural theme which is intertwined in the redesign will contribute to revitalized presence of human scale on different scale levels, so a vivid public space can be created.

Some aspects in my design can have a deeper research and investigation, but due to the short time period this was not possible. My focus was mainly on the museum function. Hereby the relation between the different functions, and how this can be dictated/created by architecture, is not that much explored in depth. This can be an interesting way to continue my project.

After I finished my design, I answered my research question on theoretical based presumptions. The answers I choose in my design are based on theory. In this way the design plan was always a model for my research statement. This means, I can answer my research question to the extent of my presumptions.

How the building would be in reality, will only be visible by realizing the project. Because a design of a building is only a model, a question that is unanswered:

Which role and position will the new design have in the city of The Hague?

This will be a completing of my research question.
5.3 Some reflecting questions

Which are the most crucial design decisions during the design process?

- The main spatial intervention; the two axes in my design.
- The decision to make a clear distinction between the old building and the new designed museum wings, as well as on the interior and the exterior.
- The position of architecture versus art; art is the main subject and the architecture is supportive.

Which architectural theory of RMIT or which approach of a reference project was leading for elements in the design?

The balance between preservation and renewal is a very important theme in my design, both are visible. The old parts are the connections between the past and the present. The new designed aspects are the connections between the present and the future. Together they describe the whole story of the building.

In my project the building is an industrial building which implies a roughness, so large new gestures can easily be made, for example, the added volumes in my design.

In my opinion two things are important. First to point out clearly which is the old and which is the new layer in the redesign. Second to look carefully to the existing building to look for an analogy between the old and the new in order to create a well-considered design.

Tate modern in London, the Kolumba museum in Koln and Saint Martins College in London are the reference projects which influenced my design.

What is my method of designing, tackling design issues?

My design method is looking for many possibilities and looking for reference images and articles. I collected a lot of information with a large range of possibilities, in order to be able to make a well-considered decision. The large range of possibilities makes sure I do not make hasty decisions.

While focusing on one design issue all the other collected information play a background role in my thoughts.

Which method of the design development of my graduation project is specific for me?

I made important discoveries in my research and design about the way I think about reuse of buildings.

First, looking for contrast to emphasize both old and new in a building is very important for me: I am very interested in emphasizing the tension between analogy and contrast.

Second, the way I am looking at old and new buildings. I am looking for the valuable aspects of the old building, to retain them in the redesign, to retain its value for the future. I am very interested in how we can learn from the valuable existing architecture.

Which is my way of designing I will use in my future design processes?

If I look back on my design process as already mentioned before my I always have a very wide focus. I believe there can be added more quality to the final product if I would have a less widder view and just a focus on a smaller scope with will bring me a enhanced an more worked through research and design.

If the design process in the future will comprise redesign in a project I would look for the right balance between contrast and analogy. Before I started this project I was not aware of this interesting design approach. Now I look back I understand this is an important base of making a redesign for an architectural project.
5.4 *Recommendations to other students*

What would you advise a coming RMIT-graduation student about the making a design in an existing building?

Trying to grasp the essence of the building very early in the design process. This will be a strong guide to follow a logical, clear design process, and will give a good focus. The value assessment is an important way to learn about the important and less important aspects of the building.

What would you advise a coming RMIT-graduation student about making a design for the same function in an existing building?

My recommendation for making a design for an art museum in an existing building is to be aware of all the different aspects a museum has. The spatial qualities should be taken into account as well as the climate conditions in the exhibition spaces. The difficulties are the often-strict requirements for the exhibition spaces and the constrained possibilities, because the old building has obsolete climate specifications. Visit as much as possible museums to learn from each building, and see which design solutions and decision the architect have made.

What would you advise a coming RMIT-graduation student about making a design for the same function in the same building?

A recommendation for designing a museum in the former ‘Elektriciteitscentrale’ of The Hague is first getting accurate drawings, so you will have a good overview of the existing building. Make visits to the building to really capture the huge size of the building. Seeing these buildings in reality is totally different from looking at the
5.5 The Significance

What is the significance of the essay of Heritage Development for your design?

During my graduation project I became aware of the different approaches of making a design for a redevelopment project. By adding a new layer, with the intervention there can be made a contrast or the intervention can be in analogy with the old building. In the design process, I had to take a clear position in the approach I would choose. Looking at reference projects and analyzing these, I became aware of my own opinion and its consequences for my particular project, the ‘Elektriciteitscentrale’ of the Hague. In this way the essay of Heritage Development influenced my design.
6 APPENDICES

6.1 Floor plans 1/200

NB. All drawings are scaled 25 percent to fit in the report.
6.2  *Facade Elevations 1/200*

NB. all drawings are scaled 25 percent to fit in the report.
6.3 *Main sections 1/100*

NB. all drawings are scaled 25 percent to fit in the report
section a
6.5 Facade sections and elevations

NB. all drawing are scaled 50 percent to fit in the report
6.6 Technical drawings 1/5 details
NB. all drawings are scaled 50 percent to fit in the report
vertical detail 1/5

- Schüco aluminium profile 50 x 180
- wooden batten 40 x 90
- waterproof seal

- Schüco aluminium profile 50 x 120 mm
- wooden batten 40 x 90
- polycon prefab concrete panel 80 mm
- vapor open weather barrier
- insulation 120 mm
- existing brickwork 220 mm
- trussing and battening
- plasterboard 2 x 10 mm
- coating 2 mm
- wall construction

- aluminium window sill
- type FPA-5
- Halfen facade anchor system
- cavity 30 mm
- vapor open weather barrier
- insulation 120 mm
- prefab concrete element facade construction HEA profile 220 x 220 mm
- insulation 200 mm
- sheet material

- foundation
- vapor barrier PE-foil
- rigid thermal insulation 170 mm
- vapor barrier PE-foil with reinforcement mesh 30 mm
- polished concrete floor 80 mm
- roof beam IPE 220 mm
- gradient insulation
- gradient rainwater discharge

- Halfen facade anchor system
- rigid insulation
- concrete eaves