Explanation of the project:

Introduction

Nowadays we live in a world that is heavily influenced by nature and the people on the globe. Surrounded with limited resources, continuous population enlargement and heavy reliance on modern technology. The environment is a popular topic that is discussed within different groups, organisations, and in the media. Websites rise-up with “green” solutions to prevent our world from destruction by our own ecological footprints due to our intensified individual lifestyles and consumer society.

Some examples of environmental topics are:
- Heating of our earth;
- Melting polar ice caps;
- Scarcity of natural resources;
- Research on alternative energy;
- Vacant properties;
- Renovation and Re-use of vacant properties

But of course not only environmental topics are the main topic nowadays. The current economic crisis and the strains in Europe also make us think about how we should continue preserving our build environment and how we can design environmental friendly buildings. Will we be designing with materials that are mined from old products or destroyed buildings? Should we build more underground to preserve the scarcity of green within urban environments?

Just have a thought about the extravagant architecture, the showpieces of architecture and technological progress. Daring shapes, blob shaped amusement parks of experience and appearance. What will happen with those special and design specific buildings in contrast to the old vacant buildings. Office buildings that are twenty years old or even younger that are vacant and more affordable in the current uncertain time. What is the current lifespan of such buildings? What will happen to the buildings in twenty years of time due to our fast changing modern technologies?

Who will take the lead in a sustainable environmental friendly world? Who will take someone by the hand or offers the opportunity to perform common tasks or designs on a more sustainable manner and triggers us in more responsible thinking on an environmental level.

Assignment & Masterplan

The United Nations want to establish a new environmental council for sustainability (UNEC). A platform that can provide the possibility to do research, provide knowledge and share the knowledge for sustainable measures globally. This council should be situated on the plot of the United Nations in Manhattan, New York.

The UNEC headquarters has a program of requirements of +- 16.000m². A very large amount of square meters is for progatational functions. The first step of designing a new headquarters however was making a new masterplan because of the danger for terrorist attacks with the underlying Franklin D. Roosevelt freeway (FDR) underneath the existing UN building plot.

The group analysis came up with a very simple idea to replace the border of the FDR freeway and use the freecoming space for other functions. Because of the very wide freeway and it’s length the best way to re-use the old freeway is to make a new shopping area or rentable area’s so there is also a social security by the people passing by and working there.

By adding a boulevard and connecting smaller green area’s to the large UN park the re-used FDR get’s more accessible but also the green area’s around the UN plaza. Main rules of the masterplan are re-using the old FDR, keeping a free sight over the river and connecting the green areas around the plot to each other.

Statement

Sustainable Architecture often gets associated with “green” looking architecture. Sustainable architecture should feature a green roof or a technological ingenuity that is making energy of waste of the building and refine a certain amount of energy that it normally demands. Solar panels on the roof give the opportunity to refine the buildings own energy and gives the possibility to need less electricity from external connections. Sometimes sustainable architecture has a goal to have no need of external resources at all. Self-sufficient buildings that don’t need external connections to perform.
“Architecture is a second Nature that is laid on top of the real one.” Renzo Piano, 1997

However, this is the world of architecture and technology not thinking about the social environment around the building. When it comes to the UN headquarters of Sustainability, one expects it to be “green”, which could consist of being energy neutral, making its own energy or even better provides the energy that is needed to maintain the building.

When the building becomes its own power plant to provide all the parameters for self-maintenance all the external companies, technologies and people get unnecessary. And that is just the point where it cracks. We now live in a crisis, sustainability is a term widely used for all sorts of things. What should sustainability offer for unemployed people that are searching for a job? We don’t need the employees of energy or recycling companies because this will be done “in-house”. Or shouldn’t we design “sustainable” buildings that self-sufficient.

Why not build a “old” building that can be used and re-used because that is happening all around us. What do those buildings offer more than just the urge for keeping those buildings? Is it the height of the interior of the building? The strong structure that often is stronger than the function demands? Or is it the sober expression that is so recognisable for the building in its build environment.

Green Architecture is a synonym for Sustainable Architecture. More and more projects that are literally looking green win competitions and can give the impression that they are green, that they are sustainable. However how sustainable is an oil plant covered in green while it is expelling polluted air into the environment. The exterior of a building is not always a sustainable solution when we look at green or sustainable architecture. Just be aware about it and not just look at the expression of a building.

“Designs are increasingly winning competitions because they are literally green, and because somewhere they feature a small windmill.” Rem Koolhaas

However the first and maybe the best expression of sustainable architecture is a literally green appearing building. Sustainable architecture is about understanding nature, respecting its animals, inhabitants and qualities. Not by making fun fair architecture in a forest and cut down a lot of trees without substituting the trees elsewhere.

Ambition

The new building for the United Nations Environmental Council should be an icon of sustainability. It should be clear for common people that a green building with a certain weight and soberness withstands the test of time and is the main gathering point to get knowledge and action to do something for sustainability.

The new headquarters has a contradiction of being sustainable in designing a compact building versus an oversized building that can be easily adjusted in ten or twenty years. Demands of the building can easily change so I want to take care of the possibility to change the function within the structure of the building.

Also the plot of the new Headquarters is the United Nations Park where there are gifts from the countries that are in the United Nations. The park is visited because it is a park, people want to visit it and it shouldn’t be locked off for people but be more accessible and one should cherish the park because of its quality it already has. The park that is cut out of the plot for designing a new building should be placed back in a different form or even be enlarged to maintain the park. To maintain the United Nations Park.

The design for the United Nations Environmental Council will be defined with a green appearance, a green icon for sustainability. With a certain sober expression that can withstand the test of time but also a contemplation of calm, serenity, warmth and sometimes a voluptuous quality in both interior and exterior of the building.

Next to the appearance and different contemplations of both exterior and interior it shouldn’t be forgotten for who the UNEC headquarters is designed. The user should be able to perform the tasks that can be done in the building without obstacles. The building should facilitate the needs of the user. Designing a perfect design isn’t only designing the perfect auditorium or the most perfect workspaces that can offer the user everything to perform to the fullest. We still are human and it isn’t only the performance that counts. It is also the experience and emotion of people that have a certain comfortable feeling of coming together for the same cause.
A building as the UNEC headquarters should be modest and sober while being very functional. The importance of the building should represent a strong and massive building, not a screaming high technological architectural folly. People should recognize an important public building with a aim on environmental issues like this.

**Design explanation**

Designing a public building that should represent the UNEC is about designing a green icon that would represent sustainability. The design for the UNEC building is a generic shaped rectangle that isn’t built very compact in a cube or a high volume with a small footprint. As the diagrams show the building can be build as a skyscraper keeping the most of the park there but will the building work in a functional way? When you want to do research for a sustainable project it is nicer to have everything on the same floor within reach instead of travelling a lot of stairs or stories to get the information and go on with your investigation. Working in a sustainable way also asks for a functional building, free to change rooms and having everything you need in reach on the same floor. So a skyscraper isn’t that logical, a stretched one however is, because functions can be connected on the same level. The stretched volume is placed on the end of the plot to preserve the UN park and keep as much view over the East River. By raising the volume from the ground the design provide in two worlds. A lower part directly connected to the park that is more loose and organic versus the enclosed volume above that facilitates the more private functions as described in the program of requirements.

A large structure keeps the raised volume up and keeps the ground façade free of a colonnade. This emphasizes the free shaped form on the ground floor. On the ground floor the façade density increases towards the entrance that is very modest shaped in three box entrances. After entering the building the free height and the structure are visible and give an almost monumental feeling due to this height. Before entering the rest of the building visitors need to ask a visitor pass at the entrance desk and also need to inform whatfor they are visiting the UNEC headquarters. On the ground floor visitors can visit the exposition space of the building on the left side towards the city or take a workshop on the right side of the building towards the east river. In the middle of the building the facilities are located on the ground and first floor. The inner walls on the ground floor continue the free shaped façade in a difference in height.

On the first floor the functions for research are located, featuring a library, research offices and a canteen. In the middle of the first floor facilities are reachable for the whole building. Including a ICT and reproduction office. The canteen offers a nice relaxed view placed far from the busy city side toward the river.

The green sun shading façade that is U-shaped around the building will shade naturally from the sun but also offers the users of the building to open the sliding doors and work in a green environment while benefitting from fruits that are growing in the green sun shading. This sun shading is also manageable when the sun is wanted in the room.

The second floor is the main entrance of the Conference Hall where the delegates, researchers and visitors come together to inform or discuss environmental issues. The delegates office is located in the back of the conference hall. The whole floor is arranged around the conference hall that is 3 stories high and features 900+ seats. A circulation of functions is arranged around the two atriums in the city and river side of the building. These functions also work as successor to each other in one circulation where the city side is more public and the river side is more private with a restaurant and a lounge. However how private should everything be in 4 or 6 times a year when the delegates come together like in the General Assembly across the UN park that is nicely overseen from the middle of the building that features a wide atrium and structural glazing façade to get a lot of light and view around the Conference hall outwards, inwards and in between the building levels.

The third floor has the propagate function that is translated into all of the auditoriums needed in the program of requirements with several brainstorm rooms for discussions after visiting a lecture in an auditorium. The second entrance and a bar of the conference hall are situated in the middle of the floor. The circulation space is located around the auditoriums to offer a lot of space for all of the possible visitors of the auditoriums and also gives a wide overview over the UN Park and the green sun shading with its extra features.

The fourth floor features the most private function, that is the office space of the UNEC. In the middle of the floor the Conference Hall is still the connecting element between the private and public functions but this floor has got two circulations for a higher security level. The first circulation only facilitates the conference hall
while the offices have a second walkway on the other side of the building facing the office building across the road. This last floor also gives the opportunity to access the roof garden.

As visible in the drawings, the building has different facades on the faces of the building. On the north side only a dividing in function while on the south and short facades the building is covered in green sun shading with two types of sun shading elements. Both Vertical on the head facades to deal with upcoming and perishing sun while the south façade that is overlooking the park need to deal with a high and low sun and therefore is shading from the sun horizontally without obstructing the sight outwards.

The structure of the building consists of a concrete structure that is strong and massive on the ground floor and on the up going floors the large span of floors is continued to provide a maximum of free arrange able floor space within the building grid. In the middle of the building where the conference hall is the largest function the structure rejuvenates into a slightly slimmer structure made of steel profiles. The structure of for the roof of the conference hall is designed in shape to go with the acoustic panels and also carrying a part of the tribune. The structure is visible from the fourth floor and the visitors will also experience the structure while they enter the conference hall from this floor by walking in between the steel 3d truss structure in the middle of the conference hall.

The interior of the building has been kept very calm with white and bright colours alternately with re-used wooden wine barrel flooring and a wooden grill suspended ceiling. The ground floor is a structural concrete floor with colour additions that show sustainable text, names and other sustainability topics in its finish.

The climate installation of this building consists of three types of installations. A variable air ventilation (VAV) for most of the functions that need a lot input and output of fresh and old air. The second installation is a fan coil unit at for example the office floor where the unit can get fresh air from the outside of the façade to prevent a lot of windings of HVAC ducts. The third installation is the way the auditoriums are ventilated, cooled and heated. This is done by a ZAC system. A chair ventilation system that gives the users a faster feeling of hot or cold instead of cooling the entire volume of the conference hall for example. The installations for this building are very complex because every large auditorium should have its own installation to regulate its own needs. This will be situated in the extended parking garage underneath the park. The conference hall has an extra installation for extracting the hot air on the roof floor. The fire escapes are on the north side of the building and the floors have sprinklers in case of fire.

Together this design offers a very green appearance that changes from appearance during the different seasons that affects the plant aesthetics. However half of the plants will always be visible to work as a sun shading even when there is a sunny winter sun in December. Furthermore the very open and flexible layout of the floors give the opportunity to change the buildings functions and layout for many years what enlarges the building lifespan. The choice for the installations also give the opportunity to easily change the installations because they aren’t combined in a structure and an air system can be easily enlarged when the ducts and system are over dimensioned for possible extra demands.