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## LANDSCRAPERS

### ARCHITECTURE & LANDSCAPE IN A DIALOGUE

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Degree Project in the Master programme Urban Landscape Dynamics, 30 hp  
Master programme Urban Landscape Dynamics  
Självständigt arbete vid LTJ-fakulteten, SLU  
Alnarp, December 2012.

# Landscrapers

## Architecture & landscape in a dialogue

Landscrapers  
Arkitektur och landskap i dialog

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**Credits:** 30 hp

**Level:** A2E

**Course title:** Degree Project in the Master programme Urban Landscape Dynamics

**Course code:** EX0377

**Programme/education:** Master programme Urban Landscape Dynamics

**Subject:** Landscape planning

**Place of publication:** Alnarp

**Year of publication:** December 2012

**Picture cover:** Ibrahim El Ghandour

**Series name:** Självständigt arbete vid LTJ-fakulteten, SLU

**Online publication:** <http://stud.epsilon.slu.se>

**Key words:** Landscrapers, green roofs, sustainable Architecture, landscape urbanism, public spaces, landscape.

## **FORWARD**

*After I have finished my architectural study in the school of fine arts, in Alexandria University in Egypt, I worked as a designer, mostly in designing residential buildings. During my work period I was thinking how hard it is to work with buildings that are not in relation to the surroundings. Afterwards, I decided to study landscape and planning in order to put designs in a suitable context to the surroundings. During my study of landscape I was always dreaming of creating a kind of buildings that is in a harmony with the surroundings, and my enthusiasm has guided me to explore the concept of landscrapers.*

*I would like to dedicate my thesis to my all Family, my father and my mother and my sister, who supported me by all the means, fiscally and incorporeal as well. They are the one who always take my hands when I am down and give me hope when I give up. It is very difficult to find the appropriate words to thank them, because there are no such words existing.*

*Also I would like to thank my supervisor (Karl Lövrje), who have given me the full support, and guided me all the way till the very last moment of writing my thesis. He inspired me to use the sand oil material to create a physical model, in order to learn more from this experience. I would say that without his guidance and suggestions I wouldn't accomplish this work in its final shape.*

*I would like to thank all those who have supported me in my thesis , especially my teachers during my master studies of Urban landscape dynamics, I have learned a lot from them and get inspired in every step of my professional future and career.*

## **ABSTRACT**

This thesis is discussing one aspect of design which is common in two interrelated professions (Architecture and Landscape Architecture). This aspect is designing a building with a green roof that can fit in both an architectural and a landscape context.

Landscrapers is the name of this aspect. Moreover, the space that will be a result of using this aspect could be a public, private, semi-public or semi-private space. In other words, how people would use these spaces? The thesis is exploring the evolution of this aspect, and how it is developed by discussing different situation from past and present. Also I am discussing the linkage between landscape and architecture in different aspects, exploring the different levels of integration between landscape and architecture. Finally, I will use this knowledge for experimenting to build landscrapers in a residential area called Kronetorp in Arlöv, Sweden to test the concept of Landscrapers, and see if it will be suitable for the area and discuss if it will be acceptable by people.

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# Chapter 1

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## An introduction to subject

*"Building replaces the land. That is Architecture's original sin." (Betsky 2002, p5)*

## INTRODUCTION

*"What was once open land filled with sun light and air, with a distinct relationship to the horizon becomes a building." (Betsky 2002, p5)*

The dialogue between architecture and landscape has existed since mankind started to inhabit the land and began to live in caves. With dialogue, I mean here the interaction between indoor spaces represented by built environments, such as buildings and the outdoor represented by the nature and the designed landscape, an interaction that is made by human.

However, from history we can see that this dialogue has always been in progress and that it has developed more or less unintentionally during the years into today's agendas of architects and landscape architects. It is the relation between people's life inside and outside buildings, the sense of belongingness and care about land and nature. This is more than just creating buildings and focusing on the indoor design, like circulations and room sizes.

Nowadays, cities are expanding vertically and compete with each other by building the highest towers. They are competing not only regarding the height of the buildings, but also on building the highest steel poles over buildings, to show the power and the invasion of man into space and the sky. Saving the land, and avoiding horizontal expansion of the city have always justified building skyscrapers. Thinking this way and forgetting the land will create a gap between people and land and decreasing their natural relation. As a result, some ignored spaces will appear between buildings.

*"Low buildings along a street are in harmony with the way in which people move about and the way in which the senses function, as opposed to tall buildings, which are not." (Gehl 2006, p 99)*

According to This quote, low height buildings are considered more friendly and brings harmony to people movements, than the high rise ones. Many unsuited public spaces and courtyards are formed in-between high rise buildings. These spaces are mostly non-habitable because the human nature does not like the feeling of diminishing, as Betsky (2002, p 13) has concluded, *"The higher we build the more we sense our dislocation, a fear of heights increases."* These feelings are a result of the inappropriate relationship between human scale and building heights.

Nevertheless, I interpret these designs as the Architect's misunderstanding of his or her mission. When designers suggest high buildings without considering the landscape and the public space which is a part of people's everyday life, they break the connection between man and nature. However, Architects are supposed to design for people and build a better quality of life. From this point, I started to think about the dialogue between architecture and landscape which I found comprised in the so called term *Landscrapers*.

*Landscrapers* is a term coined by the architect Antoine Predock who explained the concept of building with the land. It is an alternative idea for architects to enhance the relation between architecture and landscape by making buildings that matches with the surroundings, it is one aspect to experience the dialogue between buildings and landscape. As Betsky (2002, p7) explained it:

*"To some, Architecture is the thoughtful gathering together of what already exists to reveal the nature of a place. Others merely replace the land with something that is as new and artificial as any building, but which continues the contours or appearance of the land."*

This understanding of architecture will create aesthetical qualities in our environment, and if we add the ecological and sustainable techniques in these designs, it will create both aesthetical and environmental qualities. By adding social aspects, the quality of the design will enhance even further.

I think that creating a perfect place for people indoor and outdoor is the designers' mission. Furthermore making a common space that is used by public from different ages and cultures is a social quality added to the environment.

A *landscraeper* is a phenomenon that has been existed since man started to inhabit caves, it can be described as the buildings that are sloped with the ground, which may allow people to walk on its roof, and the roof material might be grass, concrete, wood or any other material.

What created my concern in this thesis is to discuss the link between architecture and landscape, discuss different level of integration between the two themes from different perspectives, such as how it affects the physical shape of our cities and the whole landscape, and how it affects the social and private life of people. How the design of *landscrapers* could contribute in the social life of people and in matching between landscape and architecture.

Looking closer at spaces that were formed by buildings, especially those formed on top of buildings. These kinds of buildings which are sometimes called "*Landscrapers*" captured my interest to investigate how it is used to reshape our cities, how it is used as public space? and also how it is defined according to the four aspects of space (public space, semi- public, private space and semi-private) that many architects talk about. I have chosen these four aspects to analyze different situation, because these accessible spaces on top of building is connected directly to people's everyday life. I decided to use these four aspects as a tool to measure the degree of publicity of these spaces and how it contributes to our daily life.

*"Thus landscrapers are as much part of a theoretical movement as they are a result of reasonable needs or societal attitude."* (Betsky 2002, p8)

According to this quote, building *landscrapers* can be seen as a societal need. That is a privilege for the cities, Also, the social life going on outside and in between

buildings is not less important for architects than what is going on inside them, both are important for architects and people. Building a landscaper is one way for enhancing the relationship between man and nature. A way to link between landscape and architecture in different aspects.

Many topics have been on architect's agendas for many years until today, such as sustainability and saving the environment by building more green and sustainable structures. In addition, the need for land, green areas, and public space pushes us to exploit the land to the maximum without losing the quality of landscape. Accordingly, Landscapers can be a solution that brings sustainability to people's hand and everyday life.

However, there is another important topic that should be on today's agenda as well, which is, the architects' need to know the potential and the importance of the spaces that are created as a result of their designs, such as the spaces that are formed between and on top of buildings. Architects need to work on how to create a live interaction between indoor and outdoor spaces, so they can produce better solutions for people.

One may ask himself when he sees a green roof of a building; can I walk on top of this building? Is it allowed? Building landscapers gives the chance for both landscape and building architects to define and investigate the possibility of creating public space on the roof of a building, helping the people who are using landscapers and people from outside to interact and get the notion of how to deal with this space.

### **Questions looking for answers**

- Is a landscaper successful as a public space?
- What are the restrictions of using these spaces?
- Is it a private, semi-private, public, or semi-public space?
- How people interpret the public spaces formed on the roof of buildings?
- How architects design landscapers and green roofs according to the visions of users?
- What is the relationship between the users who live inside the landscapers and the visiting users from other areas?
- Can a roof of a building be a park and a recreational area for everyone?

### **PURPOSE OF STUDY**

The main aim I wish to reach at the end of this thesis is to discuss the way we build, looking for the close relationship between landscape and architecture, investigate and understand the phenomena of landscapers, explore this new world, and how architects tend to design it. In addition, I want to investigate how to make an appropriate design for spaces formed on the roof of landscapers which is mostly public spaces. I want to explore people's reactions towards landscapers. Besides, to



investigate how the usage of the roof of landscrapers varies according to the function of the building. What is the difference between a landscrapper as a house or as a conference center, a public governmental building, a hospital, or a sports complex? I will try to investigate how people deal with different situations and different functions of landscrapers and also see the difference between an erected, buried, or half buried landscrapper in landscape context.

Adding to the above mentioned points, I will try in this thesis to find out a description for the spaces formed on top of buildings: Is it public, private, semi- public or semi-private. The description I am searching for is the one that can be close to people's visions and feelings towards these spaces. Finding how people would deal with this kind of spaces, what kind of activities would happen. For example how people who live inside the landscrapper or use it and the people from outside the neighborhood interact with these spaces and with each other. Furthermore, to gain knowledge of trends and tendencies of the future of public spaces in urban planning context.

Finally I will try to find an answer for these questions by experimenting to locate landscrapers in an area called the Kronetorp in Arlöv, Skåne, south of Sweden, an area that lies between the countryside and cities. I want to figure out the result of designing landscrapers in this area, and see if this idea will succeed in this area or not. I want to discuss if people would accept it and how the people who live around this area will deal with this landscrapers, by testing this new concept. Using this experiment may lead to better understanding of the phenomenon of landscrapers, a clear understanding of the linkage between landscape and architecture, to see how the design may affect not only the area but the whole region.

This also may help designers in the future to understand the view of residents in the area. I have chosen Sweden to test my concept because it is one of the leading countries in sustainable and environmental studies. Also the people here are aware of many environmental issues and they are ready for implementing them.

## **APPROCH AND METHODS**

I will investigate the concept of landscrapers, describe, and present different examples of buildings that provide public spaces in an intelligent way. I will discuss and analyze different cases that I have visited, make questions, discussions, and arguments.

I will be using my background, internet research, academic books and materials. Some data are collected by arranging interviews with people and professionals. Finally, I will also design a proposal to investigate the topic more deeply.

## Chapter 2

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### Definitions and a historical overview

*"Underground architecture or 'Territecture' is a marriage of building and the natural environment". (Labs1977, p244-249)*

## DEFINITIONS OVERVIEW

### What is a building?

A *building* is defined according to oxford dictionary, as a structure with a roof and walls, such as a house or a factory. Another definition states that (a building that functions as the primary shelter or location of something. (oxford1,2012)

*"A House is defined as a structure that has been either dug into earth or built on a grade and covered with earth."* (Parker 1979, p15)

The definitions of a building and a house describe the need for a shelter, which can be any structure (natural or artificial) that provides safety and act as a shelter. The elements of a structure (ground, roof, and walls) create a building. Even the caves in mountains and underground have the same structure elements, and act as a building that can be inhabited by humans.

### What is a landscape?

Landscape is defined as *"all the visible features of an area of land, often considered in terms of their aesthetic appeal."* (Oxford2,2012)

To some architects, landscape includes everything we see, including the natural features of an area of land, such as agriculture land, water surfaces, mountains and hills. Also, it includes all what is built, including buildings and structures, and even untouched elements, such as light, smell, sound and weather conditions.

Another argument about the definition of landscape, which normally cannot be seen in an ordinary dictionary, is that landscape can have two meanings: The representation of a scene and which might be thus represented. As Olwig (1996, p22) expressed, *"a picture representing a view of natural inland scenery, the art of depicting such scenery."* My interpretation of the landscapers is that: It is the art of showing and representing the landscape using architecture and natural elements, it is a live representation, live scenery on the stage of Nature. When the architecture and building lines are designed and built in a way to match the surrounding lines, confirming the lines of the landscape or the background. It will also be a tool of representing the landscape lively. I perceive landscapers as art performances that represent landscape, which performed on the stage of nature, and people are watching this presentation lively, not looking to it as if it were just a painting or picture. Also landscapers can be the art of modeling landscape scenery similar to paintings function which represent landscape scenes.

According to the previous definitions, I understood that landscape is everything we see including the buildings, which are the built environment, the sky, land, nature, mountains, and hills, which are also completing the same picture of landscape. All in

one picture, work together to present the reality that we are living in, all should work together in a harmony.

In addition, what create the shape of the land, including caves or any artificial structure that covers the land, such as buildings, are included in the landscape. Here, we can realize the strong bond between landscape and buildings. We can see that the building is one of the main elements of the landscape, as it is considered an aesthetic element, and an essential element for the human functioning as a shelter. Despite some opinions which state that the ideal architecture defined itself in opposition to Nature, which I disagree upon, because nature itself used to be homes and shelters. Thus by going back to this point, architecture is part of Nature and can also even be said to belong to it. In architecture, we are borrowing some concepts from nature, such as protection and aesthetics represented in mountains and greenery respectively.

## **OVERVIEW OF PROFESSIONS CONCERN WITH BUILDING LANDSCRAPERS**

### **Architecture and Architects**

*Architecture* is defined as the art or practice of designing and constructing buildings. It is also the style in which a building is designed and constructed, especially with regard to a specific period, place, or culture. Another definition is the durable enclosures of controlled environment; the creation of an environment appropriate for certain (usually human) functions. (Oxford4,2012)

However, architecture is also considered as *fine art* that is concerned with the aesthetic arts. Also architecture used to be taught in the schools of fine arts, which is opposite to the industrial art such as engineering. Most of us, when mentioned the word architecture think about the great medieval cathedrals. There are many arguments about whether some buildings are belonging to architecture or to engineering, such as a skyscrapers, huge steel truss constructions, and structure systems. (Conway 2005, p9)

In my school of fine arts, I have studied architecture for five years during which we have studied the basic principles of civil engineering, steel structures, landscape, and urban design. The question is; does architecture include all these departments, or it is just concerned only with the aesthetics and zoning of interior. Which kind of structure is included in architecture? Do caves or underground buildings belong to architecture?

My answer to previous questions is yes. I think that everything related to everyday life and behavior of human beings connected to architecture. In my point of view, architecture is everything from the land we walk upon, including caves and mountains, from the little garden in the backyard to bridges and factories of huge structures. Architecture should consider everything around us, and be able to create a successful building and living environment.

The word *Architect* originally came from the Greek word, *Archos* meaning chef and *Tekton* meaning builder, so literally it is read as *chef builder*. Until quite recently within the last 150 years, the role of architect was including surveying and building as well as military and civil engineering.

According to Conway, in 1788 John Soane described that the architects' work was including design, making estimates, directing work, controlling costs, and promoting speculative development. (Conway2005, p13)

Along history, there have always been debates and questions about the clear definition and role of the architect. Whether he is the one who just draws and design or he is the one who does the sculpture of the building facades, or is the carpenter, or the project manager. This profession has always been interrelated with other professions.

Nowadays, architects are not the only heroes who are responsible for everything, but they are involved in everything connected to people activities. An architect should feel the responsibility towards everything built and connected directly or indirectly to people's life. There are much more collaboration and connection between architects and other professions in the industrialized countries. Architecture is often carried out within a network of political, social and economic institutions, such as local authority, planning, housing and environmental health department, which in turn produce a product that can promote the quality of people's life.

### **Landscape architecture and landscape architects**

"Landscape architecture is the art and practice of designing the outdoor environment, especially designing parks or gardens to harmonize with buildings and roads." (Oxford2012,3)

In 1882 Gilbert Meason presented a book entitled *on landscape architecture of great painters in Italy*, he admired the relationship between landscape and architecture in Claude Lorrain's paintings, and drew upon Vitruvius' Ten books of architecture finding out principles underlying the relationship between built form and natural form. Meason also changed the term *garden design* into the term *landscape architecture*. He explained that the profession of landscape architecture is a skill of garden designers who used to shape landforms with water, vegetation, structures and paving and applying this skill to the artificial landscape. (Crowe, S. & Mitchell, M., 1988)

I understood that Meason saw it as an art, a talent, or a skill of an artist to shape the land and making forms using water, as if it is a sculpture. Also, he thought that these skills can be applied on artificial landscape, such as artificial hills and caves. Therefore, it can be applied to buildings, which are considered as a built environment.

What took Gilbert's attention was the strong relation between architecture and landscape that was expressing a harmony that appeared in Vitruvius paintings. This natural relation produced principles of how the connection between built

environment and natural environment should be. Since the first use of this term, the main issue was the relation between landscape and architecture, which is the fundamental of *Landscapers*.

*"Landscape architecture is the profession that applies artistic and scientific principles to the research, planning, design, and management of both natural and built environments. Practitioners of this profession apply creative and technical skills, scientific, cultural, and political knowledge in the planned arrangement of natural and constructed elements on land with a concern for the stewardship and conservation of natural, constructed, and human resources. The resulting environments shall serve useful, aesthetic, safe, and enjoyable purposes." (Rogers1996, p1)*

From the previous definition which has been presented by the American society of landscape architects, I can understand the complicity and sensitivity of landscape architecture profession. It is a corner stone between natural and built environment, adapting the creativity of this profession to the external factors surrounding it. These factors are political, cultural, and social. In addition, it includes the design of landmarks and structures to achieve environmental, social-behavioral, or aesthetic product.

It includes also the art of investigation of existing architectural, social, ecological, and geological conditions, considering different aspects, and managing interventions that will produce the desired environment that suits people. The scope of the profession includes: urban design, site planning, storm water management, town, or urban planning, environmental restoration, parks, and recreation planning.

*"Landscape architects define their own expertise as a designer of outdoor space, anything in the human environment, which is not a building." (Vroom1995, cited in Jauslin 2010, p 5)*

*The landscape architect's mission is always to consider the relationships between a building and its surroundings, the topography, walls, roads, and planting. He or she must be aware of external factors affecting landscape, such as climate change, and the relationships of earth, vegetation, water and building materials to create an architectural landscape integrated with the natural and man-made environment. (Arthur1983, p12)*

All the previous definitions and interpretations of the landscape architecture profession imply the strong relation between the manmade environment and nature, every single definition is focusing on this relation. It is a relation, which started when the man first built a shelter and then started to look around and make the surroundings useful and beautiful. Therefore, the relation between the architecture and its surrounding will eventually give the whole landscape a picturesque scene.

Landscape architecture profession definitions shows how this profession is acting as a mediator between different professions, solving problems arises between nature and build environment.

### **Urban planning and urban design**

*Urban planning* (urban, city, and town planning) is defined as a technical and political process concerned with the control of the use of land and design of the urban environment, including transportation networks, to guide and ensure the orderly development of settlements and communities.(Taylor 2007)

On the other hand *urban design* is defined as the planning and design of cities focusing on the three dimensions form and function of public and publicly accessible spaces. Before the specialization of professions existed, urban design was practiced by people with skills in different fields, such as sculpture, architecture, garden design, surveying, astronomy, and military engineering. In the 18th and 19th centuries, surveyors (engineers) and architects mostly practiced urban design. (Barnett1982)

*"...it is the interface between, architecture, landscape architecture, and town planning. Drawing on the design tradition of architecture and landscape architecture, and the environmental management and social science tradition of contemporary planning."*(Bently and Butina1991 p72)

Architecture is claimed to be the highest art, because it includes beauty and utility together. Urban design has always been an architect's job and perhaps the highest one because shaping the city is much more important than shaping an individual building. Vitruvius did not begin the oldest extant book on architecture with the principles of building or construction, but with the planning of towns, putting rules to assure people's health, how to arrange the streets, and place locate the important buildings. (Pauls2010)

However, some may see urban design as the umbrella that unites all the built environment professions, including urban planning, landscape, architecture, civil, and municipal. All these professions should work together to get the desired product for promoting people's wellbeing.

Another argument arose when some urban designers define urban design as "the design of the spaces between buildings". They are justifying this definition by distinguishing the "urban design" from the "architecture", which they call the design of buildings. This definition excludes urban design's proper concern with the structure of a place, it ignores the fact that to a significant extent, the characteristics of the spaces between buildings are formed by the buildings themselves, and it may lead architects to ignore the context in which they are designing. The question here is where urban design should or does fit into the scope of urban professions, is it a profession by itself or it is a way of thinking, or it is a common ground between a numbers of professions, or between wide ranges of people involved in urban change.(UDG 2011)

As a conclusion of the aforementioned definitions and argumentations, I think urban design is the mediator between, architecture, landscape architecture, and town planning. The urban design is concerned with the three dimensional aspects of the city, concerning with buildings as it was an architect job in the early times. That is showing us how important is the urban design to the built environment, and how it is interrelated to architecture, which is including the landscapers. Moreover, it is concerned with buildings and spaces between buildings, even the spaces over buildings in the case of landscapers.

## **Landscape Urbanism**

Waldheim (2006, p37) described *Landscape urbanism* as a theory, which emerged in the late 1990's, which is describing planning and design for urbanism, giving the idea that landscape has the ability to organize the city and develop the urban experience more than Architecture. Also "Landscape Urbanism" refers to urban effects which can be achieved traditionally through the construction of buildings by the organization of horizontal surfaces.

*"The tendency to view the contemporary city through the lens of landscape is most evident in projects and texts, which appropriate the terms, conceptual categories, and operating methodologies of field ecology: that is the study of species as they relate to their natural environments. This reveals one of the implicit advantages of landscape urbanism: the conflation, integration and fluid exchange between (natural) environmental and (engineered) infrastructural system". (Waldheim, 2006p 43)*

According to this quote, landscape urbanism can be regarded as the integration of different layers of urban space, such as cultural, natural, structural, and infrastructural systems.

After studying the theory of landscape urbanism, I found it as a contemporary manifestation of the phenomena of landscapers: Implementing the landscape urbanism principles on a detailed scale of a building. When merging the two professions, landscape architecture and urban design, we will get the term landscape urbanism, which makes a good use of the qualities in both professions. Implementing this theory will result in making the landscape a dominant element in shaping the city. Reviving this theory in all the scales and levels of the urban process, starting from small neighborhoods to large scale projects, and giving the priority to landscape will create a sustainable future for our cities.



## ARCHITECTURE VS LANDSCAPE

There are some opinions about the existence of an opposition between nature, landscape, and architecture. Some may see that *landscape* is not a nature, some see it as a painting representing everything we see, although some landscape architects define their job as a designer of outdoor space, anything in the human environment which is not a building. (Jauslin2012)

On the other hand, some define *architecture* as the creation of inside space and the shell around it, while architects see landscape as anything around the building. Others see it as a man made construction which is opposite to the manmade cultivation in landscape. As Leather barrow (2004 p. 59) stated, "*While architecture would be about constructions, landscape would be about cultivation.*"

As I see these differences, which has always been between the definitions of architecture and landscape, I have ended up by thinking about the real connection between both definitions.

It is a mission of one source and one target. The source of landscape architecture is nature, in which the man imitates what he sees in nature, and builds it by himself for his own use. Also, architecture source is the nature, where the man has used the caves and the mountains as houses and shelters. Now the man is imitating the characteristics of a natural shelter and makes it as a contemporary architecture, and it is also built for the mankind who is originally belonging to nature.

Therefore, architecture can be seen as nature in a similar way that landscape is also nature. The only difference is the way we behave or act towards any of them. However, if we tried to find a connection between the previous definitions, we can find out that if we can define *Landscape Architecture* as the intermediary of Landscape and Architecture, we can also define the *Landscape Urbanism* as the intermediary of Landscape and Urbanism. Can we similarly define *landscapers* as architecture with Landscape methods as the intermediary of Architecture and landscape? (Jauslin 2010)

There are other discussions about the relation between architecture and nature:

*"Buildings approaching the forms of mountains and caverns; structures that appear as rivers and clouds, the contemporary architects producing these conditions advance an agenda that we can provisionally term 'the architectural reconstruction of nature'.*" (Gissen 2011, p456)

*"In some cases, it may be possible to preserve an attractive scene or landscape by building into a hillside or entirely below ground, while retaining access to natural light".* (Fairhurst, 1976, p.71-86)

When I interpret the previous quotes they are spinning around one center, which is the nature. Also, as Frank Lloyd Wright (1932) said, “No house should ever be on a hill or on anything. It should be of the hill, belonging to it. Hill and house should live together each the happier for the other”. He sees the buildings belonging to the hill under it; he also thinks that there is a relation between the inside and the outside of the building, creating continuity. Frank thinks also that in terms of harmony, a building should take the character of the ground.

But from Gaudi's point of view as he was a religious architect, “Those who look for the laws of Nature as a support for their new works collaborate with the creator.” He saw this relation between man and nature as collaboration with creator in building the world. (Manuel2010)

That was a sample of how architects think about the relation between the land and the building. The questions here are how do the people, who use these places and interact with it, see this relation? How they understand it? What is the origin and reality of this relation, and how it was developed? That is what I am going to investigate in the following part.

I wanted to present the scope of this phenomenon by mentioning different definitions, and explaining the role of different professions concerned with the phenomena of landscapers, and how they are interrelated together, focusing on buildings as a common core between them. It also gives a wide perspective to the situation. From here, I will start to go deeply in explaining the Landscapers phenomena, mentioning definitions, and giving examples chronologically.

## **BUILDING WITH THE LAND**

### **What are Landscapers?**

*Historic glimpse:* In the beginning of the 20th century, Le Corbusier and Frank Lloyd Wright were leading an architecture movement called *Organic Architecture*. The organic architecture is about buildings with inspirations from the principles of living nature. In addition, it concerns the creation of buildings whose forms were dictated by function and surrounding, they expressed it through a philosophy of architectonic forms originating from the organic structures of villages at the turn of the 20th century. This idea was the trigger to the latter movements, such as green architecture, earth architecture, Territecture, Geotecture and passive solar architecture. They were trying to find out a relationship of nature towards mankind and vice versa. The two pioneers focused on the reinterpretation of environmental philosophy, and implementation of structures into the nature, and becoming a part of it in the process. (Jasmina, Danica 2009)

There are many alternative terms describing buildings that are built with the land topography, some call them *landform building*, which is defined as a natural feature of the earth's surface, and it was also discussed in the conference of *Land forum buildings –Architecture's new terrain* at the Princeton University in 2009.

Others call them *Geotecture*, which has been coined by European futurist Dorian Aescher in 1992. *Geotecture* was defined as a form of subterranean architecture that is produced by tunneling or excavating large spaces within the earth, or any other planet, to form extremely low profile or subsurface living and working environments. Another term is *Terratecture*; it comes from the Latin *terra* which means earth and the Greek *Tekton* which means builder. "*Terratecture is the design and creation of underground and earth-covered space in the intermediate subsurface that is developed from the surface by excavation.*" (Labs 1975, p27)

On the other hand Dr. Sydney (1985,p5) defined *Terratecture* as, "earth covered architecture where a building is constructed within an excavation and then backfilled and earth-covered." He also described it as follows:

"Pit dwellings were excavated into the earth and then covered with a log or whalebone structure to support earth and turf. Such structures have their equivalent in the constructed earth-covered homes of today where people live comfortably within an earth-temperature regime that is moderate in its yearly range and hence comfortable to the human body in often intolerably hot, or cold, environments." (Sydney 1985, p1)

In brief, Dr. Sydney has compared the old and natural phenomena of homes, which were excavated into the earth and to the landscapers phenomena of today. He also mentioned some of the advantages of this type of buildings, including physical and ecological features towards dwellers.

*Earthscrapers* and *Groundscrapers* mean a building which is buried deeper into the ground, so both give a direct meaning that is opposite to skyscrapers: "*The Earthscrapers is the Skyscraper's antagonist.*" (BNKR 10)

Some architects use the expression *landscrapers*, which grabbed my attention, as it is a simple word that expresses shaping the land in the context of landscape, concerning with the total image. Besides, it expresses the in-between case of a building that is neither buried nor highly extruded. The word *landscraeper* has been coined by The Lebanese Architect Antoine Predock.

He defined his work as if it exists on an imaginary road-cut which goes through topography and mountains. Betsky (2002, p13) described *Landscrapers* as "*landscrapers are buildings that make us aware of who we are by where we are on the land. They take many forms, but in all cases they unfold the land, promising to lay a new ground on which we can erect an architecture of the land.*"

But this word is not defined in any of the recognized dictionaries. Some architects define *landscrapers* as a horizontal alternative of a Skyscraper, a high raise building on its side, expanding horizontally sprawling through the landscape, giving the same amount of space given by skyscraper, but in a horizontal expansion.

When I tried to define *Landscrapers*, I looked at it as two combined words *land* and *scrapper*. A land according to the Oxford dictionary is “*the part of the earth's surface that is not covered by water*”, and *scrapper* defined as “*a tool or a device used for scraping specially for removing dirt or unwanted matter from a surface*”. If we bind these two terms together, it will be the term *Landscraper*. Accordingly, it means scraping the land, dealing with the land as a piece of sculpture in order to create a building, like the artist who has a tool in his hand scraping into the land and the rocks to create a piece of art which eventually emerged artistically, organically and naturally from the land.

However, there are many arguments between architects and environmentalists about this kind of architecture, which has been compared to the sturdy soviet architecture of the 1960's. These arguments were about that architecture is destroying the environment and the land which supposed to be green.

Simply, the answer to the environmentalist's arguments was that a green roof could be the compensation for using the land. Furthermore, a debate arose about the advantage of *Landscrapers*. Some of these advantages are that it considers the landscape design and respects the land topography; it can be more ecological when we use green roofs and it can be even profitable for the retailers to have more space close to the street, which is more preferable than having shops in towers.

Nowadays, we can see many examples of new buildings that are built as a landscaper, although there are many arguments that are opposing or supporting what is thought to be a new trend. But In fact, it is not a new movement or a fashion to build in this style. It is a study case that once started for thousands of years ago and that has been opened since then. Now, we are reopening this case again in order to explore how it suits our life today.

## DEFENITIONS COMPARISON

Terms	Landform building	Geotecture	Earthscrapers & Groundscrapers	Terratecture	Landscrapers
<b>Definition</b>	A natural feature of the earth's surface.	A form of subterranean Architecture produced by tunneling or excavating large spaces within the earth to form extremely low profile, or subsurface living and working environments.	The Earthscrapers and Groundscrapers Are the Skyscraper's antagonist.	Earth-covered architecture where a building is constructed within an excavation and then backfilled and earth-covered.	Buildings that unfold the land, they take many forms. Promising to lay a new ground on which we can erect an architecture of the land.
<b>Building described as</b>	Natural phenomena, where the natural features can be used in creating buildings.	Underground spaces with extremely low manifestation.	Underground buildings as an inverted or completely buried skyscraper.	Emerged constructed buildings from underground but surface covered by earth.	Unfolding and opening the land to reveal what is hidden and match with surroundings without burring it.

Table 1: Different definitions associated with the phenomena of landscrapers summarized.

All the aforementioned definitions are closely related to each other, as they are not describing a specific situation, but they give different descriptions to the notion of respecting the land and natural features in architecture.

However, I think there are some clear differences between these definitions, for example *landform building* definition is based on respecting the natural feature and creates a building out of the land forms. But *Geotecture* definition is describing the buildings that are created by digging into the land and make huge excavations, with very low heights appears over the land. *Earthscrapers* and *Groundscrapers* are clearly from their names that they represent buildings with many floors underground.

Also they can be described as inverted skyscrapers, without any appearance over the ground. *Terratecture* is respecting the terrain shape, it is half buried, and the part over the ground is backfilled and covered by earth. *Terratecture* is the closest to the *landscrapers* definition. I think to some extent *landscrapers* is uniting the previous definitions. *Landscrapers* is unfolding the land to reveal what is hidden, to see the natural hidden shapes of the land, and use it as a base to create a building that matches with the surrounding topography.

Landscrapers can be shown in different positions: underground, on the ground or half buried. I will further on in this thesis use the different definitions for describing examples of landscrapers.

## **PUBLIC, SEMI PUBLIC, PRIVATE AND SEMI-PRIVATE SPACES**

The previous definitions are describing the phenomenon of the *Landform building*, *Territecture*, *Geotecture*, *Earthscrapers*, and *Landscrapers* which are all connected directly to the public, as buildings that you can walk on, on their roofs that are exposed to the people. But the question here is how people define these spaces on buildings. Relevant aspects of these spaces are if they are public, private, semi-public, or semi-private spaces. In the following text I am going to mention the different definitions of the publicity and privacy of the spaces in general. In addition, I will focus on spaces that are formed by buildings. As a result, these definitions can help us to investigate and explore the phenomenon of *Landscrapers*, and how it is connected to people directly and indirectly in a social and public context.

*"...At one end of the scale is the private residence with private outdoor space such as a garden or a balcony. The public spaces in the residential group, it is true, publicly accessible, but have-because of close connection to limited numbers of residences- a semi-public character. The communal spaces in the neighbourhood are somewhat more public, while the city's town hall square is a totally public space."*(Gehl 2006, p58-59)

According to this quote, I understood that buildings are creating different levels of spaces, it can be private, public, or semi-public. It explains also how the public spaces in residential areas can also have a semi-public character, due to close connections to limited numbers of residence. In the following paragraphs I will present different definitions of different levels of space.

### **Public space**

Public spaces in urban context are defined as *"all areas that are open and accessible to all members of the public in a society, in principle though not necessarily in practice."* (Neal 2010, p1)

Also there are many characters of the public space, *"Defining characteristics of urban public space are proximity, diversity, and accessibility."*(Zukin1995, p262)

As a general knowledge, people think of public space as an area or a place that is open and accessible to all citizens, regardless of gender, race or age. For example, where there are no tickets or fees paid for entry, and the entrants are not discriminated for any reason.

Public spaces may include streets, street markets, shopping malls, playgrounds, public parks, community centers and neighborhood spaces in residential areas. Public spaces play a significant role in people's social life. They act as a self-organizing public service, a shared resource in which experiences and value are created. (Worpole, 2012)

Nevertheless, is it not all just about the freedom of accessibility without restrictions that defines a public space? I think a public space has more deep meanings more than just being a free entry place. As Bergman (1991, p 80) explains that in public places, everyone has a right to choose how they want to present themselves, what contacts they want to take or not take, and how they want to be perceived by others.

A discussion of the uses of public space raises the question, for who is the public space? In reality, public space is the meeting ground of interests of many diverse groups. We should study the needs and perceptions of different publics, which in turn will give us the clear understanding on how to develop and value the public space. (Vernez1987)

However, for a public place to be perceived as public, it is not enough that it is just open and available to everyone at all times and is common to all, but it must also be used in such a way that no one has a reason to feel excluded or unwelcome.

My question is if public spaces are limited, and how we can measure the degree of publicity of a space? I think that the publicity of a space depends on how the users perceive it, and depends on the ages and backgrounds of the users. A public place for elderly people is not a public space for teenagers. Public spaces are varied according to the culture, identity, law, and even natural environmental conditions.

I agree with Berman (1986, p478-485) when he describes public spaces as places which reflect our larger culture, private beliefs, our public values, and ourselves. Furthermore, public environment acts as a mirror to our individual behaviors with varied public values, and social attitude.

Finally, I interpret a public space as a zone in which one feels that his freedom ends when it starts to affect other's freedom, where responsibilities and activities are shared in the context of different cultures and believes. Many factors should be considered when designing a public space in order to result in a healthy environment for people.

## **Semi-public spaces**

*"The apartments are private (primary) territories, and the areas outside the door of one's house are a semi-public territory." (Hoogland 2000, p21)*

*"The term Jan Gehl uses for the availability of semi-public space is a soft edge, a soft edge is found on the border of private space, there where the transition to the public space is graded, not discrete." (Hoogland2000, p24)*

I understand that a *Semi-public* space can be defined as a private space accessible to the public, like the areas outside one's house, open courtyard or a shopping mall. However, it can also be defined as a space that is open to the public, but has a certain private character. It is accessible to anyone, but it is implicit to be used mostly by the surrounding residents.

Some examples of semi-public spaces are restaurants, cafés or cinemas, where everybody can access if they pay. Also a shopping mall is an example where everybody can enter and walk inside without obligation to buy, but mostly, activities which are not related to shopping will be prohibited.

## **Private space**

*"Private means privately owned, as opposed to 'common' most likely has its roots in land ownership and industrialization." (Taipale2006, p5)*

A private space is known as a place which belongs to some particular person as a private property. A single family own house is a private space, a garden attached to a villa house, the roof and the parking of a villa is a private spaces.

## **Semi-Private Space**

As Hoogland (2000, p 23) stated that *"Taylor and Brower (1985) adopted Goffmans term 'semi-private area' and describe it as follows: The house called home is nested in a larger context. It is situated on a street with other houses nearby. The street is a public amenity and arena. There are other facilities in the neighborhood such as playgrounds, schools, corner shops and so on, which are also 'open to the public'. The bridge between the private home and these public settings is the exterior territories immediately adjacent to the home. These are territories because individuals either own or have legitimized access to them, as in the case of porches and gardens and steps, or because they are areas that are used on a regular basis by individuals, such as alleys and the pavement. On the daily round, when leaving home and returning, these zones must be traversed. Further, occupants or proprietors expect to have some degree of control over who has access to these territories, and what activities go on in them. "*



Accordingly, the semi-private space can also be defined as spaces that their access controlled and accessible to residents and associated people only. For example a staircase which is used commonly by residents, or a front door access to a building, or a green common area in a residential compound. These spaces are not exclusively private, because they are shared, but they are usually unreachable to strangers and they are not public either.

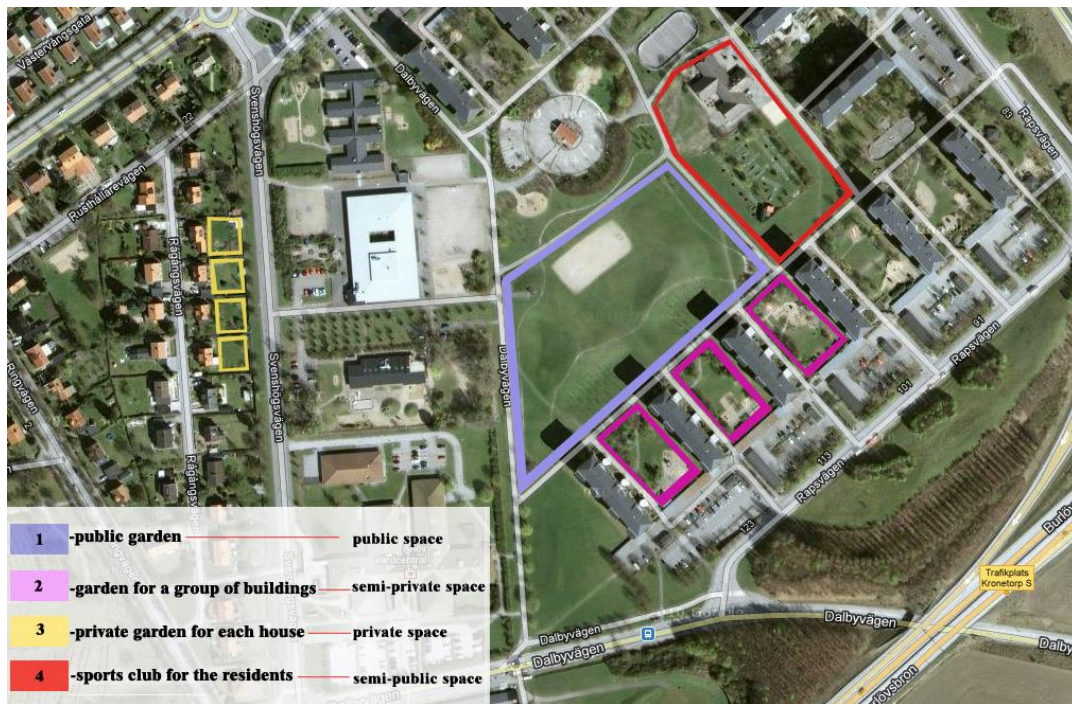


Fig.1, Illustration of the concept of privacy and publicity

### Some features of successful social spaces

There many different features of the public space, these features are changeable according to context, culture and function. Some studies are made to determine some of these features.

*“The study of a wide variety of public spaces (Mean and Tims 2005) suggested the following ‘rules of engagement’ were important in creating shared social spaces:*

*-Access and availability and good physical access, welcoming spaces and extended opening hours.*

*- Moving beyond mono-cultures encouraging diverse groups and activities to share common spaces.*

*-Avoiding overregulation of design and space, as security and well-being are more likely to grow out of active use.” (Worpole, 2012, p9)*

We can use these features in creating a successful public space on top of the landscapers. For example, we should create a good physical access to these roofs, creating different uses for different activities. Also we should avoid the restrictions of the uses of these spaces in order to make it more habitable.

## Conclusion

The measure of public and private are widely differentiated, but sometimes these spaces are considerably less defined, like in the case of the multi-story dwellings or the single-family house in a city of undefined structure. In many such cases, there is almost no transition between private and very public spaces exists. When designing residential areas, we should create a graduation of outdoor spaces, like semi-public, intimate, and familiar spaces close to the residence. As a result, these spaces will make the people in the same area know each other's better, in addition the existence of outdoor spaces belonging to the residential area results in a higher degree of surveillance and shared responsibility for its public space and its residence. (Ghel 2006)

*"The establishment of a social structure and corresponding physical structure with communal spaces at various levels permit movement from small groups and spaces towards larger one and from the more private to the gradually more public spaces, giving a greater feeling of security and a stronger sense of belonging to the areas outside the private residence." (Ghel 2006, p59)*

However, the spaces formed on top of landscrapers are very important for our social life. It can be a transition ground between the semi-private and public spaces, the feeling of safety and belongingness will be created on this ground, which in turn nourishing the residences social life.

It has always been difficult to define a public space and distinguish it from semi-public spaces that may have some restrictions for the public use. In some cases, like landscrapers it is difficult for people and designers to define the exposed roof area if it is a public space or a semi-public space? Is it a private or a semi-private?

After mentioning some definitions of the professions related to landscrapers, and the different definitions of space, I will in the rest of this chapter give a historical brief of Landscrapers, by introducing several examples from history and present, and showing how previous definitions are matching with the mentioned examples. I will assign each definition to its synonymous in the examples, and I will mention how I analyze the space functions (public space, semi-public, private space, and semi-private). In addition, my aim is to explore the nature of the landscrapers phenomena, and how it has evolved through time, explaining it from my own point of view.

## THE HISTORY OF LANDSCRAPERS-GIVING EXAMPLES FROM THE PAST

The history of landscapers go back to thousands of years ago, when the first human began to use shelters and caves as man always seek a shelter to be saved from different weather conditions, animals, and enemies. Here I am going to give some examples of Landscrapers from the past in a chronological order.

### Skara Brae

Skara Brae is an example of the Neolithic Architecture that shows the same idea of landscapers, which is located in Mainland, Orkney, Scotland. It was discovered by shifting sand for thousands of years, as it was occupied in 3180 BCE–2500 BCE. It is older than Stonehenge and the Great pyramids. It was discovered in 1850, when a storm revealed the honeycomb clustered of houses with natural green roofs. The houses were including stone cupboards, beds and cooking hearths. (Visitorkney 2012)

Skara Brae shows how the idea of the building with the land topography naturally appeared with the human evolution; it shows how it was a very essential and natural need for the human to have a shelter that is even camouflaged for protection. It is a shelter with natural green roof that sustains for thousands of years with a sophisticated architectural system, where the drainage, ventilation, and orientation were well studied.

Skara Brae is explaining the definition of *Landform buildings* that shows how the natural features of the land can be used to create a habitable space that people could walk on top of its roofs, the residents of the houses use the roof also. It is clear that roofs are exposed to everybody even the non-residents to use them. Since it was almost hidden from enemies and animals (underground), this makes the roof a *public space* in this design.



Fig.2, Skara Brae, (Wknight94, 2007)



Fig.3, Ancient houses at Skara Brae. (burka, 2002)



## Hanging Gardens of Babylon

The Babylon gardens which were built in Iraq in the ancient city-state of Babylon, during 605 BC and 562 BC, it was constructed by the king Nebuchadnezzar II, who built it to please his homesick wife. (Finkel 2008)

The Greek engineer and writer Philo of Byzantium (writing ca. 250 BC), described it as follows:

*“The Hanging Gardens (is so-called because it) has plants cultivated at a height above ground level, and the roots of the trees are embedded in an upper terrace rather than in the earth. This is the technique of its construction. The whole mass is supported on stone columns, so that carved column bases occupy the entire underlying space....”* (Oates1988, p 45-46)

This example is not buried underground, it is more extruded with green roofs as it was described by words and pictures, that you can walk on the green roof, introducing a sustainable architecture. The palace with the green roof and water fountains was a fantastic scene in that era.

The Babylon gardens are explaining the definition of *landscapers*, which explains the unfolding of the land, opening the land, and revealing its features to match with the surroundings. From the description of Babylon gardens, people can walk on the roof, which makes it a *semi-private* space, where the people who live in the castle are allowed to use the gardens.



Fig.4, Hanging Gardens of Babylon (freeartpics, 2008)

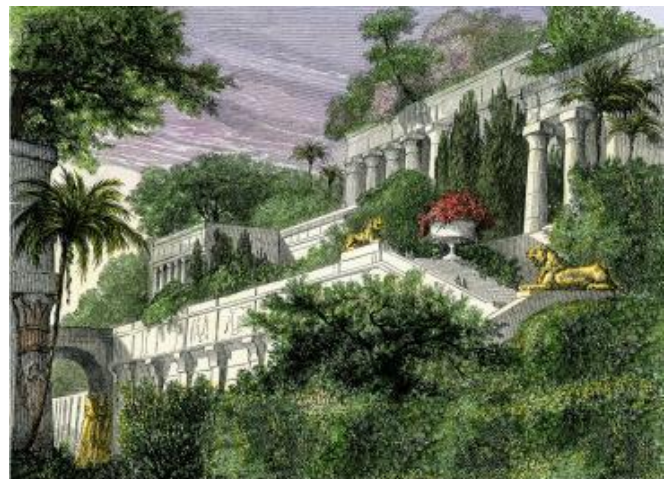


Fig.5, Hanging Gardens of Babylon, (Joseph 2008)

## Matmata city

The troglodyte village of Matmata, whose mountainous landscape was seen in the very first Star Wars film, the Matmata city is a small Berber town in southern Tunisia, where the Berbers used to live underground with a population of 2116 people, the origin of this extraordinary place is not known, except from tales passed from generation to generation. The most improbable account says that underground homes were first built in ancient times when the Roman Empire sent two Egyptian tribes to make their own homes in the Matmata region. (TNTO2012)

This example shows both the excavations and construction underground, a city made within excavated holes and has been extruded under the ground.

Matmata city explains the definition of *Territecture* where the building has been built within an excavation and the earth-cover is covering it. A *semi-private* space was formed by a patio; also, a *public* space is formed on the roof of the building where anyone can walk on top.



Fig.6, Matmata city (le coeurbrisé 2011)



Fig.7, Matmata city houses (voyagesenduo 2008)



## Derinkuyu underground city

Derinkuyu underground City is an ancient multi-level underground city in the area of Cappadocia district in Turkey. Derinkuyu city is not the oldest city in Turkey, but it is the largest and deepest one. The city is 85 meter deep with an 18 story. With fresh flowing water, ventilation shafts and individually separated living quarters or apartments, all amenities can be found, such as wine and oil presses, stables, cellars, storage rooms, refectories, chapels, shops, churches, communal rooms, wells, tombs, arsenals, and escape routes.

The city capacity is between 20,000 and 50,000 people. Most of the city was air conditioned throughout, with 52 airshafts. It contains at least 15,000 ventilation ducts that provide fresh air deep within the underground city. It has an area of 7,000 square feet, and each floor could be closed off separately. The city was connected with other underground cities through miles of long tunnels. (Scribe 2011)

This Example shows how a whole city was created underground, where the building is totally buried underground. In addition, it explains the definition of *Geotecture* which is the underground building with very low manifestation. Besides, a public space is formed on top of this city.

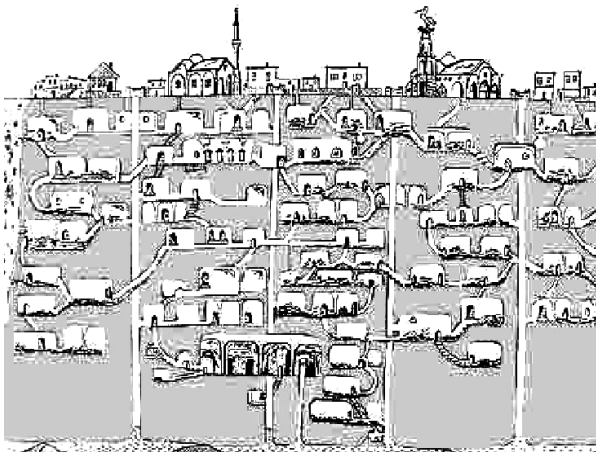


Fig.8. Cross section of Derinkuyu city, (B.B 2011)

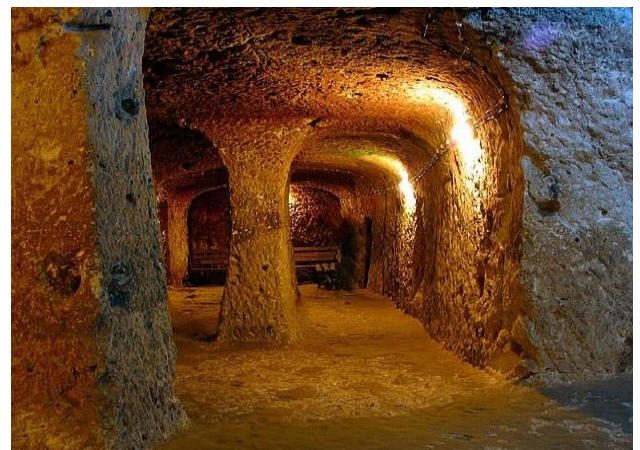


Fig.9. Interior paths of Derinkuyu city, (B.B 2011)

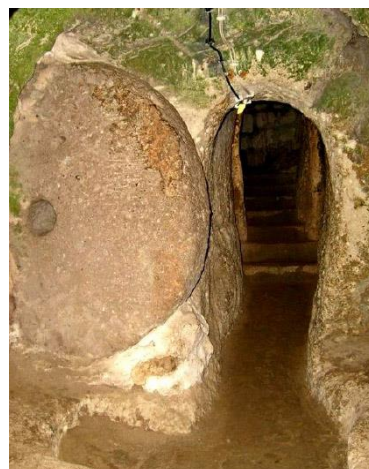
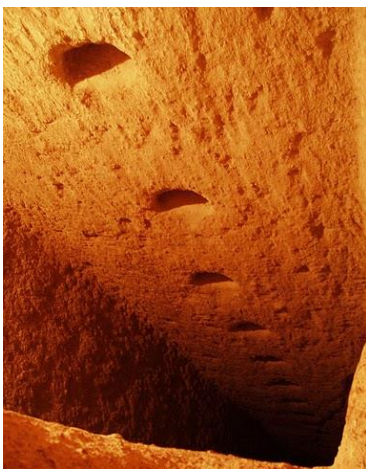


Fig.10& fig.11 Vertical stairs & stone door (B.B 2011)

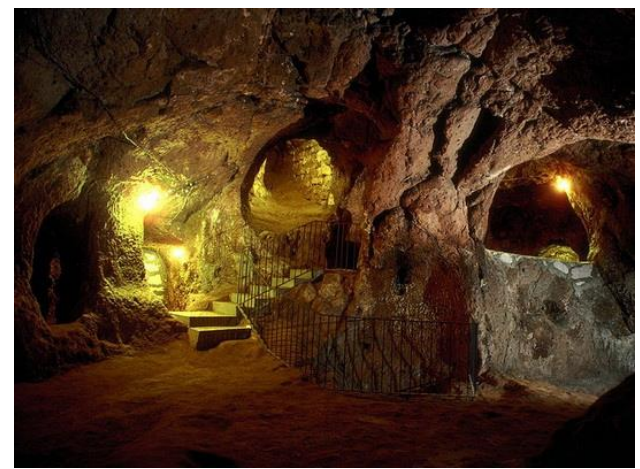


Fig.12 Interior halls, (B.B 2011)

## The rock cut architecture

"Structures carved in situ into "living rock" which are not primarily based on natural caves even though in India and China these are often referred to as being "caves"." (Els2012)

It is the creation of buildings and monuments by carving into natural rock, using the topography of the land to create buildings and cities, there are many examples from different regions and civilizations.

### Petra city

Petra city is a historical city in the Valley of Moses, in southwest Jordan. The city goes back to 300 B.C. when Nabataean invaders apprehended the city of Petra.

Most of Petra's remarkable structures were carved into the red sandstone, with carved facades up to a 130ft of height. In 2007 Petra was chosen as one of the seventh wonders of the world. UNESCO has described it as, "One of the most precious cultural properties of man's cultural heritage. (wmf. 2012)

Petra city shows how this old phenomenon of building within the nature was used to create sustainable symbols of certain era. This example explains the definition of *Landform building*, where we build with the natural topography. A *semi-private* space is formed where the inhabitants only use the building roof and pathways to reach inside the mountain.



Fig.13, LOST CITY OF PETRA (Endra2007)



Fig.14, Petra-Roman-Aqueduct (Fischer2007)



## The Abu Simbel Temples

Abu Simbel is a temple built by Ramses II in ancient Nubia, south of Egypt. He built the temple and dedicated to himself. The Great Temple has four massive sculptures carved out of the rock. From inside it consists of a great hall with a number of statues. (Unesco2009)

This temple shows the evolution of cutting into rocks, where this trend continued through time. The temple was created inside a rock, using the natural surface of the earth, to create a *landform* building. A *semi-public space* was formed by the temple, where people who visit the site and temple for a specific purpose, which is worshipping and rituals.



Fig.15, Abu Simbel, rock temples at the ancient site in Nubia, Egypt (Claudia 2003)

## Indian rock cut Architecture

Rock cut architecture is a remarkable symbol of the history of Indian Architecture. It is an art more alike sculpture than architecture. Most of the rock-cut structures were related to various religious communities. (culturalindia1, 2012)

I will show two examples of Indian rock architecture, Ellora cave and Badami cave, In my opinion these examples are explaining the *Landscaper* as it is more attached to the ground, unfolding the land, using the hidden features of the earth to dwell it, expanding on land, and people walk on top of this structure and inhabit it. They were using nature to create an amazing sustainable integrated city within the landscape, using water and rocks to create harmony between natural elements.



## Ellora cave

The caves at Ellora were carved out of the vertical face of the Charanandri hills between the 6th and 10th centuries. The carving work began around 550 AD. (Fergusson1864)

A *public space* already exists on top of the caves, which is part of nature that can be used by everyone.

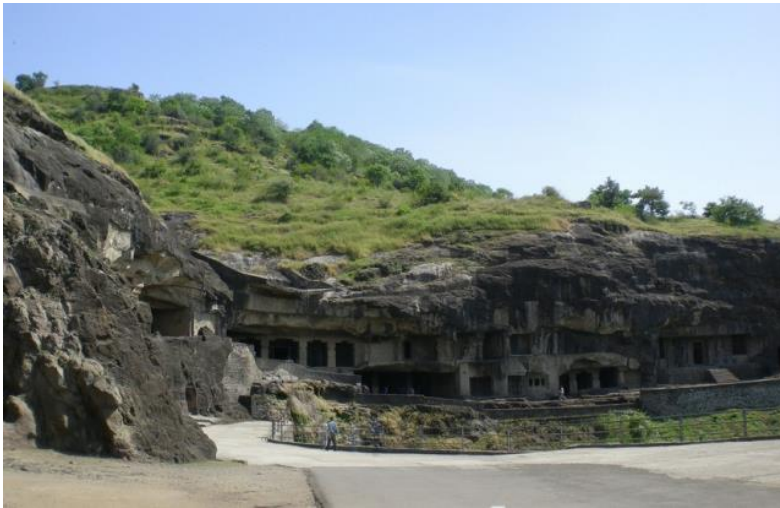


Fig.16, Ellora Caves, India (Abhijit 2008)



Fig.17, Ellora Caves with waterfall (Abhijit 2008)

## Badami cave

The Badami cave temples are a complex of temples located at Badami in India. The Badami cave temples are composed of four caves that are all carved out of the soft Badami sandstone on a hill cliff in the late 6th to 7th centuries. (Fergusson1864)

A *semipublic space* formed by the path which was prepared for the visitors of the temple.

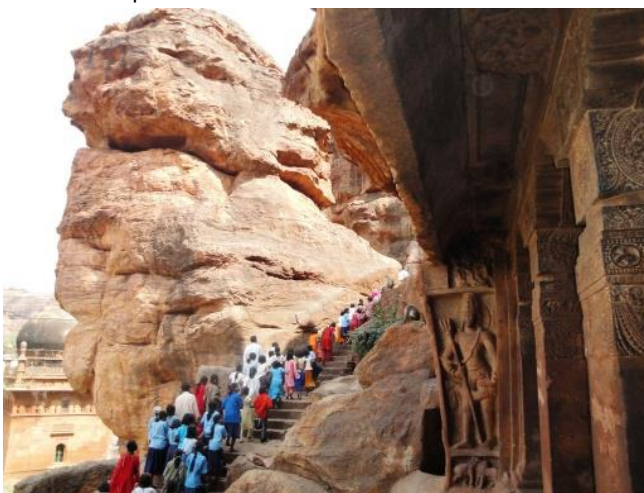


Fig.18, Badami Caves path, India (HM. 2010)



Fig.19, Badami Caves, India (HM. 2010)

## LANDSCRAPERS EXAMPLES FROM CONTEMPORARY ARCHITECTURE AND CASE STUDIES

In this section, I will show some contemporary and modern examples of landscrapers, and I will discuss the position of buildings (above or underground), the location (outside or inside the city), the building function, the roof type (grass, concrete or wood), and finally the use of the roof (whether it is public, private, semi-public, or semi-private).

### Spencer Theater for the Performing Arts, New Mexico 1994/1998



Fig.20, Spencer Theater for the Performing Arts (Alto, 1998)

Spencer Theatre for the performing arts has been chosen because it is one of the contemporary examples of the landscrapers, as the architect Antoine Predock is the one who coined the term landscrafer and the one who designed this building. In this example, we can see one live manifestation and understanding of the phenomena of landscrapers, in which we can find how this architect has expressed his understanding to landscrapers. In addition, it is an example of a landscrafer that is located outside the city and completely on the ground, with a concrete roof that people can walk on top of it. The designer's description of the place was as follows:

*"The Spencer Theater for the Performing Arts represents the meeting point of the theater of landscape and the theater of performance. The location of the building is in the middle of the Fort Stanton Mesa in southern New Mexico, the inspiration of the building's form and position came from the name Sierra Blanca, which means White Mountain. The white theater is a sculpted limestone mass that has been excavated into exact relationships between light, views, performance, and procession.*

*At the entrance of the theater house there is a faceted glass entry lobby and gathering space contrasts with and consciously subverts the mass of the body of The west end of the structure focuses on a geometric garden from a recessed exterior*

*stage platform. A covered drop-off zone penetrates the wedge north to south providing an all-weather entry." (Predock 18)*

The project is an example of landscapers, the term that has been coined by the same architect who built this landscaper. The building expresses the idea of landscaper, the idea of expanding horizontally, still the building is outstanding and is not completely buried, but it is matching with the surrounding landscape, and the design gives me the impression that this building belongs to this place. An outdoor stage and patio for the audience made these spots a semi-public space, where visitors have to pay for entrance.



Fig.21, Spencer Theater, the sloped roof (Alto, 1998)



Fig.22, Spencer Theater, with surroundings (Alto, 1998)



## Central Library, Delft University of Technology, the Netherlands 1997



Fig.23, Central Library of Delft University (Inhabitat 2012)

Central library of Delft University was chosen in this study because it is one important example of landscapers and one of the famous paradigms that explains this phenomena, it is a typical landscaper with a green roof located inside the city. Investigating this design's circumstances, with this building location and function, will give a clear understanding of the public spaces formed on top of buildings. Besides, it shows an example of an above ground landscaper which acts as a landmark of the area.

The library is designed for the Delft University of Technology; it is the central library for the campus. Mecanoo designed the library as a sloped plane, where the grass is extending from the ground to the very edge of the roof. It is not just a building; it is also a landscape. The grass area is supported by columns and is raised at one point. The large hall that was created has been fitted with glass facades. In the center of the slope, a staircase leads to the entrance. A huge cone extruded through the grass roof where people can walk. In addition, the cone brings light to the reading rooms.

In this design, it is worth to know more details about it in order to explain the advantages of such buildings, which I will explain in the following text.

### **Energy-Efficient Grass Roof**

The building is an energy-efficient. The grass roof acts as an insulating material, and it can control excessive temperature fluctuations. The vegetation absorbs rainwater. As this water gradually evaporates in the summer, this has a natural cooling effect. Finally, the grass roof provides excellent sound installation.

### **Cold and Heat Storage**

Instead of unsightly cooling equipment on the roof, cold storage in the groundwater is used to keep the building cool. It also keeps it warm, when necessary. This technology helps to conserve energy. It is only in the study room, where the computers produce so much heat, that separate cooling is required. For this reason, the room is situated to the north of the building, and is fitted with a virtually invisible cooling ceiling.

### **Climate Control Facades**

The facades have a double glass panel through which air is circulated. In winter, the offices remain comfortably warm, and they stay pleasantly cool in summer. This obviates the need for radiators, and enables work spaces to be sited directly next to the glass; furthermore, this allows efficient use of space.

The library is a *public place* to be used by any visitor. It is not limited to just be used by students at Delft University using the library, but also other users. There is a meeting room in the library that is used for conferences and events. Also, the roof is considered as a public space that anyone can use the roof: Sit, walk, and run. But there is some restrictions for using the roof, the following rules, which I have found on the library's website, stated that "*sporting activities on the roof: Using the roof for sporting activities, such as skiing, sledging and cycling activities is not permitted on the roof, due to the risk of personal injuries and the possibility of damaging the roof.*"(Delft library2008)



Fig.24, Library of Delft public use (Inhabitat 2012)



Fig.25, Library of Delft entrance (Inhabitat 2012)



Fig.26, Library of Delft perspective (Chalmers 1997)



## The House of Spiritual Retreat by Emilio Ambasz



Fig.27, the House of Spiritual Retreat by Emilio Ambasz (Allasio 2005)

The private house designed by Emilio Ambasz for spiritual retreat is one example of Landscrapers, which appears as buried under the ground and located outside the city, with a completely green roof. The function of this example is a residential building, which has a special location and situation. It is one of the early modern attempts to design a contemporary Landscraeper; it was built in the year 1975, in Cordoba, Spain.

The house is buried under ground, and it is matching with land topography. To define the house, and to make it obvious in the landscape, the designer built two high white walls that meet at a right angle creating an identity to the house, and defining its entrance. This entrance, with an auditorium like steps, is leading down to an open-air square patio onto which the house opens. The walls outside the meeting edge are oriented towards the North, so that its balcony is shaded, and the light enters the house by the sunlight reflection on the walls' inner sides. In addition, the walls' orientation shelters the house from northern winds.

The house was built in the open, and then earth was collected against its walls to create a natural hill embracing the house, and to insulate the building. Covering its roof with earth will keep the house cool in the hot dry climate of southern Spain, which also integrates the house with the green surrounding landscape.

A green space was formed on the roof of the house, which seems as if it is a part of the open land, but the wall defines it and makes a defence for the house. Nevertheless, the walls seem to be against the smooth curves of the nature around the house, and it may not be matching, so it is disturbing the view of landscape.

I see that the designer used it as an epitaph for the house, a sign to privatize the roof and to make an imaginary border around the house on the roof: making a private space on the green roof of a private house. I think in this case the roof is a *private* space, but if the situation changed and the surroundings are all residential buildings, so in this case it can be a semi-private space or even a public space, depending on how the owner want it to be, also, on how crowded it can be around this house.(Allasio 2005)



Fig.28, the green roof at the House by Emilio Ambasz, (Allasio 2005)

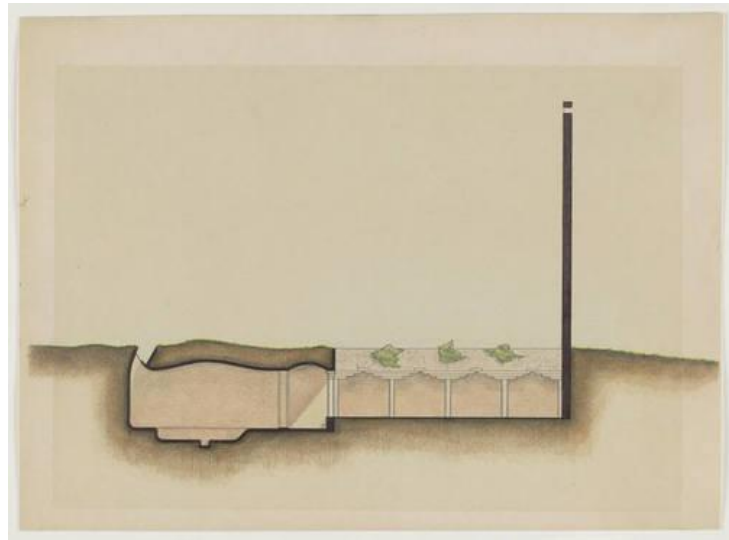


Fig.29, Cross-section of the House (Allasio 2005)



## Ewha Women University Campus Center, Seoul, Korea 2004-2008



Fig.30, Ewha Women University Campus Center, (Morin 2008)

The Ewha women university campus is one of the recent buildings that represent the phenomenon of landscapers. This example also shows a new perspective of the half-buried landscaper inside the city, with a fully green roof forming a park with different functions on top of buildings.

In this example, the building is invading above and below the land. The campus establishes organic relations between the center and the surrounding areas of campus as well as between aboveground and underground spaces. It is a landscape design more than an architecture one. The designer chose to respect the landscape and the surroundings, creating a mix of nature, sports areas, event spots, and an educational building, all in one place intermingling together and surrounded by nature.

The campus buildings slide down along a gentle slope. At the other end of the campus, the slope becomes a huge stairway that can be used as an open-air theatre. The campus centre's spaces are interwoven above and below the land, allowing the structure to explore the combination of constructed material with earth. The campus center manages to fit into its contained site by submerging much of the spaces underground. Light penetrates the structure through a large channel that sits between the building's two halves. (Perrault, 2008)

One benefit of building into a hillside is the conservation of energy. According to university sources, the thermal mass of the green roof and sidewalls sheltered by existing topography has resulted in a passive protection system that saves up to 25 percent of total energy costs, if compared to conventional construction. (Ivy2008)

The beautiful green nature of the campus is perhaps its most remarkable quality; this greenery is covering the campus center with trees, flowers, and grass. The park that previously existed on the site of the building is re-drawn. An idyllic garden is the result, creating a special place for gathering, conducting informal classes, and simply relaxing, blurring the distinction between old and new, building and landscape, present and past. (Archspace 2008)

The formed park on the roof of the building is now a place for all the students to perform different activities, a recreational area, and an inspiring place that helps the students to be more creative. The park in this context is a *public space*, where anyone is allowed to enter the park, not only the students of the university. It is a good example of a public space, created in a very creative way, which makes this place like a stage where social life performance is being practiced.

This example collects many of the positive characters of a Landscaper, it is half buried, located inside the city, matching the landscape, and forming a green roof, which ecologically benefits the environment and creating a social public spot. On the roof, a public space created where the educated people from the institution and the ordinary people are gathering, which I think is reflecting social benefits for the city.



Fig.31, Ewha Women University Campus Centre, (Morin 2008)

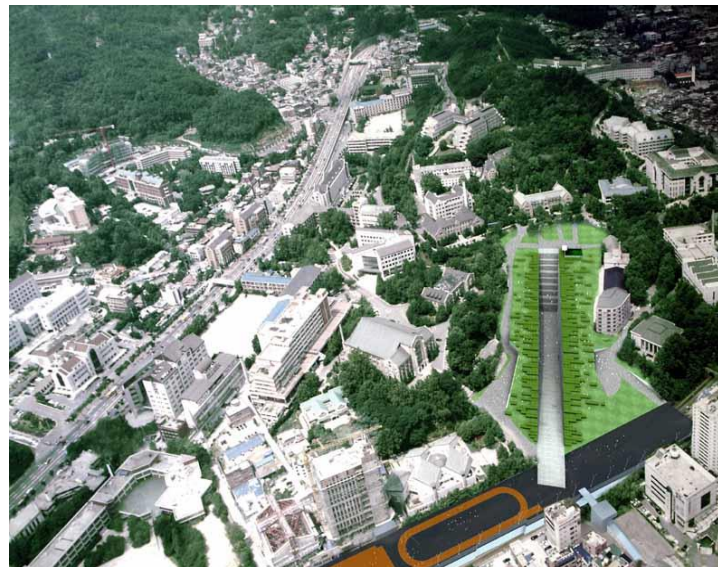


Fig.32, city context of Ewha Campus, (koreaittimes2011)



# PROJECTS I HAVE VISITED-STUDY AND ANALYSIS OF THE PROJECTS

## Youth maritime club in Copenhagen



## **Youth Maritime Club in Copenhagen**

*The Maritime Club* is located on the edge of the Öresund Sound in Sundby Sailing Association's harbor. The building has two functions: A sailing club and a youth Centre, both are two different functions with different uses. The youth center requires an outdoor space for kids, while the sailing club requires most of the site's space for parking boats. For fulfilling these two design requirements, the building was constructed in its current shape, which is an elevated deck to allow storing boats underneath, and at the same time, it acts as a playground for children.

### **Visit summary**

I have chosen this example to investigate this type of landscapers, with this type of sports activity and with this kind of material, a landscaper with a wooden roof. In addition, the building's users are mainly the range of age between 4-10 years. I wanted to investigate how visitors from this age deal with this kind of open space and what activities are running there? Is it a good material for a Landscaper? I'll try to investigate more to answer these questions.

I have visited the Youth Club Maritime, which was built by the young Architect JDS which was his first project in the area. The interview was conducted with the employees and some children who are used to go to this club (see appendix). The aim of the interview was to investigate different aspects, such as the building's function, general rules for using the roof, technical and maintenance issues, building material, room functions, children attitude, and children's opinions about the design and material.

The summary of the investigation was very helpful to know more about landscapers. The building's function is a youth club for sailing, surfing, and sea sports for children from 4-10 yrs. but when looking at the building from far away, the exact function of the building is not obvious as there are no signs there, just sailing boats.

When I asked the employees there about accessibility and maintenance, they gave me this information that the roof is opened and available for everyone to use; anyone can walk, sit, and cycle through without any restrictions. The roof's wooden material has no technical problems, as it is from special timber from Brazil which is durable for weather conditions and humidity, and in case of damage in the wooden panels, it can be replaced individually. In addition, the interior of the building is only few rooms, classroom for children to have some instructions about sailing, a kitchen, and a changing room.

The children's opinion about this building was all a positive experience, they like the place, as the children said themselves. Not only the children like the place, but also people from different ages, they love to walk on the roof and to explore the place. In addition, children like to play, but also sometimes, they are forbidden to use skating boards.

Asking the children who used to go to this club resulted in very important information about how they use the place. Most of the children express their admiration of the place and how they have fun when they go there. Some of them were seen playing, jumping, cycling on the roof, and skateboarding. Children prefer the roof material to be built from concrete instead of the wooden material because concrete is easier when using the skateboard. However, it does not matter for them whether the material is grass or not because the most important function of the roof is to be a good playing area.

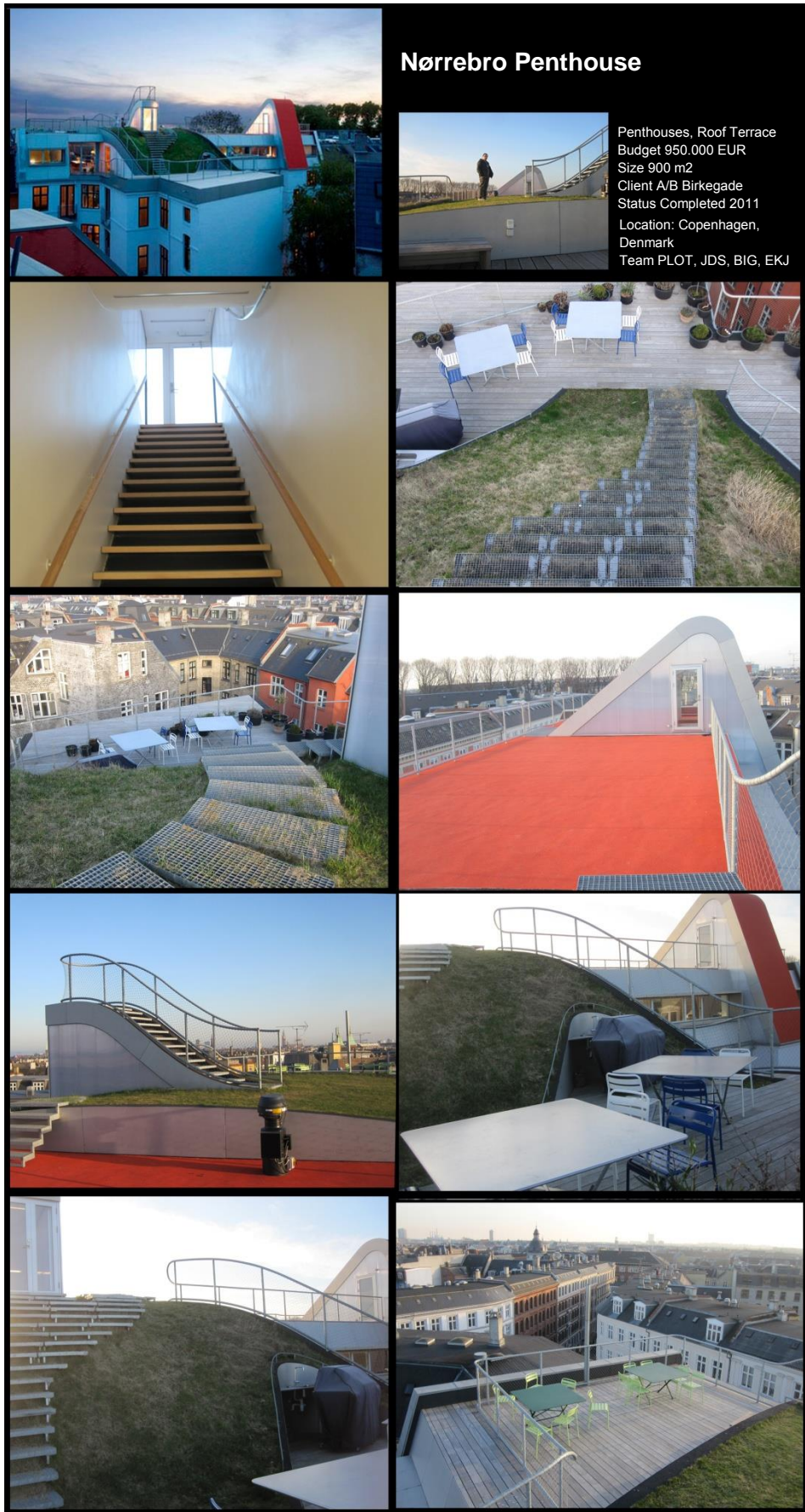
## **Discussion**

This example of a Landscaper, with a material different from what Landscrapers used to be built of, can be inspiring. This model shows the flexibility of using different materials when building Landscrapers, and how the users interact with this material and form.

The location of the building by the water in the harbour area is a privilege that is added to the design, as the building can appear clearly despite its low manifestation. Also, the design is clearly presented in the area without being a barrier facing water. However, another privilege to the design is saving the environment, as it was built over a polluted soil of heavy metals and the designers decided to lay a wooden deck over the polluted soil instead of spending more money in cleaning the site.

The social aspect of this building is as much important as the design, when investigating the behavior of the building's users and how they perceived it, I understood that this design is acting as an attracting point by the sea, which is tempting people, especially children, to visit and pass by the building. Moreover, the inviting roof can be a place for gathering, playing, reading, and even contemplation for people of different ages. The variety of qualities of this place makes it a successful public space, but the location and the function attract mostly specific type of people, then it can be a semi-public space formed on the roof of this Landscrapper.

## Private roof garden in Nørrebro district of Copenhagen



## **Penthouse at Nørrebro in Copenhagen**

The area of the project is one of the densest districts in Copenhagen. When the designer was asked to design three penthouses on top of one block building, the designer then thought about the missing garden for this small community of the owners. The designer also looked at the Copenhagen gardens, which characteristically has an associated functionality. (Ecklon, 2011)

### **Visit summary**

The private roof garden of Nørrebro was chosen as an example to show a different type of a Landscaper, a different type from the regular ones we see touching the ground. In this example, I am exploring whether a Landscaper could be close to the sky, matching with the skyline and the clouds rather than the topography and surroundings only, I wanted to investigate this type of Landscaper, and how the people perceive it when it is used as an open space.

It could be a different type of Landscapers; it was built mostly with artificial materials. In addition, it is not a new building; it is an old building, which has been transformed to a Landscaper. With these new circumstances and this new situation, I will try to investigate more and to find answers for the following question: Is it a semi-public, private, or a semi-private space formed on the roof? Moreover, what are the kinds of activities running up there?

In the centre of Copenhagen, Nørrebro district, on the roof garden, an interview was conducted with one of the owners to investigate different aspects of the design, such as the privacy limitations of the roof garden, and how the decision was made to build this roof, maintenance, accessibility, utilities, and cost of the roof.

When I first arrived to the building, I asked one of the residents if I could enter the building and see the roof garden. The answer was that it is a private garden and no one can access the roof garden, it is not for public use. From here, I understood that it is not accessible by public. After taking permission from the owner, I was able to go up to the fourth floor where there was a long straight stairs leading to the fifth floor and the roof. When first entered the roof, I noticed some people who were sitting enjoying the sun and having a drink, where the interview was conducted with one of the owners who live in apartment just under the roof garden.

The interview resulted in understanding more about this roof garden, as I understood that it is not a public space, nor a private one, it is a semi-private space, as the owner said, were many owners decided together to share the expenses of building this green roof. Actually it is owned by the residents of two buildings with two different entrances but with one combined roof. Everyone who lives in these two buildings is allowed to use the roof.



When the owners decided to build a fifth floor, they got a refuse from the municipality because it is a historical area with old buildings that have special building regulations and height limitations.

The only way to build this extra floor was to compensate this structure with a green roof. The Architect who designed this building was JDS, which is called now BIG (the same Architect who built the Maritime Youth Club). The cost of the additional floor and the green roof was 9 million Danish kroner, which was shared by all the residents of the two buildings.

When I asked about the maintenance of the roof garden, I got the answer that the green roof and grass were performing well; there were no technical or leaking problems, it was well studied from the beginning, and it has perfect techniques for the irrigation, and the company is responsible for annually checking and maintaining the roof garden.

In addition, this roof is higher than other buildings with about 1.5 meters as there was an opportunity to build a small toilet under the staircase roof, which can be used by the people who use the roof. The roof consists of three main zones, a playing court, a lower level zone for grilling, and another area in a higher level for sitting. Which make it a roof with different functions and it is recommended to all the neighbours of this building to build the same green roof or Landscaper.

## **Discussion**

This example could be a new shape of Landscrapers with a new perspective, but this time it is not on the ground, it is closer to the sky than the ground. I think this example is inspiring to design Landscrapers under any conditions, no matter where it is, on the ground or on a roof, but the common factor between these different situations is the green roof matching with the surrounded nature and creating a public space.

The materials, which were all artificial except from the grass, are well studied to be easily maintained and with a light weight as well, for example the steel was used to build the stairs on the grassy slope. As the materials here is very important because the building is old.

The location of the missing garden in a high dense area is inspiring for designers to build more green roofs inside the city. Designers can search where the gardens and public spaces are missing and then try to create them in the form of a landscaper. However, this design was a good example of creating a common area for a group of residents; also, it is creating life that is more social for people of different interests sharing the same neighborhood. In this case, the formed space is a semi-private area where only the residents of the building can access.



## Opera House in Oslo



## Visit summary

*Oslo opera house* was chosen model because it is showing a different type of landscaper, not a green one, but a concrete model of the Landscaper; it also shows the public place in a different perspective. Investigating how people are dealing with this type of Landscapers with this function of the Opera house, to see their reactions and behaviors when they are up the roof. Also, investigating how the landscaper can be an attractive point when it is inside the city, and without any green area.

Another example of the Landscapers is the Opera House in Oslo, but this time it is not a soft green roof, it is a hard concrete roof. When I visited the Oslo opera house, I was impressed by its design, and how the building was embraced by the landscape surrounding it from water and mountains in the background.

The building seemed to me from a distance as it is dominating this part of the city, overlooking many important parts of the city from different sides. What also took my attention is how I can see the building from different angles. From far away, when looking towards the building side where it touches the ground, the building seems as if it is coming out from water, I think this view makes the place welcoming its visitors, even those who are sailing in the water.

It is a landmark of the city, where everyone should see when visiting Oslo. When I started to walk towards the building, I was doubting if I can walk to the end of the roof or I am not allowed, Then I started to see people going up, children running, and others taking pictures; finally, I found myself excited to go up the roof to explore more of the building and the city view. Finally when I reached to the very top of the roof, I found an amazing view to the whole city, a picturesque view for the landscape. I started to enjoy the view by going up and down the slope to see the city from different angles.

I have noticed that most of the people who were on top of the roof came just to visit the roof area, and they have nothing to do with the opera itself. I found people sitting in groups, some were taking photos, others were playing guitar, and some children were playing.

It was an amazing atmosphere and different experience of the public place. I was wondering about the safety of the roof borders, but I checked the borders and the walls around the roof, I found it very thick walls that you can sit safely on without seeing what is down there. Also, I noticed a board where it was written that bicycles and skateboards are not allowed due to the slippery surface and high slope. The material covering the roof is Italian marble "La Facciata" that has been chosen to cover the roof as a carpet and has the necessary technical quality in terms of stability, density, and longevity covering an area of 18,000m<sup>2</sup>.

The Designer (Snøhetta) proposed that the roofscape should be openly accessible to the public, and that it should be clad with white stone. Today, the building's defining feature is the characteristic geometry of the roof as it rises from the fjord and is laid out like a carpet over the public areas. The roofs are mostly too steep for wheelchairs' use but access to the near flat, upper areas are provided via a dedicated elevator. (archdaily2008)



Fig.33, Oslo opera house, outdoor concert, (Norske 2010)



Fig.34, Oslo opera house, at winter, (Norske 2010)

## Discussion

From the public use and my visits to this building, I realize that it is a perfect public space, but with some restrictions. For example, the restriction that has been put by the building administration for the safety, for example not using bicycles and skateboards. Accordingly, I can interpret it a semi-public space that is formed on top of the roof, where not all the people are going there to sit on the roof. It is a more limited public use that we cannot do all the public activities there. Sometimes, this roof is full of audience to watch a live performance in the open air outside the building, which can make it as a public space.

## **Discussion on all examples and conclusion**

My aim in this chapter was to show the evolution of this kind of buildings, and to show different situations and circumstances for each building, which make us think how different a landscaper could be. As we have seen from the historical examples, landscaper is not a new fashion of building or a new concept. It has been a way of survival and protection more than being just a beautiful ecological building. It is clear that in ancient times man has used his pure instinct to come up with these designs of Landscrapers, where the natural circumstances pushed him to explore land and go more deeply down and in different levels.

However, the natural topography and nature both have helped the ancient man to come up with these ideas; it is an original artwork of nature. Although we can see the evolution of this concept, from the design of Skara brae to Delft university library, as we can see some similarities and continuity of the same ideas. For example, the sky light openings in the green roof are used to bring natural light. We can notice that it was in both designs (Skara brae and Delft). Designers can learn some common and basic design aspects when they compare different designs from the past and from the present.

What we may think when seeing chosen visited examples is how Landscrapers can be different in terms of context, concept, function, and material, and how this variety can affect the design and the people's behavior when dealing with these buildings. We have seen how children looked at the Maritime Club House and how they wanted it to be; they see it as a playground and they wanted it to be more suitable for some activities, as they wanted the material to be concrete, so they can play with skateboards. Also, we have seen how people were excited to explore the building when they are welcomed by the design, as in Oslo opera house.

The public use of the previous examples was also different, for example, a public space formed on top of the maritime club, where people can even cycle through the building as if it is an open road. Another example is the semi-private space that has been formed on the roof garden in Copenhagen, which helps residents to socialize, where all the residents have the opportunity to communicate in a private atmosphere. As a result, it can give the same feeling of public garden but in a private context.

Moreover, a semi-public space formed on top of Oslo opera house where people, who visit the opera house, use the roof as a meeting place, and as a watching tower as people get the advantage of the location and the height of the building to watch the city and its surroundings. However, many design aspects and qualities can be learnt from studying different examples in different situations, and it is important for the one who is involved in the design of landscrapers to visit different examples and experience the public spaces formed there.

I believe that landscaper has a good potential in social aspects, it has the ability of creating a successful public place. Landscapers is a social phenomenon, which act as a corner stone in the public and social life. From looking at the examples from different perspectives, we can study and investigate on how to create a successful public space using different qualities. We saw how a place, which could be a dead area on a roof of a building, could be transformed to a perfect public space, with different levels of publicity.

It is also clear that the designer is the one who decides the level of publicity of the landscapers, but after the people use the place, the level of publicity is actually decided then by the users. However, it is difficult for the designer to predict the future publicity level of a place. A well-studied and well implemented design can be a guide in itself on how to use these spaces.

In my point of view, I see landscapers as the building that could create social meeting spots exposed to users. It could be on a high rise building's roof as we have seen in the Copenhagen roof garden, or it could be a low height building sloped with the ground. What is more significant for the landscaper is to be matching with the surroundings, and to fit into the landscape context. If these two elements exist in a building (create a social platform and match with the surroundings) then I may interpret it as a landscaper. Despite the material, it could be grass, wood, or concrete or any other material.

In addition, I think that the grass material of a sloped roof building is the ideal example and function of a landscaper (as in delft library), it is because in this case the building is able to be an extension of the land, to be a part of the landscape not a strange element.

## Chapter 3

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# Different Architectural Aspects

*“Architectural features of true democratic ground-freedom would rise naturally from topography, which means that buildings would all take on the nature and character of the ground on which in endless variety they would stand and be component part.” - Frank Lloyd Wright*

In this chapter, I would like to present some architectural aspects related to the design of landscapers in order to give a wide perspective to this phenomena. I have divided these aspects into two categories, first is technical aspects, the second is social and psychological aspects. Discussing these aspects will help in designing landscapers, to make it acceptable by the users.

## **TECHNICAL ASPECTS IN DESIGN AND PLANNING**

### **Green roofs**

A green roof, also known as an eco-roof, living roof, vegetated roof, or green roof, is one that is either partially or completely covered in vegetation on top of the human-made roofing structure. The use of vegetation on roofs has origins dating as far back as the *Hanging Gardens of Babylon* and in the design of Viking homes. The modern use of *Green Roof* technology has been well established in Germany since the 1960s, successfully implemented on top of schools, office buildings, shopping centres and retail stores. (Ecolife2011)

#### **The basic structure of a green roof**

- Conventional structural support
- Waterproof roofing membrane
- Root repellent system
- Drainage system
- Filtering layer
- Growing medium
- Plants

There are two different types of green roof systems used commonly:

*Extensive*: More common, these are constructed with shallow growing mediums of five inches or less, they will require low maintenance and limited irrigation, At most, maintenance occurs one to two times a year with limited access to the roof. These are also less expensive to construct, as they require little to no reinforcement of the existing roofing and fewer components when installed.

*Intensive*: These green roofs consist of a deep growing medium that is necessary to support a full range of vegetation, from ground covers to large trees. These are also called active green roofs. They require a growing medium of at least 6-12 inches, Roofs in this category can serve the multiple functions such as providing an outdoor garden space for food production. Inherently, this type of Green Roof requires more active maintenance with regular watering, fertilization, and pruning. Likewise, intensive Green Roofs require more structural support than extensive roofs due to heavier weight loads which means more cost than conventional one. (Ecolife2011)



## Green roof designs

Whether intensive or extensive, green roofs also have several different types of green roof designs:

*Complete:* These require that all components of the roof be fitted to accommodate vegetation and allow for the greatest flexibility in terms of types of vegetation, drainage, and layout.

*Modular:* Simpler to install than complete systems, these involve trays with growing medium created offsite and then installed like tiles on the roof. These limit the types of vegetation that can be used.

*Pre-cultivated vegetation blankets:* Like modular green roofs, these are created offsite, but include pre-grown vegetation that arrives in interlocking tiles. They install quickly and easily but again limit the types of vegetation that can be used. (Green roof centre2010)

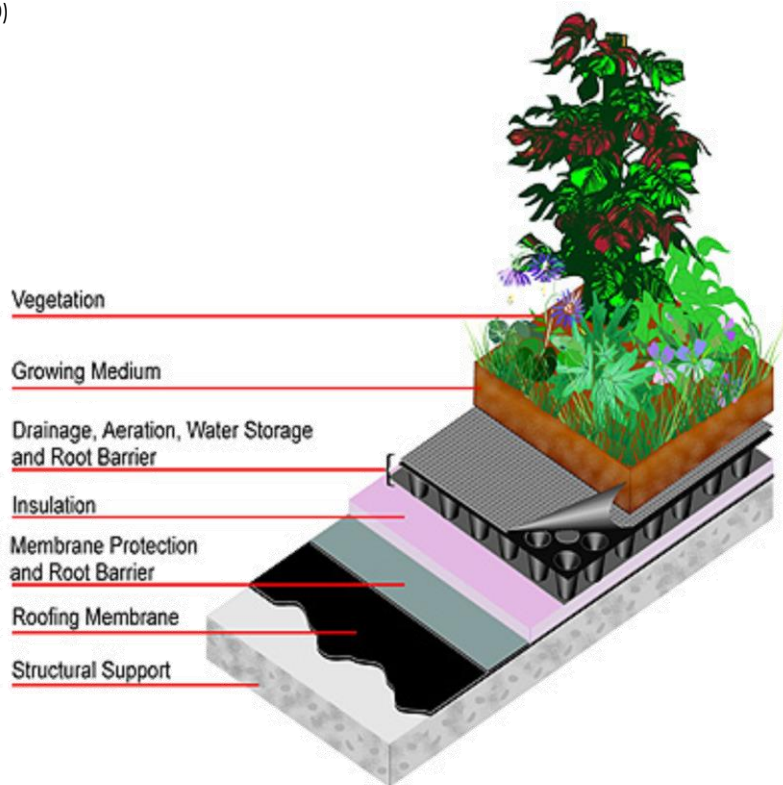


Fig.35, Green roof cross section, (American Wick 2009)



## **Green roofs Advantages**

- Filtering air and water.
- They producing oxygen and absorbing carbon dioxide, absorb heat (during evapotranspiration).
- Providing shade, which helps to minimize the impact of the urban heat island effect and reduces the building's consuming of energy, which in turn reduces the greenhouse gas emissions from burning fossil fuels for cooling?
- Absorbing rain water which reduces storm water runoff.
- Providing habitat for urban wildlife.
- Providing leisure and recreational space for building inhabitants and encouraging for socializing.
- Insulating the building against noise.
- They can be used to grow local produce.
- Protecting existing roof, which reduces the number of replacements required and roofing waste.
- In cold climates green roofs increase internal heat retention, and in hot climates they help to keep the heat out.(Peck et al, 1999)
- A green roof minimizes the degrading of the waterproofing material on the roofs, which caused by two factors: photo degradation from sunlight and mechanical degradation from temperature extremes. (Ecolife2011)

## **Green roof disadvantages**

-high cost required for building foundations of buildings and isolation systems to hold the excessive weight by water and plants and isolate the roof.

-Maintenance and technical issues in isolation system, which needs to be inspected regularly from time to time. Leaks in roofing material could pose substantial problems and costs to repair.

-Irrigation and plant maintenance, which needs a specialized team of gardeners to take care of the green roof.

-safety installations, when the green roof is accessible and available for public use. (Fedral tech2004)

## **Why Green roof?**

The National University of Michigan (Michigan State University) published in the September 2009 demonstrated that green roofs could combat global warming. The studies found that replacing traditional materials with green plants housing in an urban area with a population of about one million, would be to reduce the Carbon dioxide emitted from 10,000 cars type 4x4, size medium.

The study is the first of its kind to examine the ability of green roofs to absorb carbon, which can affect climate change. They found also that planting the roof of an urban area, on the one million residents could withhold more than 55,000 tons of coal.

Another study at the school of mechanical engineering showed that showed that the green roof has yielded significant savings in consumption for air conditioning (9.6%) and heating (4.4%). According to the measurements of the investigation, the temperature difference arising between the planted and non-planted roof surface reaches 18 degrees Celsius (37 degrees Celsius and 55 respectively).The same study showed that energy savings on the rooftop of the building cannot exceed 50% .

Research conducted by the National Research Council (NRC) of Canada, showed that at spring and winter of 2001, a certain green roof, the total thermal energy that entered the building from the roof, was reduced by 85% while the thermal energy escaped from the building at night was reduced by 70%.

Also there is a building energy simulation model supported by the U.S. Department of Energy. This simulation found a 2% reduction in electricity consumption and a 9-11% reduction in natural gas consumption when using a green roof.(OIKOSTEGES2002)

## GREEN FACTOR AND LANDSCRAPERS

### Green factor, BAF - Biotope area factor

The BAF expresses the ratio of the ecologically effective surface area to the total land area. In this calculation, the individual parts of a plot of land are weighted according to their ecological value.

### Calculating the BAF

$$\text{BAF} = \frac{\text{Ecologically effective surface areas}}{\text{Total land area}}$$

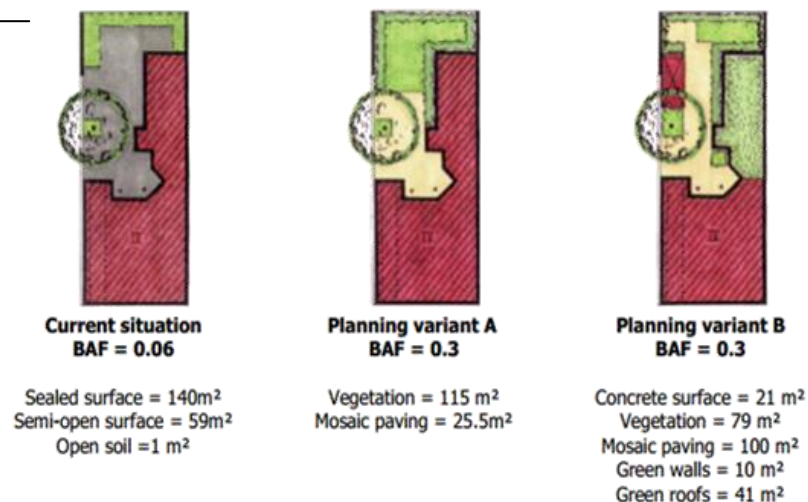


Fig.36, Example of different methods of achieving BAF of 0.3, in this example land area=479 and the degree of development is 0.59, Kazmierczak, A. and Carter, J. (2010)

The BAF landscape plan is generally put into practice on the basis of building permits. This involves planting greenery for facades and/or on roofs, and re-opening hard surfaces in courtyards for the creation of green areas and to encourage rain water infiltration. BAF leaves the fine design details to the developer. However, common features include greening of functional spaces (e.g. bike or bin sheds); planting trees and shrubs or, in smaller areas, climbing plants; introducing green roofs; paving only on main routes and using permeable surfaces elsewhere. (Kazmierczak, A. and Carter, J. 2010)

## **PUBLIC USE OF GREEN ROOFS IN SOCIAL AND PSYCHOLOGICAL CONTEXT**

### **Social aspects**

Houses that are prepared for people to walk on top of their roofs are unique attractive meeting points. Green roofs on top of buildings are like no other green public spaces, it has special potentials. When a roof of a building is open for people to walk on the roof, it creates a small public community. However, this community may include only the users of this building, or maybe the users of other buildings or people from the same neighbourhood, I mean by community a small group of people belong to one place and have common interests.

People have the opportunity to make social contacts in any public space like a park or restaurants, but why some people choose to gather specially on green roofs? Why we build a green roof for them. I think that green roofs besides its environmental benefits, it has also some potentials that make it unique and attractive, for example, It has the power to attract the people who live in the same building aesthetically and practically, where people attracted to the beautiful greenery more than other areas, also Green is a color of balance; it has a peaceful, calming, and soothing effect. Some can use it as a common semi private space, where everyone feels that he or she owns a part of this greenery. A feel of belonging and taking care of the environment can be established among the users of the place, also it can be a meeting point for those who live in the same building and the neighbours around them.

A social advantage of green roofs is not like any other public place. Since people who live in Landscrapers can share ideas, activities and maybe share their own plants on the roof with others, sharing also ideas about taking care of this common green area. It gives an opportunity for people to own a piece of the natural environment and learn how to take care of their environment in general.

Moreover, when inhabitants of a building allow strangers to walk and use their roofs, this behavior will break many barriers between different people classes, the feel of owning combined with arrogance will disappear, and maybe replaced by a feeling of sharing and respecting the environment embodied in a building. A harmony between different people with different background will establish, leading to

promoting the social life especially in the Nordic countries, where people have less social life.

## **Psychology and design qualities**

### *Living underground or above the grounds*

When designing Landscapers, we have to ask ourselves what is the best design for living. Which is better living underground or above the ground? Why we should go underground from the first place? What function can be for an underground building? Can it be a school, a house, a company? It is known that living above the ground is better for getting the most out of the natural environment around us, from direct sunlight to fresh air and landscape scenery. In contrast, there are many arguments concerning living underground, some have mentioned only disadvantages and some are mentioning advantages as well, here I am trying to discuss both trends and different aspects relating to underground buildings.

### *Architecture psychology and public acceptance*

Living underground is not a new trend as mentioned early in the example of the Skara Brae in Scotland. It is showing one of the oldest attempts towards safety and sustainability in a structure built for living. Since that time, we can see many successful attempts to build a habitable underground environment. Nowadays, In Helsinki for example, the city is experiencing building many facilities underground, for instance, swimming pools, sport tracks and car tunnels , the parts that is not needed to be above ground is buried underground , and it is relatively inexpensive.

However, one of the most important issues when designing underground building is the issue of public acceptance, how people perceive the notion of living underground? Will they accept it physiologically and psychologically? The building function also is playing an important role in forecasting the degree of public acceptance, physiological and psychological effects. Moreover, How the image and the concept of underground spaces perceived by people is depending on culture and social beliefs beside personal experience, Some can imagine, it is like what shown in horror and science fiction movies, relate it to death and dirt. Another may think about underground shelters which were built during wars, it can be also related to basements and cellars for storage purposes, subways and tunnels. This image of underground buildings is more likely related to psychological state.

Some people may have claustrophobia (fear from enclosure), or may have some social disturbance like alienation and schizoid detachment, may suffer from being underground. It has also a physiological aspect. For example, people may experience health problems when it comes to design mistakes, like the lack of sunlight, windows, and well ventilation, which may affect them physically and emotionally.

An example for interior design affecting people, when someone go to a hospital and sit waiting for your turn to see a doctor, if the waiting area is designed badly (like a rectangular grid-patterned room with vinyl smelling, fluorescent- lit and heated corridors) you will feel already sick.

The psychologist Robert Sommer described complains of employee working in underground offices, mentioning “the stuffiness and stale air, the lack of change and stimulation and the unnaturalness of being underground all day”, also some of the employee where complaining of losing the sense of time. He described also how employees try to substitute windows by landscape scenes, nature pictures, animal photos and travel posters. Making their own environment, he cited that most of employees try to go upstairs at every opportunity, while just few were adapted.

In contrast, according to Kenneth Laps description, he mentioned that according to some studies, some people like the isolation and being enclosed, as there are some employee who worked in underground buildings and felt opposite perception of time, they felt that time is passing quickly in the absence of external cues. Some other employees feel favorable due to constancy of thermal comfort, which is important in doing different activities. (Laps1975, p.28)

Some designers overcome these feelings by designing some simulations in the interiors to evoke feelings, for instance, a fake window, artificial planted areas, light visual effects or wind blowing fans to imitate air circulation. But the question here would these simulations and design techniques replace the undesired feelings with good ones? Or it is a deep set of feelings which is irreplaceable, it is in the inner conscious whenever one thinks he or she is already underground.

Many studies were conducted to study the people reactions and attitude towards underground buildings, for example the studies of the ABO elementary school in New Mexico, which was built for a secondary purpose as a survival shelter. This study showed that children who have attended windowless underground elementary school have no complains, and some arguments even preferred it than normal schools.

My personal experience when I have visited Alexandria library, which is a good example of a facility that all the activities inside the building is running underground, more than seven stories underground with a fully glazed roof bringing sun light and ventilation. Through my personal experience as a user and a visitor to this library, I can describe it as a place which is completely isolated from the streets, noise and surroundings, but not isolated from the nature. The visitors hardly notice that they are sitting in an underground library as the one who sit inside can easily follow the day light changing through the glass panels of the roof.

However, Buildings is not a huge monsters around us, we should also touch, contact closely and feel them, and this can be done in the case of Landscrapers where you are not afraid anymore form this huge tall building and you don't know what is on top of this building. The harder and more lifeless our surroundings, the more tired,



tense and supped of life we tend to be. The softer and more alive they are, the more renewed, relaxed, even healed we become.

As a conclusion, any Architect should consider the psychological aspects of design when designing any kind of buildings, especially those underground building, designers have to consider the psychology of living underground and how to design in a way to avoid neglecting the above ground quality of life standards.

### **Places and soul**

*"In the age in which some have said that we know the price of everything, but the value of nothing' I wonder if architects can really only design with their heads or whether they can still bring to their work the "angelic" intellect of the heart and soul? I wonder too, if they can draw out for us in the present, the best of our traditions and to reintroduce those timeless qualities of harmony, human scale and character that generate a sense of belonging, enriching the soul rather than impoverishing it". (Day2004, p 6)*

As Days cited, when we watch a movie we are dealing with the picture and the sound, we use only two senses, but we ignore the other senses like smell, temperature...etc. All the senses gather in our minds to give us a full picture of the place, this picture is interpreted differently depending on the person culture and background, when we experience all the senses together, in this case we can feel what is called the spirit of the place.

It is like the spirit of a person or a spirit of event or a certain place, this spirit affect Us deeply more than just the appearance as it affects our temper and health, which in turn creates our memories and impression about a place, in this stage we have to take care when designing a Landscaper.

Many buildings are lifeless, they are just spatial constraints, a building feels lifeless without a soul or spirit until people come and start to use it, fill it with love and care leaving their fingerprints. In case of Landscapers, when inhabitants of the building start to use the roof and take care of it, planting their own plants, while children are playing and enjoying the place, then the building will become more lively, giving a soul for the place.

Green roofs, recreational areas and parks where the spirit of place is strongest, where we can experience the meeting of environmental elements, earth, sky, water, air, buildings and horizon with human. This affect directly on how we experience the place. A place design is not making a place just look beautiful, also when designing a green roof it is not just designing a roof which is matching with the background; it is about creating what is useful and nourishing to our souls and give us a positive energy. As zero energy buildings don't mean to be zero positive energy to our souls.

## **Design qualities and health**

We are in the era where we Build in the latest technologies, like high towers using cheap materials and advanced equipment to build easy, sell fast and gain more money, but we ignore the people health. Such attitude leads to spend much more on medicines for healing people. However, why we don't build healthy structures from the beginning?

As the Architecture is a part of our built environment, from inside it is our surrounding environment but from outside is only a part of our environment, it is important to take care of the inside and outside designs as well. When we see buildings while walking in the street, the design of these buildings in general influence our conscious, our minds stores images and feeling of the place, all what is collected by our brain reflect on our behavior and personalize our characters, affecting our feelings and emotions.

Christopher Day thinks also that dead straight and nearly straight lines are different as the movements of the clock and the movement of the universe, one is dead one is alive. Also he thinks that rounded off corners ease the movement of eye from one line to another. Also how a building meets the ground is very important which confirms the sense of belonging, showing that this building is belonging to this specific place. He also claim that buildings sets the mood, it provides a space or boundaries to outdoor space in which things are happening , which in turn influences the physical mechanics, the mood and soul relationships. When designing a Landscaper we should consider these design aspects in designing the elevations and plans to make it acceptable.

Moreover, when talking about the interior design, it is important to mention how the interior design affect us. A study which shows that Fluorescent light increase levels of cortisol (It is a hormone released in response to stress), it also affects ACTHC hormone (a growth hormone and source of adrenaline). Ignoring such a simple design aspect by adding Fluorescent lights in the sake of saving energy can affect our mental and physical health. As we spend 90% of our lives in buildings or vehicles, we need a good portion of natural of light to adjust our mood. (Day2004)

Some places look beautiful when they are just built, but after a while when people get used to it, the beauty is gone, some buildings are like a fashion, they look nice for a while then lose its glory. But when we build with the land and respecting the topography, the building will last forever as an attractive object and will develop with the surroundings, evolution to existing building may occur with the natural changes of the topography. I agree with days when he described art as something which when we experience leave you never the same again, it has brought an inner step forward, it is a process including medical, psychological and spiritual healing.

## **Conclusion**

My aim in this chapter was to mention the advantages and disadvantages of a landscaper, and to mention all the related issues to this phenomenon. For example how the design can affect the users of the building physically and psychologically, why it is better to use a green roof rather than a concrete or wooden ones?

Moreover, when mentioning some of the architectural aspects related to Landscapers, it shows how important for every designer to be aware of different aspects attached to this complicated process of designing Landscapers. It is important to involve different views and perspectives from different professions, like psychology and public health in the design process. By using these health criteria in the design process of landscapers will make us aware of the fact that not all landscapers are successful buildings. A great effort should be made by designers in order to achieve a good design of a landscaper.

However, by testing different alternatives for designing Landscapers in relation to people health and social life, it will lead to better understanding of how to create a healthy, successful and acceptable building.

## Chapter 4

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### Different opinions and visions

*“The good building is not one that hurts the landscape, but one which makes the landscape more beautiful than it was before the building was built.”Frank Lloyd Wright*

## **INTERVIEWING PEOPLE**

### **Introduction**

Asking people about their different social and private needs, knowing their view of the built environment around them, is one of the successful methods in landscape, architectural and environmental studies. It will help the designer to produce a compromised and suitable solution for different needs. I decided to make some investigations, and ask random people from different ages, walking in the streets. Most of people I met were in a rush heading to their work or shopping, as a result the answers were brief, simple and spontaneous.

### **People interviewing-different opinions about designing Landscrapers**

Showing a photo of Landscrapers and ask people the following questions:

- Do they like to live in this kind of building?
- If you were not living in Landscrapers would you walk on its roof?
- If you were someone who lives inside Landscrapers, would you allow strangers to use the roof?
- Do you think the green roof is a private or public space?
- What kind of activities you think it can take place on the green roofs of Landscrapers?
- Finally what recommendations you would say and how you like Landscrapers to be at the end?

### **Interview summary**

I have conducted the interviews in Malmo city center in Sweden with people of different age groups: For instance, I asked a man in age of 30 about the previous question, and he think that this kind of buildings are not preferable, he prefer the old buildings with old style. I argued that Landscrapers are more environmental friendly, and the answer was: if it is useful for the environment, then why not to build it.

An old couple who used to work as a farmers, they don't like to see this kind of architecture especially in the country side, they prefer the traditional kind of buildings, they think if they saw a building with a green roof, they would like to walk on top of it and use it just for relaxing and sitting. Another woman in the same age thinks that she would like to live in a building like that, but she think it may be noisy or messy up there on the roof

Another group of young boys about 15yrs old, they think that it is fun to have a building with a green roof, they said they would love to walk on top of it, play on the green roof, maybe skate, smoke, or have any kind of fun. Although, they think that they wouldn't let strangers from outside to walk on their roof.



When I asked a young couple in the 20's, they think that as long as, it is a private building, it wouldn't be any problem to live there, and they said they wouldn't like anyone to walk on top of our house. Another two girls in the same age thinks differently, they think they wouldn't live there, but it may be good idea to build like that but for public use only, not as a house, they think it is too much modernity for a house, while it should be much simpler. They prefer old buildings that can be also with a green roof, because old buildings are storing the history and the identity of the place.

In contrast, the vision of a group of people on the age of 20s, they see that living in such a house would be great experience, they started to mention what activities could be done on the roof garden, like planting their own flowers, relax and have some sun, and maybe have a barbeque. When meeting another age category 16 yrs, they were very impressed by the idea and more excited, they think it is amazing experience to live in a house like that. Others said no we don't like to live in this house, but we like the idea of green roof, as it is more ecological solution.

## **Discussion**

It was noticeable that most of those who expressed that they don't like this kind of buildings, they would like the idea itself but not to live in a building like that, they would support it and defend it as an ecological trend for houses.

Views of Landscapers are Different according to an age, gender, profession, believes, culture and location, if these interviews were conducted somewhere else rather than Sweden, definitely I would get different answers.

From these interviews, an old woman's answer is different from an old man, male teenagers see it differently from female ones, and most of the middle age people think that the old and traditional buildings are more valuable as they presenting the value of the past.

Finally, we can see how difficult to design a Landscapers and how difficult you can convince a family with different ages, interests, and needs to live in a Landscaper that make it a challenge in how to design for all ages and genders, and the most important is how we present this type of Architecture to our society.

## **ASKING PROFESSIONALS**

### **Introduction**

Asking professionals who are involved in the design of Landscapers about their different opinions and experience, knowing the challenges and difficulties facing them when design a Landscaper, is important for designers to know the scope of this phenomena. It will help the designer to learn from previous experiences.

I decided to make some investigations, and send random emails to different professionals groups like (architects, landscape Architects, planners and urban designers) from different companies and construction firms.

### **Asking professional who work with architecture**

-What is your personal opinion about Landscrapers?

-Would you like to design Landscrapers?

-What is the professional difficulties when designing and building Landscrapers?

-What is your vision about the future of Landscrapers?

Questions were sent to Architects, landscape architects, planners and urban designers with photos of Landscrapers to get opinions and reflections from different perspectives.

There were different opinions about the Landscrapers. Some think that Landscrapers" are an interesting way to add, instead of take urban greenery away from the city, especially when urban planners and architects start to forage around the cities for "blank spots" where you can start a densification project, which often results in loss of urban greenery. It is a solution when modern planning and house design also tends to introduce buildings designs with very small yards and they are often so dark that it is almost impossible to make it green. If we look at our cities as places where wildlife and "nature" has a right to exist and flourish. Moreover, people need trees, grass and moss covered stones even if they live in cities, so why shouldn't we build Landscrapers? In one way it is the most logical way to go.

Another thinks that Landscrapers have a value of both as aesthetic and environmental solutions. Moreover, they contribute to the urban environment in many important ways: for climate adaptation and mitigation, scenic, play and recreation.

Although, others see that Green roofs are more often used without the intention of walking, this is easier to make successful buildings. But if Buildings that offer walkable topography are designed in a manner which is sensitive to the context as well as to the uses of the building itself and the surroundings, then it can offer an extension to the public realm in a positive way.

When asking if designers like to design landscapers, the answer was positive for most of them, they are enthusiastic to the idea, and some think that it is a matter of appropriateness. If the programme, brief, and context called for both a means of movement or gathering as well as the internal spaces, it would be considered as an option.

The difficulties when designing and building landscapers is an important issue, which concerns all the professionals working in architecture field. In the technical part, most of the architects admitted that there are many difficulties, especially with the loads; the whole construction needs to be adapted to be able to withstand the added load of soil.

Another serious issue for professionals when designing a Landscapers is the water proofing and maintenance issue, where you have to be able to get water to the plants, find anchor points for the trees, choose species that can withstand that kind of extreme environment, and so forth. Choosing the appropriate building material also is important.

Moreover, some thinks that building management issue and being within budget, is also a challenge. Dealing with safety is also necessary, as often there is an intention to reduce the separation between so called nature and the building in the name of Privacy and security. Most of the architects, especially the one who design think that the biggest challenge is in dealing with clients who have no idea about what landscapers are and to try to convince them that they want to build one.

When asking about the professional visions about the future of Landscapers, the answers were interesting and enriched with experience and ideas. Some thinks that Landscapers comes up sometimes like a fashion, but it is not as there have always been earth structures, and there will continue to be earth structures the technology will evolve to allow new options and the traditional methods will both continue and be developed.

But some of these types of structures are not well thought out and will not work due to simple maintenance issues (very simple things, such as ensuring that the facilities staff understand how to maintain such measures, and that the proper administration is put in place, and who maintains, is it the building facility crew or the landscape architect crew?

Although, some of them think they will be placed into a broader (and very necessary) investigation about the most effective way to green our cities. The result of this will likely inform whether they remain an aesthetic treatment or if they become more widespread. Almost all of the time planting on or around ground level is cheaper, easier to maintain and has a much greater amenity value for the city.

However, another important opinion and perspective is the future of Landscapers depends on the people (other than green urban planners and landscape architects), when people start to see the value and importance of nature and greenery in our cities, then Landscapers will be one of the common tools we will have when planning and designing sustainable and beautiful cities.

# Chapter 5

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## Ideas and Possibilities

Kronetorp as a case study

*“The outside of any building may now come inside and the inside goes outside, each seems as part of the other. Continuity, plasticity, and all the new simplicity, the imply have at last come home. “Frank Lloyd Wright...*

## **PROPOSAL AND DESIGN OF THE KRONETORP AREA**

### **Introduction**

One of the main aims in this study is to experiment and test the concept of Landscrapers in one existing situation and I have chosen to design an area called Kronetorp in southern Sweden. I would like to test Landscrapers concept in an existing area that is already subjected to development, in order to learn more aspects related to Landscrapers.

I will discuss the idea of building a Landscrapper in this area from a social perspective, discussing the possibilities and difficulties that will face the professionals in designing this project. Looking at it from a social perspective, by focusing on people behavior towards Landscrapper.

Moreover, I would like to know what problems would arise, what differences will occur in public life when designing Landscrapers in this area. This experience will help me to learn some general principles and design aspects of designing Landscrapers.

I will try to find out if it will be a successful idea to build Landscrapers in this area or not, how it will look like? Would the people who live around this area like to see Landscrapers there? What is the advantages and disadvantage of building Landscrapers in this spot? Pointing out the potentials of this design and how people and municipalities may react towards it, this will help us to test, investigate, and get knowledge of Landscrapers from different perspectives, which in turn will help the designers to develop this type of buildings.

In this experiment, I will introduce landscrapers as I see it, my design will reflect my opinion on landscrapers, and how I see the ideal landscrapers should be. I have chosen landscrapers with green roof because it has different benefits, ecological, social, and aesthetical.

### **Development of Kronetorp**

Kronetorp area, which includes agriculture land, is located in a strategic spot between Arlöv and Åkarp, in Skåne, southern of Sweden. This spot has been chosen to be a study for future development by the municipality of Burlöv. And it was also a study case in some courses by the Swedish university of Agriculture science (SLU).

During my study of large scale structure course at SLU, we had the Kronetorp area as a case study, where the task was to design this area, choosing between different types of exploitations to develop the area, to include different activities like residential, commercial areas and sports arenas. Also, choosing the level of exploitation of the land, from very low level of exploitation to a high dwelling exploitation.



When I started to work on my thesis some months ago, the Burlöv municipality have announced a competition assigned to specific companies to design the Kronetorp area, they put a program, rules and restrictions for the competition. Since it took the municipality many years in discussions and deciding what is suitable for this area, and there will always be a debate and discussion between the investors, stakeholders and residents resulting in changeable ideas, so I decided to test my proposal freely without any restrictions from the municipality program.

I decided to make my design away from the different conflicts in the reality, such as the conflicts between the municipality, investors and owners of the land, as I see it like a challenge where each party is looking for his own sake. Meanwhile, I will try to create the reasonable design from my point of view.

### **Why I have chose Kronetorp**

Arlöv was chosen to test building a landscapers because it is located in between the city and the countryside, it has both potentials to be part of the city (quite area) and at the same time it is close to the Agriculture land. That was the main reason encouraged me to choose this area to test how the landscaper can work in the city and in the countryside. Moreover, It is a less populated area that lacking any location for social interaction for the residents of the area.

Losing the agriculture was one of the main problems of building densely in this area, concrete buildings will reduce the green factor in this area, the challenge was to build in high dense without losing the greenery . For this reason, I decided to try the concept of landscapers with green roof in this area, trying to create a diversity of activities without losing the land.

## Project background and location

Skåne as a part of a greater Öresund region: This region is a transnational region in northern Europe includes the Copenhagen area and Zealand on the Danish side of the Öresund sound and Skåne on the Swedish side, centered on the cities of Copenhagen and Malmö. connected by the Öresund bridge The population of the combined Öresund region currently stands at 3.6 million including Skåne and a population density of 176/km<sup>2</sup>.



Fig.38, Öresund region, (Ellestadab 2010).



Fig.39, Skåne region, (Fred,J 2005)

Skåne is the region in Sweden that lies closest to continental Europe. As early as the Viking Age the people of Skåne had trade relations with their neighbors on the other side of the sound. Skåne has 33 Municipalities, 1,2 million Inhabitants and Area of 11 000 square kilometers, Population density 106 inhabitants per square kilometer Compared with 22 per square kilometer in Sweden as a whole. Skåne has the best agricultural soil in Europe. South-Western Skåne has a strong services sector, a well-educated workforce and very good communications both with the outside world and the rest of Sweden, as well as within the region itself. (ne2012)

## Project area & current situation

The Kronetorp area is One million square meter lies between Burlöv Center, Kronetorp, former Lindberg's Nursery and Burlington, 5-minute trip to Lund and Malmö by train, Burlöv value for both region and nation, where highways meet in the bottleneck between Scandinavia and Western Europe.

The planned area is located in the eastern part of Burlöv Municipality, west of the junction Kronetorp, between the buildings in Arlöv and Åkarp. The planned area covers approximately 34 hectares of land, of which half consists of highly productive agricultural land. The area is currently used for agricultural, nursery (part discontinued), some individual residences and commercial (Lidl).

## Topography

The planned area is characterized by a lower altitude plateau at Kronetorp Park and slopes to the north, west and south. Plan area's highest point is about 17 m, about 9 feet higher than the lowest point in the north and six feet higher than the lowest points in the south and west.

## Traffic

Arlöv located in an important communication routes. The planned area is enclosing proximity to several major roads in the region bordering Lundavägen, Kronetorp Road, E22 (Stockholm route) and E20/E6 (Inner Ring Road), major traffic routes and Lundavägen Kronetorp road that now goes through Central Arlöv.



Fig.40, Illustration analyze the project site

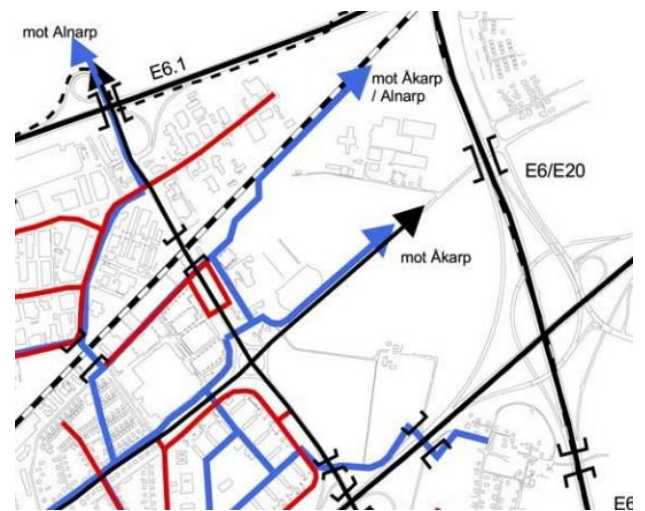


Fig.41, Roads and bicycle paths, (Mark och samhälle 2004)

- Nursery
- Manor house & kronetorp park
- Cultivation Land
- Sports area
- Lidel
- Infrastructure

## **S.W.O.T Analysis**

### **Strength**

1-Strategic location: close to big cities (Malmö, Copenhagen, and Helsingborg)  
Good connection with different parts of Europe.

2-Accessibility: surrounded by high ways (E6, E22, E20), bike paths connected to Alnarp & Åkarp, close to the train station.

3-Services: swimming pool, gym, Library, Burlov center, close to universities Alnarp, Lund & Malmo universities.

4-Landmarks: Windmill, Farmhouse and church from 12 century.

5-Green areas: Kronetorpforest, which is good agriculture land.

6-possibilities: Possibility to use water resources.

### **Weaknesses**

1-Traffic: Danger for pedestrians and bikers – high speed cars Pollution (noise & air pollution) few buses connection.

2-Wind: this Area is windy.

3-Lack of services: people use services in other cities (hospital, cinema)

4-Old facilities consume a lot of energy, for example an existing swimming pool.

5-Electric power station Near to the area, which is dangerous.

### **Opportunities**

1-Flat terrain: to build freely, a good Area for shaping the land creating Landscrapers.

2-New living area: to make it lively, attractive and unique area.

3-New services: Sportf acilities, Swimming pool (Aquapark), Gym, playground, Spa, health care centrum, Hotel.

4- Park and green spaces: create recreational green areas (instead of nursery)

5- Refresh historical places: Focus and coin city identity (Kronetorp house, windmill) to be more attractive for tourists.

6-Increasing the train lanes: to 4 lanes will make a good accessibility in the future.

7-More employment opportunities: by creating new projects, hiring new people.

8- Connection: good connection to big cities like Malmö and Lund.

## **Threats**

- 1-Loss of agricultural land
- 2- Impact on historical sites losing the identity.
- 3-More traffic more noise & high density.
- 4- Inhabitants may leave this area because of noise and density.
- 5-Gap between different classes of people.
- 6-Developers will focus more on the interest and making profit instead of the citizens' needs.
- 7-Connection with Akarp, different social living standards.

## **Advantages of building a Landscaper in Kronetorp**

- 1-Preserving the green land by compensating with a green roof and increasing green factor.
- 2-Creating more ecological and sustainable than ordinary building.
- 3-A Landscaper will act as a natural hill preventing the wind.
- 4-More activities, playgrounds and recreational areas will be available for residents.
- 5-Kronetorp will be a landmark for this part of the region, attracting tourists and investors.
- 6-Kronetorp will be new meeting point will be created for gathering all the people who live in Arlöv.
- 7- In winter, Landscaper can be a ski hill for children.

## **Disadvantages of building a Landscaper in Kronetorp**

- 1-Difficulties in roof accessibility for elderly and handicapped people.
- 2-More expenses in isolating roof of the landscapers.
- 3-People may not like to live in a landscaper.

In conclusion, the previous analysis and study of the site is referring that this area has special potentials in the regional and domestic context, which confirm that the designers should be more aware of the problems and try to produce a design that suits the area. Moreover, building a landscaper in this area is not an easy task, because it has some also disadvantages that should be put in consideration.

In the following part i will introduce some different attempts and ideas to design the kronetorp area, which i have been through during my studies, which will show how the design has developed.



## Different attempts and visions for designing the Kronetorp

I have started my early attempts to design the Kronetorp area since I got the task during the course of "large scale structure projects". The following picture shows the middle exploitation of the land.

My concern was to merge the two parts of the area, which is divided by the main road and keeping the maximum space of greenery, by building houses that creates enclosed public areas, and connect the different parts of the land by green corridors. However, this design was not successful because the number of dwellings is few in compare to the land area, which in turn will be unprofitable project for the investors and stakeholders. Although, this design helped me to start using the same design principles and concept, which is connecting different parts of the area by buildings and keep the green areas dominating.

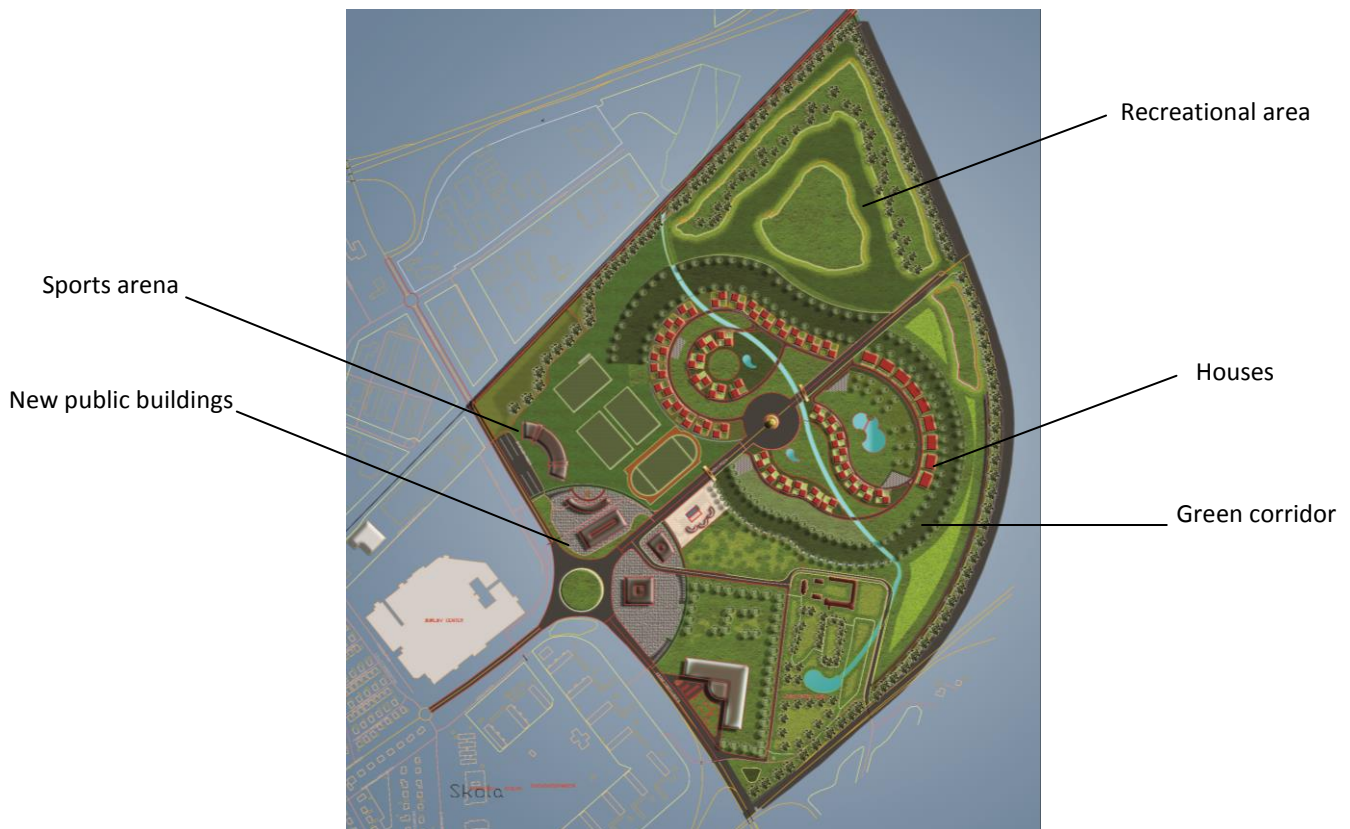


Fig.42, My first proposal to design Kronetorp area

My second attempt to design the Kronetorp was when I started to work with my thesis, trying to create a Landscaper in the Kronetorp. However, after I used the whole area, spreading out buildings with green roofs, I found something was missing in this design, which I realized lately, the lack of the interwoven between land and buildings.

In this design, regardless the function, there is no harmony between the land and the building's lines, these buildings can fit to any other land, with different shape. Nevertheless, this stage of design helped me to think about zoning, circulations and building functions. In addition, how the area would look like as a whole project.



Fig.43, My second attempt, to design Landscapers in Kronetorp area

## Vision

My vision is to create a medium dwelling compound where people can live, work & relax with high standard of living connected to Arlöv in a way and has its own privacy and character in another way. I have chosen the medium range of exploitation to work on this project. The goal is to keep Kronetorp area as a quite village with a unique style of Landscrapers, create a place where one can live, work and relax.

Kronetorp Island was the name I have chosen to this project in my first proposal, inspired from the present situation of the land, which appears like an isolated island surrounded by highways. This area is still subjected to discussions and arguments on how to build a suitable design that satisfies the residents and stakeholders, and because this area has a special location and potentials to be a remarkable place in southern Sweden, as a result, it brought many of the designer's attentions.



Fig.37, Kronetorp area, (Burlöv kummun 2011)

## Aim of the design

An Attempt to experiment building a Landscaper with a green roof in the Kronetorp, by use the advantage of the natural topography of the land in creating a building with the land form. By using the concept of landscapers, I am trying not only to merge between buildings and landscape, but also restructuring the relation between architecture and landscape, and see how this will affect the area and the whole region. My aim is to build Landscrapers with green roof connecting the two parts of the land using these buildings, landscapers will surround the land creating a barrier from wind and noise of traffic, also using the buildings shapes to create common public areas in between them.

Different buildings with different functions will be connected together by the green roofs, creating a variety of activities and public spaces.

I would like to investigate if the people who live close to Kronetorp accept this idea? If it is accepted, then how they would deal with this area? Will it be an attractive spot? Will the people like to live there? And would people who live in these landscrapers allow others from outside the area to walk on their roof? What are the restrictions and laws the municipality will put for Landscrapper?

### **Design concept**

My concept is to use the different shapes of natural hills and to apply it to the whole area, covering the land with grass, but the hills are not just green hills, they are actually buildings with very low manifestation. Using curved shapes to create enclosed areas in between buildings, also to create smooth path around the area, to encourage people to explore the area and follow the paths.

Using the concept of the Landscrapers in the Kronetorp area where the buildings are completely on the ground. Saving the green areas by making grass continue to the roofs of the buildings, for example, a park could be on top of buildings which are created with slopes to allow people to walk through. Where the green roofs could be used for cultivation as well.

Also to create a gathering spots for every group of building which can be small communities for the people who live in this area. The Landscrapers can be with different functions, residential, recreational, and commercial. A place for a hospital, sports complex, and a hotel will be created in the area to attract more people from the whole region.

People who live inside the Landscrapers could have the opportunity to mingle with their neighbors on the green roofs, residents can access the roof by elevators, taking them directly from their homes to the roof. Stone paved paths will be created on the roof defining the walking paths and making accessibility easier.

### **Project programme**

1-Create a residential area with middle level of densification.

2-Create buildings of different functions to serve the people living in the area, for example: residential buildings, commercial buildings and offices, hospital, hotel, and sports arena.

3-Create free movements through the landscape in the area, by making the walking paths continue on top of buildings.

4-Keeping the historical area of Kronetorp Park without change.

5-Reformlate the landscape to match with buildings.

6-Start the development from the area around the Kronetorp Park and around Lidl shop.

7-Reshaping parts of the agriculture land to match with the surroundings and to be used in cultivation.

8-Redesigning the roads structure to connect between different parts of the area.



## Design inspirations

Before starting my design process, I started to look at different similar projects that are using the same concept. The following pictures are inspirational pictures from other projects; these pictures have inspired me and helped me to imagine different possibilities, and how different parts of the area could look like.



Fig.50. A picture shows how the bus station could look like at the center of Kronetorp



Fig.51. A picture shows how the community area could look like.

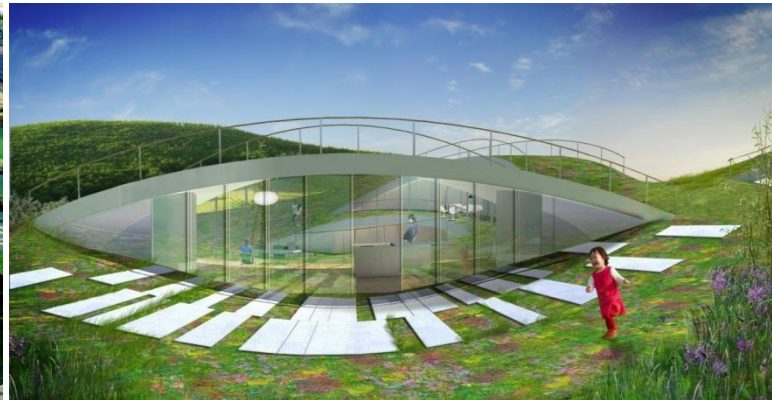


Fig.52. A picture shows an example of green roof within hills.



Fig.53. A picture shows an example of a public building



## DESIGN PROCESS

### Working with model

I have started to work with a model to make my design clear and to feel the shapes using my hands to create curves and shapes. I have used a material have same properties as sand, which was easy in shaping the buildings and hills. Working with this interesting material gave me the opportunity to feel the design and the shapes; I was experiencing the land topography as if I was building in reality, so I was able to understand what difficulties could be when making some specific shapes, especially when working with curves.

### Model Shaping



Fig.44, Different attempts to get the final shape

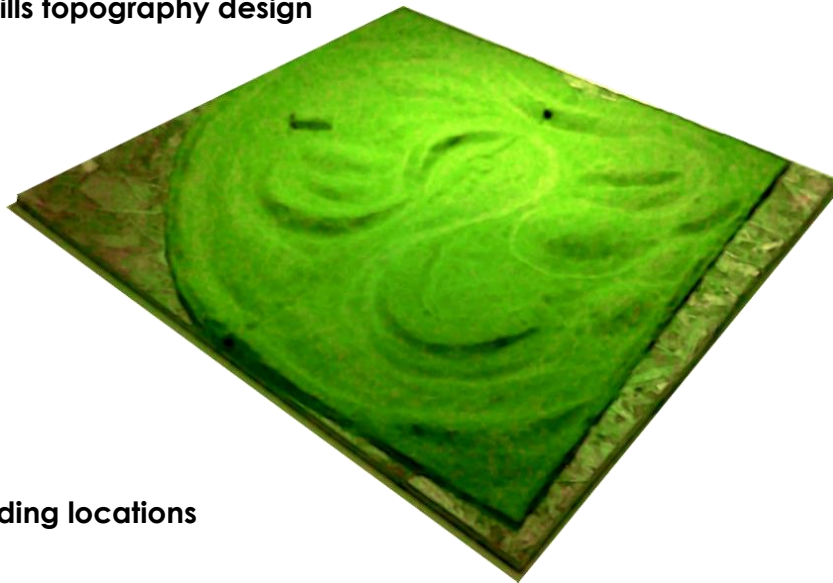
### The final model shape



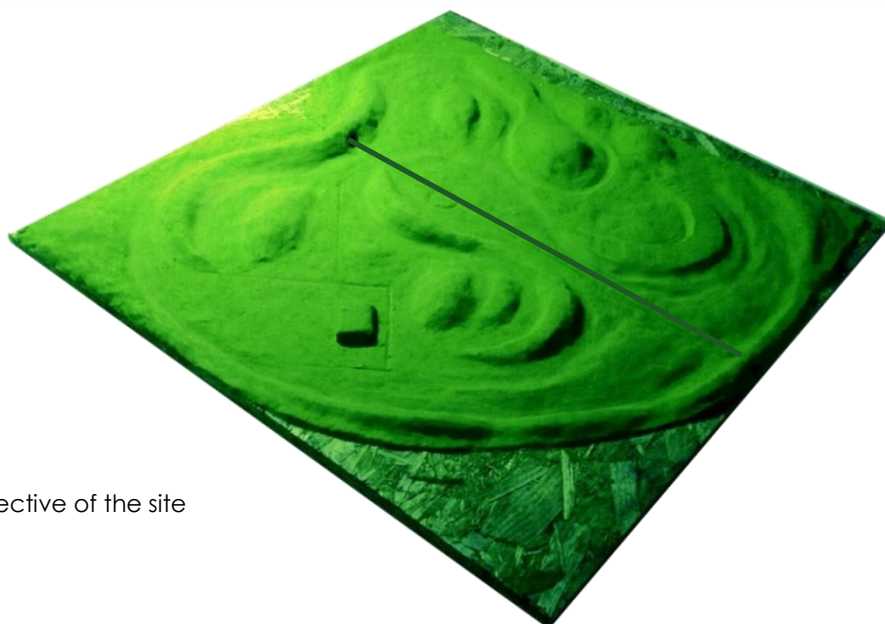
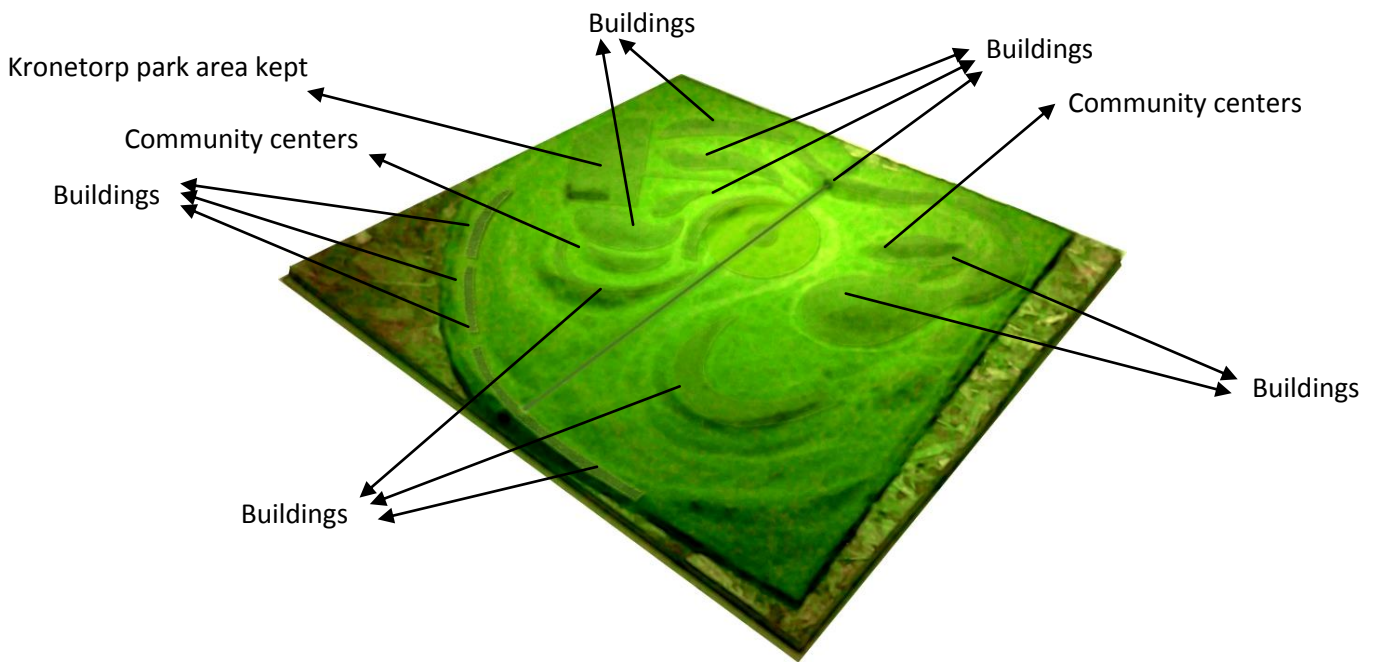
Fig.45, The final model of Kronetorp area, scale of model 1:2000

# ILLUSTRATION OF DESIGN

## The final green hills topography design



## Assigning the building locations



Another perspective of the site





Fig.46, A plan shows the designed area its context



Fig.47, Site surroundings





Fig.48, A picture shows the buildings within hills

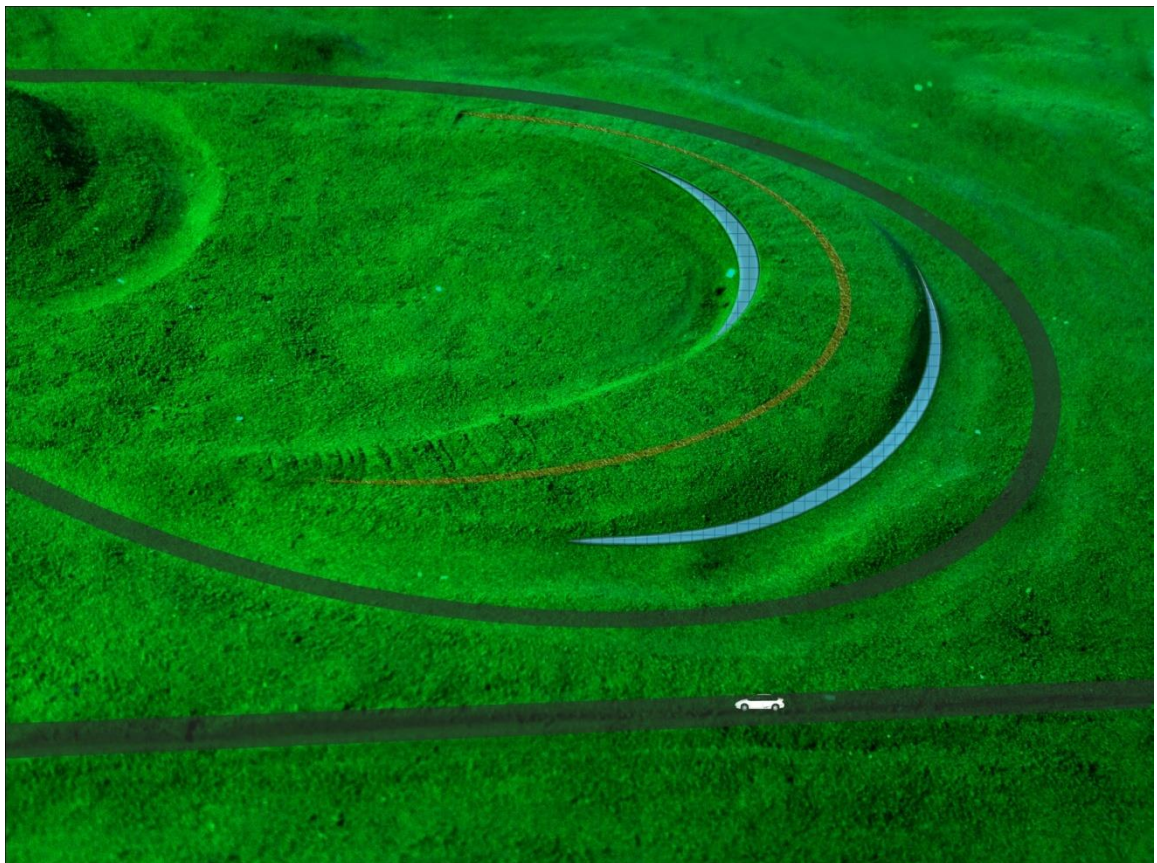
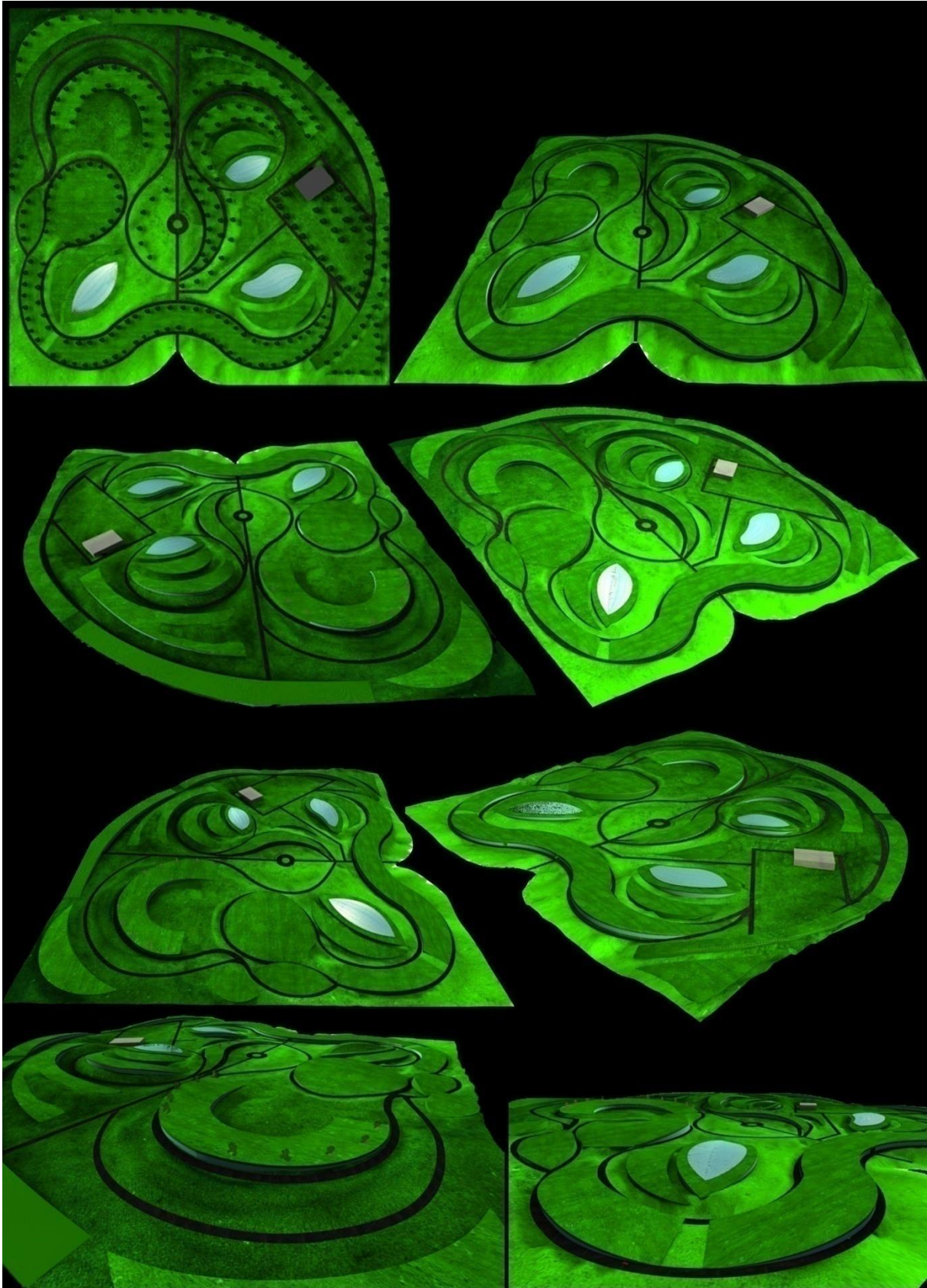


Fig.49, A picture shows a building and streets

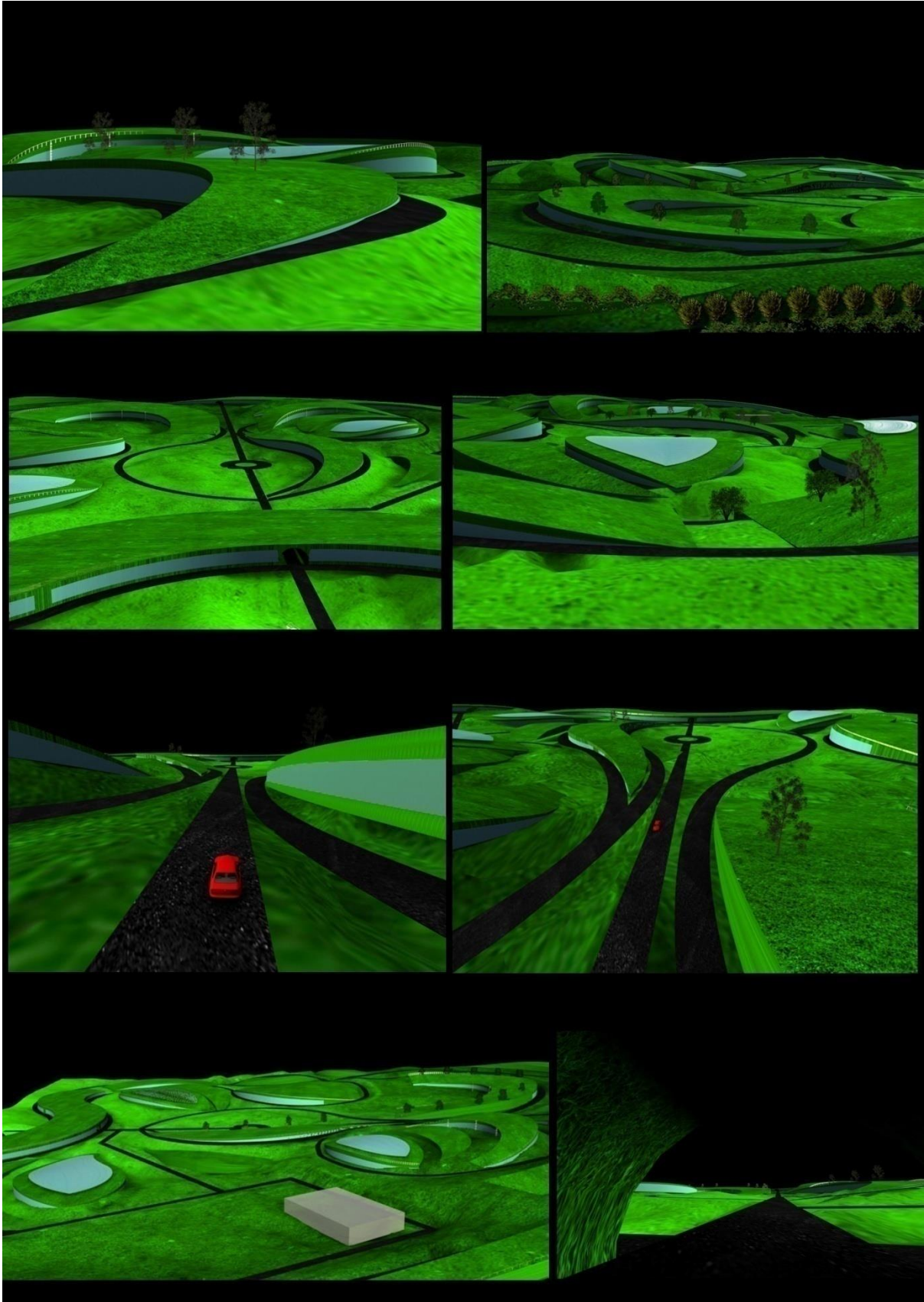


## Back to the graphic 3d modeling

After working with the clay model, I started to model it in a 3d program, and working with some details, using exact dimensions. The following pictures show an overview of the land from different sides and angles.



The following pictures show some detailed parts of the project.





## **Discussion**

### **Kronetorp future**

After showing my concept and seeing how the Kronetorp area would look like when it is designed with the concept of Landscrapers, I would like to discuss how the potential of this area when it is designed in this way.

The Kronetorp has a perfect location between two big cities like Lund and Malmö which will make this area a remarkable spot in the whole region. People will come from different neighbor cities to see the Landscrapers in Kronetorp area, to see and experience new exciting way of living. To experience how does it feel when living in between greenery, experience to live in buildings that has all the advanced and modern amenities but in a natural form. It would be a remarkable project, which may attract tourists from different cities. Moreover, this project may reformulate the landscape in the whole region, and can change the way we build in this areas.

### **1-Discussing design and making interviews with people living around the project area**

After interviewing some of the neighbors around Kronetorp area, and I have shown them the photos of the area, I got many interesting feedback. I showed them pictures on how the area would look like in the future, and how they wanted to be, which activities they wanted to see in the Kronetorp. Many of them when I speak about Kronetorp, they describe it as the huge empty land in front of Lidl shop. People think it is a boring area, nothing is going on there, and it is always the same.

Some think that something should happen there; people who live there need some new activities in the area, something attractive to bring live to the area. When I showed my photos, most of them they like to see some new designs in this area. Most of them think it will be a good idea to build Landscrapers there, which might be interesting for the residents of the whole area.

One opinion was to make this area as a golf club, another think it should be some facilities and services to the whole area, like a big hospital, a big shopping mall or a sports complex. Many of the residents would like to see different activities in the area, and they totally accept to see landscapers build there.

# Chapter 6

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## Discussions and conclusion

*"Those who look for the laws of Nature as a support for their new works collaborate with the creator." Antonio Gaudi*

## Discussion

By doing this study and raising some questions and by investigating and experiencing the design of several examples, I have got some useful answers and different perspectives on the phenomena of landscrapers and on the spaces formed on top of them. I will now return to the questions that have been pointed out at the beginning of my thesis and try to discuss what I have found out.

When looking at examples of Landscrapers from the past and from the present, we can see clearly the continuity of the same concepts and designs, even the design lines, which represent the smooth lines of nature. Moreover, when seeing the meeting between the lines of nature and landscape with the lines of buildings, we can see the dialogue between the manmade structures and nature. This dialogue results in a place for the human to live and to socialize called Landscrapers.

From different examples, we can realize that the spaces formed on top of Landscrapers are mostly public spaces. Nevertheless, we have seen also different examples where these spaces are not a public space, some are private, some are semi private... etc.

Is the top of the landscrapers a successful public space? Yes it is, and the evidences for that are the people's reactions toward Landscrapers, which was clear in the people's answers in the interviews. Moreover, it was also clear in the modern examples, how these Landscrapers crated a successful public space.

In addition, we can see that the public spaces formed on top of the Landscrapers, are different according to the function of the building and the users as well. It is difficult to put rules for these spaces formed on top of landscrapers, not all are public spaces, not all are private, and the level of publicity depends on the context and the function. For instance, an opera house or a theatre roof can be used as a stage for different performances as in Spencer theatre and Oslo opera house.

It was clear from the interviews and from examples, that the level of publicity of the green roofs of landscrapers is determined mainly by the inhabitants and users of these buildings. The users are the one who put the rules of using these spaces not the designers. However, a successful design based on wide range of study and investigation, will create a successful space, which can be public, private, semi-public or semi-private.

When the designer make interviews and ask people who will use these spaces about their needs, he will get clear answers for how to create a successful space. Moreover, the feedback from users will solve any unexpected conflicts in the future between the inhabitants of the building and people from outside.

From this study, I can summarize some characteristics of successful public space specially those on top of Landscrapers, such as: a successful public space should be easy accessible by people, and welcoming by the design itself, as we can see this in some Landscrapers when the green roof represent an extension of the land. In addition, a successful public space shouldn't be targeted to a specific group of people; it should be a space that can assimilate different people from different cultures, gender, and ages. Public space should be designed with less restrictions and rules, in order to attract more people.

Another question was how the people perceive and interpret those spaces formed on top of buildings. I got many answers from the interview regarding this issue, some people think that a green roof is just like a park or a recreational area, they would like to sit there and enjoy the place doing different activities, (barbeque, picnic, and playing games).

Some people think that these spaces can be like an agriculture area where they want to plant their favourite vegetables or flowers. However, architects and landscape Architects, must record the different needs and visions of people from different age, gender and culture, in order to gain the knowledge needed to design a successful public space on top of buildings.

However, one main advantage of the phenomena of Landscrapers is that they can be an ecological solution for modern architecture. Instead of invading the space with towers and skyscrapers, we can unfold the land and use it in a sustainable way without harming the environment. Another advantage is that it can unite many professionals to work together hand in hand towards a sustainable future of our cities. It may solve many conflicts between different professions, such as architecture and landscape architecture.

From the previous interviews of ordinary people about their opinion in Landscrapers, most of them were accepting the idea, and seeing them as a dream for their cities. In addition, when I asked the professionals about their opinion in building landscrapers, I got the answer from most of them that they would like to design such buildings and they think they are a way of solving many environmental problems. However, if both sides, the client (people) and the professionals (architects) are ready to implement this phenomenon, then it is ready to be implemented.

## **Conclusion**

My endeavor in this thesis was not praising landscapers, but I am trying to find out what could be advantages or disadvantages of them. I have found that the positive characters of landscapers are dominating over the negatives.

Moreover, by studying this phenomenon of landscaper, I was able to understand many common aspects related to architecture and landscape, it is widening the designer's perspective towards the relation between architecture and landscape.

I hope this landscapers study can be helpful in realizing the very sensitive borders between the buildings and landscapes, in a technical and social context. Designers can be inspired by this study of different situations related to landscapers, and when it comes to determining the correlation between indoor and outdoor spaces.

In conclusion, this investigation about landscapers is not the first and it will not be the last, as these phenomena of Landscapers are not a trend - it started since we started to inhabit the land. I would assume that landscapers are not just an optional solution for some environmental and social problems, but they are actually a necessity in our lives today. Moreover, we as architects, landscape architects and planners, should work more on investigating this phenomenon and to deliver the advantages of this idea to ordinary people, In order to be more accepted by a wide range of our society.

## References

- Arthur E (1983). Art into landscape, Landscape into art. 2nd ed. Arizona: PDA Publishers. p12.
- Asla (2003) Available: <http://www.asla.org/nonmembers/publicrelations/glossary.htm>. Last accessed 18th October 2012.
- Abhijit (2008), Ellora Caves, India [image online] Available at: [http://www.tripadvisor.com/Attraction\\_Review-g297649-d317351-Reviews-Ellora\\_Caves-Aurangabad\\_Maharashtra.html](http://www.tripadvisor.com/Attraction_Review-g297649-d317351-Reviews-Ellora_Caves-Aurangabad_Maharashtra.html) Last accessed 18th October 2012
- Alto (1998), Spencer Theater for the Performing Arts [image online] Available at: <http://www.predock.com/Spencer/spencer.html>. Last accessed 18th October 2012
- Allasio (2005), In-Depth: The House of Spiritual Retreat by Emilio Ambasz, (online photos) Available: <http://www.casaderetiroespiritual.com/index.htm#prt3>. Last accessed 19th October 2012.
- Allasio (2005), In-Depth: The House of Spiritual Retreat by Emilio Ambasz, peter Buchanan, US, skira 2005 p15-50.
- Archdaily (2008), Oslo Opera House, (online publication), Available: <http://www.archdaily.com/440/oslo-opera-house-snohetta/>. Last accessed 19th October 2012.
- Archspace (2008), Ewha Women University Campus Center, Seoul, Korea (online publication), Available: <http://www.arcspace.com/architects/perrault/ewu/ewu.html>. Last accessed 19th October 2012.
- American Wick (2008), green roofs, American Wick Drain Corporation 2008 [image online] Available at: [http://www.daviddarling.info/encyclopedia/G/AE\\_green\\_roof.html](http://www.daviddarling.info/encyclopedia/G/AE_green_roof.html). Last accessed 18th October 2012.
- Baker H. Morrow (1957), Dictionary of Landscape Architecture, ASLA; Published by University of New Mexico Press.
- Barnett, Jonathan, An Introduction to Urban Design, Harper & Row, New York 1982, p28
- Betsky, A (2002). Landscapers: building with the land. London: Thames & Hudson. P5
- Betsky, A (2002). Landscapers: building with the land. London: Thames & Hudson. P7
- Betsky, A (2002). Landscapers: building with the land. London: Thames & Hudson. P8
- Betsky, A (2002). Landscapers: building with the land. London: Thames & Hudson. P13
- Bentley and Butina 1991. Matthew Carmona, Tim Heath, Taner Oc, Steve Tiesdell (2003), Public Places Urban Spaces: The Dimensions of Urban Design (electronic book), Oxford: Page 72. Available: [http://books.google.se/books?id=EYtNvjLVisUC&printsec=frontcover&hl=sv&source=gbs\\_book\\_other\\_versions\\_r&cad=3#v=onepage&q&f=false](http://books.google.se/books?id=EYtNvjLVisUC&printsec=frontcover&hl=sv&source=gbs_book_other_versions_r&cad=3#v=onepage&q&f=false). Last accessed 18th October 2012.
- Berrigan, 2008. Hanging Gardens of Babylon. [image online] Available at: [http://joseph\\_berrigan.tripod.com/ancientbabylon/id14.html](http://joseph_berrigan.tripod.com/ancientbabylon/id14.html). Last accessed 18th October 2012.
- Burlovkummon (2011), Kronetorpsgatan area, Burlovkummon (Online publication), Available: <http://www.burlov.se/omradesmeny/byggabomiljo/samhallsplanering/kronetorpsomradet.4.2d9665b712e94e13c7e8000637.html>. Last accessed 12th November 2011.



- BNKR, Spokesman from BNKR Arquitectura (2011). Available: <http://www.spreadartculture.com/2011/11/07/earthscrapers-and-vertical-forests/>. Last accessed 18th October 2012.
- Bergman 1991 p 80
- Berman, M. (1986). Take it to the streets: conflict and community in public spaces, *Dissent*, Fall, 33, 478-485.
- Burka J., 2002. Ancient houses at Skara Brae. [image online] Available at: <http://john.gallery.whitelands.com/photo/103164?Scotland>. Last accessed 18th October 2012.
- culturalindia2012, Rock Cut Architecture, online publication, available at : <http://www.culturalindia.net/indian-architecture/ancient-architecture/rock-cut.html>. Last accessed: 2<sup>nd</sup> December 2012
- Conway H. (2005). *Understanding Architecture*. 2nd ed. USA & Canada: Routledge. P9
- Conway H (2005). *Understanding Architecture*. 2nd ed. USA & Canada: Routledge. P13
- Claudia (2003), Abu Simbel, one of the great rock temples at the ancient site in Nubia, Egypt. [image online] Available at: <http://www.picturesoftheplanet.com/places/egypt-pictures/abu-simbel.jpg.php#>. Last accessed 18th October 2012.
- Chalmers (1997) Delft library, Available: <http://twistedstifter.com/2011/10/beautiful-libraries-around-the-world/>. Last accessed 19th October 2012.
- Crowe, S. & Mitchell, M., 1988, *The Pattern of Landscape*, Packa p2.
- Day, C (2004), *Places of the soul*, Christopher day, second edition 2004, p6.
- Els2012, World Heritage Site, online publication, available at: <http://www.worldheritagesite.org/tag.php?id=96>. Last accessed: 2<sup>nd</sup> December 2012.
- Ellestadab (2010). [image online] Available: <http://www.ellestadab.se/CM.php?PageID=38968>, Last accessed 18th October 2012.
- Endra (2007), LOST CITY OF PETRA [image online] Available at: [http://www.trekearth.com/gallery/Middle\\_East/Jordan/North/Madaba/Petra/photo/740674.htm](http://www.trekearth.com/gallery/Middle_East/Jordan/North/Madaba/Petra/photo/740674.htm). Last accessed 18th October 2012.
- Ecolife (2011), What Is a Green Roof? (Online publication), Available: <http://www.ecolife.com/define/green-roof.html>. Last accessed 19th October 2012.
- Ecklon (2011), HEDONISTIC ROOFTOP PENTHOUSES, (online publication), Available: <http://www.ellestadab.se/CM.php?PageID=38968>. Last accessed 18th October 2012.
- Fred, J (2005), Skåne region, Fred, J November 2005 [image online] Available at: [http://upload.wikimedia.org/wikipedia/commons/archive/b/b3/20070227190911%21Sk%C3%A5ne\\_County.png](http://upload.wikimedia.org/wikipedia/commons/archive/b/b3/20070227190911%21Sk%C3%A5ne_County.png). Last accessed 18th October 2012.
- Farlex, (2012) Available: <http://www.farlex.com/dictionary/define/green-roof.html>. Last accessed 18th October 2012.
- Fischer (2007), Petra-Roman-Aqueduct [image online] Available at: <http://www.flickr.com/photos/58379053@N00/533849115>. Last accessed 18th October 2012.
- Freeartpics, 2008. Hanging Gardens of Babylon. [image online] Available at: <http://freeartpics.blogspot.se/2010/12/seven-wonders-of-world-hanging-gardens.html>. Last accessed 18th October 2012.
- Free dictionary 2010, building, Available: <http://www.thefreedictionary.com>. Last accessed 18th October 2012.
- Fedral tech (2004), federal technology alert, A New Technology Demonstration Publication 2004, (Online publication), Available: <http://www.ecohusky.uconn.edu/documents/NRELFedTechAlert.pdf>. Last accessed 19th October 2012.
- Fairhurst, Charles (1976). "Going Under to Stay on Top," *Underground Space*, Volume 1, Number 2, p 71-86.

- Finkel 2008, Irving and Seymour, Michael (2008) *Babylon*, Oxford University Press, New York, p19-20.
- Fergusson, J. 1864, *the rock cut temples of India*, online book, available at : <http://www.archive.org/stream/rockcuttemplesof00ferg#page/n5/mode/2up.P63> Last accessed 2nd December 2012.
- Green Roof Centre (2010), *green roofs*, The Green Roof Centre, Sheffield 2010; NASA (Online publication), Available: [http://www.daviddarling.info/encyclopedia/G/AE\\_green\\_roof.html](http://www.daviddarling.info/encyclopedia/G/AE_green_roof.html). Last accessed 19th October 2012.
- Gissen, D (2011) *The Architectural Reconstruction of Nature*, in Allen & McQuade, p. 456.
- Gehl J. (2006), *life between buildings, public space*. Island press, Washington DC 2011, p58-59.
- Gehl J. (2006), *life between buildings, public space*. Island press, Washington DC 2011, p99.
- HM (2010), *Badami Caves, India* [image online] Available at: [http://www.tripadvisor.in/Attraction\\_Review-g1143919-d1022211-Reviews-Badami\\_Cave\\_Temples-Badami\\_Karnataka.html](http://www.tripadvisor.in/Attraction_Review-g1143919-d1022211-Reviews-Badami_Cave_Temples-Badami_Karnataka.html). Last accessed 18th October 2012.
- Hoogland c. 2000, *Semi-private Zones as a Facilitator of Social Cohesion*, online publication, available at: <http://www.ipuev.de/sites/default/files/hoogland%202.pdf>. P 24. Last accessed 18th October 2012.
- Inhabitat (2012) *Central Library of Delft University* Available: <http://assets.inhabitat.com/wp-content/blogs.dir/1/files/2011/03/Tu-Delft-Library-92.jpg>. Last accessed 19th October 2012.
- Ivy 2008, *Ewha Woman University Campus Center Project, Seoul, Korea 2004-08*, (online publication), Available : <http://archrecord.construction.com/projects/portfolio/archives/0811ewha-1.asp>. Last accessed 18th October 2012.
- Jasmina Stojić, Danica Stanković (2009), *BIOCLIMATIC UNDERGROUND ARCHITECTURE: DEVELOPMENT AND PRINCIPLES*, Series: Architecture and Civil Engineering Vol. 7, No 2, 2009, pp. 135 – 144.
- Jane Jacobs (1961), *early critiques of modernist architecture and urban planning ranged from the populist, death and life of great American cities*-New York vintage book, p.103
- Jauslin, Daniel (2010) , *Doctoral Thesis Proposal , Architecture with Landscape Methods*, p.5, Available: <http://www.dgj.ch/research/ArchLand/ArchLandLayoutdj029web.pdf>. Last accessed 18th October 2012.
- Jauslin, Daniel (2010) , *Doctoral Thesis Proposal , Architecture with Landscape Methods*, p.7, Available: <http://www.dgj.ch/research/ArchLand/ArchLandLayoutdj029web.pdf>. Last accessed 18th October 2012.
- Kazmierczak, A. and Carter, J. (2010), *Adaptation to climate change using green and blue infrastructure. A database of case studies.* , (Online publication), Available: <http://www.grabs-eu.org/membersArea/files/berlin.pdf>. Last accessed 19th October 2012.
- Korea times (2011) *Ewha Woman University Campus Center Project, Seoul, Korea 2004-08*, (online photo), Available : [http://www.koreaitimes.com/images/ewha\\_womans\\_university.jpg](http://www.koreaitimes.com/images/ewha_womans_university.jpg). Last accessed 18th October 2012.
- le coeur brisé (2011), *Matmata city*. [image online] Available at: <http://sousouzam.blogspot.se/2011/03/tourism.html>. Last accessed 18th October 2012.
- Labs (1975). *The architecture use of underground spaces, issues & applications*, Master thesis, Washington university, thesis, appendix II-b, p 27 (online book)

available: <http://www.waynelabs.com/KenLabs/KenLabsThesis-LowRes.pdf>. Last accessed 18th October 2012.

- Labs, Kenneth. ( May 1977) "Terratecture," Landscape Architecture. p 244-249.
- Laps (1975), the architectural use of underground space: issue and application, master thesis1975, reprinted 2008,part II,p28.(online publication),available : <http://www.waynelabs.com/KenLabs/KenLabsThesis-LowRes.pdf>. Last accessed 19th October2012.
- Leather barrow (2004), Topographical Stories, University of Pennsylvania Press, 2004, p. 59
- Mark ochsamhälle(2004), OrtsanalysArlöv, Region Syd(Online publication) Available: <http://www.burlov.se/download/18.771c1dcc126b1f952f4800012675/ortsanalys+Arl%C3%B6v.pdf>. accessed 18th October 2012
- Mark Francis, public spaces and places, control as a dimension of public space quality, p149, Available:<http://envdes.ucdavis.edu/people/websites/francis/Control%20as%20a%20Dimension%20of%20Public%20Space-Francis.pdf/>. Last accessed 18th October 2012.
- Manuel2010, Antoni Gaudí, the Architect of God, online publication, available at:[http://www.iveamerica.org/index.php?option=com\\_content&view=article&id=254:antoni-gaudi-the-architect-of-god&catid=9:latest-news&Itemid=15](http://www.iveamerica.org/index.php?option=com_content&view=article&id=254:antoni-gaudi-the-architect-of-god&catid=9:latest-news&Itemid=15). Last accessed 2<sup>nd</sup> December 2012.
- Morin (2008),Ewha, Women University Campus Center (online photo)Available:[http://www.e-architect.co.uk/images/jpgs/korea/ewha\\_candremorin\\_dpa\\_adagp\\_1.jpg](http://www.e-architect.co.uk/images/jpgs/korea/ewha_candremorin_dpa_adagp_1.jpg).Last accessed 18th October 2012.
- Ne 2012, Skåne, online publication, Available: <http://www.ne.se/sk%C3%A5ne>. Last accessed 18th October 2012.
- Norske (2010) ,(online photo), Available : <http://www.facebook.com/photo.php?fbid=10150766926068726&set=a.10150708034048726.416548.194688528725&type=1&theater>.Last accessed 18th October2012.
- Neal, Zachary 2010, Seeking common ground: three perspectives on public space, Michigan State University East Lansing, MI, USA,online publication, p1, available at:<https://www.msu.edu/~zpnear/publications/NealSeekingCommon.pdf> . Last accessed 1<sup>st</sup> December 2012.
- Oxford 1 University Press(2012), Available: <http://oxforddictionaries.com/definition/english/building?q=building>.Last accessed 18th October 2012.
- Oxford 2 online dictionary (2012) Available: <http://oxforddictionaries.com/definition/english/landscape?q=landscape>. Last accessed 18th October 2012.
- Oxford 3 online dictionary (2012) Available: <http://oxforddictionaries.com/definition/english/landscape%2Barchitecture>. Last accessed 30th November 2012.
- Oxford 4 online dictionary (2012) Available: <http://oxforddictionaries.com/definition/english/architecture?q=Architecture>. Last accessed 18th October 2012.
- Olwig, Kenneth1996,R. "Environmental History and the Construction of Nature and Landscape: The Case of the 'Landscaping' of the Jutland heath." Environment and History 2, no. 1, Lammi Symposium special issue (Feb.1996) p 22
- OIKOSTEGES (2002), green roof studies, (Online publication) translated, Available: <http://www.oikosteges.gr/index.php/studies>. Last accessed 19th October2012.

- Oates, David (1988) ,More about the Hanging Gardens, translation pp. 45–46
- PARKER ,J August, 1979,INTERIORS OF UNDERGROUND HOUSES: SUGGESTIONS FOR CONSUMERS- B.S. in H.E, p15
- Perrault 2008, EwhaWoman University Campus Center Project, Seoul, Korea 2004-08,(online publication),Available : [http://www.e-architect.co.uk/korea/ewha\\_womans\\_university.htm](http://www.e-architect.co.uk/korea/ewha_womans_university.htm).Last accessed 18th October 2012.
- Pauls2010,what is urban design, online publication, Available: <http://recivilization.net/UrbanDesignPrimer/001whatisurbandesign.php>. Last accessed 18th October 2012.
- Predock2012, October (2012), Spencer Theater for the Performing Arts Alto, New Mexico 1994/1998, Available: <http://www.predock.com/Spencer/spencer.html>.Last accessed 19th October 2012.
- Rogers, W. 1996, The Professionals Practice of Landscape Architecture: A Complete Guide to Starting and Running Your Own Firm, John Wiley & Sons, 9 Oct. 1996,p1
- Sydney A (1985), Joan C and David W Baggs, Australian Earth Covered Building, New South Wales University Press 1st Ed. Page 5
- Scribe2011, Derinkuyu- Turkey’s Underground City, Available at: <http://ancientstandard.com/2011/06/28/derinkuyu-turkeys-underground-city/l>. Last accessed 18th October 2012.
- TNTO 2012, The Tunisian National Tourist Office, online publication, available at:<http://tunisia.oi-dev.co.uk/about-tunisia/culture/movies-star-wars-and-beyond>.
- Taipale k. 2006, FROM PIAZZA NAVONA TO GOOGLE OR FROM LOCAL PUBLIC SPACE TO GLOBAL PUBLIC SPHERE, online paper,available:[http://www.uta.fi/arkisto/tacs/papers0506/Paper\\_PUBLIC\\_SPACE\\_UTA\\_conference\\_May06\\_taipale.pdf](http://www.uta.fi/arkisto/tacs/papers0506/Paper_PUBLIC_SPACE_UTA_conference_May06_taipale.pdf).p5, Last accessed 18th October 2012.
- Taylor, Nigel (2007), Urban Planning Theory since 1945, London, Sage.
- UDG (2011), what is Urban Design? Urban Design Group. (Online publication), Available: <http://www.udg.org.uk/about/what-is-urban-design>. Last accessed 19th October2012.
- Unesco 2009, Nubian Monuments from Abu Simbel to Philae,online publication, available at: <http://whc.unesco.org/en/list/88/#links>. Last accessed 2<sup>nd</sup>December 2012.
- Vernez-Moudon,A. (ED) (1987).Public streets for public us.New York:VanNostrand Reinhold.
- Voyagesenduo2008, Matmata city houses. [image online] Available at: [http://voyagesenduo.com/tunisie/le\\_sud.html](http://voyagesenduo.com/tunisie/le_sud.html). Last accessed 18th October 2012.
- Visitorkney, (2012), Scotland’s national tourist board, online publication,available at : [http://www.visitorkney.com/culture\\_and\\_history.asp](http://www.visitorkney.com/culture_and_history.asp). Last accessed 2<sup>nd</sup> of December2012.
- Wmf 2012, World Monuments Fund, online publication, available at: <http://www.wmf.org/project/petra-archaeological-site>. Last accessed 2<sup>nd</sup>December2021
- Wiki quote,November (2011), Available: [http://en.wikiquote.org/wiki/Frank\\_Lloyd\\_Wright](http://en.wikiquote.org/wiki/Frank_Lloyd_Wright). Last accessed 18th October 2012.
- wiki quote ,October( 2012) Available: [http://en.wikipedia.org/wiki/Antoni\\_Gaudi](http://en.wikipedia.org/wiki/Antoni_Gaudi). Last accessed 18th October 2012.
- Waldheim, Charles (2006). The Landscape Urbanism Reader. New York, NY: Princeton Architectural Press. p 37
- Waldheim, Charles (2006). The Landscape Urbanism Reader. New York, NY: Princeton Architectural Press. P 43

- Wknight94, 2007. Ancient houses at Skara Brae. [image online] Available at: [http://en.wikipedia.org/wiki/File:Skara\\_Brae\\_12.jpg](http://en.wikipedia.org/wiki/File:Skara_Brae_12.jpg). Last accessed 18th October 2012.
- Waua 9 (2008) Available: <http://waua.wordpress.com/2008/07/28/on-the-strange-disappearance-of-semi-spaces-in-london/>. Last accessed 18th October 2012.
- Worpole k. 2012, The social value of public spaces, Published by the Joseph Rowntree Foundation, York 2012,online publication p 9, available at: <http://www.jrf.org.uk/sites/files/jrf/2050-public-space-community.pdf>. Last accessed 1<sup>st</sup> December 2012.
- Delft library web site (2008) Available: <http://www.library.tudelft.nl/en/visitor-info/> .Last accessed 19th October 2012.
- Zukin, S. 1991: Landscapes of power. Berkeley, CA: University of California Press, p 262.

## Appendix

### Dialogues in the maritime sports club:

#### **What is the function of this building?**

Employee: it is a youth club for sailing, surfing and sea sports for children from 4-10 yrs.

#### **Is it allowed for anyone to walk on the roof?**

Employee: absolutely yes, everyone allowed walking or sitting, no restrictions.

#### **Is there is any maintenance problem, especially for the wooden material?**

He was holding a wooden board from the floor of the building in his hand and he answered:

Employee: it is special timber from Brazil, it is durable for weather conditions and humidity, but sometimes we change some parts when damaged.

#### **What is the main purpose of the glass room over there?**

Employee: the room is for children to have some instructions, there is also a kitchen and changing room.

#### **Do you think children like this place?**

Employee: Absolutely, not just children even people different ages love to walk on the roof, and explore the place. Especially children they like to play but sometimes we forbid them to play when they are using skating boards.

I meet some of the children who used to come to the club, I saw them playing around the building and the roof, I asked them some questions as follows:

#### **Do you like this place or this building?**

Children: yes we like it; it is a lot of fun to be here.

#### **Do you like the curves of the roof?**

Children: yes sure we like it, it is fun, we can play, jump.

#### **Do you like the wooden material of the building? , is it suitable for playing?**

Children: it would be much more better if it is a concrete, so we can skate boarding (one of the children was holding a already a skate board)

#### **Do you think it would be better if it is grass?**

Children: no it doesn't matter for us, we just want a surface that we can play.



## **Dialogue in Copenhagen roof garden**

### **Is it a private roof for you?**

Jesper: no it is actually for all the residents of the two buildings, you can say it is a semi private, we all own this. it is a combined roof of two buildings ,looks like one building with one roof but actually it is two buildings with two separate entrances.

### **How you decided to make this project?**

Jespre:we all own the building and we decided that we should make some changes to the roof by adding a floor, but the municipality didn'tagree, unless we compensate with a green roof .because this area have a special building regulations and height limitations as it has many old buildings.

### **Who was the architect?**

The Architect was JDS, which is called BIG now (the same Architect who built the Maritime Youth club).

### **How much it cost?**

19 million Danish kroner, for the additional floor and the green roof, we all share it.

Is there any problems coming from the irrigation of the greenery?

No, not at all, it is well studied and perfect techniques for the irrigation, and the company comes every year for checking and maintaining the roof garden.

### **Do you have a private door to access to the roof?**

Yes, I can access directly from my terrace directly, others can access through the main staircases of the two buildings. Also this roof is higher than other buildings about 1.5 meters, as there was opportunity to build a small toilet under the staircase roof, which can be used by the people who use the roof.

There is also a playing court, and two sitting areas with small kitchenette and gill.

### **Do you recommend this idea to other buildings around you?**

Yes, of course, I recommend it to others; I also invite our neighbors in the same area to visit our roof garden.

## Questions to professionals in Architecture firms

### 1-K.G-Landskapsarkitekt-TENGBOM

#### **-What is your personal opinion about Landscrapers?**

When urban planners and architects start to forage around the cities for "blank spots" where you can start a densification project we often find that it results in loss of urban greenery. Modern planning and house design also tends to design buildings with very small yards and they are often so dark that it is almost impossible to make it green.

So, in answer to that, I think "Landscrapers" are an interesting way to add, instead of take away, urban greenery. Every little space that we can use to keep the city's biotic community alive and viable is important. I have a quote from Aldo Leopold at the bottom of my signature that I believe in very much. Aldo Leopold was working in the US to try and preserve the forests and natural habitats of wildlife, but I think that we also need to look at our cities as places where wildlife and "nature" has a right to exist and flourish. And people need trees and grass and moss covered stones even if they live in cities, so why shouldn't we build landscapers? In one way it is the most logical way to go.

#### **-Would you like to design landscapers?**

Of course! I'm already full of ideas.

#### **-What is the professional difficulties when designing and building Landscrapers?**

The closest I've come to design a Landscaper was in a office building where we wanted to make the balconies (two meters wide, covering the whole southern side of the building) green with plantable soil cover instead of you ordinary concrete slab floor. And the difficulties and challenges are quite big. The whole construction needs to be adapted to be able to withstand the added load of soil, you have to be able to get water to the plants, find anchor points for the trees, choose species that can withstand that kind of extreme environment, and so forth. But the biggest challenge I think is in dealing with clients that have no idea about what landscapers are and to try to convince them that they want to build one!

#### **-What is your vision about the future of Landscrapers?**

I hope that people (other than green urban planners and landscape architects) start to see the value and importance of nature and greenery in our cities. And if they do that, I think that Landscrapers will be one of the common tools we will have when planning and designing sustainable and beautiful cities.

## **2-S.G- Architect –Gehl architects**

### **-what is your personal opinion about Landscrapers?**

I think that they have value both as aesthetic and environmental solutions.

### **-Would you like to design Landscrapers?**

Yes.

### **-what is the professional difficulties when designing and building Landscrapers?**

Waterproofing and maintenance. Plant species selection is also an issue.

### **-what is your vision about the future of Landscrapers?**

They will be placed into a broader (and very necessary) investigation about the most effective way to green our cities. The result of this will likely inform whether they remain an aesthetic treatment or if they become more widespread. Almost all of the time planting on or around ground level is cheaper, easier to maintain and has a much greater amenity value for the city.

## **3-A.D - Architect, BFA, M.Arch - Head of Studio-Gehl architects**

### **-what is your personal opinion about Landscrapers?**

Buildings that offer walkable topography can offer an extension to the public realm in a positive way, if they are done in a manner which is sensitive to the context as well as to the uses of the building itself and the surroundings. Green roofs are more often used without the intension of walking, which is easier to make successful.

### **-Would you like to design Landscrapers?**

It is a matter of appropriateness. If the programme, brief, and context called for both a means of movement or gathering as well as the internal spaces, it would be considered as an option.

### **-what are the professional difficulties when designing and building Landscrapers?**

Management of water, maintenance (both of the material as well as a building management issue and economic one), keeping the planting alive are some basic issues from the technical side. Dealing with safety is necessary, as often the intention is to reduce the separation between so called nature and the building Privacy and security.

### **-what is your vision about the future of Landscrapers?**

There have always been earth structures, and there will continue to be earth structures; the technology will evolve to allow new options and the traditional methods will both continue and be developed. There is a fashion which comes up, and some of these types of structures are not well thought out and will not work due to simple maintenance issues (very simple things, such as ensuring that the facilities staff understand how to maintain such measures, and that the proper administration is put in place: who maintains: is it the building facility crew or the grounds crew?).

#### **4- A-J, Arkitekt SAR/MSA. Tekn.dr. White arkitekter AB**

##### **-what is your personal opinion about Landscrapers?**

I think they contribute to the urban environment in many important ways: for climate adaptation and mitigation, scenic, for play and recreation.

##### **-Would you like to design Landscrapers?**

I don't design but if I did I think it would be an exciting challenge. The landscape architects in my group promote green roofs to clients.

##### **-what is the professional difficulties when designing and building Landscrapers?**

I believe one problem is to convince clients but as said above, I don't design.

##### **-what is your vision about the future of Landscrapers?**

With more extreme weather to be expected, I think Landscrapers will gain importance in urban design and architecture. It will be important, though, to make them easily accessible if they are meant to play a role as public space.