Architecture with Landscape Methods

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**Doctoral Thesis Proposal
and
SANAA Rolex Learning Center Lausanne Sample Field Trip**

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I.1. Problem Definition and Approach

I.1.1 A New Perspective

What could landscape mean to architecture as a concept and a design method?

Contemporary architecture has been strongly influenced by the concept of landscape in recent times. Human space has always been given form in natural analogies. Architecture for a long time referred to nature in tectonics or ornament. But in contemporary architecture, analogies to nature are transforming the concepts of form and space, after both form and space had undergone revolutionary developments in modern architecture. Contemporary architects oftentimes refer to specific formal and spatial aspects of landscapes to describe their designs and summarize them under the term 'landscape' with various connotations. A new mindset evolves that changes the core of the architectural discipline: the organization and composition of architectural space as a landscape. The scope of this thesis is to investigate and understand architecture that has been designed like a landscape.

Regardless of mutual sympathies, the two design disciplines of architecture and landscape architecture have mostly understood each other as exclusive and complimentary. The object of either disciplines' design was always differentiated into the dichotomy of architecture and landscape; no designed thing could be both landscape and architecture at the same time. Landscape design has been attributed to the domain outside the building. The formal garden inside a sacred temple might obey architectural rules, but then there is always an outside of wilderness, however intense the relation or embedding of humans might be. This opposition is similar to the one established between human and nature or the city and the countryside. In a simplistic picture, the group of "architecture" , "human", and "city" stands on one side, while "landscape", "nature", and "countryside" represent its counterpoint. But things are more complex and these terms are more interwoven. Designed landscapes are understood as landscape architecture and therefore architecture by definition. Attributes to designed landscapes could even be both architectonic and architectural (Steenbergen 2008 p.17).

Still, both groups contribute to an opposition in their theoretical framework: Ideal Architecture defined itself in opposition to Nature. Architecture can be devised ex negativo from Wilderness ever since Vitruvius wrote, *"The men of old were born like the wild beasts, in woods, caves, and groves, and lived on savage fare."* Later *"they began ... to construct shelters" "and so passed from a rude and barbarous mode of life to civilization and refinement."* (Vitruv 2 1). Human has been seen as God's equal, placed on earth to dominate, as the custodian of The Genesis

Genius and Architectura (Laugier)
courtesy of Bibliothek Werner Oechslin Einsiedeln

(1 27). Landscape is at best a mediator between Human and Nature.

Ever since Plinius, the Villa was seen as ideal architecture placed in a tranquil landscape in opposition to the busy *urbs* of Rome (Plinius). Many elements in the villa and garden, like a parterre, a loggia, or a grotto are negotiating between hearth and horizon (van der Zwart 2004); but the classical villa does not break open the positioning of Landscape versus Architecture in distinct opposition - rather the play of opposites is emphasized.

The history both of architecture and landscape seems to have set the rules for understanding the two sides as opposites; this tradition has been established since antiquity and started to change only very recently. Landscape architects define their own expertise as a designer of outdoor space, anything in the human environment which is not a building (Vroom 1995). The beginning of an architect's work on the other hand is still where the landscape ends. Even after architects of the 20th century first proclaimed the end of historic continuity and the pure creation from the 'esprit nouveau' (Le Corbusier 1922), and later the end of beginnings and the end of the end itself (Eisenman 1984), the definitions seemed to be set. Architecture is about defining the inside space and its outside shell and, in an architect's view, landscape is the surroundings, anything around it, eventually reaching out to nature. While architecture would be about [human] constructions, landscape would be about [human] cultivation (Leatherbarrow 2004 p. 59). That both construction and cultivation need a prior design or strategy seems to be a pure coincidence and not a basis of a common method.

I.1.2 Architectural Design Methods borrowed from Landscape Architecture

Landscape architecture theory has been focused on definitions of landscape in the range from nature to artifact. Landscape is not nature. We can define landscape as cultivated nature including the man-made landscape as well as the human aesthetic appropriation of nature. The English word *landscape* first described a picture or kind of painting and only later a kind of space or environment. Just like the architectural discourse, our ideas about landscape and nature are subject to change. After we recognized that human is one of many species adapting to the environment in the struggle for survival (Darwin 1859), we also became aware of the human impact on nature - the expansion of the human species might meet nature's limits (Meadows 1972) and we are urged by the global need for sustainable development and environmental protection (Brundland 1992). In the second half of the 20th century, a series of changes in perspective, including the view from outer space and satellite observation of our planet, have shifted our attitude towards nature. Nature has turned from our outer enemy to struggle against for survival to humans' most threatened resource in support of that survival. Cultural and urban landscapes can also be seen as distorted environments (Reumer 2005). Landscape architecture changed in history, beginning garden design with the implementation of human (architectural) order via the eclectic and sometimes foolish admiration of the wild into

Natural and Architectural garden style debating (Delille) courtesy of Bibliothek Werner Oechslin Einsiedeln

the preservation of our living environment including systemic process management at a large scale. The epochal change in perspective of humans towards nature may be a reason and certainly a motivation to understand architecture from the landscape as a more distinct and thoughtful relationship with nature.

In this introduction only a very short overview of the specific design approaches of landscape architects can be given. While many architects would depart from nature with a program like The Shelter and The Genius and Architectural Discussion (fig. Laugier previous pages on the left), the landscape architect usually starts from a site like The Two Debating Allegories (fig. Delille previous pages on the right). We can distinguish *four attitudes* towards landscape architectural design, all of which relate to the site (based on Marot 1999). We will use these *attitudes* here to summarize some basic concepts of landscape with a few examples from literature in line with the four categories borrowed from Marot.

1. *Anamnesis* integrates the history that led to the present state of a landscape. Traces of history are visible and readable in most landscapes. We could talk of first, second, and third nature (Hunt 2000) and concentrate on the process from untouched wilderness, agrarian cultivation, and gardening with many kinds of higher spiritual sense and symbols. The idea of nature with constantly changing means of representation and interpretation is a central theme throughout the history of garden design and landscape architecture. We could see the landscape as a palimpsest (Corboz 1986) of different layers (McHarg 1969) in various models like natural, cultural, infrastructural, and built (Bobbink 2009).

2. *Process* focuses on natural and induced dynamics of landscape transformation. The effects of nature and time, but also of design strategies, are steering processes of preparing a site to grow in a certain direction. This also includes the observation, preservation and manipulation of social or ecological systems. A landscape designer structures potentials and is perfectly aware of the incompleteness of his design rather than building a final solution.

3. *Spatial sequencing* is an important design approach to landscape. Designs are often related to spiritual storytelling or ritual processions. Also, this aspect is transformed throughout history. Especially the dynamics of motorized transportation, speed, and communication technologies have changed our perception of and dealings with landscape (Appleyard 1995, Virilio 1995). In this study we will particularly focus on landscape's spatial qualities as opposed to other non-landscape qualities of space when we will dive into architecture. Fields like topography, circulation, and the horizon, and even qualities like the picturesque, relate to spatial sequencing.

4. *Context* is generated by landscape designs. It consists of dense functional, visual, and spatial relations and constellations. Relational structuring means the rearrangement of spatial constellations or the interweaving and joining of separate elements. Designed landscapes oftentimes create the context - other than just react to it. The important peculiarity of landscape architecture is its way to develop programs from these interrelations, a way of developing program out of the form and context of the landscape rather than the form following a function (Sullivan).

These four attitudes are meant as complementary and as several steps of a design or site analysis; together they give a fairly clear overview of the work and approach of a landscape architect. The author made his emphasis on aspects of nature and program a bit more specific than Marot, as they will be important to our study.

Currently, no such concise overview of similar design attitudes can be given to the

desperately complex field of architecture and its many, oftentimes opposing, groups of theorists. To be equally brief in summarizing architectural theory, let us just find one counterpart in architecture to each of the four *attitudes*. It is amazing that 'Landscape' is a bit of a theoretical blind spot in the architectural discourse since the end of Modernism in the 1970s. All of these crucial design strategies in landscape have on one hand been excluded from or neglected by architecture. We could actually define four different fields in architecture, mentioning here only one protagonist for each. The four are important parts of the main counter movements to modernist architecture in the late 20th century. *Anamnesis* is certainly an attitude that was oftentimes used by Aldo Rossi (1981) in his preoccupation with history as well as in his self reflective approach to design. *Process* is a key element in the writings of Peter Eisenman. If we would look for an advocate for *Spatial sequencing,* Bernard Tschumi's drawings of events in his influential Manhattan Transcripts (1981) come to mind. Finally, Colin Rowe would criticize the disregard for *Context* of the modernists in Collage City. (Rowe Koetter 1984).

Only by naming one exponent of the counterpart positions in architecture to those subjects of landscape is it obvious that architecture has been divided into various criticisms on the modernist movement. Since the heroic architects' pamphlets on Modernism, there is no closed theory or discourse; rather, architecture has been dismantled into a variety of fields. Quickly they have been labeled by publication machinery and art history as Postmodernism (Klotz 1988) or Deconstructivism (Johnson Wigley 1988), but have rarely been seen as a consistent movement except for their common critique of Modernism. Landscape could be a unifying factor for many facets of architectural theory. Led by various experiments often along single tracks of one of these four *attitudes,* very different architects developed their individual and oftentimes intuitive interpretation of landscape. Many have adopted the term "landscape", or a whole range of other terminologies, but no unified theory connected the fragments. In this study we will conduct a series of interviews or readings of writings by architects that should clarify each architect's position towards landscape. We think that landscape methods could summarize a whole range of apparently different approaches towards architecture.

I.1.3 Architectural Practice of Landscape

The division between the two disciplines of architecture and landscape has been questioned from many sides. Innovative practitioners of architecture designed parks with bright concepts of anamnesis, process, and cultivation, like Bernard Tschumi's or OMA's designs for Parc de La Villette (1987, as discussed in Tschumi 1985, Choay 1985, Vidler 1992 p.101ff). At the same time, landscape architects started to create a new breed of constructed landscape, like West 8's design for the Schouwburg Plein (1991 see Wall 1999) or the Kremlin at Lijdse Rijn Park (1997). With this in mind, it is widely accepted that the distance between the disciplines of Landscape Architecture and Urbanism is now blurred (Vroom 2006 p.14), with Landscape Urbanism emerging as a new theory and practice (for example in Mostafavi 2003). While Landscape Urbanism has been widely discussed and established as a form of teaching at renowned schools like the Architectural Association in London (AALU), there is no such principal movement or definition of architecture with landscape methods yet. Architecture may change soon or be about to change without being noticed. After the relatively young discipline of Landscape Architecture that we could define as the intermediary of Landscape and Architecture, and the even younger Landscape Urbanism as the intermediary of Landscape and Urbanism, will we able to see Architecture with Landscape Methods as the intermediary of Architecture and Landscape? There is certainly change to be discovered by those among any of these professions who do not want to limit the theory

or practice to their own discipline (see Corner 1999 p.1-25), employing "*dumb practice*" or "*dumb theory*" (Allan 2000 p.XVI-XVII). Rather, the goal would be to explore the unknown "*intersection of architecture's inside and outside*" (Allan op.cit. p. XIX) or landscape's outside and inside. The fact that such an epochal change might turn some of our notions inside out made others suggest this could even be a revolution (Repishti 2008).

We will distinguish the following three categories in a historical overview of architecture and landscape relations of which the objects of our research define the last group:

Vaux le Vicomte near Paris. André Le Nôtre garden 1652-61, Louis Le Vau castle 1656, Le Brun
photo by the author

Landscape versus Architecture is in distinct opposition in the classical gardens and landscapes of Europe. Even though Steenbergen and Reh (2003) make various connections between the architectural and the landscape design in their analysis, the duality between the villa and the domain is a precondition. However fruitful the mutual influence of architecture and landscape is on one another may be regarded in three epochal masterpieces. The Villa Rotonda (1566-69) controls and frames the landscape of Vicenza, its sophisticated composition an interaction of architecture and landscape. The same idea of opposition applies to Vaux le Vicomte (1656-61), where the precise arrangement of views along the axis of house and garden from the *grand salon* is a *gesamtkunstwerk* but still maintains (or even promotes) a duality. Also consider Stowe (1733-79), where classical architectural objects become the actors on the landscape theater and the elaborate play of viewing axes.

Farnsworth House Plano IL USA Mies van der Rohe 1951
photo Lodewijk Baljon

Landscape and Architecture are in intensified interaction in the later phases of Modernism. The freedom of Modernism from classical conventions encourages an even more intense exchange between villa and domain. Ornate and formal rules are left behind for the pure form that communicates between inside and outside. In Frank Lloyd Wright's Fallingwater (1935-39), the heart seems to have returned the house to the landscape. In La Tourette (1957-60), Le Corbusier plays on elaborate reactions of architecture to the surrounding landscape, terrain, and views. At the iconic Farnsworth House (1951), Mies van der Rohe reduces architecture with the goal of merging the perfectly designed piece with the landscape of the site. These represent intense exercises, but they still qualify as "Architecture" that is mainly preoccupied with breaking or bending its own rules. Formative entries to the site occur more and more often throughout architecture's development at the end of the 20th century, but still the modernists are using a language - however reduced - that they want to overcome at least regarding landscape.

Landscape as Architecture is the category that we are most interested in. The building inside and landscape outside do not merely interact, but the building is designed as an artificial landscape on its own. Landscape constitutes the inside. The landscape to architecture relation is turned inside-out. In some cases, this artificial landscape is related to the site through its shape. In others it is rather independent or even opposed to the surroundings. The unifying factor for this category is defining a completely new order. The common feature of the selected designs is not about a new intensive relation to the landscape but about the fact that each design is making its own landscaped interior. Mostly, they leave behind certain other elements typical to architecture - walls or straight floors for example - and replace them by hills, slopes, and other features and spatial phenomena borrowed from landscape. At once these projects integrate many or all aspects of a landscape design into a building.

Between the first two groups, *Landscape versus Architecture* and *Landscape and Architecture,* the borders are not as sharp. The innovation of Modernism in architecture is indisputable, but *Landscape as Architecture* was not explored intensely before the 1990s. The big change was the actual integration of landscapes into actually built (or almost built) architecture. This phase has passed slightly, remarked on by some but largely lacking grandiose pamphlets or heroic academic disputes. Nevertheless the line is very clear and sharp and will be our study's primary selection criterion. Buildings that are designed like landscapes occur. From these we will randomly pick some, but try to defend a series of very relevant projects. To illustrate, we will briefly introduce one of the examples.

Rem Koolhaas describes OMA's design for their building of two libraries at Jussieu Paris (1992) as *"a vertical intensified landscape, urbanized almost like a city"* (Koolhaas p. 1316); this is a completely new relation of architecture and landscape. The simplified formula of MVRDV's Villa VPRO - *"the landscape is the building"* (MVRDV 1999) - is even more clear. A similar intensity exists in the Yokohama port terminal by Foreign Office Architects (1996-2002), Eisenman's Ciudad de Cultura de Galicia (1999-), the Learning Center by SANAA (2004-2010), and the Blur Building by Diller + Scofidio (2002). The relation of each of these projects to the landscape methods posited by Steenbergen and Reh have been explained by the author (Jauslin, Propositions... 2009). It will be the subject of this thesis to discuss them, with the context of additional examples.
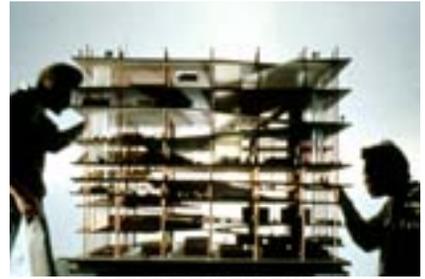
Two Libraries Jussieu Paris OMA 1992-1993

Villa VPRO Hilversum Terminal MVRDV 1995-2002

Yokohama Internatonal Port Terminal FOA 1995-2002

Ciudad de Cultura de Galicia Peter Eisenman 1999-2010

Blur Building Yverdon-les-bains 2002 Diller + Scofidio

I.1.4 The four layer model of Landscape Architecture applied onto Architecture

We can distinguish a development of architecture towards landscape, as it is pointed out by some protagonists quoted above. We would like to put this to a test, to answer the initial question as to what landscape could mean to architecture as a concept or design method. While doing so we could not only expand the vocabulary of architecture with that of landscape but also formulate some common ground for a new understanding of these projects in particular and architecture in general.

It is particularly interesting that there is a trajectory in the opposite direction, an entry into landscape architecture from the side of architectural theory: Steenbergen and Reh's (2003) adaptation of an architectural theory of Paul Frankl (1914) into Landscape. Frankl's theory of Architecture is especially valuable to us for this thesis, because it involves phenomenological, spatial, temporal, metaphorical, and programmatic aspects. It is a very broad approach to analyzing buildings, summarizing several different basic principles that have been laid out by authors like Semper (1863), with a phenomenological approach trained by Wölfflin (1886). Frankl's particular skill is combining phenomenological and structural critiques of architecture into a complete system from a human perspective; he combines the logic of making with those of perceiving architecture. In his opinion, "people are part of architecture" - without them a building would be a "mummy" (op. cit. p.159). We are here looking for the intellectual substance, content, sense of the whole (Frankl 1914 p.15 ."... [man] gelangt so zu dem gesitigen Gehalt, dem Inhalt, dem Sinn des Ganzen" transl. by the author)

To try and understand the architecture of landscapes, Clemens Steenbergen and Wouter Reh have established a set of layers - basic form, spatial form, metaphorical or image form and program form - and explained landscape as a composition of these overlapping four layers (2003). Their adoption of Frankl's model of four polarities (Begriffspare Frankl 1914 p174) Raumform, Körperform, Bildform und Zeckform onto a four layer model of Landscape will be our most important guide through this study of architecture with landscape methods.

For our purposes, we could briefly define the *four layers* of the landscape architectural composition of Steenbergen and Reh like this (Steenbergen Reh 2003, Steenbergen 2008):

Basic form is the way in which the natural landscape is reduced, rationalized and activated. In the case of architecture, we must consider here also landscapes that are generated artificially and the tension between grown morphology and built topography.

Spatial form is about the experience of the landscape space, including circulation paths, framings, and picturesque compositions. The relation and manipulation of the horizon is an essential design aspect to this layer.

Metaphorical form is the use of iconographic and mythological images of nature, always connected to the other layers and mostly represented in one of the others.

Programmatic form is the division of functions and organization of their relationships influencing the composition. The programmatic form incorporates the tension between business (negotium) and contemplation of nature (otium) in a constant search for balance from the classical landscape up to our times.

We will try to apply these distinctions into layers on our selected buildings when analyzing architecture with landscape methods. Could this clarify if and where the landscape analogy is influencing the architectural form of selected projects? Steenbergen and Reh derived this architecture of landscape from the architectural theory of Frankl - if we use it back in architecture we have to make an important methodological distinction first. We will not use the terms of Steenbergen and Reh to defend the presence of landscape elements in architecture. Such an exercise could easily be unmasked as a self-fulfilling prophecy or be academically worthless. The fact that these buildings we will propose in the next paragraph are landscapes is not evident from only being called so by their designers. If buildings are interpreted as landscapes, are the differences between architecture and landscape architecture becoming obsolete? In practically all of the cases, the architects have been using the term 'landscape' to defend or explain their building and/or the wish to create a landscape is obvious in the design process. If we use the layers, it is only to identify the elements in connection to the layers, to better understand the aspects that are turning an architectural composition into a composed landscape. Could we show how similar compositional relationships between the layers are being used in indoor and outdoor design?

I.1.5 Selection Criteria: How to develop a theory from Projects

This short introduction contains examples that best illustrate the spectrum of architecture with landscape methods. It is limited to buildings that want to be landscapes and that are intentionally imitating certain aspects of landscapes mostly to develop typologically innovative interpretations of various public programs. Even under these tight constraints, the list of relevant projects would be extensive beyond the scope of a PhD; thus, this thesis will serve neither as a comprehensive anthology or catalogue, but as a sampling of a variety of the most relevant projects to this topic.

In our preliminary selection, we will find out whether the projects are relevant to the category *Architecture as Landscape*. Also we will try to objectively judge whether the project is particularly successful in innovative spatial notions with landscape methods and if it is regarded as important in general. We will only select those projects most relevant to our scope as we intend to deepen the study and will only be able to treat a few projects with the depth of analysis intended.

For the purpose of elaborating our theory of Architecture with Landscape Methods, we will test a series of projects that are assumed to be meant as landscapes. We are not merely testing this assumption. Our answer will neither be 'yes they are' Architecture with Landscape Methods or 'no they are not'. We will rather try to formulate what is a landscape method in each project and occasionally state what is not. Landscape elements in each project will be attributed to each layer and we will investigate how these layers are composed in each project. We might be able to say how much each project falls into the category of Architecture with Landscape Methods. But most importantly we want to find out what the landscape methods in each project are. We will work through our material to find the arguments that will develop our theory of Landscape Methods in Architecture. Our theory will be a structured sum of observations from selected projects developed into a body of structured thoughts applicable to other projects or architectural design in general.

Projects will be selected on their chance to deliver proof of landscape aspects in all of the four layers. Some layers' landscape qualities could be dominant but all will be present. There will be certain elements that will repetitively occur in certain layers but there will also be notable differences - disagreements even. If we want to explore the field we would be keen on differences as much as we are keen on the commonalities.
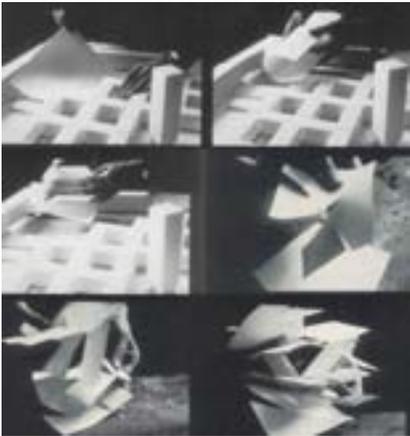
Two Libraries Jussieu Paris OMA 1992-1993
photos Hans Wenerman

The folded plane oftentimes will be a specific *basic form*. It occurs in OMA's Jussieu as the plane folded out of the ground plateau, practically useless to the neighboring building; it's also present in the rather formal exercise of MVRDV's Villa VPRO. The folded plane appears in another shape and meaning at the Ciudad de Cultura as well as the Learning Center, and it is informed differently at the Yokohama Terminal; even in the Blur Building, we will see a project that objects to fixing the form completely and does not rely on such a direct formal allusion to "landscape equals topography".

We will be able to qualify in *spatial form* certain experiences as typical to landscape, but also as different as landscapes can be, from a Baudelairien Flaneur in the Juissieu project, or a romantic wanderer at Villa VPRO, we will pass via the experience of a geological expedition up into the air again in the Blur Building.

We will definitely see huge differences in the use of *image form* and metaphors. The differences will range from very abstracted representations in the architect's very own language across vocabularies adapting to the subject, on to imitations of natural and cultural landscape elements in built form.

In the program form, finally we will see how making a landscape comes from different motivations. They can range from inserting a city of books into a landscape as in the case of OMA, to the more programmatic aspects, regarded in a Frankl perspective as the play between freedom and ligation. Both ends of the spectrum will inform programmatic aspects for a project from a client's perspective, and larger programmatic issues that are relevant to the discipline of architecture in general.

The architects will develop landscape *attitudes* (Marot 1999) or deploy them as they have developed them beforehand, for example as theorists like Rem Koolhaas or Peter Eisenman have on their respective projects. They will involve the history of the site in *anamnesis* and the one of their creation in the *process*; this should appeal to landscapes for the possibilities of *spatial sequencing* and the capability of creating a *context* rather than just reacting to one.

Each project has a unique set of layers and a unique composition. Each has enough landscape related elements in each layer, but none of them is a landscape in the first place. All of them are buildings providing covered spaces. All of them have doors except for the cloud, that is lifted above the site. None of the six would be considered landscape architecture according to Vroom (1995) but each of them could be seen as a complete landscape architectural composition according to Steenbergen (2003, 2008). In each, we could find enough attitudes that could be those of a landscape architect (Marot 1999). This is the tension at the edge of our disciplines that will drive us through this exploration.

I.1.6 Research Methods

To further the investigation into Architecture with Landscape Methods we will study the designs and projects in three parts each. We will follow the same procedure for each, and try to improve our methods along the way. Each project will be represented in a chapter, similar to the one proposed in Part II of this paper.

First a general introduction and documentation will introduce the project. A description of the author's investigation and general description of the building in its context in history and space will be part of that. We will explain how it was built (or why not), and focus on some technical issues of construction only if they are relevant to the subject of landscape methods. Also we will try to reveal or reconstruct how the design was made and especially why and how the idea of making a landscape came into the heads and plans of the architects, with references to the Appendix.

Second we will leave the subject for more objective analysis. Plan and composition analysis of projects are the main technique of this research and the core of each chapter. Comparative analysis by redrawing and reconstructing original designs of each project will help in developing a more precise set of plan and space analysis criteria for all of them. The four layer model of landscape architecture will be our guideline but will also assess how each represents methods in architecture comparable to those of landscape architecture, as summarized in the four attitudes.

Third will be a conclusion about each project analysis. This will contain a critique of the project but also constant methodological reevaluation and development of our own thesis with each analysis. Each project's position should be clarified and put into relation to the other projects.

In the appendix to each project, we will list a technical fact sheet, credits, and bibliography for each project. This should help make this thesis also a Handbook. We will interview the architects if possible and include those interviews as transcripts. This should clarify some design decisions and also the tension between intention and result. We want to investigate the usefulness and potential sources of trouble with landscape methods relating practical and theoretical aspects of architecture.

The study should conclude in a theory about the role of landscape as a concept in architectural design. The target should be to clarify the amplitude, variety, and reach of Landscape Methods in Architectural Design. The proposed research should clarify if such methods exist, if they are to be taken seriously, and what they would change in the discipline of architecture now and in the future.

I.2. Related Research

I.2.1 Authors with Similar Subjects

The changing relationship between Architecture and Landscape as a phenomenon of contemporary architecture has been addressed in three important and fairly recent books by equally considerate writers (Betsky 2002, Leatherbarrow 2004, Ruby 2006). A summary of these which honors them sufficiently would not fit into this brochure. These books either historiographically document or theoretically explain and illustrate similar phenomena. The titles of the three books are sufficient here to make their approach visible: *Landscapers - building with the land* (Betsky 2002) gives a wide range of examples in splendid illustrations and straightforward categorization, but many of them are more about the interaction of landscape with architecture. It does not concentrate only and therefore not deeply enough on the complete immersion of landscapes into buildings; rather, it concentrates on contextual dialectics. The most thoughtful piece, *Topographical Stories, Studies in Landscape and Architecture* (Leatherbarrow 2004) circulates around many essential concepts in essayistic eloquence, but without the drawn out evidence of a compositional scheme, the text - however brilliant - is to be seen more as art criticism than a substantial analysis of architectural designs. *Groundscapes the re-discovery of the ground in contemporary architecture* (Ruby 2006) gives a very clear introduction into the abundance and reintegration of the topographical ground into architecture but is also hasty in delivering as much evidence as possible. It is a good catalogue with dozens of examples for a dozen categories of ground shapes which are carefully selected but still too many to get into any of them more intensely. With their different priorities on either documentation or theory they all miss one specific point: they document and theorize some interesting results but do not reconstruct or redesign the compositional structure. Except for Leatherbarrow's detailed critique, it is hardly possible that the authors would have visited all the buildings and therefore many statements remain superficial. This may be the downside to the otherwise positive aspects of completeness and quality in the projects chosen, however arbitrary the selection criteria. The three books give a wide overview ranging from a massive number of examples (Ruby) to completeness a elaborate tour d'horizon on the different aspects of the subject matter (Leatherbarrow).

These other authors do not very sharply draw the border we just explained between a distinct opposition - *landscape versus architecture* - or intensified interaction - *landscape and architecture* - of the one site and total immersion of the *landscape as architecture* that we intend to deliver with this study. This study should not be seen as an opposition to but as a honing of those pieces named above. What they left out or did not elaborate on should be our aim: a few, deeply analyzed projects of which there may hopefully be the best available comparisons. Each analysis shall be accompanied with a site visit, surveys or plan studies, source and literature study and, where possible, interviews with the architects. It appeared in preliminary talks for interviews and from the fact that all selected projects have been attributed at least one monograph or significant book chapter usually published by the architects cum lorem, that these are important projects and that they have an influential position in the theory of the authors themselves.

I.2.2 Landscape Architecture at TU Delft Faculty of Architecture

This thesis should contribute a small piece to architectural theory as much as it would to landscape architectural theory and to their approach to one another. Except for their commonalities in aesthetics and other philosophical disciplines, they are surprisingly different. When I speak with my colleagues with landscape architecture backgrounds, I am as often surprised about our different backgrounds as I am about the commonalities within the fragments of our theories. At this point it might be important to mention how deeply connected the aim of this thesis is to the position and development of the chair of landscape architecture at the faculty of architecture TU Delft. It is related to the published past as well as to current research in the program *Urban Landscape Architecture* (Steenbergen, v. d. Velde, Bobbink, Nijhuis 2008). It is also related to the teaching of the Author in both the fields of Landscape Architecture and Architecture since 2008 at this faculty in various programs of the chair and as a guest at the department of Architecture. The research program is held together by the methodological approach of research by drawing and design research. Its three main sections cover phenomenological and design aspects in *Architecture and Landscape*, typological and other design related studies of the *Dutch lowlands,* and the social and planological implication of *urban landscapes*. It is the exchange with a tight group of colleagues that proposes a fruitful ground for placing this thesis. Less harsh weather, but no better ground could be wished by the author for planting the seed of this thesis.

This thesis is deeply related to the work of Clemens Steenbergen cum suis, mostly in his writings with Wouter Reh. It is in many ways opposed to their original findings about the relation of architecture and landscape. The author has great respect for their scientific curiosity in accepting this thesis, which could be seen almost as a challenge or at least a lengthy controversial footnote. It is not a coincidence that this thesis borrows the word from their title *Architecture and Landscape* (2003), as in many ways it is complimentary to their analysis of the classical European gardens and landscapes in relation to architecture, and especially their readings of landscape as an architectural composition following the theoretical models of Paul Frankl (Frankl 1914, 1968) on landscape architecture. That said, this thesis is in no way intended to be so comprehensive or remotely equal to *Architecture and Landscape,* but really just a study and assembly of analytical work with common conclusions.

As Sebastien Marot pointed out in his preface to Architecture and Landscape (op. cit.) the research on landscape architecture at TU Delft is a remarkable exception in its relation to architecture and urbanism and with its experimentation in design methods. I cannot but confirm that I encountered an exceptional place that inspired this study of architecture and I enjoyed the passionate discussion of design research methods with colleagues and students. I hope that the completion of this study will allow me to express my gratitude to Clemens Steenbergen and Wouter Reh for their exchange of ideas in many personal and inspiring discussions and for appointing to my side one of their best scientific younger partners Steffen Nijhuis who was working as a critic and inspiration for assembling these few pages and hopefully many more. The greatest motivation for writing down these pages is the hope to be able to sustain this fruitful exchange.

I.2.3 Related Architectural Practice

As much as we might strive for clarity and objectivity, it is impossible to deny an intense relation between the scientist architect and the builder architect. Any attempt to fully separate theory and practice would be academic mimicry. Therefore, it may not be disguised that the author is an educated architect and practicing architect and landscape architect, and that he regards practice not merely as a result of but as an integrated part of his research. Like many good authors of architectural theory before him, when explaining the related research it is hard to exclude related practice: the author has been involved as responsible landscape architect at West 8 in the Expoparc, opposite to the blur building, a project where the initial interdisciplinary enthusiasm ended in planning demarcation lines between partner offices (Diller Scofidio 2002). Later the author could in many cases experiment with architecture and Landscape interferences in building up his own practice since 1999 in Switzerland, Germany and The Netherlands. Nevertheless it must be stated clearly that no part of this text is reflecting the work of the author but only that of other architects. This is a choice made for the sake of objectivity and hopefully more fruitful research.

The view of a designer is different from that of an art historian. The architect-author might be sometimes compassionate and often more understanding for the sorrows and needs of architects involved in such big projects, as well as aware of the design processes that rule within the current practice of large and successful architectural firms. It is as an educated architect with more than a decade of landscape architectural practice that the author reads and understands these designs.

It is with amazing pleasure that I left the tracks my own practice had beaten for ourselves and followed the guidance of others. I never learned so much about architecture since my studies and am proud to call myself a PhD student after being only occasionally an academic for a decade. However carefully designed the research apparatus - there will always be traces of this *deformation profesionelle* of an architect in this thesis. After a lifetime of theory and practice and a Pritzker prize, Peter Eisenman modestly qualified his newly printed own PhD from 1963 as "an analytic work that related what I had learned to see" (Eisenman 2006). This kind of learning is a fairly modest goal I would like to achieve with this study for myself, even if the enlightenment may not lead to similar successes.

I.2.4 Landscape's conquests of Architecture

In their own introduction to Architecture and Landscape, Steenbergen and Reh write *"The examples selected in this book report this (architectural) conceptual conquest of the landscape."* Such should be the power of the selection for the reversed case in this thesis: examples that display landscape's conceptual conquest of architecture. Since this conquest is not seen from an analytical distance of at least two centuries but as an ongoing process, future historians may be amused to find detailed proof of the confusions of our time. But they may be pleased to witness a change of potentially epochal meaning through the eyes of a contemporary and compassionate architect. At its current stage the fascination for these experiments might be vague, such as the English landscape was to the 18th century inventors of the Landscape Garden - "*labyrinthic, limitless and scaleless"* (Steenbergen Reh 2003 p. 238). It may be blurred in a cloud now, but the point of this thesis result will clarify many things and contribute to the science of architectural and landscape architectural theory to promote their common goal for the future of a useful, sustainable, sound, and delightful design of the human living environment.

Landscape is the human aesthetic appropriation of nature. The "invention" of landscape at the beginning of the Renaissance can be identified with the beginning of humanism (Brock 1977 after Burckhardt 1860). Landscape methods in our age could re-establish the human condition as the main driving force of architectural creation. The aesthetics of landscape could be a means of reconciliation of man and the built environment. A development in this direction could be a basis for sustainable development with an emphasis on the human perspective.

The establishment of a not yet existing theoretical framework for these new aesthetics could transform a mere fashion into a socially relevant movement for the architecture and urbanism of the 21st century. Architecture itself needs to establish fundamentally new answers in the cultural relationship of human and nature to be able to integrate issues of sustainability. We therefore need an understanding of the concept of our own living space in relation to our world – both the highly cultural and widely popular topic of landscape could give architecture a key role in the future of our society - if it is understood.

I.3. Practical Information

I.3.1 Results publications on the subject so far

Sound Urban Landscapes archithese 6.2008
Dutch Mountains in Korea (German) archithese 3.2009
Dutch Architecture with Landscape Methods TU Delft 2009
Proposition for a study on Architecture with Landscape Methods Dokorama 2009
Tuin Park Landschap Minor Landschapsarchitectuur 2009 TU Delft 2010
Walking on the Moon SANAA Rolex Learning Center Lausanne Mark Magazine 26 2010
full texts see www.dgj.eu/publications and repository.tudelft.nl/search/ir/?q=Jauslin

I.3.2 Planned Results publications on the subject

Dutch Mountains in Korea (engl. version) Cities (revision. 2nd peer review pending) 2010
Gebaute Landschaften Werk Bauen und Wohnen Nr 9 2010 (abstract accepted) Sep. 2010
The Aesthetics of Sustainable Architecture by Sang Lee ed. (peer review pending) 2010
projects might be suitable for publications depending on editorial schedules 2010-2013

I.3.3 Supervision

The supervision is maintained in bimonthly meetings with Prof. Clemens Steenbergen and by monthly meetings with Ass. Prof. Ir. Steffen Nijhuis. The "ius promovendi" shall be attributed to Prof. C.M. Steenbergen up to 5 years after his emeritation. Permission must obtained at the Board of promotions according to 7.4 of the doctorate regulations of TU Delft.

I.3.4 Timeframe

The research was initiated in September 2008 and the candidate must take at least five years to complete a PhD in part time at TU Delft. Accordingly it is planned to be completed by 2013 in case of positive advise by the committee on June 10th 2010.
This would mean a project analysis every 4 to 6 months until 2012 and a full year to finalize the writing.
2009 definition of research scope
2010 framework and field trips # 1 and 2
2011 field trips # 3 and 4, eventually 5
2012 field trips # 5 and 6, eventually 7 and 8
2013 finalizing PhD

I.3.5 Financial Budget

The author would agree to finalize this proposed PhD thesis as part of a 0.6 fte employment at TU Delft including a maximum 50% or 0.3 fte teaching obligations until 2013. Such an employment was announced by the dean ad interim Prof. Dr. P. Boelhouwer in 2009. In exchange the candidate is performing research in the Urban Landscape Architecture program and teaching at the faculty. Employment is yet to be confirmed by the faculty if the PhD subject receives a positive advise by the committee. No further financing than a employment and related regular expenses are required.

I.4. Signatures

This proposal was approved for presentation to the PhD committee June 10th 2010

Delft, May 2010

Prof. Dr. C. M. Steenbergen

…

Ass. Prof. Ir. S. Nijhuis

…

D.T. Jauslin, Dipl. Architekt ETH

…

Architecture with Landscape Methods - Part II Sample Field Trip by Daniel Jauslin

Rolex Learning Center Ecole Polytechnique Féderale Lausanne 2004-2010
SANAA Kazuyo Sejima & Ryue Nishizawa Architects Tokyo

II.1.Introduction

II.1.1 This Paper in Relation to the Thesis

This paper is part two of the intermediate presentation of the PhD thesis Architecture with Landscape Methods, the so called one year report. It is not the only result of the author's research activities in the subject matter but more of a sample of the results. The theoretical scope of the research has been defined in two other published papers (Jauslin Propositions ... 2009) and shall only be summarized here. As a sample chapter, the present text, project documentation, and drawing work should illustrate the work that has been done so far with one Sample Field trip - one of the six to eight case studies that should form the core of the PhD thesis.

In Part One we found how the relationship of the two design disciplines of architecture and landscape architecture is evolving and saw some designs where architects refer to landscapes to describe their designs. The main question of the research is, what could landscape mean to architecture as a concept and a design method? The study should conclude in a theory about the role of landscape as a concept in architectural design.

To investigate and understand architecture that has been designed like a landscape, a series of field trips and in depth analysis are to be made. All of these field trips would consist basically of a project documentation of architectural works, with plans and pho-

left: View from the radio tower east shortly before opening.   above: South access to larest opening. photos: Ariel Huber

tographs, a set analytical drawings, and a critical reaction in regard to the subject. Also the field trips should describe their bibliographic sources and the project documentation should be completed with some basic data, to make a handbook for anybody to look up or eventually examine the architectural projects it discusses.

II.1.2 Aim of this Paper

The most important physical result of a PhD is a book. If this book should comprehend not only a report of the activities but actually be the main product, we shall consider this right from the start. So this sample field trip is not only a test of the scope and methods of the research, but also a test of the process of it's reproduction in book form. This may seem obvious, but in matters of architecture, and especially in architectural theory, drawing and representation are a crucial part of its understanding.

The PhD Thesis proposed would ideally formulate some essential parts of a theory of architecture with landscape methods. Of course one field trip cannot explain a complete theory, still the pages here are meant as an actual test of communicating the findings of the researcher to a scientifically or otherwise interested audience - you may read the paper with this in mind.

II.2 Rolex Learning Center Ecole Polytechnique Féderale Lausanne

II.2.1. Choice of this Project for Architecture with Landscape Methods

The Rolex Learning Center fits the selection criteria already mentioned in Chapter I.1.5. First of all it is clearly part of the category *Landscape as Architecture*. The predominant architectural shape is an undulating slab that forms the roof and main inner space and is designed intentionally to represent and function like a landscape. Secondly, this project has repeatedly been called a landscape by the architects themselves (Nishizawa). Besides theoretical and methodological points there are very practical reasons that this present paper is about this specific project as well as practical constraints that had to be mastered. I started visiting SANAA's Rolex Learning Center in Lausanne around six moths before the one year presentation of my PhD thesis. It was my architect friend, Tristan Kobler, who visited my office at the opening of the IABR and had been on the site with engineer Gilbert Santini who said that this project would suit my research interests of architecture with landscape methods. I had seen it published before (most recent AV projectos 030 2008) but only the energetic descriptions of the first hand impressions of a friend with similar interests could convince me of actually going there.

II.2.2. Sources Found and Investigations Led about this Project

This documentation and analysis is based on two visits at the final building phase in November and December 2009, a longer visit with press conference coverage and a guided tour by the architects on February 15, 2010 (the week before the opening to the public), and another visit in May 2010. I flew to Lausanne as soon as teaching obligations in Delft would allow me, unaware of the difficulties I would encounter. But two very simple problems had to be solved: access to the site and access to first hand materials. The first visit proved impossible to prepare and was merely a walk along the closed fence and more talks with architect friends who had been on the site on earlier occasions. Construction was delayed and the architect's office and client feared that all the interest in the site would

only hinder efficient completion of the project. Amazingly, the building was so convincing, even from that distant view across the fence, that it convinced me that I had to come back soon. Since the building was set to be opened at the same time as the presentation of this paper, I decided to take it as a fresh example - profiting off the inevitable lack of first hand interpretation. The discrepancy between published images and reality is striking with this building. Like the great gardens of Vaux le Vicomte or Stourhead this building escapes conventional representations.

The second visit was an official university event, Innovation Day, where I could attend in an official capacity. But on that visit, photography was strictly forbidden and even the use of cell phones was closely watched. Still, my own personal impression of the spaces was extremely motivating and pushed me to pursue the research further.

In December 2009, shortly after I visited the Lausanne site for the first time, Kazuyo Sejima was appointed the Director of the Venice Biennale 2010. In April 2010, while I was compiling these pages, SANAA was awarded the Pritzker Prize. Both events put them into the bright spotlight of media attention. It was very difficult to make contact after the initial official press contact that was provided by a writing job (Mark Magazine 26). On that press reception, there were two speeches by the client and the architect, and a group of journalists received a guided tour by the architects and some unexpectedly early interviews (see Appendix).

This report is based on numerous first hand materials (see Bibliography and Appendix). A wide list of publications prior to the opening combined with an enormous wave of popular publications triggered by the opening itself could fill its own monograph. The material is sufficient to test the methods and scope of the research. If the subject and the analytical propositions for Architecture with Landscape Methods would fail on this case, the research was not to be done.

II.2.3 Context of the Project

South Facade and view below towards Uni Lausanne
photo: Ariel Huber

The Ecole Polytechnique Federale Lausanne (EPFL) is Switzerland's French speaking national polytechnic university founded in 1969, its German counterpart the ETH Zurich, founded in 1855. These entities are the small Alpine State's parallel to the Grandes Ecoles in Paris. Only a few research institutions in Switzerland are national since education is traditionally federally organized and universities are sponsored by one or several *cantons.* Only since the 1848 federal constitution have national higher education institutes appeared in Switzerland, this of course because an old democracy had no royal scientific institutions. Like many European universities, the EPFL campus moved to the periphery after the rapid expansion of cities and growth of student numbers in the late 20th century. The whole site of the polytechnic is 4 km east the city of Lausanne in the jurisdiction of Ecublens. According to a Master Plan by Jakob Zweifel from 1971 the polytechnic was extended step by step under his office from 1972 to 1982. The

View across EPFL, the Rolex Learning Center and Lake Geneva to the Alps. photo: Alain Herzog

Site Plan 1:5000

100m
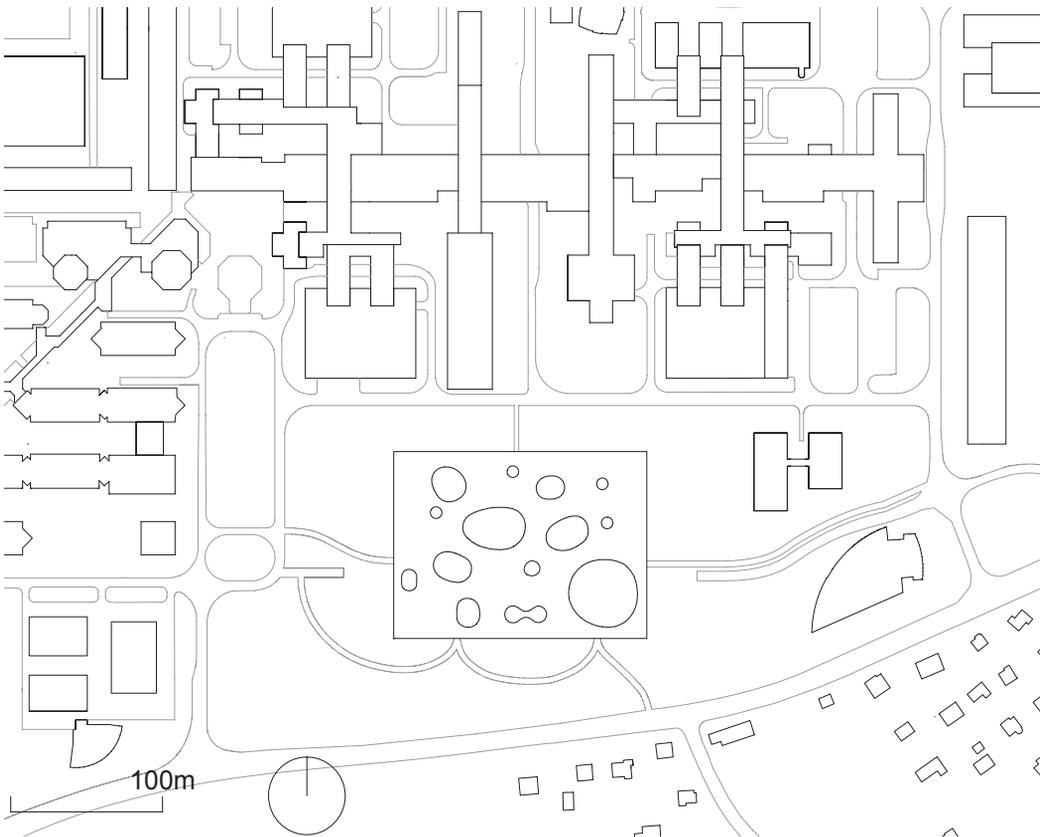
site is placed along a provincial route between a railroad track to the north and a country road to the south that cuts the site off from the lake. Zweifel's plan is very orderly and highly functional with a clear separation of traffic levels on the ground and a system of elevated plazas above. The dominance of traffic infrastructure typical for 1970s planning is ever present but less disturbingly here than at the sister campus Hönggerberg of ETH Zürich. The strong volumetric presence is based on prominent north-south bars that visually connect the site from the green hinterland in the north to the lake and mountain view in the south. Begun in the 1970s, construction was initially comprised of an interesting modular steel facade system reflecting Structuralist mannerisms, but later adopted a more Post-Modern influence with colonnades along a new north-south passage. Next to this, the University of Lausanne is placed; financed by the canton and not the federation, the university has a strong regional importance.

Global position
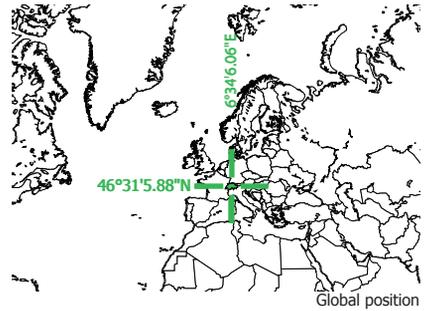
Regional map 1:250.000

Topographical map 1:50.000 (extracts from Topographische Landeskarte der Schweiz 1:25.000 / www.swisstopogeodata.ch)

photo: Ariel Huber

To bring more urban life to the campus, a congress center, library hotel, and lodgings were to be added according to an internal planning procedure of EPFL since 2003 (see also Aymonin 2007). In 2004, the EPFL launched an exclusive competition which eventually settled on 12 respected architects, many outside of Switzerland, and chosen from a pool of 182 applicants in 23 countries (ETH Rat 2004 p. 20). Besides the winning team of SANAA, other teams that were invited included Abalos & Herreros, du Besset-Lyon, Diller Scofidio & Renfro, Zaha Hadid, Herzog & de Meuron, Xaveer De Geyter, Jean Nouvel, Mecanoo, OMA, Valerio Olgiati and Livio Vacchini (Bisbrouck 2006).

With the given site in the competition, The EPFL formulated a very ambitious set of programmatic requirements that would usher in the future of learning. The programmatic aspect was loaded with much more than functional requirements: the building 'must be significant', needed to 'impose itself in the environment like a signal in the landscape', was to 'become a hive of activity' and 'magnify the school, adding to the reputation of its academic curricula, emphasizing the school's radiance at national and international levels' (program quoted after Bisbrouck 2006). Many results of the competition took that quite literally and developed different types of imposing sculptural volumetrics in crystalline (Hadid, de Geyter), tilted (DiSco, HdM), or arch shapes (OMA).

The EPFL Learning Center's main task is to bridge the gap of that disconnects the

cross section central

long section forum and reataurant

east elevation

north elevation
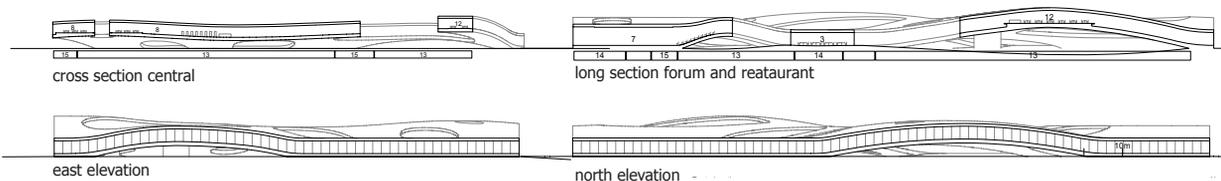
floor plan ground level below shell 1:2000

Floor plan under shell

| 1 | Main entrance |
2	Cafe
3	Food court
4	Bank
5	Bookshop
6	Offices
7	Multipurpose hall
8	Library
9	Work area
10	Ancient books collection
11	Research collection
12	Restaurant
13	Parking
14	Storage
15	Mechanical
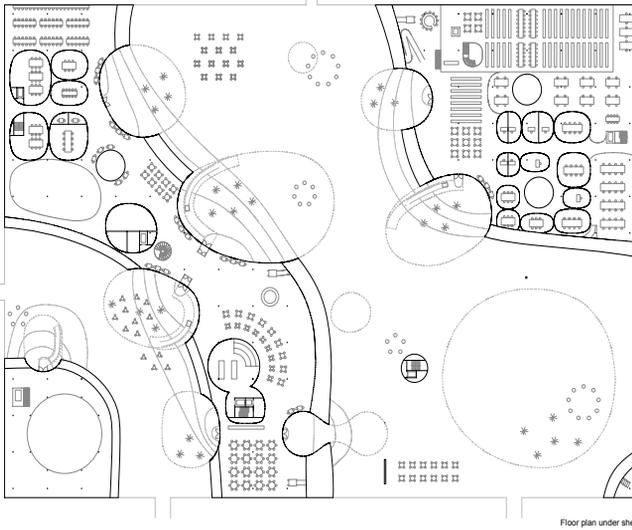
above: sections legend
left page: above section
both pages below: elevations

left: ground level plan (SANAA 2010)

10m

EPFL and it's neighbor, Uni Lausanne, from the city. It should reestablish connections between students and the city and bridge between the academic world and society. Put in traditional terms, the program is predominantly a library, restaurants, a conference center, meeting and exhibition spaces, and work places for scientists – but none of these look nearly how one would expect from their title. The English term 'Learning Center' would describe a new building type for a digitized library integrated into university teaching. Since Lausanne, it would become an accepted term even in the French Republic's administration (Jouguellet 2009). EPFL's search for new building types is connected to the digital revolution, the second to a major shift in learning from the Gutenberg revolution. Both shifts in media had a huge impact on the daily life of research and education. The University dematerializes, but nevertheless university buildings still refer to a typology of the Greek philosopher's school. Of course the university is still a place to speak and meet – and yes people still go there for education. There is a puzzling paradox inside the program of making a building for the university of the digital age. What is the need for space in learning when all information can be accessed from everywhere with a slick battery powered electronic on your lap?

II.2.4 Impression from the Field Trip and Design

According to architect and founding partner Ryue Nishizawa, the EPFL Learning Center in Lausanne at Lake Geneva is '*a dramatic space, that words can hardly describe*' (Nishizawa 2005 p.11). The spatial experience at times approaches the *sublime*– used exhaustively in the 19th century to describe landscapes that leave the admirer without words to say. An aesthetic qualification which is incomparable in its magnitude is hardly useful for a scientific description.

long section library

10m

west elevation

south elevation

27

photos: Ariel Huber
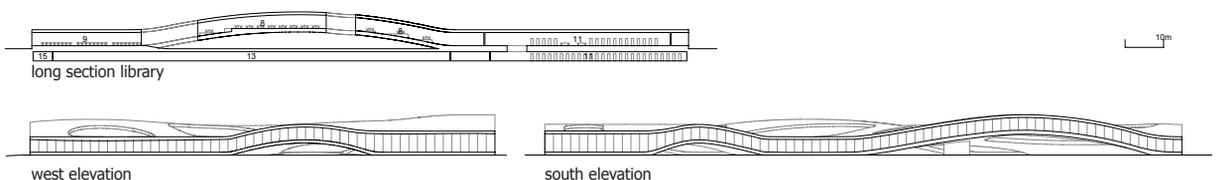
Even to start our description by the entry is difficult with this building – although the Learning Center is clearly limited by a vast rectangular shape. You do not enter the rectangle at the edges but through the center. Once inside, nothing is guiding the visitor in conventional ways except for the writing on its curved glass walls. Those walls inside are exterior walls around clearings in the midst of the space. As nothing is forcing the visitor on a certain path, the report of a walk-through would still be very subjective.

One cannot avoid describing this building only by its space. No intellectual framework other than the pure creation of space for people is the working ethos of SANAA – and they have made that very evident in their most ambitious international project so far.

The Learning Center consists of only one single large public floor above ground. This giant continuous space can be described as an abstracted landscape; or more precisely, standing in the building feels like being in an architect's model of a landscape. The undulating slab of that single floor is not always touching the equally large basement floor. It lifts up from the ground at different zones, providing entries for slipping in at every edge of the basic rectangular form. Inside the rectangle, a series of holes not only provide masses of light to the inner space but also act as axis points around which the entry paths are woven through the holes between the ground and the undulating slab. The building wraps around the approaching visitor - entering the inner landscape felt like falling into it from outer space; walking on the modest gray carpet felt like walking on the moon. The holes are an essential part in communicating a space that is dividing and connecting all at once.

The continuous plane is not indifferent, it adapts to programs with a seating range here and a platform there. Ramps in the shape of serpentine roads and rack railways for wheelchairs are abstract quotes of the alpine world, moments that the hilly city of Lausanne and the nearby Alps know quite well. The strength of the building language is in the connections it can make through very few elements. The spatial dynamic of uphill and downhill inner spaces and the splendid views with bits of natural landscape framed by this artificial world connect the visitor with his surroundings. The mood is set after a flight across the Jura-Mountains, above Lake Geneva and along the Alps looking for the giant Mont Blanc on the horizon. You can not help but compare the building to the scenery outside. More than a walled Asian garden, this is reminiscent of the English landscape garden using effects and scenery found in nature to trigger that thrilling and edgy experience of the sublime landscape. While the separation between building and nature is made very clear by materials, they are intensely connected by the spatial composition.

Being reduced to Japanese tradition is rejected by Kazuyo Sejima and Ryue Nishizawa. If there were a traditional reference for SANAA, it would clearly be Modern Architecture, as they refuse to be connected to or provide for any kind of tradition. Their sense of

1 Main entrance
2 Cafe
3 Food court
4 Bank
5 Bookshop
6 Offices
7 Multipurpose hall
8 Library
9 Work area
10 Ancient books collection
11 Research collection
12 Restaurant

Floor plan   10m
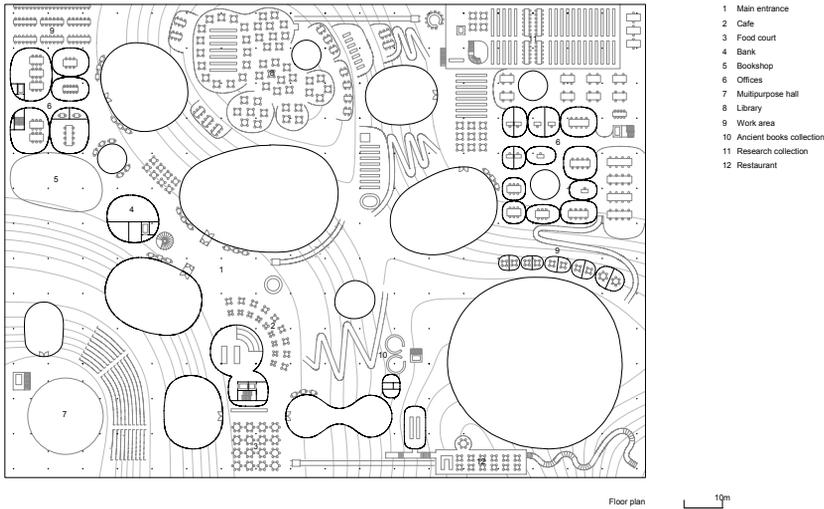
space is truly modern: it is about experiments with space, program, nature, and the human condition. It is about issues of transparent connections between inner and outer space, concerns of leading modernists like Theo van Doesburg and Mies van der Rohe. SANAA's modernism is not about formal language but about trying to break apart conventions and bring space and composition into direct relation with the human experience. SANAA keeps expanding their formal repertoire; this building is the furthest they have gone in experimenting with free formed shapes, but because the goal of creating space is never out of sight, they are immediate masters of their craft. The baroque architectural tradition of creating space by modeling light, voids, enclosures, and vaults can be found here – like the modern, the baroque is only referenced in its spatial qualities, free of the ornate foolishness that other contemporary architects often borrow from that époque.

The competition brief in 2004 asked no less than building the future of learning. It seems to be a wise tactic of SANAA to approach such an enormous ambition with calm and simple experiments on the right shape as the answer to the complex question. In the architects' design process, a very simple problem triggered a gigantic leap in the design. They quickly realized that they did not want to stack levels – one continuous floor should connect all the different uses in a flow – connections between spaces were more important than their division. But the simple wish to have a view from the restaurant to the lake would mean that it had to be upstairs – unless you skip the stairs and use the whole building to get there instead. So while wrangling with placing shifts and splits and limited views between adjacent spaces of different heights, the drafting paper started to crumble under the sweat of the draftsmen of that one continuous floor plan. The discovery of the horizon as a space divider convinced the designers and made them develop all the public spaces into one single continuous undulating plane – a landscape making architectural space.


photo: Ariel Huber

29

II.2.5 Building the Rolex Learning Center

After the competition win, the realization phase of the project was relatively long (with almost 6 years in total from competition to opening) and encountered some challenging technical and financial hurdles, with a total delay of 2 years to the initial planning. Initially praised for it's modesty by the parliament's financial commission, it eventually turned into an expensive object of technological prestige. The cost of the original proposal at 40M CHF in the competition stage jumped to 90M CHF with SANAA's preliminary project design in 2005, and finally to 110M CHF (70M EUR), of which 50M-52M were privately funded by various companies - a prime example being Rolex purchasing the name (sources archicentral.com 2009, ETH Rat 2004 p.20, ETH Rat 2008 p19, EPFL Media Dossier 2010, Aebischer NZZ am Sonntag 2010). Works were executed under the Swiss General Contractor Losinger owned by Bouyges in France, and subcontracting was garnered from local firms.

The cost is not astonishing, as the shape does not primarily follow conventional laws of economics or physics, particularly related to architecture. Additionally, the client asked for very high comfort and energy standards, which in Switzerland are among the toughest in the world. The undulating concrete slab was a particular challenge in its structural design, additionally requiring thick insulation on the cold underside. One principal misunderstanding between the architects and engineers was the shell for this building, which is not a shell structure. A reinforced concrete shell can be impressively slim with a ratio span/thickness of 250 to 500 meaning that 20 cm slabs can carry across 50m if they are designed and calculated in their structurally ideal shape (Santini 2008). The great works of Felix Candela for example would follow a design process of formal optimization. In the case of the Learning Center, the shape had to be determined by spatial, visual, and functional aspects, making it impossible to find such a structurally ideal form (Santini 2008). The Engineering Firms Bollinger Grohman Frankfurt and Walther Mory Maier Basle were to translate the idea formulated by SANAA of light and slender shell-like slabs into a buildable solution.

An additional handicap was that usable surfaces in buildings (floors) allow much less deformation than surfaces on roofs or on bridges. The airy white plastic sheet of the architects' competition model turned into massive concrete ceilings. This is not about surface shaping but gros oeuvres – the whole slab is 40-80cm thick with up to 470kg of reinforcement steel per cubic meter of concrete. This is almost 5 times more steel than the Salginatobel bridge built in 1930 and designed by concrete pioneer Robert Maillard. With a span of 94m, the bridge would use 103kg per cubic meter of concrete (Imhof). At the north side The Learning Center spans 80m and the arch is only 4.85m high. This is half as steep as bridge engineers would see as a feasible limit. The structure here has to bear 78000 kN or 8000 tons of weight, 200 loaded double trucks hanging on a few meter wide zone. The solution proposed took a whole year of pure structural design study not counting the extra demands for steel layout and formwork design (Gromann 2008). The proposal is a hybrid system of 11 arches hidden inside the 2 shells, 4 in the smaller and 9 in the larger hill. These arches do not span between two rocks like Maillard's bridge, but lay on top of a parking garage and a curved wall that needed to be passed under by cars on many levels. To fix the landings, all of the massive concrete landing zones are connected with horizontal cables at ground level in the roof of the underground parking garage. These connections also criss-cross between arches in a kind of a zigzag system.

Several modifications had do be made to the shape in a kind of negotiation process between architects and engineers. In this process, the architects insisted on certain heights and emphasized visual relations especially from the elevated inner spaces - they wanted
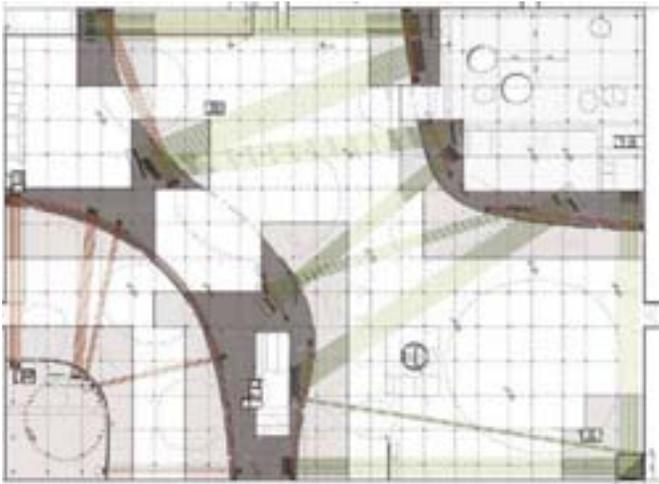
Reinforcement floor slab: smaller hill (red cables) larger hill (green cables) landing zones (gray)

Changes of openings (green to red) in load bearing zones

11 arch tones (yellow) reinforcement (red) formwork (blue)

construction of the slab for the larger hill 2008
all pictures on this page from lecture of Grohmann 2008

views across the roof which should remain parallel to the floor. They also rejected resolving the lower level structure with columns, forcing impressive free spans comparable to larger sports halls. The modifications are steeper bows, avoidance of concave bumps, approaching symmetric parabolas along the 11 bowlines and moving the openings to have wide enough stress zones with the cables. To minimize risks in this new way of building, construction started with the smaller and steeper hill and addressed the large one after. The negotiated shape had to then be put in place with 1331 different pieces of formwork that had been designed by a specialized company (Mark 19 p200-203). In a 3 day non-stop operation in July 2008, 4300 m3 of concrete were to be poured including more than 20 truckloads per hour with 250 workers involved (Mallet 2008).

Additionally, the high ambition of the client to reach the Swiss Energy label «Minergie» that is based on a minimum of Energy to be consumed per m2 required extra efforts. The ratio envelope surface to heated floor surface is very important to reach this standard and was far from optimal here. The study of natural ventilation and heat changes as another example would require 13 consecutive simulation models to determine the distribution of openings in the facades (Jaboyedoff p.24).

A mixed structure of wood and steel was used for the roof to reduce heat deformation, weight, and cost of the structure. In the flat areas, the primary structure (IPE400) is filled with steel beams (IPE300), but in the curved areas on to the 9m square column grid are filled with a total of 986 laminated wood secondary beams, or 5 per field. (Grimault p.18).

Montage of a relief of the site of EPFL in Ecublens (source www.geoplanet.vd.ch) with relief of Learning Center (rendered by the author) 1:10'000

II.2.6 The four layers of the Landscape Architectural Composition

Asked about the future of learning but also the future of their architecture, Kazyuo Sejima and Ryue Nishizawa want to create a *landscape for the people* (El Croquis 139) – the essential *contemporary scenery*. Landscape sceneries are hard to describe and splendid to discover.

We now apply the *four layers* of the landscape architectural composition of Steenbergen Reh (2003, 2008): *Basic form* is the way in which the natural landscape is reduced, rationalized and activated. In the case of architecture, also the way in which landscape form is generated becomes important. *Spatial form* is about the experience of the landscape space. *Metaphorical form* is the use of iconographic and mythological images of nature. *Programmatic form* is the division of functions and the organization of their relationships influencing the composition.

II.2.6.1 Basic Form

The topography of the EPFL is relatively flat by Swiss standards, especially compared to the city of Lausanne 4km to the east. A 1 square km or roughly 300-700m area around the building vary in height by a maximum of only 2m - probably a good reason to choose this area for the quickly expanding campus in the 1970s. The site of the

Relief and buildings in the city sentre of Lausanne (source www.geoplanet.vd.ch) 4km east to our site 1:10'000

Learning Center is a southern extension of the campus towards the provincial road. It is 400m above sea level or 28m above Lake Geneva. The Mont Jorat (975m above sea level) is 10km to the northeast of the site. To the south, the whole panorama is occupied by Lake Geneva, which is only 500m away. 13km across the Lake on the French side are the Baths of Evian, source of the bottled water. Behind Evian and toward the east end of the lake, an impressive panorama of the alps arises. The highest mountain in Europe, the Mont Blanc, at 4810m above sea level in Chamonix France, is only 80km away to the south (at 163 degrees).

The flatness of the nearby surroundings is not only a foil to the steep mountain scenery but also to the topography of the city of Lausanne itself. There, the center is at 475m above sea level, or 100m higher on the lake side neighborhood of Ouchy. Urban transportation in Lausanne therefore makes use of Mountain Railways (see Funiculars Chapter II.2.6.3).

The predominant reaction of architecture in the EPFL masterplan to the landscape would be opening the corridors between the long stretched buildings towards the alpine panorama. They are either north-south oriented in the area north of the building site or east-west oriented on the western wing. They are 3 or 4 stories high (15-20m), which still gives them a rather modest earthbound proportion. Most of the buildings are connected by a system of elevated walkways one level above the streets. In Jakob Zweifels (*1921) Masterplan, we see a typical and quite successful example of a reaction to the landscape in the concept *landscape versus architecture* (Chapter I.1.4). This is mentioned here to make
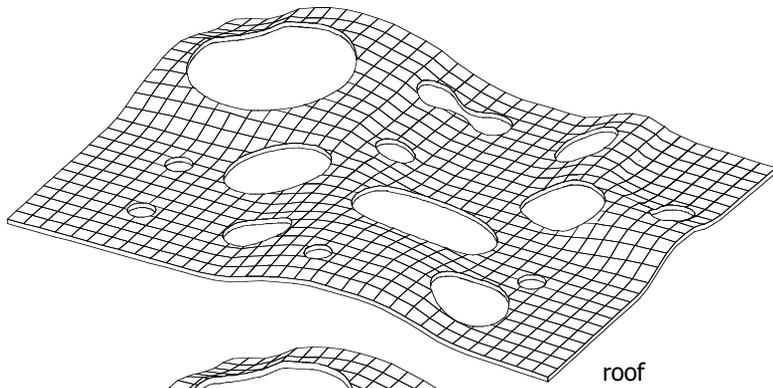
roof
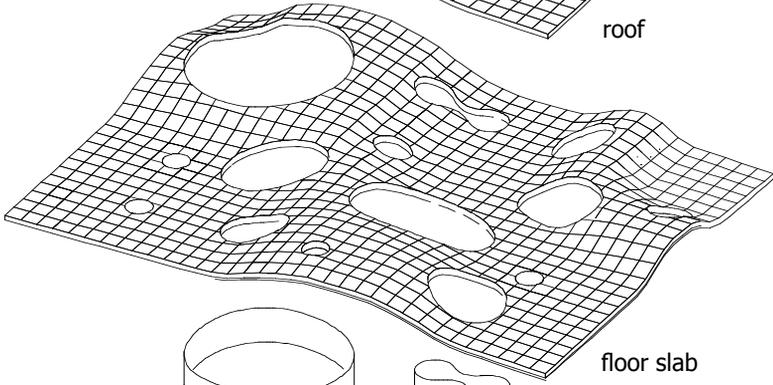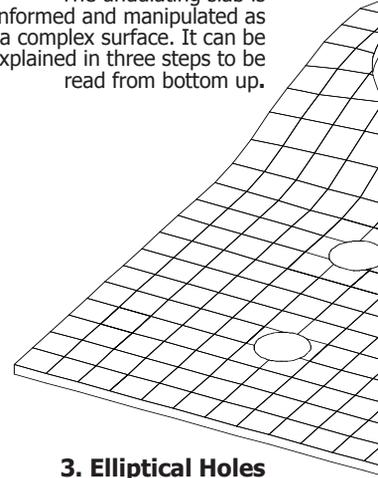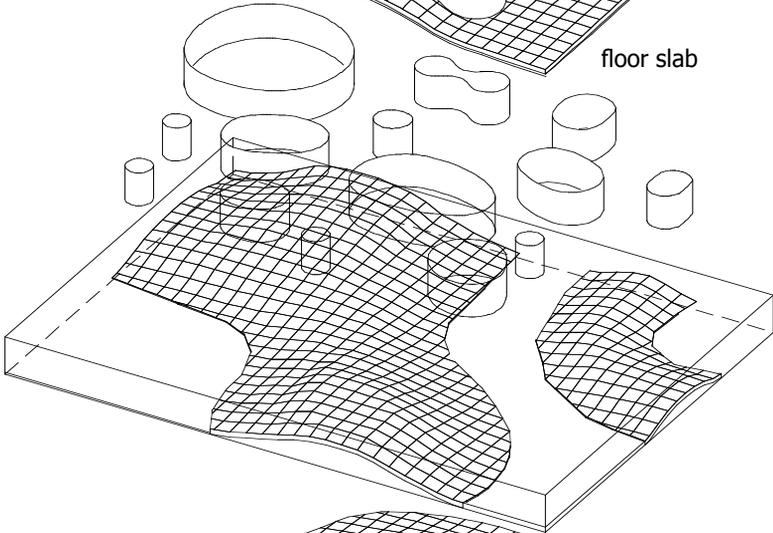
3. Elliptical Holes
Some of the Elliptical Holes intersect with the elevated areas of the slab e.g. the two hills. This provides access to the upper surfaces of the undulating slab.

floor slab

2. Rectangular Cut
A rectangular shape, oriented to the cardo and decumanus of the campus, cuts the two hills open on three sides. Since they are hollow shells, the cuts provide five entries under the slab: two entries to the smaller hill and three to the higher one**.**

1. Two Hills
Two hills arise on the site. They provide an elevation high enough to view the campus on the north and to provide a view to the Lac Leman and the western Alps in the south.
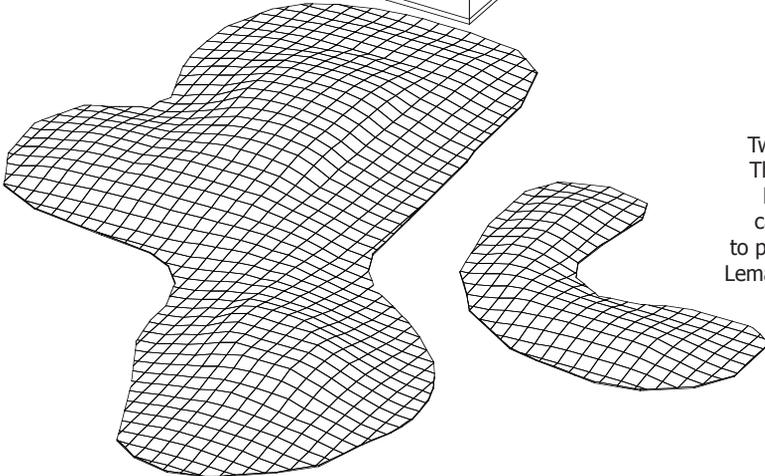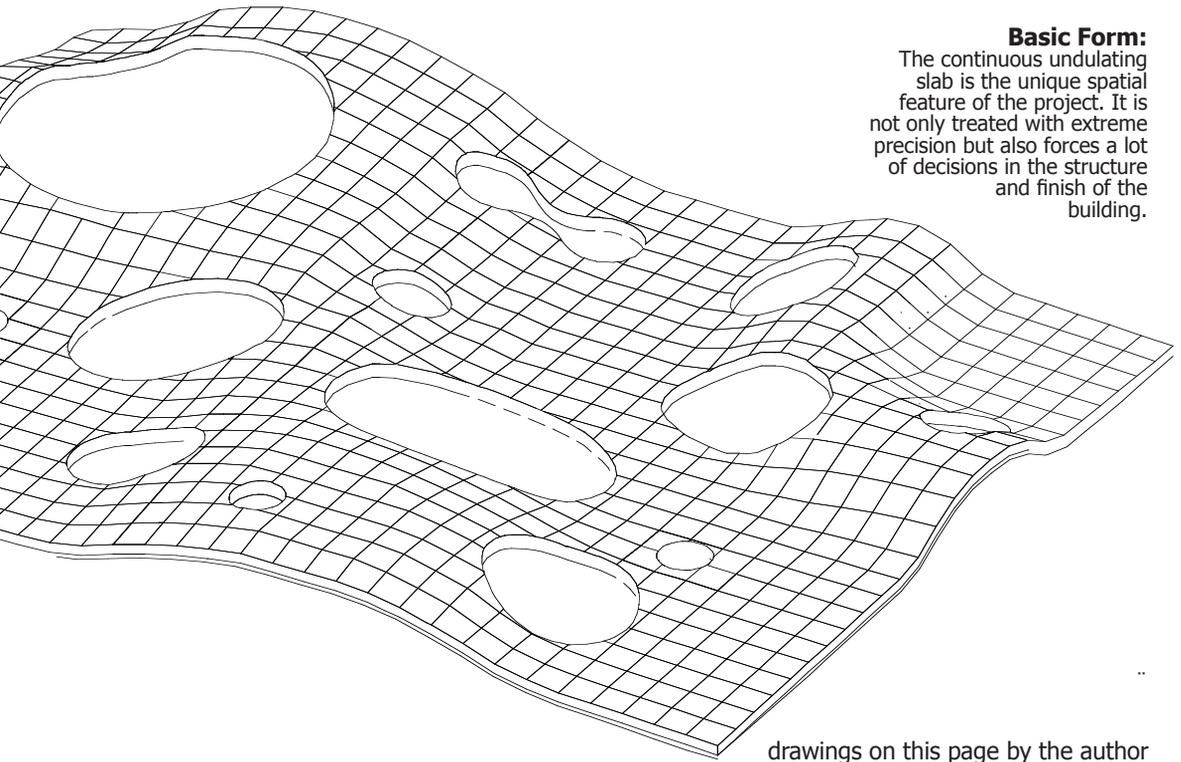
..

drawings on this page by the author

clear that the Rolex Learning Center is totally opposed to the reaction to the site in the predominant masterplan - leaving instead space for the latter to develop it's own visual relations across the site.

To understand the *basic form,* it is best to follow a description of the architects (SANAA guided tour 2010). On the wide plain of the site, two hills are laid out. The hills fulfill the simple requirement for overview onto the campus in the rear and, more importantly, a view across nearby obstacles to the Lake and Alpine Panorama behind it. If the two hills are not massive, but a curved concrete slab, they can form entries to sneak in below. This cut is provided by a rectangular shape, precisely northeast and southwest oriented like the templum of a roman city. The rectangular system is already an outside given in the situation of the EPFL Masterplan (1971-1982) by Architect Jakob Zweifel (*1921). The development of the site relationships is like a reversed urbanization: looking at the development of a city like Florence, we see a structure first abstracted from the landscape by establishing a *templum.* In Roman times, this was defined as an outer border of the rational orderly world inside from the natural wilderness outside. Growing across that border, Florence will later be integrated into the topographical realities of the Arno valley, developing a growing aesthetic integration with that landscape (Steenbergen 1990 p45, 2003 p47). At the Rolex Learning Center, that process of antiquity is reversed. The given of the cardo and decumanus by a

Roman Florence (1) extension s of1173, 1258, 1333, 1544 (Steenbergen Reh 2003)

rigid masterplan in 1971 is stopped by a *templum* as a border with rational order outside and artificial wilderness inside. That shape itself subordinates the building to the existing order. The orderly world remains outside, while the inner landscape is reconnecting spatially and metaphorically to a wider surrounding space beyond the campus towards the surrounding nature and city.

Grotta Blu a cave light trough water on Capri tripadvisor.it

The rectangular shape is the outcome of different alternatives, including flower-like complex amorphous shapes (sketch during Interview No.2). The rectangle takes the main direction of the site, but it sits right across the main axis towards the metro on the north entry and also across several other paths that cross the site. Lifting up the slab, the passage under the building is free even if it remains closed. The widely opened and undulating space inside connects visually to the outside with a series of spatial inventions that we will discuss under *spatial form.* To continue the discussion of the design in its *basic form,* two other important manipulations must be regarded. First to mind are the elliptical holes which are 14 in total. According to their distribution on the hills (the edge of the hills or next to them), the spatial quality of each hole has different consequences. Three of them are in flat areas merely to provide light as hidden gardens or inner courtyards. Three other holes are fully elevated, providing light to both the upper undulating slab and the space below the shell as well as some visual relationships, which we will discuss under spatial form. The remaining eight holes that sit on the edge are touching the ground with one side elevated. They are especially interesting, as they are holes from one topological surface to the other. These holes connect the space of the flat ground under the shell with the undulating continuous slab on top of the shell. The holes are the main openings for access, even if they are in an unusual place; rarely will one find a built surface in which one would have to look above for the main entry. In the *image form* we will discuss how the lower space can be seen as a grotto. Still, the holes here are part of a more general manipulation of the basic form within the reversed relation of the inner topography and the outer orderly and flat world. The primary function is bringing in light, as the building expanse would be much too large if otherwise uninterrupted. Building regulations in Zürich for example would not allow buildings for work or living deeper than 24m, in order to provide sufficient light for inhabitants. But the side effect is a paradoxical relation of spaces, an interweaving of two topologically different planes and a complex manipulation of the topography in favor of the creation of spatial illusions. This kind and sophistication of landscape manipulation is definitely of the order of landscape methods.

Also under *spatial form* we will see some spatial features that are unique to the manipulated artificial ground. But in this area we also observe a series of allusions to creating a park like landscape. They result in the deliberate introduction of an unusual movement pattern and manipulations of inside and outside views.

II.2.6.2 Spatial Form

The spatial system is based on a continuous large space on the undulating slab with two passages covered by the concrete shells on the ground plane. These two systems interconnect through the eight holes that touch the base. Not all of these connections are used as entries - and it is not fully clear which entries are closed on purpose by the architects, and which are regulated by the users. In spite of this, two main entries can be

defined as the central access points and three or four can be defined for direct access to the library, forum, and restaurant respectively. The access points are very free and open and can easily be conceived for flexible usage in the future. The particularity in the spatial form is that we have a system of one and a half times the footprint of continuous spaces connected at one single level. Defying precedent other than OMA's Jussieu or MVRDV's VPRO, stacking of floors is reduced and even rejected at the Learning Center in favor of maximum extension, which also results in a luxurious lack of density. Again this all is related to an anti-hierarchical impulse by the architects,

curved visually disabled guidance system photo: author

depicting an ideal space of academic exchange and scientific chance encounter at the University of the Future.

The architects stated that people do not move and meet on straight lines but on curved ones (inauguration speech 15.2.2010). So the circulation paths are of particular importance for understanding this architecture. The rectangular box is approached from four sides mostly in an orthogonal direction frontal to the flat facade. Even access points across are bent by the outside path system so that one always enters the templum either from the cardo or decumanus direction. Once under the shell, any orthogonal order is given up. The main access points are to be found if one follows the light. They are not placed axially, but certainly in the central field of view they subtly steer the entrant towards the doors that are always to be found across from one of the openings. The access routes curve slightly into the light, and on the undulating slab, the spatial system is even more forced onto curved routes due to the slopes that oftentimes would not allow straight connections and due to the placing of objects in a dispersed field, indifferent to concerns of straight or hierarchical connections.

In this open and anti-hierarchical circulation system it is very clear that it was intended to break open pre-conceived notions of order in favor of the free exchange of ideas. The curved path not only enhances the idea of freedom and absence of hierarchy in favor of a natural condition, but it also propagates a dynamic view of the landscape connecting various sights towards inner and outer objects and views. At the Rolex Center, even the blind walk on curved paths along a guidance system of white flexible plastic lines (picture above).

Much emphasis was placed on vistas or visual relationships to and from the building towards the EPFL, the UNI Lausanne, the Lake, and the Alpine Panorama. The connected spaces are inviting to the outside through the big gate-like openings under the shell, but also connect to each side of the campus with reduction and openness and with a transparency applied in the manner of Mies van der Rohe's Farnsworth House (p6). Besides the views across the facade enhanced by raising the floor up to 7m, the views across the holes play a crucial role. As one of the many engineers pointed out, the architects would insist throughout the exhausting structural design process that the hills were high enough and the slopes steep enough in order to see across the openings onto the roof (Grohmann 2008). This explains for example the position of the biggest hole in the southeast; through this hole is the important view to the *own* alpes of the *canton de vaud*, the *alpes vaudoises*. Also, the undulating of the roof plane is connected to this for other reasons we will see in the next paragraph. Especially at three elevated points - the library belvedere, central belvedere, and foyer belvedere (named by the author) - the visitor finds himself surrounded by a variety of views through inner landscapes, roof landscapes, and

Spatial Form:
Circulation Paths

drawings on this page by the author
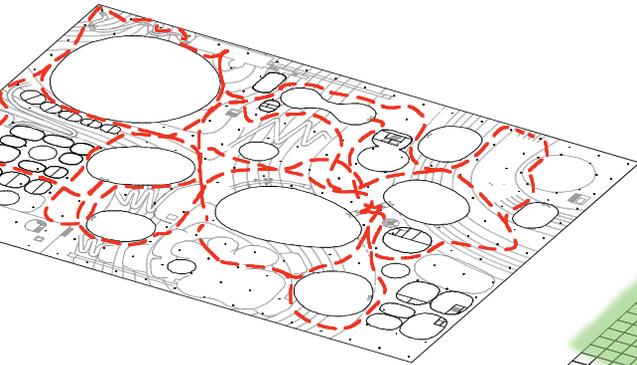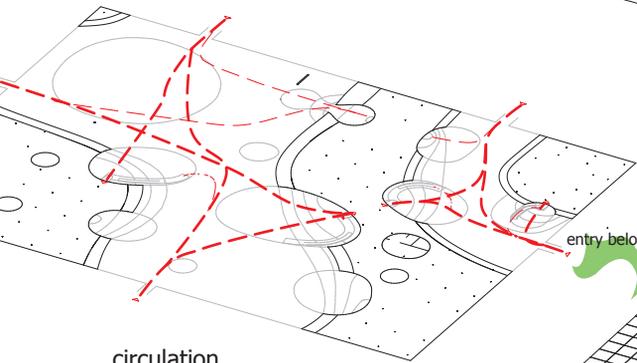
Spatial Form:
Connected Spaces

routing
across ondulating floor

views across Lake
Geneva direction
Mont Blanc

view across
roof dir. Lausanne
Alpes Vaudoises

view across roof

views across L
Geneva directi
Mont Blanc

view across roof

view across
roof

views
across
roof

view to
new
access
area

view to campus

library belvedere

central belvedere

foyer belvedere

east entrance library

entry below shell

main entrance

central sq. entrance

restaurant entrance

forum entrance

entry below shell

entry below sh

entry
below
shell

circulation
entries

entry below shell

third horizon: ceiling roof-slab
section (above), schematic sketch (below), visual space (right)
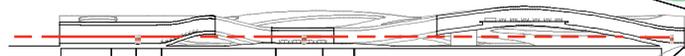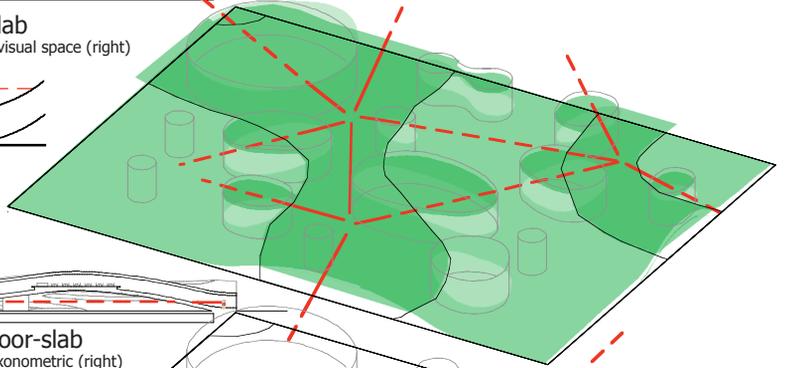
second horizon: hillslopes foor-slab
section (above) schematic sketch (below) axonometric (right)
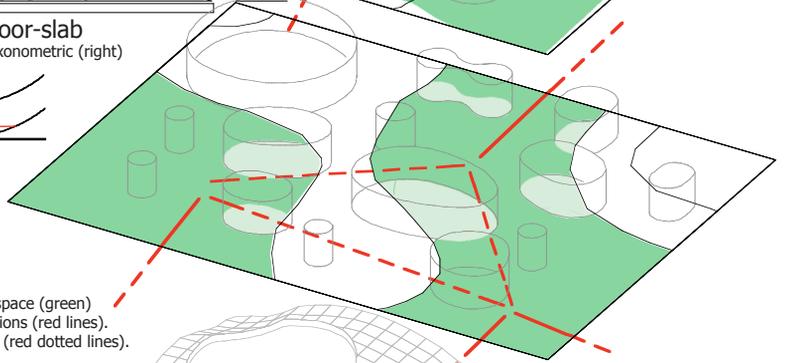
Building (black lines) structuring the visual space (green)
for viewers (red dress) and their visual relations (red lines).
Patios (grey) open vistas indoor via outdoor (red dotted lines).

layering & undulationg slab (right)
put in relation to the 3 horizons
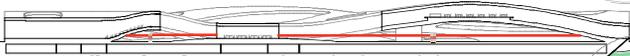
first horizon: underside foor-slab
section (above) schematic sketch (below) axonometric (right)
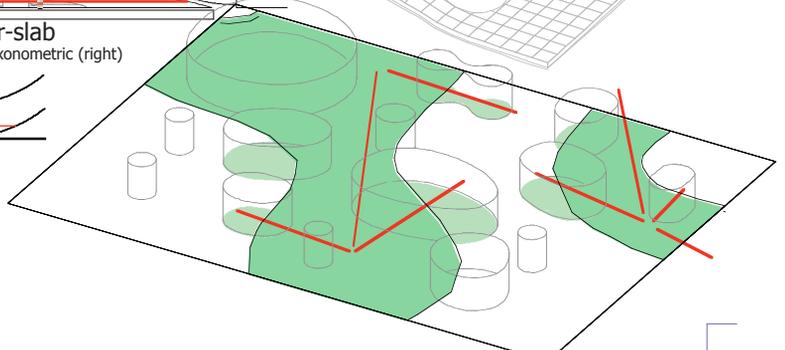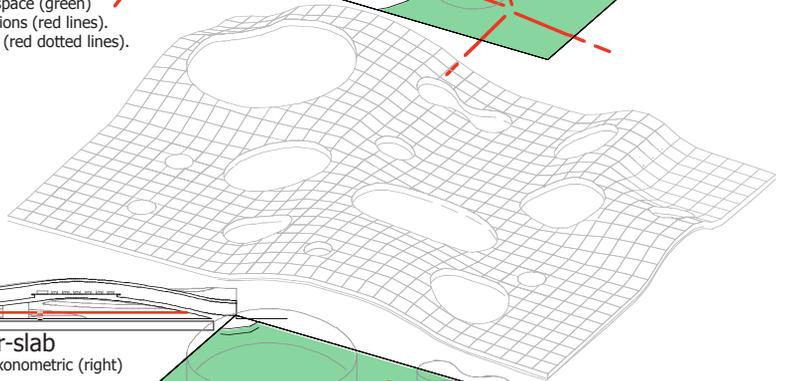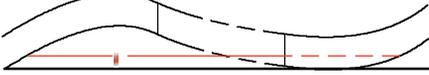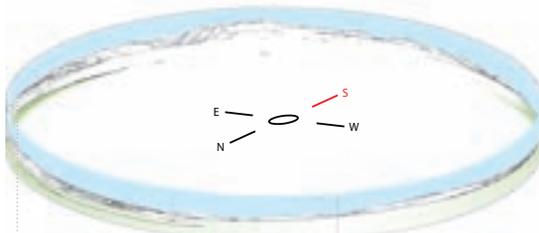
Le Mont-sur-Lausanne
702 m at 6.9 km

Rochers de Naye
2041 m at 32.7 km
Les Diablerets
3209 m at 33.3 km

N   NE   E   SE

3d Panorama Restaurant elevated zone

**third horizon: viewpoints**
3a Belvedere at Big Hole
3b Foyer
3c Belvedere at Library
3d Served Restaurant
upper floor 394-98m
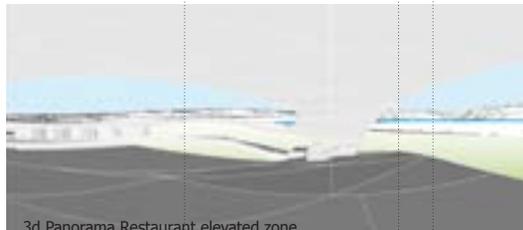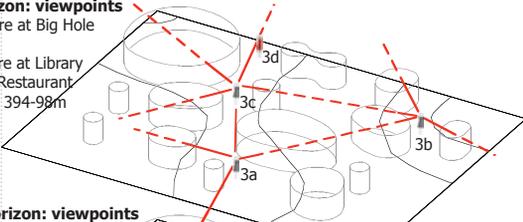
second horizon: viewpoints
2a Infopoint at Entry
2b Library lower area
2c student work zone
groundfloor 392.7m

.
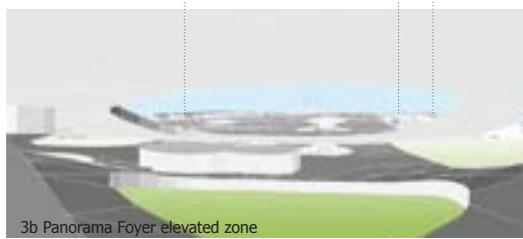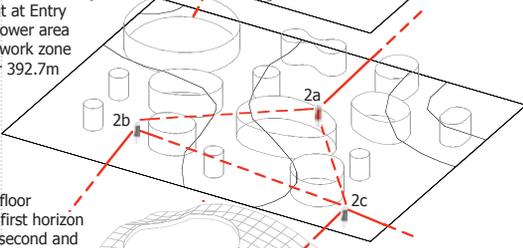
undulating floor
upper limit first horizon
lower limit second and
third horizon

3b Panorama Foyer elevated zone

2a Panorama Entry Hall inside lower zone
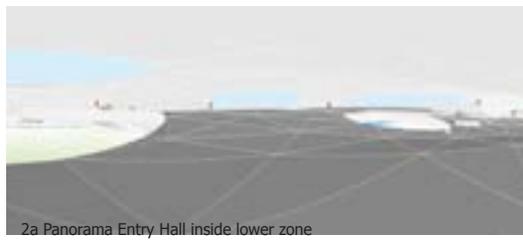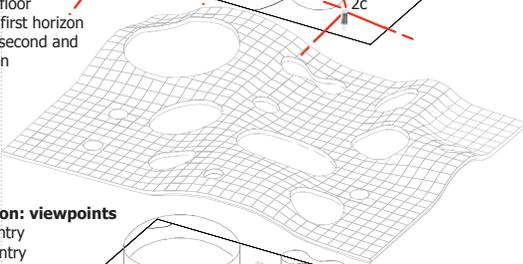
first horizon: viewpoints
1a North Entry
1b South Entry
1c West Entry
groundfloor 392m

1a Panorama North Entry outside under shell
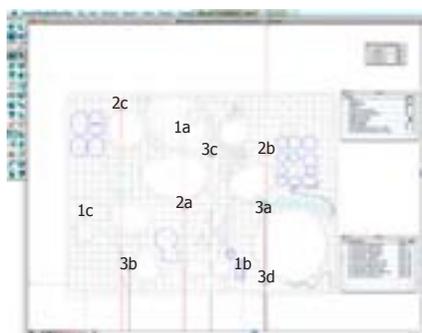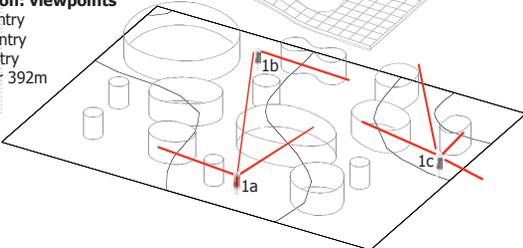
above right: Panoramic Perspectives CAD / GIS

relation roof (light gray), undulating slab (gray)
site topography (green to white) lake (blue)
visual realtions to mountian skyline (to light blue)
GIS (digirama swisstopo) CAD & montage author

left: CAD model plan view (screenshot by author)

right: visible surface form Learning Centre (black)
GIS Visability map Swiss Grid 533248/152209/405
Digital Height Model 1:25'000 (source swisstopo)

Dent d'Oche
2222 m at 22.2 km

Mont Blanc
4808 m at 79.5 km

Evian
385 m at 14.2 km

Sous Etraz
419.9 m at 26.5 km

Grand Montrond
1613 m at 47.5 km

Aiguilles de Baulmes
1559 m at 31.3 km

Restaurant

Foyer

Entry Hall inside

North Entry
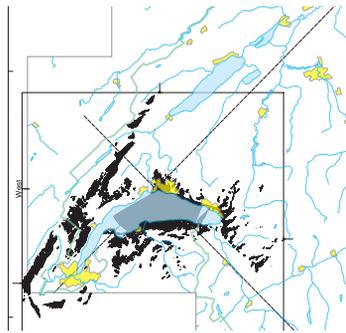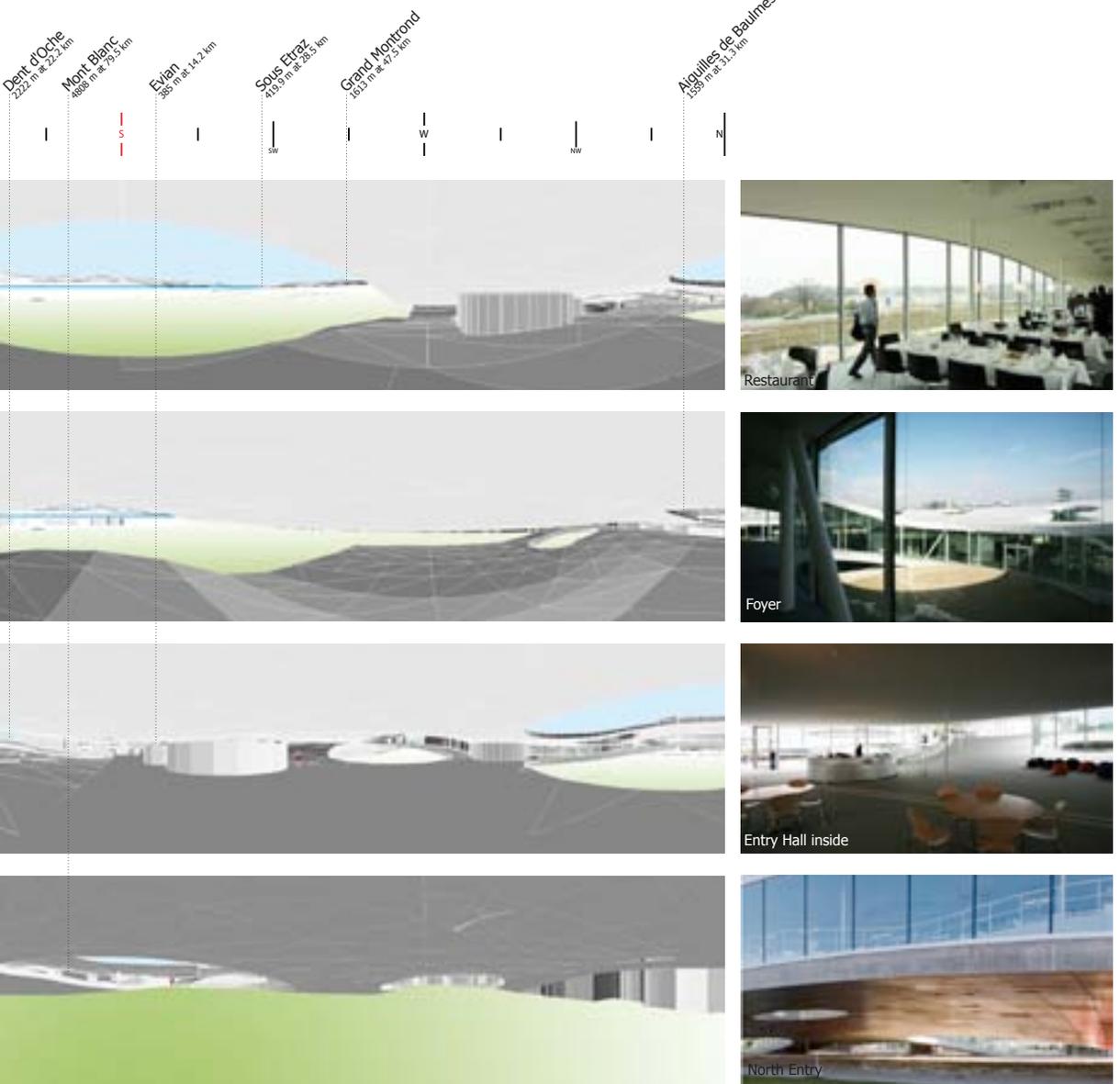
photo above: Ariel Huber, further above: author

the exterior landscape. These vistas and panoramas are carefully designed and taken care of throughout the design and building process. Architecture based on such a rich variety of views is particularly rare. It's spatial system is connecting the inner landscape to the surroundings, extending the illusion of a seemingly endless space. In that sense, SANAA's holes enhance the illusion of limitless space through a disguised border. In this regard the effect is similar to the ha-ha's of the English landscape garden, where an edge hidden below the viewing field would give the visitor of an estate the illusion that the estate extended into the pasture with grazing cattle up to the horizon.

41

The spatial play between continuity and framing of the landscape through the manipulation of the horizon is another design feature of the spatial form specific to this design with landscape methods. In our spatial form analysis we could define three different inner horizons in addition to the existing external one. Each of these manipulated horizons is connected to a system of spatial relationships (drawings previous page right). The first horizon is related to the ground level (+0m) and is constrained above by the upper shell distorting itself before it even enters the building. The second horizon is related to approximately 60% of the surface inside that is flat and slightly above ground (+0.75m). It is more conventionally limited and shaped through hills, although this manner of treating space is only conventional for parks, never for buildings. This horizon plays a very important role for the spatial system since it allows for separation into three functional zones: the foyer, the central entry and restaurants, and the main area of library and other scientific program. The second horizon replaces walls as a spatial separator. The quality of a hill as space divider was used to create a degree of privacy through topography (Interview Nishizawa).

The third horizon causes another particularity of this design. One would expect that the freedom of such a carefully designed landscape would best be experienced in a big hall under a continuous flat roof. But the architects insisted on having the roof undulating with the floor slab, almost parallel at one height, except for the higher area of the auditorium. This limits the views from the hills (approx +7m) at some areas in an upward direction (much like the first horizon), but it also allows the views onto and across the roof that were explained before through multiple openings. The openings play a crucial role in establishing a complex system of visual relationships. It is surprising again how carefully the openings are placed or how space is allocated to enhance the variety of inner visual relationships. In the first horizon, one could survey all the entrances from a point approximately 10 meters after passing each gate like entry (red lines in first horizon p26-27). In the inner space again, some major areas are connected by a system of interior, as well as important exterior views that are already provided at ground level (red lines in second horizon, dotted if the cross outdoor space). Again the crucial role of the holes is evident, even more so for the internal visual relationships of the third horizon. From the hills, viewers on the previously defined three belvedere areas would see each other enjoying the panorama across a complex system of holes and crossing landscapes of the roof. These numerous horizontal viewing relationships compliment the downhill vistas that are tangent to the main routes to form a complex spatial system that equals the rich complexity of the spatial systems of vistas in the English Landscape Garden. An important distinction to visual landscape systems like the Woodland Gardens at Castle Howard (left) still has to be made: in the Learning Center, the visual relationships are seldom related to landmarks or monuments, but more like in a natural landscape only to (artificial) topographical features of the designed landscape. Therefore the system is also less distinct and hard to pin down on exact locations - but nevertheless very strong in it's appearance. Again, the desire for freedom seems to be dominant across the establishment of even the smallest hierarchy.

Sketch of English Landscape Garden visual relations
Niloefar Bitafrafan & Mai Yoshitake in Dutch Architecture with Landscape Methods (Jauslin e.a. 2009 p70)
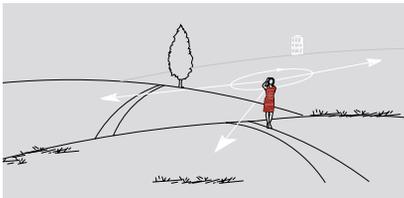
Plan of English Landscape Garden visual relations
Detail form The Arcadic Landscape Castle Howard

II.2.6.3 Image or Metaphorical Form

It was on this perspective of creating absolute freedom that the metaphorical structure or *image form* in this project should be understood (drawings p30-33). Different than Architects like MVRDV or FOA, SANAA would avoid direct metaphorical language in their architecture - they are advocates of abstraction. They also do not work with hidden analogies. If asked for references, the architects do not want to be specific (Interview Nishizawa). Therefore, it has to be pointed out again in this case that like any of the 4 *layers,* the metaphors are working propositions by the author of this thesis and not by the architects. Nevertheless, they represent some archetypical landscape features or other landscape related engineering interventions that certainly will help in understanding how this building is designed as a landscape. As mentioned in the previous paragraph on spatial form - the images are not part of a system of fixed reference points. Rather, they are spread like sheep in an Arcadian field, which is also a specific design attitude, called field condition (used for describing Landscape Urbanism by Corner 2006 or Allen 2000).

Still, it is useful to identify some crucial elements that constitute the image form at the Learning Center. Mostly it is the materialization and detailing decisions of the architects that - however reduced in their language - reminds us of their chosen theme of landscape. Again very different from other designers, they definitely use some abstract imagined landscape features as working references. While analyzing them, the images were separated into two groups: The first group consist of images that refer to *elements of natural landscapes* like we would also find in a park as a representation of nature in an artistic manner. The second group is not images in the strict sense of Steenbergen Reh (2003 or Steenbergen 2008) since they do not refer to nature but to *elements of cultural landscapes* or even of infrastructure or the built environment. Nevertheless, they are definitely beyond the traditional vocabulary of architecture and chosen by the architects in their general concept of landscape. We will summarize them in the same chapter but treat them separately.

The first element, referring to nature, are the *hills*. They are certainly not only a basic and spatial form but also cherished and treated as imagery. The same idea applies to the expressive exposure of the undulating slab in the facades; it looks like geological *sections* of a feature we recognize from OMA's Jussieu design which has rarely been seen, and never before at such an excessive scale of 166 meters in length (more than 500 meters of facade around four sides) with only one basic idea acting as the driver.

The treatment of the ceilings under the shells in raw concrete, together with the gravel surfaces and the dramatic lighting schemes, make the two passages and access zones seem like a *grotto*. The openings could also be described as *clearings* in a forest, especially after a few solitary trees with scarce foliage were removed to simplify the structural design of the south terrain. Their design according to lighting and cutting into the endlessly deep space could allow for this metaphor to take root.

Obviously related to cultural landscapes are the different kinds of *terraces*. The round and stepped areas in the library are reminiscent of rice terraces in Asia, while the straight and simple moments comprising the restaurant terrace call to mind a renaissance garden at Palazzo Picolomini in Pienza or the Villa Medici in Fiesole. All of these become a classical and quite simple approach to solving functional problems of slopes, especially compared to the lengthy discussions between OMA and their client at Jussieu about storing books in special furniture on sloped floors. The same engineering or 'hands-on landscape' approach is visible in the handicapped ramps that are placed like *serpentine* roads. They
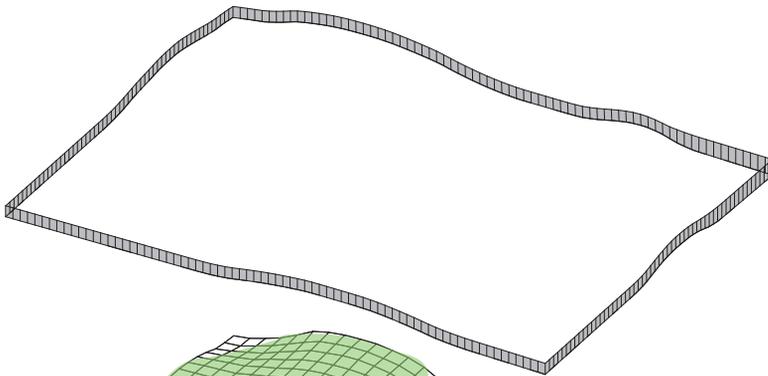
Image Form:

Elements of Natural Landscapes
Drawings, naming and referrals by the author

Sections

Geological Section

View form South East

Hills

belvedère **hill**

foyer **hill**

reading **hill**

Valleys

5 serpentine paths

science and archive lowland **plain**

forum lowland **plain**
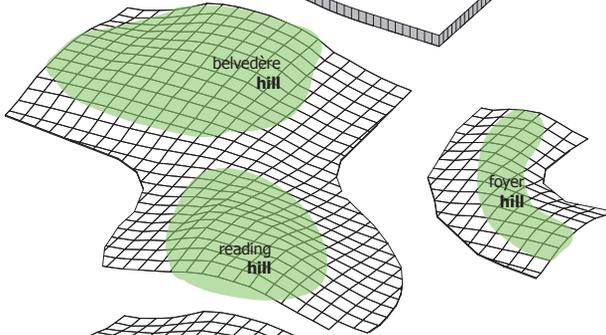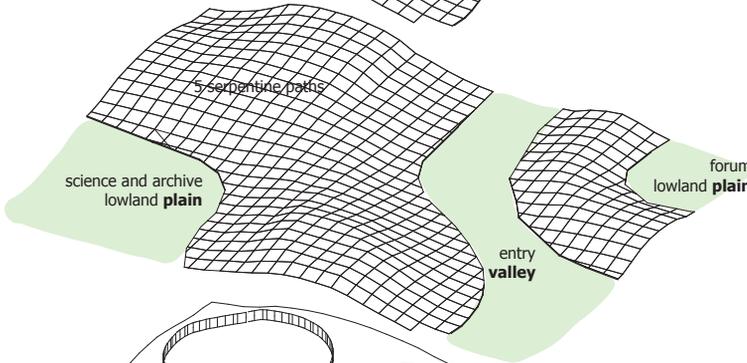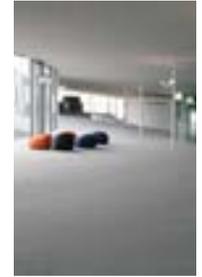
entry **valley**

West 8 Expoparc Yverdon

Clearings

11 two story clearings

2 secret enclosed gardens

japanese enclosed garden
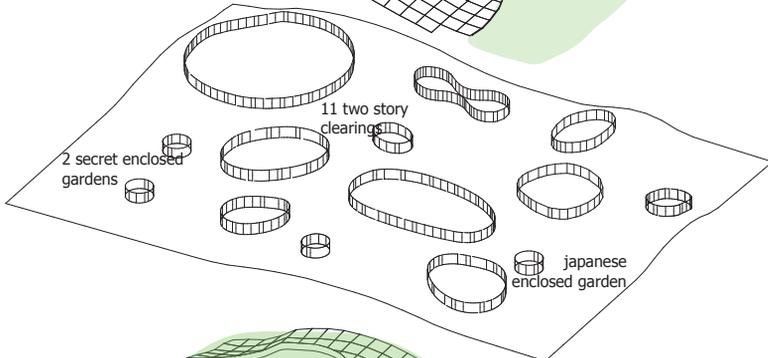
Clearing Iwan Schischkin 1896
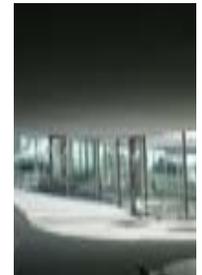
Lightfall. photos: author

Grottos

larger grotto

smaller grotto
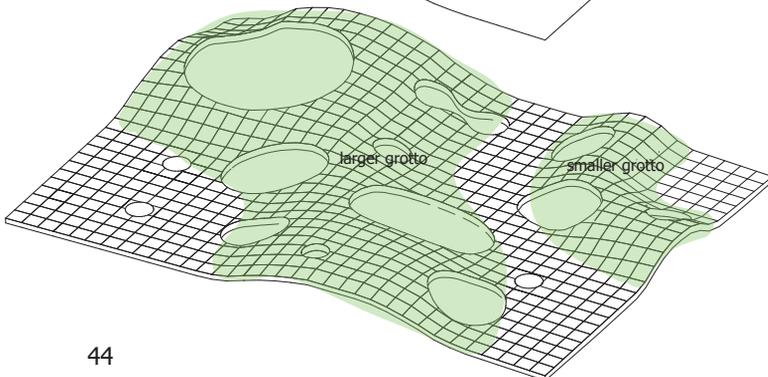
Painshill enjoyengland.com

Entry photo: Ariel Huber

44

terraced glass-blobs

vip-restaurant terrace

rare books terraces

library terraces

info-point

amphitheater

funicular 3

funicular 2

funicular 1

serpentine (photo)

serpentine at offices

serpentine from entry

serpentines in library

meeting-blobs

kitchen, sanitary and bar huts

village of offices

bank

village of services
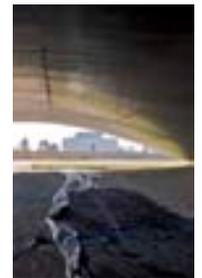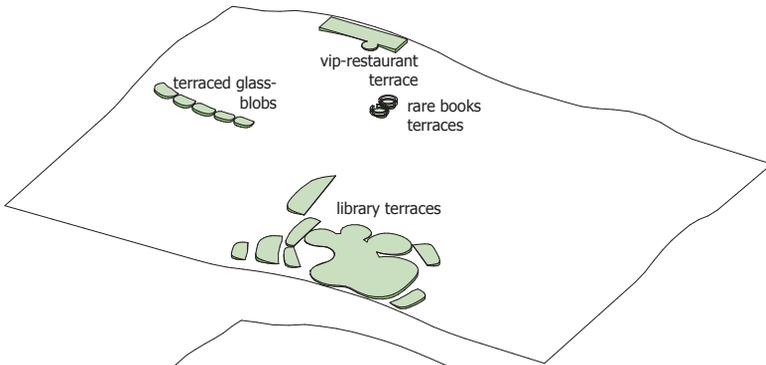
Image Form:
Elements of Cultural Landscapes

Terraces

Rice fiel in Hyogo, Japan

Terraces in Library
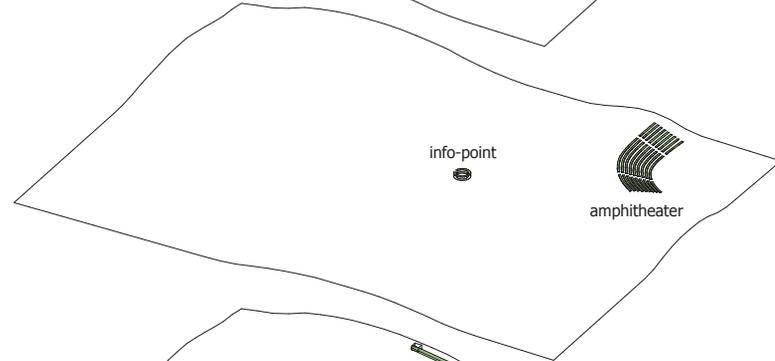
Theater

Delphi photo: Leonid Tsvetkov
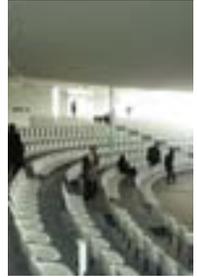
Forum Rolex
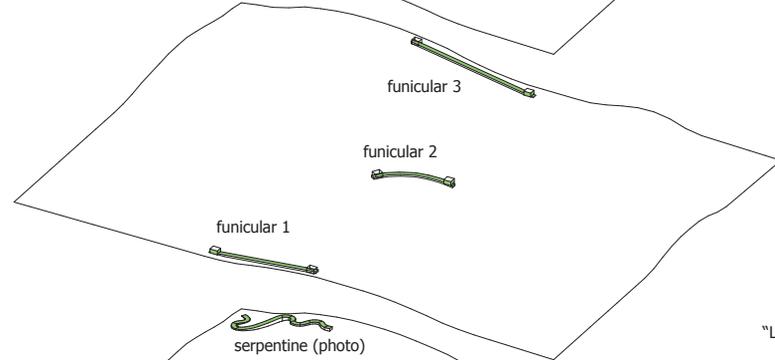
Funiculars

"Lausanne - La Gare du Funiculaire" ca. 1882 source funimag.com

Funiculaire phot:M. Azéma
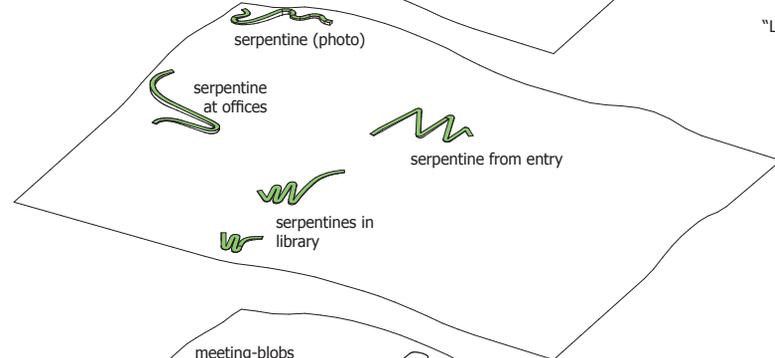
Serpentines

Furka Pass street (Goldfinger)
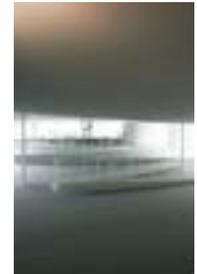
Serpentine Path
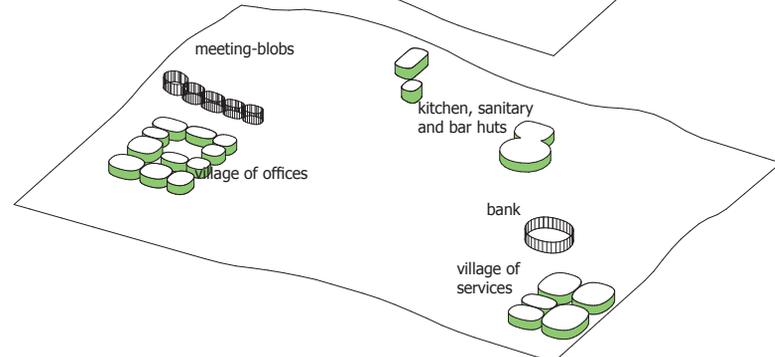
Villages

Village of Offices

45
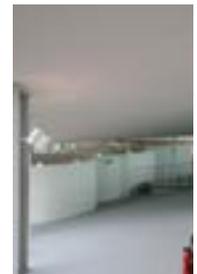
Furkapass in Switzerland as seen from Grimselpass route wikipedia cc

Flon Station Lausanne, B. Tschumi 1988-2001 photo: P.Mauss

Image Form:
Elements of Natural and
Cultural Landscapes composed
Drawing by the author
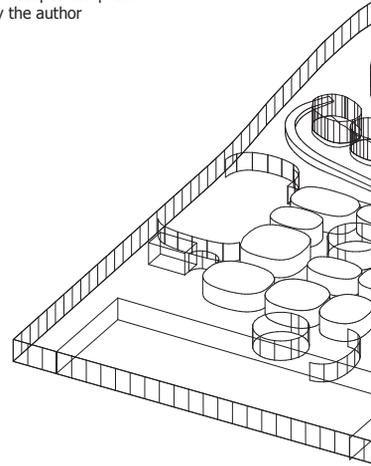
are more of a playful allusion to than a replica of the postcard feature of alpine streets. But such roads are a Swiss part of mass culture since Goldfinger (1964). Another way of mise en scene in the landscape manner is the placement of the info-point as a central actor; this video also enhances panoptic surveillance for the porter. The placing of rows of chairs like in a Greek Amphit*heater*, using the artificial hill slope like the Greeks would use a natural one is another feature often found in landscape parks. With it's view and size this is also important as a spatial feature.

The complex topography leads to treating non public programs as a kind of miniature urbanism. The groups of offices are not placed in large contained areas or massive buildings inside the structure, but as clusters of tiny one or maximum two room huts. These could be seen as *villages* placed into valleys almost in an urbanization of the designed landscape. Again we find a similarity to OMA's understanding of Jussieu as a city of books in a landscape. Also however, the pastoral tradition of the Landscape Garden knows such allusions to the villages as part of the picturesque. It must be restated here that these elements are treated with abstraction and never threaten to become kitschy. Rather could this kind of technical treatment of the landscape be understood as an architect's comment on the fascinating engineering works that are triggered by the encounters of modern life with nature of which both Japan and Switzerland have a wide range of examples.

Sejima pointed out that Lausanne's interesting relationship with the topography inspired them (Interview No.1). The city of Lausanne is interacting with the topography in interesting ways. This counts for the medieval and baroque city structure up to contemporary architecture like Bernard Tschumi's Flon transferium, that dramatically articulates the verticality as public urban space. Also the rather funny feature of three
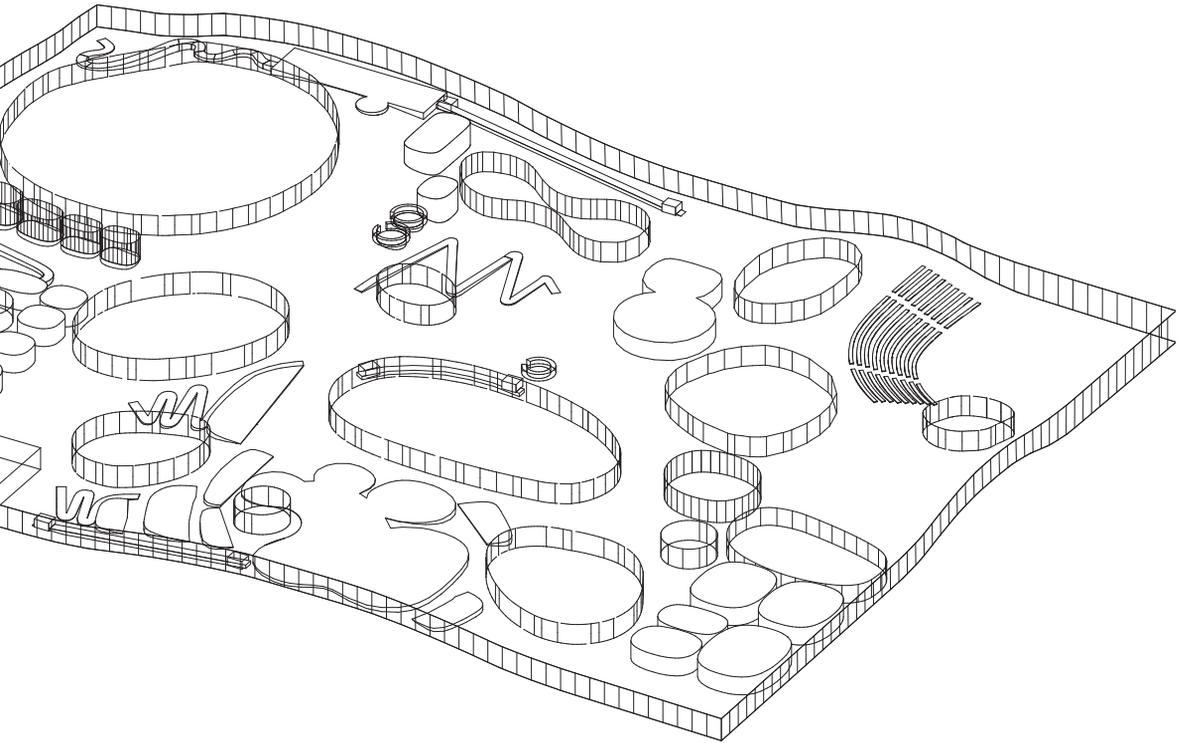
funicular elevators at the Learning Center is familiar to any visitor of Lausanne. The urban transport from lake (below, Ouchy), through station (center, Gare), to city (above, Flon) is on similarly steep tracks.

Together in a large scheme, the composition of elements (above) is not a hierarchically structured spatial enactment but rather a wide open field. The composition itself is mostly abstract. The balance of elements and the use of the floor plan is laid out very carefully like the composition of an abstract painting. Together with functional requirements, the emphasis of the architects is on developing a proper equilibrium and sufficient space for the continuity of movement. Also it seems, as imagery is not important to their design attitude, it is not only disguising any obvious metaphorical allusion, but it also hides certain spaces, allowing for the wider landscape to be foregrounded and the smaller elements reduced or set back.

II.2.6.4 Form of the Program

The last in our four layer analysis will be the *program form*. Here we can again see a very specific approach to the issue of program. If it was important to the architects not to establish hierarchies, this approach will certainly be most affected in the distribution of program. This initial idea of non hierarchical ordering on one floor is a programmatic one in the first place. It is the general attitude of the architect towards the spatial program as formulated in the brief and his specific answer is creating a continuous landscape as opposed to a building of staked floors (Interview SANAA No. 2). So the functional zoning is
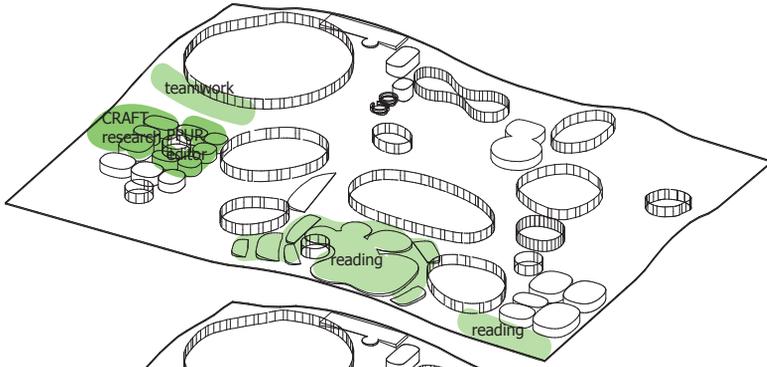
Program Form:
Functions by Groups
Drawings, naming and
grouping by the author

Workspaces

teamwork

CRAFT
research PNUR
editor

reading

reading

Services
&
Library

librarians

technology &
natual sciences

huma-
nities

edu

library
art &
archi

park

bookstore

services

served
restaurant

hallways

restaurant
self
service
bar

reception

foyer

auditorium
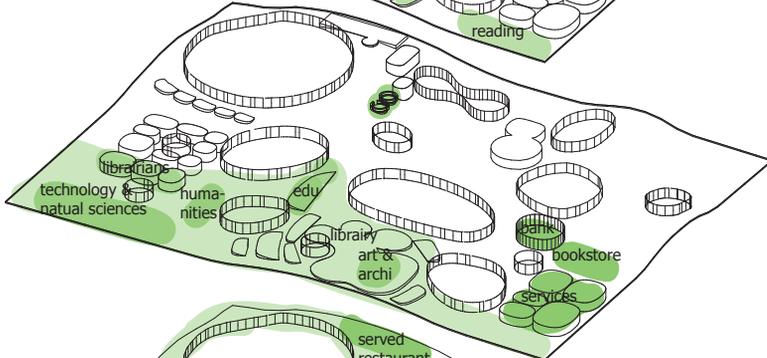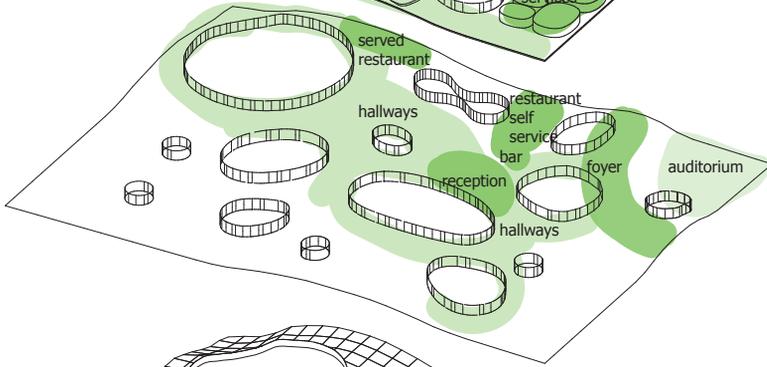
Public Events
&
Restaurants

hallways
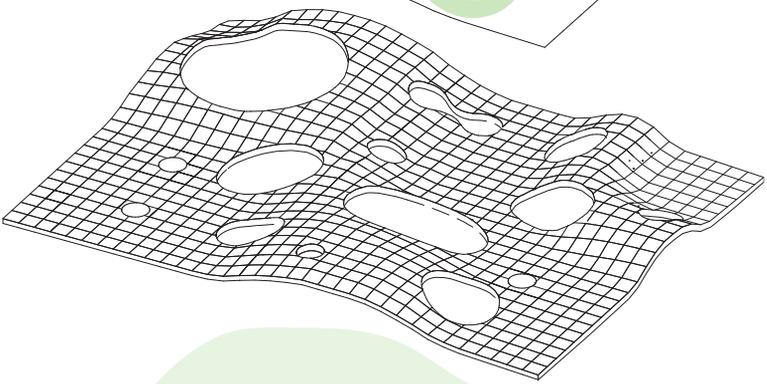
above: undulating level

below: covered area

entry
passage
plaza

entry
passage
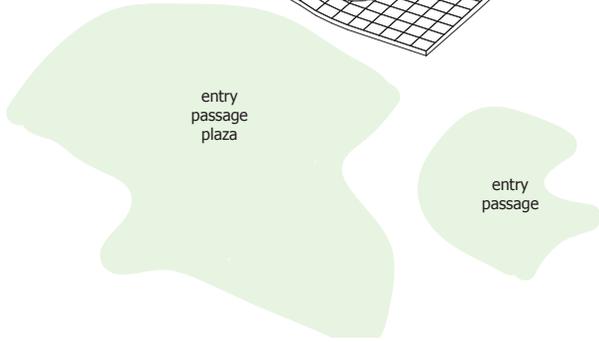
Outdoor Spaces
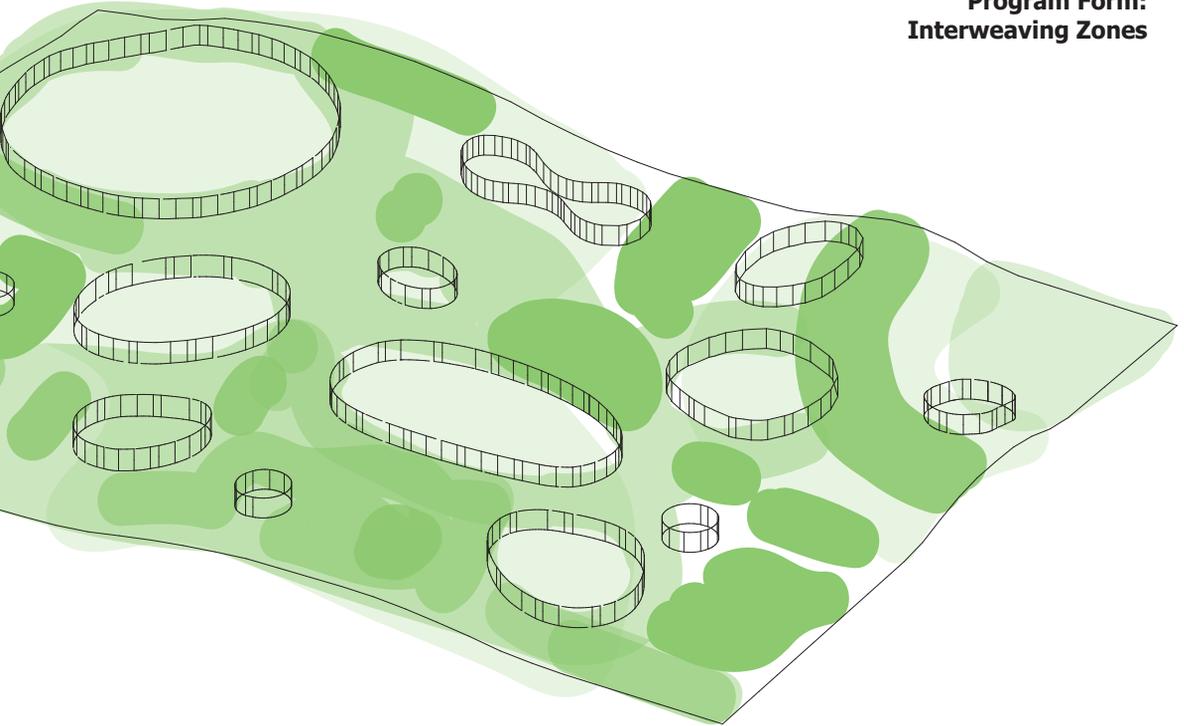
not expressed with building up borders between zones. The emphasis is on exchange. The topography is used for allocating programs like they would be spread in a city according to various topographical fractures. With softened shapes and fluent transitions, the designs are simulating organic growth. The functional groups are organized in valleys and on hills, like urban neighborhoods of a large city, spread out or settled onto the topography according to rules of vicinity, accessibility, and views. These considerations are augmented with orientation advantages for light sensitive books to the north and light seeking restaurant goers to the south.

If we again start from outside, the first group of programs are the two outdoor spaces under the slab. They connect to the central entry zone with a reception area and system of open hallways that first connect to the spaces we called public events on the south side. Two restaurants and a bar including the one with the required panoramic view on top of the larger hill are directly reached from here. A foyer takes the smaller hill in a classical disposition as an in-between buffer and noise protection zone for the auditorium, with a backside that could be used for foyer exhibitions.

In the central valley back to the north, a series of services is placed behind some working desks on a quiet north facade. Across the larger hill eastwards one would reach the library with a reception desk on top of the hill and a back office behind. More offices are found there for the university publishers and one research institute for teaching with new media (CRAFT) that is related to the general program of the future of learning. All of these described zonings are meant to loop into each other. Chance encounters, and fruitful exchange in the freest possible way with the least necessary hierarchy is the main programmatic idea that led the architects to design this building as a landscape - in their vision the equal to uttermost openness and freedom of choice.

II.2.6.5 The Composition

To summarize the composition and it's distinction into layers, they are connected in one drawing (right). Juxtaposing these layers, we can find two extremes in one design: on the one hand, the design is extremely light, playful, full of humor and irony, and at many points even funny. Especially image elements scattered across the hills and valleys make this almost seem like a huge scientist's playground. SANAA also indicated they would love to see children use the building and go on with a school (Interviews No1 and 2) as their next design, certainly in looking for users that would like to play on their grounds. Science could be seen as a cultivated kind of game; the building would not harm it's goals although might be difficult to get funding. But the readiness of EPFL to play is part of their innovation approach. They wish to be a global player in the world of top technical universities. The EPFL supports multi million dollar high tech gaming like America's cup design of Alighi; this is certainly a facet not to be underestimated in the university culture of institutes that want to reach for the zenith of technology. It is gaming for example that established the biggest leaps in the mass culture of computers. Landscape could be seen here as the architects' proposal for the scientists' favorite playground - if you would agree that this can be playful, it can also become a positive cultural attitude.

The other summary remark about the sophisticated application of landscape methods is an enormous will for abstraction and clarity in means of expression. Of all the projects analyzed so far (or planned to be analyzed up to this point in the final text of the PhD) this one is the most intensely playing with landscape methods but also the most abstract in it's formal references. It not only feels surreal like walking on the moon, it could be seen like the architect's model of a landscape more than the gardener's replica of nature. This is definitely a landscape but the landscape is built of concrete, steel, glass, white paint, shiny surfaces, and light gray carpet. As the last pieces of nature are stones outside, the architects do not seem too disappointed that the trees where not possible in the end (Informal Interview Yamada). So even if this is defiantly a very sophisticated landscape composition, it comes without any greenery, without any direct influences or unobstructed references perhaps outside of the white painted surfaces.

However complete and sophisticated the landscape vocabulary in this composition, there are not one to one copies. Everything is not merely used as an analogy but translated into methods, which is gratifying for our research. Landscape is the method to reconsider the role of the basic form of a building within it's larger context, flipping landscape inside the templum. In spatial form the rich vocabulary of spatial and viewing relations of landscape is adopted and used in sophisticated manners. Images are not displayed or copied but used as engineering or
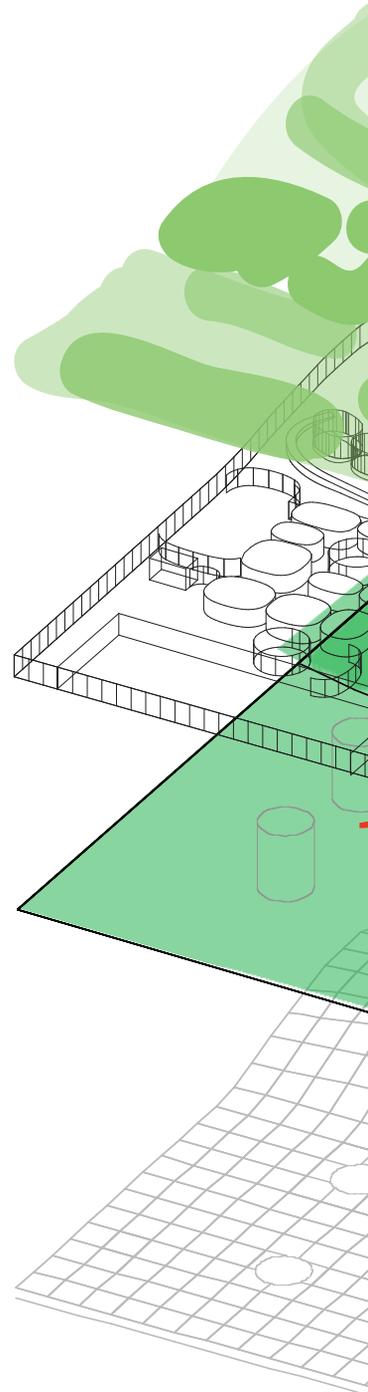
Program Form
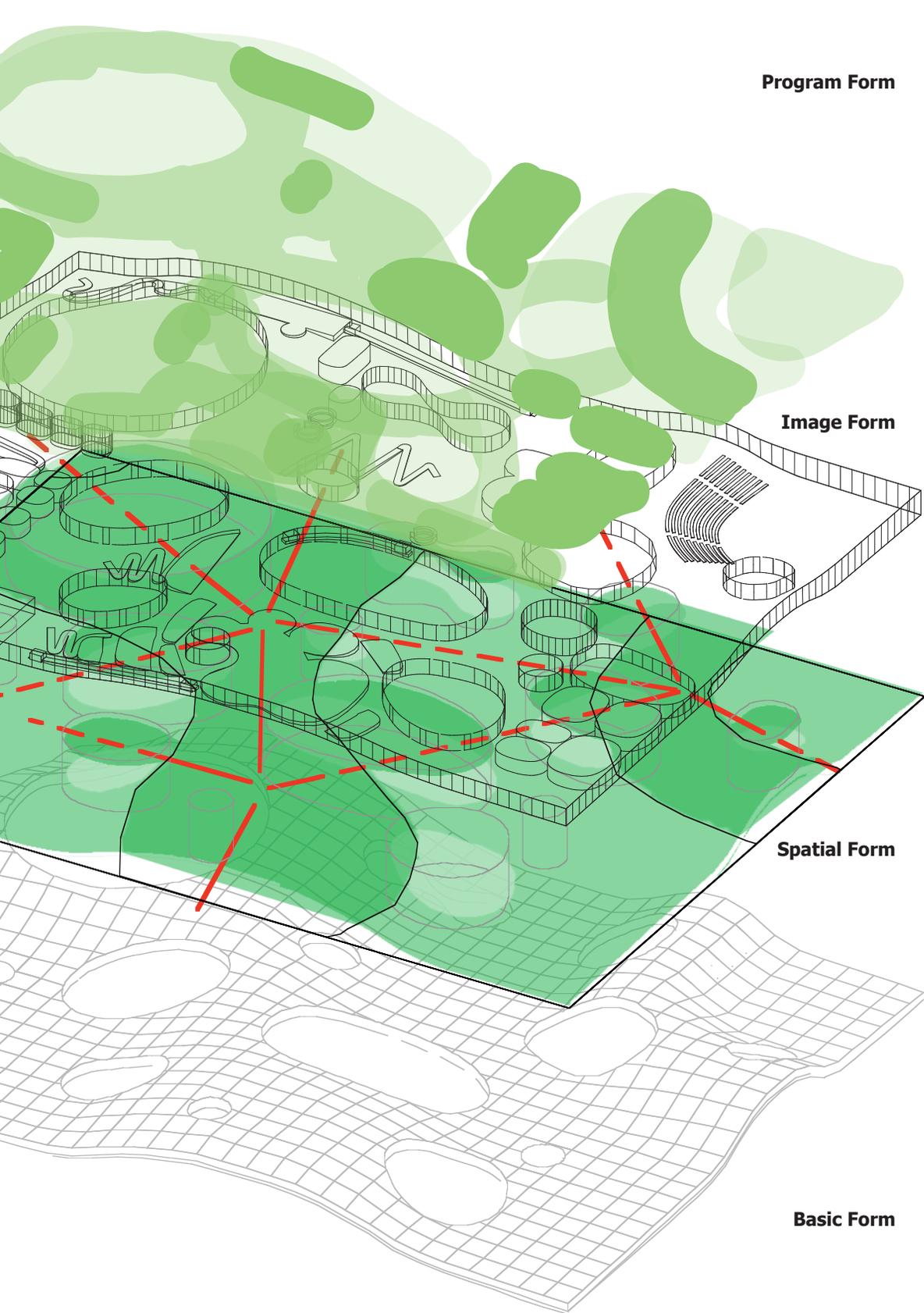
Image Form

Spatial Form

Basic Form

theatrical methods to solve functional problems and disguise anything that would disturb the primacy of the landscape experience of space. Program is not organized by walls or floors but spread across a landscape to enhance continuity.

II.2.7 Landscape Architectural Attitudes

Just how much do SANAA use the professional *attitudes* of landscape architecture? (Marot 1999). Their relation to the *anamnesis* of the site is certainly intense, although approached clearly from a very intuitive and urbanistic view and not delving into geological or even lengthy historical research. Although incorporation and reinterpretation of the existing context, be it built or natural, occurs in kind, SANAA's approach to history is rather one of creating a story than one of reacting to it. It's almost a work of science fiction creating a surreal landscape rather than an actual reaction to the existing landscape. The *process* attitude can be seen in the creation of an 'anti-object'. Even if the Learning Center's artificial landscape is distinct and sublimely designed, it is also a complex relational system. It is specifically interesting how curious the architects were as to how people would actually use their design (Interview No2). They seem to be triggering a certain process of transformation by creating a new learning environment. This experimental composition with a new mixture of ingredients seems to refer to the transformation processes as we find them in the best landscape designs.

The *spatial sequencing* of course is a key attitude in this design. In circulation, continuous space, and the sophisticated treatment of horizons and views, this building achieves a previously unknown richness of an almost baroque density. The reduction of formal elements other than those details that describe the space enhances this attitude and gives a clear direction for the architectural detail language to support the predominance of space and movement. The *contextual* relation is ambiguous, being at once very autonomous but also very contextual. Interesting in this regard is that the architects regard the outer context as a means of orientation, carefully monitoring transparency. On a misty day it is not easy to orient oneself in the absence of these hierarchies. No conventional turn left or right kind of instructions apply. Contextuality is in such a way enhanced and the creation of a contextual system rather than a solitary object is what makes the learning center so strongly connected to the future of the campus.

II.2.8 Reception of the Project

In explaining the Learning Center, SANAA's architects oftentimes referred to landscape and used the term as a guideline throughout the long and sometimes difficult path to its realization. Every practicing architect knows about the usefulness of such guidelines in the complex conditions of our design profession. The validity of landscape as a design guideline for the architect himself, his consultants, his client, and his contractors has been proven with this case.

The value of the result in terms of aesthetic qualities is hard to dismiss. An extensive list of largely positive reactions by the press and critics can be found in our bibliography. Shortly after the opening, SANAA were awarded the Pritzker Prize, in April 2010, considered the highest lifetime achievement award for architects in the world.

This building is fascinating to visit and hard to describe in the traditional terms of architecture. It's innovative character could possibly lead to misinterpretations or failure in use. The usefulness of such freedom is the least predictable quality. Like the canary bird that would not survive outside it's cage, freedom may not be so useful to students in a library. While a group of architects and journalists would enjoy their liberty in experiencing the space and strolling through the building, that same seductive space may not lead every user to his goals. We observed two interesting reactions in the first weeks (which Ariel Huber was not allowed to photograph): students would use only flat spaces for working - especially to plug their laptops in at the tables. They would also move the available sitting bags towards the facade or a column to lean on that, looking for any vertical limit that the architects where so keen to avoid. On the official photo shoo before opening, the project manager carefully saw to it that these colored sitting bags would to be arranged like sheep grazing in the pasture.

Also the other (non photographed) observation raises questions about the practicability of freedom. One of my first questions asked to a librarian (on the December 2009 visit) was how they would ensure books from being stolen. The official plan then was to use a electronic system that would automatically charge a book taken onto the account of the one who removed it. However such virtual limitlessness did not seem to work as of April 2010. Instead, the librarians had to build up a wall of square (sic!) flowerpots left and right of the electronic control gates to force visitors through their checkpoint. They would cross the landscape in an ugly way. A visitor compared this to the Berlin wall, probably referring to the ignorance of it's spatial impact. The client's greenery is absurdly cutting trough the continuous landscape.

Like many other innovative buildings, take for example the Centre Pompidou, it is not always predictable how experimental architecture will succeed. The building and it's usage are something to be watched in the near future. Maybe that would help to learn more about the possibilities and limits of application of landscape methods, possibly within a later stage of this PhD thesis.

II.2.9 Temporary Conclusion

This project has treated landscape in many different and interesting ways. It is intended so to provoke a certain spatial experience. In our four layer analysis we found a rich number of compository elements that contribute to that extraordinary spatial experience, unexpected and rarely known from works of architecture before this one. After analyzing the Learning Center and decomposing it into our framework, we must not forget that our emphasis should be on the spatial experience.

It proved useful and gratifying to use the four layer model in understanding this architectural composition like landscape architecture. We could make some particular conclusions on the manipulation of the basic form, and how the spatial relationships influenced the three dimensionally manipulated space. Also we found how landscape imagery appeared to be divided into natural and cultural references and how seen from an architecture landscape is different than architecture. But if that landscape is nature or culture is sometimes not differentiated by architects. We then found how a landscape approach could be an approach to program in a completely different manner than architects are generally used to dealing with: letting the program emerge from a manipulation of space rather then letting the space be manipulated by the program. All of these findings may not have been so clear if we did not follow the chosen analysis. They could be extracted as a handful of useful new methods, the first to be summarized under the term of landscape methods.

If landscape methods ought to be useful for architectural design, and not just about defining a new layer for art history or a limited space for "dumb theory" (Allen 2000 see Chapter I.1.4) we will have to cherish their lively and dynamic character of constant metamorphosis.

Exactly 200 years before this brief conclusion was written (and after one year of research), Goethe published his *Frabenlehre* (Theory of optics) of one thousand pages on May 16, 1810, after 20 years of research. He rigorously attacked and in his eyes proved wrong Isaac Newton's Opticks (1704) whom he objected to mistreating nature by decomposing it and therefore even torturing it like the Spanish Inquisition (Von Thadden 2010 after Schöne 1987). Goethe wrote a polemic against Newton's Methods: "The Phenomena have to be brought out of the dark empiric- mechanic- dogmatic torture-chambers in front of the jury of common human sense once and for all." (1810 *"Die Phänomene müssen ein- für allemal aus der düstern empirisch- mechanisch- dogmatischen Marterkammer vor die Jury des gemeinen Menschenverstandes gebracht werden."* translation by the author). The question is not debated here whether light is composed of colors after Newton's experiments or is homogenous and not composed of multiple elements as in Goethe's experience (Goethe 1810 after Newton in Enthüllung der Theorie Newtons, Statt eines Nachwortes). But we are interested in the implications of the methodological argument.

Goethe does rigorously object to science that would not trust the human experience. He is truly modern in including the human subject in his considerations of the object to be observed. It is rather Newton's way that science has followed and the trust in human experience is seemingly losing ground ever since against a costly science dominated by statistics and laboratory experiments. It is even more remarkable knowing how isolated

Goethe was as a scientist, how he seems so dominant here. The Learning Center project, reflecting the future of science, is based on the dominance of experiential qualities. It seems perfectly welcome in the midst of a scientific community. Could we be following Goethe, the walking writer and co-author (landscape architect!) of the *Park an der Ilm* (started 1776) in Weimar, in understanding this architecture as a whole experience rather then trying to decompose it with an experiment that is opposed to it's nature?

We promised to elaborate our argument further than the documentation of an application of landscape as a design guideline into our own theory of landscape methods. After decomposing it into a number of spectral fragments we where more keen on showing their interrogation in a spatial composition than leaving them as sole elements. Landscape methods, this might be a most important intermediate conclusion, will not be subdivided into particles nor statistically proven. Although we have our data on record and further measuring and statistical analysis could be done, we fear it would not lead to any additional findings.

The project is proof of the increasing role of landscape as a concept in architectural design. The target should be to clarify the amplitude, variety and reach of Landscape Methods in Architectural Design. The proposed research should clarify if such methods exist, if they are to be taken seriously and what they would change in the discipline of architecture now and in the future. It would be very difficult to describe this building with means other than those useful to landscapes. Like we stated in the composition analysis, landscape ideas have been translated into methods rather than only analogies. Methods of design had to be further developed to understand the visual impact of grading, mainly controlled by computer models, but also by large scale physical model building. Building methods had to be developed to make a seemingly simple idea buildable in a rather complex logistic operation; none of this would be possible without complex topographical models and their constant control in a digital state for formwork and especially for pouring the large hill in only 3 days. Here, the limits between measuring natural morphologies and artificial topographies also become fluent in a technical sense.

Rather than simplifying what we already know, we would follow Goethe's human view of nature. With him we would like to keep walking though the Ilmpark in Weimar. Before concluding too soon, we ought to keep our thoughts in motion. We could state that nature is dead if we do not consider it from our own experience after Goethe, or Architecture is a mummy without people after Frankl (1914 p. 159 see Chapter I.1.3). The architects' aim of creating a landscape for people (Nishizawa 2008 in El Croquis 139 p.31) is not a goal in itself but a means to an end; to create a human environment in relation to nature would be a potent tool of such architecture.

The analysis of the Learning Center is surely an important part of our discovery of landscape methods for architectural design. Landscape is developing here as the aesthetic mediator between nature and human. We are confident at this point to find more aspects useful to architecture in this direction and hopeful that we will continue to bring home valuable treasures from the proposed expedition into an unknown land.

Interview at the Central Bar February 15th 2010
Ryue Nishizawa, Kazuyo Sejima, Yumiko Yamada
photo by the author

yy: Yumiko Yamada
(project manager on site SANAA)
dj: author
q: other invited international
journalists asking questions

II. 2.3. Appendix

II.3.1.1. Informal Interview with Yumiko Yamada
at the Japanese garden in a small courtyard and a group of journalists about some gardening isuesm rocks and trees.

yy: Actually this is by a Japanese garden designer, and he designed this. He flew to Japan to find all these rocks and came back.
q: In Switzerland they don't have rocks?
yy: Aii - no, only in Japan (laughter)
dj: Has he learned it really as a craft - because I think it is a traditional craft?
y. You know, if you make a Japanese Garden in Switzerland I think he's the only one.
dj: What's his name.
yy. Hm, I don't know
dj: I'll look it up.
q: It's yours?
yy: No it's not, it was really a late decision. If you contact Michael Mitchell they will get you the name. But apparently there is only one in Switzerland who can do it. I didn't go to his place but apparently he has lots of rocks.
[noise interruption]
dj: Didn't you work with plants, trees or other in the beginning of the design as well?
yy: Yes, we had lots of plants.
dj: They are out [of the project] now?
yy: Yes. In the end we thought that it would be better to have these gravel surfaces than to have plants. You know if you don't have plants you have less maintenance.
q: So it was not your own decision?
yy: You know, it was a convenient development. Sometimes you just get to a different thought, which for sure is all right.
Transcript of voice recording 2min 51sec SANAAInterviews000.amr Lausanne 17.2.2010

II.3.1.2. Interview No. 1 SANAA
at the café Klee with a group of Asian journalists

q2: So what is the difference of the feeling of the site, Because now it's finished and built.
na: You mean the difference between ...
q2: ... when you came before and ...
na: ... after completion you mean.
sa: But still the landscape[ing] is continuing now.
q2: You mean continuous from the outside?
sa: Now they are making the surroundings (points at construction works outside)
na: The impression of the site?
q2: Yes.
sa: Before it was a little bit far form the buildings.
na: This area used to be parking. And here started the existing campus. Now there is still construction going on but it's gonna be more continuing (waving his hand through space from campus to lakeside) between here and there.
q3: Two Questions. First of all: The design of here is very fluid , OK? When you were in the design stage did you expect a lot of difficulties in constructing the place? A lot of things had to be made up. How do you think about that at the moment?
na: We have been working together with the structural engineering people from the very beginning. We know that of course this is one of the biggest issues. How we can create such a three dimensional shape. But i was not worried so much because the discussion between the engineering people, the architects, and the client has been [going on] all the time.
q3: Another question is about the original design and what now you see is there any changes or is there any differences? Say for example any compromise. Because of the structure issues, because of construction constraints or ...
sa: Let's say we could keep the concept but there's so many things we changed a little bit, little bit, little bit. But the direction is always the same, but of course ... the curve for example. Somewhere we decided the curve but we precisely ...
yy: ... you know because of the structural organization you had to make it higher or lower or bend it here more or ...
na: ... I think there are many people who asked us about the competition scheme and this one now realized which one do you prefer more. But I think of all, this is the one (looking around). This is like a kid: during competition phase this has come up with a kind of a baby shape and then we raise them up and it's real. This became like this and we love both, but this is the one. This is not a thing that we can compare.

Interview at the Central Bar February 15th 2010
Ryue Nishizawa, Kazuyo Sejima, Yumiko Yamada
photo by the author

sa: Kazuyo Sejima
na: Ryue Nisizwawa
yy: Yumiko Yamada
dj: author
q1–4: other invited international journalists asking questions apparently from mainland Asia.

rg: R. Gregory Architectural Review
jg: John Gendall Metropolis

sa: Like a continuous development

q4: My first question is: you always pay much attention to the relationship between the architecture and the surroundings. So in this project how did you fit the project into Lausanne - a city with a long history - how did you fit it?

na: I think that really the landscape shape of this building - to have more smooth continuity between architecture and the surroundings. You can see that they have a big street there, Avenue Piccard, this can directly come into the building without any boundary.
We also learned very much from Lausanne because they have many beautiful examples about how to deal with the topography

sa: To Lausanne we went a lot of times, there we walk and see ...

na; ... they have a beautiful way of using the hill - a beautiful way of using the terraces or lake, lakeshore. This is where we learned very much.

q4: My second question is: as we see you have used white color and glass in this project and also you used these two elements in many of your previous projects so i just want to know what do the two elements mean to you?

na. Two elements?

q4: White color and glass.

sa: Glass is somehow this is a huge building but we give it courtyards and then give it an elliptic space with light and also white is a very basic color which, if many people come the building is a kind of base for the people and also the white color spreads the light everywhere. Homogenous space.

q5: I have seen in a lot of interviews of you that you said that your design philosophy is that architecture is a link between people and the city.

sa: [Laughs]

na: When a project happens in the city, the relation between the city and architecture must be very important, one of the most important issues that the architect must think. We .. normally ... architecture can just solve the program requirement by the client but I think when architecture happens in the public area it's not enough just arranging the program in the box. We must think about how architecture can propose to the city or to the public. How the architecture can change the atmosphere that we all share. Maybe that's one thing that we are always thinking on with every project.

q5: Compared with previous times would you like to say that the role of architects today has changed a lot?

na: But also in previous times the architect should have a responsibility to the public I think! He always did. But maybe recently the architect is not the one person to think about the architecture - now there are not only architects because we must think about a lot of things. With this building also many engineers joined to realize it.

q1: Are there projects about public spaces that you would like to do very much in the future?

sa: School.

q1: What kind of school would you like to make?

sa: Asian (laughter). But this is more for the children - an elementary school or so.

q1: How is your idea about that?

na: Kids always start using the space in a way that we have never imagined. In a way this is very exciting to think about.
Station. In a station there are a thousand people coming all at once and then disappear at once - I think that's nice.

q3: You know many Japanese Architects had many projects in China.

na: I am amazed by the Chinese development. We are all, very much. We once or two times joined a competition but unfortunately we lost (laughter). But some day we will go to China.

q3: We are looking forward and wish you good luck by then.

Transcript of Voice recording 11min 44sec SANAAInterviews003.amr Lausanne 17.2.2010

II.3.1.3. Interview with Ryue Nishizawa
next to the bar of café Klee

dj: Hello, I am Daniel Jauslin, a researcher at TU Delft.
rn: TU Delft? Dutch.
dj: I am writing for Mark Magazine and I am doing a PhD on "Architecture with Landscape Methods". So I am very interested in architects that propose landscape as a subject for their architecture. I was just wondering if you could elaborate on that. And if we can make an interview like a short discussion. So, when you talk about parks or landscapes, what are the references you have in mind?
rn: Reference?
dj: When you designed this building what kind of park would you think of?
rn: What kind of park? You mean, specific? I don't think that we have a specific reference when we are working. [We are] just having this image of park, more vague, more general. There is no direct [reference].
dj: How would you describe the value of the landscape concept for your work as an architect?
rn: Landscape, you mean landscape....
dj: you said this building is a landscape, a park ....
rn: ... yes, yes: landscape is a very important, interesting concept for the architecture or for the architect I think. All the projects must have a landscape between the architecture. And landscapes are very free, [as in] freedom, and very open and they change during the year. Landscapes are very beautiful to me.
dj: And you are also talking about that you want to do architecture for the people, to have an approach to the human. Does landscape help you with that?
rn: I think so, I think so. [In] most of the projects we are trying to create harmony between the architecture and [humans]. Landscape is a very good concept to integrate architecture and surroundings. This [Rolex Learning Center] is one of those landscapes.
dj: I think you've been encountering this subject and working on this subject in other pieces of your work, but is this building different than others? Did you discover something new about architecture while you where designing this building?
rn. Yes, this kind of three dimensional movement is for us very challenging I think, because we have never done it before. So we learned very much about how topography or geography creates very different rooms compared to a square cluster shaped building. You can create a degree of privacy by creating a topography.
Like the top of the space is surrounded by hills to create a [space] different from the bottom part. When you are standing in the middle of hills you get a kind of private, different feeling. I learned very much from the landscape concept.
dj: One thing I am wondering about in this building is the sense of orientation. Now the sun is shining but this morning it was kind of dull - I once was here in the evening - did you work on that or what did you ...
rn: This building is totally transparent, you also can see the lake and the mountains and then the campus on the other side. You can always see all around yourself and on the larger map
dj: So you are working with the external views as a reference for the orientation?
rn: Yes
dj: Are you expecting how people are going to use the building or do you think there is going to be a surprise in that. I think there is a big tension there?
rn: There will be a big surprise [conversation is interrupted continues on recording 006]
rn: We expect to see how people use the space in a way that I didn't expect [laughter] This is a little bit of a contradiction.

II.3.1.4. Interview No. 2 SANAA
at the café Klee with a group of anglo-saxon journalists

yy: Will we sit? Because right now I think they sit we are going to do the interview [we were joining ks, yy, dj and other journalists]
dj: I am Daniel Jauslin from TU Delft and Mark Magazine
ar: I'm Architectural Review. I came to see you in Japan. We were talking just now with Sejimasan about your engineer Sasaki and she explained that you always 99% of the time you work with him, because he understands what you want so well and you teach each-other and you help each-other
rn: This is just because he's a genius.
ar: That makes sense. Nobody less then genius.
q: I was talking about the Ito Library in ...
rn: Tama
q: Which is a similar idea of an open space which you can walk through
rn: You mean Tama Art library?
ar: Yes. The structural expression is completely different.
rn: It's not that open.
ar: That building doesn't have the same continuity because the structure constantly interrupts it...
rn: Yea
q: ...but I think it was the same engineer who worked on both projects
ks: That project I am not sure. Because Ito collaborates with different engineers (note dj: the Tama library structural design is by Sasaki Structural Consultants http://www.dezeen. com/2007/09/11/tama-art-university-library-by-toyo-ito/)
q1: The very first building that you designed I looked at was the women's dormitory. I wrote a review of it around 1989 or 1990, how do you think that your work has changed since that time?
ks: Hmm.
q1: That's nearly 20 years ago that was before you were working together, when you were working solo.
rn: That was my first project, I was in charge of that project. I just graduated from university and I was in charge of that project. And I went to the project site to stay, like a Yumiko [yy, local project manager of Rolex Learning Center, sitting next to rn], but I just didn't stay so long.
q1: So your work has become much more flowing now than before. What is your feeling about architecture for human beings and what they needed then. You did take care of all their needs: cultural, psychological, everything ...
ks: That building is much much smaller than this building. 1,200 square meters and the function is also not so comparable but there is a space ... people can find some space . That is a dormitory, some kind of private space but there are also some spaces where also people who come from far away can join and come together and this is a public space and there are some spaces used privately but this is mostly public space. But at that time I only think [thought] about y and z - two dimensional relations - but here, more gradually I think, or we think [...about the common space] we think about the relationship to the outside not only the inside program but also three dimensional relations in architecture.
pg: Was it important to you to keep the perimeter orthogonal?
rn: We have worked very much on this issue, we tried to have a more funny shape (draws a flower on a napkin) but finally when did this and this is a very good solution
ks: because this is kind of a border
rg: yes it has an edge. And that allowed you to have more generous courtyards within that rectangle
rn: If this building were more in the middle of the campus the shape would be much different. Now we have very much open space around. So we have tried this kind of thing to keep it open.
rg: Keep the edges fairly simple. They are much more urban or responding to a campus

condition, aren't they?

q1: In a way this is a kind of a small scale campus

rn: Yes

q1: well, like a park landscape, and you say, "Ok where are the people? They are in the next door scene they are in the park over there." So all this is a very flowing space.

jg: John Gendall of Metropolis Magazine: You mentioned the human experience in your presentation this morning, the relation between the human and the architecture, and I wonder if you can address the sense of orientation within this space. What is within this space and also this space and the campus behind?

rn: One thing that we feel is important with this project is keeping it transparent. Transparency. Here, anywhere you can feel the lake and the mountains on this side and then the campus on the other side and you can really easily orient yourself with that. Keeping the transparency gives you a sense of orientation.

Toyo Ito: Tama Art Library Hachioji City, Tokyo, Japan Ishiguro Photographic Institute - www.dezeen.com

ks: On one hand, we wanted one big space but also the building had many layers (floors) before, but at the end we thought it's better to make some meeting place that would have just one floor. So that means it would become big, and even if we use glass, this would become a very deep space. Then the floor had to become higher and then you would see through (noise).

q1: You described the way people meet not on a straight line but only in curves. Will you come back to the building - will you return to the building and see it occupied?

ks: Monday we will

rn: Monday [22.2.2010. opening to the public]

ks: But maybe Monday there are not so many people because it is the very beginning here

q2: Where will you sit, where will you be?

jg: Where is your space?

ks: Monday when I am here?

q1: Maybe you will be moving around, observing a bit?

ks: It depends on the weather or the condition of the body

q1: I think next week it will be interesting to ask how many people will be here it is very difficult to ...

rg: Is there a capacity? Does this building have a fire regulated number of occupants?

yy: I don't want to say the wrong number now

... (noise)

kd: Once we decided a one story building so then that means that the footprint would become very big. So we wanted people to be able to come everywhere, but people would only be able to arrive at the edge of the building. But that space is very hard (?), so that means if we make two hills you could immediately come across the center of the building, so also inside people always come here [central bar, where the interview took place], that's the interesting concept of the EPFL building or between the building and the outside. And sometimes it's better you know if it is a completely flat building you cannot see the underside and also above you can see the lake from this level [points upwards]. There are many things that in the end we thought that this works for organization.

rn: The EPFL People wanted to have a floor higher up for the restaurant but we did not want to make this multi-story building so we thought to connect the ground floor and the upper floor.

q3: So the client wanted the café or the restaurant?

rn: The restaurant is upstairs and the library with the beautiful books over there.

dj: You mentioned that the entry is in the center. Is this the first time you realized a building where the entry is in the center?

rn: I don't know if this is the very first in the world.

dj: But of your projects?

ks: When the competition started it was at the completion of the Kanaza Museum. In Kanaza

SANAA 21st Century Museum of Contemporary Art
Kanazawa, Ishikawa, Japan 2004 photo: SANAA

Zaha Hadid: Phaeno Science Center, Wolfsburg, Germany
2005 photo: Hobbes vs Boyle on flickr.com

Museum we had a different site, smaller than this, but we made four or five entrances because the site is the center of the city and we realized people arrive everywhere and sometimes the right section of the gallery is a little bit far.
rg: There are a few buildings where you enter underneath, and the surface where you enter is very important. How did you decide on the quality of the environment you would achieve underneath? I mean the concrete is very shiny so it spread the light - it's very good - but when you compare with the building by Zaha where it feels more like caverns.
ks: Caverns?
rg: The Wolfsburg Museum
ks: Ah Wolfsburg
rn: Wolfsburg. Hmm it's different
rg: The buildings are a more known condition now where we enter underneath the building and then find the center; were you concerned at all about the quality of the space or did you make efforts - did you model the underside as much as you did the interiors?
rn: I didn't understand the Zaha part.
rg: I was just making a connection because her building is, what is the same is you walk under the building and it is described as a public space but it can be quite oppressive quite sort of dark and not very welcoming; here it seems brighter and the form is softer.
ks: Because people from the city when they pass from Monday, I always thought it's very important the people who come see the EPFL are also in the architecture inside. Normally a courtyard is an outside space but it's completely surrounded by the glass but it is a very isolated place, but here only the courtyard on one hand is on the ground and on one hand it's up, that means that there is always a very good connection - there is a very good connection to the inside but also there is the connection to the surroundings. So you get right into the inside but also see to the outside. In the competition project in the very beginning we wanted to make some public space below, with pilotis (noise...) and then finally we found the right way.
qf: You said earlier on when we were with the others (interview with Asian Press) that you were interested in designing a school building in the future for children. In what way do you think that this building could be influential to school buildings or school architecture? What elements are innovative and very fulfilling for a school building? Or what is it in this building that triggers the desire to build a school?
ks: There is always classrooms. You know that school buildings have classrooms. But this is not a normal school building.
gf: It would be interesting on Monday (opening to the public 22.2.2010) to see a small child.
ks: They will be running. (laughter)
gf: It's interesting about a school that if you make a hill, than the children will climb the hill. I think it's interesting about this building that it connects me with the emotion of when I was a child ... I guess that children would prefer to be in a building like this. Also for a child the world is seen as transparent, without boundaries and without hierarchy. Can you say something about your attitude towards hierarchy? Architecture traditionally is so obsessed with order and hierarchies. You are very democratic in your approach...

rn: Of course, we're very democratic. We don't give such a strong order for the programming or the spatial organization. I think one thing that we trust in is that people can create the space based on architecture. Architecture can become even more ... wonderful by users, by being used. That's why we tried to build a kind of a virtual freedom for the space not to be a pyramid building. 20:16

ks: If you are on a hill or behind a hill there is another space. A more open or a more quiet space. So that's how we made the hills so that even in one big space people would have some private spaces.

rg: Did the client have a preference to where the librarians, the researchers, and the cafe staff (would be)? Have they been competing for private space?

ks: Yes. Many (of them).

rg: I guess that librarians are picky clients, they want very closed control.

rn: In the section underground we have a parking garage, and the storage and machinery.

q: also the kitchen for the restaurant?

ks: In the beginning we where planning to make a big kitchen but we would have it rather in the basement like this.

dj: was the surrounding landscape like the Mont-Blanc and the lake important to you? Did that influence your decisions in the building?

ks: No (laughter).

dj: Can you actually see the Mont Blanc from the building.

yy: (translates)

ks: Yes, a very big one. And also if [you] enter the building from the ... space you can see it.

ar: Before the competition this area was occupied with cars. Did you design the landscape on the site?

ks: No, I'm not the landscape designer. But in the competition we also proposed (a landscape design) and this concept they kept.

rg: would you have considered trees within the courtyards or was it unfeasible because of the car parking?

ks: Underneath ... yes also the weight was a big problem because of the costs.

jg: Can you quickly address how you actually designed the section underground. The structure is on piles?

rn: We have columns.

ks: There is one wall and then the rest is supported by columns. For this area (upper level) the structure is very important but the rest is according to the client and the contractors.

dj: This has been very challenging for engineers and builders.

ks: Yes

dj: Was there a point where you started to doubt if you over-stressed them or were you sure that they would ...?

ks: Yes we were sure, but we cannot speak French, so sometimes the communication became complicated and sometimes some people doubt, but sometimes the language is difficult. The project is really coming from Japan.

dj: And did it help you that you already had been building in Switzerland?

rn: We have done one office building in Switzerland. This is the second building that we have Switzerland.

ks: But they are only two, there was one before but every time we had a new experience.

rg: When I went to New York, I met the people from your office who built your new museum. I am always amazed how you have one maybe two people from your office in any given location. How often do you communicate with them? When you are generally, I presume, in your Tokyo Studio?

ks: Yes

rg: Are you constantly talking or do they come back? It seems a very efficient way of having just one or two people rather than ten or fifteen.

ks: Until the construction starts we keep working or we ask for bidding, but when construction starts we go onto the site and in Tokyo there is few people. So for this it is Yumiko but sometimes in a very dense period few more people move here and also Tokyo will help.

rn: I or Sejima come to the site once a month. And another one would come to our Tokyo studio.

q2: You had the same engineers for the Essen project?

rn: Climate Engineer is different but the structural is the same.

ks. We had one Japanese and also one from Germany, Bollinger and Grohmann from Frankfurt.

rn: We have been working together for long so we trust each other.

q2: How often did you meet with the structural engineers?

ks: Apart from the Japanese engineers? In the very beginning we would fly to Frankfurt sometimes because of some problems.

rn: Later on there was one engineer partner firm here (in Switzerland, Santini ,...) as well.

q2: Were there changes on the construction site or could you build it as you planned it from the beginning?

ks: Hmm. We change a lot but we could ...

rn: When we came on the construction site they proposed many different ideas.

rg: But it was always that concrete structure, that never changed?

rn: Initially we had a concrete slab and a light steel construction for the roof but then did it in wood.

ks: The straight part is steel as we proposed but the curved part was cheaper in wood.

rn: And with less (heat) expansion.

ks: Timber yes. And the construction company decided that. Of course a curved structure is more expensive, but not if you use wood. Actually now the straight part is still cheaper.

ks: Oh then, we are finished?

rg: Yes thank you very much.

questioners: Thank you.

Transcript of voice recording 30min 39sec SANAAInterviews006.amr continued 0min 55sec 17.2.2010

II.3.2 Credits and Project Data

LOCATION   EPFL (Ecole Polytechnique Fédérale de Lausanne) 1015 Lausanne, Switzerland
SCHEDULE Competition 2004 Construction 2007 – 2009 Opening February 22, 2010
CONSTRUCTION COST 110 Million CHF

SITE DIMENSIONS 88,000sqm (166.5m x 121.5m)
FOOTPRINT 20,200sqm
FLOOR AREA 37,000sqm

NUMBER OF FLOORS 1 Basement + 1 Main

MAIN PROGRAMS Multimedia Library – 500,000 volumes Student Workspaces – 860 seats Multipurpose Hall "Forum Rolex" – 600 seats Café + Bar – 53 seats + exterior Food Court – 128 seats + exterior, Restaurant – 80 seats, Career Center, Library Staff Office, EPFL Precious Book Collection, Student Association Office – "AGEPoly", Alumni Association Office – "A3", Pedagogy Research Office – "CRAFT", Publication Office – "PPUR", Bank – "Credit Suisse", Bookshop – "LA fontaine", Parking – 500 places

CLIENT EPFL (Ecole Polytechnique Fédérale de Lausanne) Patrick Aebischer, Francis-Luc Perret, Vincent Joliat

ARCHITECT Kazuyo Sejima + Ryue Nishizawa / SANAA, Yumiko Yamada, Rikiya Yamamoto, Osamu Kato, Naoto Noguchi, Mizuko Kaji, Takayuki Hasegawa, Louis-Antoine Grego (Former staff: Tetsuo Kondo, Matthias Haertel, Catarina Canas) Tokyo, Japan
PROJECT MANAGEMENT Botta Management Group AG
LOCAL ARCHITECT Architram SA

STRUCTURAL ENGINEERS
SAPS / Sasaki and Partners Tokyo, Japan Mutsuro Sasaki Ayumi Isozaki, Hirotoshi Komatsu, Hideaki Hamada
B+G Ingenieure Bollinger und Grohmann GmbH Frankfurt am Main, Germany Manfred Grohmann Agnes Weilandt
Walther Mory Maier Bauingenieure AG Münchenstein, Switzerland Rene Walther Gilbert Santini
BG Ingénieurs Conseils SA Lausanne, Switzerland Michel Capron
Losinger Construction SA *Jean-Benoit Leroux

MECHANICAL HVAC ENGINEER Enerconom AG Bern, Rolf Moser
ELECTRICAL ENGINEER Scherler Ingénieurs-Conseils SA Lausanne, Jacques Mühlestein
FAÇADE CONSULTANT Emmer Pfenninger Partner AG Münchenstein, Steffi Neubert
ENERGY CONCEPT Sorane SA Ecublens, Pierre Jaboyedoff
ACOUSTIC CONSULTANT EcoAcoustique SA Lausanne, Victor Desarnaulds
SECURITY CONSULTANT BG Ingénieurs Conseils SA Lausanne, Thierry Visinand
MEASUREMENT, CONTROL REGULATION (MCR) Consulting Energy Control SA Plan-les-Ouates, Michaël Briffaz
GEOTECHNICAL SERVICES Karakas & Français SA Lausanne Christian Voit
SURVEYOR Truffer-Renaud-Burnand Sàrl Renens Daniel Meier
FORMWORK DESIGN Design To Production Zürich/Stuttgart, Germany Fabian Scheurer Arnold Walz

TOTAL SERVICE CONTRACTOR Losinger Construction SA Bussigny, Switzerland

STRUCTURE Civil Works, including foundation and piles: Losinger Construction SA, Concrete for "shell" provided by: Holcim SA, (Bussigny). Pre-stressed cables: Freyssinet SA (Moudon), Roof steel beams, columns, braces: SOTTAS SA (Bulle), Roof wood beams: Ducret-Orges SA (Orges)

TECHNICAL Electrical: EP Electricité SA (Genève) Electrical: Etablissements Techniques Fragnière SA (Bulle) Ventilation and Measurements, Controls, Regulation: Consortium Alvazzi / Atel (Crissier) Floor heating: Baruchli SA (Lausanne) Sanitary, Plumbing: Riedo Clima SA (Bulle) Architectural lighting on main level: Zumtobel Lumière SA (Romanelsur- Lausanne)

EXTERIOR Glass façade system with anodized aluminum facia and sun protection, box: Roschmann Konstruktionen aus Stahl und Glas GmbH (Gersthofen,, Germany), Louver sun protection: WAREMA Schweiz GmbH (Littau), Sika Sarnafil flexible waterproof membrane roof surface: Pilatus, Flachdach AG (Samstagern) Concrete walkway covers: Losinger Construction SA (Bussigny)

INTERIOR Screed: LIROM Chapes SA (Le Landeron) Carpet flooring: Interior Services SA – Pfister (Etoy) BASWAphon mineral plaster acoustic ceiling: Clément Peinture SA (Fribourg), Plasterboard + paint on "bubbles": DUCA SA (Cheseaux-sur- Lausanne), Expanded metal partitions: R. Morand & Fils SA (La Tour-de-Trême) Steel railings with polycarbonate, or expanded metal infill: R. Morand & Fils SA (La Tour-de-Trême), Curved glass for Credit Suisse and flat glass for meeting rooms: GLAS TRÖSCH AG (Bützberg) Inclined elevator: Weiermann Systems AG (Wynigen),

FURNITURE Information desks in anodized aluminum + acrylic: Actoform SA (Ecublens), Anodized aluminum library bookshelves with lamps: Unifor Spa (Turate, Italy), Student work tables with lamps: Developed by Schoch Werkhaus AG (Winterthur), Glass precious books collection case: Bodenmann J. SA (Le Brassus, Switzerland) SANAA Flower Chair: Vitra AG (Birsfelden), Vitra office furniture: Teo Jakob Tagliabue SA (Geneva-Carouge) Fritz Hansen tables and chairs: Batiplus SA (Lutry),

Data from EPFL Press Information issue date 17.2.2010 at www.rolexlearningcenter.ch
Except for Formwork (from Grohmann 2008)
If no other country is mentioned the companies are in Switzerland

Ariel Huber at work February 18th 2010
photo by the author

Guided Tour for International Press February 17th 2010
photo by the author

II.3.3 Acknowledgments

II.3.4 Bibliography of Rolex Leraning Center (Part II)

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Contemporary architecture has been strongly influenced by the concept of landscape in recent times. A new mindset evolves that changes the core of the architectural discipline: the organization and composition of architectural space as a landscape. The scope of this thesis is to investigate and understand architecture that has been designed like a landscape.

In proiects of OMA, MVRDV, Peter Eisenman, Foreign Office or Diller+Scofidio the building inside and landscape outside do not merely interact, but the building is designed as an artificial landscape on its own. Landscape constitutes the inside. The landscape to architecture relation is turned inside-out.

The analysis of the Rolex Learning Center by SANAA is surely an important part of our discovery of landscape methods for architectural design. Landscape is developing here as the aesthetic mediator between nature and human.

photo: Ariel Huber