

ARCHITECTURE, THE BATTLE FOR INNOVATION

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The meaning of innovation for architecture

The flexibilization of the architect's position means the necessity to innovate in order to be able to withstand a changing future. Methodically (and ontologically) speaking, we assume a Darwinistic foundation of the world. The Darwinistic adage of variation, reproduction, selection, and survival also applies to the economy although it is there that it is referred to as innovation, a (test) trial, crisis, and maintenance.

This means that we are constantly looking for innovation regarding our design methods. Innovation can take place at *various levels*, such as the technical or constructive levels, one's use of material, esthetics, use of space, etc.

The way in which we design is oriented on the biological world of the development of species; an individual of a species consists of a *complex cohesion of levels*. Individuals are developed due to the mutation of variations on the genetic level, which can result in 'deviations' (improvements or deteriorations) on a phenotypical level. Due to the change of the living environment (the extended phenotype), the deviation suddenly implicates an improvement or a degradation. The continuous changing of the democratic work field of architecture is comparable to the unpredictability of the natural selection in which the living environment changes. Our design methods incorporate this unpredictable changeability because we deploy this changeability as a parameter in our method. We do this by examining all kinds of different levels individually and then mutate design variations of them. Furthermore, we bring these variations together when we further give concrete form to the building that is to be designed. This also creates new and unforeseen varieties: or, in other words, possibilities. New possibilities for a new way to think about space.

Economy and innovation

However, our story has been rather unilateral until now. After all, in the economy, every examination is a cost item. Each possible innovation requires funding. Darwinistically formulated: all that expends energy instead of saving energy results in increased risk.

Why then would one still seek out innovation?

Our answer is an architectural one, which is pursued by Darwinism. The evolution theory believes in energy-economical argumentation; a change is proven to continue in the history of the development of the species, if it yields a profit or, in other words, cost savings in energy in an individual's household. *2

Therefore, we, as architects with (spacious) ideas can immediately be part of this economic perspective, provided that we review our ideas (exposure to selection conformity with the Darwinistic-oriented science methodology of trial and error, according to Karl Popper). *3

If varieties in the technological fields of technology, choice of materials, and building construction are put together with purely architectonic ideas about the use of space, layout, optimization etc., then, on the one hand, architecture will change under the influence of technique, material, and construction, and on the other hand, stimulate architectonic insight into how one thinks about technique, material, and construction. The mutual confrontation results in new varieties that in the end will be checked for their merit rating.

E.g. the rise of the elevator, escalator, and air conditioning has significantly improved the construction of mega-buildings, otherwise referred to as endless building. These technological inventions have altered building practice beyond pure architectural design interventions.

*1 Cf. Daniel Dennett, *Darwin's Dangerous Idea; evolution and the meaning of life*, Simon & Schuster 1995.

*2 Karl Popper, *Objective Knowledge; an evolutionary approach*, Clarendon Press Oxford 1973.

*3 E.g. Emergence of the elevator, escalator, and air conditioning have essentially contributed towards the existent mega-buildings: the endless building. These technological inventions altered building practices far more than purely architectural-design interventions.

Introduction of variation and selection



If you look at the image of the bridge, you will notice right away: a bridge is never just a bridged span. The path of light leads to the destination that one is going to or coming from. The background shows a subway. The bridge is never a stand-alone object, but rather points outward: it is directed at the subway station, just as this station is oriented by commuters. The bridge is enclosed in this constellation of clues and direction that one always considers.

Just like with the bridge, these clues and orientations evoke questions and reject final solutions: it is a game of **variation and selection**.

The use of our models is a response to this. For the models and the way in which they are organized towards each other: There is not just one model. There are always various models. Those who present just one model have already addressed a pre-selection before showing his or her model. This does not fit into our contemporary, complex, and quickly fluctuating society.

Architecture is in fact a tournament of many varieties, in which there is only one winner. Design throws in varieties and the selection thereof, a tournament. Competitions are tournaments. Consultation rounds are tournaments within which models, possibilities, and plans can be rejected and selected.

We as well as anybody else are a part of this tournament of variation and selection. Only we can organize various consecutive 'selection rounds' with further developed varieties, which are sharpened at different angles (economically, technologically, socially, etc.). This prevents the outcome of a 'polder model' as the largest common divisor.

Multiple models within the office and multiple cooperation models

We present herein two designs with their respective processes. The first design process concerns a long-term study about offices of which, until today, nothing has been realized. The images show the development of offices with the use of multiple models. Variation and selection has been applied in one's own closed office. We will show that this process has been caught up with in part. (Important designer parties such as installers and constructors were involved only after the design, for the realization, but not the process of the development of the design itself. This means in turn a loss of potential know-how).

The second design process that was designed comprises a bridge called the 'absence of light', next to a subway that was also been designed by us. The bridge was finalized one year ago.

Multiple models were used during the development of the bridge. The models were developed through a long process, whereas the selections more so than the offices, were created from the outside, whether successful or not. The most important reason for this plan was, and is, pragmatic: a changing environment, such as a rural layout, a changing span, and water height. The use of multiple cooperation models will be inevitable in the future, due to the increasing changes of the environment (landscape, city, market parties, and economic fluctuations).

Insight into the design process, two examples

Example 1. Offices - 'Community of emptiness' and 'Silent moving'

Model 'community of emptiness' (assignment 1999)

The examples of offices that we have shown display a design experiment of architectonic models wherein flexibility and innovation of space and construction can play a role.

Assignment office 8000m²

- **Variation-** The first office model was developed resulting from the idea that levels consisting of several layers (4 to 5) in the office should be locally lowered to create more m². We also wanted to add voids in these layers in order to enrich the space quality (e.g. extra communication between the layers of floors). This means that there could be multiple qualities with the same number of m² (economically speaking). The building 'community of emptiness' is characterized by floors that are connected in a very specific way. This creates lighted slipways, differentiated constructions (a part is removed by placing trusses on the heads of the building) entresols with open spaces
Selection- a global concept with specific spacious qualities within, for instance, office gardens with wide and extra staircases, standard offices at the façade, and office cocoons on the inside at the center of the building. The office has a gross/net proportion of 88%.

Selection negative - Economic problem, and therefore, ordered a facade made of glass. No innovation for the facade. Installation solution at the end of the design.

Accumulation of design >>

Room for installation reduction for specific space, and difference in the use of space.

Model silent moving (office experiment 2002)

- Variation construction and space. Developed models with variable construction. Eight floors (larger floor heights) connected to ten floors (lower floor heights) with open spaces in between. **No selection**
- Variation construction and space. Models with open spaces in combination with complex craftsmanship. No economic gain **No selection**. Loss of net m2 regarding the total m2.
- Variation space and installation. Models in which the installation space is locally reduced to create as much difference and space as possible in spacious quality. Selection– There is a client for 2,000 m2 office space (2006). **selection** – Model silent moving installation, relational construction, and installation space-routing

Selection negative- Minimum spacial difference due to limited m2. Experiment in the execution is also too expensive for the underside of the market. (Steel construction expensive + ever increasing building costs)

Example 2. Bridge ‘Absence of light’

Idea of light improves the previous ‘Bridge of wind and water’.

Negatives were:

1. Regulations affect the appearance of the Bridge of wind and water as a whole (fall through safety).
2. The tectonics of the form language does not concern technological innovation. There is, however, a matter of spacious limitation.
3. Complex representation.

Choice of designing the new bridge from the theme light with the goal of adjusting the tectonics (economically moving) > *Accumulation of the subject*

- Variation – Experience of a bridge as a connection unlocked by light. This is examined in the models of how specific artificial light can affect the construction. What is the effect to the user. In this model the functional artificial light was separated from specific artificial light for the benefit of experience. **No selection**

- Variation – Light in relation to traffic flows, drivers, cyclists, and pedestrians. Specific artificial light transforms separate bridge parts. **Selection, too complex as well as excessively high concrete construction, too large of a span, and an increase of the costs.**
- Variation construction and the use of materials. Model combination concrete with steel. Grid as a driving track + light as an experience. **Selection negative – environment regulation, oil from cars in the surface water.**
- Variation on construction and the use of materials. Model transparent driveway of concrete, and models with glass openings. Model glass opening + feedback car track as a configuration in the pattern of holes. **Selection glass + LED lights (energetic) Selection functional light comes together with perception light. Indication light + surrounding light.** Technology and space.

Accumulation of the design

We associate with models that lean towards variation and selection. Models are designed as varieties to a ‘theme’, which in itself is a variety of previous models. Letting go of the selection factors of these sequence(s) to varieties further directs design choices. An additional benefit of this association with models is that by way of working with multiple varieties, the selection factors will become more explicit. If a selection factor is about information, which then leads to designs, then it is of the utmost importance to make that information as explicit as possible. This is contrary to traditional processes, in which along with learning by ‘Bildung’¹, information often implies its own formation. Selection as explicit information means that with continuation or a new design, this can be used as a new starting point. This is accumulation of explicit knowledge by way of variation and the selection of models. A method of gaining knowledge that fits within the contemporary market democratic context, which is characterized by growing complexity and instability. Both of these are caused by an increase in interested parties. “Clients and their representatives, the local council, technical advisers, building contractors and sub contractors, as well as any number of social and environmental advocacy groups...” and because “....Design...has come to entail countless

^{*1} See, for example, Gadamer, H-G., *Wahrheit und Methode*, Tübingen, Mohr, 1960/1990, pp. 15-24.

numbers of rules, regulations, codes, standards, and legislative measures...overriding the imaginative will and authority of the individual designer.”².

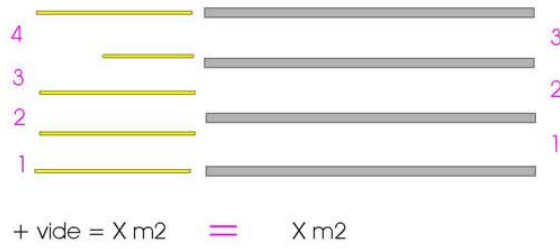
We question ourselves as to how, in this context, can you take all of these parties into account without having to ignore yourself as an individual architect.

Our association with models provides the answer. The system of variation and selection of models, and the associated multiple cooperation model, joins our contemporary context, without being fully consumed. In other words, without having ignored myself in the ‘keeping into account that...’.

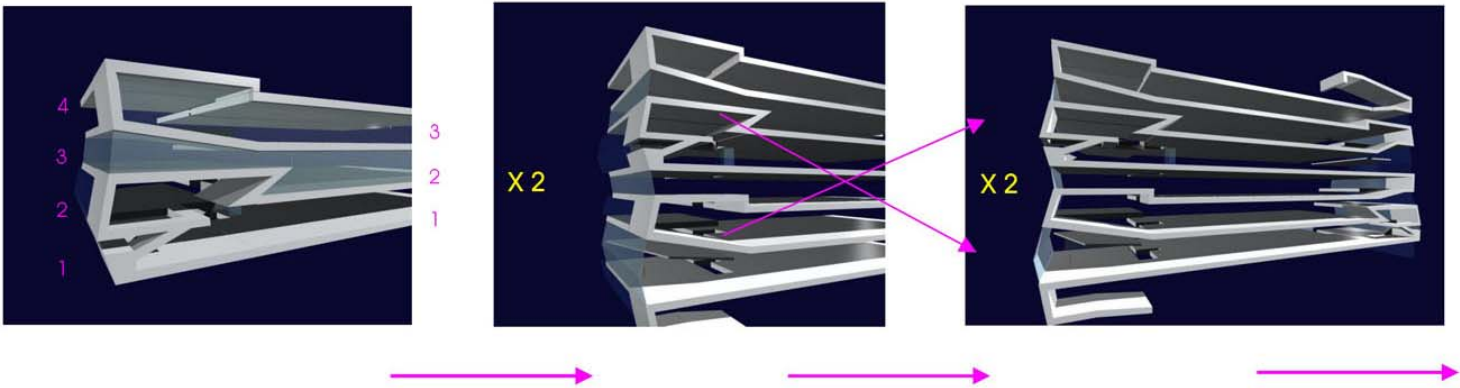
²Lootsma, B., *Synthetic Regionalization*, published in *Recovering Landscape*, editor Corner, J., Princeton Architectural Press, New York, 1999, p. 257.

COMMUNITY OF EMPTINESS

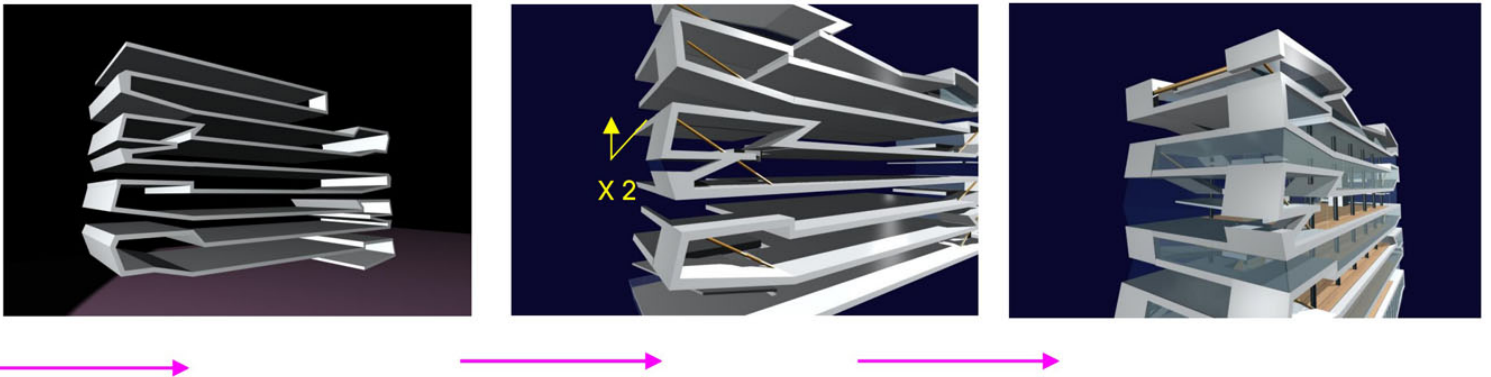
CONCEPT FLEXIBILITY + SPECIFIC



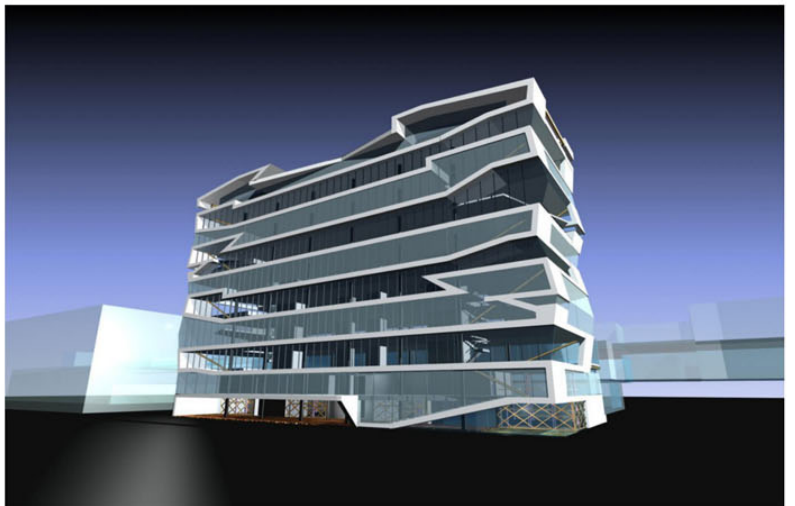
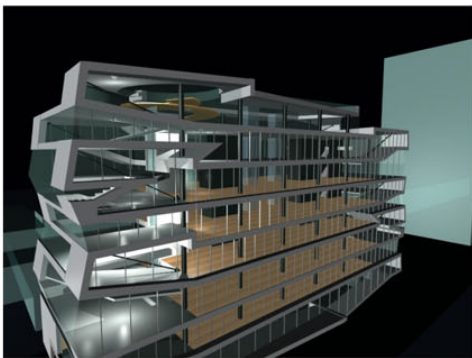
GENERATING CONNECTION OF FLOORS



GENERATING CONNECTION OF FLOORS + SPECIFIC CONSTRUCTION



GENERATING IMAGES BUILDING



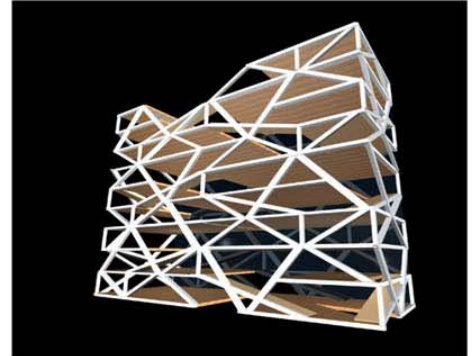
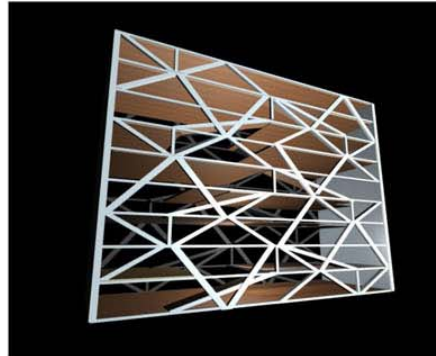
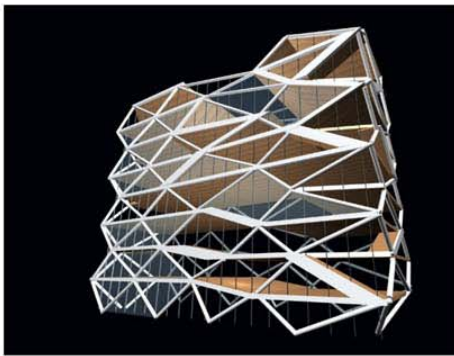
SILENT MOVING INSTALLATION



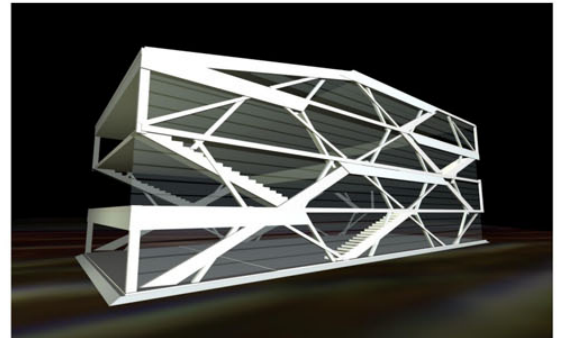
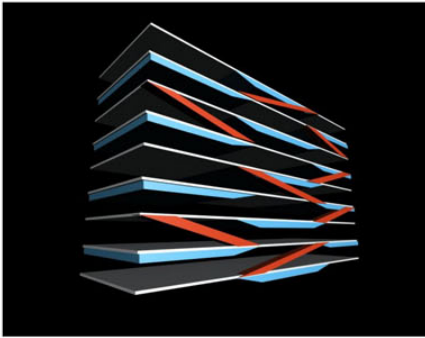
→ CHANGE PARAMETERS

CONCEPT SPECIFIC INSTALLATIONSPACE - CONSTRUCTION

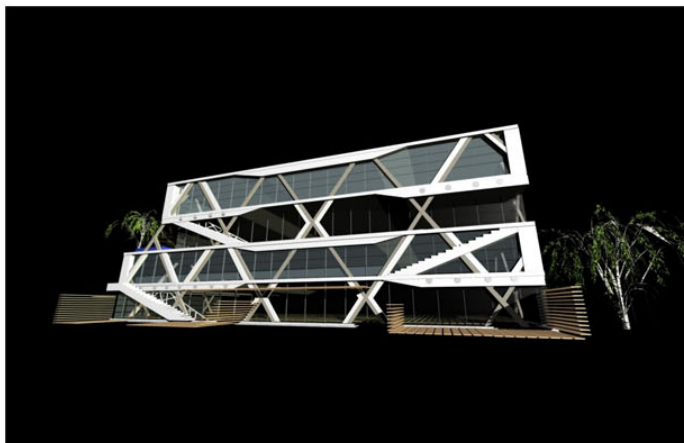
GENERATING IDEAS CONNECTION BY CONSTRUCTION



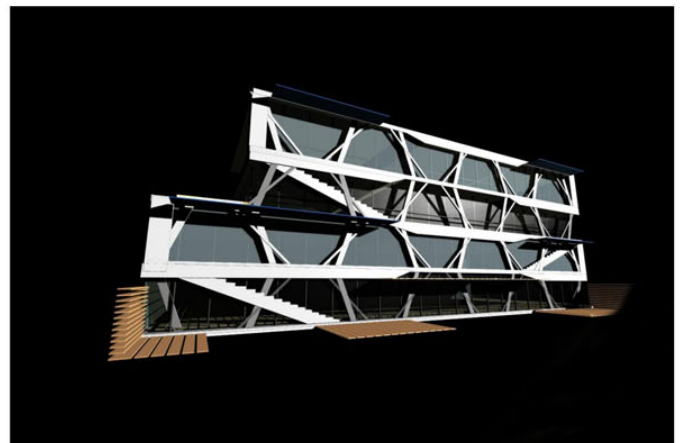
GENERATING INSTALLATIONSPACE + STAIRS



BUILDING 2000M2 CONSTRUCTION STEEL



BUILDING 2000M2 CONSTRUCTION CONCRETE





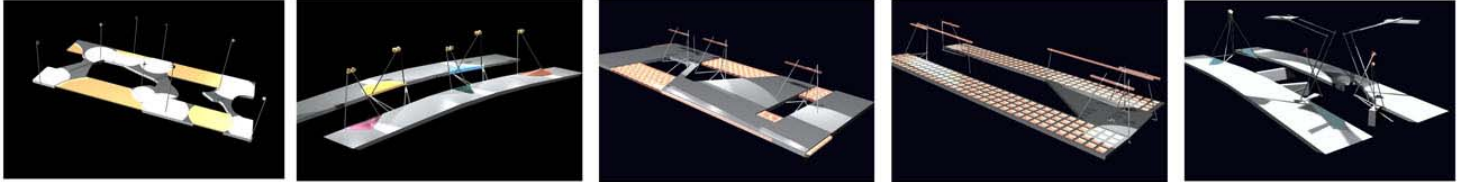
BRIDGE OF WIND AND WATER

ACCUMULATION OF DESIGN

- IMAGINATION OF BOUNDARIES BY TECHNOLOGY
- NO INNOVATION
- COMPLEX

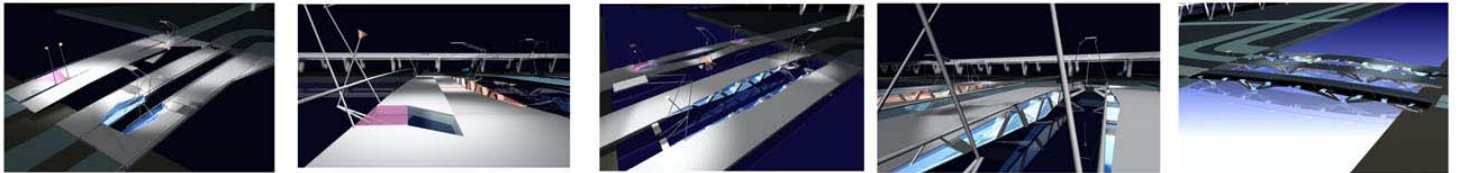
BRIDGE 'ABSENCE OF LIGHT'

ARTIFICIAL LIGHT RELATED TO CONSTRUCTION AND SPACE



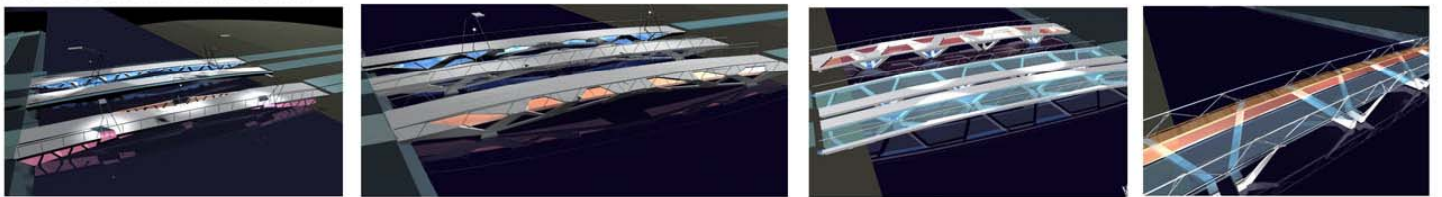
SELECTION - FORM CONSTRUCTION RELATED TO ARTIFICIAL LIGHT

ARTIFICIAL LIGHT RELATED TO TYPE OF TRAFFIC



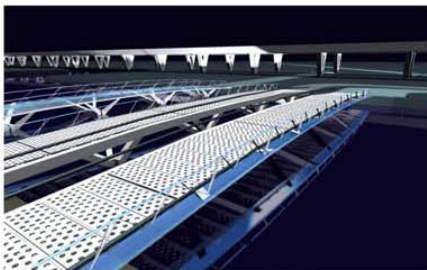
SELECTION - INCIDENTAL LIGHT - CONSTRUCTION TO HIGH

ARTIFICIAL LIGHT AND CONSTRUCTION

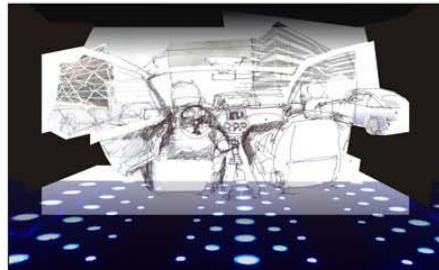


SELECTION - MATERIAL OF STEEL + OIL OF CARS DIRECTLY INTO THE WATERSURROUNDINGS

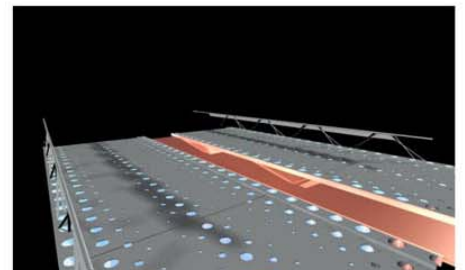
SELECTION OF MODEL - SYNERGY TECHNOLOGY AND SPACE



PERFORATED CONCREET + GLASS



TRANSFORMATION BY FEEDBACK OF TRACE OF CAR



TRANSFORMATION BY FEEDBACK OF TRACE OF CAR



TECHNOLOGY GLAS + LED LIGHTNING

