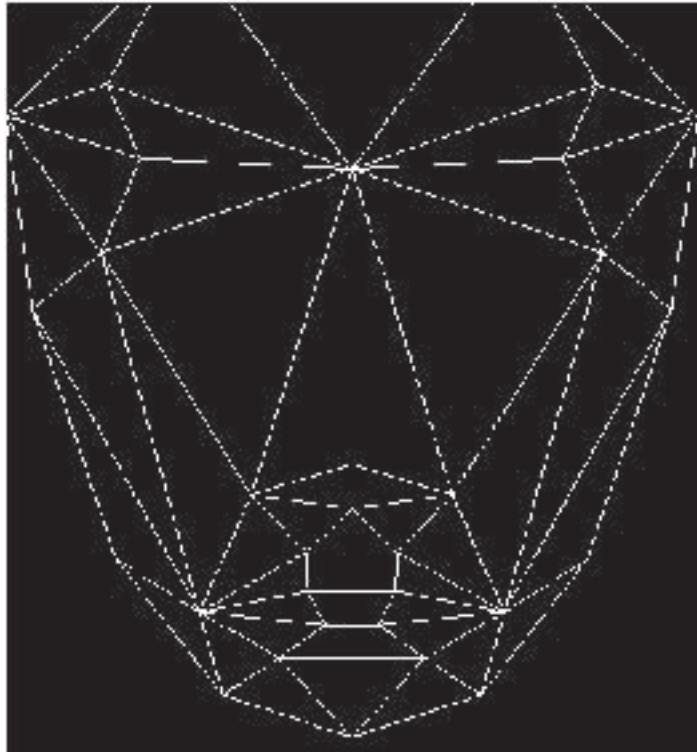
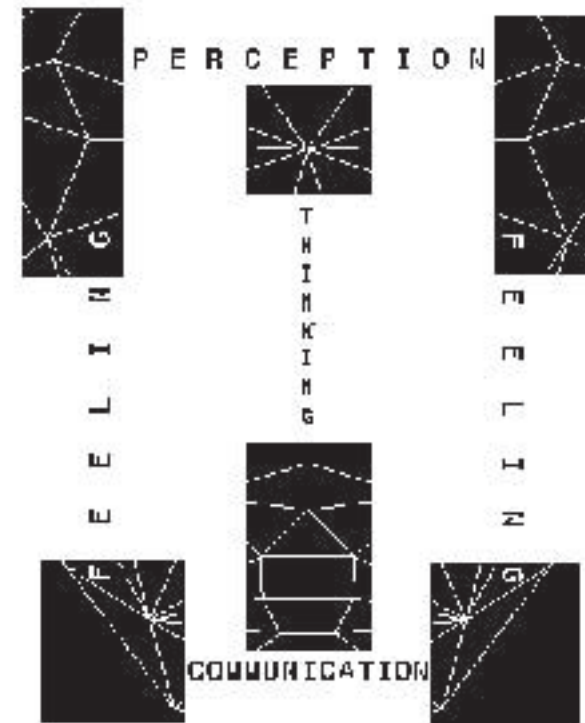




Def. #1 A diagram is an explanatory visualisation of gathered, selected and contracted information about matter put into a system of interacting forces.



face mask



machine

### hu[man]

Analysing the "maninal" from Ben van Berkel and a picture I had from a stuffed monkey, which had because of a deformation a strangely human looking expression in his eyes, I got the idea for a new diagram, which researches the differences between human and animal faces. You can find in any face axes of organisation and knot points. The face mask studies these remarkable points and connects them. The result is not a polygonal model of a face, it's more abstract - a spatial notation. For the diagram I picked out the main knots and put them into a simple system of relationships. Now its possible to change the position of the knots and to map them; it means, you can make variations and interpretate the new content.

## language

Without knowing the notational system and their codes, it's still quite easy to read / interpretate some kind of relationship between the two time-space-lines. Our experience with our own komplex form of communication helps us to understand, how action and reaction, how question and answer interact. They built up a field of forces, where attraction and distraction create a moment of tension and stop the movement. These pauses in the motion are related in a certain proportion. Breaking up the flow of time and space it structures the vagueness, expression and meaning are melted to a new thing together.

Def. #2 Time and space describing motion organize as bottom up elements the reconfiguration of information.

dance notation from a tango figure



The parties differ only in one point - white is the agressor.

### survival

You can see two parties with the same amount of figures. Their configuration mirrored along the horizont is related on each other as enemy.

Their existence is defined by the destruction of the other one.

There are 7 groups of figures with certain abilities to appropriate space and to interact with the surrounding (normally to fight!). These abilities are related to the value of the figures. This hierarchy is the first interpretation of the influence on the fight, which your figures will have.

Space is divided into a euklidean grid of horizontals, verticals and diagonals set up by black and white fields of squares. That's the system of motion.

In their starting position the parties are like unvincible.

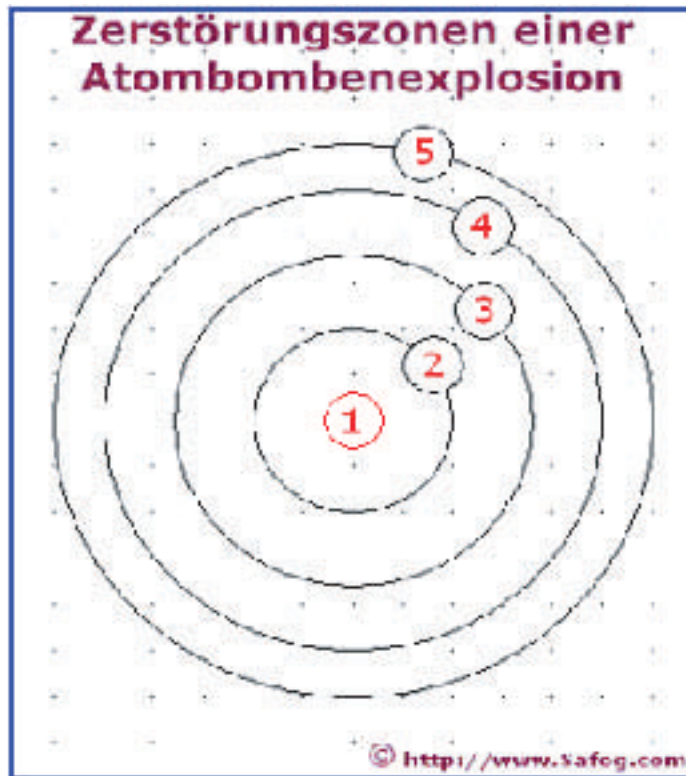
Somebody has to make the first step.

No risk - no advantage.

The fight is ruled by the decisions. The character of the response you get has two components: 1. attacking you, 2. saving me. The interactions of the different abilities of the figures built up a system of threat and real danger. Special situations are created. This changes the value of the figures.

Finally the winner never destroys the loser totally. He puts his enemy into a situation, where he can't move any more without the centre of his power is being killed. Here the games ends, because would the destruction go on, the winner party would lose his right to exist, which depends on the struggle with the other one.

# DO NOT READ, IF YOU AREN'T ABLE TO!



## 1. Verdampfungspunkt

Alles wird durch die Detonation verdampft.  
Todesfälle: 98%, Überdruck: 1,7 bar,  
Windgeschwindigkeit: 515 km/h

## 2. Vollständige Zerstörung

Alle oberirdischen Strukturen werden zerstört.  
Todesfälle: 90%, Überdruck=1,1 bar,  
Windgeschwindigkeit: 465 km/h

## 3. Schwere Beschädigungen durch die Druckwelle

Fabriken und andere große Gebäude stürzen ein, Autobahnbrücken werden stark beschädigt, Flüsse fließen manchmal rückwärts.  
Todesfälle: 65%, Verletzungsfälle: 30%,  
Überdruck: 0,6 bar, Windgeschwindigkeit: 420 km/h

## 4. Schwere Beschädigungen durch die Hitzewelle

Alles Brennbares wird entflammt, Menschen im Einzugsbereich der Hitzewelle leiden wegen der großräumigen Brände an Sauerstoffmangel.  
Todesfälle: 50%, Verletzungsfälle: 45%,  
Überdruck=0,4 bar, Windgeschwindigkeit: 225 km/h

## 5. Schwere Beschädigungen durch Feuer und Wind

Ortsfeste Strukturen werden schwer beschädigt, Menschen werden durch die Luft gewirbelt, die meisten Überlebenden erleiden Verbrennungen 2. und 3. Grades.  
Todesfälle: 15%, Verletzungsfälle: 50%,  
Überdruck=0,2 bar, Windgeschwindigkeit: 160 km/h

geWissen  
(conscience)

The scheme together with the legend is not a diagram. But it has a lot of potential, when you hear the german cool voice explaining you in a scientific way the levels of destruction.

The unformed matter and the anonymous forces only had to be set into motion by a vector. The empty fonts allow you to put further information into the program to calibrate the direction.

The difference in languages makes out of a random atmosphere a vague engine generating a lot of new connotations.

Def. #4 Any diagram becomes something more than itself reinforcing the surrounding ("...when it is stronger than its interpretations." Ben van Berkel).

Def. #5 You need a diagram to describe any process, because motion and changing are influenced by invisible vectors of relationships (“maps of movement” Ben van Berkel) wich must be displayed.



## [un]real

C. G. Jung read mandalas, wich his patients have painted after having a dream, similair to a diagramming technique as an emerged pattern of „forces“ formed by the different archetypes in the identity. He used them in his „psycho-analyse“ to reinform the psyche, wich functions similar to an input / output machine with the tendency to achieve tensional equilibrium.

I had to abandon the idea of the superordinate position of the ego. ... I saw that everything, all paths I had been following, all steps I had taken, were leading back to a single point -- namely, to the mid-point. It became increasingly plain to me that the mandala is the centre. It is the exponent of all paths. It is the path to the centre, to individuation.□

... I knew that in finding the mandala as an expression of the self I had attained what was for me the ultimate. - C. G. Jung

Greg uses in contrast to former views virtual space not as neutral vacuum defined by Cartesian coordinates, but as active space of forces, fields and flows, similar to boat construction, where the dynamics of the water (flow, viscosity, turbulence etc.) drag the form of boat hull. The special character of this optimised form lies in the flexibility to react to different situations and to incorporate these forces into the surface ("oblique movement"). The co-presence of motion and force in the topology with the multiplicity of vectors is defined as by animations haped form (growing/changing/woving in a certain time). In his opinion these forms with their dynamic flexibility could improve modern architecture solving complex problems with different demands.

At lowest dimension the inflection of the curved line indicate velocity / direction / timing of the vectors. The immanent curve results from the combination / difference of questions, so it has a complex mathematical cause. That's the reason, why architects are normally only able to understand the patterns of topologie.

concept: topology, time, parameters  
tools: gradients, flexible envelops,  
temporal flow

INPUT:

BRAND IDENTITY

SITE

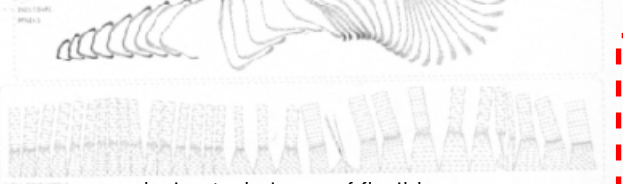
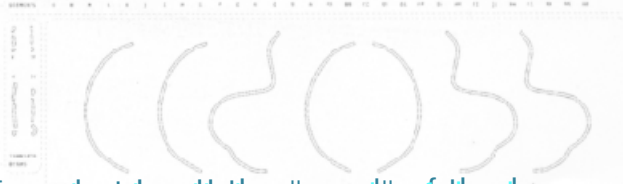
you do the working drawings for what I call the "seed" of the house and then the computer generates all the mutations. You never really see the norm, it's all monster. That's why it's called an Embryological House. You have young ones, egg-like ones that haven't been mutated much, but when these things get adult- in other words, after they have been designed and customized for their context, the client, the whims of architect, whatever - they mutate into full blown monsters... greg lynn

FUNCTIONAL NEEDS  
CONSTRUCTION METHOD

borrowed from automotive, aeronautical, naval industries

CLIMATE  
NOVELTY  
LIFESTYLE

SPATIAL/  
AESTHETIC  
EFFECTS



design techniques of flexible manufacturing

2  
0  
4  
8  
+  
7  
2  
+  
9

FIXED COLOUR  
COLOUR  
OF ELEMENTS

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as system of controlling points is set up to force the arising of more specific forms and nodules... the surface reacts not rigid, more like a relationship of flexible curvilinear.

CONSTANT NUMBER OF PANELS  
CONSISTENT RELATIONSHIP TO THE NEIGHBOURS

EVERY PANEL IS INEVITABLY MUTATED  
NO TWO PANELS ARE EVER THE SAME



A UNIQUE MONOCOQUE SHELL IN SIZE AND FORM  
The potential for shape, alignment and adjacency

BALLHAMMERED ALUMINIUM + HIGH-PRESSURE-WATER-JET CUTTING + STEREO LITHOGRAPHY RESIN PROTOTYPING TROUGH COMPUTER-CONTROLLED-LASERS + THREE-AXIS CNC MILLING OF WOOD-COMPOSITE BOARD.

fabrication techniques involving computer controlled robotic processing



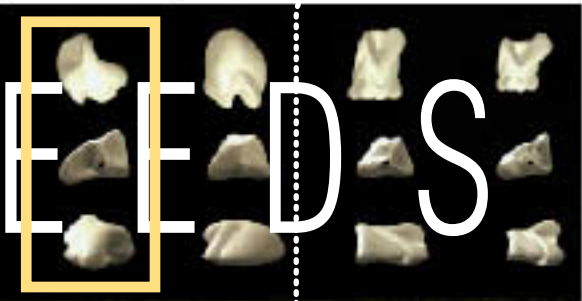
D  
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R  
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N



something between a punched window and a glass wall



spines are vectors defined with direction



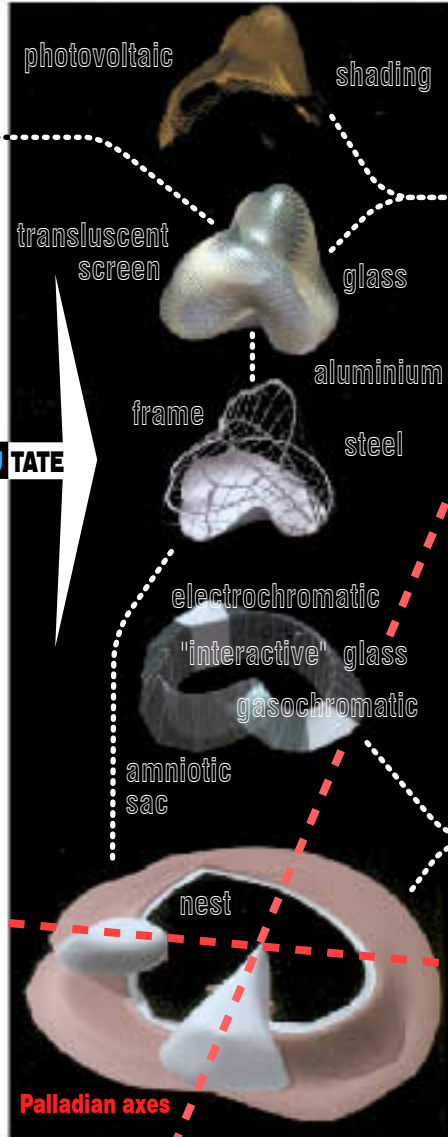
the user sets the forces  
the computer alone generates series of spaces called: "gastrulated room" [biological process: an embryo folds onto itself to create a stomach or a gaster]



curvilinear strands and pores

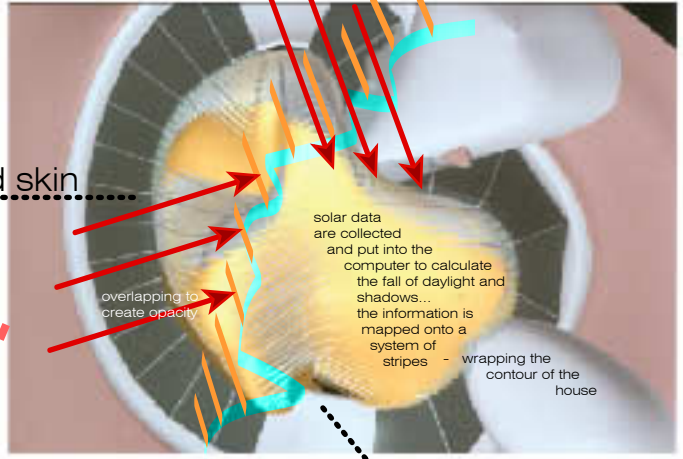
MUTATE

changing weight or direction of even one spine has an effect on the entire blob



Setting the form on the site generates an unique nest for the shell, because how the ground is pulled up, is the result from a reaction on the local coditions.

they highlight the voluptuous shapes of the exterior

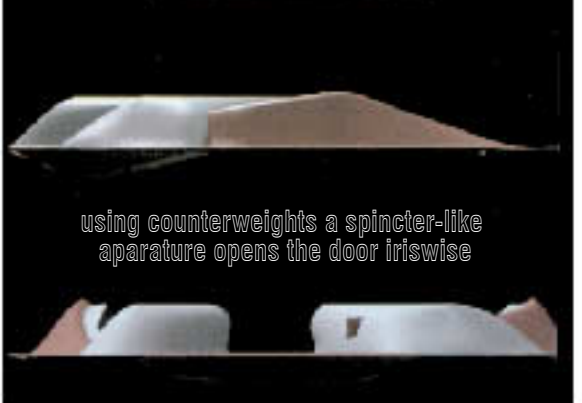
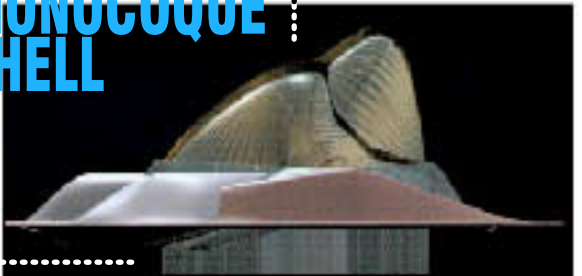


solar data are collected and put into the computer to calculate the fall of daylight and shadows... the information is mapped onto a system of stripes - wrapping the contour of the house

THE SHELL TIES IT ALL TOGETHER MAKING IT INTO A FINE AND LIGHT STRUCTURE

MONOCOQUE SHELL

the colour of the glass can be continuously altered between clear and a milk white to create a space that can be either public or private depending on the mood of the inhabitant.



using counterweights a spincter-like aparature opens the door iriswise

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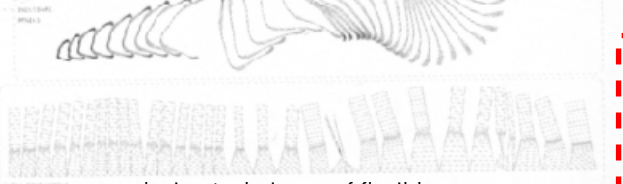
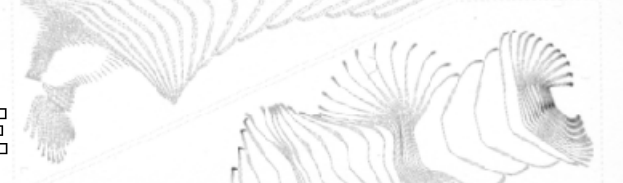
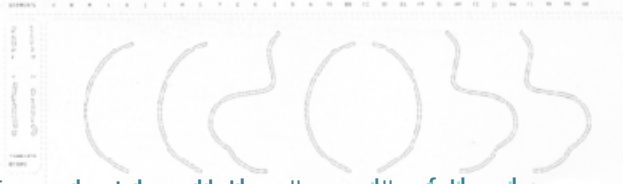
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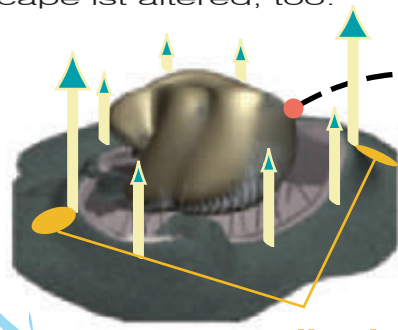


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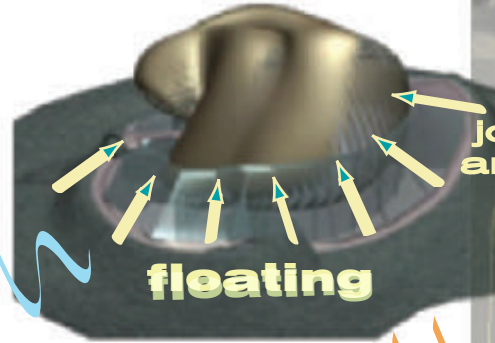
fabrication techniques involving computer controlled robotic processing

the shell is connected to the ground, so any variation on the form changes its surroundings, that means the landscape ist altered, too.



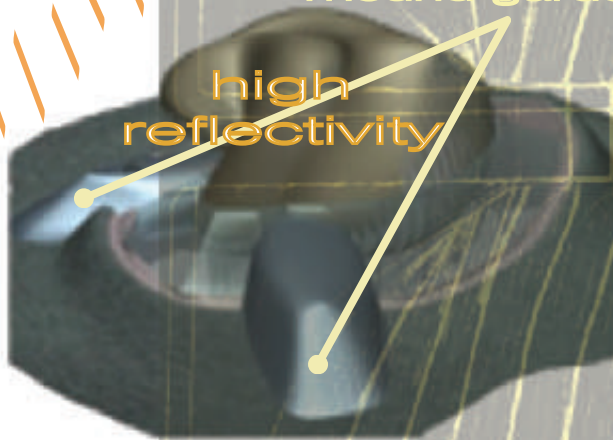
creation of landscape

pulled at the poles



floating

Joining of landscape and frame with glass



high reflectivity

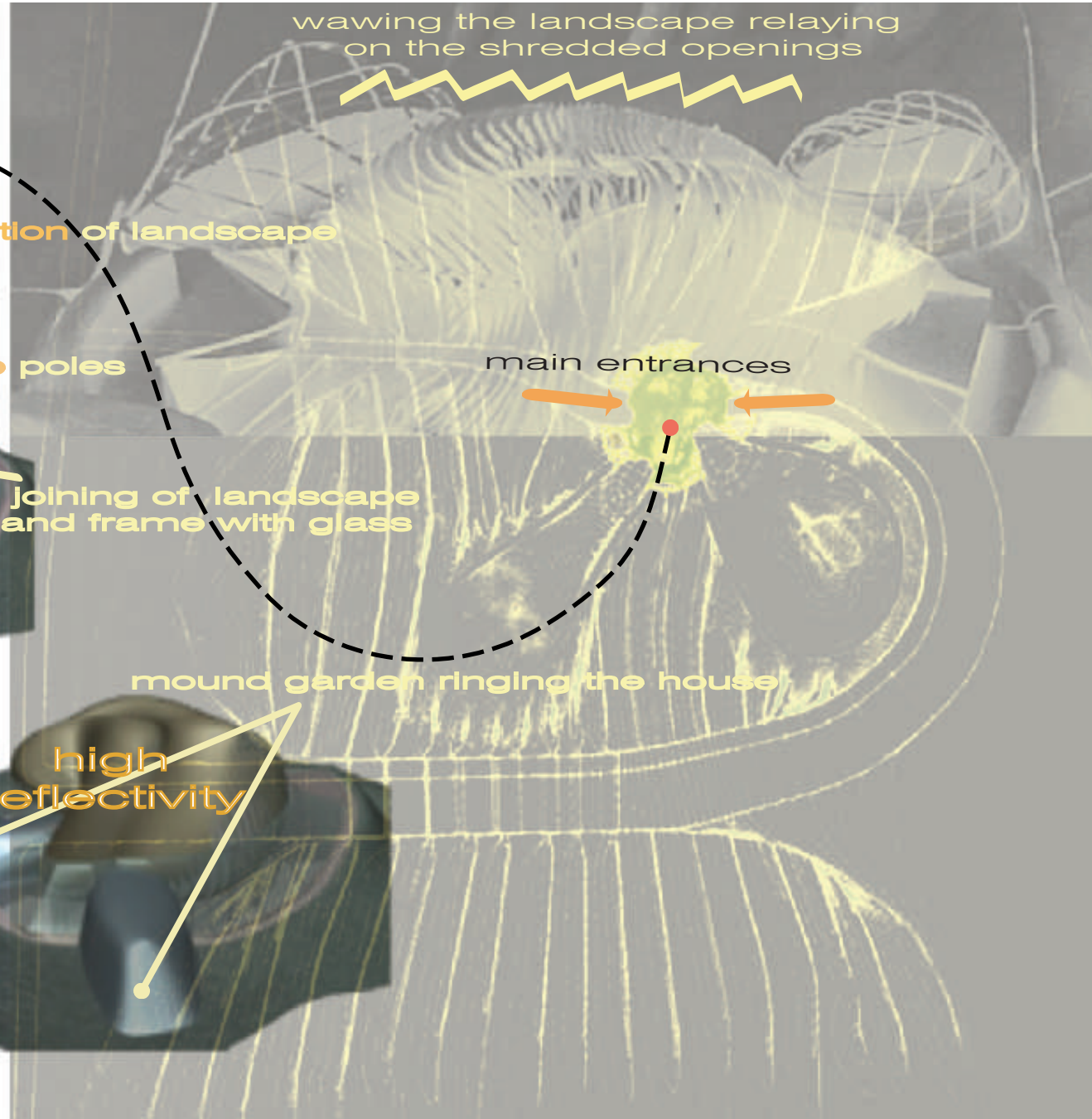
mound garden ringing the house

main entrances

waving the landscape relaying on the shredded openings



sunlight

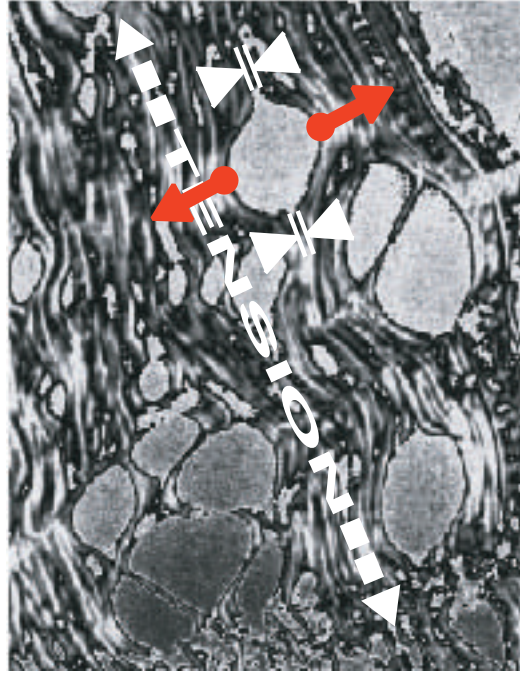




### 1. Stickiness

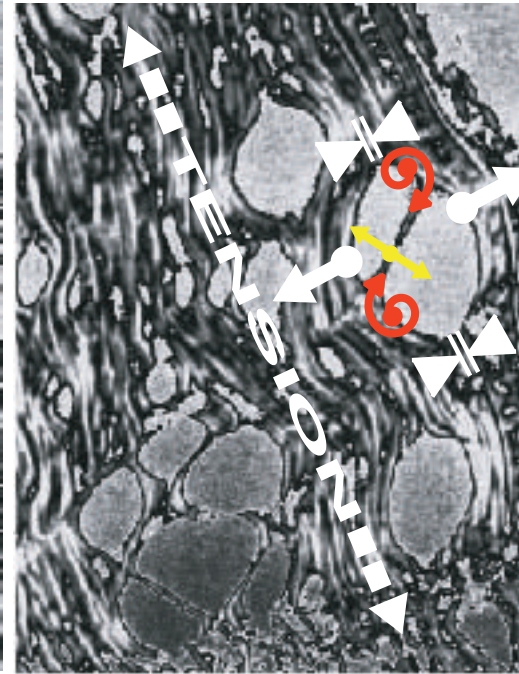
This diagram shows a flexible surface, like rubber or a viscous liquid like varnish, that is tensioned at some points to lines.

In this case the stickiness of the lines is really remarkable.



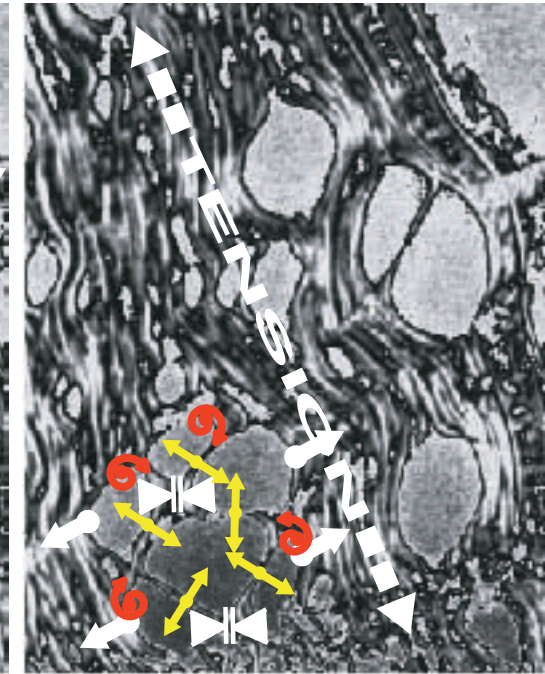
### 2. Rendering

The next step shows how the surface is rendering. Through pulling apart orthogonally to the tension and because of the stickiness of the lines holes are emerged.



### 3. Tearing

In this diagram you can see how a "divided" hole is created. There are the same forces as in the first and the second step, but now moments are appearing who divert forces. Through this diversion the surface is tearing up into some smaller parts.



### 4. Netting

If you go on pulling apart the whole thing, you achieve a net-structure one time. The netting must be the most extreme step of this procedure before the whole structure tears up completely into many small pieces and it has no more connection and is no longer a surface.

## NOX

## CRMA - Pop Center, Nantes, France 2002-2004

The last two years NOX concentrated on the concept of "porosity".

The result of their researches was that a hole is nothing negative ; it is a positive element that develops together with the whole structure.

This means that you don't create a surface and then you start cutting holes out of it.

Like most projects the CRMA-project is also based on the researches of Frei Otto and his group in the 1960's until the 1990's and what he calls "form finding".

"Form finding" is an analogue method of calculation that creates a form by the interactions between flexible material elements.

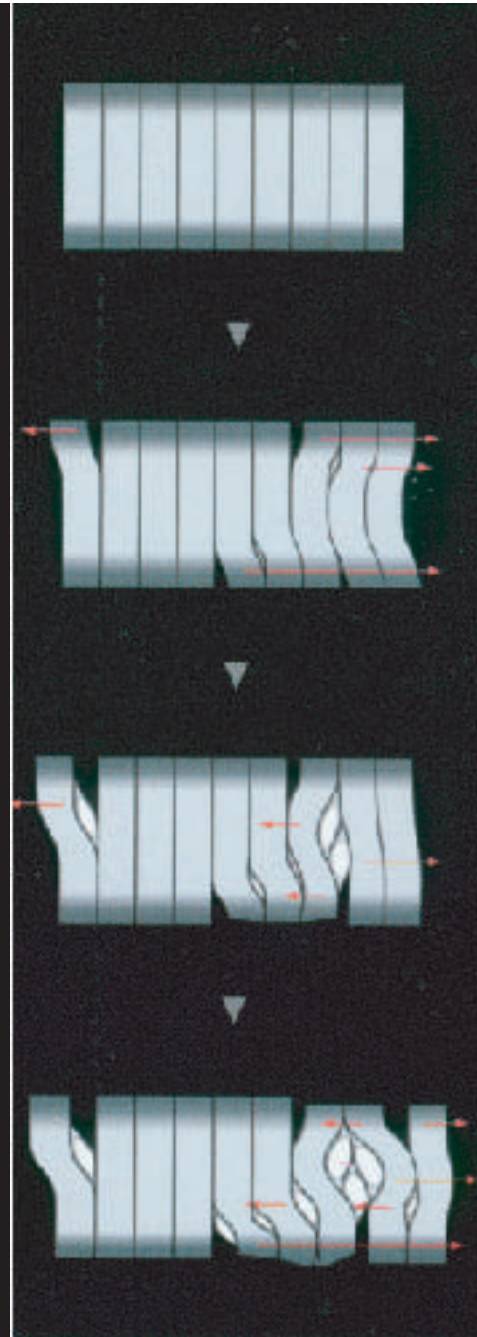
Frei Otto's researches on creating porous surfaces are distinguishing in two ways:

- 1.) From surface to line
- 2.) From line to surface

An example for "line to surface" is the wool thread model.

But for the CRMA-project the first point "form surface to line" is important.

In this case you take a flexible surface and fix some points to lines so that the surface tears up into some smaller fields.



S T I C K I N E S S

P U L L I N G

R E N D E R I N G

T E A R I N G

## V2-Lab, Rotterdam, 1998

The V2-Lab-project included the creation of a new façade and a new void.

This concept was the result of a media criticism of architecture.

"Within a medium events progress by means of waves, not just within the topological continuity of the medium itself, but more to induce movement within this continuity by passing on forces within the field."

But according to the Euclidean distinction between a point and a line this is impossible.

In the case of the V2-Lab-project the point is a knot, non-static and capable of passing on forces, which is scientifically called a "spring". With the help of a computer model they found this spring, where then the entrance and the new void should be.

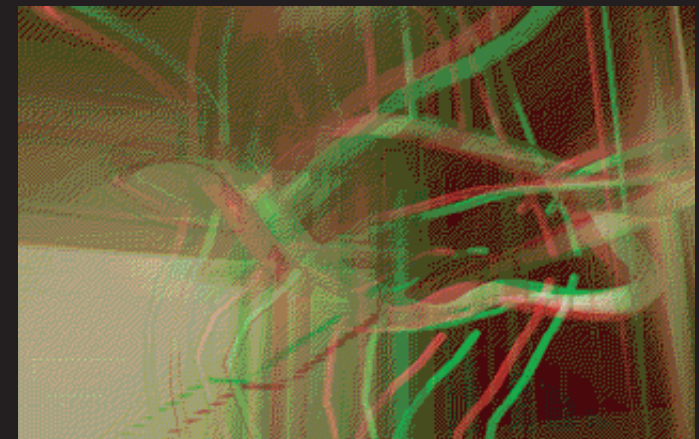
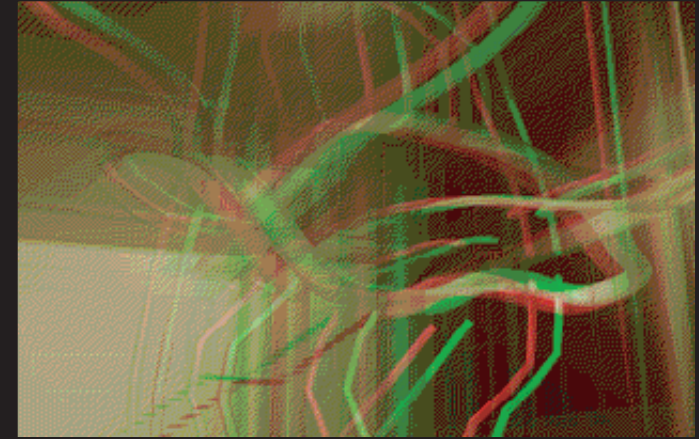
All forces within the spring are shown by 20 strings that are moved to the extremes by waves in four different directions.

The resulting design overlaid on the organisational diagram achieves a management of diverse forces, making motion and time part of the organisation.

The facade should be made of synthetic translucent fabric to be able to generate images on it. To achieve a connection between interior and exterior, they generate live pictures of the inside together with images of other facades of all over the world

That are taken from the internet with the use of a specially developed software engine.

## Computer modell



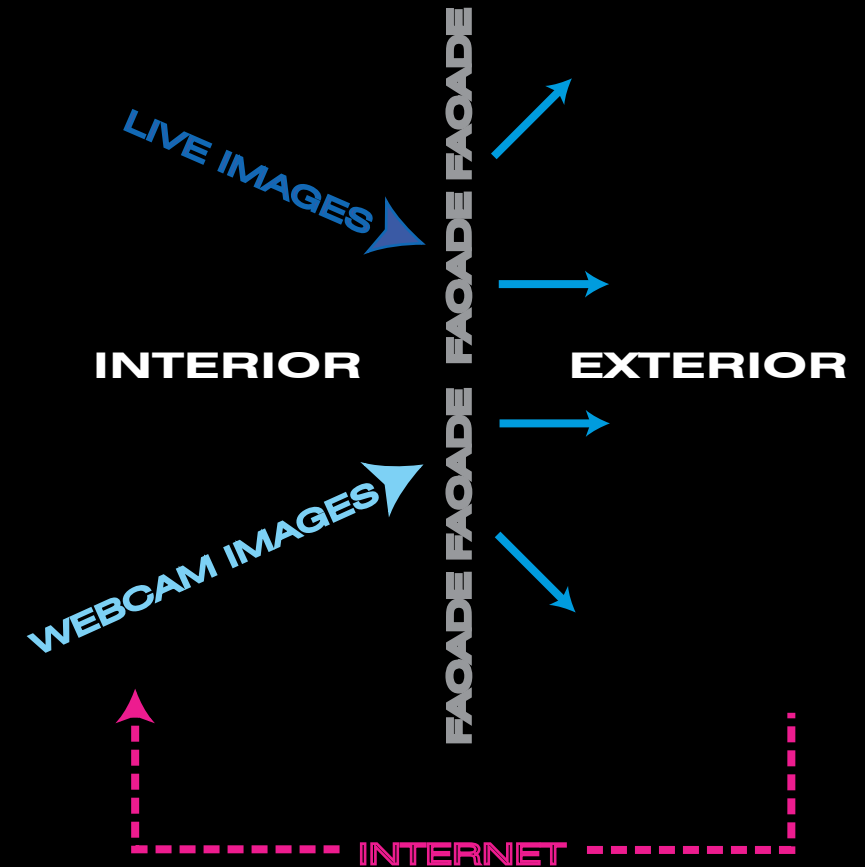
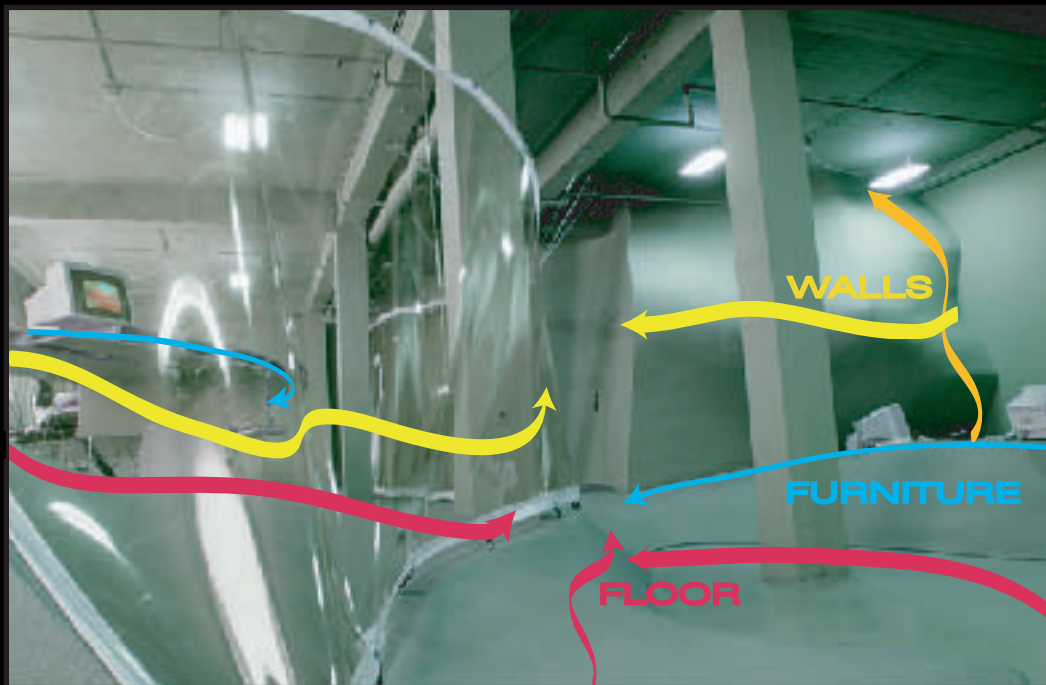
## Means of waves

With the analysis of the passing forces inside the building and the former organizational diagram NOX achieved a movement in architecture.

Walls, floors and even furniture according to the waves of the passing forces.

Through this the whole building seems to be in motion.

The V2-Lab is an example for architecture that reacts to human behavior.



The facade as connection between inside and outside not only structural - but also through