PIONEERS

HAUS-RUCKER-CO
BALLOON FOR TWO

The group Haus-Rucker-Co was founded in 1967 in Vienna by the two architects Laurids Ortner and Günter Zamp Kelp and the artist Klaus Pinter. The name refers to the home region of all three (Hausruck is a region in Upper Austria) and likewise describes their activity metaphorically as shifting old houses out of the way to make room for new creative possibilities.
The early years of the group were characterized by a multitude of activities that received enormous media and international attention and were an elementary contribution to redefining architecture and art. The group was active in the space of the museum and in public space: their theme was the Mind-Expanding-Program ("drug-free mind expansion") and visionary urban design. Prototypes for new ideas of living and proposals for redesigning the human habitat were developed under the influence of new building materials.
In November 1967 the team presented their first collaborative work: situated in front of an audience, the PVC Balloon for Two, painted in bright pop colors, glided freely floating on a steel construction out the window of the building in Apollogasse3 in Vienna's 7th district. The interior of the balloon offered space for two people, and Stoff Superhuber, bass player for Jack's Angels, and Maria Ebner became engaged inside it.
In its materialized form at the time, as a sphere the Balloon for 2 fulfilled its purpose constructively and functionally as a place where people could linger. Because of the exposed uniqueness of their situation in the balloon, both of these people necessarily entered into a relationship with one another.
The Balloon for 2 was also an Environment Transformer for 2. In this sense it was part of the Mind Expanding Program completely related to the urban environment. With respect to the theme of mind expansion the program focused on relationship experiences, not on drugs.

Design: Haus-Rucker-Co
Text: From the catalogue for the 2007 exhibition at the Lento Kunstmusum Linz (Andrea Bina, Zamp Kelp)
Location: Vienna, Austria, 1967
Photographs: Contributed by Günter Zamp Kelp









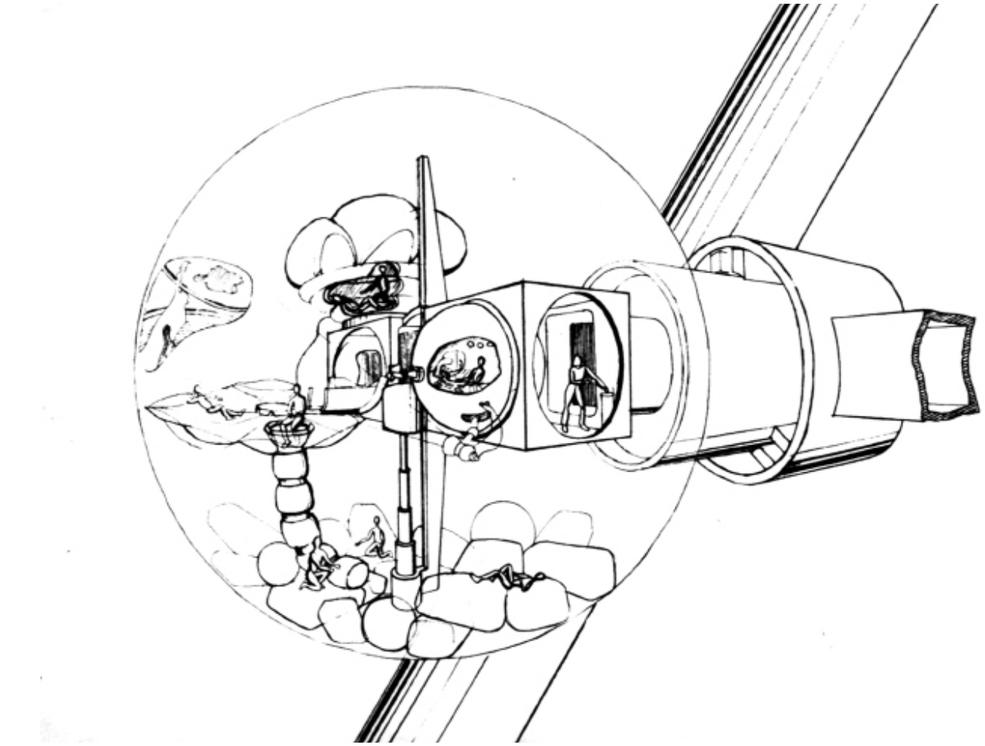
HAUS-RUCKER-CO

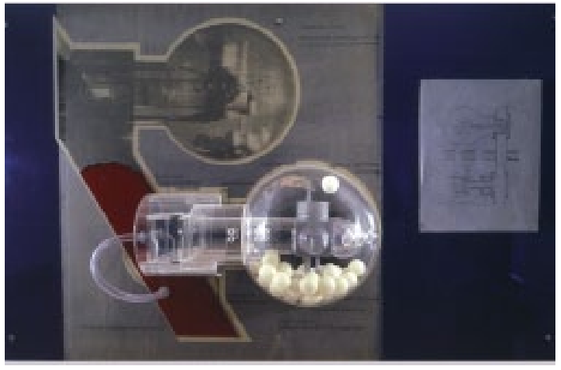
THE PNEUMACOSM

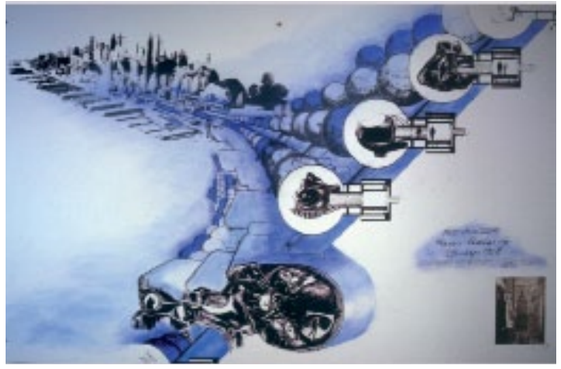
The Pneumacosm represents an emblematic project within a series of prototypical living situations by the group Haus-Rucker-Co group. The design was conceived as expansion cells that would cover the urban surfaces of the New York district of Manhattan in 1967, although ultimately it remained just a vision of utopia. The work is based on the principles of pneumatic architecture, in other words, architecture that employs air systems and inflatable elements in its structure and skin. Pneumacosm is like a small, living planet, an insulated air bubble which the designers aimed to transform into a habitable space. Each bubble is seen as a single, plastic and inflatable living unit for 10 to 13 individuals that functions in a similar way to a light bulb. It is connected to the city through a vertical structure that provides the space with energy. As soon as the unit is connected to the façade of a building it is ready to be lived in.

It is accessed via passageways built onto the construction. Pneumacosm is defined by a spherical expanse of space containing all the necessary residential functions. The interior of the sphere is divided in a similar way to an open-plan carriage of a train or an airplane. The outer cover gives the inhabitants of the residential unit the feeling of being left to themselves, but at the same time with the option of being able to communicate with the others present in the open-plan space. Small cells installed in the open-plan space provide an additional possibility for people to withdraw into a more private space. Smaller units are also included to accommodate the different functions of a home, which can be selected individually before installation on the vertical structure.

Design: Haus-Rucker-Co
Design Team: Laurids Ortner, Günter Zamp Kelp, Klaus Pinter
Location: New York, USA
Photographs: Contributed by Günter Zamp Kelp







HAUS-RUCKER-CO
YELLOW HEART

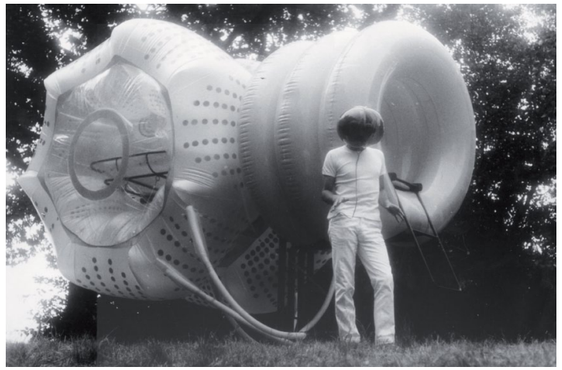
Towards the end of the 1960s, the Austrian group of architects and artists Haus-Rucker-Co became active in experimental architecture. It was a time for expanding consciousness and rearranging urban spaces. Prototypes for new ideas for living were created, influenced by new building materials and proposals for redesigning where and how society lived. The Yellow Heart project was one of the results of the group's radical ideas.

The Yellow Heart is a pneumatic space capsule that was born from the idea that a concentrated experience of space could offer a direct approach to changes in consciousness. Three inflatable rings create a lock/entrance, which provides access to a transparent mattress. This projects into the center of a spherical space, which offers just enough space for two people. The inside of the yellow heart is equipped with soft, air-filled chambers. Whilst lying on these air-filled cushions users feel the sides of the space swell. The walls subsequently withdraw slowly and the surrounding space seems to expand finally forming a translucent sphere. This process is then repeated. Large dots arranged in a grid on the outer and inner surfaces of the air-shells change in rhythmic waves from milky patches to a clear pattern, as the space pulsates at extended intervals.

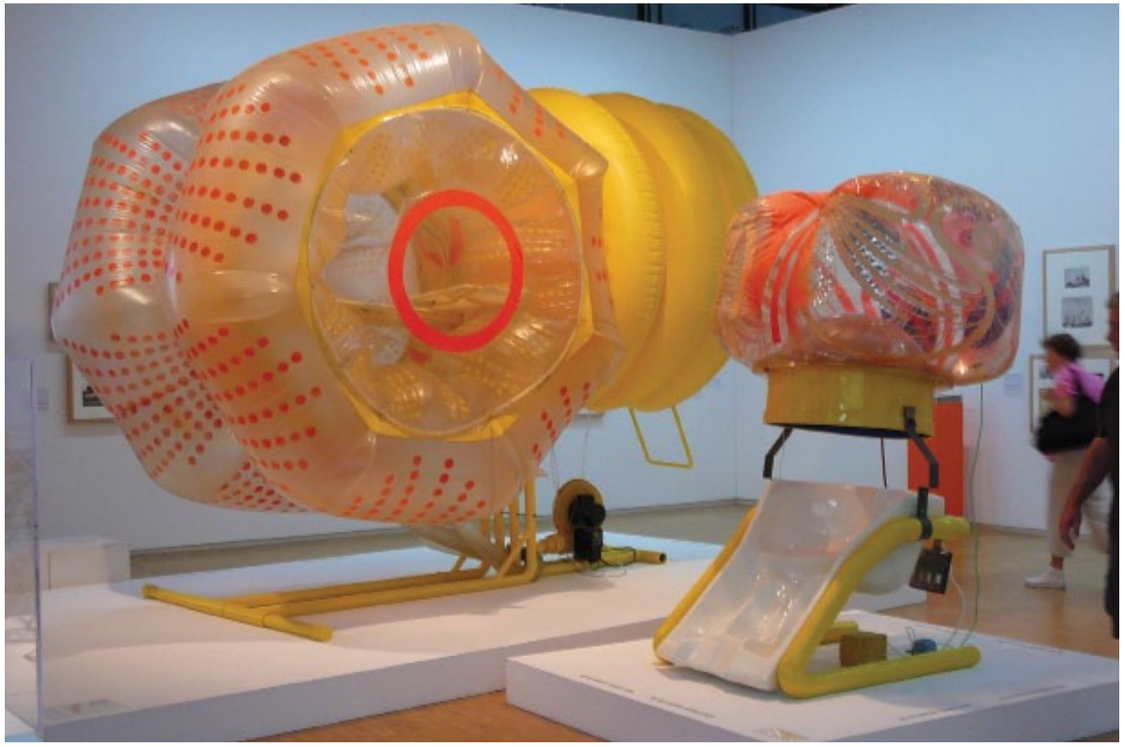
The Yellow Heart as a pulsating space that contracts and expands in its dimensions partly dispenses with an external relationship. It is suspended from a steel construction, independent of urban structures, hanging apparently weightlessly above the ground. The idea of the central plane is to allow the two users to concentrate fully on both the rhythmically changing space and the other person present.

Haus-Rucker-Co wrote about this object at the time: *"The Yellow Heart provides an opportunity to leave the real environment for certain periods of time, to seek out a space that is in stark contrast to the natural environment. The time one spends inside the Yellow Heart has its own rhythm that one must adapt to. The optical and acoustic impressions help the users to achieve a new type of relaxation. The soft, pulsating movement of the interior of the cell effects a general loosening of how the users feel. One returns to everyday life feeling relaxed and calm."*

Design: Haus-Rucker-Co
Design Team: Laurids & Manfred Ortner, Günter Zamp Kelp, Klaus Pinter
Location: Vienna, Austria
Date: 1968
Photographs: Contributed by Günter Zamp Kelp







HAUS-RUCKER-CO

OASIS NR. 7

Oasis Nr. 7 was produced by the Austrian team of experimental architects Haus-Rucker-Co in response to an invitation to the Documenta 5 in Kassel: a transparent sphere with a diameter of eight meters was placed in front of the main facade of the Kunsthalle Friedericianum, creating a protruding space that was both inside and outside of the building.

A catwalk made of standard tubular steel sections projected through a window from the interior of the building. A tubular steel ring was fixed to this footbridge, at a slight distance from the façade. This ring formed the external support for a PVC foil shell that formed a sphere when inflated into shape by an air pump. Internally it was the connecting element for a short tunnel made of the same material that had large zips at either end and thus functioned as a kind of airlock. Along with the steel platform, the clear vinyl bubble contained two potted palm trees and a hammock. These completely out of place tropical elements formed an ironic statement about artificially controlled environments and man's often absurd attempts to recreate natural settings.

In the words of Haus-Rucker-Co's Zamp Kelp, *"You [went] into the bubble, and you [saw] on the one hand the two artificial plants, but also the ... normal urban situation [outside]. It's also kind of sarcastic because we got the message [from 1970s architecture and urbanism] that people shouldn't dream of nature and want to leave the urban environment, and should stay in an urban environment, and accept the urban environment."*

In 2008, the piece was reconstructed for the Victoria & Albert Museum's major exhibition Cold War Modern: Design.

Design: Haus-Rucker-Co
Design Team: Laurids Ortner, Günter Zamp Kelp, Klaus Pinter
Location: Documenta 5, Kassel, Germany
Date: 1972
Photographs: Contributed by Günter Zamp Kelp







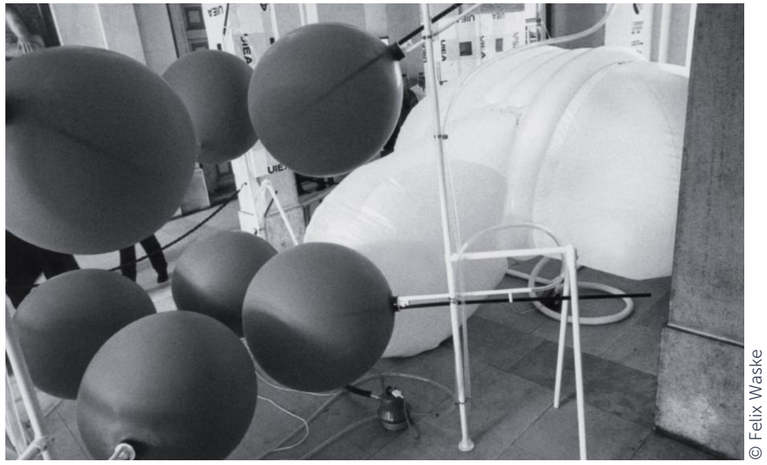


COOP HIMMELB(L)AU
VILLA ROSA

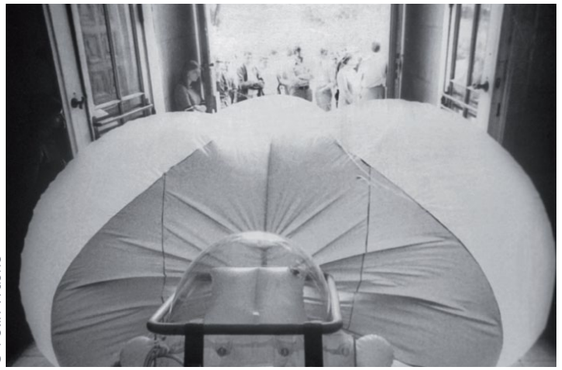
Villa Rosa was a scale 1:1 prototype built at the Technische Hochschule in Vienna in 1968 for an international architecture congress. The work is now part of the Museum für Angewandte Kunst collection in the same city. Coop Himmelb(l)au stated that colours, smells and sounds modify space. Three units comprise the item: the pulsating unit with the rotating bed, projector and sound program; a ventilation system accompanies the audio visual system. The next unit consists of eight balloons that can be inflated to different sizes. Lastly, there is a mobile space consisting of a hull with an air-conditioning system. Dematerialization or emptiness is the object of architecture so there are no pillars, beams or structural members as such, achieving the dream of release from gravity. «Our architecture exists on a psychological, not a physical plane.

The walls have gone. Our spaces are pulsating balloons. Our heartbeat becomes space and our face is the façade», claim the architects. The only material is air. Hans Hollein declared at the time: «Everything is architecture».

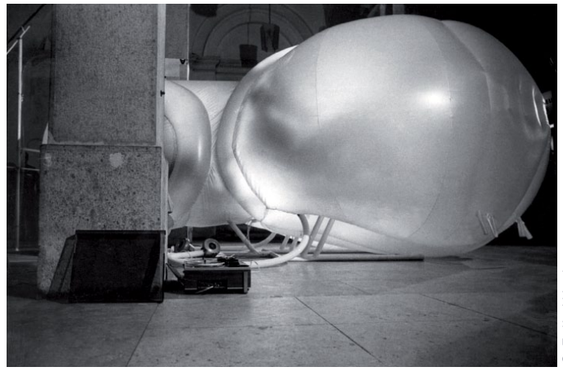
Design: Coop Himmelb(l)au, Wolf D. Prix, Helmut Swiczinsky
Location: Vienna, Austria, 1968
Photographs: Felix Waske & Michael Pilz



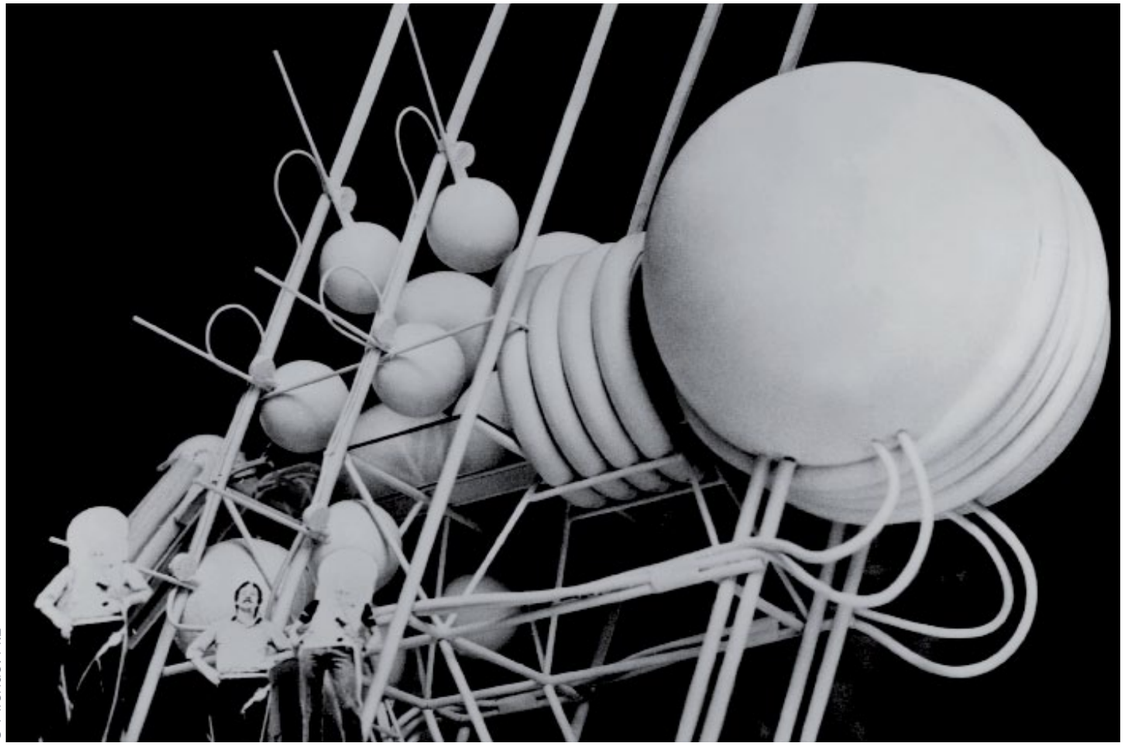
© Felix Waske



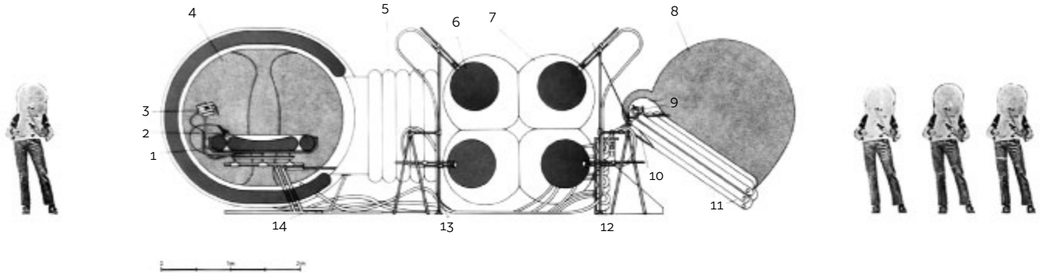
© Felix Waske



© Felix Waske

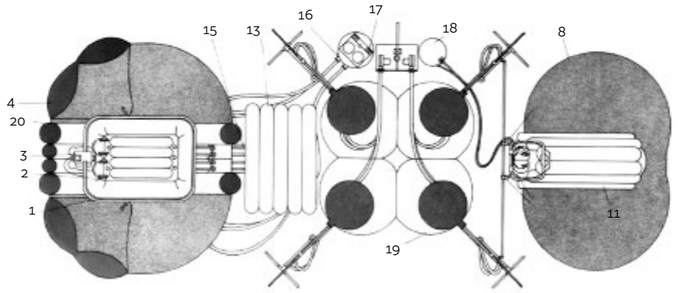


© Michael Pilz

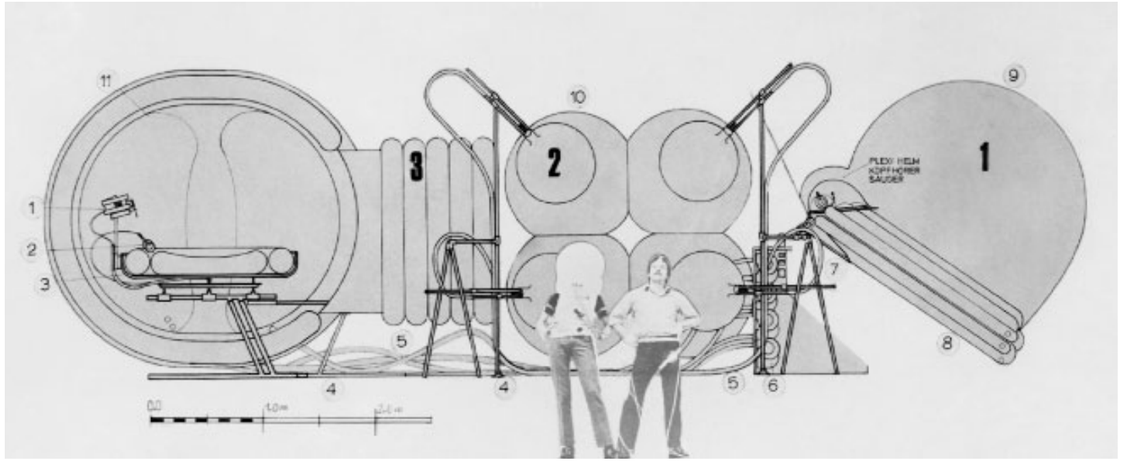


Elevation

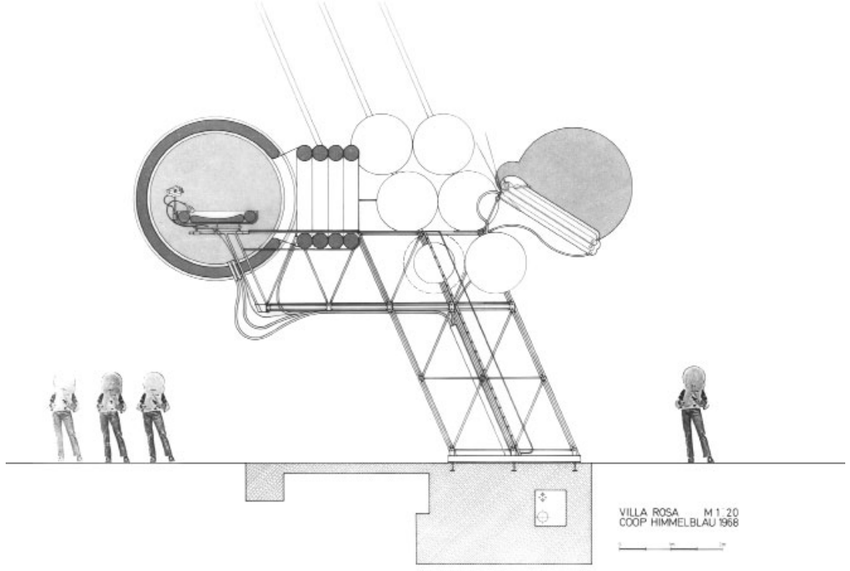
Plan



1. Rotating pneumo-bed
2. Headphones
3. Projector
4. Rest zone
5. Airlock
6. Pulsating balloons, minimum volume
7. Pulsating balloons, maximum volume
8. Single-skin
9. Helmet with headphones
10. Luggage
11. Air chamber
12. Rotating ventilator
13. Air inlet
14. Steel tubular structure
15. Structural rib
16. Olfactory capsule
17. Supply units
18. Heart
19. Pulsating balloons
20. Rib supports



1. Projector
2. Headphones
3. Rotating pneumo-bed
4. Tubular steel structure
5. Air inlets
6. Rotating ventilator
7. Luggage
8. Air chamber
9. Single-skin
10. Pulsating balloons
11. Rest zone



COOP HIMMELB(L)AU
RESTLESS SPHERE

Coop Himmelb(l)au's action "Restless Sphere" was intended to demonstrate the possibilities of pneumatic constructions. Two or more people got into a pneumatic sphere four meters in diameter, a transparent habitat, was at the same time a 'means of locomotion', which they demonstrated by rolling through the Old Quarter of Basel for an entire day. Besides showing the potential of the material the sphere was made of, the event ironically addressed the subject of how public space interacts with private space, underlining the fragile balance between them, the more or less permeable or impermeable, rigid or flexible membrane that separates the two.

Architects: Coop Himmelb(l)au, Wolf D. Prix, Helmut Swiczinsky
Location: Basel, Switzerland
Event date: 1971
Photographs: Katharina Vonow & Peter Schnetz



© Katharina Vonow

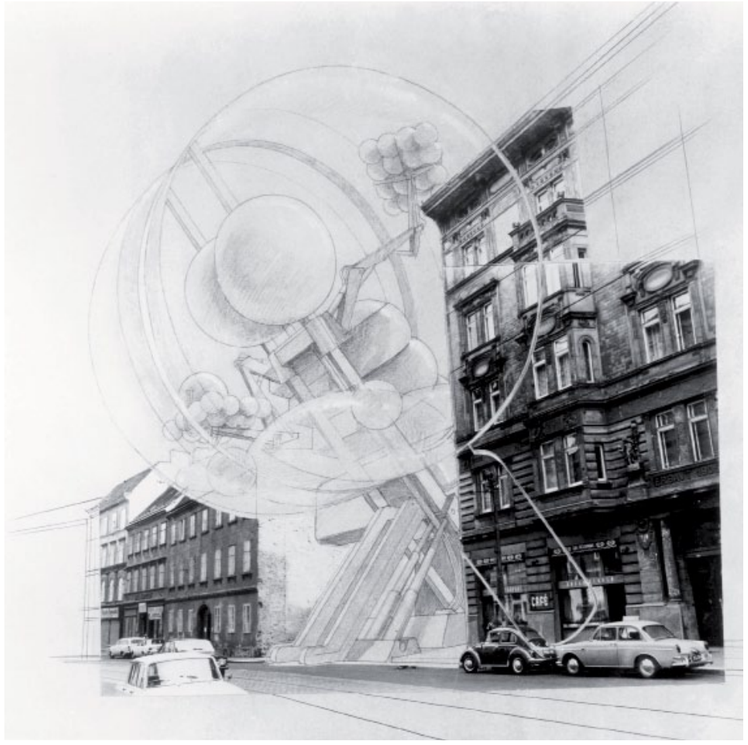


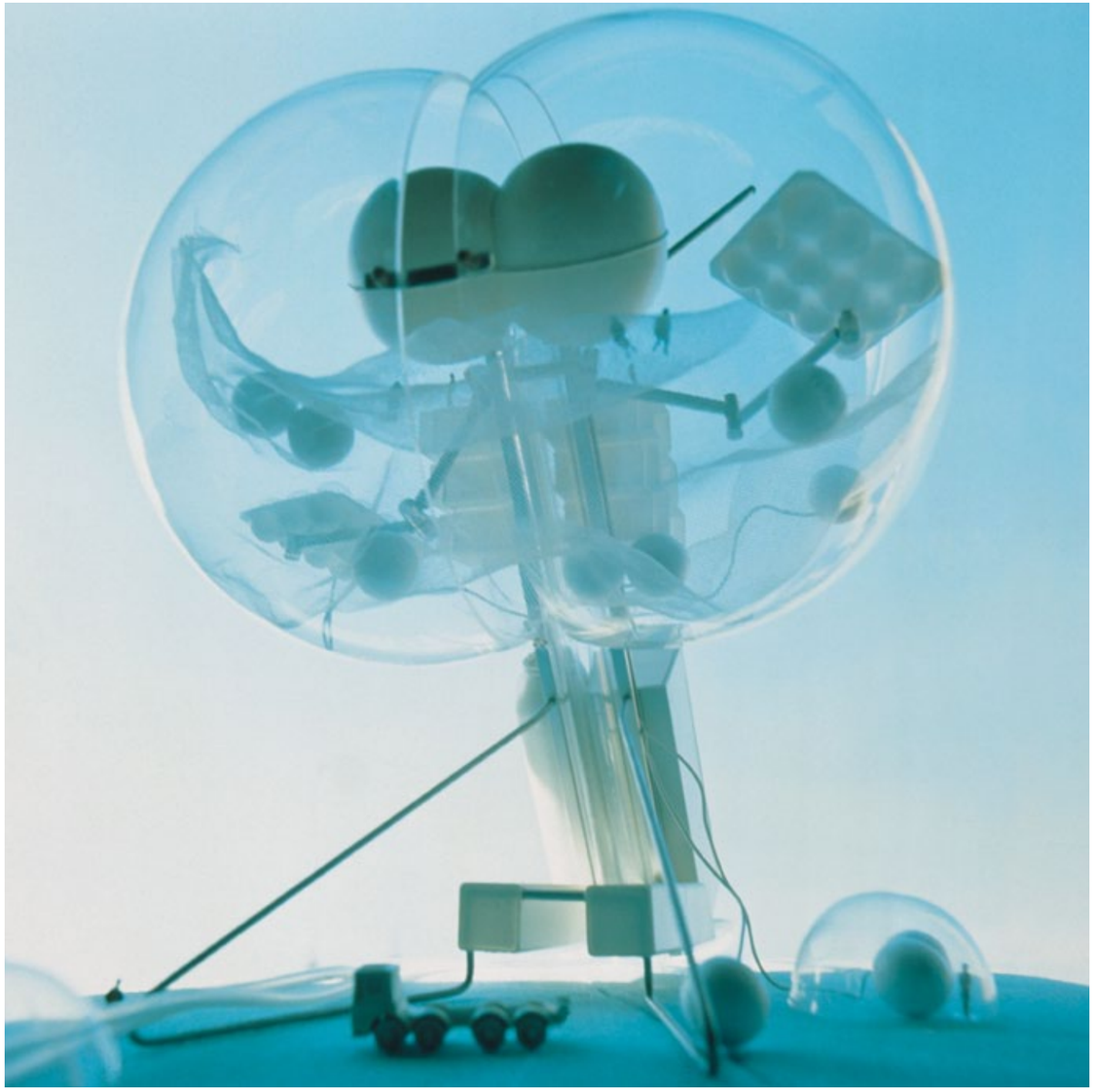
© Peter Schnetz

COOP HIMMELB(L)AU
THE CLOUD

The Cloud was designed as a tool for the study of "Living forms for the future" and was planned for realisation for the Documenta V exhibition in Kassel, Germany. It was thoroughly developed down to the smallest detail in terms of concrete form and structure.

Design: Coop Himmelb(l)au, Wolf D. Prix, Helmut Swiczinsky
Location: Documenta V (1972), Kassel, Germany
Photographs and illustrations: contributed by the architects

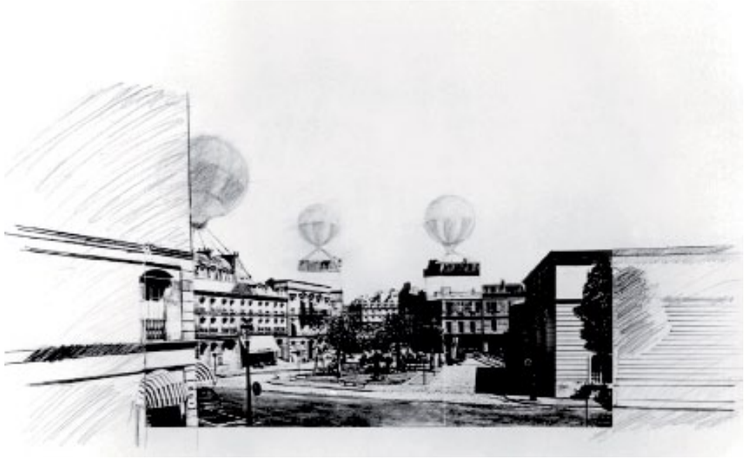




COOP HIMMELB(L)AU
THE HOUSE WITH THE FLYING ROOF

Their “House with a Flying Roof”, which simultaneously comprised a straightforward architectural project and a humorous Art Event, amazed the London public in 1973, when a sizable helium balloon simply lifted the roof off a building. Continuing in this spirit, Coop Himmelb(l)au designed the “Vodöl” for Vitra, a Deconstructivist interpretation of the “Grand Confort” armchair designed in 1928 by Le Corbusier, Charlotte Perriand, and Jean Jeanneret. The works of Coop Himmelb(l)lau featured in the “Deconstructive Architecture” exhibition at the Museum of Modern Art in New York.

Design: Coop Himmelb(l)au
Location: 1973, London, UK
Photographs: Coop Himmelb(l)au

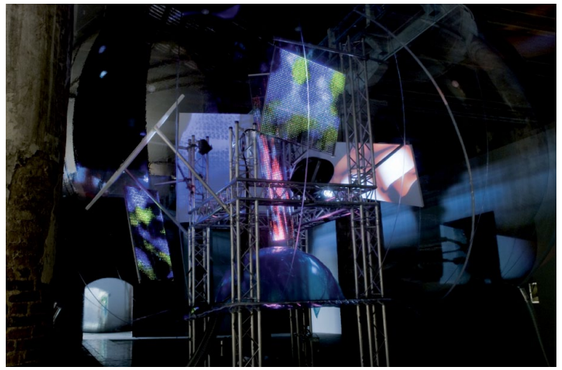


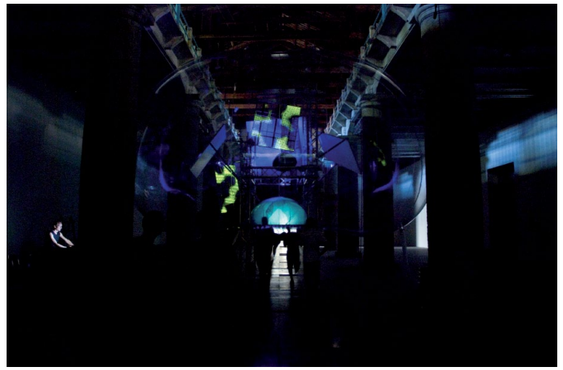


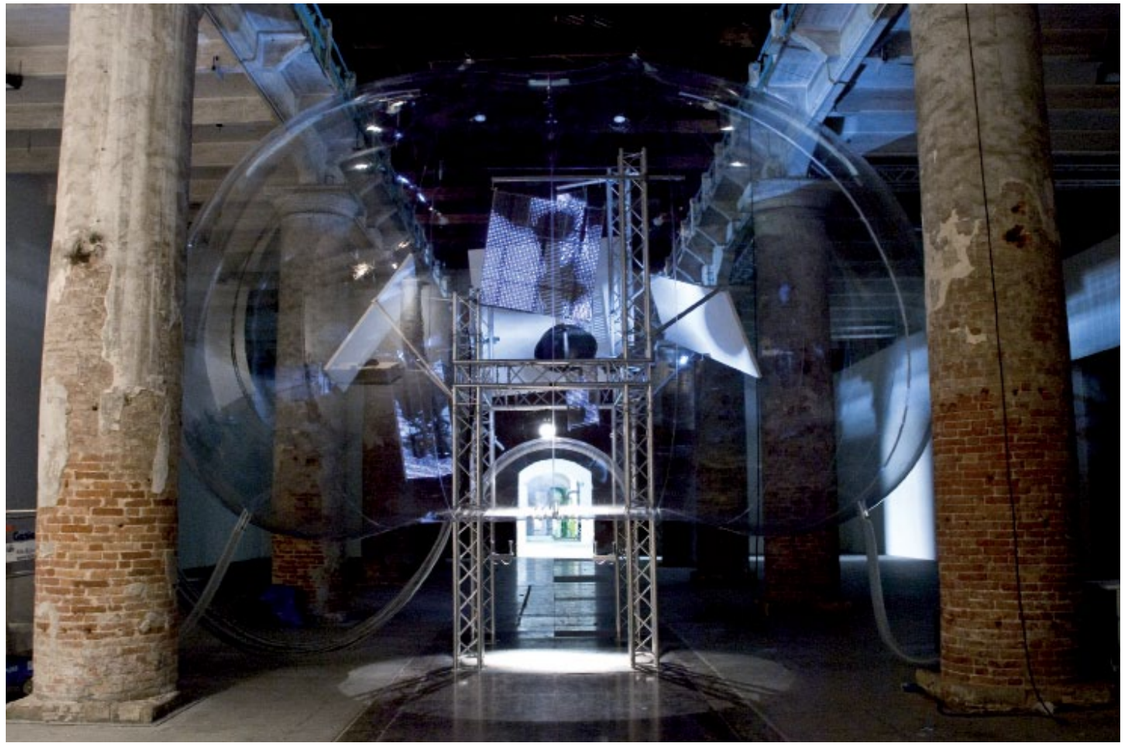
COOP HIMMELB(L)AU
ASTRO BALLOON 1969 REVISITED – FEEDBACK SPACE

Astro Balloon 1969 Revisited - Feedback Space is a heart-shaped installation, resembling a double sphere or the eyes of an abstract insect. The soft pneumatic construction tempts people to touch it. When entering the installation, the visitor grasps at two acrylic handles furnished with stainless steel foil serving as sensors. The hereby measured heartbeat of the visitors is transformed on two membranes with reproductions of LED panels, lights and sound.
The installation thus becomes a transparent, floating, light-reflecting, cloud-like space. Inside Feedback Space translucent layers catch the light of the projections while semi-transparent glaring and illuminating layers are supported by delicate constructions, never touching the boundaries of the airy sphere.
Based on the idea of Vienna-based COOP HIMMELB(L)AU's, Feedback-Circuit Program" from 1971 which would be called a 'network' today, the non-verbal communication (network) of the physical should be seen as a module of the development of a city.
Astro Balloon was originally conceived in 1969 when Wolf D. Prix, the principal designer for Coop Himmelb(l)au, along with Helmut Swiczinsky, created a first prototype. At the time, Prix imagined a future in which it would be technically possible to realize the idea more fully. In 2008, the Coop Himmelb(l)au did just that, creating an interactive installation in which the visitor, upon touching the piece's wired handles, creates a feedback mechanism and thus can see and hear their own heartbeat.
The implications of this, according to Prix, are that the visitor's body becomes part of the architecture, while at the same time the body changes the architecture. In Prix's words, 'architecture has the duty to create spaces which are committed to new experiences for our senses. This is what [the present work] shows.'

Architects: Coop Himmelb(l)au
Principal designer: Wolf D. Prix
Project Team: Felix Gmeiner, Cynthia Kallmeyer, Alexander Ott, Markus Pillhofer, Clayton Taylor
Consultants: Cat-x, Conceptual Art Technologies, Prix & Schiebeck OEG, Artex, Artex Art Services, Schultes, Schultes Pneus
Sponsor: Luceviva
Location: Originally for La Biennale di Venezia, Venice, Italy
Completion date: September 2008
Photographs: Bengt Stiller







SPATIAL EFFECTS
WATERWALK

These are a series of projects carried out by the Event-structure Research Group and Spatial Effects between 1969 and 2004 in which the designers have experimented with different ways to use inflatable structures to enable people to walk across water. The initial project was the Waterwalk, a 10 ft (3 m) high tetrahedron shaped balloon made from transparent (and sometimes colored) plastic. A watertight zip allowed people to enter and be sealed inside. When this lightweight structure was inflated with air, one or more people could 'walk on water' by stepping and rotating it like a wheel over the water surface. The large volume of air in the balloon allowed the occupants a considerable length of time for their journeys, and when desired they could simply unzip themselves. The Waterwalk was used on lakes, rivers and even the sea. The structure was later modified and reinvented as a Waterwheel, which was a safer and more practical structure. In 1971 the team came up with the Waterwalk tube, an inflatable tube made from transparent plastic, which measured 820 ft (250 m) in length and 10 ft (3 m) across. The structure was placed over the Maschsee lake in Hanover, Germany, connecting its opposite banks. This air-filled floating bridge had airlock revolving doors at each end, and its pliable floor was in direct contact with the water surface. Visitors were able to enter this almost immaterial structure and cross from one side of the lake to the other as if walking on water. In the Dutch city of Groningen the tube was placed in a U-shape in the harbor in front of the Central train station.
The most recent reinvention of the Waterwalk is a transparent sphere, which, although harder to use (the device requires a lot of practice and a keen sense of balance) allows the user a lot more directional flexibility. A number of the balls with performers inside were launched across Russia's Neva River for the Dutch Days of Culture on the occasion of St. Petersburg's 300th anniversary. The same structures were used as part of an outdoor exhibition for the Kibla Multimedia Center in Maribor, Slovenia.

Design: Spatial Effects
Photographs: Pieter Boersma, Thomas Schlijper, Anatoly Maltsev, Tadeja Nedog









JERSEY DEVIL
INFLATABLE STRUCTURES

American designer and architect Steve Badanes is widely known for his practice and teaching of design/build and is a founding member of the Jersey Devil design/build practice. The idea of designing inflatable structures first began while Badanes was at school in the 60s. He saw air-filled architecture as an attractive alternative to the brutalist style heavy concrete architecture popular at the time. In addition to this, mobility, flexibility and structures with low ecological impact were also popular values at the time (as they are today) and formed an important base for the architect's exploration of this structural idea.

The enormous transparent structures designed by Badanes' team are all designed to be temporary and have been put together without the use of specific plans. The design concept was to allow the materials to determine the forms, and only rough sketches were made for presenting ideas to clients.
The structures can be used in a wide variety of situations and have different finishes: transparent, translucent, innocent yellow or combinations of these. They serve as venues for parties and gigs or as eye-catching temporary roof structures/sunshades.

Design: Jersey Devil (Steve Badanes, John Ringel, Jim Adamson)
Location: New Jersey, USA
Photographs: Steve Badanes











This and previous page:
Teen Arts Festival, Trenton NJ USA 1972
Next page:
Teen Arts festival, Princeton NJ USA 1971







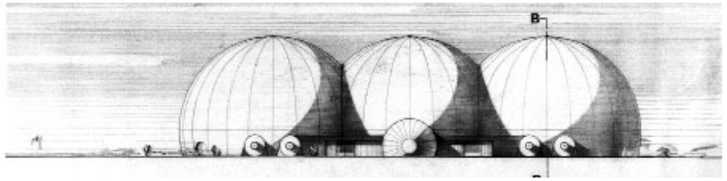


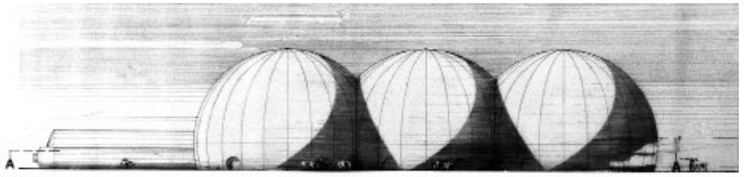


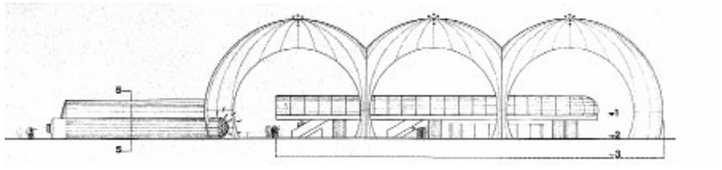
DE PAS, D'URBINO, LOMAZZI
ITALIAN PAVILION
OSAKA WORLD FAIR 1970

In 1970, they collaborated with Ugo La Pietra and Gianmaria Beretta on a design presented at the National Competition for the design of the Italian pavilion at the World Fair in Osaka.
The design for the Osaka Pavilion presented an innovative solution for endlessly extendable modules that could be used for a wide range of purposes, from temporary shelter for individuals or families, to major urban infrastructures such as stations or markets. The Osaka structure was light, temporary, inexpensive and quick to put up. Simultaneously however, it embodied a timeless image of classical balance and symmetrical pattern.

Design: De Pas, D'Urbino and Lomazzi in collaboration with Ugo La Pietra and Gianmaria Beretta
Photographs: Contributed by the designers













DE PAS, D'URBINO, LOMAZZI
PNEUMATIC DOME AT EURODOMUS 2, 3 & 4

At the height of inflatable structures, Donato D'Urbino, Paolo Lomazzi andJonathan De Pas, were responsible for designing the domes for the biennial Eurodomus 2, 3 and 4 in 1968, 1970 and 1972 respectively.
The dome for the Eurodomus 2 biennale held in 1968 consisted of a single large bubble of PVC film that was sustained by internal air-pressure. A 1/2 HP pump compensated for losses as visitors entered.

The "Telemuseo" dome, built for the third Eurodomus biennale, was a pressurized eighteen-meter-diameter dome with a 0.6 mm laminated PVC membrane reinforced with nylon cables, white outside and black inside. A transparent disc at the top of the dome let light flood in from above, like in the Pantheon. Inside, twenty televisions screened avant-garde art actions.
The dome created for BBB Bonacina at Eurodomus 4 in 1972 had a structure of inflated PVC tubes.

Design: De Pas, D'Urbino, Lomazzi
Sponsored by: Eurodomus 2 - Zanotta
Produced by: Eurodomus 2 & 3 - Plasteco
Location:
Eurodomus 2, Turin, Italy, 1968
Eurodomus 3, Milan, Italy, 1970
Eurodomus 4, Milan, Italy, 1972
Photographs: Contributed by the designers

EURODOMUS 2



EURODOMUS 3



EURODOMUS 4

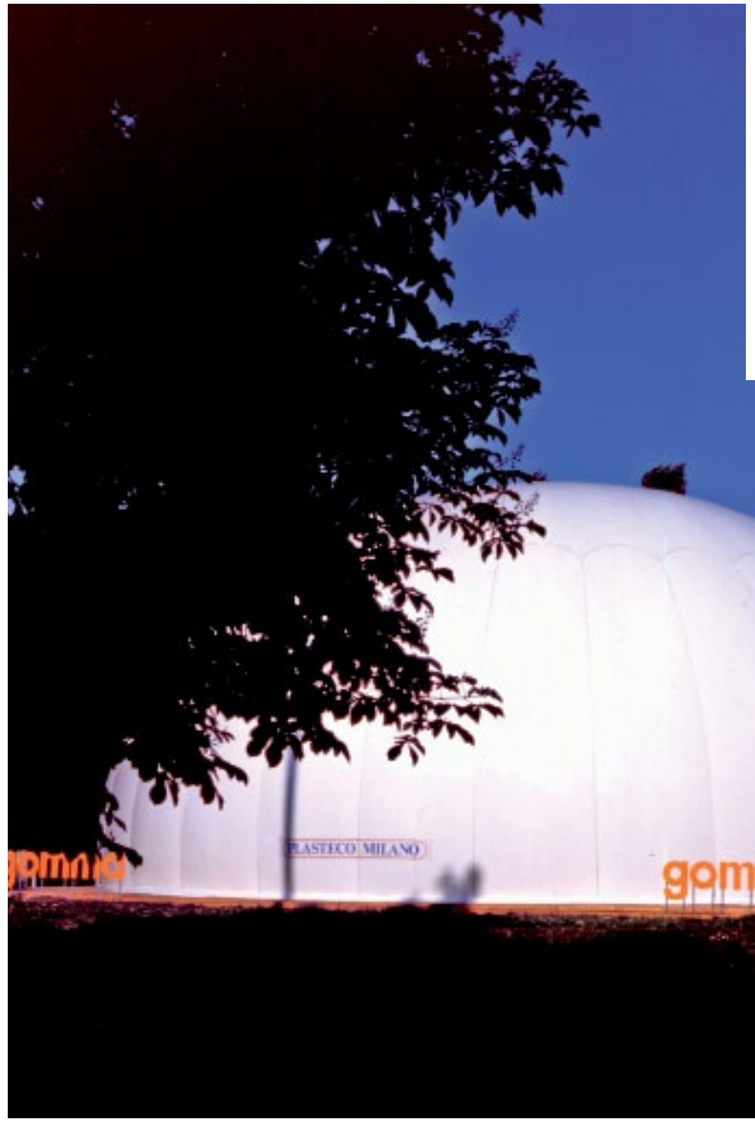











PLASTECO MILANO
gommagomma


gommagomma







DE PAS, D'URBINO, LOMAZZI

TUNNEL FOR THE 14TH TRIENNALE IN MILAN

This tunnel, constructed to connect the Palazzo della Triennale and the Italian Pavilion during the 1968 edition of Milan Triennale international exhibition, was a hybrid structure which combined pneumatic and tensile structural elements. The triangular section of the tunnel was defined by an inflated ridge beam and two lower inflated tubular elements, between which was stretched the transparent and white lacquered PVC fabric. The ridge beam was suspended from a cable running the length of the structure.



Design: De Pas, D'Urbino, Lomazzi
Sponsor: Zanotta S.p.A
Manufacturer: Plasteco
Photographs: Contributed by the designers









DE PAS, D'URBINO, LOMAZZI, SCOLARI

BLOW

Calendared PVC is a type of vinyl film that is versatile, strong, easy to die-cut, assembled by means of high frequency electronic welding to create a variety of shapes; It offers the transparency the designers required for the Blow chair's sculptural singularity to by fully visible. It is made in a variety of colours, both clear and opaque. Formally impeccable, it is comfortable, practical and humorous. It can float on water or even in the air. The joy of simplicity.

Inspired by the Michelin man, this classic piece of inflatable furniture created by Gionatan De Pas, Donato D'Urbino, Paolo Lomazzi and Carla Scolari, was an immediate success. Exciting new materials, mass production, prefabrication and disposability define the mid-Sixties and point to the nonchalant consumer society we live in now. Produced in bright colours and conceived to be enjoyed, played with and discarded, the Blow chair paradigmatic of that era. Although it was originally cheap and did not aim for timelessness, the piece is now permanently displayed at MoMA in New York.

Turning their back on the tradition of durability and cost, the designers contemplated an alternative life-style, straightforwardly young and fresh, and inflatable furniture provided the lightness and irony they envisaged. Having remained in production since its huge success in the sixties and imitated by countless cheap versions, it has been recently revived as a classic. Having become a collector's item, the present price of an original Blow chair by Zanotta means that it will be treated with rather more respect than it used to get years back.

Design: De Pas, D'Urbino, Lomazzi, Scolari
Produced by: Zanotta
Photographs: Contributed by Zanotta





ARCHITECTURE

GRIMSHAW PARTNERS

THE EDEN PROJECT

The Eden Project is the largest plant enclosure in the world, built in the lightest and most ecological way possible. The project is situated in a 15-hectare landscaped site, formerly a worked-out Cornish clay pit.

The main focus of the Eden Project is a sinuous sequence of eight inter-linked geodesic domes threading around the site, encapsulating humid tropic and warm temperate regions. The biomes are an exercise in efficiency, both of space and material. Structurally, each dome is a hex-tri-hex space frame reliant on two layers. The efficiency of the frame relies on the components of the geometric shapes: steel tubes and joints that are light, relatively small and easily transportable.

The cladding panels – triple-layered pillows of high performance ETFE foil – are equally efficient, with maximum surface area and minimum perimeter detailing.

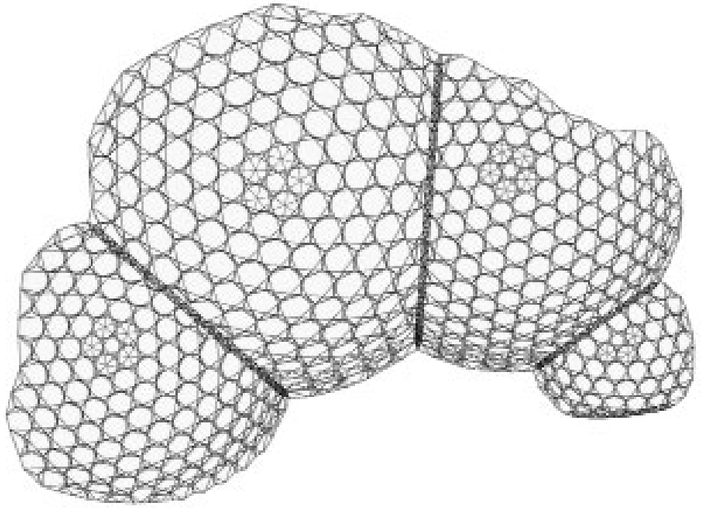
ETFE (Ethylene Tetra Fluoro Ethylene) foil, a modified co-polymer, is recyclable. It is not a PVC. It has low embodied energy and it is extremely lightweight, requiring significantly less steelwork to support it in comparison to glass. ETFE foil has greater insulation properties than double-glazing resulting in greatly reduced energy requirements to heat the space that it covers. ETFE is a fluoropolymer. Neither fluoropolymers, nor any of their decomposing products pose any threat to the ozone layer and consequently are not subject to any form of restrictive regulation under the terms of the Montreal Protocol, the US Clean Air Act Amendments (1993), nor proposed legislative measures within the European Union.

During the evolution of the design, Grimshaw collaborated with the sculptor, Peter Randall-Page. What emerged from the collaboration was an appreciation of the universal rhythms found in many natural forms. The design for the building was generated from a natural pattern called spiral phyllotaxis, which is the mathematical basis for much plant growth. Hence the roof structure recalls the arrangement of scales on a pinecone or the seeds in a sunflower head. This naturally occurring rhythm has been resolved into an efficient and elegant timber structure.

Architects: Grimshaw Partners
Structural Engineer: Anthony Hunt Associates
Services Engineer: Arup
Cost Consultant: Davis Langdon & Everest
Main Contractor: McAlpine Joint Venture
Client: The Eden Project
Location: Cornwall, United Kingdom
Photographs: Ben Foster, Peter Cook / View, Adam Parker, IslBG, Sealand, Grimshaw



© Adam Parker



The Eden Project biomes were unveiled in 2001 and received nearly two million visitors in the first year of opening. The project is now one of the top ten charging attractions in the UK and the second most visited destination outside London. An independent survey showed that the Eden Project brought £150m into the local economy.



© Grimshaw

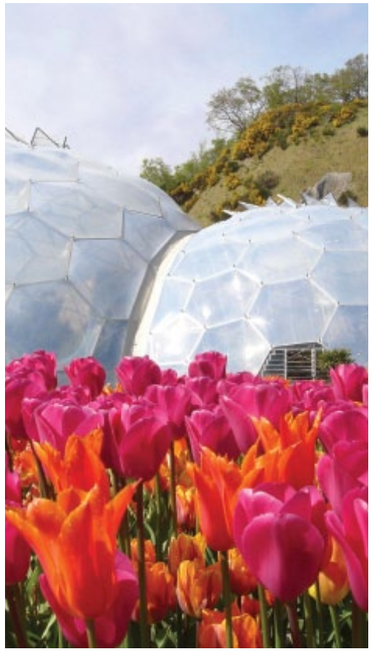
© Ben Foster





© Adam Parker

The roof forms the focal point of the Education Centre both aesthetically and in terms of sustainability. It is designed to have low embodied energy, to provide thorough insulation and also to make optimum use of natural light.



© Ben Foster





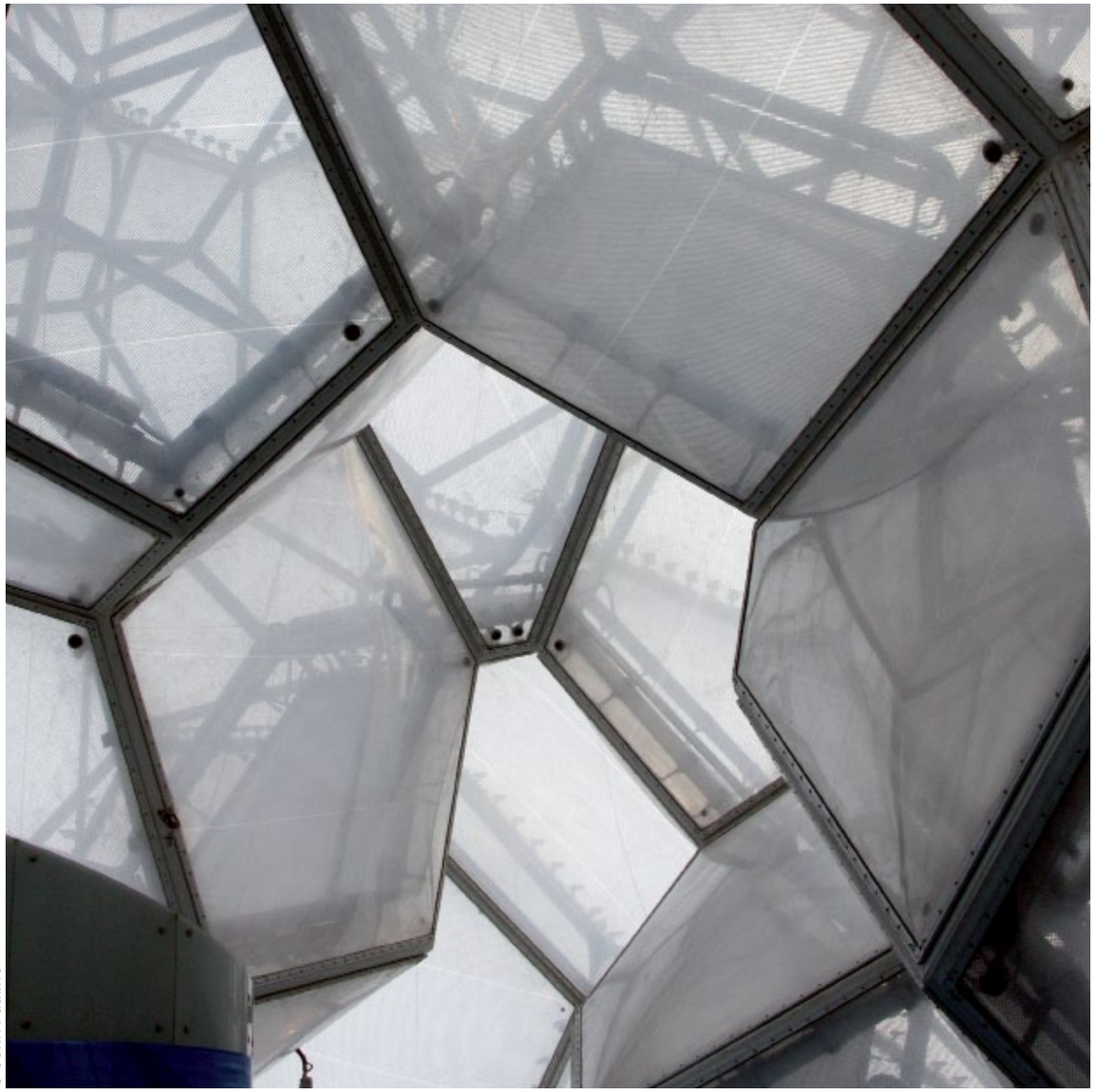
CSCEC + PTW + CCDI + ARUP

WATERCUBE

The Watercube was the main stadium for the swimming events during the 2008 Olympics in China, designed by Australian firm PTW Architects. The preliminary preparation phase established various design principles, cultural values, and environmental and structural concepts for the project. The building had to respond to the immediate environment and its position as one of two gateway buildings. It needed to embody the concept of water in one of its forms, reflect ideas in traditional Chinese architecture and be culturally appropriate. It also had to be a contemporary building – a cathedral for the 21st Century – embodying the values and aspirations of China, testing materials, and expressing form in the most dynamic way.

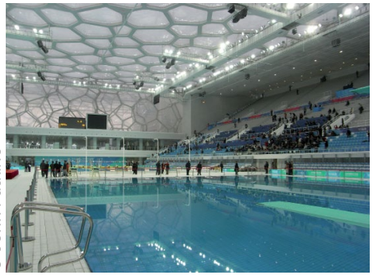
The Watercube associates water as a structural and conceptual leitmotiv with the square, the primal shape of the house in Chinese tradition and mythology. The structure is based on a unique lightweight construction derived from the structure of soap bubbles. Behind the apparently random appearance lies a highly efficient strict geometry that is found in natural systems, such as crystals, cells and molecular structures. The transparency and pattern is equally transposed into the inner and outer building skins, made of inflated ETFE cushions, which create great thermal efficiency. Unlike traditional stadium structures with gigantic columns and beams, cables and spans, to which a façade system is applied, the architectural space, structure and façade of the Watercube are one and the same element. The concrete structures containing the pools act as thermal masses, retaining heat during the warm days and releasing it during cool nights. The envelope thus functions much like that of a giant greenhouse, reducing the energy consumption of the leisure pool hall. The envelope allows the building to adjust to different exterior temperatures. The amount of light and solar radiation entering the interior can be adjusted through operable translucent and transparent foils. Hence, the level of natural daylighting is controlled and easily modified diminishing the need for artificial illumination.

Design: CSCEC + PTW + CCDI and ARUP
Construction: China State Construction & Engineering Corporation
Client: People's Government of Beijing Municipality, Beijing State-owned Assets Management Co. Ltd
Location: Beijing, China
Photographs: John Pauline, PTW Architects



© John Pauline

The Watercube captures the swimming pool water for reuse. After leaving one of the main pools, the water passes through a secondary filtration system and then enters an exterior conditioning pond on the site. Here the water is treated and allowed to settle out before being returned to the pools. In addition to the recycled water, collected rainfall in underground tanks is used as a back-up water supply minimizing the pools impact on Beijing's wastewater system and ensuring the necessary water levels for the pool, regardless of the regions sporadic rainfall and risk of low water levels.



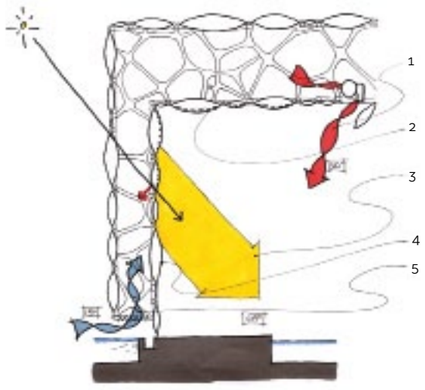
© John Pauline



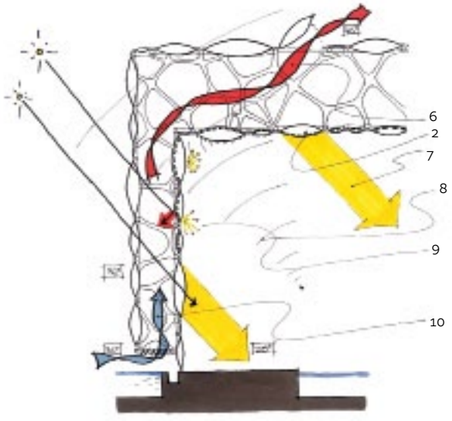
© John Pauline



© John Pauline



Vented cavity - typical operation



Vented cavity - summer

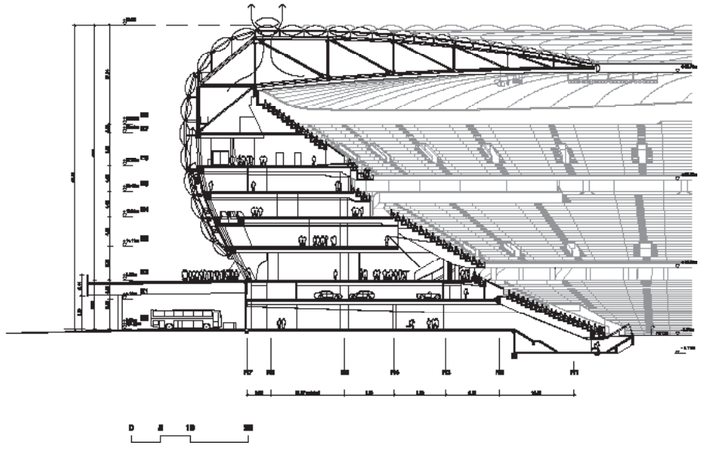
1. Fan-assisted preheated fresh air returned to pool
2. ETFE can be switched on or off to shade the interior
3. Controlled natural daylight and radiant heat to passively heat and light the pool
4. ETFE pillows act as greenhouse
5. Fresh external air preheated in vented cavity
6. Hot cavity air vented to outside
7. Controlled daylight to areas that do not have glare
8. ETFE transparent to acoustic low frequency, internal skin absorbs high frequency
9. Diffuse indirect light through ETFE switched to off position
10. Cool air drawn over water to ventilate cavity



© PTW Architects

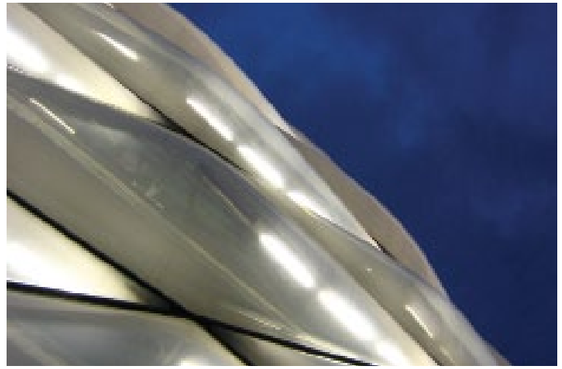
HERZOG & DE MEURON
ALLIANZ ARENA

Built in a record time of 30 months, the Allianz Arena is one of the most modern and architecturally unique football stadiums in Europe. It has not only captivated football fans, but many others with its breathtaking architecture and spectacular illuminated façade. Swiss architects Herzog and De Meuron designed the building to house the two Munich clubs FC Bayern München and TSV 1860. The façade and roof are composed of 2,874 transparent and translucent romboidal cushions at a pressure of 3.5 Pa, supported on a steel supporting structure. The cushions are made of laminated ETFE (ethylene tetrafluoroethylene), a geotextile with excellent dimensional and mechnaical stability over a wide range of temperatures and a high resistance to damage by UV-rays. The cushions forming the façade have a translucent white outer which transmits the colors of light with which each cushion is individually lit from behind. Thus a façade is created which during each match glows with the colors of the home team – red for FC Bayern München, blue for TSV 1860 and white for when the national selection plays at the stadium. The roof panels are completely transparent, allowing sunshine to filter through to the stalls. The steep three-tier stalls – unique in Germany – can accommodate up to 69,000 spectators.



Design: Herzog & de Meuron
Location: Munich-Fröttmaning, Germany
Photographs: Contributed by Allianz Arena







CLOUD 9

PABELLÓN DE LA SED

The molecular structure of salt has been used as the basis for constructing the Pabellón de la Sed (Thirst Pavilion), whose macroscopic fabric reproduces the natural organic shapes of salt. The architecture is akin to that of Gaudi in that it strives to be sustainable; in equilibrium with the medium, the context and the contents of the Expo Zaragoza 2008, for which it was commissioned.

The pavilion's structure is made of steel covered by two layers of fiberglass, with a screw-on assembly system that uses common, high-strength screws and fastening, joining, assembly and anchoring components. The assembly was pre-fabricated at the workshop and installed on-site. Some 77.50% of the structure is covered with pneumatic ETFE panels, a Teflon- and fluorine-based material that yields very positive results due to its technical characteristics.

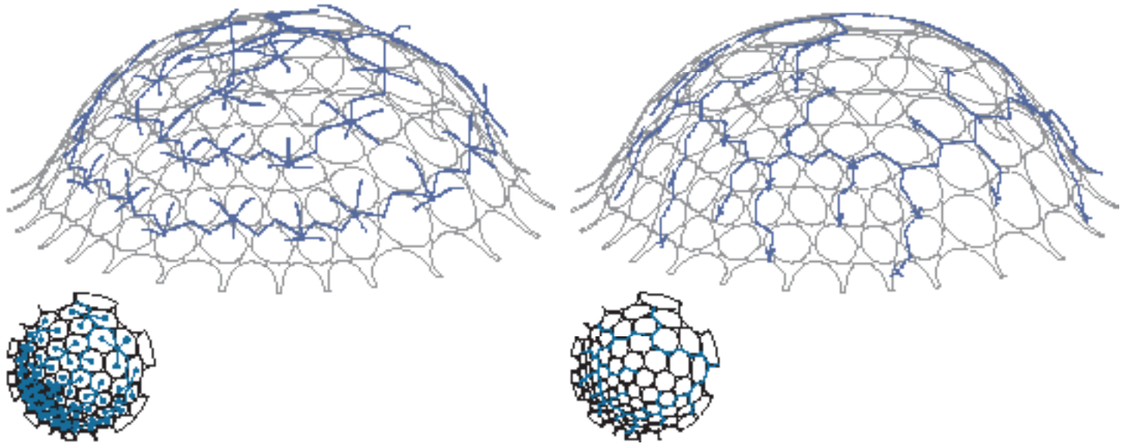
The structure supporting the ETFE and fiberglass panels consists of a framework of bars arranged in an organic shape around the dome. The structure's geometry reflects the project's formal intention. The dome consists of rigid curved bars which give rise to hexagons and pentagons of different sizes, all of them curved to achieve a circumference with a radius of 22.58 m (74 ft) in the center of the dome, and of 3.75 m (12 ft) at the bar supports. Salt is then projected onto the façade, where it deposits on the surface as the water evaporates, thus creating a natural icon, a mountain of salt. To control the salt layer a water tank, to which mined salt is added, is constantly stirred to keep the salt from precipitating out. The goal is to maintain a 20% salt solution. The brine is then pumped to the various watering zones, where a timer, connected to a wind sensor, determines which zones to water. The brine is sprayed from the ends of the tubes, and the salt hardens once the water evaporates. This process is repeated to generate several layers.

The intense Spanish heat is kept out through the use of a roof made of 3 layers of ETFE, one of them mirrored to reflect light, a cooling system for the air-filled pneumatic panels and the brine-watering system. The net result is a climate-controlled building where the cooling system only has to offset the heat contributions from the visitors and the Expo's own equipment. This allows for a cooling system that is much more sustainable, and less expensive, than traditional air conditioning.

Design: Cloud 9 S.L., Enric Ruiz Geli, Edouard Cabay, Patricio Levy, Miguel Carreiro, André Macedo, Rosa Duque Casas
Structural engineer: Boma S.L., Augusti Obiol,Guillem Baraut, Antoni Orti
Contractor: Ferrovial Agroman
Installations: Pgigrup, David Tusset, Jordi Llobet, Jordi Llosa
Location: Zaragoza, Spain
Photographs: Luís Ros, Optical Addiction



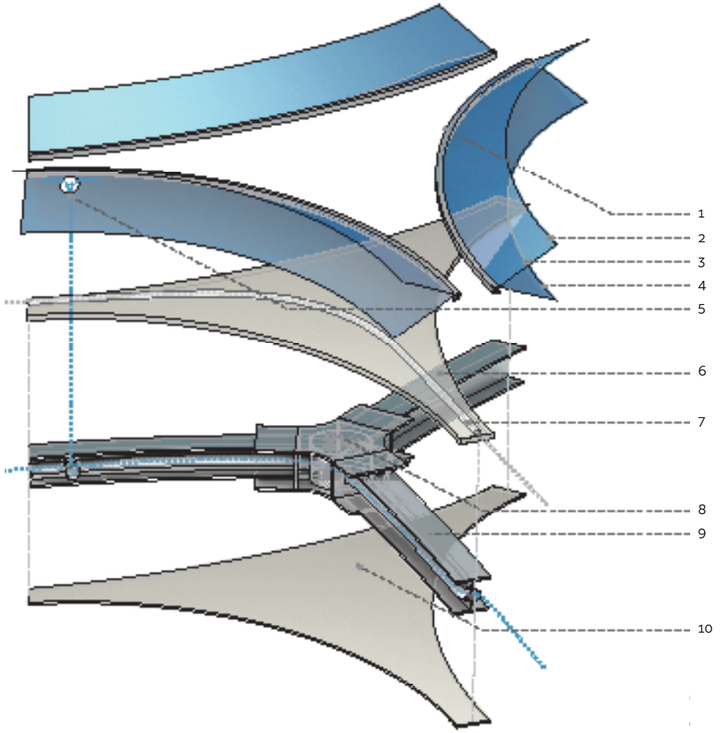












ETFE

1. Curved aluminum section 50 × 50 mm
2. ETFE cushion, 3 layers, transparent
3. Silver
4. Black
5. Air supply to cushion
   Fiberglass - External layer
6. Curved cellular fiberglass sandwich panel, t = 50 mm
7. Supply of saltwater
   Metallic structure
8. Junction - Structural steel tube
9. HEB section, curved
   Fiberglass - Internal layer
10. Curved cellular fiberglass sandwich panel, t = 10 mm

OFFICE FOR METRO ARCHITECTURE

SERPENTINE GALLERY PAVILION 2006

The Serpentine Pavilion 2006 was co-designed by architect Rem Koolhaas and structural designer Cecil Balmond. The centrepiece of the design was a spectacular ovoid-shaped inflatable canopy that floated above the Gallery's lawn. Made from translucent material, the canopy was raised into the air or lowered to cover the amphitheatre below according to the weather.

The walled enclosure below the canopy functioned both as a café and forum for televised and recorded public programmes including live talks and film screenings. The pavilion covered an area of 346 square metres and comprised three main structural elements of a floor platform, circular wall enclosure and inflatable roof canopy.

A floor platform extended from the east side of the Gallery across the lawn, ending at the cross path at a height of one metre where a set of stairs brought visitors back to ground level. It was constructed from lightweight steel structural beams, creating a frame to support a floor surface of perforated metal sheet.

Where the floor platform widened, a circular enclosure was created by fixing a series of translucent polycarbonate wall panels to the perimeter, this wall was five metres in height. An inner circular wall constructed from the same material was set inside the outer wall, with a space of 1.6 metres between the two. These two walls were held in position by a series of tensioned steel cables.

The Pavilion design incorporated a helium and air filled inflatable roof that could be raised and lowered to accommodate the activities within the structure. It provided protection from the weather – shade at the height of summer and rain and wind cover in the autumn. The inflatable ovoid roof extended to a maximum height of 24 metres when open and 20 metres when closed. The roof was fabricated from semi-clear PVC-coated polyester. The inflatable roof was held securely in position by cables attached to four electrical winches, which in turn were anchored to the ground.

Architect: Rem Koolhaas
Structural design: Cecil Balmond, Arup
Project architect: Clement Blanchet
Project manager: Mark Robinson
Project organiser: Kathryn Rattee
Inflatable structure: Hightex with Tensys
Structural steel: William Hare
Lighting installation: T Clarke
Client: Serpentine Gallery
Location: London, UK
Photography: Serpentine Gallery/ John Offenbach







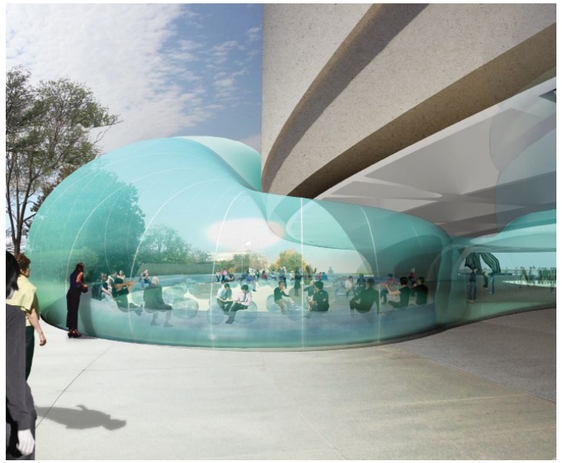


DILLER SCOFIDIO + RENFRO

BALLOON EXPANSION AT THE HIRSHHORN MUSEUM

The “Bubble” is an inflatable event space designed for the cylindrical courtyard of the Hirshhorn Museum in Washington D.C. In respectful dialog with this Modernist icon, the Bubble is a pneumatic structure that squeezes into the void of the building, oozing out the top and spilling out at ground level. The ephemeral structure is erected twice a year, in the spring and fall. The 14,000 sqft of sheltered space accommodates audiences of 600 to 1000 people for an array of events including performing arts, film screenings, lectures and debates. A series of cable rings mould the membrane, pulling it away from the inner wall of the courtyard while other cables tether it into place. The resulting contours generate good acoustics in the interior and create pockets of outdoor space accessible from various levels.

Design: Diller Scofidio + Renfro
Floor area: 1,300 sqm (14,000 sqft)







MMW ARCHITECTS

KISS THE FROG!

The backdrop to this project is the merging of four museums, considered by some to be very different to one another. The National Gallery, The Museum of Decorative Arts and Design, The Norwegian Museum of Architecture and The National Museum of Contemporary Art is now The New National Museum of Art, Architecture and Design. Kiss The Frog! Is both a celebration of the new museum and the first project to manifest its ambitions for the future, exploring the aesthetics of transformation, referring to genre transcendence both as method, expression and experience. It also marks Norway's 100-year anniversary as a free nation.

The concept for the temporary art pavilion is based on the fairytale cliché, in which a beautiful, rich prince suffers an evil spell and is consequently trapped within the shape of a frog. One day, when a princess kisses him, he is transformed back to the prince he really is, and they live happily ever after. With its organic shape the frog can be seen as an embodiment of the museums' transformation, representing the ongoing reinterpretation of interdisciplinary art and challenging the boundaries between art, architecture, design and popular culture. It is also a mediator between the past and the future, connecting the old National Gallery and the new Art Hall.

Kiss The Frog! is a 1500 sqm (16100 sqft) pneumatic textile structure. Based on the principles of a zeppelin, the weatherproof nylon fabric is kept up by the difference in air-pressure between inside and outside. A huge fan constantly supplies the inside of the pavilion with fresh air, which is then trapped inside the frog and maintains it inflated. The frog has no straight edges or lines, only curved walls smoothly transcending into a roof, and then to a wall again. A series of circular sections forms a path or walkway inside the structure. The fabric is supported by seven arches of circle shaped beams, evenly spread along the interior walkway.

Architects: MMW Architects of Norway
Principal Architect: Sindre Østereng & Magne Magler Wiggen
Collaborator: Rebekka Bondesen, Eirik Førde, Helle Gundersen, Hallstein Guthu, Svein Hertel-Aas, Jon Arne Jørgensen, Siri Sverdrup Liset, Virginie Mira, Kathrine Nyquist, Sindre Østereng
Structural Engineering: Dr. Techn. Kristoffer Apeland AS by Kristoffer Apeland, Agatha Alsadi and Rolf Smetveit .
Buro Happold ved Steven Brown
Contractor: Hallmaker as, Graboplan AB
Client: The National Museum of Art, Architecture and Design
Location: Oslo, Norway
Photography: Jiri Havran, Eirik Foerde, Martin Sunde Skulstad



© Martin Sunde Skulstad



© Eirik Foerde



© Eirik Foerde



© Eirik Foerde

The entrance is through what appears to be the mouth of the frog opposite which is the reception. To the right it is possible to enter the old National Gallery through one of the legs and through the window taken out for this occasion. To the left is the other frog leg enclosing another staircase, which leads to the entrance of the semi-permanent pavilion. Behind the reception a pair of revolving doors allows visitors to go inside. These doors were chosen for their ability to fuse visitors in and out and thus avoid decreasing the frog's pressure.



© Eirik Foerde

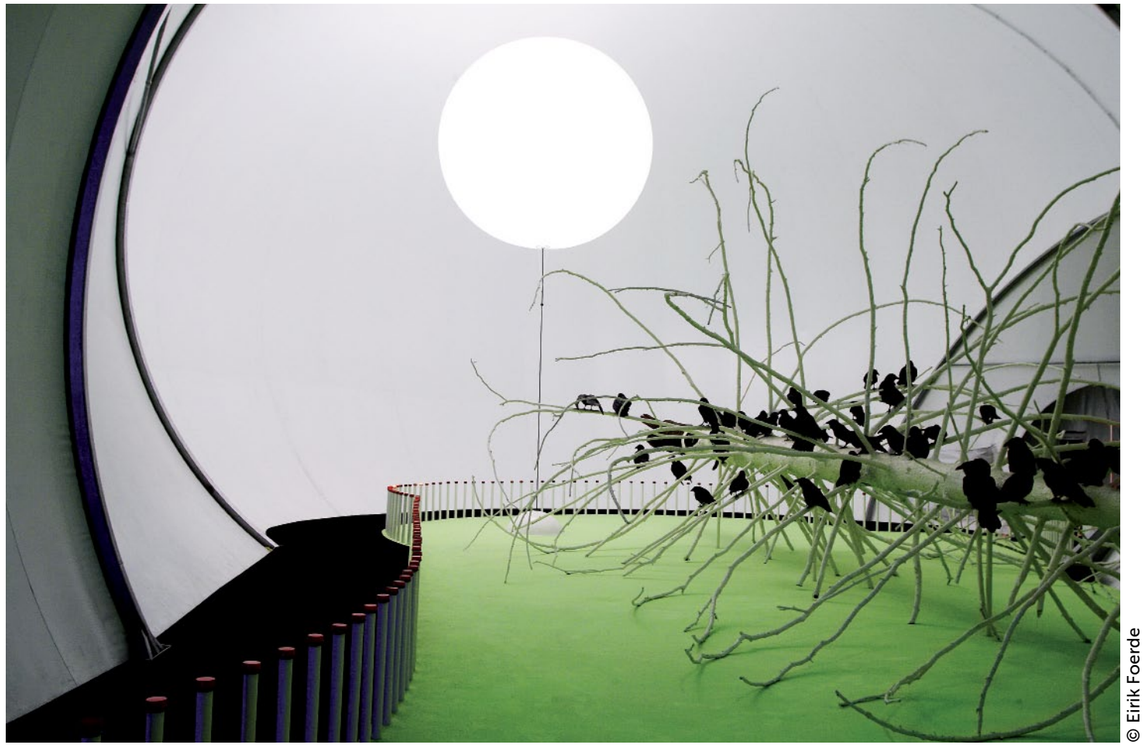
In the center of the shape is an open space for stage activities and dining, where there are seats for 150 people in front of a 60 sqm (645 sqft) stage space.



© Martin Sunde Skulstad



© Martin Sunde Skulstad



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Because of the curved sections there are no straight walls to attach pieces of art to. The artists were therefore required to make their own freestanding installations dedicated to the discussion of historical and contemporary art. Several of the artists worked with large installations and projects, which commented on the borders (or non-borders) between art, design and architecture. All of the pieces were made specifically for this occasion - the kissing of the frog.

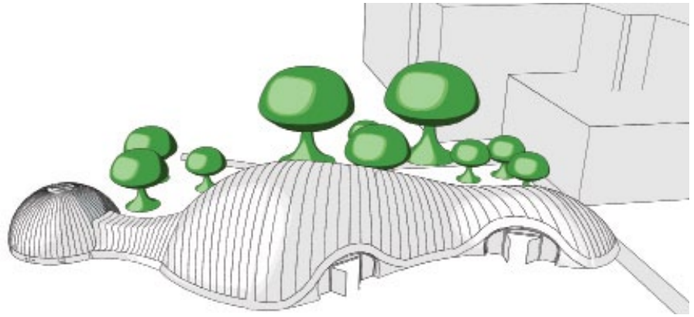


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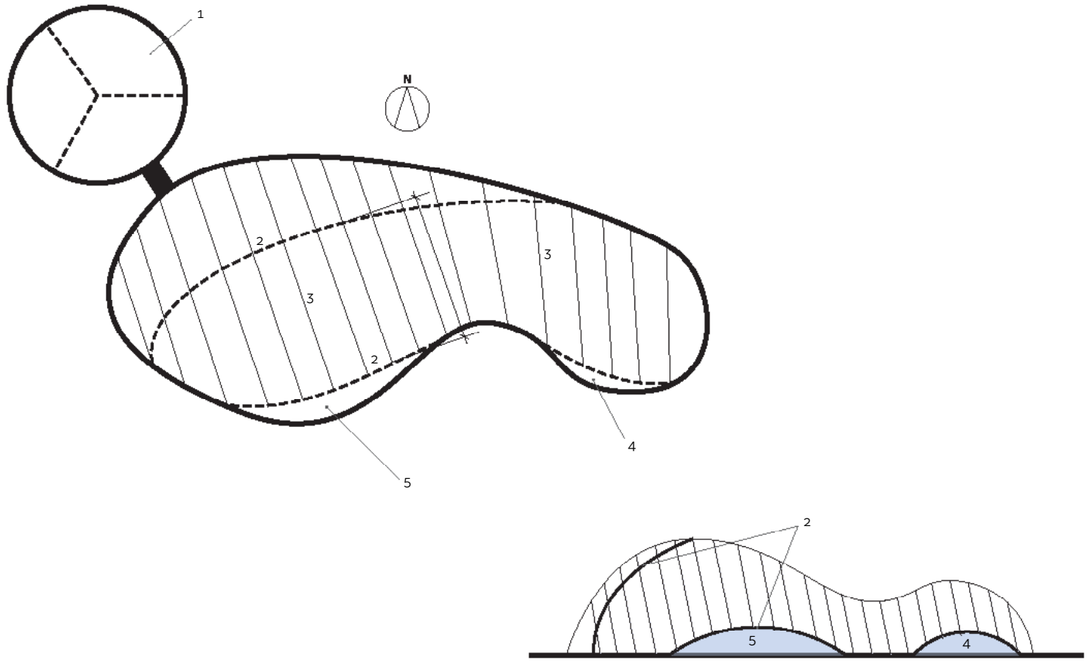
2hD + INFLATE STUDIO
LAM PAVILION

2hD were commissioned by the Lille Métropole Museum of Modern Art (LaM) to design an innovative pavilion to host the events to mark the museum's re-opening after five years of refurbishment and extension works. Challenging the existing paradigms of event tents, 2hD designed a diaphanous inflatable textile structure to create an inspiring spatial experience for visitors to the museum and a striking backdrop for its high-profile public events.
Having been commissioned to realize a comprehensive feasibility study of the preliminary design they had submitted in the spring of 2010, 2hD teamed up with Inflate Studio, experienced designers of inflatable structures, to produce a custom-designed pavilion that would serve to host the wide spectrum of events envisaged by the museum and that fitted within the tight budget allocated by this not-for-profit art organisation.
Complementing the orthogonal lines and hard materials of the existing buildings and the urban park surrounding them, the lightweight translucent envelope and organic lines define a transient space between the park's outdoors and the museum itself, welcoming and orienting visitors in their exploration of the extensive art collections. The pavilion also acknowledges and creates a playful dialog with the many large-scale modern sculptures inhabiting the museum grounds.
The structure was installed in September 2010 to host thousands of visitors for the week long opening festivities. Beyond this, the pavilion will provide a flexible space for hosting events from theater performances to public lectures and video installations.

Design: 2hD, Inflate Studio
Photographs: Inflate & Yves Morfouace







1. Catering pod
2. Air beam
3. Seams
4. Glazed entrance
5. Glazed surface





VICENTE SARRABLO

PNEUMATIC STRUCTURE FOR THE MET FESTIVAL

The MET festival brings together a host of different creative disciplines and presents the ideal opportunity for using a high speed assembly system, such as these pneumatic structures. In just a few minutes they can raise vaulted ceilings that cover an area of 1700 sqm (18 000 sqft).

What is perhaps of greater interest is the ability these inflated capsules have to create innovative, silkworm like spaces, which are both cozy and light. The development of new digital modeling systems for shaping fabric facilitates the choice of any generatrix for the pneumatic arches, and allows each of the arches to differ from their neighbors. Varying sequences of the vaulted spaces are generated within a single wrapping, thereby creating volumes of great complexity.

These air-filled caves are lit in two different ways. The brighter of the two makes use of the giant transparent seals found where the different modules come together and overlap. The second, softer form of lighting is generated by the double polyamide membrane through which air circulates under pressure. During the day it allows the daylight to filter through while at night it acts as a diffuser to a giant light.

For the MET festival the floor plan took the shape of a chromosome, which in its cross-shaped center acts as a hall, singling out each of the ends for each of the functions within the program: entrance, cinema, fashion and architecture.

The amphora – Cinema. The cinema bag is the only one whose membranes do not allow light to pass, for obvious reasons, and its interior shape can therefore not be appreciated in the same way. It is contained with a simple wrapping, like an amphora, highlighting only the area where the screen is located.

The bubble – Fashion. The display area for fashion unfolds telescopically through successive sleeves, drawing out the bubble, which is blown up from a pipe. The act of inflating the bubble was intended as a metalanguage.

The croissant – Architecture. The wrapping for the architectural display presents a route that bends around to end back in the central hall. This croissant is a secret tribute to the late Enric Miralles.

Like a bracelet, an enormous 25-meter arch of light frames one end of the hall distinguishing the entrance. This is where visitors begin to feel as if they are being digested in the belly of a beached whale.

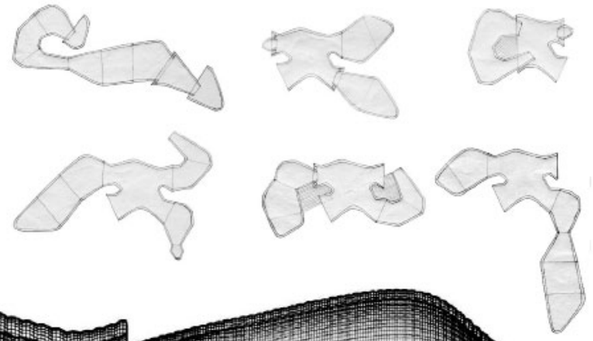
Architect: Vicente Sarrablo
Associate: Jaume Colom
Engineer: Buildair
Promoter: Festival MET- Loud Produccions
Photographs: Contributed by Vicente Sarrablo







General plan and possible variations



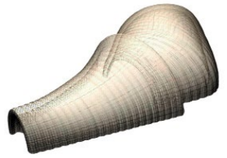






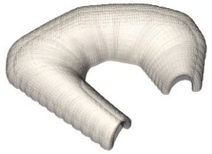
The Agora, central connecting space.





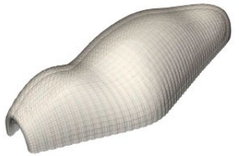
The Bubble, fashion area.





The croissant, architecture area





The amphora, cinema



VICENTE SARRABLO

GAUDÍ PAVILLION

The basic component of the itinerant A–o Gaudí 2002 exhibit is a 200 m^2 air-filled structure, which can be easily inflated in only eight minutes. This plastic cover was made by combining methods used in the manufacture of hot-air balloons and zeppelins and formal and chromatic references derived from work by the architect Gaudí: the sinuous forms of Barcelona's Sagrada Familia are similar to those seen in the floor plan of this blow-up stand; the arch above the fire place in the Casa Milá also gives shape to the entryway here; the oscillating section of the interior space follows the lines of the archways in Parque Güell, while the stand's polychrome "back" recalls that of the dragon presiding over the entry to this same park. The paradox of forms intended to be executed in stone and brick having been achieved with air-filled textile tubes is a symbolic homage to the iconoclastic nature of Gaudí's work.

These air-filled tubes are joined along one side and take on the shape of a sequence of arches, which successively vary in the degree to which they lean. This intermittent pattern, seen along the length-wise axis of the roof, creates variable heights in the route through the exhibit's three main areas without sacrificing visual continuity. Vibrant colors grant a certain unreal, fantastical air.

Design: Vicente Sarrablo
Location: Barcelona, Spain
Photographs: Vicente Sarrablo Moreno











VARIOUS ARCHITECTS AS MOBILE PERFORMANCE VENUE

In response to a client brief that called for a “unique and iconic structure” Various Architects (VA) designed the Mobile Performance Venue (MPV) for the Arts Alliance Productions performance “ID - Identity of the Soul” which toured worldwide in 2009.

The MPV is a dynamically twisting 90 × 60 meter ellipse (3900 sqm) with curving walls and roof that ranges from 11 to 17 meters in height. The project is designed around five large screens of the central performance space (2000 sqm), which holds a standing audience of 3500 people.

A dynamic public foyer formed by an arcade of open hexagons at ground level clearly marks the entrance in the otherwise closed form. The foyer contains all front-of-house functions such as ticketing, security, cloakroom, refreshments, and restrooms.

A mezzanine area accessible via internal stairs can be used as a lounge, catering space, exhibition space or VIP events.

Together with engineers from Ramboll-Whitbybird, VA designed the structure to reduce shipping weight and volume to a minimum using a unique inflatable skin, a lightweight cable roof, and a combination of standard and bespoke aluminum structural frames. The outer skin is a self-supporting membrane of hexagonal inflated tubes and translucent cushions. This 100% recyclable PVC structure requires a minimum of secondary wind bracing.

Two interchangeable roof coverings help adapt the building to different climates and weather - a mesh roof to provide shade in hot dry climates, and a solid PVC roof for rain protection.

The floor can be configured with a central stage for live concerts and/or auditorium seating. Speaker racks suspended from the columns and refillable water tanks provide foundations without the need for anchoring or the transport of heavy weights.

The venue can be deflated and divided into stackable components that fill 30 standard 40’ shipping containers. Installation and assembly on site requires two weeks for the entire venue (one week and only 20 containers if the roof is omitted). This estimate is conservative, but still represents an extremely low shipping volume and rapid deployment time for an installation of this size and complexity.

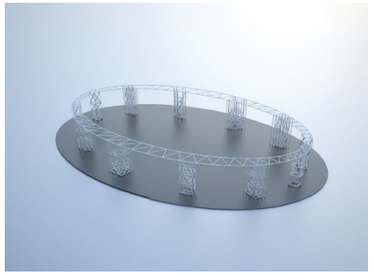
Design: Various Architects AS
Engineering: Ramboll-Whitbybird
Client: Arts Alliance Productions
Photographs: Contributed by Various Architects AS

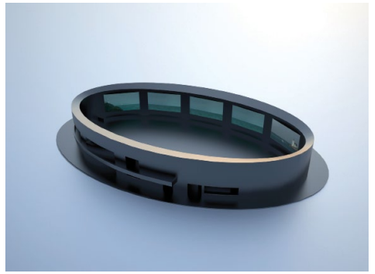


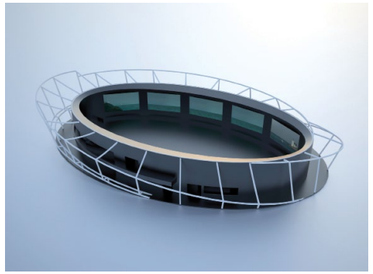


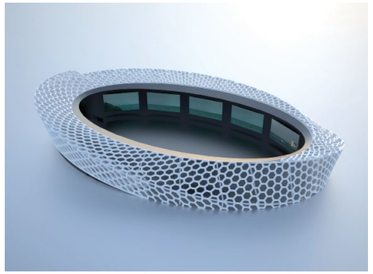


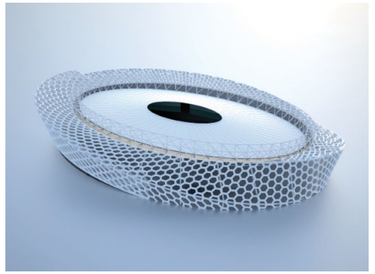






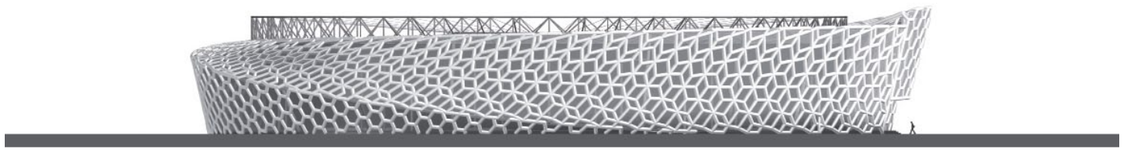


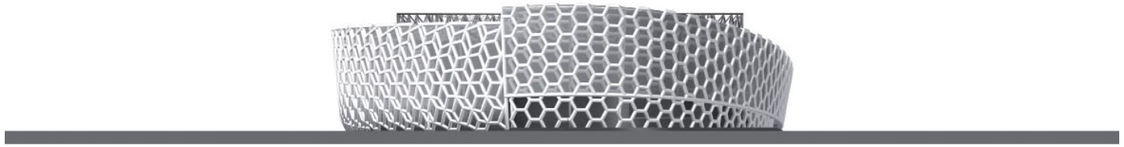


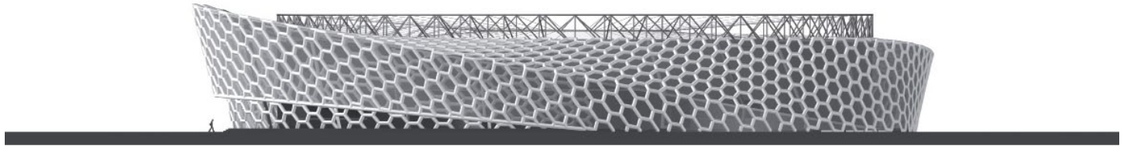


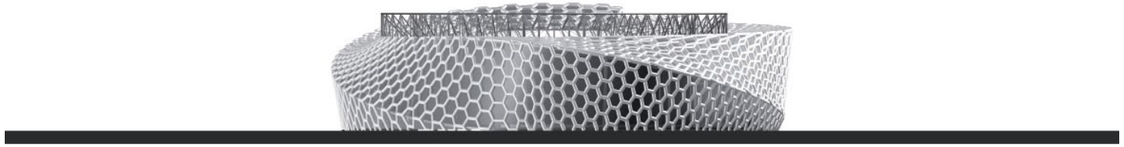
The inflatable external skin creates a volume of space that encompasses the inner core and which is dynamic and quick to erect. Public entrances and facilities are placed to one side, accessible via an open arcade in the facade. Back of house functions are enclosed on the opposite side to create a self-contained volume that suits the needs of the performance.











KENGO KUMA & ASSOCIATES

TEA HOUSE

Going one step further than “defeated architecture”, Kengo Kuma dreamed up a “breathing architecture”. A “defeated architecture”, in the architect’s view, maintains a one-way passiveness towards the environment. “To breathe”, on the other hand, is to achieve an interactive communication between different environments. At moments when the architecture holds its breath or exhales, the architecture shrinks to a smaller size; at other times, it expands and grows larger as it breathes in deeply. Thus, a new dynamic style for the architecture was devised.
On the technical side, a new material called Tenara was used to create a double membrane with air inserted in between the two layers of the material. The two membranes are connected by polyester string. The joints of the membrane and the strings are placed approximately in a 600mm pitch, and consequently are visible as dots on the membrane.

Unlike conventional membrane materials, Tenara does not use glass fibres as a base material; it is therefore soft and light. Because the membrane expands and contracts as though it breathes, Tenara was chosen as the membrane for this project. Furthermore, because Tenara is highly transparent, it serves as an intermediate element between reality and the imaginary world, between exterior and interior.
Tatami mats are laid inside the inflated structure to create the feel and space of the Tea Ceremony. Originally, tea rooms were located in a temporary space called a Kakoi. The current breathing architecture of Kengo Kuma’s Tea House is an attempt to approach the original Tea Room as a vital space, one that contrasts the non-breathing, concrete architectures of the 20th century.

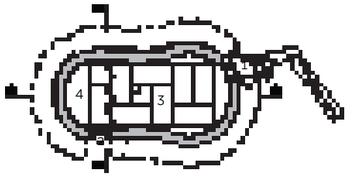
Design: Kengo Kuma & Associates
Structural engineer: Form TL GmbH, Taiyo Europe GmbH
General constructor: Takenaka Europe GmbH (basement); Cannobio S.p.A. (membrane structure)
Location: Frankfurt, Germany
Photographs: Contributed by Kengo Kuma



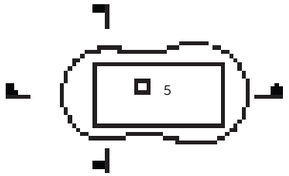






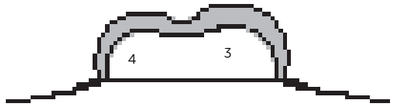


Ground floor plan



Basement plan

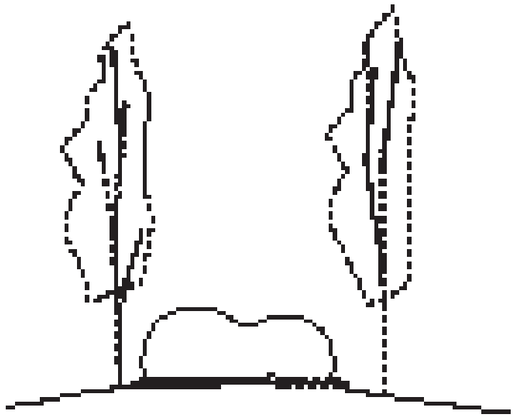
1. Tea room entrance
2. Preparation room entrance
3. Tea room
4. Preparation room
5. Concerte basement



Section AA



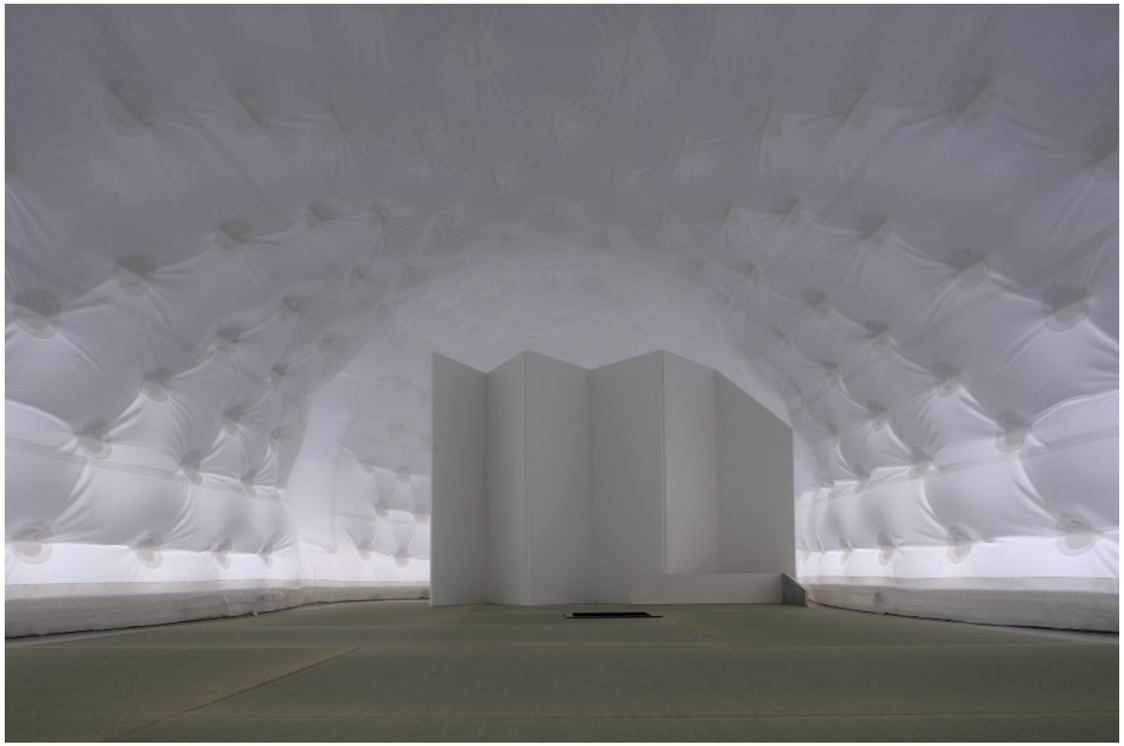
Section BB



North elevation



East elevation







FESTO
AIRTECTURE

The idea behind Airtecture is based on mechanically pre tensioned membrane constructions that have been used for several interesting buildings (e.g. the German Pavilion at the EXPO 1992 in Seville, Spain, or the Denver International Airport in Colorado). The most important innovation of Airtecture is that the membranes are not mechanically pre-tensioned but by means of air pressure in such a way that they are able to bear loads.
German pneumatic experts Festo modelled Airtecture after early air-supported structures. In contrast to such buildings, however, Airtecture works with a much higher air pressure and also has atmospheric pressure in the inside.
With this test structure of an exhibition hall the company Festo, an internationally active company in pneumatic components, presents presumably the very first air-supported building with a cubic interior and with a supporting structure consisting primarily of air-inflated elements. The appearance of the new structure deliberately creates a new image and design, different in construction and appearance from existing air halls. Its design also reflects the advanced technological background and purpose of the hall; in its colour scheme grey is predominant, with accents of the company's colour blue and metallic aluminium, which creates a cool and friendly image in line with the company's range of colours.

Design: Festo AG & Co
Location: Esslingen, Germany
Photographs: Contributed by FESTO



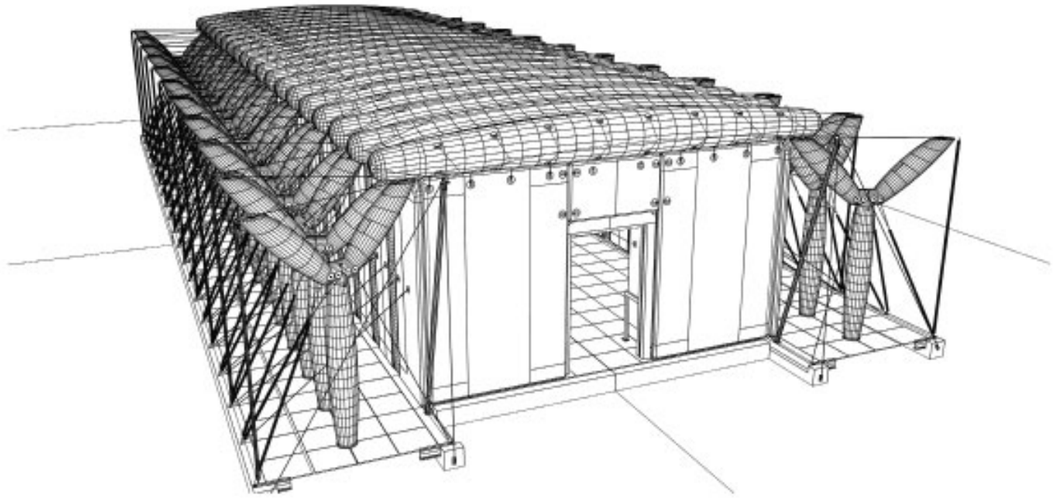










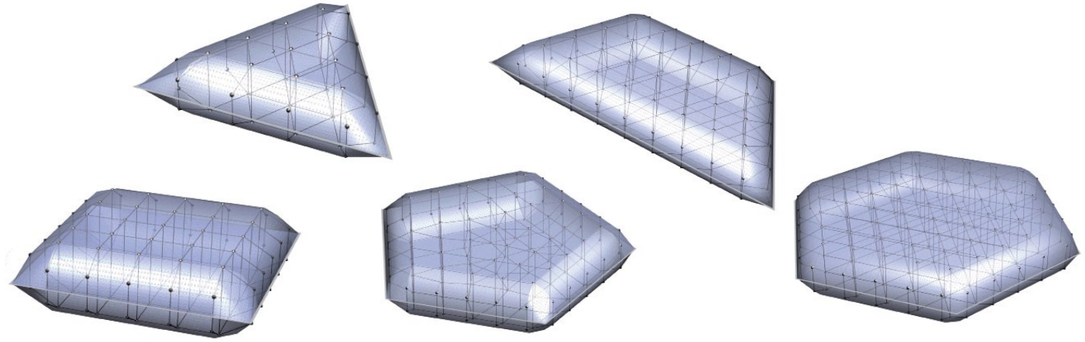




THOMAS HERZIG
PNEUMOCELL

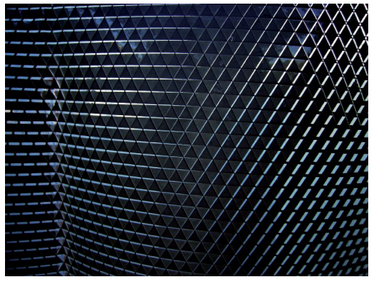
Pneumocell is an assembly-kit consisting of inflatable building elements analogous to biological cell-structures, which (like large Lego bricks) can be connected in numerous combinations to form complete constructions. They can also be de-assembled just as easily, thereby allowing the designing of pneumatic objects to be carried out considerably more easily. Pneumocell is a cost-efficient and reliable serial-product which sets a milestone in the development of pneumatic architecture. Each of the polygon-shaped cells has a common edge length of 155 or 213 cm (61 or 84 in) which guarantees that all element-types fit together. The cells are airtight and do not require a permanent stream of air to retain their shape. When the cells are assembled in a shell-like order the resulting construction maintains a high level of stability. If one element is damaged, the others can still give support to the construction, and the damaged element can be replaced; just as it works in a biological organism. The cell connectors are rain-tight and in addition the air pockets provide excellent insulation, while also allowing light to penetrate. The system of connectors facilitates the addition of artificial lighting elements, air conditioning, doorways and other types of fixtures.
When compared to more common building methods, a traditional wooden construction of the same volume would be 45 times heavier, while a concrete building would weigh 400 times as much. Pneumatic cell constructions achieve the ideal of using minimal building material in the most optimal way and in this respect are far more efficient than other methods of construction. Also, alongside other inflatable constructions, whose development design phase is usually lengthy and expensive, Pneumocell is a cost effective industrial product since it can be mass-produced.
Pneumocell elements can be inflated using any kind of pump or air blower. When constructing larger structures the elements can be initially connected with a hose system enabling the whole unit to be inflated from a central blower. The building then becomes erect on its own. Fluctuations in temperature may lead to a change in the air pressure. An electronic pressure sensor can detect any pressure fluctuations and automatically activate the blower to regulate the air pressure.
Pneumocell can be used for a wide range of situations: events, as a marquee or air castle; exhibition stalls; interior design, as ceiling/wall coverings or seating/sleeping areas; emergency shelter for crisis areas, since they can be quickly erected and provide better insulation than tents; and even schools, where children take part in their construction while also learning about geometry and physics.

Design: Thomas Herzig
Location: Vienna, Austria
Photographs: Contributed by Thomas Herzig









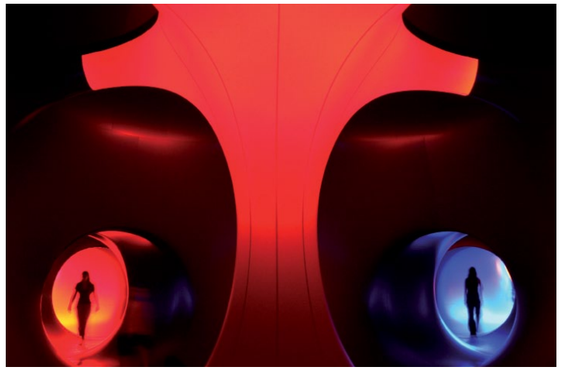
EVENT SPACES

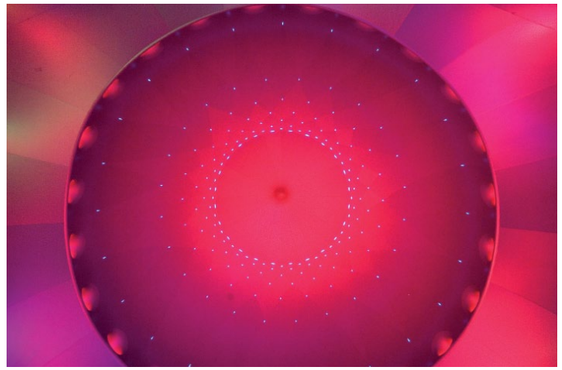
ARCHITECTS OF AIR
AMOCOCO LUMINARIUM

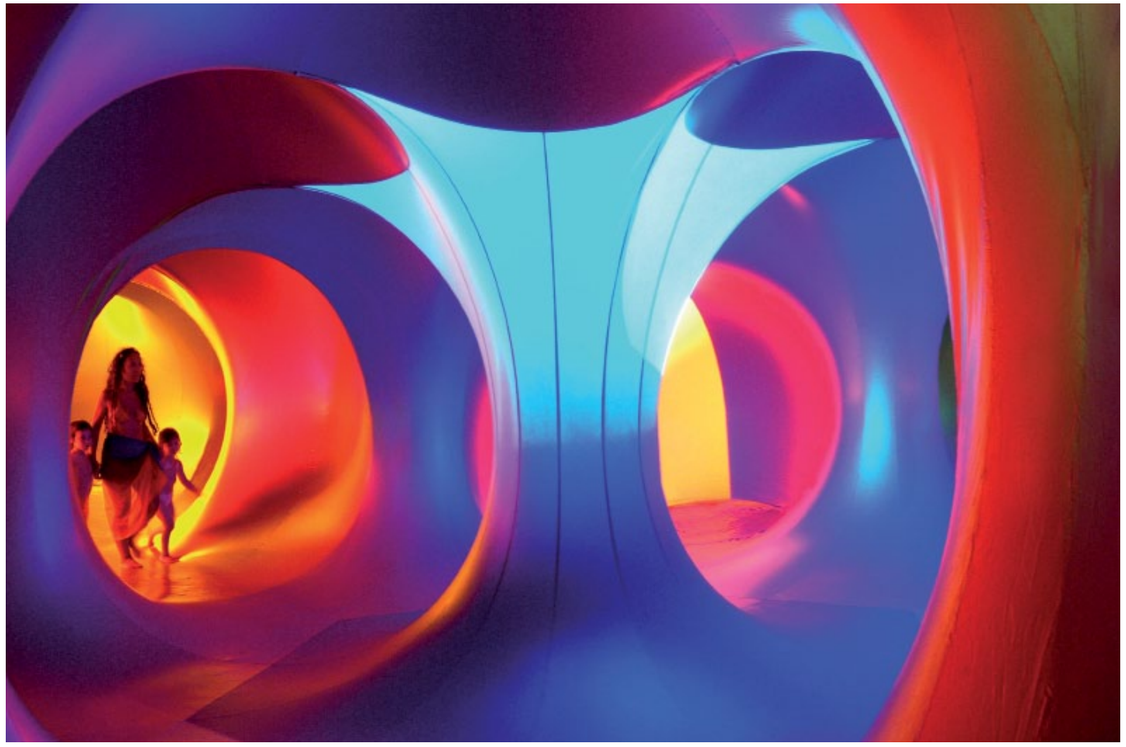
A luminarium is an inflatable environment, a participative sculpture made of translucent vinyl. Through labyrinthine tunnels and cavernous domes, visitors move in a medium of saturated and subtle hues. The radiance of the daylight transmitted by the colored vinyl of the luminarium is surprising in it's luminosity and makes a direct impact on the senses. For inflatable structures to have smooth surfaces their shapes must follow the laws of physics. Once a satisfactory ground plan is achieved a complete engineering analysis of the forms and template design is undertaken. Functionality is a major part of the design process; integral anchorage and forms conceived to ensure stability in windy conditions; walkways kept in contact with the ground to permit passage of wheelchairs; modularity to enable the structures to be adapted to different sites. Amococo is the latest luminarium from Architects of Air. Its design is based on the floor plan generated by 86 'Triaxial' domes.

This 3-sided dome, inspired by the modular elements of the Iranian bazaar, makes possible the ever-turning paths that create a dense winding maze. Every now and then the paths open out into a luminous, spacious dome awash with saturated color. The common visual motif of the domes is the 'oculus' – a high-level ovoid window that gently diffuses indirect colored light. Amococo experiments with the use of reinforced strips to confine and give higher definition to the forms. The cupola of the central dome is made almost entirely of opaque plastic yet the ceiling resonates with scintillating color filtering in through invisible windows. Amococo has 71 'pods' – large niches where people can sit and relax out of the way of the visitors making their way around the structure. Each pod has its own colored window arched like the windows of gothic architecture. The colors of Amococo are calculated to generate the greatest diversity of subtle hues – using only three colors of plastic.

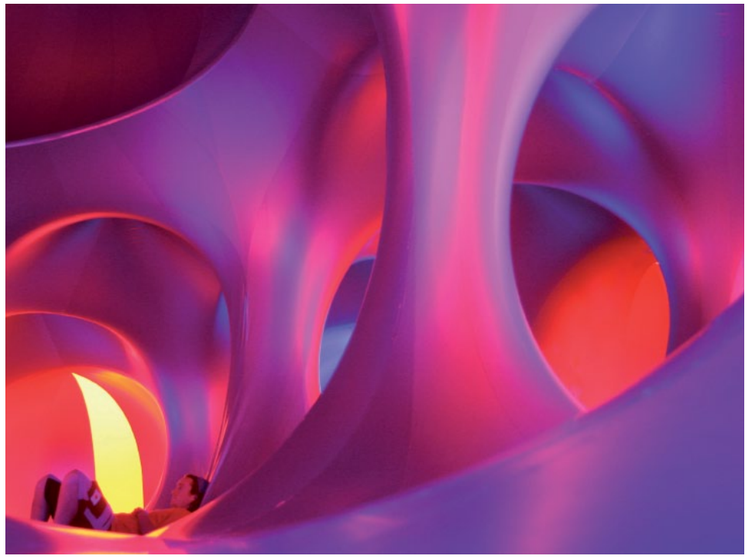
Design: Architects of Air
Principal designer: Alan Parkinson
Location: Nottingham, UK
Photographs: contributed by Architects of Air





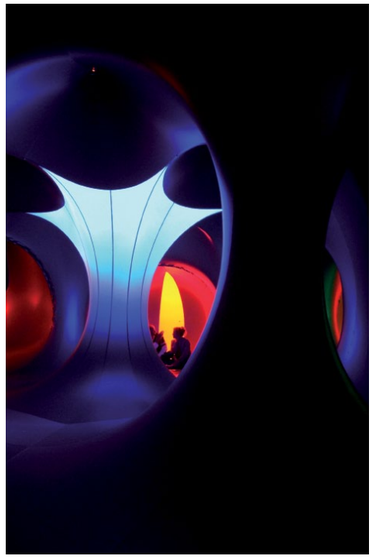


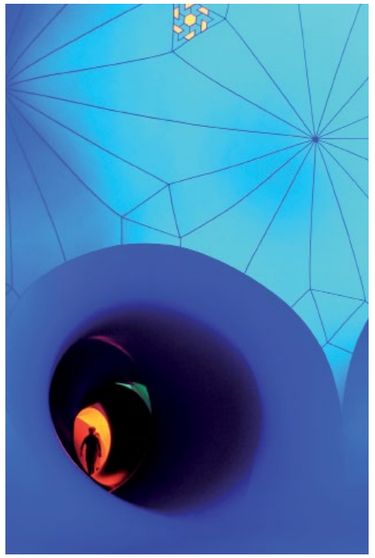
Amococo is quick and easy to erect. Laying out the structure, zipping the modular elements together and anchoring can take only 3 hours. In 30 minutes, using just the power required to operate two domestic electric kettles, the luminarium inflates to monumental size. The appearance of this ephemeral cathedral of air is a dramatic intervention in the everyday urban environment.

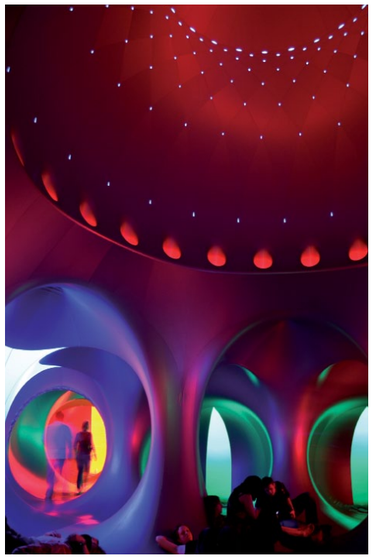












The luminaria are inspired by pure forms of geometry & nature, Islamic architecture and modern architectural innovators such as Buckminster Fuller and Frei Otto.
No two visits to the structure are alike as the atmosphere inside alters according to changing weather and changing light outside. The experience is also affected by how the public inhabit the luminarium.



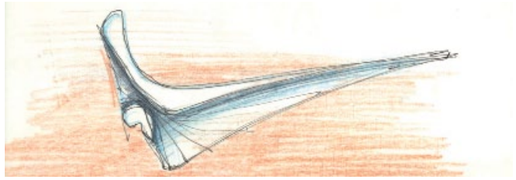
SNØHETTA AS
THE TUBALOON

The Tubaloon is a membrane structure designed by the Norwegian architecture firm Snøhetta to serve as the main stage at Scandinavia's reputable Kongsberg Jazz Festival. The annual musical event is one of the oldest and most highly regarded festivals of its kind in Europe and highlights cutting-edge acts from the international jazz world. Mounting of Tubaloon will recur annually for the three-week festival is then stored in standard containers for the rest of the year. The pneumatic tension membrane structure measures 20 m (65 ft) in height and approximately 40 m (130 ft) in length and seems poised to break away from the tethers which hold fast to its historic site and drift skyward. Its geometry is suggestive of natural acoustic forms such as musical wind instruments and geometries of the inner ear.

The design brief called for a construction that was easy to erect and that could withstand the abuse of repeated deployment. White Ferrari PVDF coated PVC fabric was chosen for its durability and responsiveness to effects from lighting. The structure type is hybrid, combining 1m (3 ft) diameter pneumatic perimeter tubes with an hour-glass-shaped tension membrane. The decision to support the membrane with a skeleton of 400 mm (16 in) diameter curved galvanized steel tubing was driven by handling logistics: the 5 m (16 ft) long tube sections being the ideal module for container storage, transport and rapid assembly. All foundation points are concealed by discrete utility covers when the Tubaloon is not standing.

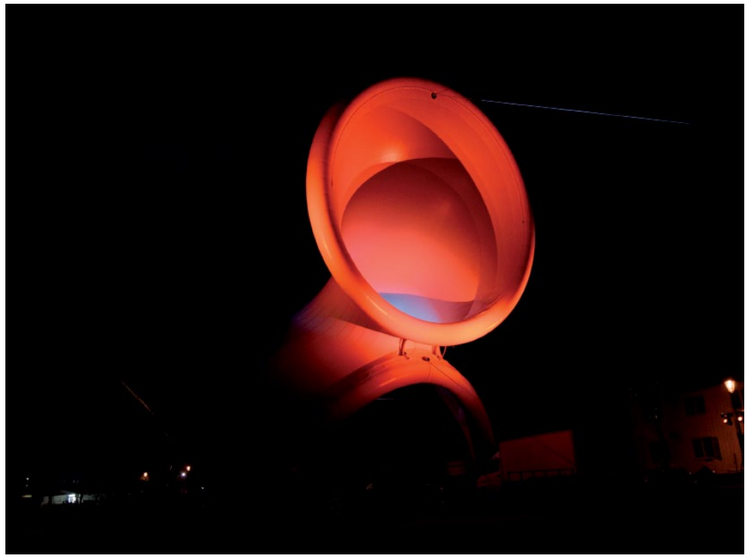
Acoustically, the Tubaloon is a dynamic and tunable venue. The form provides a classic clamshell-like shaping over the audience to keep quiet performances intimate while the PVC fabric construction is nearly transparent to sound during amplified performances. The low profile to amplification means that the performances can be controlled simply through the sound mix. An element of chance is introduced by the horn-like opening above the stage. Its orations are encouraged to exit unpredictably out into the surrounding townscape.

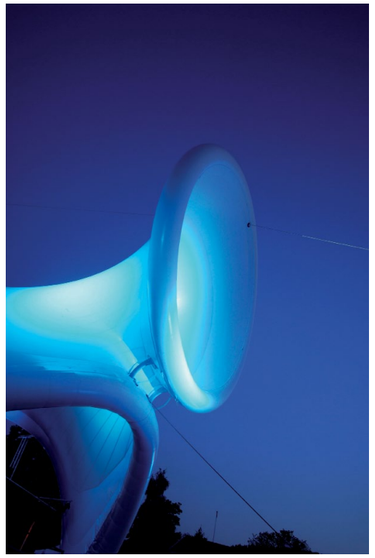
Architect: Snøhetta AS
Architect responsible: Joshua Teas
Interior architect responsible: Heidi Pettersvold
Landscape architect responsible: Jenny Osuldsen
Structural engineer: Airlight SA
Membrane patterning: FormTL, Radolfzell
Manufacturer: Canobbio SPA
Client: Kongsberg Jazzscener AS
Location: Kongsberg, Norway
Photographs: Jan Erik Langnes, Robert Sannes

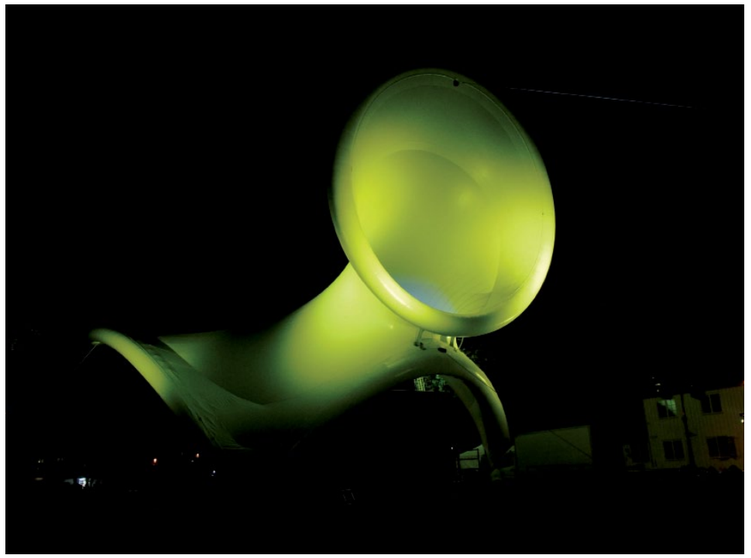




The combination of pneumatics with a tension membrane structure has afforded the Tubaloon a uniquely unified structure. Typical tension membrane systems have external support frames. By contrast, the Tubaloon structure is internalized. The skeleton is dependent on both the pneumatics and the membrane for support in much the same way that the bones of our body are dependent on tendons and skin for their stability. The hybrid structure results in a form that is more voluminous and shapely and it gives the impression that the Tubaloon is a complete biological organism rather than just a skin.









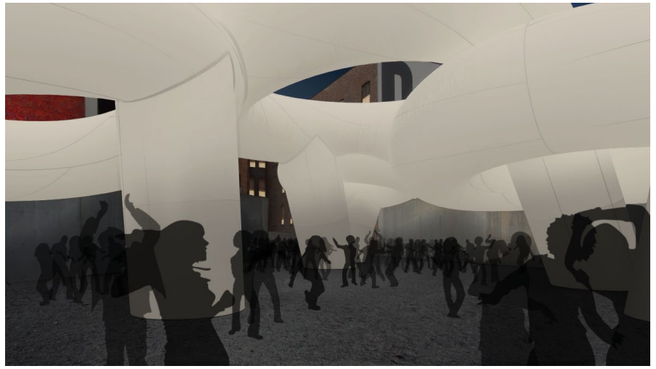
BSC ARCHITECTURE

PS1: SUMMER BLOW UP

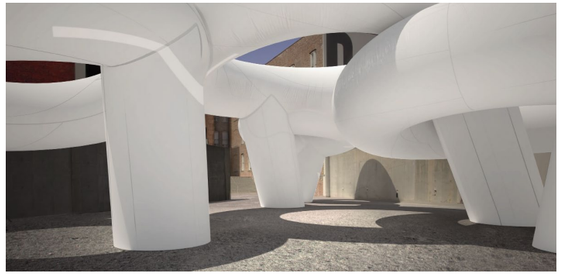
For more than a decade, the annual MoMA/P.S.1 Young Architects Program has challenged emerging architecture firms to temporarily remake the P.S. 1 courtyard within strict limits of time and budget, serving as a kind of stress-test of the state of contemporary architectural practice.
PSi: Summer Blow Up was BSC Architecture's entry which transforms the environment of the existing courtyard using an absolute economy of physical material: less material deployed means less mass transported to the site; less material discarded at the end of the summer and a minimum of resources consumed in the processes of manufacturing, fabrication and removal.
Beginning with the ideal of a cloud, the lightest and most economical source of summer shade, PSi uses air as a structural medium to inflate and suspend diaphanous volumes of ultra-lightweight fabric over the concrete and gravel courtyard. The geometric form of the torus, a perfectly efficient pneumatic shape, provides the basic unit that is repeated, interlinked and modulated to form a hovering cloud. As with a true cloud, microclimates of shade and sun; humidity and dryness are created. Patterns of overlapping shadows animate the hard surfaces of the courtyard, providing respite from the sun on a hot day while apertures in the centers of the translucent toruses, like gaps in passing clouds, frame views of the sky above. Widely varying in size and height, the toruses are subtly deformed by internal pressure in response to the various activities of the shady space below: reclining, splashing, sunbathing and chatting. Concealed strips of clear material sewn into the fabric activate the glowing volumes of the inflatable with slowly moving arcs of sunlight.

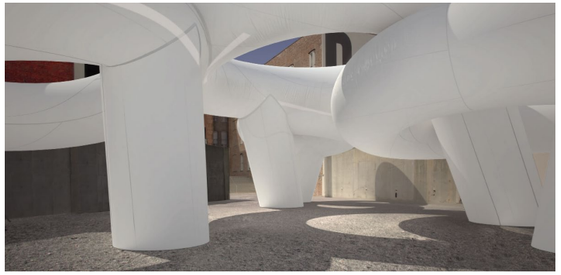
Design: BSC Architecture
Project team: Timothy Bade, Jane Stageberg, Martin Cox, Andrew Skey, Caiomhin Conway, Eleni Petaloti, Leonidas Trampoukis, Laura Messier, Erin Bartling
Inflatable engineering: Nick Crosbie & Ron Howell, Inflate
Lighting design: Richard Renfro, Renfro Design Group, Inc.
Sustainability consultant: Christopher Diamond, Steven Winter Associates, Inc.
Water feature: Dan Euser, Dan Euser Water Architecture Inc.
Location: New York, USA
Photographs: Contributed by BSC Architecture





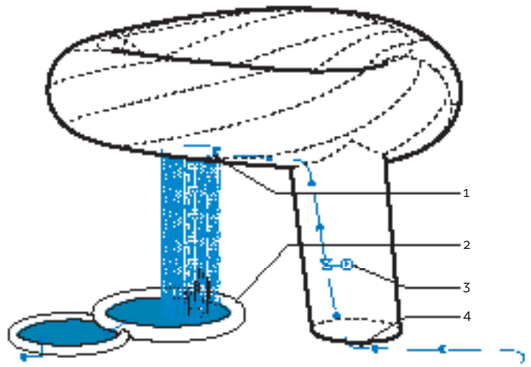






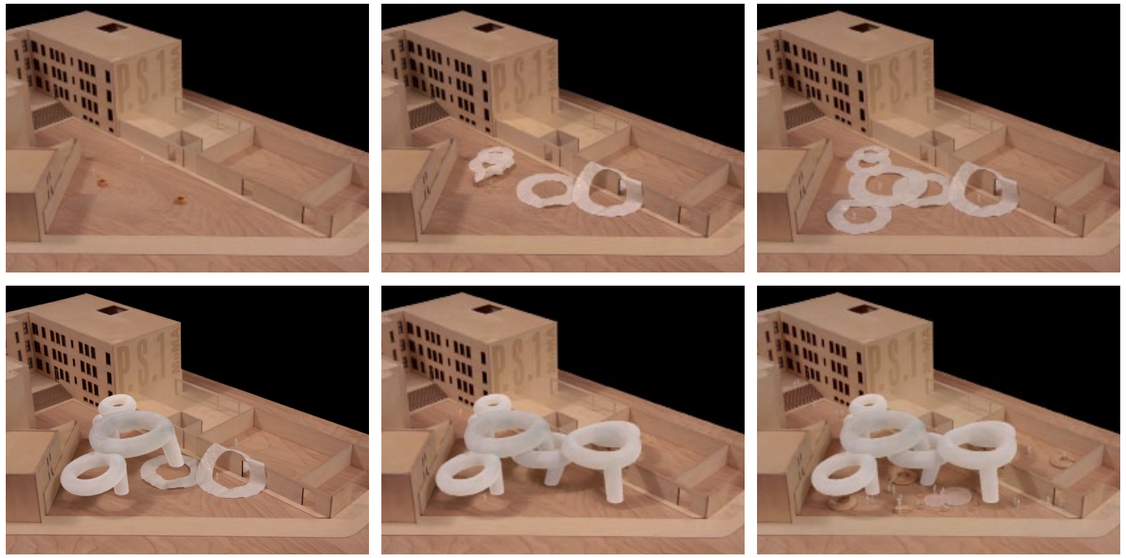


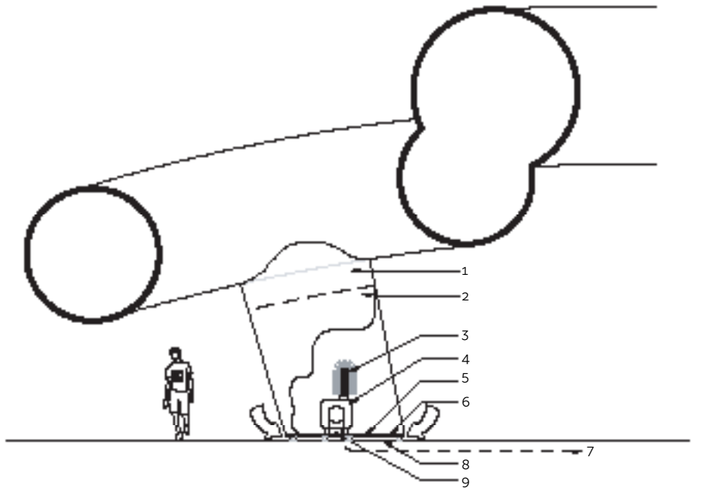




1. Circular tube with drip watering fittings
2. Prefabricated inflatable pool
3. Timer valve
4. Hosepipe (embedded in paving)

In contrast to past installations, PSi can be prefabricated offsite and installed in a matter of hours. Contemporary fabric cutting and assembly technologies allow for the direct use of the architects' digital files in the fabrication process. In its entirety, the material and equipment necessary for the installation weighs less than a ton and amounts to a single load on a pickup truck. Field labor is minimized, no scaffolding is required and waste is negligible. For the duration of the installation the small amount of energy necessary to power the fans is offset by electricity generated by air, in the form of wind, at a site in upstate New York. Finally, in a departure from past approaches, the project is designed to be easily redeployable, and will have a life beyond the summer of the exhibition.





1. 200 GSM ripstop nylon
2. 800 GSM abuse-resistant reinforced PVC fabric below 8'aff
3. Noise silencer
4. Blower
5. Ballast
6. Platform
7. Trench to power outlet
8. 4" × 4" blocking
9. Air intake with filter

MONIKA GORA
A LIGHT DROP

A drop of light is an action, an event and a physical place.
It is a large soft warmly glowing form, an inner landscape of light, a place where you enclosed in a delicate shell is embraced by daylight. It is a replica of the summer in the middle of autumn darkness, an action that challenges the seasons and a pursuit to compensate the hours of light that irreversibly disappears.
During the two months that the exhibition will be held the days in Stockholm will become almost 6 hours shorter. The light hours of the day will go from 14 hours and 39 min to 8 hours and 50 min. The retreat of the light during the two months is a grim fact and an illustration of the geographical position of the city as well as the cyclical change from light to dark. From late summer to deep autumn, from summertime to wintertime, from open to the closed, from soft to hard, from warm to cold.
In a true modernistic sprit Man whishes to challenge the dark and change the conditions of life, change night to day, mitigate the change of seasons, and keep the winter sleep away by lightning houses and the streets of the city. And there is a lot of light; so much that satellite photos even at night time can be read as maps but still the light and lamps of the city as well as the sun therapy provided by the hospitals are insufficient. They lack the intensity of the summer sun, its sensuality and its warmth. People feel a loss of the experience of the landscape of summer. We miss the sunbeams of from summer sun on our skin; we feel a loss of the light space.

Design: Monika Gora
Modeling: Claes Lundstrom
Production: Gransegel
Location: Stockholm, Sweden
Photographs: Contributed by Monika Gora









RAUMLABOR
SPACEBUSTER

The Spacebuster was developed and designed to explore public space in New York City. As a research tool it acts as a transformer of the city's architectural and social space, i.e., the urban space.
The Spacebuster consists of a van and a large inflatable space that expands out of the back of the van and which can fit up to 80 people inside. People enter the bubble through the van's passenger door and walk through to the back and down a ramp directly into the inflated space. The bubble is supported by air pressure generated by a fan underneath the ramp. The membrane of the bubble is translucent so people on the inside can see schematically what's going on outside and vice versa.
Projections onto the membrane can be viewed from the outside as well as from the inside of the space. Depending on the program occurring within the Spacebuster, the space is furnished with desks, chairs, or dinner tables in different layouts. As the flexible structure of the bubble can adjust to the surroundings, it squeezes underneath a bridge, wraps around a tree or casts the pattern of a fence or the profile of a façade.
Travelling through Manhattan and Brooklyn on nine consecutive evenings, the Spacebuster hosted various events that emerged out of cooperative efforts between Raumlabor Berlin, the Storefront for Art and Architecture and different local art institutions, non-profit organizations and communities. The mixing of more formal formats such as workshops, lectures, screenings etc. with easily accessible everyday programs such as dinners, bar gatherings and parties, created a distinctive atmosphere in the space as well as the visual momentum for the viewing public outside. For instance, there were workshops about the development of a public area held within the Spacebuster on the spot where further development was supposed to take place. Thus the questions discussed and the developments projected were catalyzed by the pathos of the real.

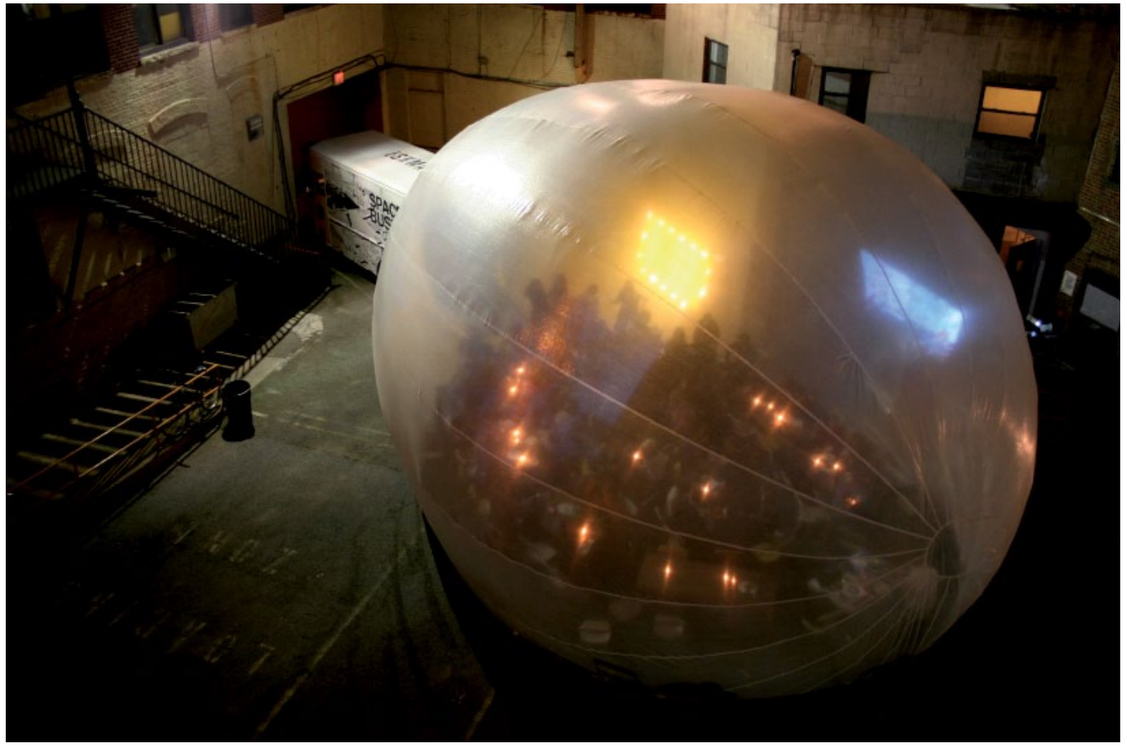
Design: Raumlabor
Client: Storefront for Art and Architecture
Location: New York City, NY, USA
Photographs: Contributed by Raumlabor









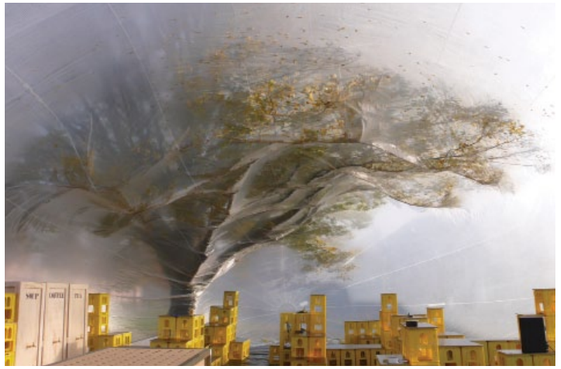


RAUMLABOR

THE KITCHEN MONUMENT

The Kitchen Monument is a prototype, which has been designed to construct temporary communities. It investigates emotional anchoring spots within cities, in public places; the spheres of interaction between city dwellers and city users.
This mobile sculpture consists of two elements. The first element is a box, encased in anodized sheet steel and lined internally with gray felt. It contains a wardrobe, a reception area and storage space. The box houses a pneumatic structure and the technology needed to inflate it and also functions as the entrance to the bubble. It measures approximately 3 × 2 × 3 m (10 × 6.5 × 10 ft).
The second element is a pneumatic spatial shell that expands out of the box. The bubble is made of translucent, reinforced polyethylene laminate and measures 20 m (65 ft) long, 12 m (39 ft) wide and 6 m (20 ft) high.
A ramp made of steel grating serves as a bridge between the box and the bubble, while a fan located under the grating inflates the bubble and continually provides it with air. The box, in turn, simultaneously functions as a pressure gage and relief vent.
The idea of the Kitchen Monument is for it to travel to different locations. It stops at places which are considered to have underestimated potential, so-called non-spaces or un-spaces; spaces that seem to have forfeited their urban functions.
The bubble nestles itself into whatever is already there, its transparency allowing dialogue to occur between inside and outside; everything blurs together, but nonetheless remains visible. It creates a new, usable environment within existing space, allowing novel qualities to emerge.
The Trojan horse is the metaphor used by the designers to describe how the monument creates urban identity. The mobile sculpture transports identity into the public sphere, enabling people to actively co-create it. The monument is a tool for recapturing public space.
The challenge of this project was to use the monument to generate social space, inspire public space to be used and personalized and reflect the communities and identities of different neighborhoods. This was done through the insertion of a communal kitchen into the bubble. The kitchen, it was decided, is a place that has the potential to reflect urban identities as well as cultural peculiarities and traditions. People sit together, yet apart, in the kitchen. If someone is invited to come for a visit, a common meal represents the host's openness and hospitality. The kitchen is the ideal place in which to blend private and public environments.

Design: Raumlabor
Project team: Jan Liesegang, Matthias Rick
Collaborator: Plastique Fantastique
Location: Berlin, Germany
Photographs: Canevacci, Michael Meier, Matthias Rick









The Kitchen Monument is a mobile sculpture, which has two states of being. The zinc sheet-clad sculpture can be extended into public space by a pneumatic spatial mantle that transforms it into a temporary collective space.





The monument can be used to stage a host of different programs. Its broad spectrum of uses includes a banquet hall, conference room, cinema, concert hall, ballroom, dormitory, boxing arena and steam bath.











RAUMLABOR
HOVERCRAFT

The Fondation Suisse is a university of residence for students designed by the renowned Swiss-French architect, designer and urbanist Le Corbusier in the early 1930s. The architect is famous for what is now known as Modern architecture or the International Style, so the Fondation's choice of architects for this installation, which was to mark the building's 75th anniversary, was particularly fitting.
Raumlabor is a studio of contemporary architecture and urbanism based in Berlin, which specializes in research into strategies that renew urban space.
The Fondation asked Raumlabor to find a temporary solution to a reoccurring problem. Although the building is excellently designed for its purpose as a residence, as times have changed and student life has increasingly taken on a significant recreational aspect, the Fondation Suisse has seen itself lacking a suitable space for student festivities.
A terrace known as the 'piloti', which runs right the way around the foot of the building, is ideal for this purpose in the summer, however the anniversary celebrations were to take place in November, when it is too cold to be outside in Paris for long.
Raumlabor's daring proposal was to wrap the foot of the building, i.e. the entire Piloti, with an inflatable, translucent membrane.
The aim of the additional structure, aptly named Hovercraft, was to convert the already semi-public outdoor space into a semi-private extension of the building's ground floor. During the day ample natural light penetrated the transparent walls, while at night the space lit up with neon lights and was brought to life with silhouettes of dancing students.
The inflatable hall was used for the duration of the celebrations, which lasted for three days, and successfully hosted concerts, speeches, dinners, a conference and a party.

Design: Raumlabor
Project team: Benjamin Foerster-Baldenius, Matthias Rick
Collaborators: Urs Meier, Luft und Laune, Florian Stirnemann
Client: Fondation Suisse
Location: Paris, France
Photographs: Contributed by Raumlabor





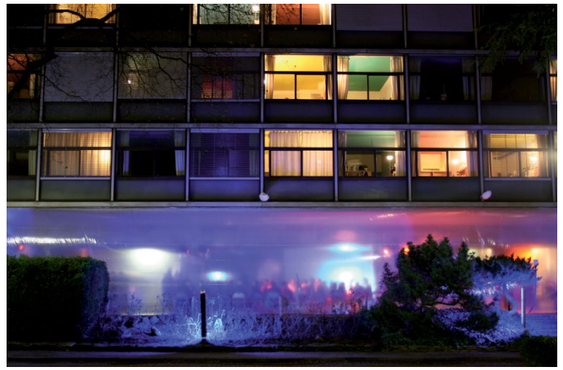
Hovercraft created a space that blurred the boundaries between indoors and outdoors. At a time of year when it would be too cold for outdoor celebrations in Paris, this installation established a fascinating interior-exterior environment that was ideal for the occasion.







The inflatable, transparent membrane hugged the semi-public ground floor terrace of the Fondation Suisse, recreating the space as a semi-private environment, in which to hold concerts, speeches, dinners, a conference and a party.





RAUMLABOR

BALKONBIENNALE

The Landestheater is the best-known and oldest theatre in Salzburg, dating back to the end of the 19th century. It lies in the heart of Salzburg's old town. Raumlabor were commissioned by the theatre to create an installation on the balcony overlooking the street, which would revitalize the façade of the building and present and image of innovation and modernity; something that would reflect the society we live in.

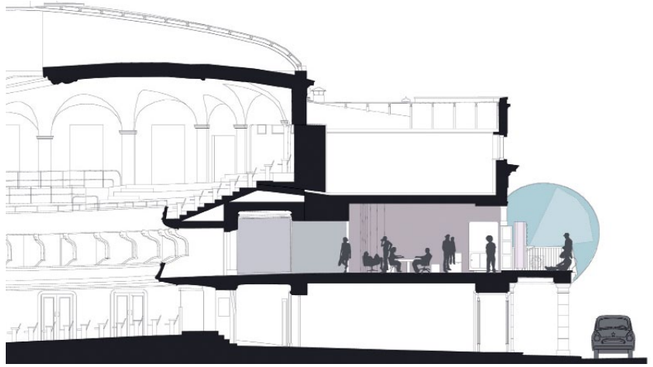
The East Berlin-based studio is run by a group of young architects who specialize in contemporary architecture and design projects that seek strategies to transform and renew urban space. The results produce aesthetics that delight and surprise those who experience them.

The team converted the balcony of the Salzburger Landestheater into an extension of the "smokers' foyer", by way of an enormous bubble that seems to grow organically from the side of the building. It has been attached to just below the foot of the balustrade at the bottom and then above the opening that leads to the foyer at the top, thereby encompassing the entire space. During the day the light-filled space remains warm even in the colder seasons, due to the heat gain from both the sun and the interior of the theatre. At night the whole bubble lights up, revealing the silhouettes of those inside and creating a mysterious and alluring aesthetic.

Due to the dimensions of the balcony – 14 × 3 m (45 × 10 ft) – the space can be used to host an array of different activities, such as readings, cinema, concerts, dancing or even for holding casino nights. Also, since the bubble is translucent, it can be easily adapted for projections from the building's interior or indeed from outside.

The end result of Raumlabor's fascinating installation is both an original, additional room for the theatre and a new, temporary landmark for the city of Salzburg. Boldly standing out from the restrained architecture of the city center, the bubble presents the theatre as a place for everyone, the young and the old; somewhere that is not afraid to experiment. In short, it showcases the Landestheater as a living theatre.

Design: Raumlabor
Project director: Jan Liesegang
Project team: Maria Garcia Perez, Manfred Eccli, Christoph Franz, Andreas Krauth
Client: Salzburger Landestheater
Location: Salzburg, Austria
Photographs: Contributed by Raumlabor





VORA ARQUITECTURA
THE ANIMAC BUBBLE

This pneumatic pavilion was designed by the vora arquitectura studio for the ANIMAC international animated films festival celebrated in Lérida, Spain, in 2006. Situated during the six days of the festival in the central square of the city, the pavilion served as an information point by day and to host events for the participants of the festival by night. The bubble membrane was made of two layers of transparent PVC – a flexible, strong, and economical material – with a mesh laminated between them, which served to improve the local strength of the membrane allowing the seams to be sewn and reduced the transparency of the membrane enabling the exterior surfaces to be used for projections at night.

Since the bubble was supported by positive internal air pressure, the detailing of the entrances and the bottom of the membrane was important. The entrances were designed as vertical lips which were maintained closed by the pressure of the air. To resolve the junction of the membrane with the floor, a perimeter bench was created from a tube of the same PVC material filled with sand bags and fabric off-cuts. Thus the bench served as ballast for the structure whilst also marking the limit of the floor space and providing seating. Second hand floor-standing lamps defined different zones within the bubble and at night gave the structure a different scale, illuminating its form from within.

Design: vora arquitectura (Jordi Fornells)
Promoter: IMAC, Institut Municipal d'Accio Cultural - Ajuntament de Lleida
Sponsors: Point.P Materials de Construcció – Comercial Urgell,
Medilast sport, Calcetines técnicos
Production: Decapacap
Construction: Tecnodimensión
Colaborator: Leonardo Paiella, architect
Photographs: Jordi Fornells












espai
joc
la pupusa



PLASTIQUE FANTASTIQUE
MODERNA MUSEET

Three months before the grand inauguration in December, Moderna Museet Malmö will arrange its first public event. As a part of Gallerinatten on September 26 we give you an opportunity to mingle in a large-scale plastic bubble outside the museum- in the middle of the ongoing building process. The plastic bubble that will be placed on the street outside of the museum is a spectacular architectural structure and an experience in itself, designed and manufactured by Plastique Fantastique. Friends of Moderna Museet will be in place ready to sign memberships and there will be plenty of information about the new museum. In one part of the plastic bubble, where it has entered the building, the video Speech Bubble by American artist Adam Leech will be shown.





Design: Plastique Fantastique
Location: Malmö, Sweden
Photographs: Marco Canevacci, Markus Wüste







PLASTIQUE FANTASTIQUE
MEDUSA

The pneumatic structure Medusa has been designed to provide the main venue for the five day festival Flippat, organized by the City of Malmö for young people. The Medusa is a mobile sculpture that engages with the subjects of privacy and publicity, as well as with the mutation, utilization and function of urban space. Throughout the course of Flippat, the Medusa is placed in Gustav Adolfs Torg, downtown Malmö.

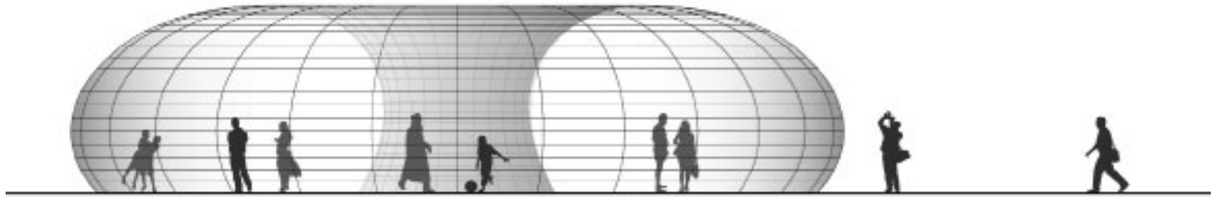
As a stranger it occupies and disturbs habitual relationships and connections. Generally this kind of installation has the possibility to adapt itself to the different environments and context, even including features of the landscape (i.e. a tree, a column etc.) inside its middle-core the Medusa structure is blending with its surroundings.

Design: Plastique Fantastique
Location: Gustav Adolfs Torg, Malmö, Sweden
Photographs: Marco Canevacci, Markus Wüste

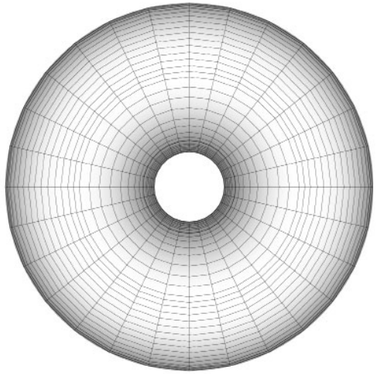


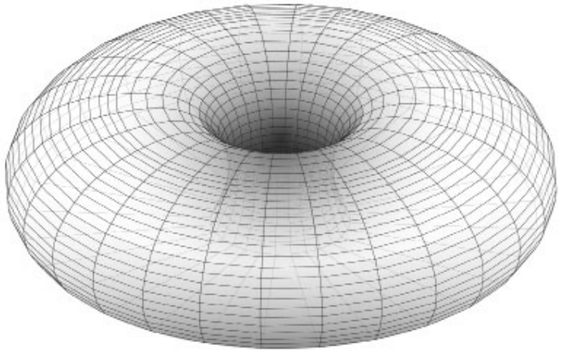













H&M

PLASTIQUE FANTASTIQUE
RETTUNGSRING

The Rettungsring is designed as an experimental feature: it is an attempt to built a floating structure – to bring together the two elements of air and water. The Odyspree 2010 - a creative storytelling boat trip - is a live performance, initiated by treibhaus 08. On the 'Island of Youth' in Berlin Treptow, plastique fantastique dropped his Rettungsring (lifebuoy) and placed it around a tree. The red and white sculpture semi-floated on the Spree River. It was widely visible as the "redeeming shore sign" for the "Spree-Odyssee voyagers". Once inside of the structure, the visitors enjoyed the full experience of walking, sitting and relaxing on the water.

Design: Plastique Fantastique
Location: Berlin, Germany
Photographs: Marco Canevacci





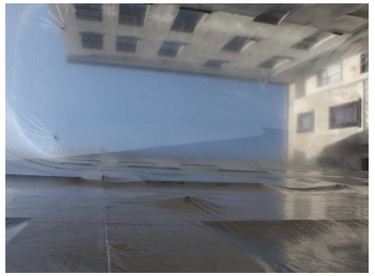




PLASTIQUE FANTASTIQUE & ARCHITETTURA SONORA

SPACE INVADERS

An empty house in Berlin Mitte - Torstrasse 166 - is tackled. Pressure and sound waves inflate the existing air to new volumes. New cores develop themselves around the pneumatic covers – creating extra rooms that are accessible or intangible. These newly yielded rooms become catalysers for emotions, overlapping, shifting, and at last exaggerating the existent tracks and contained structures.



Design: Plastique Fantastique & Architettura Sonora
Location: Berlin, Germany
Photographs: Marco Canevacci, Max Merz, Markus Wüste











MATSYS

ENDLESS OCEAN
ENDLESS SKY SET DESIGN

Established in 2004 by San Francisco-based architect Andrew Kudless, Matsys is a design studio that explores the emergent relationships between architecture, engineering, biology, and computation. Based on the idea that architecture can be understood as a material body with its own intrinsic and extrinsic forces relating to form, growth, and behavior, the studio investigates methodologies of performative integration through geometric and material differentiation.
Tahni Holt, a young, emerging talent in dance choreography, commissioned Matsys to design and build the set for her latest performance, Endless Ocean Endless Sky, a piece which attempts to transport viewers into the realm of the infinite through dance, light, sound and architecture.
The singular set was designed in response to several design criteria relating to both the evocation of the choreographic aesthetic and the limits of financial and logistical constraints. From the very beginning of the design phase, the designers were looking to create a minimal set that could be built and transported easily and that was also able to create an evocative and mutable space for both the performers and audience. One of the original aspects of the performance, which needed to be reflected in the set, was that the audience would be restricted to just ten people – who would share the structure with the dancers. This meant designing a particularly personal set, although large enough to accommodate everyone, where viewers would feel like they were participating in the performance; a concept that forms part of Tahni Holt's unique dance philosophy.
The concept for the design relied heavily on the work of Ant Farm, a group of architects from the 60s and 70s who produced experimental works on the fringe of architecture. Inspired particularly by the group's inflatable constructions from the 1970s, Kudless created a small 6 x 12 m (20 x 40 ft) space, made using standard polyethylene. Additional seams and creases were welded into the plastic in order to avoid the typical balloon aesthetic normally generated by inflatable structures. Rather, there was a desire for the installation to be able to evoke both things that were simultaneously heavy and light (massive icebergs floating in the sea, 747's flying through the sky, etc.).
A generative algorithm was developed that would allow a fragmented pattern of creases to emerge on the surface without having to laboriously transcribe a predefined pattern on to the surface.

Design: Matsys, Andrew Kudless
Collaborators: Ronnie Parsons, Chris Walker
Client: Tahni Holt
Location: Portland, Oregon, USA
Performance photographs: Joel Thorson
Fabrication photographs: Matsys



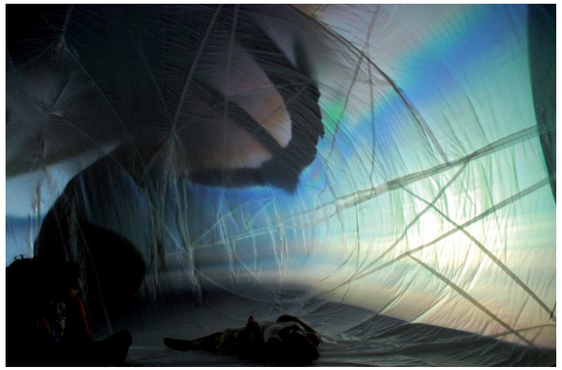


The installation, created from welding sections of standard polyethylene together, was designed to simultaneously evoke light and heaviness. It is both an iceberg floating across the ocean and a cloud in the sky.













ROMAIN BRENAS & RÉMY CASTEU

THE BONNET D'ÂNE

The aim of this project by French architects Romain Brenas & Rémy Casteu was to design a structure that could be used as a mid-term shelter for homeless people, or as emergency shelters following crises or natural disasters. The Bonnet d'Âne, as it was dubbed, therefore needed to be hardwearing, relatively economical and easy to produce. The structures are filled with air and can be inflated in around two hours with the aid of an electric pump. The idea of the shelters is that the air pressure inside is kept high and maintained within an envelope that is not entirely hermetic. Deliberately incorporated air outlets then allow the air to leak from the structure, while the electric pump ensures that sufficient air maintains a minimum level of rigidity. This also allows the air inside to be constantly renewed and to remain fresh. The high air pressure is undetectable by those inside the structure and totally harmless. The material used is industrial strength, transparent polythene, which means the structure acts as a greenhouse and heats up extremely quickly when in direct sunlight. Overheating is avoided thanks to the constantly renewed air supply that gives the Bonnet d'Âne its solid shape. In order to fabricate one structure a piece of industrial polythene measuring just 25 m (82 ft) long by 6 m (20 ft) wide is needed, as well as plenty of adhesive, something to cut with, a pump and sand for the ballast. Users could make their own, although the shape – a half cushion – has been chosen as this is one of the easiest to produce on a large scale.

Design: Romain Brenas & Rémy Casteu
Photographs: Contributed by Romain Brenas & Rémy Casteu













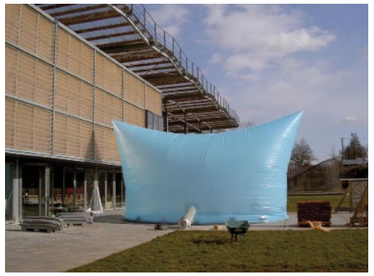




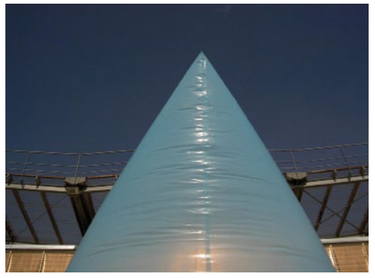
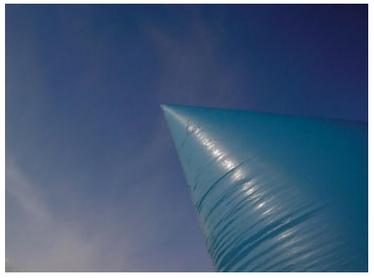






The Bonnet d'Âne has been designed as a shelter that can be easily fabricated without special skills and with relatively cheap materials. It is aimed at homeless people or for those who are made homeless from situations such as natural disasters.



PETER TOLKIN ARCHITECTS
DUNNAGE PERMUTATIONS

For this unusual structure, Californian architecture studio Peter Tolkin Architects (PTA) made use of air-filled pouches known as dunnage bags, which are used in the shipping industry to stabilize, secure and protect cargo during transit. The architects took full advantage of the characteristics that these elements offer: not only are the dunnage bags simple to inflate and assemble, but they are also flexible enough to adapt their size and geometry to a variety of locations.
PTA's research into the form-making possibilities of dunnage bags has resulted in the creation of different geometric permutations for various sites and events. The first prototype was built and tested in the PTA studio courtyard with great success. The structure consisted of a 6.7 m (22 ft) diameter icosahedron – a regular polyhedron with 20 identical equilateral triangular faces – made of 30 dunnage bags, and cast a magnetic attraction over adults and children alike.
People are invited to interact with and explore the ephemeral structures, whether they are inclined to sit, lounge, or bounce in them. The constructions have a great deal of versatility regarding their use and have been featured at the studio open house party, an interactive lucha libre (Mexican wrestling) demonstration, and the inaugural Glow art festival at the Santa Monica pier, where Dunnage Permutations was installed on the beach.

Design: Peter Tolkin Architects
Location: Pasadena and Santa Monica, California, USA
Photographs: Peter Tolkin Architects









CENTRALA
RED BULL ROOM

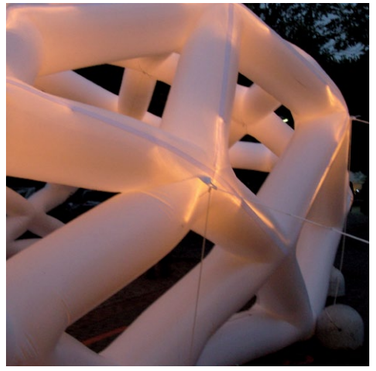
Centrala does not consider itself to be a company but rather a platform where individual quests converge around common goals; a collective consisting of as many people as a task requires. The core architects undertake actions on many scales ranging from graphics and everyday objects to furniture, urban objects, interiors, houses, office buildings as well as districts or agglomerations. Being of an experimental nature, their work often remains in their Warsaw-based studio but will often feature eventually in other projects.

This installation was commissioned by Red Bull, and aimed at helping to establish the energy drink producer as a contemporary art sponsor during the Museum Night, a night when museums and art galleries throughout Europe open their doors for nocturnal visitors. The inflatable structure was situated at the entrance to Warsaw's Ujazdowski Castle, the city's vibrant center of contemporary art, and served as a grand and modern gate into the building.

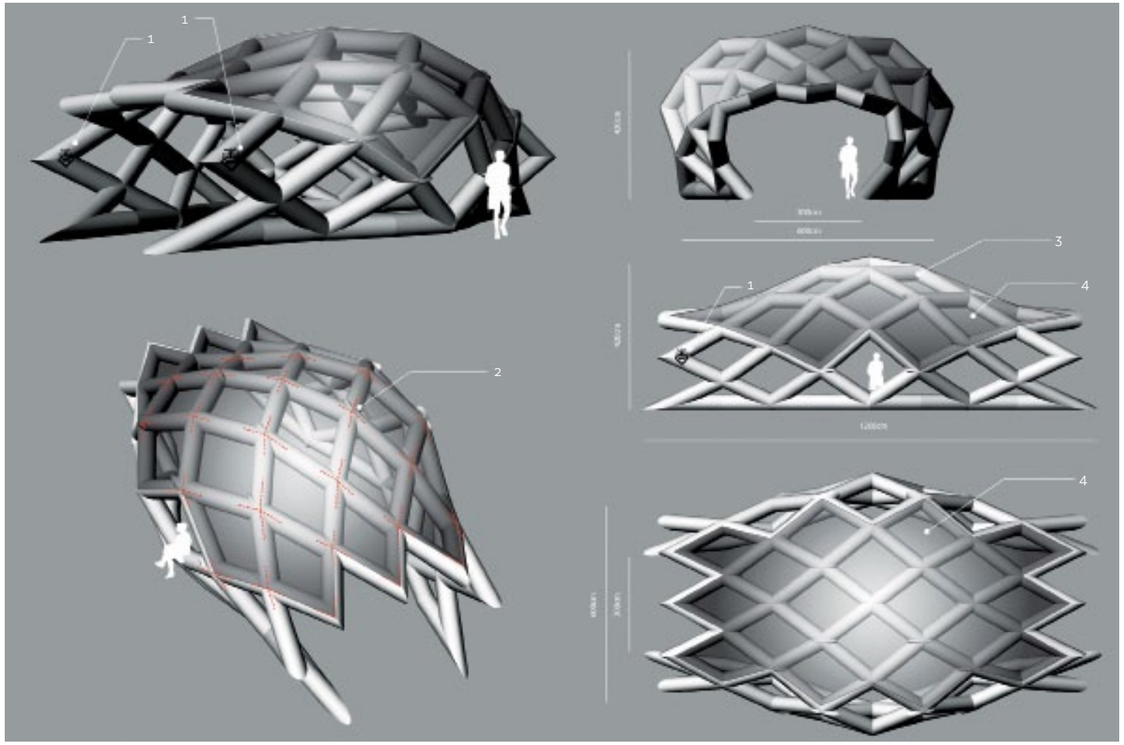
Centrala were only given five weeks to plan and produce the installation, which led the team to opt for using balloon technology. The material is much more light weight than almost any other construction material – the majority after all is air – and the team was able to simply transport it to the site deflated, position it and then inflate.

The form draws heavily on the plastic nets often used for storing fruit, such as oranges. On approach it appears as a futuristic cave, whose warm glow lures people inside. The tubular structure of the installation creates spaces in the surface which if necessary can be covered using transparent plastic sheets. This converts the space into a cozy, rain-resistant art pavilion. LED tube lighting was inserted into the arms of the structure, which allowed the whole thing to glow and highlighted the Red Bull logo that was printed in black onto the material. The lighting transformed the space into an unmissable landmark, which enticed and guided visitors towards the entrance of the art center. Furthermore, it contrasted with and complemented the formal appearance of the Ujazdowski Castle.

Designer: Jakub Szczęsny
Curator: Kaja Pawełek
Production: TENT Balony
Client: Red Bull
Location: Warsaw, Poland
Date: May 2009
Photographs: Paweł Fabiański





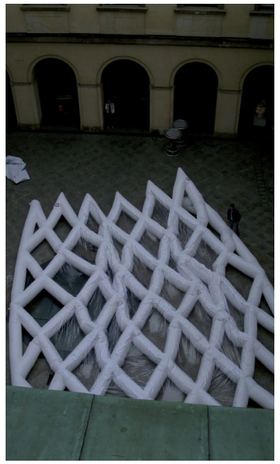


1. Logo
2. LED tube lighting
3. Inflatable tubular structure
4. Transparent plastic sheets













RYUMEI FUJIKI
AQUA-SCAPE

Ryumei (Takaaki) Fujiki's work focuses on experimental, organic architecture, characteristics that can be found in this installation at the Echigo-Tsumari Exchange Center, a conference and trade center in the Japanese region of Tokamachi. The venue plays host to the Echigo-Tsumari art triennial, an event for local and international artists alike to display their creations.
In the building's central pool, surrounded by an open colonnade, there is a floating pavilion. As a reflection of Japanese culture today the installation, dubbed Aqua-Scape, is a mix of the old and the new, the traditional with the modern. The structure combines origami, the ancient Japanese craft of paper-folding, with state-of-the-art materials. Plastic sheets with a net structure of intertwined polyethylene fibers and sine-curve creases were folded and woven crosswise to create a three-dimensional object. The structure is held in place by tension strings – the same polyester used on the face of tennis rackets. The back side of the space is enclosed with a twin-wall polycarbonate sheet. Blue LED lights are integrated into the cocoon's skin.
Visitors could enter the cocoon to relax and soak up the apparent simplicity of this complex architecture. The interior of Aqua-Scape is like being in the belly of an animal. The different planes of plastic fit together to form angles and platforms that can be used to sit or lie on or hide behind. The structure is especially exciting at night when the blue glow produces a futuristic effect.

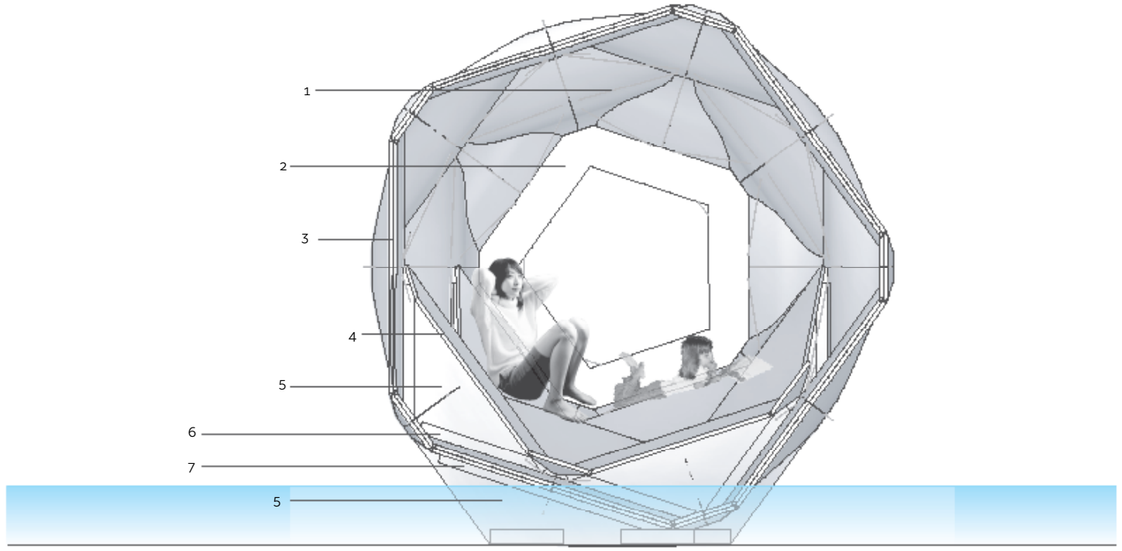
Design: Ryumei Fujiki + Fujiki Studio, KOU::ARC
Design Team: Ryumei Fujiki, Kazuhiro Yokote, Shigemi Shimizu, Kota Segawa, Akihisa Wakayama, Arata Saito, Takayuki Ishihara, Masahiro Hoshida, Hirotaka Suzuki, Takaaki Shinohara, Masahiko Sato, Yota Oyama, Kazunori Nakagawa, Yu Hagioita, Kanae Kawaguchi, Saori Takenawa, Naoki Sekiguchi, Naohiro Ogura, Kenta Ochiai, Noriko Yamaguchi, Aki Sakai, Kazunobu Shimura, Natsuko Takahashi, Tomomi Tsuchiya, Miyako Harimoto, Takehito Kusanagi, Yoshihito Tanahashi, Itta Nakamura, Shota Shimizu, Ken-Ichi Onozato, Takuma Ozawa, Kyoko Fujiwara, Hiroshi Ueda, Yukiko Sato
Location: Tokamachi-city, Niigata prefecture, Japan
Date: July 31th - September 10th, 2006
Photographs: Ryumei Fujiki





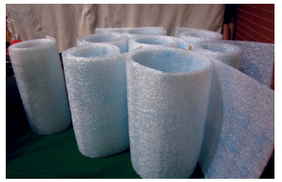


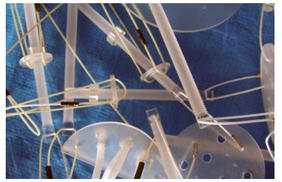




1. Tension member: polyester string for tennis racket
2. Opening stiffener: hollow polycarbonate sheet
3. Skin wall: polyethylene net-structual cushion
4. Floor: polyethylene net-structual cushion
5. Hollow polycarbonate sheet
6. FRP angle L - 75 × 75 × 4 × 4
7. FRP angle L - 50 × 50 × 4 × 4

















THOMAS HERZIG
INFLATABLE DOME

This inflatable dome is a construction composed of a number of 'Pneumocells'. These are inflatable elements, designed by Austrian designer Thomas Herzig, that can be swiftly assembled in a variety of forms using zippers to form complete structures of almost unlimited dimensions. Furthermore they can be just as easily separated back into their individual components. The cell connectors are watertight and in addition the air pockets are insulating and permeable to light. The system of connectors facilitates the addition of lighting elements, air conditioning, doorways and other types of fixtures if necessary.

The dome can be used for a wide range of applications: events, emergency housing, indoor swimming pools or even as semi-permanent bases for crisis organizations such as the Red Cross. Since it can be entirely transparent the dome blurs the boundaries between the interior and exterior, creating an open, outdoor environment for events and parties. It is also totally waterproof. Being incredibly lightweight in comparison to its wooden or concrete counterpart, the dome can be transported to almost any location. It can then be constructed within a matter of hours, with minimal energy consumption, and finally be taken down and away from the site leaving a patch of flat grass as its only footprint. The dome is thus also an ecologically friendly option.

The choice of the dome shape also implies a number of advantages. Firstly, there are no structural supports, such as columns, inside the enclosed space. This feature allows for total freedom in terms of the interior distribution of space, increasing the structure's use flexibility. Domes, because of their curved sides, act as excellent wind foils. Wind pressure is far less on this shape than against flat surfaces. This is particularly important when considering the lightweight nature of inflatable constructions. Together with the guy-ropes used to keep the dome in place, the shape ensures that the space is totally safe in outdoor environments, whatever the weather may be. Domes maximize surface area contact with the exterior and since this dome is totally transparent the inside benefits enormously from heat gain, if there is direct sun.

The interior is also flooded with natural light during the daytime. These aspects minimize energy consumption and further improve the value of the inflatable dome regarding its impact on the environment.

Design: Thomas Herzig
Location: Vienna, Austria
Photographs: Contributed by Messe AG and Thomas Herzig











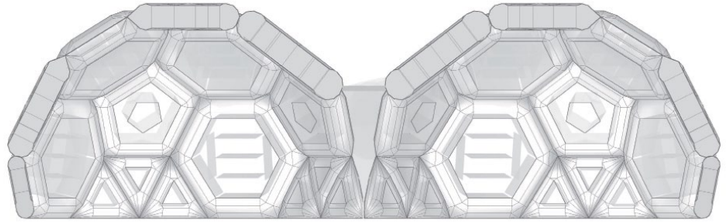








The dome shape implies a number of benefits. It is particularly resistant to wind forces, provides an interior space free of structural supports and maximizes contact with the exterior increasing the heat gain and natural light levels.









THOMAS HERZIG

SKYBRIDGE

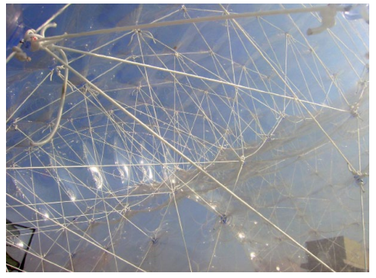
The Skybridge provides a possible solution to building large-scale, inflatable arches. Usually extremely big inflatable structures distort under asymmetrical pressure such as wind pressure, and the distortion severely diminishes the load bearing capacity. When the pneumatic construction is divided into a series of cells, which distributes the volume, the structures become more stable and less sensitive to pressure. Biologic cells utilize this principle, as do Herzig's pneumocells. Skybridge, however, has a slightly different design to most pneumocell structures. Constructions made of normal pneumocell assembly kits only work when the elements are assembled in a shell-like order. For large span arches, a different kind of geometry is required. Generally on large elements it is more efficient to keep the membrane free of static forces. The solution is a three-dimensional grid of ropes, analogous to a steel truss frame, where all tensile forces are absorbed by ropes, and the pressure forces are taken by air pressure. In theory, the achievable free span is unlimited by this method of construction.

The advantages to the Skybridge over traditional arch constructions are manifold. It is far lighter than a similar construction of the same size in concrete and steel and as such can be handled much more easily. For temporary situations, these characteristics make the Skybridge ideal. It can be transported using a single vehicle, deflated, and then inflated on site. Once inflated, if needed, its position can be altered without difficulty, in comparison to constructions using more standard materials.

The Skybridge can also be adjusted depending on the air pressure, which may change with fluctuations in the temperature. An electronic pressure sensor can detect any pressure fluctuations and automatically activate the blower to regulate the air pressure. Furthermore, the Skybridge stands by itself. There are no columns and no foundations. Instead, ropes attached to the sides anchor the structure to the site and ensure there is no movement.

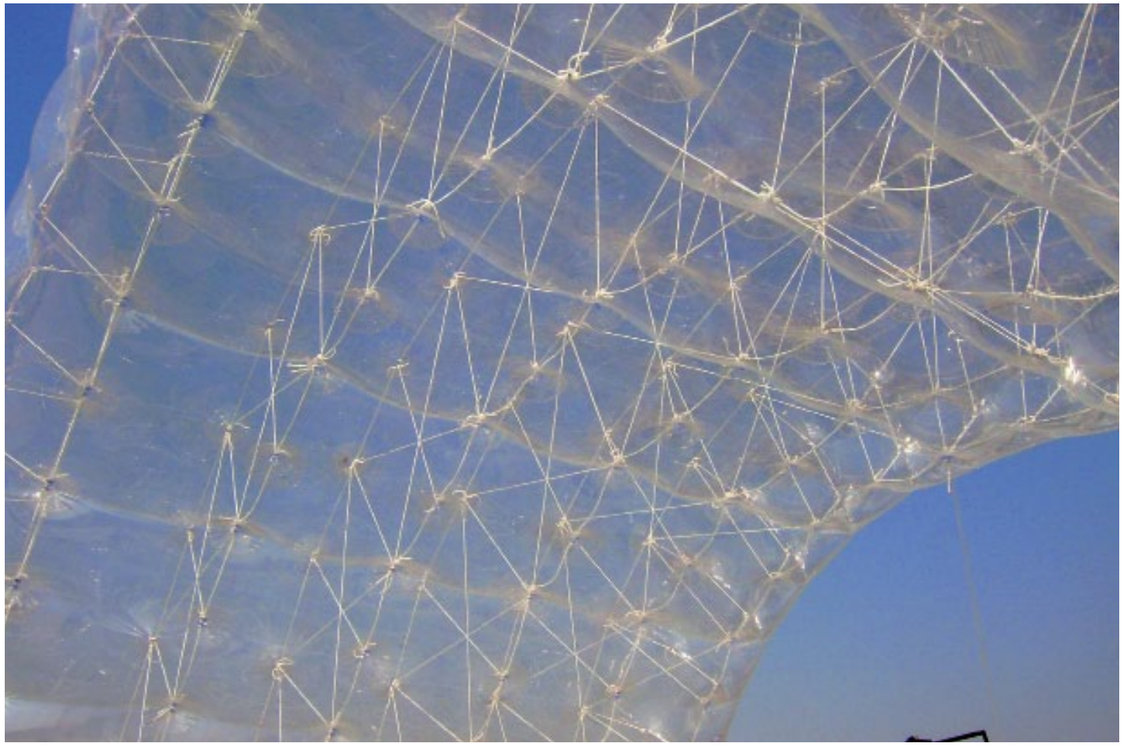
Design: Thomas Herzig
Location: Vienna, Austria
Photographs: Contributed by Thomas Herzig











MASS STUDIES
AIR FOREST

Denver Office of Cultural Affairs had hosted an event called Dialog:City, an arts and cultural event for the public, inspired on the occasion of the city of Denver hosting the National Democratic Convention 2008. The event invited 10 artists and architects to design or exhibit site-specific projects at various locations in the city, for the public to converge and spark dialog across the city through innovative cultural initiatives, during the period of 24th to 30th August. Mass Studies were invited to create a temporary public space to be utilized in a vast array of scheduled events (such as the Yoga Health Festival, a cocktail party for the convention, a high school play, Dialog:City closing party) as well as for the general public to enjoy.

The 56 m long, 25 m wide structure was composed of nine 4m-high hexagonal canopy units. These units were interconnected to form one large element, which was then inflated using 14 blowers that were located inside the base of its 35 columns. These columns were at 5 m spacings, and were weighed down by earth and lighting elements which were also inside the columns, which lit up at night, creating a nocturnal public space.

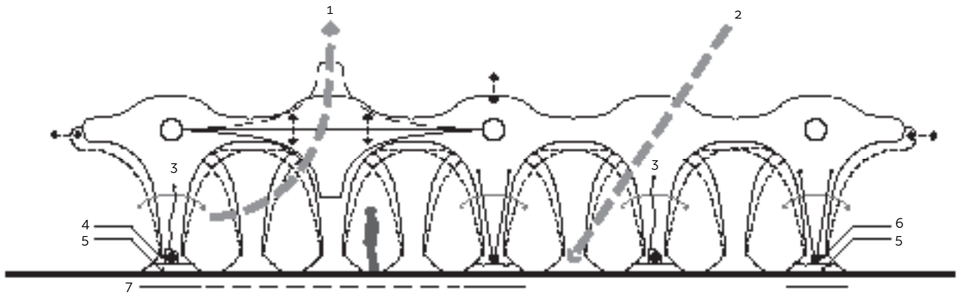
Each six of these pneumatic columns were connected to form a hexagonal unit with a circular opening inside. Of the nine hexagonal units, three of them were left open-air while the remaining six had vortex-shaped meshes hung from them, providing shaded areas for the public. The nylon fabric was coated with a gradient of silver dots, whose surface reflected the colors of the surrounding environment, as well as casting playful pixelated shadows on the people under the structure.

The Air Forest was situated on the western edge of Lake Ferril along its main axis. Being situated in one of two gaps in the ring of forest, this synthetic structure seemed to be bridge the gap and form a continuation of the forest.

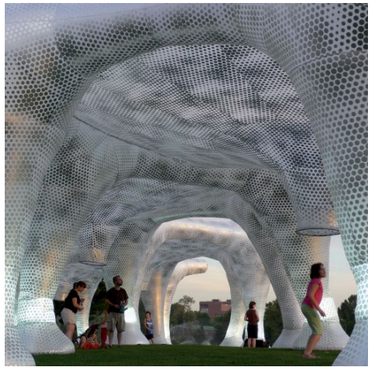
The structure also acted as a giant device to measure the site conditions. Not only did it sway gently in the wind, it also acted as a barometer, since the installation became structurally weaker (and thus more affected by the wind) as the air pressure dropped due to cooler weather or after sunset.

Architects: Mass Studies
Design Team: Minsuk Cho, Kisu Park (directors);
Joungwon Lee, Bumhyun Chun, Kyungmin Kwon, Sungpil Won
Client: Denver Office of Cultural Affairs
Location: City Park, Denver, Colorado, USA
Photographs: Sungpil Won





1. Wind
2. Sunlight
3. Air
4. Ventilator
5. Sand
6. Lighting
7. Shade











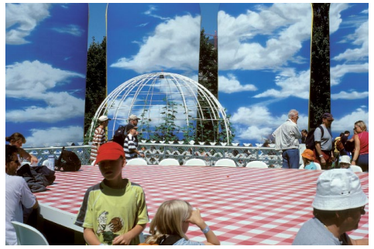


ANDRIN SCHWEIZER

MANNA

Manna was developed for the Arteplage exhibition in Neuchâtel (Switzerland) in 2002. The Pavilion addressed the theme of eating and drinking from a perspective between Bio and Design, and underlined the questions of nourishment in our consumer society and the contradictory nature of contemporary food production industries. Symbolically Manna represented the dream-world of Happy-Go-Lucky-Land. Visible from a distance, a gigantic pudding rose above the rest of the trade show environment. Rising to a height of 15 m (49.2 ft) above the ground, the 21 air-filled inflatables surrounded an enclosed interior space, a world of magical safety. To get to it the visitors had to squeeze in between the inflatables, virtually eating their way through the pudding to Happy-Go-Lucky-Land. This feeling was underlined by a pervasive aroma of vanilla and loud lip-smacking sounds; a landscape full of surprises awaited the visitors within, but the playful juxtaposition of things natural and artificial awakened a feeling of irritation. Under the open sky, surrounded by the sky-blue inner walls of the inflatables, the designers achieved a garden in which colour, form, fragrance, sound, materials and images spoke to all our senses.

Design: Andrin Schweizer
In collaboration: Meury Architektur
Client: Coop Schweiz
Location: Neuchâtel, Switzerland
Photographs: Thomas Jantscher









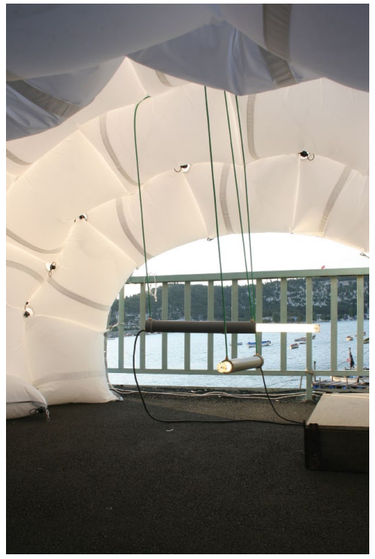
LAMBERT KAMPS
PILLOW TENT

The Pillow Tent is made out of individual air bags, sewn together in shape. Because of these round forms the tent becomes a strong construction. It can be used for parties, fairs and other events.

Design: Lambert Kamps
Photographs: Contributed by Lambert Kamps













LAMBERT KAMPS
CINEMA TENT

Flexible tent specially designed and made for presentations, as movies, theatre or lectures. The construction of the tent consists of pressed air in the hollow walls. There is no other construction needed. In this way it is possible to build it up fast and easily.

Design: Lambert Kamps
Photographs: Contributed by Lambert Kamps





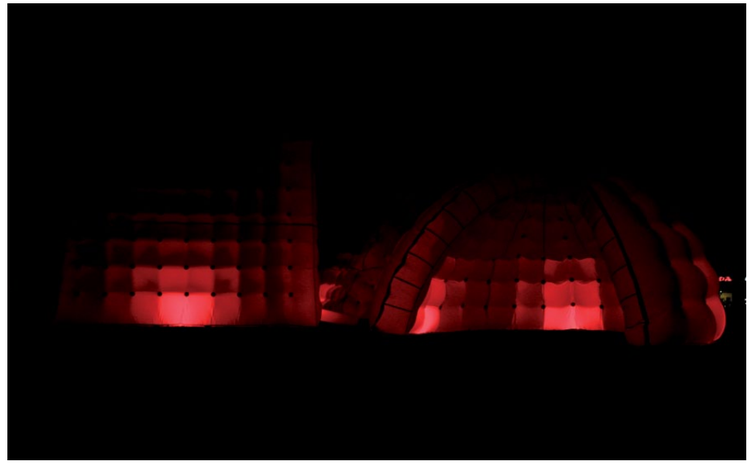




TJEERD VEENHOVEN
RED INFLATABLE

Dutch designer Tjeerd Veenhoven adopts a playful approach to design, experimenting with materials and production techniques to form beautiful and effective products. This project was carried out in collaboration with inflatable specialist Lambert Kamps. The aim was to create an air-filled structure that would serve to temporarily accommodate students at a Montessori School (age group 5 - 10). The spaces were intended to generate the ideal environments for the children to do creative project work in, in order to prepare them for there new school building. The school's teaching method is well known throughout Europe for its progressive approach towards education. Three inflatable tents were designed and produced from fire resistant polyester, each one finished in bright red with white spots. The designers came up with three different forms: a pyramid, dome and square. In order to make it possible for the children to use the tents in the evenings, a lighting system has been incorporated into the tent wall.

Design: Tjeerd Veenhoven
Photographs: Contributed by Tjeerd Veenhoven









INFLATE STUDIO
SMIRNOFF ICE CUBE

This structure has been designed as a portable bar for the Smirnoff Ice brand. Inflate worked with events agency Itch to evolve there vision for the Smirnoff Brand. There was a lot of complex development in terms of engineering before the real construction could begin.
The top main cube is elevated 8 m into the air on top of a metal frame that supports it. We needed to come up with a solution to do this. Eventually we had the idea that we would build a 8 m by 8 m pneumatic cube that would be inserted under the top cube prior to lifting, and this would be inflated to lift all the top cube up through and over the metal frame. The top cube would then be inflated and then lowered down on to the metal work and tied off.
The lifting cube is removed and the space is ready to fit the bar out. The lifting cube became the main feature of the project, and is like the key to the event, because without it you cannot put the structure up. The main foot print of the structure is 14 m by 14 m.
There is a smaller cube for DJs at the front. The whole thing is illuminated from within and outside at night. All the inflatable elements are opalescent PVC.

Design: Inflate Studio
Agency: Itch
Photographs: Contributed by Inflate Studio






cube




cube


cube




SMIRNOFF
SMIRNOFF
SMIRNOFF
ICE

INFLATE STUDIO
LITE

The Inflate Lite series comprises a range of inflatable structures designed to create inspiring spaces within existing buildings. The series consists of 8 models, from the Legs 11 changing room pods to the Panoramic Structure – conceieved for hosting workshops, it has a diameter of 10 m and can hold 35 people. The models have a variety of forms, whether conical, rounded or cuboid.
The structures can be bought as completed products ready for installation or can be adapted to suit the needs of individual projects. Some products are already available in a variety of surface finishes, while they can also be custom printed.
The Inflate team have also worked in collaboration with various architects and designers to adapt Inflate Lite products to a range of projects, from an installation for the House and Garden Exhibition (1999, in collaboration with Ushida Finlay Architects) to a creating a computer room for a school in Glasgow (in collaboration with Bruce Maclean) as well as the set for a production at the Sydney Dance Theatre using an oversized OIAB module which was even made to fly through the air at one moment.
The OIAB products have been used by Tim Pyne for the Creative Partnerships Exhibition in Manchester. Replacing conventional MDF stand structures, the inflatable structures can be installed in a single day and dismounted in only half that time. Furthermore, the structures have been re-used over consecutive years, thus eliminating the significant amounts of waste that would have been generated by the use of conventional stand structures.

Design: Inflate Studio
Photographs: Contributed by Inflate Studio

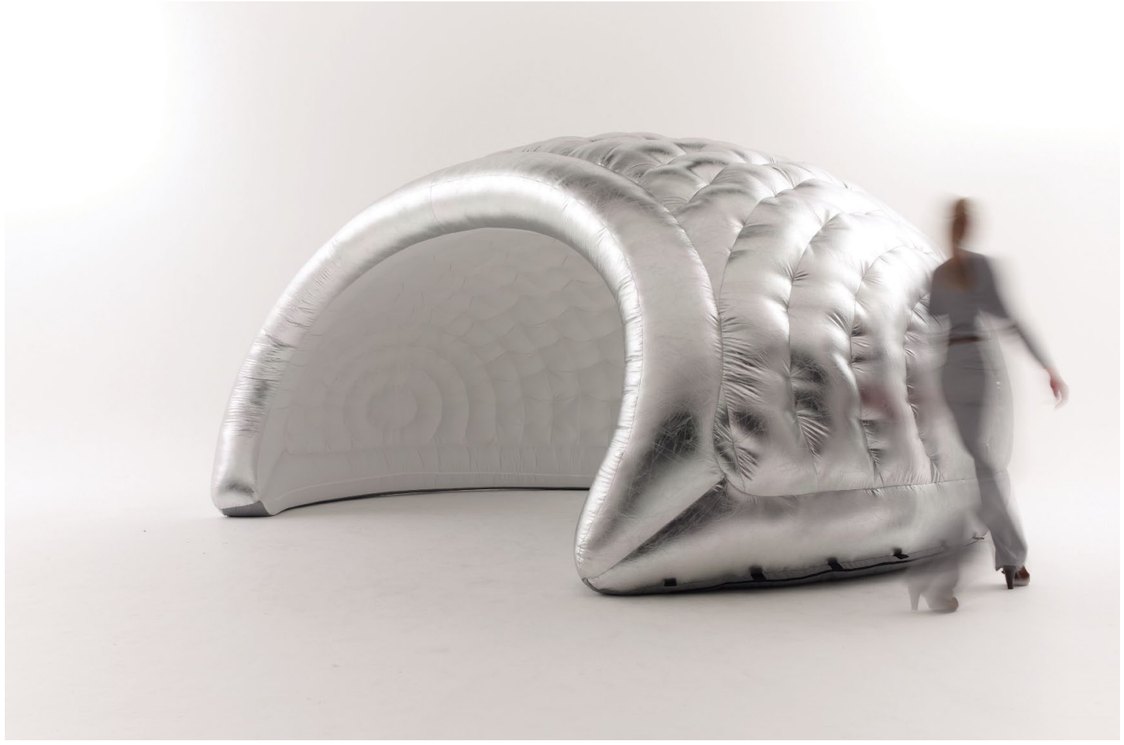














ANAKIN KOENIG AIRWAYS
COMFORTER

Comforter is an inflatable light installation with a matrix of chambers that each hosts an LED-based light fixture. Taking its name from the warm quilt that is used as a bed covering (and which also happens to refer to the Holy Spirit, also known as the Comforter), the 27.4-metre long installation indeed comforts the eye with its warm play of soft, colourful lights. Each patch or chamber of the quilt-like piece acts as a record/diffuser for the light installed behind it. Combined into the overall piece, the chambers become giant pixels of this light sculpture, which was sequenced by Leo Villareal.

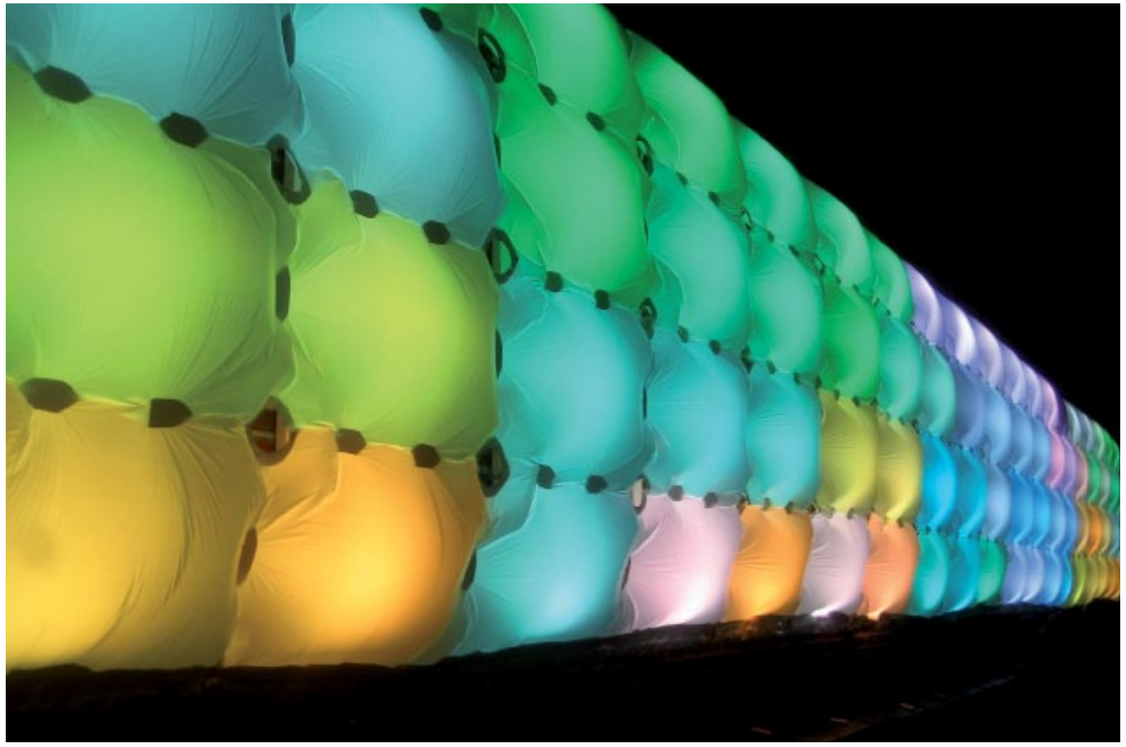
The piece was presented at the Ascension '06 event staged in Brooklyn, USA, a multi-faceted happening highlighting emerging cultural phenomena in technology, music, fashion, performance art, visuals, 2-D and 3-D art, and hybrids of all these forms of artistic expression. Originally staged in San Francisco, Ascension moved to New York in 2006. Anakin Koenig Airways' Comforter occupied a large, outdoor space at Brooklyn Sugar for the Ascension happening. Its assembly took 50 hours of work by four people, its later setting-up took 40 hours of work by four people, while it only took four hours to disassemble.

The large-scale inflatable structure made use of the architectural space to engage the social and psychological perceptions of the viewer. The driving force behind the work, Anakin Koenig (in collaboration with Leo Villareal), is an artist based in New York; he has participated in a wide range of projects, from an annual presence at the fringe Burning Man festival, to a residency at the MIT MediaLab where he worked with Frank Gehry and General Motors on the Soft-Car.

Design: Anakin Koenig Airways
Sequencer: Leo Villareal
Location: Brooklyn, New York, USA
Photographs: Contributed by Anakin Koenig Airways







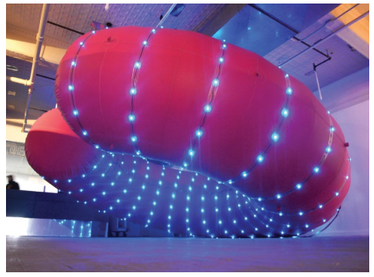
ANAKIN KOENIG AIRWAYS
BRACELET 2.0

Bracelet 2.0 straddles the realms of the personal and public by using a private, item, the bracelet, as the point of departure for expanding the object's decorative potential to much larger proportions. The eye-catching, colourful vinyl semi-ring embraces the viewer with its LED lights and playful, exaggerated size. The tension between opposites, big and small, public and private, is also present in the act of creating the work, where the artist is acutely aware of how the interior relates to the exterior.

As the artist describes it, living the first inflation from inside the structure is a unique, poetic and somewhat unsettling moment. As soon as the structure is inflated enough to pierce it and cut the first entrance, generally less than half a minute after the fan has been turned on, it is possible to get inside comfortably, without crawling and, maybe because of the noticeable expansion of the space, without claustrophobic sensation. From a pranayama perspective it's witnessing the birth of this structure, disturbingly, from inside the one being born. Inside, the seam between the two sheets of plastic becomes the new horizon.

The 'kill', usually at the end of the night, is another noticeable moment in the work's life. The party is over, the daylight invades the space through any available hole, the structure has been emptied of every object that seemed worth saving, it is time to deflate. In an effort to make the best of it and to do it fast the artist cuts the ceiling/roof in the middle of the structure from side to side. The structure deflates rapidly, falling on both my sides at the same pace, letting the artist emerge from bubble reality in a Venusian way.

Design: Anakin Koenig Airways
Locations: Rip Ions Gallery Miami, Florida; Rupert Ravens Contemporary, Newark, New Jersey; Google Headquaters, Palo Alto, California
Photographs: Contributed by Anakin Koenig Airways









CARAMEL ARCHITEKTEN

AIR LINE

The Austrian architecture group Cararmel created this artificial rain cloud installation for the Austrian Pavilion at the Biennale di Venezia. The 26 sqm helium-filled PVC balloon had a series of green tubes attached to it and was suspended like a transparent cloud outside of the pavilion building. In the middle of a hot sunny day, the balloon produced a shower of rain, much to the delight of the overheated public who gathered around and under it for a bit of refreshment.

The ingenious manmade cloud was the result of sophisticated research and analysis of air elements (helium and oxygen), liquids (water) and solid materials (PVC), all combined using precise calculations. The plastic form of the cloud was made by the specialized Viennese company Schultes.

The Caramel group is known for combining their architectural design with cutting-edge experiments in the realm of science and art, with special emphasis on the 'fun factor'. The cloud at the Venice architecture Biennale was at once a source of humorous refreshment and a sly commentary on artificially created environments and man's continuous attempts to condition and control his surroundings, whether inside or out.

In a sense, the piece is stating that the 'sky is the limit' in terms of what architects are capable of designing. Along these lines, the artificial cloud also takes on a particularly contemporary resonance in light of the current debate around climate change and incipient discussions in this respect concerning the feasibility of massive geo-engineering projects aimed at artificially cooling down the planet.

Design: Caramel Architekten
Plastic mold construction: Schultes
Client: Austrian Pavilion, La Biennale di Venezia
Location: Venice, Italy
Date: September 2004
Photographs: Contributed by Caramel Architekten

















FOX LIN INC

BUBBLES

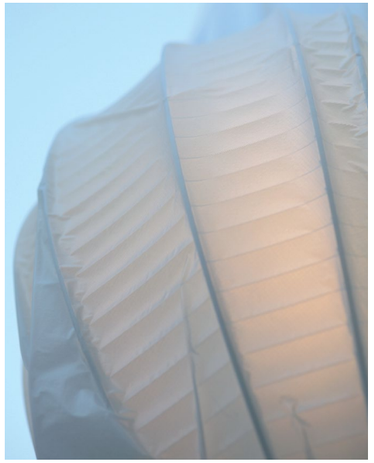
"Bubbles" is a long-term interactive urban-scale installation that consists of large, adaptable, pneumatic volumes that react by inflating and deflating according to the number of visitors in the site. When empty, the space is slowly occupied by the spatially distributed sacks that gradually fill the area with translucent bubbles ranging from 6' to 8' (182 to 243 cm) in diameter. The bubbles in the lower layers get bumped into as visitors enter and move through the installation, triggering the reaction so that as the number of visitors increases the space opens up and becomes more navigable. Sensors in the bubbles cause a fan in the manifold to transfer air to the bubble directly above. Fox Lin inc. is a multidisciplinary architecture, design and consulting office led by Michael Fox and Juintow Lin, who believe that changes in conventional thinking about architecture can ultimately revolutionize the way buildings are designed. The primary goal is to solve the client's functional and aesthetic needs within the schedule and the budget, offering innovative yet practical and realizable options, implementing proposals of building technology that can achieve commercial practicality and provide a better quality of life. Fox Lin combines the "sustainable" expertise of Juintow Lin with the "technological" expertise of Michael Fox to formulate a truly optimistic outlook on the integration of technology and architecture, to tighten energy assessments, material reductions and even change living patterns, to balance all these ambitions and provide solutions of artistic and functional integrity.

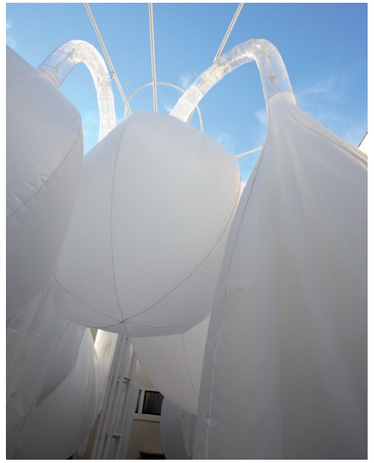
Design: FoxLin (Michael Fox, Juintow Lin)
Design team: Scott Franklin, Axel Kilian, Miao Miao, Gabriele Renz
Client: Materials and Application, Silverlake, California.
Photographs: Coy Koehler and Rob Kassabian







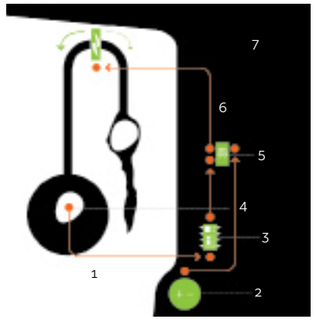




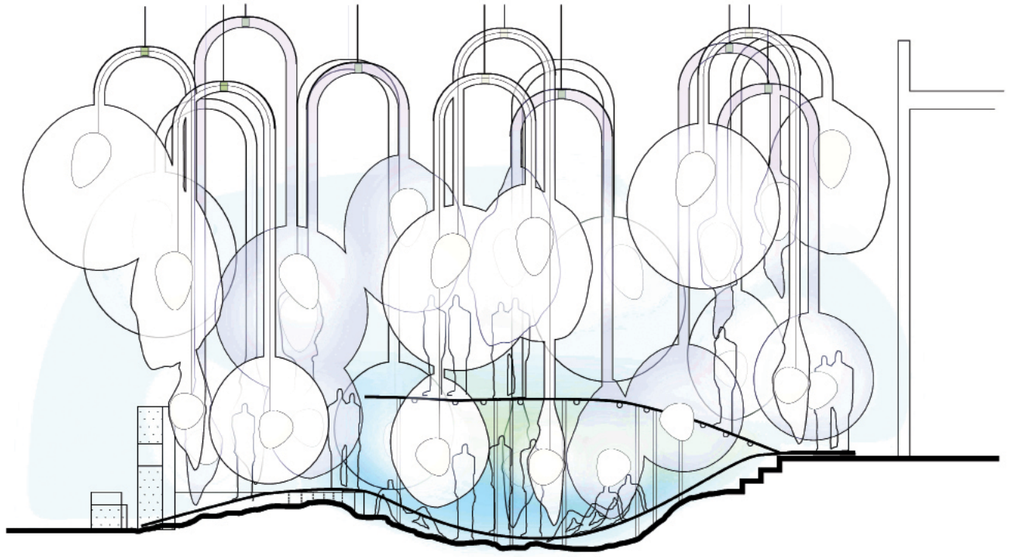




1. When a visitor bumps one of the lower bubbles, an impulse is sent to a computer chip
2. 12 volt power
3. Microchip
4. Equilibrium sensor
5. Relay swich
6. The fan changes direction exchanging air from the lower bubble into the higher of the pair. After a period of time the circle will reverse, returning the air back to the lower bubble.
7. Reversible fan







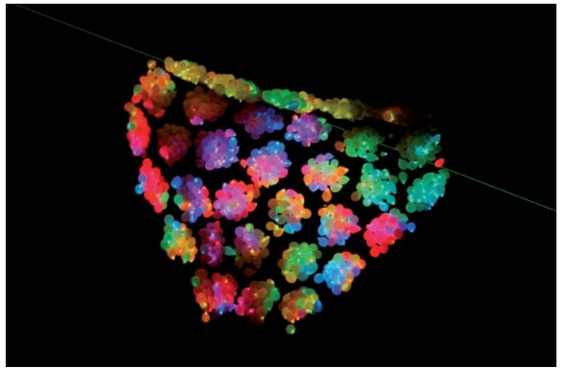
HAQUE DESIGN + RESEARCH

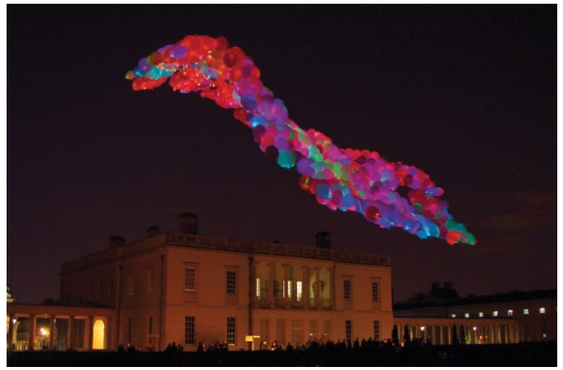
SKY EAR

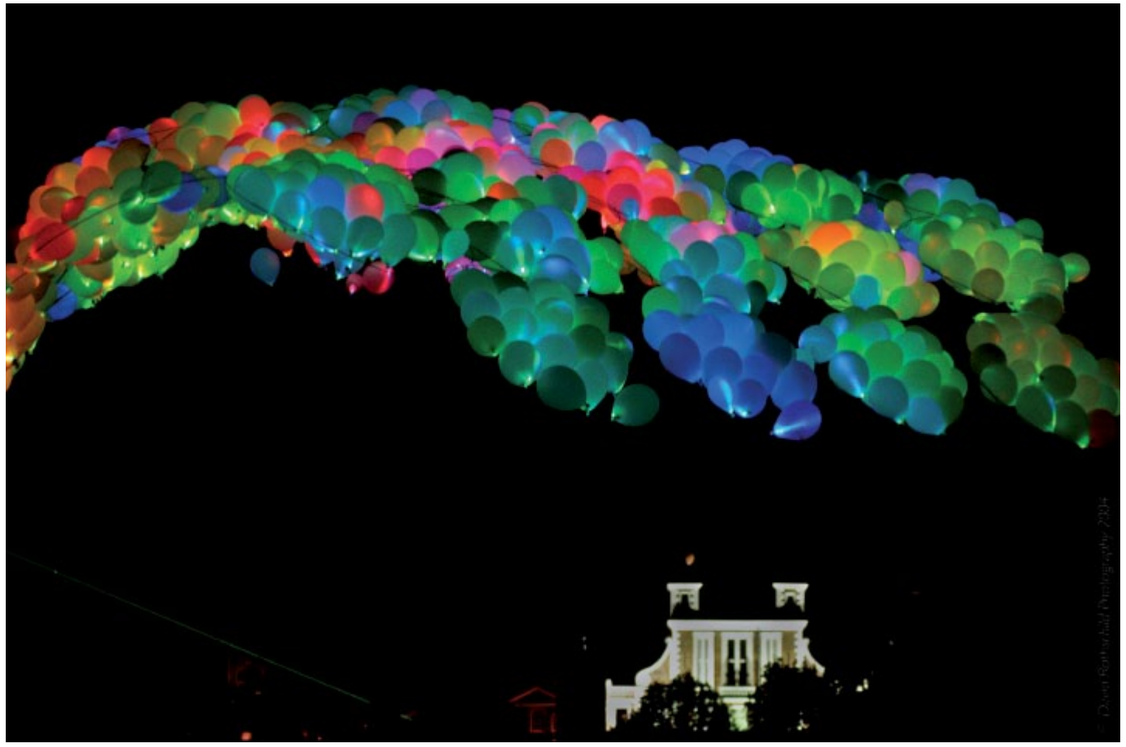
This interactive installation designed by the London based architecture studio Haque, was part of the New Visions contemporary art project at the National Maritime Museum in Greenwich, which aims to encourage and broaden access to the arts. The Sky Ear comprised a carbon fiber frame consisting of 37 circles joined to form a non-rigid structure to which 1000 extra-large helium balloons were attached. The balloons functioned both as buoyancy/flotation devices and as diffusers for the 6 ultra-bright LED (which mixed to make millions of colors) controlled by individual sensors inside each balloon.

The structure was released from its ground moorings and allowed to slowly float up into the sky sampling the electromagnetic spectrum as it rose, rather like a vertical radar sweep. This non-rigid "cloud" was embedded with mobile phones. The balloons contained miniature sensor circuits (simple gaussmeters) that detected levels of electromagnetic radiation at a variety of frequencies. When activated, the sensor circuits caused ultra-bright colored LEDs to illuminate. The cloud glowed and flickered brightly as it passed through varying radio and microwave spaces. Visitors to the event were able to call into the cloud to listen to the distant electromagnetic sounds of the sky as well as streams of whistlers and spherics - atmospheric electromagnetic phenomena that are the audible equivalent of the Northern Lights. The mobile phone calls changed the local hertzian topography and these disturbances in the electromagnetic fields inside the cloud altered the glow intensity of that part of the balloon cloud. Feedback within the sensor network created ripples of light reminiscent of rumbling thunder and flashes of lightning. Participators found that they were in collaboration with others to create patterns of light activity across the surface of the cloud. The cloud showed both how a natural invisible electromagnetism pervades our environment and also how our mobile phone calls and text messages delicately affect the new and existing electromagnetic fields. As an art project, Sky Ear encourages people to become creative participants in a hertzian performance; as an architecture project, Sky Ear makes visible our daily interactions with the invisible topographies of hertzian space.

Design: Haque Design + Research Ltd
Location: Greenwich Park, National Maritime Museum, London, UK
Photographs: Haque Design + Research Ltd





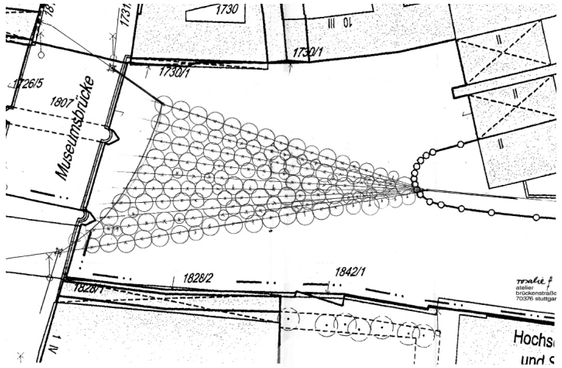


ROSALIE
BLAUE NACHT

The Blaue Nacht (Blue Night) takes place each year in Nuremberg, Germany. The summer festival implies an evening full of artistic performances and installations. For just one night all of the city's museums and theatres open their doors and many landmarks are transformed into ephemeral works of art. In 2006 the German artist Rosalie was invited by the festival organizers to create an installation for the event. Rosalie's artistic work is marked by aspects of an innovative transgression of limits, which is clearly present in this piece. Right in the very heart of this historic city Rosalie set up 150 blue, helium-filled, spherical balloons each measuring between 1.5 m (5 ft) and 2.5 m (8 ft) in diameter, creating an enormous temporary architectural addition to the town center. A complex system of lines was used to keep the balloons in place. Each is connected by around 20 individual strings which meet to form one main line. All these different lines then meet and cross over to form a structurally solid netting, which is anchored to platforms floating in the river below. The blue balls formed a sharp contrast between their contemporary appearance and the aesthetics of this historic city. Dubbed by the artist as "sky wings" the blue layer appeared as if either a part of the sky had been trapped at the level of the city, or if the Pegnitz River had risen into the air. The installation was set to float just above the level of the riverside paths and next to a bridge so people could see it from inside the town. From this perspective a mysterious line of blue floated on the horizon above the crowds. With this installation Rosalie blurred distinctions between the heavens and earth and between the traditional and the modern. The name "...wherever rest thy gentle wings..." was taken from a poem written by the German poet Fredrich Schiller that expresses how mankind can be saved through acts of solidarity between people. Beethoven later used the poem in his famous piece of music 'Ode to Joy'.

Design: rosalie
Client: Nürnberg Leuchtete
Location: Nuremberg, Germany
Photographs: Contributed by Rosalie




1730
1731
1730/1
1730/1
1726/5
1807
Museumsbrücke
1826/2
1842/1
1826/1
















RETTUNGSBOOT

SHELTERS

MICHAEL RAKOWITZ
PARASITE

paraSITE was designed in response to an attitude taken by many people in the US towards homeless people, who according to Michael Rakowitz, are treated more as menaces to society than people who might need help.

The project proposes the appropriation of the exterior ventilation systems on existing architecture as a means for providing temporary shelter for homeless people. The paraSITE units in their idle state exist as small, collapsible packages with handles, which enable them to be easily carried. In employing this device, the user must locate the outtake ducts of a building's HVAC (Heating, Ventilation, Air Conditioning) system. The intake tube of the collapsed structure is then attached to the vent. The warm air leaving the building simultaneously inflates and heats the double membrane structure. The connection of the inflatable structure to the building is the critical part of this project. The attachment devices are designed to be adaptable. The intake tube can be expanded or tightened to fit the aperture of the vent through an adjustable lip made possible by elastic drawstrings. Hooks are then attached to the metal louvers for reinforcement.

The architect built seven prototypes of the paraSITE shelter and distributed them to different homeless people in the city of Cambridge in the US, who worked closely with him on the design and production of the units. Most were built using temporary materials that were readily available on the streets (plastic bags, tape etc.).

For the pedestrian, paraSITE functioned as an agitational device. The visibly parasitic relationship of these devices to the buildings, appropriating a readily available situation with readily available materials elicited immediate speculation as to the future of the city: would these things completely take over, given the enormous number of homeless in our society? Could we wake up one morning to find these encampments engulfing buildings like ivy?

This project has not been designed as a solution to the problems of the homeless. It is not a proposal for affordable housing. The driving idea was to present a symbolic strategy of survival for homeless existence within the city, amplifying the problematic relationship between those who have homes and those who do not. While these shelters were being used, they functioned not only as a temporary place of retreat, but also as a station of dissent and empowerment; many of the homeless users regarded their shelters as a protest device. The shelters communicated a refusal to surrender, and brought the unacceptable circumstances of homeless life within the city to the public eye.

Design: Michael Rakowitz
Photographs: Contributed by Michael Rakowitz










ANA REWAKOWICZ

SLEEPINGBAGDRESS PROTOTYPE

SleepingBagDress prototype 2 (2004) consists of a multipurpose kimono-dress that when inflated changes into a cylindrical container inhabitable by one or two people. The prototype operates on a small computer fan powered by NiMH batteries that are charged by a solar panel incorporated into the dress itself. The piece responds to global mobility's increasing need for a new kind of shelter: one that is light enough to carry or be worn, while simultaneously able to be self-sustaining and adapt to different environments.

Design: Ana Rewakowicz
Photographs: Ana Rewakowicz, Eduardo Flores, Maja Kuzmanovic, Guy L'Heureux



Maja Kuzmanovic



Guy L'Heureux



Ana Rewakowicz



Eduardo Flores

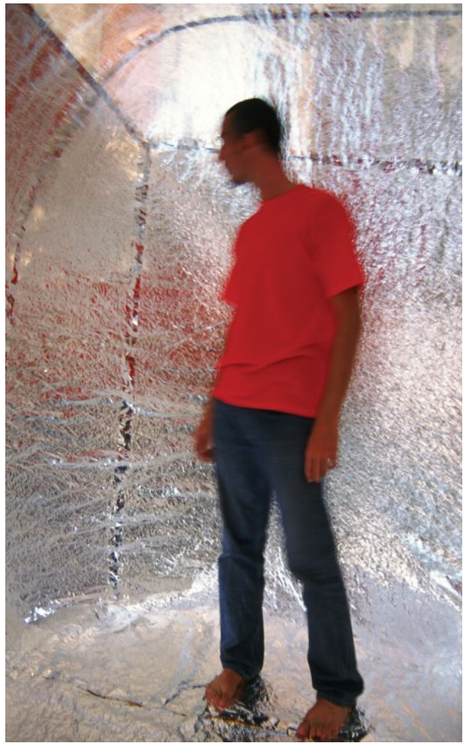
MARTÍN RUIZ DE AZÚA

THE BASIC HOUSE

"Our habitat has become a stage for consumption in which an unlimited amount of products satisfy a range of needs stemming from complex relationships that are difficult to control. Cultures that maintain a more direct relationship with their environment show us that habitat can be understood in a more essential and reasonable manner. Having learned from these attitudes, and using the most advanced technology, I propose an almost immaterial house that expands when triggered by body or solar heat. A house so versatile that, by turning it on one side or the other, it protects from the cold or heat, so light that it floats and, moreover, that can be folded and stored in a pocket.
A life of transit without material ties. Having it all while hardly having anything."







Design: Martín Ruiz de Azúa
Photographs: Contributed by Martín Ruiz de Azúa



MONICA FÖRSTER

CLOUD

Cloud is a portable room for rest, meeting or concentration. A space of its own that can be used within any surroundings, cloud instantly defines an area and a mood apart. Easily transported from place to place, when it is unpacked a silent fan inflates the chamber and keeps it inflated as long as required. The room inflates in three minutes, and it folds away into a bag. Cloud is entered and exited through a self-closing slit door.

Design: Monica Förster
Photographs: Contributed by Monica Förster



















ELECTROLAND

URBAN NOMAD SHELTER

With this project Cameron McNall and Damon Seeley from Los Angeles-based design studio Electroland show how designers and architects can consider social and political action as a viable option. Electroland's proposal was to manufacture and distribute an inflatable portable shelter for what they call "Urban Nomads". The project was intended to be a humanitarian act as well as a social provocation. The idea is for thousands of these brightly colored structures to be distributed in order to foster a dialogue regarding the invisibility and marginalization of the homeless.

As a humanitarian act, the highly portable shelter provides its occupants with protection from the cold, keeps them dry from the rain, cushions the hard pavement through a built-in rubberized mattress, and is visually pleasing to both the occupant and to passers-by. "Design confrontation" and "design irony" were central aspects to the creation of the shelter. Since the homeless do not fit into any particular marketing category, they fall outside of the "market" incentive most design is driven by. This important fact contributes to their invisibility and marginalization. The aesthetic presence of these shelters is intended to directly confront the assumptions that the homeless are incapable of appreciating design, or that they are even somehow unworthy of it. The Urban Nomad Shelter proposes to "re-brand" the homeless through the presence of these inflatable shelters, thus creating a new category, the "Urban Nomad." By displacing the stigma associated with provisional shelters like cardboard boxes and blue tarps, the question of where the Urban Nomads are allowed to sleep at night becomes more problematic. It is easier to sweep away a "homeless" person in a cardboard box than an "Urban Nomad" in a high-design lime green inflatable shelter.

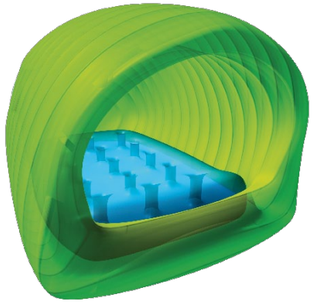
Architects: Electroland
Photographs: Contributed by Electroland



The Urban Nomad Shelter measures 2.4 m (7.9 ft) long, 1.5 m (4.9 ft) wide and 1.4 m (4.6 ft) tall and is constructed from PVC plastic.











ARCHITECTURE AND VISION
DESERT SEAL

Desert Seal is an inflatable one-person tent designed for use in extreme climates. The design takes advantage of the considerable temperature difference that exists between the air at ground level and a couple of meters off the ground in hot arid climates. Many desert animals employ this to their advantage, such as the camel, with its long legs and its nose situated as high as possible off the ground. An electric ventilator powered by a flexible solar panel incorporated in the outer skin of the tent drives cool air from the highest point of the structure through the interior of the tent. The tent consists of an inflatable structure of yellow polythene fabric. The outer layer is a tough aluminized fabric that reflects the heat and protects the tent form direct sunlight. The form of the tent has arisen from aerodynamic analysis and also enables the user to enter upright. The beauty of the structure derives from its functionality and efficiency, particularly in relation to the use of natural energies such as the sun and the wind.

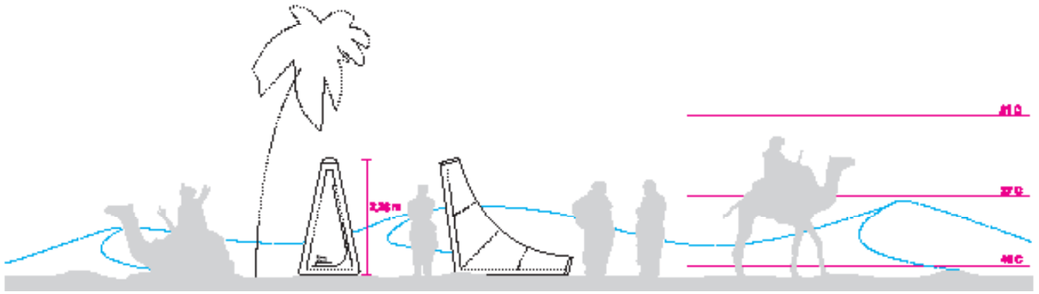
Inspired by aerospace technology, the design uses natural resources and is extremely lightweight, making it highly transportable. Importantly, the tent is also easy and fast to assemble. The “feet on the ground” concept of the design derives from technology used currently in space investigation. The critical characteristics of space shuttles are their small transport volume, large usable volume and lightweight construction. For this reason inflatables have always played an important role in space technology and are considered a viable option for the inhabitation of the Moon and Mars, where the temperature conditions are somewhat more extreme than those to be found on Earth. The use of in-situ energies in the Desert Seal represents a significant reduction in the transportation mass of the item. The energy necessary to charge the small electric battery is generated by a small flexible solar panel, another technology tested in space exploration.

Thermal control is a key point in the design of structures for outer space. Desert Seal exploits further concepts developed in aerospace research. The aluminized fabric used in the outer layer of the tent, for example, is very similar to the multilayer insulation used in space applications.

Design: Architecture and Vision
Design team: Arturo Vittori, Andreas Vogler
Prototype: Aero Sekur
Model: Self Group
Financing and collaborators: Lille3000, Roberto Vittori, European Astronaut Corps, VHF-Technologies SA, Technology Transfer Office of the ESA, Museum of Modern Art in New York, The Museum of Science and Industry Chicago
Photographs: Mauro Mattioli & Céline Laurière

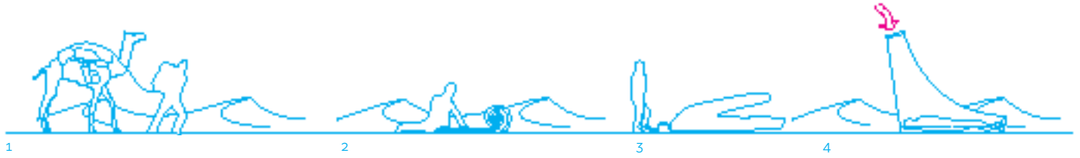








1. Transport
2. Unroll and anchor
3. Erect
4. Operation





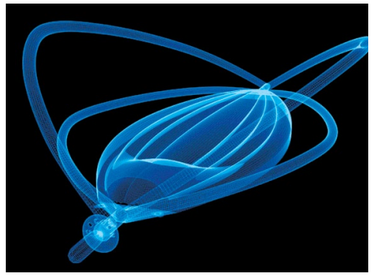
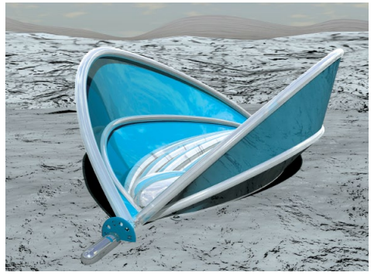


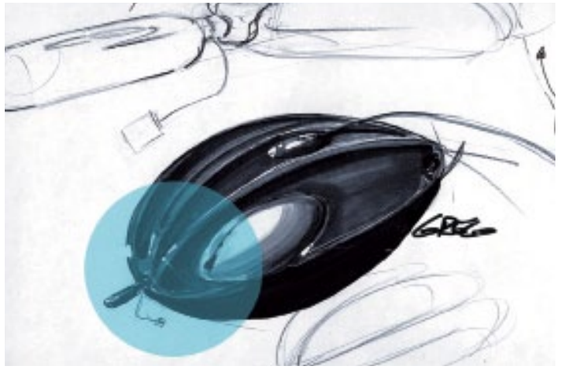
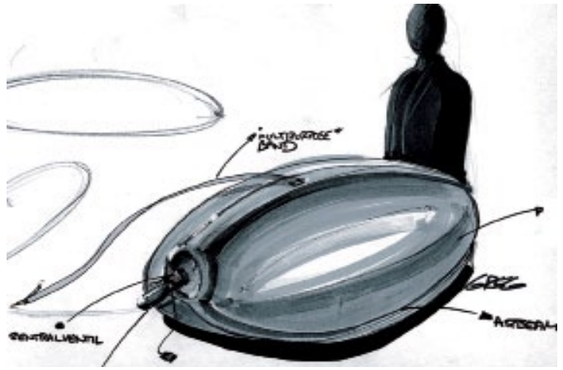


FESTO
COCOON

Inflatables and membranes are even an influence on the graphic design that we are using at Festo, since our pictograms, even the design language, change to reflect pneumatic elements.
Our Cocoon emergency tent is derived from insect cocoons. It offers the possibility of survival for 24 to 48 hours and weighs only 100 grams. And the mermaid's purse, or shark's egg pouch, gave us the inspiration for the office sleeping pillow, which prevents keyboard imprints on the forehead!

Design: Festo AG & Co
Photographs: Contributed by FESTO


ALTRO STUDIO
INFLATABLE HOUSE

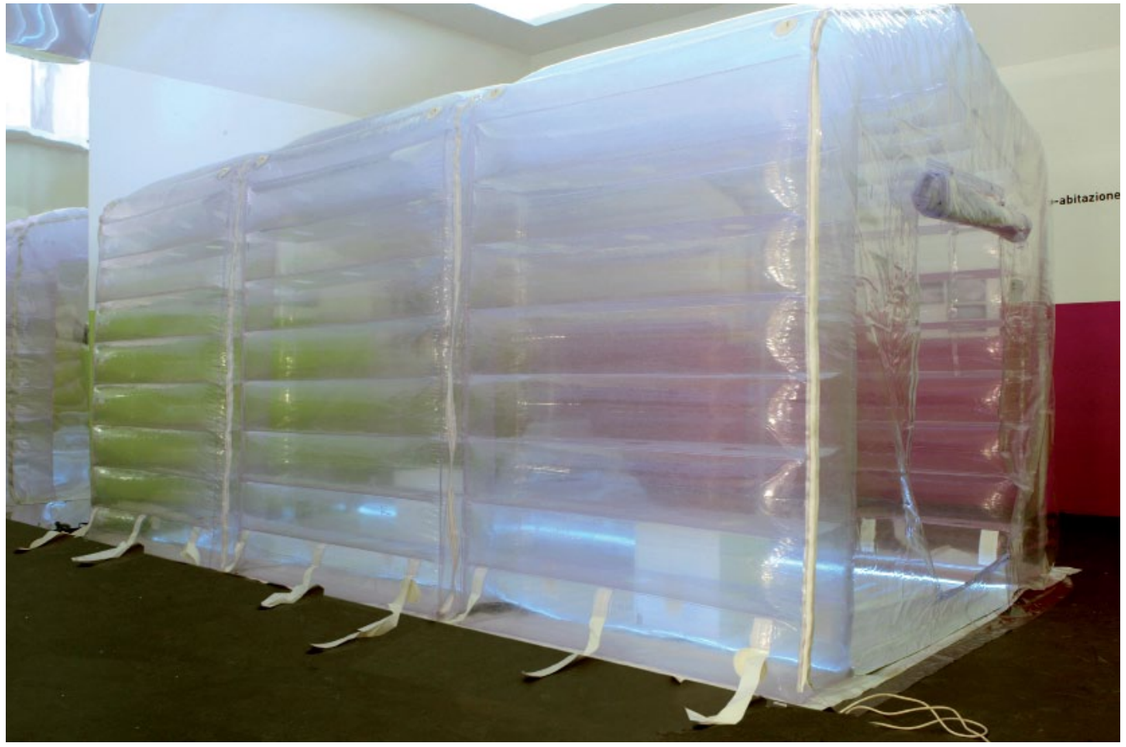
The structure of this inflatable house is entirely transparent and has been designed to mimic the shape of more traditional houses. When inflated it generates a rectangular floor plan, has four straight walls and includes a pitched roof. The construction is based on the principle of modulation, and is composed of three identical inflatable elements each one measuring 2.5 m (8.2 ft) long, 2.3 m (7.5 ft) high and 1.5 m (4.9 ft) thick.
The modules are put together using zip closings and are then anchored to the ground using a system of steel platforms. The joining points of each module have been carefully designed so as to prevent water leaking into the house through the walls. Once the length of the house has been determined, each module is concluded in non-inflatable plug-in panels, which can be fitted with either a door or a window depending on the needs. These last elements, which allow for the ventilation of the internal space, are characterized by a side zip closing system. The idea is to provide the structure with elements that would also be inflatable and transparent, to respond to the project's intentions. These would include; armchairs, sofas, beds, tables and even showers. Electricity will be provided through amorphous silicon modules, mounted onto one side of the pitched roof by means of a system of prefabricated zip closings. The house would be oriented so that this surface faces south.

Design: Altro Studio
Project: Anna Rita Emili- Architect
Marco Vailati- Engineer
Consultant: Aldo Innocenzi-Artist
Collaborators: Pamela Ferri, Jo Fonti
Contractor: Plastico Milan
Photographs: Emanuele Piccardo, Adrea Panzironi





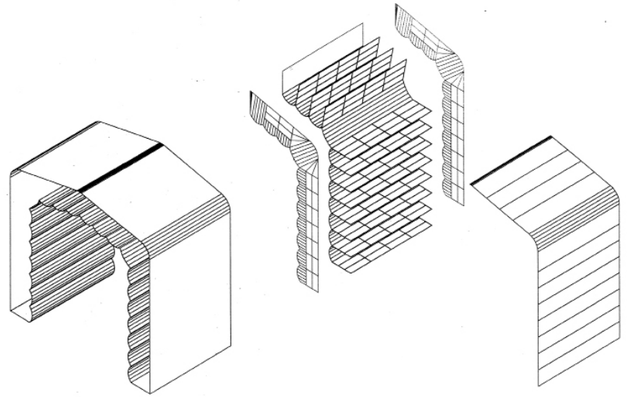














PIERRE STEPHANE DUMAS

BUBBLETREE

The BubbleTree range consists of unusual structures for out-of-the-ordinary experiences - pods in the shape of bubbles, tree houses, and dreamlike structures for events. The modular structures can be easily and rapidly installed for events such as exhibitions, seminars and product launches, while other models are in permanent use as bed-and-breakfast accommodation at the Bubbletree headquarters in France.

Design: Pierre Stephane Dumas
Photographs: courtesy of Pierre Stephane Dumas

















On accompanying pages:
examples from the CristalBubble range

The CristalBubble module is described by the manufacturers as creating a “magical, dream-like space in which to enjoy an unusual night under the stars.”





ART

HANS HEMMERT
LATEX BALLOON

Hans Hemmert's work focuses on the redefinition of real space into abstract space, an endeavour that the artist carries out through the imaginative use of air and rubber balloons. Adapting his amazing inflated rubber works to the architecture of the spaces where he exhibits, Hemmert defines his work as 'soft art', a concept he feels is similar in many respects to the distinction in computer terminology between software and hardware. Hardware, or 'hard art', in the artist's view, refers to the architecture itself with its layout of spaces and windows, while 'soft art' is the art that fills that space, which in Hemmert's case (and words) 'is truly soft'. Using sly humour, Hemmert questions not only the definition of architectural space but also deconstructs the nature of sculpture. In one series of images, the artist is pictured inside of abstract environments that were created by filling with air a thin yellow rubber membrane that has been placed inside of the essential locations of his everyday life: his house, his car, his studio. The yellow latex extends to the limits of the container space, forming a negative image of the location. The limits of the sculpture open inward with a result exactly the inverse of traditional sculpture. The perception of the space is transformed: the surfaces of the objects (bed, windows, cables on the floor) are intuited, appearing only as imprints in reverse.

The familiarity of the place disappears and gives way to a new world, one produced by an internal mould of the original space. This strange, perceptively challenging environment both attracts and horrifies. It is an image of emptiness, of the void.

In another work, Hemmert built a colourful house using typical rubber balloons. The structure was at once a real, physical place and a fantasy made of air. Over the course of the exhibition, the balloons progressively lost their air or exploded, and the structure in turn underwent a process of disintegration. As in other works, the artist called into question the nature of space and the boundaries between the real and the imaginary.

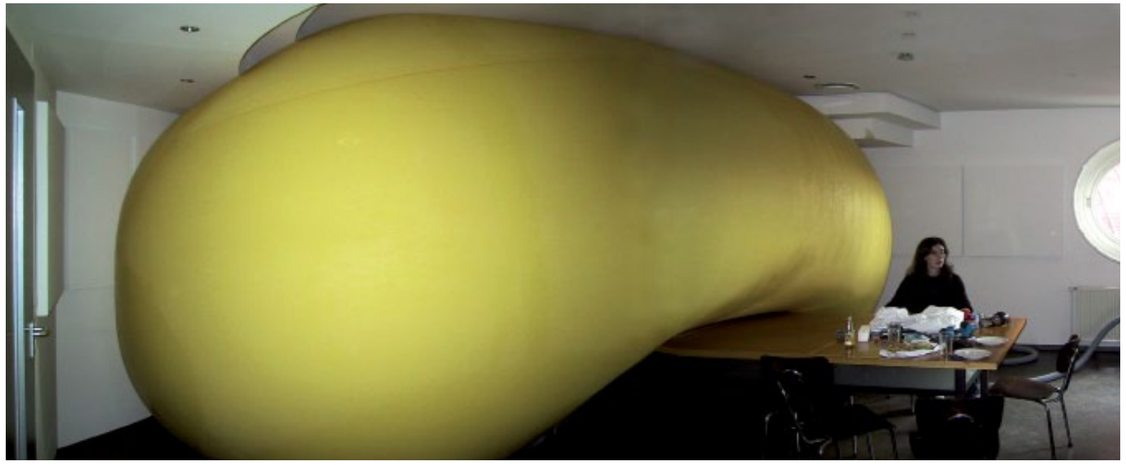
Design: Hans Hemmert
Photographs: Contributed by Hans Hemmert





The sculptures' geometric form shares the fragility of both the latex that delimits them and the air, the invisible material trapped in their interior that makes them possible.







The yellow latex membrane creates a closed, hermetic world in which the artist is its sole inhabitant. The places of his everyday life transform themselves; their familiarity vanishes, our habitual perceptive structures lose all value.





COCKY EEK
BALLOONDRESS

Dutch designer Cocky Eek lives and works in Amsterdam, the Netherlands. She develops her projects based on a playful exploration of diverse sets of lightweight spatial compositions, in which the control over the process and outcome are often uncertain. The physical experiences of her spatial works, often give the suggestion of flying, floating, or brain-silence. The experiments aim to stretch the physical borders of human possibilities. Much of her Pneumatology research is conducted at FoAM: a transdisiplinary laboratory in the field of art and science, digital and physical, nature and technology.
Inspired by a scene from Don Quixote in which the brave knight drives his lance through the sail of a windmill and is hoisted up into the air, Eek envisages a world in which our material possessions are constructed with the lightness and naturalness of inflatable structures. Her inflatable experiments aim to promote a 'lighter' life, in which more mobile, flexible, portable and organic materials are utilized, in order to create a world that is more related to our natural surroundings and the earth's elements. She also relates the airiness of her structures to an idea of reconstructing society in a more environmentally friendly way, but without the heaviness of fear and guilt weighing us down. Eek wants to slide this burden from her shoulders and embrace a more airy quality: that of lightness.
For this piece Cocky Eek has turned her hand to women's clothing. However, this dress goes beyond anything that one would consider in any way conventional. The Balloondress is made entirely from latex and has been fitted with an inner light that glows when the wearer begins to breathe.
The garment draws inspiration from an organism that lives in the sea called Noctiluca miliaris, or 'thousand nightlights', otherwise known as the 'light of the sea'. The organism looks much like a transparent balloon with a small tail, and to scare away its predators produces the bioluminescence that can often be seen at night in the sea.

Design: Cocky Eek
Photographs: Nathalie van Helvoort



COCKY EEK
SPIRA MIRABILIS

Once more Cocky Eek explores the relationship between humans, gravity and equilibrium with this project, Spira mirabilis. The word mirabilis means wonderful in Latin and is also a genus of plants.
The installation consists of a white, inflatable spiral suit with a strongly organic quality, which is worn as if it were the tail of a snail-like animal.

Design: Cocky Eek
Photographs: Nathalie van Helvoort





COCKY EEK

STRIPED

In 1916 the island of Marken in the north of the Netherlands was hit by a wild storm and severe flooding. As a result, some of the traditional black and white striped wooden houses were actually blown north from where they stood and ended up on the Danish coast.
In this project Eek commemorates the event by replacing one of the missing houses with a giant, black and white inflatable cube emplaced in a square on the island, like a futuristic version of the vernacular architecture. Two girls dressed in black and white dresses, also designed by Eek, complete the visuals for the occasion.

Design: Cocky Eek
Location: Marken, the Netherlands
Photographs: Contributed by Cocky Eek









COCKY EEK

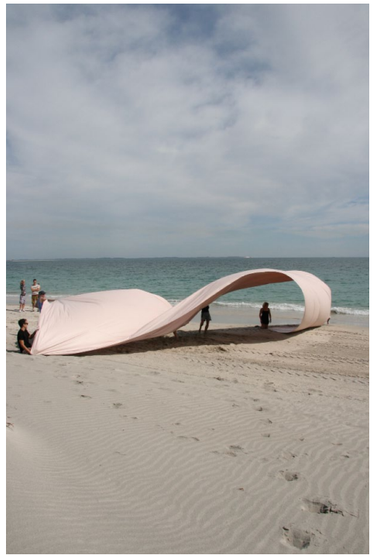
SEE BREEZE

This installation took place in Fremantle, a town just outside of Perth in Western Australia. The project makes use of the wind and air currents that pass through this area, and engaged students in a tangible experience of these otherwise intangible natural phenomena, by way of a large inflatable sail.
The aptly named See Breeze formed part of a work shop that Cocky Eek was invited to run at Perth's Curtin University of Technology.

Design: Cocky Eek
Location: Fremantle, Perth, Australia
Photographs: Contributed by Cocky Eek









JESSICA FINDLEY
AEOLIAN RIDE

Jessica Findley is a freelance designer, illustrator and animator who lives in Brooklyn, New York. She specializes in interactive installations and performances that enable those participating to change their perception of themselves and the world around them. Her project, Aeolian Ride, basically involves 52 people wearing wind-inflated suits and riding bicycles through different cities around the world.

The word 'aeolian' relates to wind (Aeolus was in fact the Greek God of wind), which inflates the specially designed suits as the riders gather speed.

The idea was born as the designer, a lover of bikes, was riding through Brooklyn wearing an unzipped, white nylon jacket. Imagining the form that her windbreaker must have been taking in the wind, Findley decided to set about designing costumes that, like her jacket, would inflate with the wind, only in this case creating a particular form once filled with air.

Although the idea was shelved for over a year, Findley was encouraged by fellow designers to go through with her idea and soon found herself making the bizarre suits. She received help from specialists in the field such as Meghan Botz, a local pattern maker, and used sculptural techniques from another one of her inflatable projects called the Front Project. Of the 52 final suits Findley sewed 50 of them together herself, while two were made by one of the riders' mothers. The suits were made from ripstop nylon in three different styles and were designed to inflate at low speeds.

The free event aims to transform the landscape of the city in a fun way. The designer was inspired partly by monthly 'critical mass' bicycle rides through New York, which transform the city's streets into playgrounds and community spaces.

The effects of inflatables on humans were another factor. Findley believes that when our outer shapes change we are invited to expand our inner selves. Humor and surprise also played an important part in the project, since the ride is meant to make the rider and those watching giggle and be giddy and excited.

With this project, Findley has created a piece that connects with the audience below the surface. What appears to be whimsy is actually much more about relationships to ourselves, one another or even our relationships with objects. As the rider's body is re-sculpted through inflated shapes, his/her physical and mental self-awareness becomes more acute. By joining a group of costumed cyclists a person also becomes aware of the connection of the group as a whole.

Design: Jessica Findley
Collaborators: Meghan Botz, Unha Park, Clayton Harper, Heather D
Photographs: Jessica Findley









THE MILLEFIORE EFFECT
FRONT 3.0

FRONT 3.0 consists of two lightweight, wearable suits that contain both offensive and defensive inflatable air sacs. Attendants help participants (gallery visitors or other members of the public) into the suits, which strap around their shoulders over their clothes. A microphone in each suit picks up the wearer's voice. When their voice exceeds a certain volume, small fans cause their own offensive sacs to inflate, along with the other participant's defensive sacs. If both players are above the volume limit, both suits will be entirely inflated. When both players are below that level, the fans suck all the air out of the suits.
FRONT developed from the idea of creating garments that change in response to the wearer's emotions. The aim is not so much to dress the user as an animal, but rather to create a similar means of externalized expression of the internal state for humans. The suits work around conflict and violence: they suggest a ritualized, ceremonial form of combat that defuses aggression while at the same time playing on it.

Each suit consists of a cotton yoke, an over-garment of inflatable polythene sacs, two fans that inflate and deflate these sacs, and a small electronic circuit, which controls the fans and monitors sound-levels from a microphone at the neck of the suit.
A small circuit amplifies the audio signal from the microphone to a level that a microcontroller can track. When a player growls into their suit's microphone and the volume exceeds a certain level, the microcontroller uses an h-bridge to switch the polarity and thus the direction of the player's offensive fan, causing it to inflate the corresponding air sacs of their suit. At the same time, it sends a signal to the other player's suit instructing it to inflate its own defensive sacs. The microcontroller on the second suit switches the direction of its defensive inflation fan, causing its defensive sacs to inflate. Each suit has its own separate offensive and defensive air sacs.

Design: The Millefiore Effect (Ralph Borland, Jessica Findley, Margot Jacobs)
Location: New York, USA
Photographs: Contributed by the artists













RALPH BORLAND
SUITED FOR SUBVERSION

Suited for Subversion is a project to create a civil disobedience suit that protects the wearer at large-scale street protests, designed by South African artist, designer and technologist, Ralph Borland. The project draws on Borland's work as an activist involved in street demonstrations in New York, and is influenced by the work of other activists and demonstrators who wear protective clothing and make creative use of tools and technologies for protest. Of particular influence were the 'white' or 'white overall' tactics of the Ya Basta, Wombles, or the Tutti bianche, who wear white protective-wear to protests. Like the Pret à revolter clothing line produced by Las Agencias, this suit fuses white tactics with more playful, carnivalesque, or 'pink' tactics. As much as the suit is armor, it is also disarming; as much provocation as protection.

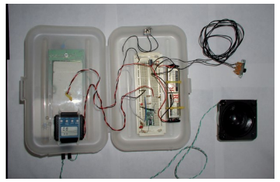
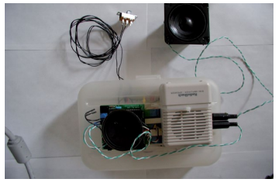
The final prototype is made from bright red vinyl stuffed with polyurethane foam and is designed to protect the wearer from police batons. In the center of the chest of the suit is a small but powerful speaker, which has been designed to project the heartbeat of the wearer. This can also be used to play music, chant slogans or tell jokes etc. Not included in the prototype is a wireless video camera, which is to be mounted above the face of the wearer, in the head of the suit, and can transmit images directly back to a central base.

The process for making the suit involved molding an accurate 1:10 scale model of the suit in plasticine from sketches. Patterns were traced from this model, which were scanned and then scaled up in Photoshop. The 16 or so pattern pieces were printed out, each tiled onto several pieces of 8 x 10 paper, cut out and traced onto vinyl. These vinyl pieces were then cut out, pinned together and sewed, partly using a sewing machine and partly by hand. The suit was then stuffed with shredded polyurethane foam. The suit was originally intended to be inflatable, and may still evolve as such, but because of the difficulties in making it airtight the prototype version is stuffed instead.

The technology behind the 'heartbeat speaker' was fairly simple. Borland used a Basic Stamp microcontroller to track the voltage change in a pulse-reader, and to play a sound sample of a single heartbeat on every pulse. This is then amplified and projected out through a speaker, allowing anyone nearby to hear what the wearer's heart rate is.

Suited for Subversion was part of the exhibition SAFE: Design Takes on Risk at the New York Museum of Modern Art in 2005-2006.

Design: Ralph Borland
Collaborators: Jessica Findley, Jill Nussbaum
Location: New York, USA
Photographs: Pieter Hugo






ANA REWAKOWICZ
UNIBLOW OUTFITS

Displayed in a set-up resembling a boutique, the Uniblow Outfits investigated strategies used in fashion and advertisement, namely desire and fantasy projections, to analyze how they influence our understanding of the body and ideas of comfort and discomfort.

Design: Ana Rewakowicz
Photographs: Guy l'Heureux, Ana Rewakowicz









ANA REWAKOWICZ
CONVERSATION BUBBLE

Canadian/Polish artist/designer and researcher Ana Rewakowicz explores questions of identity as expressed through clothing and habitation. In contrast to the stable mass of monumental sculpture and architecture, her costumes and structures are air-filled, mobile, and concerned with the places and people that activate them.
The Conversation Bubble (2006-2008) is an inflatable structure for five people who breath the same air in the common space of the bubble. While their heads are free to move, the rest of their bodies are squeezed between two layers of vinyl. No one is able to leave on his/her own accord and the duration of the performance depends on the five people's agreement to end it. The piece refers to different, sometimes absurd ideas of "agreement" and how our desires for "sameness" can create intolerance.

Design: Ana Rewakowicz
Photographs: Ra di Martino, www.stiftelsen314.com, Ana Rewakowicz

Ana Rewakowicz





Ra di Martino



www.stiftelsen314.com



Ra di Martino



www.stiftelsen314.com



www.stiftelsen314.com

ANA REWAKOWICZ

TRAVELING WITH MY INFLATABLE ROOM

The Travelling with my inflatable room (2005) video is based on a performance the artist did over a period of one month, when she travelled in a van with an inflatable room (a latex imprint of a room from her Montreal apartment) and camped in it at different urban and rural locations across Canada. The piece explores the ideas of 'home' and 'nomadism', and concludes that home, being portable, is available everywhere.

Design: Ana Rewakowicz
Photographs: Paul Litherland



















LUIS PONS D-LAB

THE FABULOUS FLOATING INFLATABLE VILLA

The Fabulous Floating Inflatable Villa was designed by Miami-based, Venezuelan-born architect Luis Pons and fabricated by Alejandro Handal. This project is part of a series of inflatable installations and objects designed by Pons, in response to and inspired by the excesses of Miami real estate culture. It is Pons' wish that the intrinsic values of inflatable objects could be transferred to Miami architecture, conferring value to image rather than content. According to Pons the culture of Miami tends to be superficial. The designer's inflatable, plastic objects reflect this idea of non-substance.

The 85 sqm (900 sqft), 6 m (20 ft) high plastic Villa is Pons' reaction to Miami's real estate boom and to the inflated architecture embedded in a property value system equally inflated by hoards of realtors. While Miami architecture has always been about fantasy, Pons is unhappy about the new crop of pseudo-Palladian McMansions, which are characterized by their predictable use of columns, capitals, pilasters, arches, keystones, fountains, and statues. According to the designer, uninspired Miami architecture fails to engage, and instead confronts an aggressively unattractive symbol of our architecturally inflated and environmentally impoverished age.

Pons' villa, a 'timeless classic design' which boasts 360-degree bay views, is designed in tones of white, cream and beige, and is illuminated with fully installed white lighting throughout its columns and dome, allowing it to be clearly visible at night. The villa was kept inflated by a generator, and transported by a flatbed barge to the various locations at which it was scheduled to make an appearance. It was docked at Allison Island and showcased to the public as an outdoor installation during America's world famous art show, Art Basel Miami Beach.

Strangely, Andrea Palladio, whose work was the model for the 21st century Miami mansion, was a brilliant practitioner of environmentally integrated residential design – something that the modern day Miami mansion seems to fail to achieve.

"The Fabulous Floating Inflatable Villa" was produced in collaboration with Inflatable Concepts, Inc.

Design: Luis Pons D-Lab
Project manager: Enrique Carrillo, Mariangela Capuzzo
Production: Inflatable Concepts Inc., Alejandro Handal
Location: Miami, Florida, USA
Photographs: Moris Moreno, Vincenta Casañ









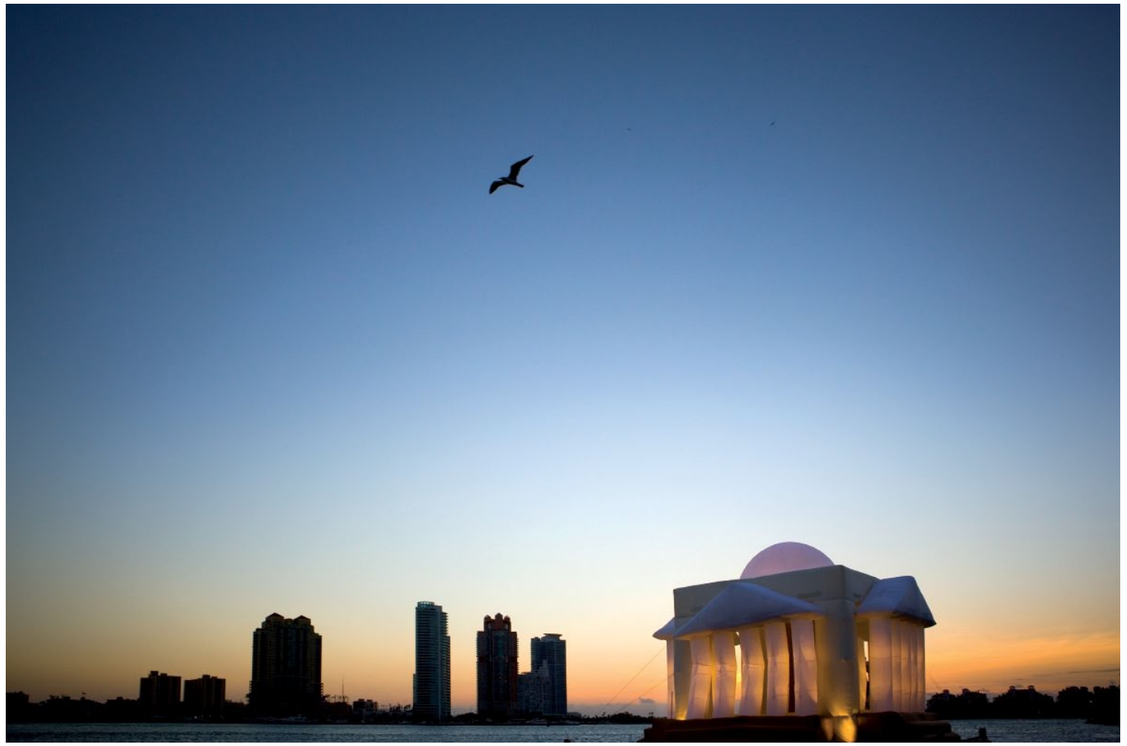












The villa was emplaced, deflated, on a flatbed barge, where a generator supplied the air and maintained the structure inflated throughout its voyage about the bay and subsequent spell as an outdoor installation at Art Basel.



VALESKA PESCHKE
INSTANT HOME

The designer was working on new urban concepts that would reflect modern humanity's living conditions when she struck upon the idea of a portable home as a perfect reflection of, and ideal companion for, constantly on-the-move people. Made from vinyl, Instant Home is easy to assemble and disassemble. With it, Peschke creates a brash new form of private life assertively inserted into public space. This is no stale museum piece, but rather a 12m^2 inflatable, portable installation that she has set up in various environments all across California: at the foot of steel and glass high-rises, in the midst of barren, wind-swept natural landscapes or in the heart of middle-class suburbia.







Architect: Valeska Peschke
Photographs: Contributed by Valeska Peschke









Installed in an urban environment, the structure stands as a statement about the thin line separating endless mobility from the processes of social decline, as seen most starkly in the city landscapes of cardboard shelters erected by the homeless.











TOMÁS SARACENO
VARIOUS PROJECTS

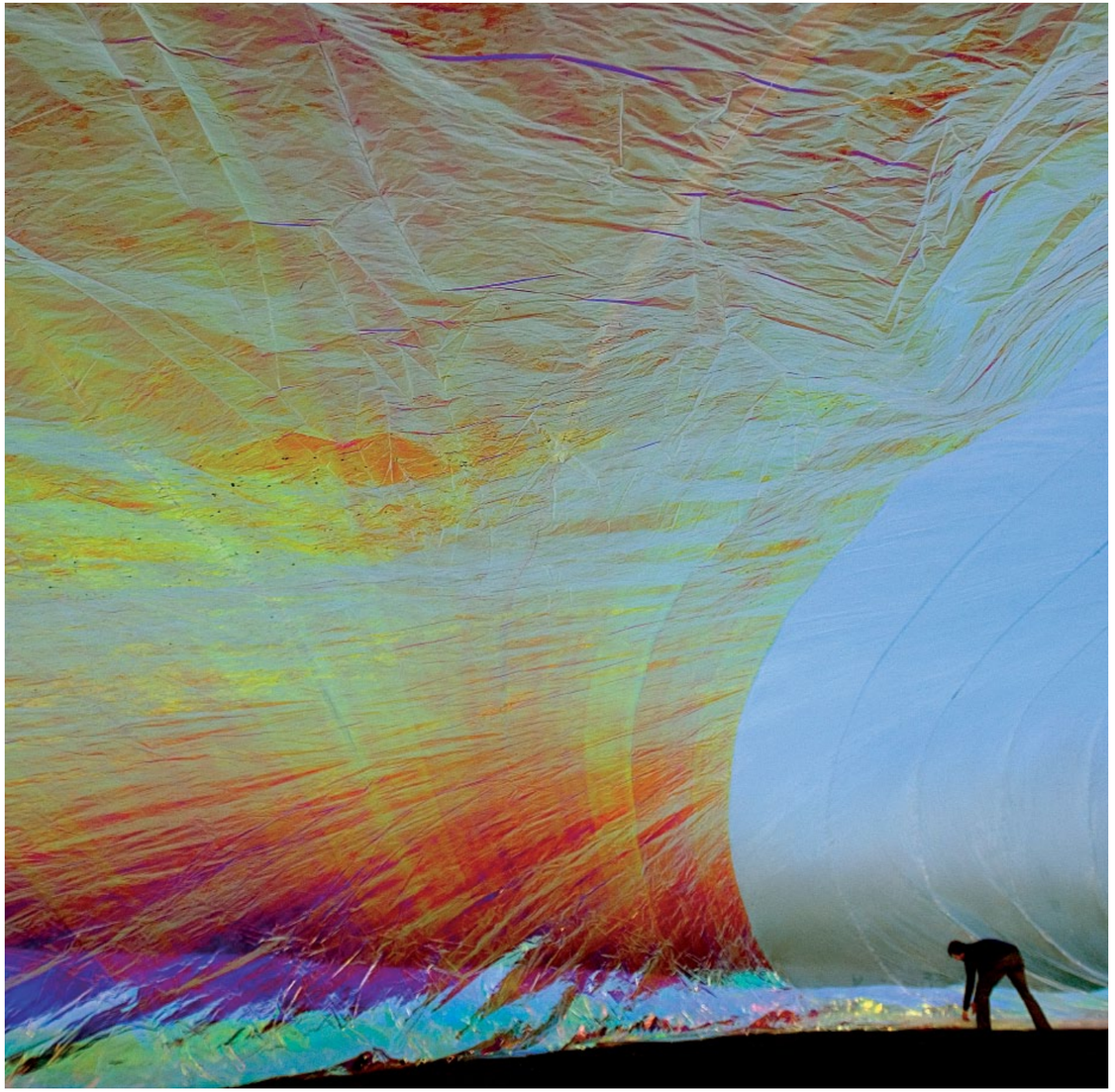
Air is the central motif in these works by the visual artist Tomás Saraceno, being a medium which he has invested with great symbolic weight. His own personal lexicon, in which the etymological derivation and relations of the Ancient Greek word for "air" are as follows, reflects the depth of meaning it holds for him:
"...'Pneu': the base of all of nature.
'Pneuma': air. 'Pneumatos': to breathe.
'Pneo': to live in; to inhabit..."
Air has thus come to be a material through which the artist explores themes relating to the geo-political structures of our day, migratory pressures and currents, communication, and the futures he imagines growing out of these conditions.

Design: Tomás Saraceno
Photographs: contributed by Tomás Saraceno



"Biosphere"

Untitled (Iceland Pictures)

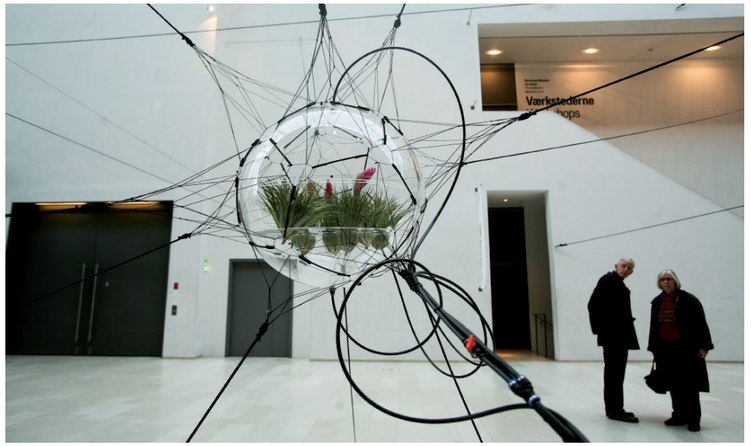


Untitled (taken at “Poetic Cosmos of the Breath”, Airshow in Gunpowder Park, London, UK, 2007)

Cumulonimbus/Air-Port-City



“Biosphere”





Biosphere MW32/Flying Garden/Air-Port-City

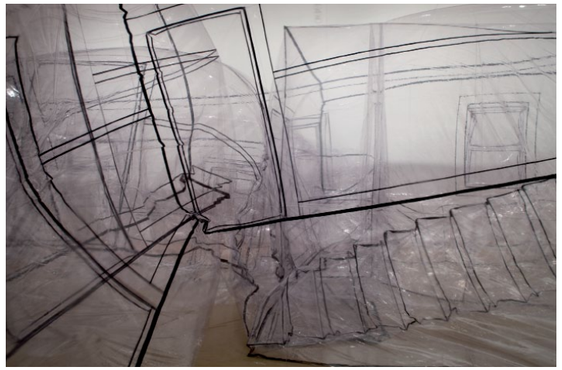
ALEX SCHWEDER LA

A SAC OF ROOMS ALL DAY LONG – SNOWBALLING DOORWAY

Alex Schweder La's "performance architecture" is based on the notion that relationships between occupied spaces and occupying subjects are permeable. In other words, a subject first perceives his or her environment and is then changed by that perception. This person in turn alters their environment to make it correspond to their fantasy. This process continues until the scrimmage of objects and subjects produces an architecture where referring to the two as distinct becomes irrelevant.
A Sac Of Rooms All Day Long is something too big inside of something too small, both as a metaphor and a built environment. Four rooms from a 1920's 83.6 square meter (900 square foot) house, rendered in vinyl, are stuffed into another vinyl form, the exterior skin of a 1950's 46.5 square meter (500 square foot) bungalow.
Each of the five separate sacs have architectonic articulations such as windows, doors, stairs, and moldings to identify their function and allow a viewer to orient him or herself. These features are "drawn" into the seams through the use of black vinyl strips of varying widths which correlate to the line weight that would be used in an architectural drawing. During the piece's performance, the puddle of plastic resembling a landscape begins to bubble like a tar pit. These bubbles swell and start o resemble rooms. Once at its full height, the exterior skin does not allow any further expansion outward and acts as a restraint, forcing the rooms inside to start stealing space from one another. After going through these motions all day long it returns to the landscape where it began. A Sac Of Rooms All Day Long was originally made for the exhibition 'Sensate: Bodies and Design' curated by Henry Urbach, Helen Hilton Raiser Curator of Architecture and Design at the San Francisco Museum Of Modern Art. It became part of the San Francisco Museum of Modern Art's permanent collection in 2009 and is exhibited with a sound work by Yann Novak.

Design: Alex Schweder La
Client: San Francisco Museum of Modern Art
Grant: Pollack Krasner Foundation
Synchronizer design: Alan Altman
Vinyl forms manufacturer: Big Air Produtions
Location: San Francisco, California, USA
Photographs: SFMOMA / Ian Reeves





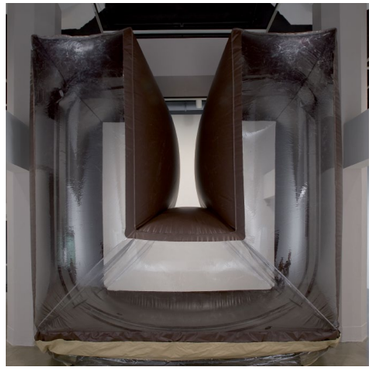


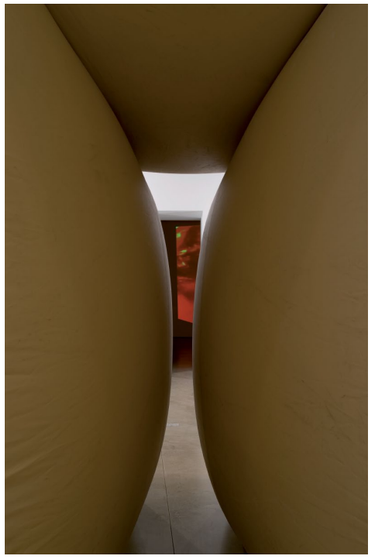


An arch in an arch, Snowballing Doorway was designed to fill the space of an existing aperture in an old warehouse. The two vinyl forms of this work are the same size and shape. Like as Sac Of Rooms All Day Long, each arch fills the space that contains them completely when fully inflated making it impossible for them to be fully inflated at the same time. To share the existing aperture, they snowball the same volume of air all day long. As air to fill the engorging arch is sucked from the other, one arch inflates and the other collapses. Departing from A Sac Of Rooms, participants can enter the work by passing through the beige bottom arch until it becomes volatile and the brown up-side-down arch on top of it starts to displace it. The simple prompt for bodily "performance" given by the lower archway to "pass through" is changed to the opposite instruction when the upper brown arch is inflated.













LAMBERT KAMPS
ARTIFICIAL MOON

The artificial moon will be an object that changes the appearance of the Earth. An inflatable ball with a diameter of one kilometre will be blown up in a dessert. At day time the air in the ball heats up and at night when the temperature in the dessert goes down the ball will rise. At this way the earth will be provided from a second moon. To make a start with this project I made a smaller ball (scale model) to test the technique see how things work.





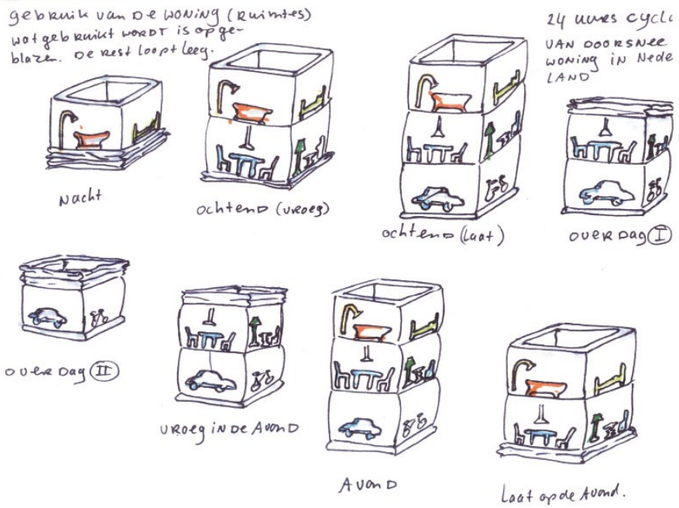
Design: Lambert Kamps
Photographs: Contributed by Lambert Kamps



LAMBERT KAMPS
FLEXIBLE HOUSE

The three floors of this house symbolize the different functions of a standard house. The floors that are used are inflated, and the space that is not in use stays empty. In this way the volume of this house is minimal.

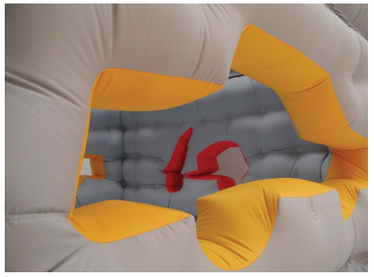
Design: Lambert Kamps
Photographs: Contributed by Lambert Kamps













LAMBERT KAMPS
AIR BRIDGE

The Air Bridge was made as a test case on behalf of the idea to build a flexible inflatable building with more than one level. There should be made some over spans that could carry the weight of visitors and the construction. The system was successful but the building was never made. The bridge is fully inflatable and made out of textile. There is no hard construction material used.

Design: Lambert Kamps
Photographs: Contributed by Lambert Kamps













HÉCTOR ZAMORA

PNEU

Using a red inflated tube, Héctor Zamora penetrated and surrounded one of the buildings on the busy street of Álvaro Obregón in Mexico City. The action was staged by the artist as an intervention for the Galería Garash. The 130-meter long tube entered the building at the main door, passed through the entrance hall, crossed the central courtyard and, upon meeting the back wall of the ground floor, climbed up through the skylight. The tube then continued its upward route until reaching the third floor, where it branched to exit through two different windows. The route continued along the outside of the building and once on the roof the two branches joined up again. The tube then descended the façade and connected to itself through the main door, thereby closing its loop. Using some 270 cubic metres of contained air, Pneu invaded the building while simultaneously surrounding it in an embrace that was clearly evident to anyone on the streets around the gallery. Upon approaching the entrance and entering the building, one could hear the sound of the ventilator as it inflated the piece, giving the impression of a living creature. The external route of the piece could be followed and seen in segments as one climbed the stairs to the third floor, and by another route up to the roof. Obsessive investigator of the definition, understanding, apprehension and description of space, Zamora uses nature as the core element of his experiments. His works are the result of the analytical study of organic forms in dialog with specific architectural structures. With economy of energy as the fundamental principle, his spatial interventions aim to enrich and refresh our contact with our daily surroundings. Pneu was Zamora's first experiment with an inflatable structure. By filling / feeding the red plastic structure with air, the artist brought to life not only the tube, but also reactivated the building that contained it, as well as the urban setting in which it was placed.

Design: Héctor Zamora
Location: Mexico City, Mexico
Photographs: Contributed by Héctor Zamora





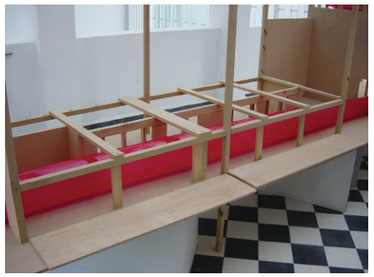






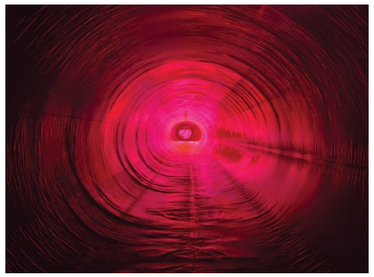






Like a living creature, Pneu followed an organic pathway, entering and climbing a building until fully surrounding it. In a relentlessly chaotic city submerged in the daily grind, the warm and playful embrace of Pneu was not only an act of affection toward the building it encircled, but also toward the city itself.



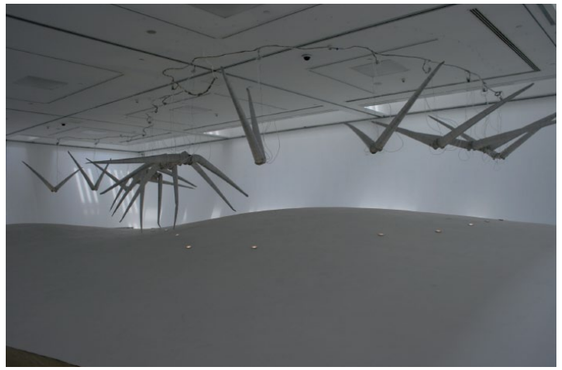




CHICO MACMURTRIE
INTERACTIVE BIRDS

Chico MacMurtrie is the artistic director of Amorphic Robot Works (ARW), a collective he founded in 1991 consisting of artists and engineers, who help in the realization of his work. Currently operating out of Brooklyn, New York, ARW is dedicated to the study and creation of movement as it is expressed in anthropomorphic and abstract robotic forms. The group's profound kinesthetic inquiries have resulted in more than 250 mechanical sculptures that communicate visceral and narrative aspects of the human condition. Interactive Birds is the most recent and interactive version of Sixteen Birds, the first multi-sculpture installation using Amorphic Robot Works' (ARW) new Inflatable Bodies technology. Interactive Birds consists of large, white fabric shapes that recall the simplest line drawing of a bird, hanging limp and lifeless from the ceiling at eye level. As viewers enter the room, the tapered, joined cone-shapes gradually inflate with air, lengthen and take form, eventually reaching out with a graceful wingspan, robust with life. The Birds then begin their stationary journey with a slow, elegant flapping motion, all of them in a randomly generated sequence. The pneumatic mechanism that animates the work creates a constant, rhythmic breathing sound. Moving through the installation allows you to find various compositions reminiscent of natural formations: compositions that change over the life cycle of the work. As in other natural organizations, however, the viewers' presence affects the work's life cycle, putting pressure on the system that may prematurely end the lives of the creatures on exhibition. The installation uses a vision system that keeps track of the number of humans in any given space. Carefully monitoring the visitors' movements, the vision system provides the information needed to calculate how close viewers are to each Bird. If a threshold of interference is exceeded, a new performative cycle is enacted for that Bird, which in turn further burdens the system as a whole, causing the entire exhibit to eventually spiral into decay. The exhibit gives responsibility to each person entering. As more humans enter the space, the Birds begin to accumulate air, filling their bodies as if human presence gives them life. The open, physically accessible nature of the installation gives the impression that visitors are free to roam within the Birds' space, but if the viewers encroach upon their space excessively, a death cycle is triggered. Once one Bird is infected, it begins to corrupt the behavior of the others, and soon all the Birds have prematurely ended their life cycles. If, however, the audience manages to respect the Birds' personal space, they will have an opportunity to witness the complete performance.

Design: Chico MacMurtrie
Inflatable production: Janette Wernegreen
Project Manager: Sue Williams
Location: New York, USA
Photographs: Luise Kaunert & Amorphic Robot Works



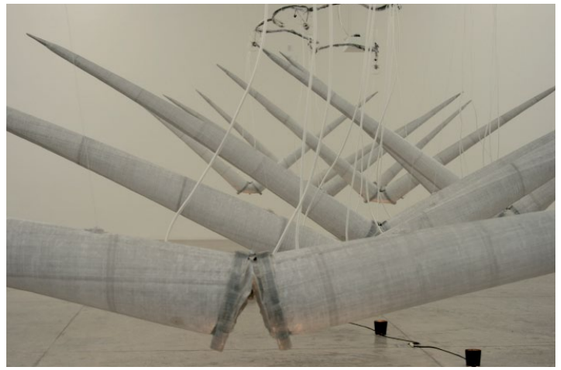






Interactive Birds uses computer vision to interact with visitors, and relies upon a conduit or spinal core containing: compressed air, a vacuum, computer control and feedback cable, and the control lines for the vision system.
The birds consist of high-tensile, inflatable, fabric ‘skeletons’ with ‘muscles’ which have been so smoothly inserted that the viewer cannot tell where the inertia and momentum originate. This affords the creatures astonishing natural elegance.





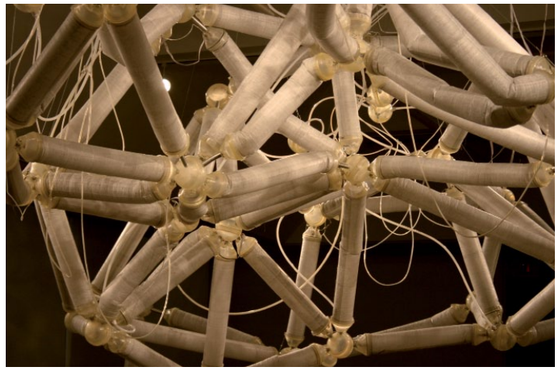




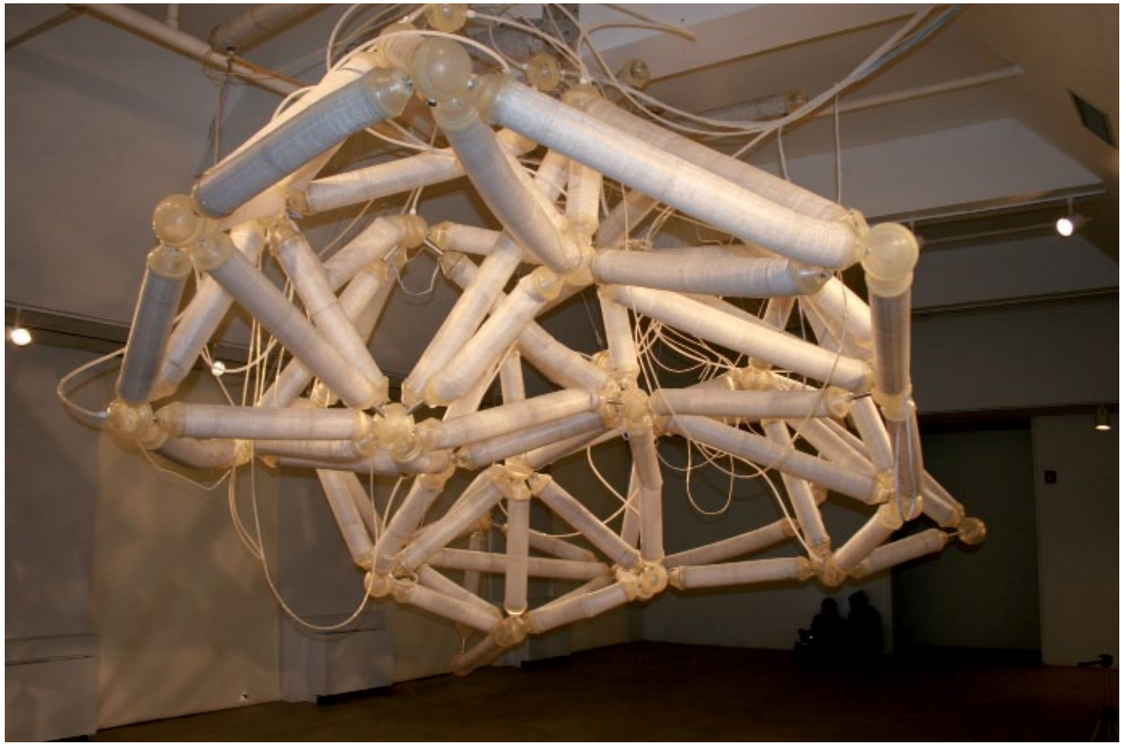
CHICO MACMURTRIE
ARCHITECTURAL BODY

The Inflatable Architectural Body premiered at the Machines and Souls exhibition in the Reina Sofia National Museum in Madrid. This new work attempts to further develop inflatable technology while creating a new dialogue between man, machine, and architecture. In this work, the designer models nature on a microscopic, fractal level. It comprises a system of plug-and-play, inflatable, musculoskeletal modules which create a series of transformative organic structures influenced by the surrounding exhibition space. The modular components can be freely connected and rearranged to produce sculptures of varied size, form, complexity and interactive possibility. The 'live' sections of the form are equipped with a simple sensing system that forces the sculpture into action. The motion of viewers passing through the space functions as a type of force field that pushes the sculptures' bones away from them as they are sensed. Sculpture and visitor are thereby kept at a constant distance from one another. Each bone can be selectively animated by the viewers' movements allowing for endless interactive possibilities. If viewers are so inclined, their motion can enable them to create portals in the inflatable structure allowing them to enter inside. These doors can also then be shut through further movements, thus providing viewers with an entirely different vantage point: life from the inside. In this way, the work is influenced by the nature of the environment – the space – as well as by the audience participants, who are engaged both physically and aesthetically with the constantly transforming structure. Inflatable Architectural Body uses new technologies to continue a long line of work exploring the forms, movements, and interactions that underlie our experience. As a magnification of the cellular world, it gives us a direct, visceral experience of the kinds of minute geometric constructions that underlie all forms of life. Since the audience brings the sculpture to life, the piece literalizes the notion that the audience affects the work, and recalls the notion that none of us are bystanders in the natural world. By separating elements such as these from our normal modes of experience, and reimagining them in new bodies and interactions, visitors are able to gain a new perspective on themselves and the effects they have on the world around them.

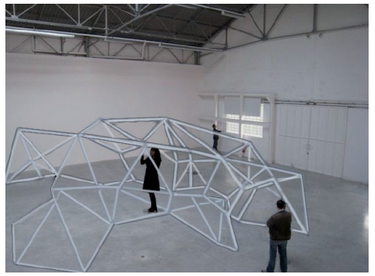
Design: Chico MacMurtrie
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Project manager: Sue Williams
Location: New York, USA
Photographs: Amorphic Robot Works



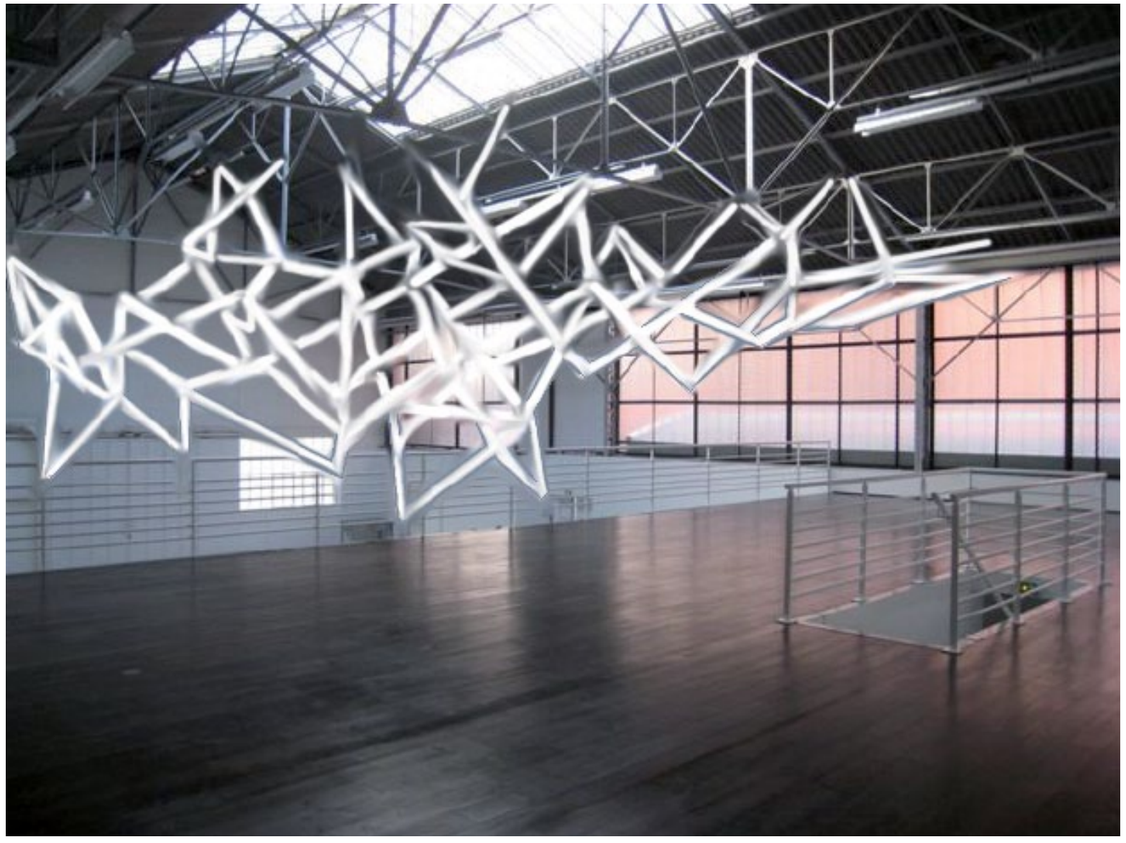








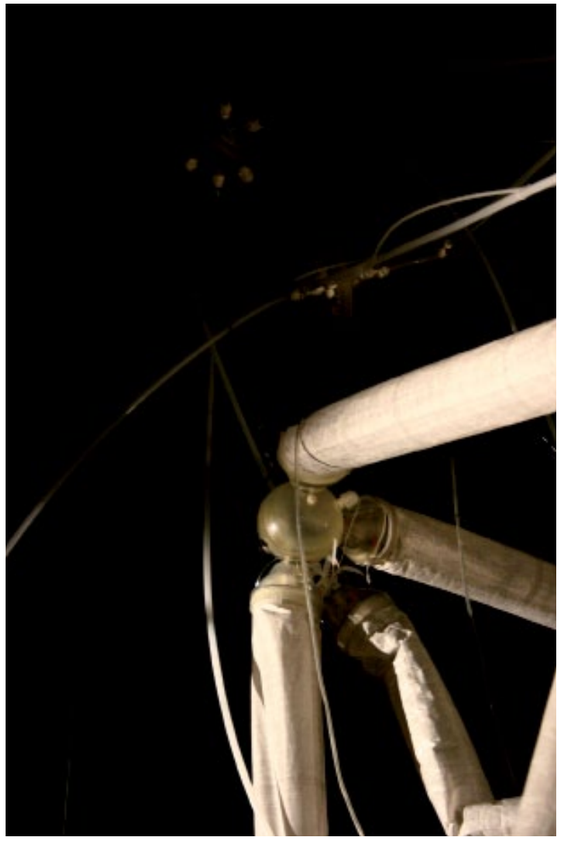




Visitors control the structure through their movements. As they approach, motion sensors move the segments away thus maintaining a minimum distance. If desired visitors can manipulate the structure to create portals allowing them to enter.

The installation offers visitors the opportunity to gain a new perspective on themselves and illustrates the idea that we all have an effect on the world around us; in nature no one is a bystander.





NILS VOELKER

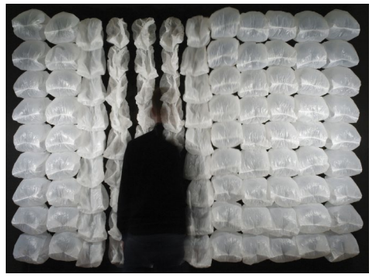
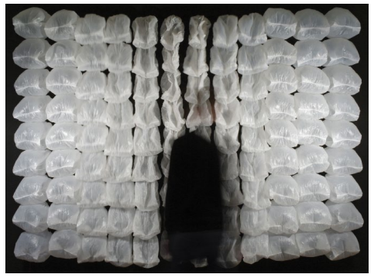
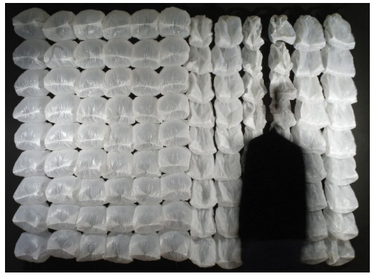
ONE HUNDRED AND EIGHT

One Hundred and Eight is an interactive installation inspired by shoals and flocks of birds. These swarms often consist out of hundreds or thousands of individual animals. But from a distant perspective they appear like a single creature because all individuals change almost simultaneously their direction when moving and react collectively on outside influences.
The installation and its programming is based on this phenomenon. The plastic bags are inflated and deflated in controlled rhythms floating like waves across the wall. Although each plastic bag is mounted stationary the sequences of inflation and deflation create the impression of lively and moving creatures, which waft slowly around. In this way the very simple action of inflating something as ordinary as a garbage bag ends up in an enduring impression.
The fans produce an ongoing sonorous sound whilst the wobbling plastic bags emit a mesmerizing sizzling noise. This soundscape is accompanied by dozens of clicking sounds from switching relays, which can be heard passing by but can't be located clearly.
But as soon the beholder comes to close within a certain range to the installation, it instantly reacts by drawing back and tentatively following the movements of the observer. As long as he remains in a certain area in front of the installation it dynamically reacts to the viewers motions. This appears both like a defensive demeanour but also as if the swarm of bags is curiously following the beholder. As soon there is no longer any motion detected, it reorganizes itself after a while and gently restarts wobbling around like a swarm, consisting out of dozens of ordinary garbage bags.

Design: Nils Voelker
Photographs: Contributed by Nils Voelker







BÜRO WEHBERG

PANIC

Panic is the fifth play in a series of seven written by Rafael Spregelburd, collectively named *the Heptalogy of Hieronymus Bosch*. Born in 1970, Rafael Spregelburd is one of the most well-known and influential of the new generation of Argentinian playwrights. His encounter with Hieronymous Bosch's *The Seven Deadly Sins* in the Prado Museum in Madrid inspired him to begin working on the cycle, which is a modern reflection on the seven deadly sins: anger, pride, lust, sloth, gluttony, avarice and envy.

The set for this production of Panic at the Luzerner Theater in berlin in the spring of 2008, designed by Max Wehberg, consisted in a single inflated element placed in the center of the performance space and practically filling it. Realized in colorless, translucent geotextile, the structure permitted the creation of various spatial and atmospheric configurations, by varyiations in its inflation pressure, lighting it from different angles and with different colors of light and by placing the actors behind, within, on top of or in front of the structure.

Set design: Büro Wehberg / Max Wehberg
Playwright: Raphael Spregelburd
Director: Andreas Herrmann
Photographs: T+T Fotografie / Toni Suter & Tanja Dorendorf; Büro Wehberg / Max Wehberg



© T+T Fotografie



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© Büro Wehberg



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ATELIER AEROSCULPTURE
AEROPLUME

Inspired by the dream of balloon travel, Jean Pierre David invented Aeroplume, a steerable balloon with moving wings. Aeroplume introduces the traveller to the delicate art of helium balloon travel. It is the first flying machine to have functional beating wings.

The concept behind Aeroplume is the reduction of the functions of the air balloon to a minimum in order to achieve a project which could be self-financed. The vehicle is powered by muscle power, the propeller having been substituted for a pair of wings which become extensions of the pilot's arms. The position of the pilot is the typical dream flying position, lying face-down with outstretched arms and the head raised. The balloon is a membrane which forms an egg shape when inflated with helium and is attached directly to the pilot's back. The volume of the balloon is carefully calculated to compensate the sum of the pilot's weight + the weight of the wings + the weight of the membrane. The maximum velocity of the vehicle is low, between 5 and 8 km/h (3 and 4 mph): its inertia, meteorological risks and the price of helium mean that the Aeroplume is best suited for use in closed spaces.

Although the flying space is limited by enclosing walls, the pilot can nonetheless fly free of weather limitations. In fact, flying with the Aeroplume in interior spaces is safe enough to be an ideal activity for anyone, even children.

The Aeroplume is available in various sizes, to suit pilots of different weights. It is currently available in four models: the Child for children up to 40 kg (88 lbs), the Ciccio for pilots up to 65 kg (143 lbs), the Wanda for pilots up to 80 kg (176 lbs) and the Borneo for pilots up to 85 kg (187 lbs). The production of other models is currently being considered.

Design: Atelier Aerosculpture
Photographs: courtesy of Aeroplume









EDUARDO SRUR

PETS

An urban intervention involving 20 giant-sized sculptures in the form of soft- drink bottles. For 60 days, the work occupied the concrete banks of the polluted Tietê River between the Limão and Casa Verde bridges in São Paulo. Seen by over a million people each day, the intervention sought to visually reactivate the city's largest watercourse and encourage public reflection on the urbanistic problems caused by litter. As part of the project, an educational initiative brought 8 thousand students and teachers from public schools to visit the intervention aboard a riverboat. At the end of the event, the plastic from the inflatable bottles was transformed into schoolbags designed by the artist Jum Nakao and donated to the participating schools.

Design: Eduardo Srur
Location: São Paulo, Brazil
Photographs: CiaFoto, Eduardo Srur & Casio Vasconcelos

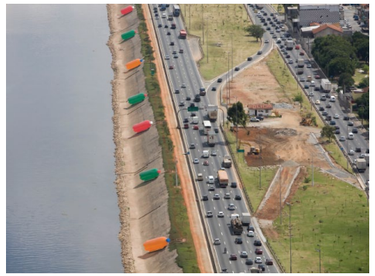
© CiaFoto



© Eduardo Srur



© Casio Vasconcelos





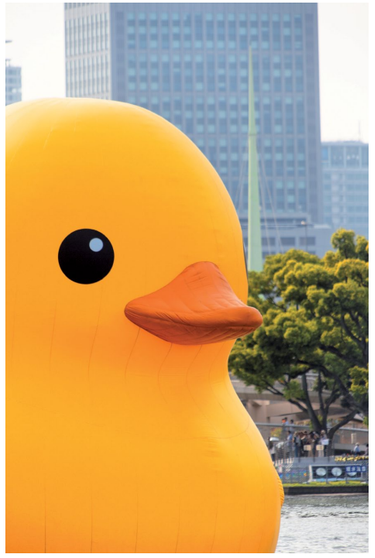
© Eduardo Srur

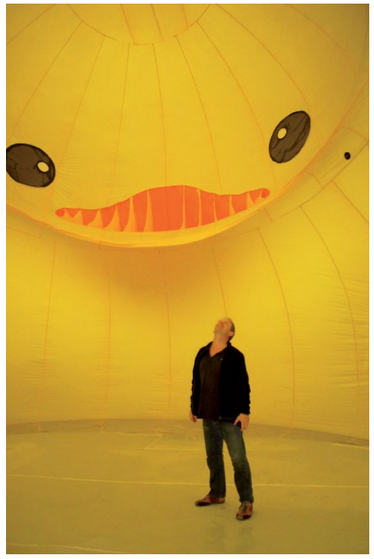
FLORENTIJN HOFMAN

RUBBER DUCK

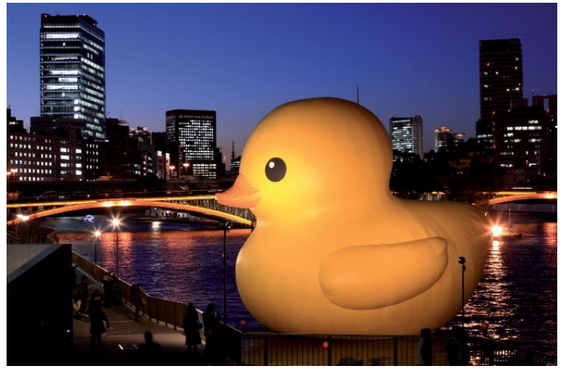
A yellow spot on the horizon slowly approaches the coast. People have gathered and watch in amazement as a giant yellow Rubber Duck approaches. The spectators are greeted by the duck, which slowly nods its head. The Rubber Duck knows no frontiers, it doesn't discriminate people and doesn't have any political connotations. The friendly, floating Rubber Duck has healing properties: it can relieve global tensions as well as define them. The rubber duck is soft, friendly and suitable for all ages. Florentijn Hofman's Rubber Duck can be manufactured in various sizes. Its inflatable structure makes it easily transportable. It has multiple possible functions, the most significant of which is to provoke a visual reassessment of how we relate to our environment, to the relative scale of things in a given location. Thwarting or confirming our expectations produces a baffled but amiable reaction of surprise.

Design: Florentijn Hofman
Photographs: Contributed by Florentijn Hofman











PAUL MCCARTHY
AIR PRESSURE

The exhibition is titled Air Pressure and shows a part of McCarthy's oeuvre that has not previously been shown in the Netherlands. Familiar themes from McCarthy's work (such as the Daddies Ketchup Bottle and Santa Butt Plug) are given shape in Air Pressure in the form of inflatable versions. McCarthy is also introducing a number of new sculptures inspired by everyday icons of the consumer society. The infatables vary in size from 4 to 24 metres, their colour and idiom forming a splendid contrast with the decor of the botanical gardens.

Design: Paul McCarthy
Location: Utrecht, the Netherlands
Photographs: Contributed by Air Pressure

© Misha de Ridder

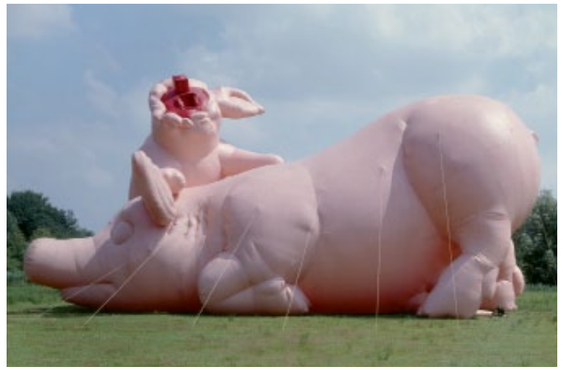


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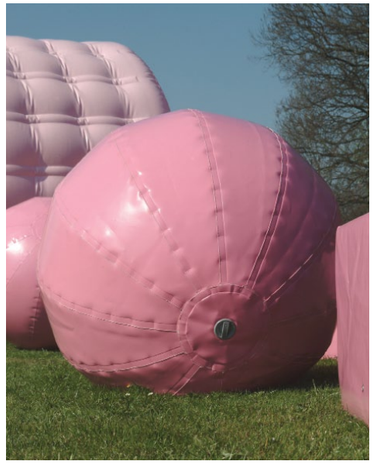
© Mark Vos / Mediacontainer.nl

TOPOTEK 1
CASTLE PARK
TEMPORARY PLAYGROUND

Castle Park was a temporary playground set up to entertain children while their parents visited the 2005 State Horticultural Show in Wolfsburg. Twenty-four inflatable objects and fifteen cubes made of rubber foam colored pink and baby-pink are laid out on the lawn. Bogie wheels, rings, and air-filled wands, balls in various dimensions and two large mats with their exuberant color catch the attention and attract everyone willing to play onto the meadow next to a horse-paddock. For the design-concept this close spatial proximity originally offered images of horse-books, girl romanticism and Barbie-world. The respective color concept was applied to the geometric forms. The inflatable objects are also flexible sculptures. The clear geometric forms contrast starkly with the fine textures of the leaves, grass and flowers. On closer approach the sensuality of the objects becomes tangible. They are soft, featherlike and seem harmless, tender even. The coated polyester fabric has a feel to it which can be conceptually related to the pink tones.

Design: Topotek 1
Location: Wolfsburg, Germany
Photographs: Hanns Joosten













WEST 8

COW - HORIZON PROJECT

This project was conceived as part of the 2nd International Architecture Biennale Rotterdam held in 2005. Three eight-metre-high inflatable cows were placed along the main highways in the Randstad – the conglomeration of cities that together make up a metropolis - as reminders of the unique Dutch horizon. They drew attention to the fact that the ancient manmade landscape of the Dutch veenweidelandschap is not only of great cultural importance but also essential as a place for self-reflection.

The giant inflatable sculptures depict happy cows, posing like Paulus Potter's bull, framing the glorious horizon between their legs and, as is the case with the bull in Potter's painting, fixing the onlooker with their bright eyes suggesting they know what's going on.

Interestingly enough, when the architects were setting up the project, they asked local farmers to provide them with suitable meadows and the farmers did so without hesitation. The local people, according to the artists, were very receptive to what West 8 was attempting to do and immediately grasped the significance of the sculptures.

West 8 is an award-winning international office for urban design and landscape architecture, founded by Adriaan Geuze in 1987. Since then, West 8 has grown to include an international team of 70 architects, urban designers, landscape architects and industrial engineers. West 8's main office is based in the port of Rotterdam, and has three branch offices in Belgium, New York and Toronto.



Design: West 8
Client: International Architecture Biennale Rotterdam
Location: Randstad, the Netherlands
Photographs: Contributed by West 8





OTHER APPLICATIONS

GILLES EBERSOLT
LA BALLULE

This transparent inflatable plastic sphere with a double skin was designed by the French inventor and architect Gilles Ebersolt after, at 17, he and a friend had the idea of creating an all-terrain inflatable device. Consisting of two concentric spheres, the device pushes the possibilities of the materials to the limit and has been realized, through its various manifestations, in PVC and other synthetic transparent, elastic and hard-wearing textiles. The inner sphere, accessed through a narrow tubular passage, is connected to the outer sphere by cables so that it is suspended in the center of the outer, inflated, sphere. Once inside, the occupant can direct the movement of the device by moving their bodyweight.

From the inauguration of the first prototype 3 years after Gilles Ebersolt first had the idea, in an event in Grez, Switzerland in 1977, the Ballule went through years of testing, development and improvements. The design was patented in 1980 and subsequently appeared in regular extreme sporting events around the world that brought it periodically to the attention of the televised media. Designed to enable the occupant to roll down hills, sand dunes and ski slopes, float down rivers and even roll over waterfalls in relative safety, one of its greatest feats was achieved in July 1985 when a 6-meter in diameter fourth-generation Ballule with Gilles Ebersolt inside it effected a descent of Mount Fuji.

Design: Gilles Ebersolt
Photographs: Gilles Ebersolt











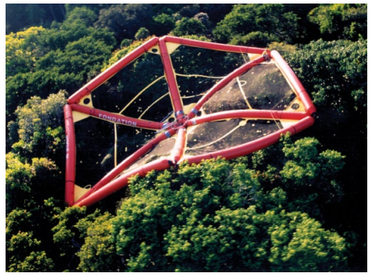
GILLES EBERSOLT

SOLVIN BRETZEL & TREETOP RAFT

Different techniques for accessing and studying the forest canopy were researched for an international project for the study of insect diversity. Looking for a completely open structure which would be light enough to rest on a crown of forest trees, Ebersolt came up with this mobile, twenty-sided, air-filled structure, dubbed “Radeau des cimes” (Treetop raft). Transported via hot-air balloon, Ikos is the materialization of the dream of being able to observe the forest’s canopy.
The sphere, measuring 3.2 meters in diameter, can be easily taken apart and reassembled for ease of transport and on-site assembly. Once in place, its inhabitant can reach the ground, if necessary, via a fixed line. Aside from its invaluable use as a scientific observation post for an ordinarily very hard to reach habitat. Ikos can be put to use in eco-tourism, as a temporary dwelling or portable construction site shack. With a holding capacity of three people, Solving Bretzel and Treetop Raft are lightwieght structures which are easy to transport and set up. The Treetop Raft brings mobility, Ikos, the ability to stay and observe. Two structures that make a dream of science into reality.













NENDO

BLOWN-FABRIC

Nendo created 'blown-fabric' for Tokyo Fiber '09 Senseware, an exhibition intended to convey the possibilities of new materials developed with Japanese synthetic fibre technology.

'Smash' is a specialized, long-fibre, non-woven polyester that can be manipulated into different forms through hot press forming technology. Because it is thermoplastic, light and rip-proof, but glows beautifully when light passes through it, Nendo realized that it could use it to create lighting fixtures in the style of vernacular Japanese chochin paper lanterns.

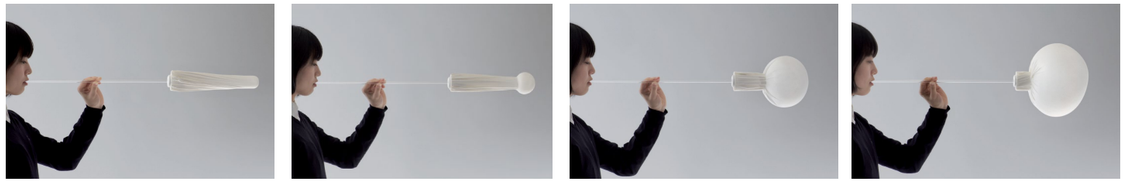
The structure of standard chochin consists of thin strips of bamboo wrapped around a wood frame and strengthened with vertical stitching. Japanese mulberry paper pasted over the frame completes the lamps, and gives them their characteristic glow. But Nendo realized that Smash's particular properties would allow them to shape it like blown glass into a seamless one-piece lantern. It is impossible to completely control the process, so each fixture takes a unique form as heat is added and pressurized air blown into it. As in glass-blowing, we can intervene during the production of each piece, resulting in a collection of objects whose infinitely varied imperfections are reminiscent of the infinite formal mutations of viruses and bacteria in response to environmental changes, and a far cry from the standardized forms of industrial mass-production.

The fixtures are weighted at the base by the light source. This simple, straightforward design contrasts with the careful selection of materials. Smash changes form if the interior temperature rises above 80 degrees centigrade, so Nendo mounted low-heat LED bulbs in machined aluminium sockets that double as a heat-sink to maintain a low interior temperature.

Design: Nendo
Location: Tokyo Fiber '09 Senseware, Triennale di Milano, Italy
Photographs: Contributed by Nendo







Because the effects of the heating and blowing process on the fabric are impossible to control completely, the result is an endless variety of one-of-kind pieces.





The lamps are given stability by the weight of the light source located at their base. To keep the heat-sensitive fabric from undergoing further transformation, low-heat LED bulbs were used, placed in aluminium sockets that double as heat sinks.



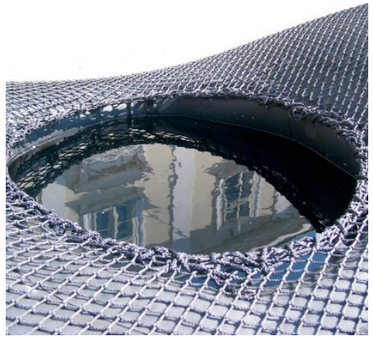
THE NEXT ENTERPRISE ARCHITECTS

TRINKBRUNNEN FOR THE HÖFEFEST IN ST. PÖLTEN

The briefing asked for an autarkic bar object for an annual festival in St. Pölten that should be easy to assemble and remove, and be as independent from infrastructure as possible.
We were interested to insert a soft, haptic, vulnerable object into an urban context. Using a very elastic and robust material we knew as a roof sealant, we started to develop a prototype.

The bar is an inflatable pipe with a cavity, that, filled with water, becomes a cooling trough for drinks. The water's weight stabilizes and deforms the pneumatic object. The pipe is made from natural rubber, a highly elastic, UV-resistant and weatherproof material. Being elastic, the rubber reacts to the displacement of air and water and determines the shape of the object. To avoid overheating the surface, the rubber pipe is clad in an elastic fabric.

Design: the next ENTERprise - architects
Location: St. Pölten, Austria
Photographs: the next ENTERprise - architects













STUDIO LINDFORS

CLOUD CITY

The concept for CLOUD CITY is based on the desire to allow people to remain in their community as close to their homes as possible. This would allow residents to participate actively in the rebuilding of their communities, while fostering a sense of security. Studio Lindfors proposed achieving this by floating a layer of provisional housing over the damaged or destroyed portions of the City. Once airborne, the floating homes allow construction crews below to work unimpeded, speeding up the recovery effort. This in turn reduces costs and unnecessary delays.

Inflatable homes would be pre-fabricated and stored in warehouses for deployment as and when required. Each home consists of three basic components: an inflatable bladder, a rigid core, and a metal and wood platform. The bladder would consist of two compartments, filled with pressurized helium (which is non-combustible). The pressurized gas would give shape to the tailored and stitched fabric shell, creating an open living space within. Made from recycled polyester fabric, the balloon has a large surface area suitable for mounting flexible solar panels for generating electricity. Within this living space is a rigid core which contains an efficient kitchenette and bathroom, along with plumbing and electrical services. The 300 sqft (28 sqm) open living space can be configured in many ways to create up to three bedroom spaces to house a family of four.

Design: Studio Lindfors / Ostap Rudakevych, Gretchen Stump, Erik Jostock.
Awards: Chosen as a Selected Entry in the 'What if New York City...' post-disaster housing design competition, February 2008
Images: courtesy of Studio Lindfors

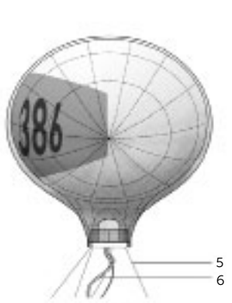


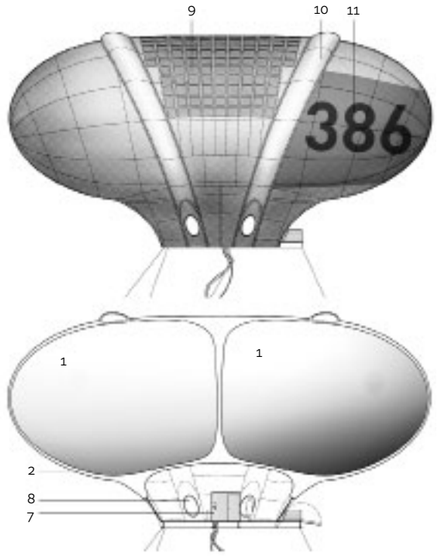












1. Pressurized helium bladder
2. Double skin recycled polyester fabric
3. Kitchenette
4. Aluminium frame platform
5. Steel guide wires
6. Flexible utility lines
7. Kitchenette / bathroom unit
8. Porthole windows
9. Flexible solar panels
10. Structural pneumatic ribs
11. House number



PAISAJES EMERGENTES

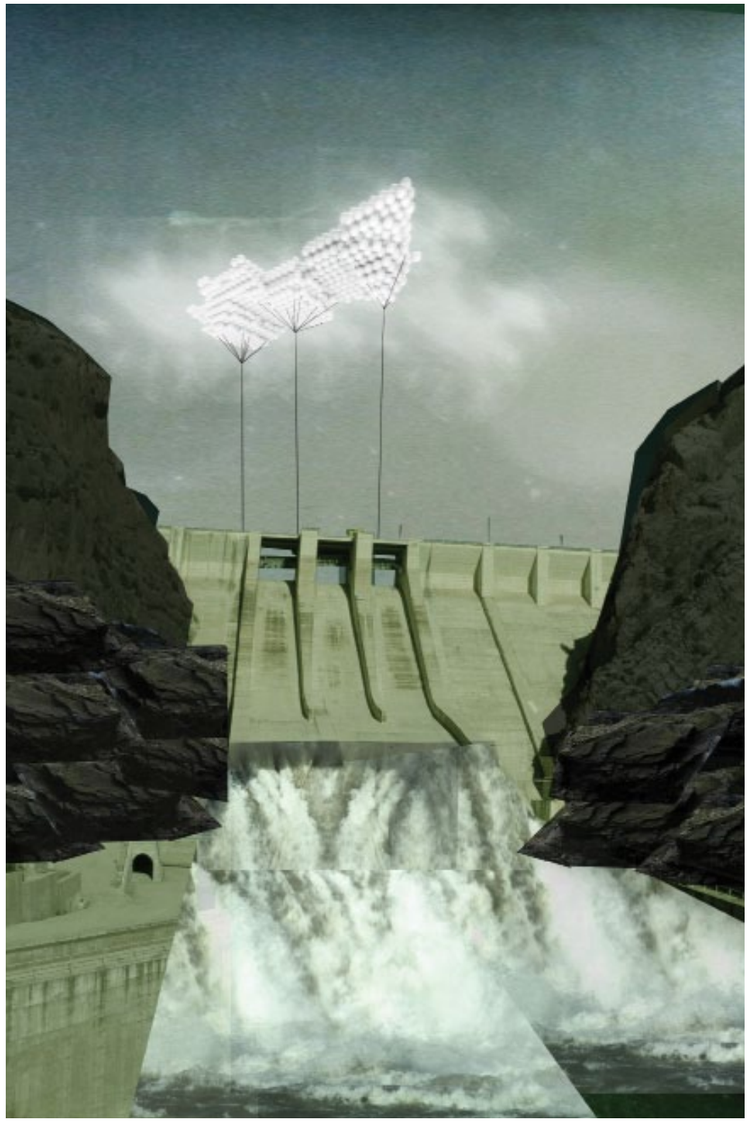
CLOUDS

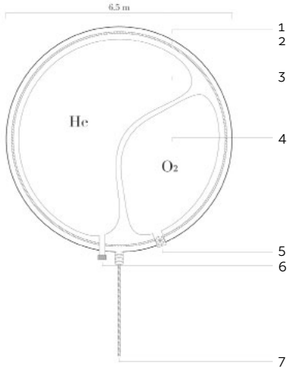
Five installations designed for the towns affected by the construction of the Ituango Hydroelectric megaproject. Each Cloud in its lowest position was intended to serve as a scenography for the inaugural event. The Clouds would then climb to 150 m (492 ft) above the accidented terrain so that communication could be maintained between them, allowing a constant exchange of information between towns separated by long distances and a complex topography. New radio stations and the weather prediction systems were also to be located in the Clouds.

Design: Paisajes Emergentes
Collaborators: Juan Esteban Gomez, Farid Maya, Sebastián Monsalve, Juan Carlos Aristizabal
Images: contributed by Paisajes Emergentes

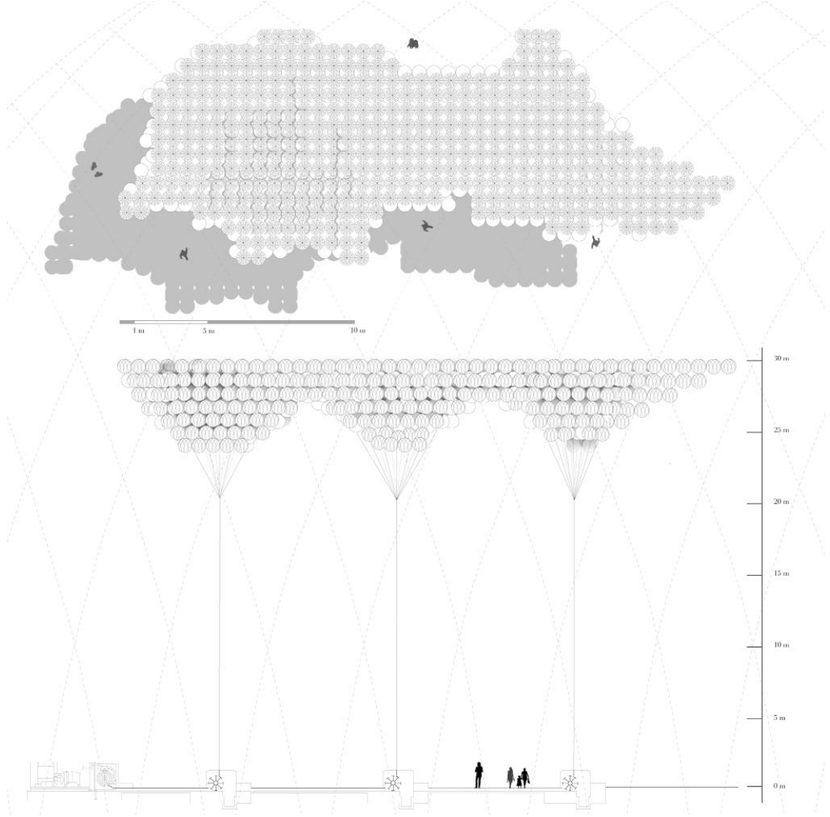


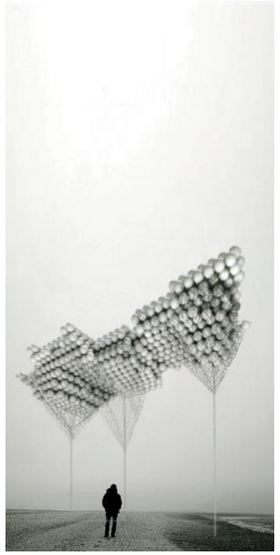






1. External skin: nautical geotextile
2. Interior skin: latex
3. Helium balloon: mylar
4. Air balloon: latex
5. Compressor: Atmospheric pressure compensator
6. Helium recharge valve
7. Steel cable









PAISAJES EMERGENTES
HEATHROW AIRPLOT

This project, subtitled *a project for an effective demonstration to stop all air traffic* was based on the exploitation of a legal gray area derived from the conflict between property and landowners' rights and the use of the lower airspace near airports by air traffic, in this case near Heathrow Airport outside London. Paisajes Emergentes proposed an installation in which properties close to the airport would be invited to participate, comprising in the physical occupation of a certain height of the airspace above each property to revindicate the owners' legal rights of occupation. Concretely, the proposal consisted in the replication of objects from the ground plane – whether houses, farm animals, vehicles or other objects – in 1:1-scale helium balloons which would then be tethered to their respective counterparts. This would generate a translation of the ground-plane occupation at heights which would vary according to proximity with the airport and air traffic approach paths.
Heathrow Airplot is a proposal for an inflated installation of unrivalled ambition and scale.

Design: Paisajes Emergentes
Site: Heathrow, UK
Images: courtesy of Paisajes Emergentes





JOSEPH CORY - PINI GURFIL

SUNHOPES

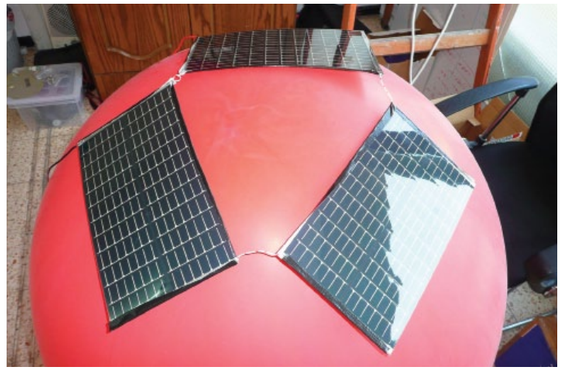
SunHopes is a novel design paradigm that explores original uses of photovoltaic technologies for utilization of solar energy while satisfying a growing need for a sustainability. The architects suggest using a lighter-than-air helium-filled platform containing photovoltaic arrays (PVA) in order to extract electrical power from the incoming solar radiation. The goal is to develop an efficient, portable, land area-independent, inexpensive and reliable energy source for all, thus contributing to promoting society by decentralizing and diversifying energy resources while generating an ecological coherence between humans and nature. Many concepts can be developed: A simple, helium-filled spherical balloon containing a PVA on the outer skin surface; a paraboloidic balloon with a transparent upper part and an opaque lower part containing paraboloid-shaped photovoltaic cells on the inner surface, thus increasing the solar radiation conversion efficiency; the same balloon where the inner collectors are replaced by mirrors, and the upper transparent part contains a PVA at the focus of the inner paraboloid-shaped mirror, thus concentrating and augmenting the solar radiation. Spatial and vertical arrays of the different balloon types will use minimal footprint while producing unlimited energy. It constitutes an accessible, portable and infrastructure-free access to electric power in diverse locations.

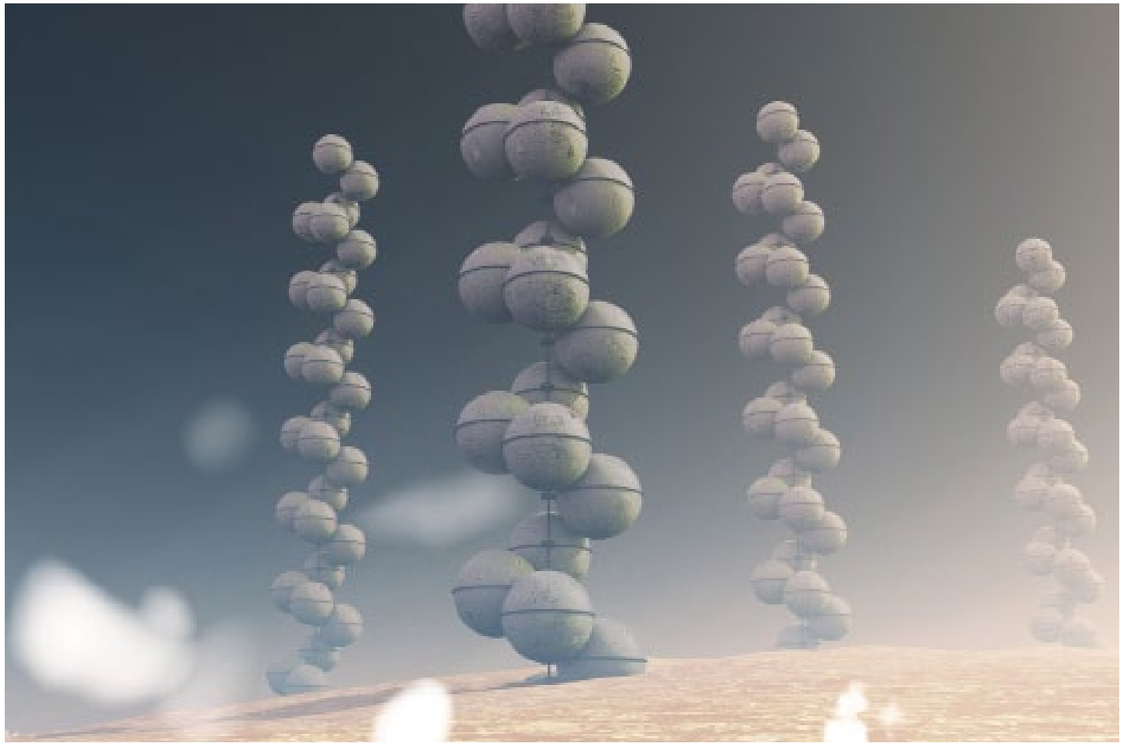
The new design developed herein has several clear advantages: first and foremost, the balloon concept transforms light into electricity without occupying precious land area. It constitutes an accessible, portable and infrastructure-free access to electric power that could be used in diverse locations, including remote areas and at sea.

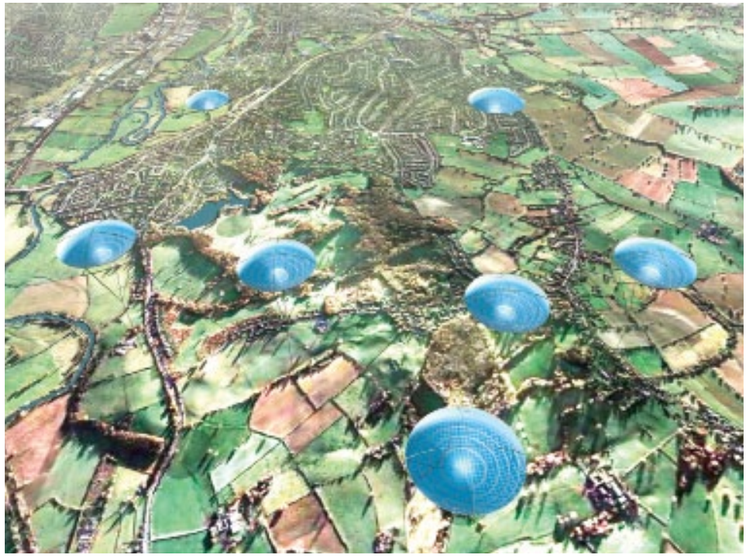
Basic balloons can be used as either a primary or a secondary reliable electric energy source in tents, condos, residential areas and high-rise buildings. The advanced balloons, comprising a paraboloidic balloon with a bottom collector and an upper transparent part or a bottom reflector and an upper collector provides a smooth, aerodynamic design. This design is ideally suited for marine vessels. The inflatable devices use relatively simple technology, most of which is accessible through commercial, off-the-shelf products.

Design: Dr. Joseph Cory (Geotectura Studio), Dr. Pini Gurfil
Photographs: Contributed by Joseph Cory





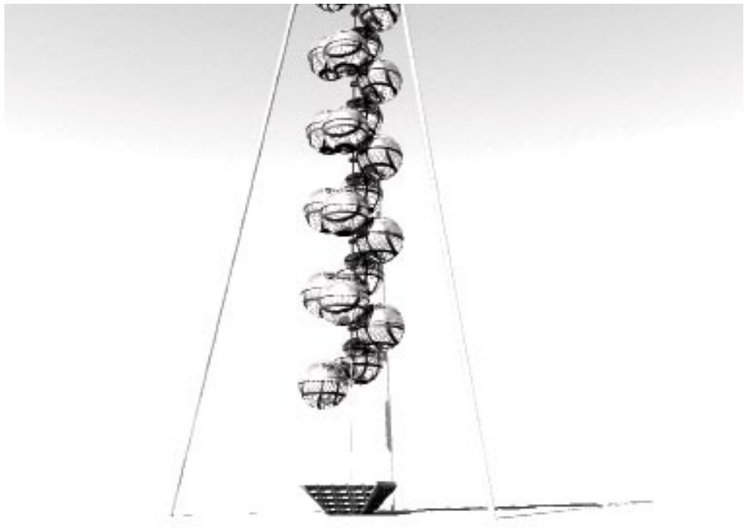




Future applications may include flocks of balloons that are inter-connected and/or inter communicating. Moreover, an ensemble of balloons floating in various altitudes can create a lighter-than-air mini power station.



There are three main design alternatives: a spherical balloon containing an embedded PVA on its outer skin; a double-paraboloidic balloon with a transparent upper part and a PVA on the inner surface of its bottom part; and an advanced design, wherein the inner PVA is replaced by a concentrating mirror, reflecting the incoming solar radiation on a PVA located on the upper paraboloid.



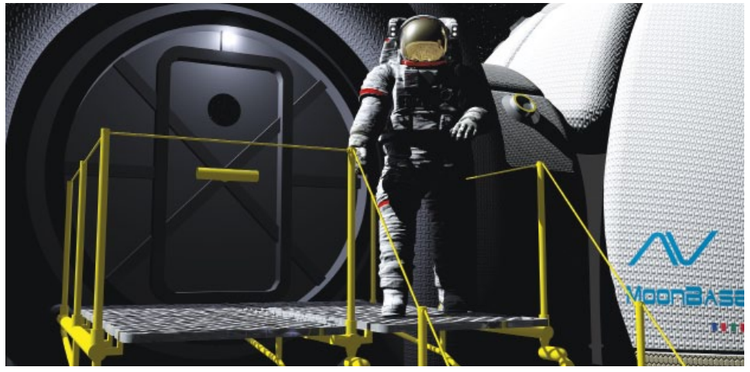


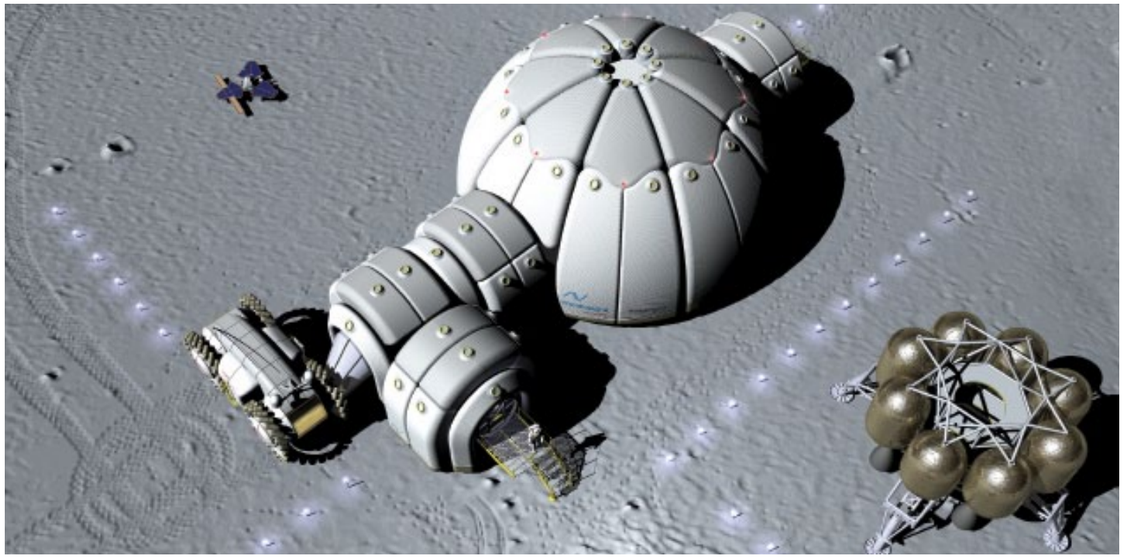
ARCHITECTURE AND VISION
MOONBASE TWO

The futuristic "MoonBase Two" is a further development of the inflatable laboratory "MoonBase One", a design proposal completed in 1999, also by Architecture and Vision. Conceived as a long-term base for conducting in situ moon research and exploring the surrounding environment, it will also help in the study of possible permanent human settlements on planets far from the Earth. It has been designed to be transported to orbit and launched by the Ares V rocket, a heavy-launch vehicle that will accompany the crew vehicle Ares I on NASA's next planned moon trip in 2019. The igloo-like inflatable station automatically deploys after landing, to be ready to accommodate the world's first lunar inhabitants.

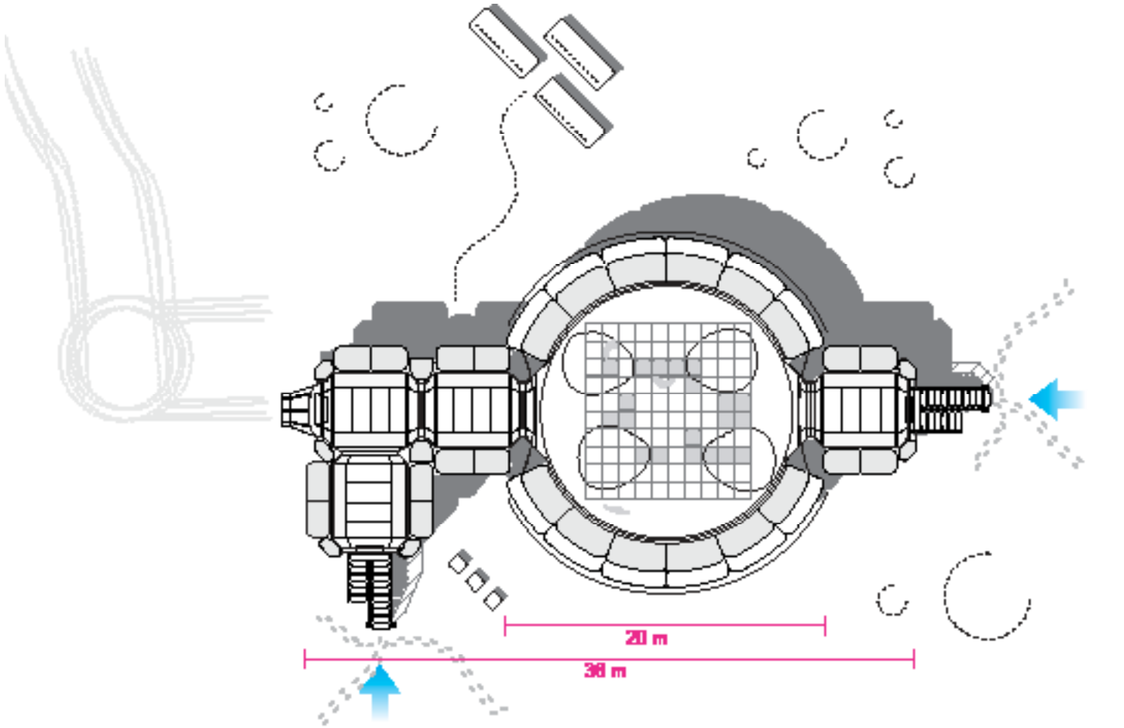
The Moonbase's dome shape responds to the need to maximize surface area to capture the sun's rays, both for heat and energy-harvesting. The most external of the three layers that make up the surface of the base is filled with regolith (lunar dust) to provide protection from falling meteorites. The inside of the station is divided vertically according to the different functions. On the lower level are the technical installations, in the center the communal area and the top section houses the astronauts' sleeping quarters. Since there can be no portholes allowing views outside of the dome from the inside, a lighting system is used that changes in intensity to simulate the passing of a terrestrial day. Moonbase Two is equipped to allow up to four astronauts to stay for a total of six months.

Design: Architecture and Vision
Design Team: Andreas Vogler, Arturo Vittori
Consultant: Thales Alenia Space (Maria-Antonietta Perino, Massimiliano Bottacini)
Model: Self Group

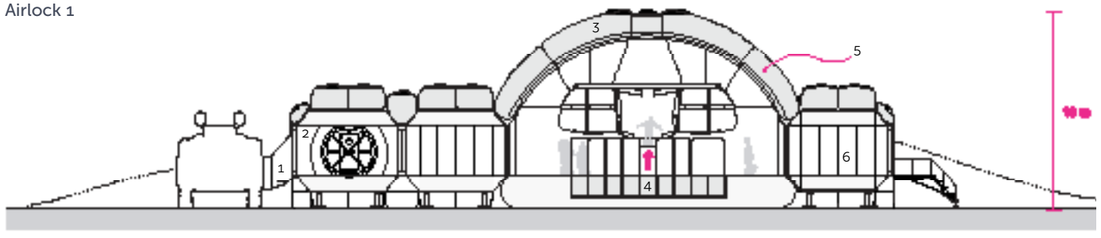


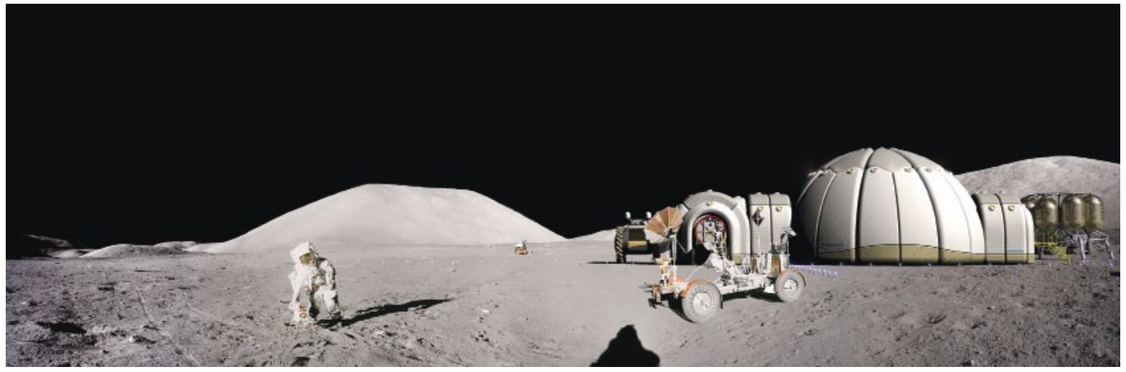






1. Rover docking port
2. Node 1
3. Regolith fill-in
4. Life support systems
5. Regolith radiation protection
6. Airlock 1





1. Galley area
2. Kitchen rack
3. Retractable table
4. Inflatable chairs
5. Briefing relaxation area
6. Inflatable sofa
7. Deployable workstation
8. Hard floor
9. Soft floor
10. Briefing service rack

1. Door up element
2. Door-platform element
3. Door structural band
4. Membrane sandwich
5. Exhaust air duct
6. Rope in polyester jacket
7. Structural band

8. Principal duct
9. Main oxygen duct
10. Airgrill
11. Pneumatic cells
12. Stowage rack
13. Bed
14. Deployable workstation

