Diversity is not the same as abundance, which can indeed be very arbitrary. Diversity implies more: it also comprises unity. And unity implies more than restriction to a single unit.

Unity can only be perceived in diversity: without it diversity cannot exist. The many folds of a single garment are an image that gives visual expression to this concept.

The world we live in is monotonous? This is hard to believe. It is more likely that the way it is perceived is monotonous and that it is made monotonous. Diversity is obscured by a single consideration or a small number of them: for example, returns on money invested, or quite simply the way the system works. The architect who allows himself to be influenced primarily by these considerations and who disregards the many other aspects will produce monotonous work.

Such interests which are indeed powerful, and often monumental, hardly need much promotion from us: their claims are powerfully represented by other parties. There are other considerations that are in need of our commitment: ecology, for example; our fellow-men, children, people, working methods, communal living and many others. We can uncover and investigate as many as possible of the almost unlimited number of facets of a brief – that we receive in the deceptive guise of a single concept, such as a hospital – facets that otherwise remain unrepresented. We are in a position to enable hidden forces, neglected in the reality of our society, to find expression and to assume their visible form.

The more such aspects we can identify, the more richness we will recognise in the brief and the greater the diversity of the resultant architectural form. Additional techniques of harmonisation – be they mathematical, geometrical, formal or of any other type – become superfluous. Architecture assumes a special quality if it is constantly new, different and many-sided, or if it can never be definitively understood or interpreted: architecture as the mirror of the diversity inherent in our environment and as the reflection of our concern for it.

Read more about Günter Behnisch's architecture in Daylighting: Berlin Academy of Arts, starting on page 18.
The focus on daylight in architecture is high and rising. In this respect, VELUX wants to play a role by contributing and stimulating issues that lead to better living environments. As an international manufacturer of roof windows and skylight systems, it is important for us constantly to seek and strengthen the relevance of our products in architecture. We would like to enhance and encourage the role of daylight in design prioritising. This focus is our platform for building and nurturing relations with the building sector – not least with architects.

Our founder, Villum Kann Rasmussen invented the roof window in 1942. He called his company by the short name of VELUX, an acronym of VEEn/DA for further inspiration and information.

Early years of VELUX much time was spent with architects and other trendsetters to present glass and other trendseakers to present the concept and the products. By doing this, he laid the cornerstone of the strategy that we pursue today: to engage in dedicated dialogues with professionals about daylight, and to seek and strengthen the architectural relevance of our products. We see our daily business as being closely linked to building design, with the overall objective of focusing on daylight and fresh air as providers of better living conditions in people’s everyday lives.

This objective is the platform from which we present “Daylight & Architecture”. In this magazine – and in the issues to come – we will choose to raise topics and present views and angles about the past, present and future of architecture with daylight and fresh air. This will provide a platform for dialogues between professionals in which we will raise questions rather than give standard answers and statements and thereby inspire and facilitate the discourse about architecture, especially daylight.

Enjoy the read and please visit www.VELUX.com/DA for further inspiration and information.

Variations of daylight: Olafur Eliasson has designed three light sculptures for the new opera house in Copenhagen. An exhibition of Peter Eisenman’s work is on display at the MAK Exhibition Hall in Vienna and Berlin is hosting an event for European lighting designers. Also: Tables that glow in the dark – without electricity.

Glass was once a sign of luxury, a medium for Christian teachings, a symbol of progress and proof of a democratic attitude. It has fascinated artists and architects alike for more than 3,500 years. Michael Wigginton chronicles the history of a material that is as diverse as architecture itself.

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Our founder, Villum Kann Rasmussen invented the roof window in 1942. He called his company by the short name of VELUX, an acronym of VEnligtræ A/S (Light window) and the Latin word for light, LUX. Part of Villum Kann Rasmussen’s original vision was to create good cheap square metres of living space under pitched roofs by letting light into the attic at a time when living space was in shortage. In the early years of VELUX much time was spent with architects and other trendsetters to present the concept and the products. By doing this, he laid the cornerstone of the strategy that we pursue today: to engage in dedicated dialogues with professionals about daylight, and to seek and strengthen the architectural relevance of our products. We see our daily business as being closely linked to building design, with the overall objective of focusing on daylight and fresh air as providers of better living conditions in people’s everyday lives.

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Danish Olafur Eliasson (born 1967) has made his own imitable mark on his former home city Copenhagen with a very special art work: in the foyer of the new Opera House designed by Henning Larsen, three voluminous light sculptures hang some three metres above the heads of the visitors. Each of the three crystal spheres has a diameter of 285 centimetres and comprises 1430 pieces of special colour-effect filter glass. In the daylight, the light spheres sparkle in the colour spectrum between blue and violet. At night, lit up by 330 20-watt halogen lamps each, they themselves become the light source adding a touch of glamour to the wide reaches of the foyer.

Olafur Eliasson has been working systematically with crystal structures for many years. The multi-faceted surface of a chandelier, a jigsaw of convex and concave rhombi, is reflected in Eliasson’s second current opera project: for the foyer of the new opera house in Oslo (due for completion by 2007), he designed cladding for the walls made from rhombic wooden panels. Eliasson intends for the rhombic structure to represent the growth pattern of ice crystals, ripples on the surface of water or sound waves triggered by cracking ice. The artist is not making a fixed statement here – instead of sending a message to the observer, he sees his work as an opportunity to form your own perceptions and surround yourself in a sensory experience.

Read more about Olafur Eliasson’s work in Reflections: Seeing yourself seeing, starting on page 14.

LIGHT SCULPTURES IN THE COPENHAGEN OPERA HOUSE

The Museum for Applied Arts (MAK) in Vienna fosters a special kind of cooperation with contemporary artists: it initiates exhibitions, which are more than a mere presentation of works, but constitute temporary changes of the museum’s building structure. For the second time (after Zaha Hadid in 2003) an architect has left his marks in the MAK exhibition hall: Peter Eisenman, the thinker and critic amongst the architects, overlaid the historic architecture of the space with thirty small exhibition cubicles, referred to as “columns”, and an inserted ceiling at a height of only 2.55 m. “A transforming exhibition, sparse and hard hitting”, Eisenman characterised the MAK show. As always he aimed to irritate the visitor: the hall itself is dark; single sources of light are the columns (the “white-hot walls” in the exhibition title), which penetrate the inserted ceiling and capture the light entering from above. In each cube Eisenman presents one of his works in form of a three-dimensional “diagram”. The majority of these conceptual sculptures are especially made for the MAK exhibition. Only four projects are presented with traditional models: the “Ciudad de la Cultura de Galicia” in Santiago de Compostella (under construction since 1999) and the designs for the Musée du Quai Branly in Paris (1999), the FSM Towers in New York (2001), and the high-speed train station in Naples (2003).

“BAREFOOT ON WHITE-HOT WALLS” PETER EISENMAN IN MAK IN VIENNA

... the voided volumes are also the only source of light, extending up through the lowered ceiling to catch the light from the skylights above. The columns also reveal their lack of structural necessity by being lifted two centimeters off the floor to allow light to seep out from underneath.”

Peter Eisenman in the exhibition catalogue

NOW

The things that make architecture tick: events, competitions and selected new developments from the world of daylighting.
NEW WINDOW FOR GROUND ZERO

Is it an exotic flower – or an explosion? Perhaps other interpretations are partly true of the new coloured window that American artist Guy Kerpé designed for St. Joseph’s Chapel in New York.

Located right at Ground Zero, the chapel was designed by the New York fire brigade after 9/11, but has now reverted to its original purpose. The 6 x 2.6 metre window was manufactured by Otto Glashütte in Taunusstein, Germany at a cost of around 30,000 dollars. It is composed of in-60 x 80 centimetres in size and three window that American artist Guy

sion? Perhaps either interpretation of the red tones in the window and created various different pinkish 

colours were added using the top layer of the overlay glass par-

tially etched away. In this way, they provide greater variety, with the top layer being made of red blown glass panels, each 60 x 80 centimetres in size and three to four millimetres thick.

The glass artists used red overlay glass to emphasise the brilliance of the red tones in the window and provide greater variety, with the top layer of the overlay glass partially etched away. In this way, they created various different pinkish tones – where the top layer was entirely removed – clear glass. The other colours were added using the traditional painting technique, with a layer of clear glass being glued over the window panels at the end to provide stability.

CRYSTAL DOME IN NEW LIGHT

Bright stars burn out quickly. Bruno Taut’s glass pavilion, at the exhibition of the Deutsche Werkbund in Cologne in 1914 had only been open for a few weeks when the start of the First World War compelled the exhibition to close. “The glass house has no other purpose than to be beautiful”, wrote Taut about his building at the beginning of 1914. And the poet Paul Scheerbart wrote for him the following much-quoted verse: “Ohne einen Glaspalast / ist das Leben eine Last!” (“Without a glass palace, life is a burden!”).

More than 80 years later, the inventer Günther Kunz and the architect Anja Brüll have reawakened interest in the glass pavilion. In the grounds of the “Chateau de Graaf” in Montzen, Belgium, they inaugurated a glass dome building which is based on the same geometric principle as Bruno Taut’s masterpiece. Seen from the inside, the domed glass table “floral”, for which gruppe RE was awarded in the design competition “Design for Europe” in 2004, gives an impression of how Taut’s glass pavilion changed its appearance over the course of the day. In bad weather, the reflecting facets of the dome assume a greenish-yellow tone, which was why the dome was nicknamed “spargus-head” at the time. In clear weather, they reflect the pure blue of the sky.

The luminous glass, a single-pane safety glass, can be activated in two ways: by invisible ultraviolet light and visible artificial light or daylight. When activated by ultraviolet light, the glass reaches a homogeneous luminance of approximately 60 candela/m² at a viewing distance of 50 centimetres. When activated by artificial light or daylight, the glass glows for up to 60 hours. The ceramic-baked finish can be applied with all common processing methods such as rolling, spraying or printing. Design options for this new glass are almost without limits: it is suitable for furniture making, as wall cladding, partition walls or façades. The glass, which was patented by gruppe RE all over Europe, is distributed by Glas-Eckelt and available as sound-insulating glass or compound safety glass.

AFTERGLOWING GLASS

The German designers gruppe RE and the Austrian glass-refining firm Glas-Eckelt have developed a special glass, which afterglows in the darkness. The reason for this is a glass-ceramic coating, which is able to store artificial light and daylight. The glass was first applied for the glass table “floral”, for which gruppe RE was awarded in the design competition “Design for Europe” in 2004. The luminous glass, a single-pane safety glass, can be activated in two ways: by invisible ultraviolet light and visible artificial light or daylight. When activated by ultraviolet light, the glass reaches a homogeneous luminance of approximately 60 candela/m² at a viewing distance of 50 centimetres. When activated by artificial light or daylight, the glass glows for up to 60 hours. The ceramic-baked finish can be applied with all common processing methods such as rolling, spraying or printing. Design options for this new glass are almost without limits: it is suitable for furniture making, as wall cladding, partition walls or façades. The glass, which was patented by gruppe RE all over Europe, is distributed by Glas-Eckelt and available as sound-insulating glass or compound safety glass.

WINDOW TO PORTO

An extraordinary look – and unique views: the ‘Casar da Música’, the new concert hall in Porto, offers both. The ‘metropolis’, as people have nicknamed the new building constructed by the Rotterdam-based architectural consultant OMA, opens onto the city through three unusual windows – 14 x 9 metres, 22 x 12 metres and 22 x 15 metres, made not from traditional glazing, but from corrugated glass panels. In these dimensions, they are a world first and were developed by OMA together with ABT engineering consultants and Robert Jan van Santen.

From a distance, the rippling glass windows blur the view into the interior from outside, while concert-goers standing directly in front of the windows inside enjoy an uninterrupted view of the city. Two of the giant windows are at the front of the large concert hall. They are constructed with double panes of glass for the purposes of sound insulation and in order to integrate an emerg-
About 4000 years ago an extraordinary new material was discovered which was to change the nature of architecture. When and how this discovery was made is a matter of pure speculation, but we may imagine a craftsman sitting by a kiln on the shores of a river in Mesopotamia noticing a brilliant sparkle where the hot coals from the kiln had fallen on the sand beneath. From this discovery flowed centuries of technical experiment from which has evolved one of the most important materials known to mankind: a material made from one of the most abundant materials in the Earth’s crust, silica, which has the remarkable property when melted and carefully cooled of transmitting the radiation from the planet’s giver of life, the sun. The material was glass.

Discovering the true nature of the material, and methods of forming it, was an extremely slow process. From its earliest form as beads, the discovery that it was viscous when very hot led to the development of the core method of making pots (in which threads of molten glass were wrapped round a core). By 1700 BC there was a glass industry in Egypt, which created vessels, and decorative products of enormous richness and diversity. This was consolidated by Alexander the Great in 332 BC when he founded the glass industry in Alexandria.

By around 700BC it was found that glass could be blown using a pipe, and the real adventure began. Blowing glass meant that it could be made very thin, and comparatively even in thickness. The basic technique for making the modern window was in place. This extraordinary material, hard, transparent, and capable of being formed, could act as a material to keep the weather out of buildings whilst at the same time admitting light and view.

It is remarkable that the evolution of the window itself then took nearly 3000 years to mature. The Romans, who conquered Egypt and used glass as a tribute, lived in the same Mediterranean climate as the Greeks and Egyptians before them. Although they used glass in openings, and developed ways of growing plants out of season using what are called “cold frames” (rudimentary conservatories), the climate did not create the functional imperative needed to create what we call windows.

Then, a thousand years ago, the need arose in France for a new kind of architecture. European architecture up until this time had been essentially derived from the massive forms of the southern Romanesque, itself derived (as the name implies) from the powerful precedents of Rome. Romanesque was an architecture of massive walls, great vaults and small windows: an apparently inevitable result of the need to create large rhetorical volumes in a warm climate. The volumes provided the powerful statements concerning the importance of God and the technical prowess of man. The structures stabilised the temperature. The small windows modulated and controlled the often overwhelming light.

THE FIRST GLASS AGE: GOTHIC CATHEDRALS

For the abbots and bishops of northern Europe at the turn of the first Christian millennium, this was not enough. They wanted to build bigger, both to accommodate more lay congregations (an essential source of funds as well as of spiritual allegiance) and to exploit the glories of Gregorian chant. In a slow, empirical progress, ways of spanning space with stone, a material only structurally effective in compression, were evolved, and geometries developed which could generate space free from the constraints of the Romanesque barrel vault. The development of the Gothic frame and the need to create walls to fill the huge resulting openings generated the need for light-providing, and lightweight, membranes. The first glass architecture in the history of the human race was born.

Transparency in the sense of providing visibility was not a prime objective to the church and cathedral builders of the Middle Ages. Their idea was to give light to the interiors of their huge volumes, and to use the richness of colour which glass had always been able to deliver. Stories from the Bible were told with vast images, much greater and more powerful than could be delivered by mere painting, lit from behind by the vast source of the sky.

From the rose windows of France, to the huge nave windows of the English, the skills of the Roman empire and their imported Mediterranean glass makers and glaziers evolved a new form of architecture, characterised by enormous expanses of stained and painted glass. The east window of York Minster is the size of a tennis court, and comprises thousands of pieces of glass producing, not transparency (there was no requirement to see in or out), but a shining painting. The Sainte Chapelle
in Paris, built between 1243 and 1248, represents an extraordinary refinement of the Gothic glassmaker art, with stone miledows almost as thin as metal.

Medieval cathedral architecture was essentially a northern European adventure, and it is not surprising that it continued to be built, and evolved, well after the inhabitants of the sunnier climates to the south had created new architectural paradigms. In the 11th century, Proto-Renaissance architecture was emerging in Florence at the same time as Gothic in Northern Europe, and Bramante was working on St Peter’s in Rome in the early 16th century at the same time as Henry VII was building King’s College Chapel in Cambridge, and Westminster Abbey, two of the last great Gothic glazed structures in England.

As soon as the Renaissance arrived in northern Europe a new generation of clients saw a way of using glass to celebrate their wealth in architecture. Whilst transparency was not needed in most Gothic churches, the great houses of the northern European aristocracy of the 16th century required nothing but the ordinary refinement of the Gothic glaziers art, with stone miledows almost as thin as metal.

FOR THE EXTRAORDINARY USE OF MIRRORS IN THE PALAIS OF VERSAILLES, as requiring protection, and glass houses, including the great orangeries of the time, began to infiltrate the world of architecture, albeit as adjuncts to the houses and institutions they served. It was the conservatory which, over the subsequent 250 years, was to form the basis of the evolution of the next great flowering of glass architecture, the second glass age, growing from utilitarian buildings serving horticulture into the status of a great architectural type.

THE CRYSTAL PALACE AND ITS PREDECESSORS

By the 19th century glass conservatories had developed from unpretentious buildings built by gardeners into great pieces of architecture. In England, the Palm House at 1845 at Kew by Richard Turner is one of the greatest of these, but fine and elegant conservatories were built all over Europe. The designers and their clients competed with each other to produce the biggest and the grandest, traversing the continent to look at the work of predecessors and rivals. It was this rapid evolution in the 19th century, and the travelling which fed it, which led to the design of what is undeniably the greatest glass building of the time, built in London in 1851. It was a vision by Joseph Paxton to Rohault de Fleurie’s Jardin des Plantes in 1857 which was to plant one of the seeds for the Crystal Palace, home of the Great Exhibition of 1851. Hailed by Konrad Wachsmann, the great 18th century engineer, as the first modern building, the Crystal Palace combined innovation in technology, manufacture and space to create a masterpiece, created by a gardener, an engineer, and a fabrication company, constructed off-site as a prefabricated structure, and then, when its original use was complete, dismantled and moved to a different location, all without an architect in sight.

The Crystal Palace was one of an evolving type, growing out of the demands of the industrial revolution. If the Crystal Palace was the home of a celebration of the industrial revolution, railway stations, arcades (such as the Galleria Vittorio

Everyone knows the wonderful properties of glass: it is transparent, hard, colourless, indestructible by acids and most liquids, and at certain temperatures more ductile than wax...”

Johann von Leibig, German chemist (1803-1873)

Emmanuel II in Milan, built between 1865 and 1867, and market halls were the building types which were demanded by the requirements of industry in the railway age. Railway stations and the great central market buildings demanded large open spaces with long spans to be protected from the rain, and daylight at the same time. The great Victorian industrial buildings, able to rely on iron and steel, not stone, were the verdals of their time. These buildings had no basis in history, and defied the imaginations of contemporary European architects, leaving the challenge to be met by engineers.

The USA did not carry the same sort of cultural "baggage" as the Europeans, and it was in the USA that a new type of architecture emerged. The regeneration of Chicago after the great fire of 1871 led to the evolution of the skyscraper, with its steel or iron frame, and its glazed façade. Buildings such as the Gage building by Holabird and Roche of 1888 (with Louis Sullivan creating a next door neighbour) were virtually unthinkable by the "academic" architects of Europe. These buildings used the potential of plate glass, invented in France in 1867, and the origin of a great French industry set up in the Chateau de St Gobain in 1675.

FROM INDUSTRIAL HALLS TO PUBLIC BUILDINGS

Although American architecture in the second half of the 19th century saw the creation of new building types, Europe was the home of the third great age of glass architecture, and its theoretical basis. Otto Wagner’s Post Office in Vienna of 1904–12 demonstrated how to move the industrial technology of the industrial halls into a public building, with its wonderful glass roof and floor, but it was German architects and theorists in the second decade of the 20th century whose obsession with glass was to become the most significant influence both on architecture as a whole, and of its relationship with glass in particular. The writings of Paul Scheerbart, the author of “Glassarchitektur” of 1914, and the buildings by Bruno Taut, and later by Walter Gropius and Mies van der Rohe, changed the perception of the role glass could play in architecture. Mies van der Rohe's competition designs for Berlin in 1930 and 1932 represented a huge change in architecture, and he became one of the guiding figures in the modern movement who adopted glass as “their material”, a group
PHOTO BY CHRISTOPH KOCH

America was the birthplace of the curtain wall (starting with many of the important houses and other buildings which he exploited the beauty and potential of glass. Frank Lloyd designed at the run of the 20th century.

Pomposity of previous ages.

A house without walls:

The great Europeans were not the only architects who for the material developed on both sides of the Atlantic. As the light and "modern" replacement for the weight and socialism (with its transparency and openness), and was seen for the material as hard as steel.

Environmental issues and intelligent skins

Thus, although the curtain wall retains an unfortunate hold across the planet, as a phenomenon which blights our cities, a new generation of architects, with different priorities, produced a new flourishing of glass architecture in the 1960s and 1970s, building (perhaps sometimes unconsciously) on the theoretical principles of Wright, Mies van der Rohe and Le Corbusier. What we might call the fourth age of glass architecture draws together the strands of the previous 60 years, liberated by the invention of the float process by Pilkington in the 1960s, and the development of a large number of technologies related to coatings and treatments. Glass is now one of the predominant constituents of architecture across the world.

A fifth age is now on the horizon, with new materials, and new perceptions of use. Smart glass has been in the area known as "chromonomics" which change their performance at the flick of a switch. Insulating materials which produce U-values close to "0" have been developed using aerogels, and stronger materials resisting fire are all infiltrating the catalogues. Dichroics and beam splitting glasses can deliver or block tailored frequencies of the spectrum. Light bending glasses using Total Internal Reflection, such as Seraglass, are also coming on to the market. These will transform the ability of the window to draw in daylight, and enable solar shading to operate using transparent materials.

If one aspect of this fifth age is clear, it is that we cannot easily imagine what it will have delivered in 50 or even 20 years' time. We can be sure that it could be magical, beautiful and wonderful. We can be equally sure that it is exploited poorly, and not used to create universal blandness. We still suffer from all pervasive nature of the curtain wall, but the potential richness of the multifunctional intelligent skin, responding moment by moment, and season by season to the vagaries of climate and the needs of the occupants has the potential to give us the transient beauty of the butterfly's wing, with a material as hard as steel.

Michael Wigginton holds a chair in architecture and design at the Plymouth School of Architecture in England. His main research interests are intelligent façades, glazing systems and ecological studies. He has published several books on these subjects, including Glass in Architecture (Phaidon, 1994) and Intelligent Skins (Butterworth Architecture, 2002).

Below Unaffected by climatic building considerations, Walter Gropius used single glazing to construct the minutely detailed three-storey façade of the Dessau Bauhaus in 1926. The so-called curtain walls are an exemplary realisation of the separation of the skeleton and façade of a building, an ideal of classical modernism. Opposite The possibilities of modern glassmaking are demonstrated in the "Dichroic Light Field" installation by engineer James Carpenter in New York. The light reflections and shadows which the dichroic glass "fins" cast onto the glass façade change their colour according to the position of the sun.

A house without walls: Mies van der Rohe and Farnsworth

In the years after the Second World War, the enthusiasm for a house without walls: Mies van der Rohe and Farnsworth in the usa, Frank Lloyd Wright enunciated what he saw as the theoretical and aesthetic problem related to glass and architecture. In a lecture he gave at Princeton University in 1930: "Glass has now a perfect visibility; thin sheets of air crystallised to keep out currents outside or inside the building; Tradition left no orders concerning this material as a means of perfect visibility". Working with characteristic innovative individuality, he went on to design the Johnson Wax Administration Building in 1936. This building used a membrane constructed from biconvex glass tubing, creating a unique and wonderful translucency.

Below L’endroit, Paris of 1937, picking up ideas which were decades old. The Europeans followed with buildings like the Wallisau School in England by a t Morgan of 1961, and Michel and Trombe’s work in France of the mid-1960s.

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Within the movement even took the work “Glass” as part of their name (Die Gläserne Kette). Glass was the material of the socialism (with its transparency and openness), and was seen as the light and “modern” replacement for the weight and pomposity of previous ages.

The great Europeans were not the only architects who understood this material as hard as steel.

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Environmental issues and intelligent skins

Thus, although the curtain wall retains an unfortunate hold across the planet, as a phenomenon which blights our cities, a new generation of architects, with different priorities, produced a new flourishing of glass architecture in the 1960s and 1970s, building (perhaps sometimes unconsciously) on the theoretical principles of Wright, Mies van der Rohe and Le Corbusier. What we might call the fourth age of glass architecture draws together the strands of the previous 60 years, liberated by the invention of the float process by Pilkington in the 1960s, and the development of a large number of technologies related to coatings and treatments. Glass is now one of the predominant constituents of architecture across the world.

A fifth age is now on the horizon, with new materials, and new perceptions of use. Smart glass has been in the area known as “chromonomics” which change their performance at the flick of a switch. Insulating materials which produce U-values close to “0” have been developed using aerogels, and stronger materials resisting fire are all infiltrating the catalogues. Dichroics and beam splitting glasses can deliver or block tailored frequencies of the spectrum. Light bending glasses using Total Internal Reflection, such as Seraglass, are also coming on to the market. These will transform the ability of the window to draw in daylight, and enable solar shading to operate using transparent materials.

If one aspect of this fifth age is clear, it is that we cannot easily imagine what it will have delivered in 50 or even 20 years’ time. We can be sure that it could be magical, beautiful and wonderful. We can be equally sure that it is exploited poorly, and not used to create universal blandness. We still suffer from all pervasive nature of the curtain wall, but the potential richness of the multifunctional intelligent skin, responding moment by moment, and season by season to the vagaries of climate and the needs of the occupants has the potential to give us the transient beauty of the butterfly’s wing, with a material as hard as steel.

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DAYLIGHTING

The natural gift of daylight put to practice in architecture.

BERLIN ACADEMY OF ARTS

Text by Jakob Schoof.
Photos by Adam Mørk.

Berlin, Pariser Platz. Right in the centre of the German capital, Günter Behnisch inserted a glass foreign body which, even before its opening, was a centre of controversy. The generous openness of the new Academy of Arts stirred up feelings in Berlin and is now engaging the attention of the climate engineers once again.
Berlin, the protestant stronghold of Prussia, has hardly been considered a colourful city in our collective memory. Even today – more than ever after the fall of the Wall – the streets seem as stoney grey and unyielding as the image of the city itself.

But there are exceptions. The buildings created by the Berlin-based sauerbruch hutton architects are particularly worthy of mention – as is a building that is one of the most controversial in recent German architecture: Günther Behnisch’s Academy of Arts. Behind its conservative – some would say dull – façade, the new building is a torrent of creative disarray. Its roof shimmers like an icy sea of glass, frozen momentarily before resuming motion once more. On the upper levels, only a symbolic leaf-patterned roof – made from laminated glass with a pattern of autumn foliage printed onto the separating film – separates the visitor from the Berlin sky. Günther Behnisch describes the phenomenon, made tangible here, in his book On colour: “... the beautiful light, colour floating freely in architectural space, a phenomenon known in the Middle Ages and the Baroque period, and used to bring light into cathedrals, churches and palaces.”

The location of the new Academy could hardly be more prominent: Pariser Platz is considered as the ‘living-room’ of the Berlin republic. It is dominated by the Brandenburg Gate, an undisputed symbol of the reunified city. To the left of the Academy stands the pseudo-historic Hotel Adlon, built in 1997, while to the right is the DG Bank designed by Frank Gehry; a highly unusual building for the Californian architect. With its civilised, sandstone-coloured façade, only the oversize tilted windows hint at the wild originality of the foyer beyond.

The new Academy is divided into three main areas: in the centre, as the historic heart of the Behnisch building, are the five restored exhibition halls of the old Berlin Academy from 1904. The glass main building is situated to the north overlooking Pariser Platz, while to the west, a long side wing houses the section workshop and archives. A public pathway crosses below, running north to south. A second pathway runs east of the exhibition halls via an elevated walkway. Here, the inner courtyard of the Hotel Adlon acts like a backdrop to Behnisch’s interior, especially to the cafeteria of the Academy. Two entirely different architectural styles thus meet in close proximity: the hotel on one side, busy and crammed with dimly lit rooms; the Academy on the other side, light, bright and filled with multi-purpose space. Behnisch deliberately designed the building to continue the so-called ‘Treppenreden’ or ‘stairway speech’ tradition from the old West Berlin Academy – or at least the possibility of making such a speech.

At first glance, the main Academy building to the north looks like a complicated internal maze of multi-purpose levels, jutting out one on top of the other. Six crossing staircases, walkways and ramps, all in different styles, lead the visitor through the hall up to the top floor. New vistas and light angles open up at every step. The path leads back again to the north façade, the ‘chocolate box’ side of the building. Each and every Academy member and visitor can partake in the view over the square.

The reception and bookshops are located on the ground floor, with the library and read-
The room is spectacular, even on Academy. It is painted white inside and dark grey outside. This Janus-like configuration is no accident – Behnisch has actively sought to emphasise the extremes within the building. In terms of the wide variety of spaces, materials and colours used. The visitor ascends from the cast asphalt of the ground floor via concrete, parquet and linoleum floors; the walkway and stair handrails are made from steel, wood and concrete, or are surrounded by a reflective sheet metal layer. One colour is not enough for the slanting supports of the south façade either, halfway up, they change from light grey to white. Instead of suppressing them all into a单 whole, Behnisch gives the various elements of his architecture space to unfold. If so inclined, you could take this as a metaphor for the institution that will be using this building in the future. Supported by the state, but not necessarily supporting the state, the Academy of Arts is a collective of the country’s leading writers, painters, sculptors, composers and actors. Today, it is a kind of enclave for high culture in the world of pop – even if its new home represents the opposite: amidst the forbidding stony Berlin architecture of the 90s, it stands out like an exponent of a contradictory, colour-up counter-culture.

No wonder it caused such a fuss in the recent past. ‘Facade fight’ is perhaps the right phrase, a Berlin speciality ostensively about facade cladding and window formats, but really more about the different perceptions of the European city. The city authorities in Berlin came up with design regulations for Pariser Platz, with detailed specifications for façade design: “Matt mineral surfaces and colour shades ranging from pale ochre to grey”, with no more than 40 percent being taken up by windows. Given these specifications, Behnisch’s design naturally caused an uproar. It includes 100% windows, including the ‘fifth façade’ – the roof. In order to rescue his design, Behnisch made a slight compromise, blending the double-layered glass façade of the new building with the old pre-war façade ‘in structure and relief’. In practice, this means a network of rods has been installed 40 cm (the thickness of the original façade) in front of the glass front, to look like a line drawing in the old Academy façade. Academy President Adolf Muschg called the new building a ‘drunken boat’, after the poem by Rimbaud (‘Le Bateau Ivre’), alluding not so much to the stormy construction history of the building as to the architecture of the new building itself, dominated by expansive inclines and acute angles. Critics have taken Behnisch to task for the fact that the north façade often looks dark and empty during the day and that the architect has treated the old building with little respect, simply plastering over wide areas in white or covering them with plasterboard. The greatest weakness of the new building however did not become apparent until three months after the opening: large temperature and humidity fluctuations in the rooms forced the academy to cancel all exhibitions until further notice. The causes are currently being investigated but those in the know believe there is a simple reason for the problem: Günter Behnisch had always objected to a porch on the ground floor. In summer, a gust of warm air rushes into the building whenever the door is opened. It is therefore likely that the academy will have to be made viable in practice by means of extra building work.

If the climatic problems were to be solved, Berlin would nevertheless have gained: an abstract architectural sculpture combining the various different qualities of Behnisch’s architecture. In 1998, before construction began, the architect wrote “The emphasis is on the contrast with the historical site. Transparency, airiness and light colours will give the new building a more exhilarating, friendly atmosphere. It should gleam by day and glow by night.” The new building is certainly exhilarating. It remains to be seen how it will hold up in terms of functionality and maintenance costs. The Academy now faces the challenge of filling this extraordinary building with life.
At ground floor level, an inclined surface composed of mastic asphalt continues Pariser Platz into the building without any steps. The entrance area is comparatively low and gloomy. The building does not open itself up to the light until higher up.

The glass ‘roof of leaves’ crowns the south façade. A large sliding door leads to the outside. A separate construction has been placed in front of the slanting glass façade to provide sun protection.

For sun-worshippers: the view and the daylight are at their most intense immediately behind the south façade. It’s like standing outside – but protected from the weather.
Opposite The way up through the atrium leads from semi-darkness to light: the ground floor is dominated by the anthracite-coloured cast asphalt floor, while the sunlight from the south floods in above.

Above Walkways and staircases wind up through the hall, all different in design. The higher the visitor climbs, the lighter the space becomes.

Right (from top to bottom) Level 0 Level +1 Level +2 Level +4 Longitudinal section north-south

Overleaf At night, the house and its north facade, which often appears gray and opaque during the day, become sources of light. Diverse light moods and colors reflect the varied uses of the academy.
Mist and light, water and mirror glass are the media of the Danish installation artist Olafur Eliasson. The wealth of experience in his works has made Eliasson popular. He teaches us what many have already forgotten amidst the general overstimulation: the conscious perception of our environment and ourselves.

Outside, the sun set a long time ago. Here, inside the turbine hall of the Tate Modern in London, it is still shining. That is to say: it sets all day long. High above the heads of the visitors, the enormous room is filled with glistening, golden yellow light from the setting sun. A fine mist drifts through the hall, collects below the ceiling as clouds, and gets lost again. The people stare at the unfamiliar light, meditate or lie on the floor, stretched out, struck by its overwhelming presence. “Like worshippers to an unknown god”, as a lady visiting the exhibition said later on. Some of them have tears in their eyes.

The cause of all the emotion is 500 monochrome spotlights, 3000 square metres of reflective film on a metal construction and a semi-circle made of a translucent membrane. The semi-circle is doubled by the reflecting ceiling of the hall and in this way becomes complete, a replica of the sun. Whoever takes a closer look can see all the technical components, which bring the installation in the Tate to life – also the fog generators, the weather machines for the “Weather Project”.

Who is the man who makes people cry, dream or meditate with an arsenal of technical equipment, but in any case brings about an intensive awareness?

Olafur Eliasson, a Dane of Icelandic origin, was born in 1967 in Copenhagen and studied there from 1989 to 1995 at the Royal Academy of Arts. He lives and works in Berlin. That is according to the dry facts in the artist’s official curriculum vitae. Normally there follows a long list of exhibitions and museums where his works were to be seen and still are: for example, the Guggenheim Museum in New York, the Museum of Contemporary Art in Los Angeles and the Tate Gallery in London. At least three to four larger exhibitions dedicated entirely to his work take place each year throughout the world.

In an interview with the magazine “Kunstforum International” Eliasson said, “I see myself as a mainstream artist, which is why my work is easily accessible.” The fact that his work is often referred to as “Anthology of special effects” and is appreciated by the public for its entertainment value does not bother him: “I like it that it can be entertaining, even if the public could see through this entertainment construction. It is a matter of responsibility and ethics in connection with that which is said and that which is done.”

To describe Eliasson as a kind of variety show artist who performs magic with installations instead of a top hat and card tricks would be to say he is not understood. Because after the great amazement when looking at his work there always follows the benefit of discovery too. Four central themes are always repeated: nature, light, architecture and – most important of all – the interaction of the onlooker.

Nature

The experience of the four elements in Greek science – water, fire, earth, air – and derived from them light, colour and temperature is a central part of Eliasson’s art. He mediated an extraordinary direct experience of nature to the visitor of the exhibition “The Mediated Motion” 2001 in the Bregenz Art Gallery. Eliasson transformed the inner rooms of the Zumthor Building, together with the landscape architect Günther Vogt, into a strikingly mystical landscape garden wafted by clouds of mist. The visitors move through the landscape on gangplanks and across a suspension bridge, which consists largely of genuine natural materials: water, earth, wood and water lentils, a water plant. In addition, Eliasson changed the orthogonal structure of the exhibition rooms with sloping floor levels, so that the visitor perceives his movement through the room more consciously. He wanted “to question the very static dominating architecture, in order to put the association with the house into better perspective”, as he later reported in an interview.
In principle, Eliasson is not so much concerned in “The Mediated Motion” about landscape gardening; the garden landscape used for the production serves as a tool with which he plays on the theme of human perception of space and nature. In Eliasson’s opinion, nature is no “real” and original category anymore, but a result of our view of the world: “[…], there is no truthful nature, there is only your and my construct of it.”

In the exhibition catalogue “Your Lighthouse” which was to do with light. In this respect, light should by no means be interpreted in the case of Eliasson as metaphoric in the sense of “enlightenment”. For him light is not so much a carrier of significance as of atmosphere – and naturally a means of manipulating the vision: fog generators, pipes and tubes, steam jets and spotlights. Eliasson took the game to extremes with contrived natural phenomena in 1999 with the installation “Double Sunset” in Utrecht, in which real and artificial sunsets appear in direct competition. A round disc of yellow corrugated iron measuring 18 metres was attached to the façade of a high industrial building and was illuminated by the flood lights from the stadium opposite. The artificial sun disc stood out far enough over the silhouette of the town, so that in the evening an actual picture puzzle was created: Which is the real sun, which is the tin sun? Has nature become exchangeable?

LIGHT

In Eliasson’s game of sensual perception, light plays a central role. Holger Broeker counted a total of 146 works of the artist in the 2005 exhibition catalogue “Your Lighthouse” which were to do with light. In this respect, light can no means be interpreted in the case of Eliasson as metaphorical in the sense of “enlightenment”. For him light is not so much a carrier of significance as of atmosphere – and naturally a means of manipulating the vision: fog generators, pipes and tubes, steam jets and spotlights. Eliasson took the game to extremes with contrived natural phenomena in 1999 with the installation “Double Sunset” in Utrecht, in which real and artificial sunsets appear in direct competition. A round disc of yellow corrugated iron measuring 18 metres was attached to the façade of a high industrial building and was illuminated by the flood lights from the stadium opposite. The artificial sun disc stood out far enough over the silhouette of the town, so that in the evening an actual picture puzzle was created: Which is the real sun, which is the tin sun? Has nature become exchangeable?

In the case of “Sun Reflector” from the year 2003, an installation at the institute of physics of the University of Stockholm, Eliasson utilises rotating mirrors placed above the upper lights of the atrium to produce light reflections inside the building. On sunny days they reflect a wave-like band of light onto the white plastered atrium wall, which, due to the movement of the mirrors in the wind, appears to ripple like a water surface.

In a second group of works, Eliasson works with “bodily” light, combining light sources with water or fog. The installation “Thoka” at the Hamburg Arts Centre (1997), his first larger appearance in Germany, is a good example: between the close of the exhibition and midnight, the area behind the glass façade of the building was filled with artificial fog and lit up by yellow spotlights. During the day the work of art was turned off, only the machinery, which kept it going, remained visible. Generally speaking, Eliasson uses coloured light mostly in a second group of works, Eliasson works with “bodily” light, combining light sources with water or fog. The installation “Thoka” at the Hamburg Arts Centre (1997), his first larger appearance in Germany, is a good example: between the close of the exhibition and midnight, the area behind the glass façade of the building was filled with artificial fog and lit up by yellow spotlights. During the day the work of art was turned off, only the machinery, which kept it going, remained visible. Generally speaking, Eliasson uses coloured light mostly in

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The most obvious formal parallels to Eliasson’s work are the titles of Almost programmatic for Eliasson’s work are the titles of "The Mediated Motion" in the Bregenz Art Gallery (2001) and "Seeing yourself seeing, Museum of Modern Art, New York 2001: The title of this installation programmatic for all of Olafur Eliasson’s work. The visitor sees the outer world through the narrow mirrored strips of the panelled glass area – and at the same time sees himself looking.
the two installations “Seeing yourself sensing” and “Seeing yourself seeing” from 2001. Strips of mirror are attached to a pane of glass at regular intervals; the strips of glass between them with the same width remain free. In this way, the viewer sees himself “when seeing” and he sees the outside world at the same time. Two persons, who are facing each other on both sides of the installation, can communicate at the same time with their mirror image and their opposite number.

Although Eliasson’s installations are planned in minute detail, their surprise nevertheless always depends on the vigilance and frame of mind of the onlooker. For this reason, a scientifically objective “truth” is out of the question. Gitte Ørskou explains this opinion in the exhibition catalogue “Minding the World”: “Das Ding an Sich”, which was the German philosopher Immanuel Kant’s locution for the utopian idea about things in the world existing independently of the individual human being – that is to say, independently of the subject – is replaced in Eliasson’s grasp by what Kant himself called “Das Ding für Uns” – that is to say, the idea that things in the world only exist by virtue of our sensing of them.

“The “Your” is characteristic in this connection, which emerges in the title of many works. In an interview for the installation “Your denudation inverted” (1999), an artificial geyser in the inner court of the Carnegie museum of art in Pittsburgh, he said: “I decided to say “Your natural denudation inverted”. Pointing out that “your” experience is central rather than my ideas about it”. This strategy also belongs to Eliasson’s work: Let the things happen and watch how the viewers deal with it. In Pittsburgh, for example, the onset of winter transformed the trees, which were “shrouded in fog” from the geyser, into bizarre ice sculptures. They were similarly part of the work, according to Eliasson, and it became more understandable, when he said: “I did this specially for the courtyard of the Carnegie, and installing it elsewhere is possible but then it is another piece for me.”

Subliminally, Eliasson addresses in many works the question: how do museums mediate the reception of art? When preparing for the “Weather Project”, Eliasson concerned himself according to his own statement intensively with the structure of the institution Tate. “The house is oriented towards drawing numbers of the public and brings to some extent people into the museum with partly supermarket-like aesthetics, who have never been in a museum before. I have my problems with this, because the whole thing becomes too much like an assembly line”, he admitted in the magazine “Kunstforum International”. And on another occasion: “The museums, in particular the large museums, market the experience of art and the feelings of the visitors. I see that as extremely problematic.” The “Weather Project” is by no means a head-on attack of modern art marketing. On the contrary, Eliasson wanted to make the context behind the exhibition “transparent” – a term which he willingly uses when it concerns revealing his means.

A SCHOOL OF SEEING

In many ways Olafur Eliasson teaches us to see again – and to understand how we see. Our direct perception, often blunted in everyday life by the incessant flood of irritations, is permanently questioned by him. The look in the mirror, otherwise routine, wins a new meaning with him again. He opens up natural phenomena and cultural institutions to us and puts them in a new light by reconstructing them and discloses them at the same time as a reconstruction. Because, according to Eliasson: “Without memory there would be no recognition – no value systems – no sense of time – and finally, no expectations. Such a thing as a primordial sensation doesn’t exist, only culture.”
Despondency breaks off its course.
Anguish breaks off its course.
The vulture breaks off its flight.
The eager light streams out, even the ghosts take a draught. And our paintings see daylight, our red beasts of the ice-age studios.
Everything begins to look around.
We walk in the sun in hundreds.
Each man is a half-open door leading to a room for everyone.
The endless ground under us.
The water is shining among the trees.
The lake is a window into the earth.
GLASS
AS A STRUCTURAL MATERIAL

Glass is a fascinating material. It combines remarkable and even contradictory properties. You can look through it, and yet water, which penetrates almost everything, cannot pass through it. On the one hand it is strong and almost unbreakable, on the other hand one scratch lets it break easily.

The quest to introduce this material into the world of structural engineering has only been going on for a few decades, but it is my sincere conviction that in another few decades people will regard structural glass to be as trustworthily as for instance steel and reinforced concrete. One should not forget that steel/iron as building material is only about 200 years old and concrete even only about 100 years.

GLASS BEAMS

Glass for windows and even floors has been used for a long time, although in small measurements. Glass beams, however, are one essential step ahead from the early days of the Roman Empire. The idea of a glass beam is in itself very tempting but also dangerous: if glass breaks, it breaks completely, because the cohesion of the material is lost. An overload or a stone thrown at it results in a total and sudden failure of the beam. This is also unacceptable because we like to have some kind of warning mechanism in our structures that will be activated when there is a problem. A steel beam, for instance, warns by excessive deformation or plastic yield.

Glass in itself gives no such “warning” sign. It is only the invisible gluing together of individual panes, a process called laminating, which enables us to make a safe beam. Laminating of glass was invented in the early 1900s when - so the story goes - a scientist accidentally dropped a glass bottle filled with glue and as a result found two glass fragments glued together invisibly on the floor, a few days later. In the evening papers on the same day, he read about a girl who died in a car because she had been injured by a broken windscreen which smashed when hit by a piece of gravel. He realised that if the windscreen had been built of two layers of glass, glued together invisibly, this tragic accident might never have happened. This idea was an initial impulse for the industrial production of laminated glass. Another major impulse came when the chemical firm DuPont de Nemours invented a transparent foil called pvb (polyvinylbutyrate), which glues glass sheets together. Production takes place under pressure in an autoclave at a temperature of around 250ºC. The glass sheets and the foils or plies are rolled together under considerable pressure. The result is a perfect, transparent piece of glass, composed of two, or even up to ten individual layers of glass. In this way, safe glass beams are produced not by making one beam but by gluing two or more beams together. If a malevolent person throws a stone at your precious glass beam, he can only break the outside glass layers. These broken layers keep on sticking to the central ones and therefore protect them.

For these reasons, the concept of a glass beam was “up in the air” in the 1980s. Various members of the international community of structural engineers carried out studies. But who would dare to put the first glass beam in a real building?

The psychological barrier was enormous, because we know from everyday practice that glass breaks easily. Clients and contractors have a tendency to avoid risky experiments. The building industry is one of the most conservative industries. New developments need an enthusiastic client willing to take a certain risk. The engineer naturally has to assume the obligation to analyse all possibilities of unwelcome effects of the proposed innovation. The introduction of glass beams is a good example of a cautiously accepted innovation.

GLASS FLOORS

Glass panels in the floor of a room have been known for quite some time but only in small sizes. However, it was the introduction of a disco dancing floor with coloured lights from underneath in the 1970s movie “Saturday Night Fever” which gave the glass floor a real impulse. Architects began thinking about integrating glass floors into buildings. This implied, of course, that they had to be transparent. Walking on a big transparent floor is exciting but also a frightening thought to many. Besides, in the case of an abnormal fear of heights (acrophobia), people are afraid because our logical thought processes cannot accept the fact that something transparent will carry our weight safely. There was a film made in the 1950s by a big glass company in which a mother places her baby on a table where half the table top is made of glass. She walks around the table and calls to her baby to crawl to her over the glass section of the table top. Despite the fact that his mother,
a person he loves, calls him, the baby refuses to crawl across the surface. Therefore, it is wise to make columns more attractive and less repulsive to architects would be to make them out of glass. Although glass performs well under compression, there is the potential for creating a stress concentration point resulting in further stresses and failures. The support should be designed with these starting-points in mind.

Glass façades: A façade is a special type of wall. It separates the inside from the outside. The difference in position implies that this special type of wall has to satisfy substantial requirements in terms of building physics. Also, the wind force on façades pulling and pushing against them, as well as temperature-induced movement and water-tightness, play an important role. These requirements make the design and building of façades a difficult but challenging task – which, however, offers engineers the opportunity to devise appealing structures: "Every disadvantage has an advantage," to quote the famous Dutch soccer player Johan Cruyff.

Glass plays an essential role in the façade. With its transparency, it opens up buildings to the outside world. This psychological effect is very valuable. People may enjoy the view of the outside world and are not divided from it by a solid closed wall. Especially in the colder regions in the world, this is an essential aspect. Houses and offices can be kept comfortable much more easily without having to give up the possibility of looking outside. But the introduction of glass into the façade has opened up the building not only from inside to outside but also from outside to inside. Certainly in modern architecture there is a tendency to open up buildings by using transparent façades that act as trustworthy as possible. The visual borderline of what is inside or outside of a building cleverly merges into one. However, creating complete glass walls leads to new problems concerning the comfort inside the building. In winter, warm air passes easily through the glass façade, and in summer the heat of the sun is absorbed inside leading to excessive temperatures.

A single glass panel is not a good insulator, warm air easily escapes. The introduction of double glass was a major improvement. The closed-up small gap filled with air in between the two glass layers provides good heat insulation. Double glass improves the comfort in the building, avoids condensation in winter and reduces the amount of energy required to heat the building. Nowadays, double glazing is improved even more by filling the gap in the insulated panel with inert gases such as argon and by vaporising thin layers of precious metals on the glass surface.

The heat insulation rate has been improved to a degree that a new danger is now present: in summer, the heat cannot escape! Air-conditioning is not a good solution to this problem. Architects and engineers need to be more critical of their design decisions and to adopt more thoroughly the principles of passive building. The façade has always been a very difficult but challenging task – which, however, offers engineers the opportunity to devise appealing structures: "Every disadvantage has an advantage," to quote the famous Dutch soccer player Johan Cruyff.

Glass materials offer the possibility of creating a real physical separation between two spaces, while at the same time allowing full insight into what happens beyond. In principle, walls have two different functions: inside buildings they chiefly serve acoustical and optical requirements. As part of the façade, they protect the inside from the building from the outside climate.

Regarding the structural aspects, a wall is just a special type of column. It is only far wider than thick. Therefore, the remarks we made concerning columns could be repeated here. Instead we will concentrate on the question of how glass walls may be designed. Basically, we are following in the footsteps of the builders of gothic cathedrals. For the glory of God, they sought to make the walls of their churches as transparent as possible. They were only familiar with blockwork walls with windows in, but with stone and glass they achieved almost immediately the type of wall called the flying buttress. The invention of the kinked high-rise arch, the flying buttress and the pier buttress led to enormous heights. Starting with a maximum height of 15 m, in Beausoleil (1245) they reached the height of 18 m. But Beauvais marked the end of this development: in 1824, during a heavy storm, the straight parts of the vaults collapsed. It is amazing that those light-weight structures were built in a walking age, without the knowledge of how to create scratches on the surface due to sand or gravel stuck to the surface. This behaviour is typical of people who have to create scratches on the surface due to sand or gravel stuck to the surface. This had been given the following treatment: a glass panel is heated to a translucent foil that is only 0.46 mm thick! This process of melting and rehardening reminds me of his book Structural Engineering in Antwerp. He has specialised in experimen- tal structures in glass, concrete and steel, collaborating with architects such as MVRDV or Rem Koolhaas for the Dutch Expo pavilion in 2000, the Educatorium in Utrecht and the Casa del Música in Porto. Since 2003, Rob Nijssen has been a part-time professor at the University of Gent. In the same year, his book Glass in Structures was published by Birkhäuser.
Text by Thomas Geuder. Photos by Torben Eskerod.

Land is in short supply in the Netherlands, and not for nothing have the Dutch become masters in the spatial organisation of cities and entire swathes of land. In 's-Hertogenbosch, ten apartment blocks were built on a former industrial area, uniquely identifiable buildings offering the residents a highly diverse living space.
Approximately 30 kilometres from Eindhoven lies the province capital’s ‘s-Hertogenbosch, which, amongst other things, forms a useful traffic intersection between the country’s railway lines. The historic city centre is worth a visit – not least for St. John’s Cathedral, dating back to the 14th century, or the ‘Oeteldonksgemeentemuseum’, the only carnival museum in the Netherlands.

Upon entering the city, your attention is drawn by the new ‘Paleiskwartier’ (‘Palace Quarter’) of the city, lying directly next to the railway tracks in a former industrial area. In the mid-nineties, a major project was started here to provide a model for the future for new buildings in the region. The master plan for the area, developed by city planner Shyam Khandekar from Benthuizen in The Hague, mainly set out the division of buildings surrounding them. A long, narrow basin, which, amongst other things, forms a wind and water basin was created in the centre of the area, providing relief from the austerity of the master plan and marking the centre south of the new city quarter. Here, Khandekar decided to deviate from his block building scheme and planned construction along the basin with ‘houses that contrast in a delicate way with the perimeter blocks around the park and will continue to radiate warmth and quality over the years’.

In 1998, a restricted competition was held for the construction of these houses. The winner was Building Design Partnership (BDP) from London. They designed five ‘longhouses’ and ‘tallhouses’ along the ‘long-water’, marking the centre and the heart of the new residential quarter. Obviously the look is a play on the ever-present elements of wind and water in the Netherlands, chosen deliberately as the main theme of the design, but it is more a look behind the scenes – it’s not just a question of simply copying a somewhat clichéd image. Behind the eye-catching form lies a technological design concept that not only makes the residential blocks visually appealing but also gives them an ecological purpose.

‘Microclimate’ was the key concept and inspiration for the architects in their designs. The aim was to create an ideal climate for the residents both indoors and outside. It starts with the urban development itself: wind turbulence gusting between the individual houses has been reduced by positioning the buildings at angles to one another. The buildings are also positioned in such a way as to prevent them overshadowing one another, so that all south-facing façades can capture the sun. The water in the long basin, with the underground car park for the residential blocks below it, is used to pre-heat the houses in the winter and to cool them in the summer. The south façades act like a climate shield, making optimum use of the sun and daylight. Stainless steel panels curve out and down from the roof over the façade, reflecting the light of the Dutch sky. Cut-out holes in the ‘sail’ have been made at regular intervals on the façades, fitted with VELUX roof windows in the upper part of the façade. Reflected by the wide balconies, the sunlight streams through these openings deep into the interiors, bathing them in natural light. At the same time the solar energy is captured and used to provide natural heating for the interiors on days that are cold but sunny.

The north sides of the buildings speak a different architectural language: here you will find the entrances to the individual apartments. However, this area is far more than just a stairway for the residents. Protected in an enclosed glass façade, the galleries can be seen as an extension of the living area. Within the ‘winter garden’ atmosphere, people can meet for a chat or display their flowers and orange trees, a feature of almost every Dutch household. This mid-space between outside and inside also makes a fantastic play area for children. The areas between the buildings possess similar qualities: green garden areas run down to the water and are a favourite meeting place for the Armada residents during the summer months. Alongside the striking architectural form, the secret of the success of the Armada project is the social concept of the design. The residents have plenty of opportunity to meet one another. Designed as pedestrian-friendly, as the master plan intended for the entire quarter, the area is linked via a footbridge to the centre, which is located just behind the railway tracks. Semi-public spaces, such as the richly planted gardens between buildings and the ‘winter gardens’ on the north side of the blocks, protected from the wind and weather, are ideal locations for meeting and communication. The balconies and terraces also provide plenty of opportunity for interaction. The stunning look and communication-promoting atmosphere created by the architecture give the residents an immediate sense of identification with their homes – no wonder that the ‘Armada’ residential development in ‘s-Hertogenbosch was given the ‘Best Loved Building’ award by the Society of Architects in the Netherlands at the start of 2004.

The main part of the car journey from Maastricht to Amsterdam runs through the southern Dutch province of North Brabant. The main part of the car journey from Maastricht to Amsterdam runs through the southern Dutch province of North Brabant.
Below (left) Wide balconies spring out into the sun from the south façades. They capture the sunlight, carrying it far into the interior and bathing the rooms in natural light. The balconies are also a favourite place for communication amongst the residents.

Below (right) Clad in stainless steel, the south façade curves out beyond the gabled sides, enhancing their sail-like look. The façades of the lower ‘long-houses’ are clad in horizontal cedarwood panels, while the high ‘tallhouses’ are brick-faced on the gabled sides.

Bottom Daylight streams through wide openings in the façade deep into the rooms, rendering the use of artificial light almost obsolete. The sun can also be put to efficient use to heat the interiors.

Below (left) The flowing form of the building is continued in many of the architectural details: the emergency exit stairs wind up from the ground like the threads of a screw; even the streetlights follow the curve of the façade.

Below (right) The south façades act like a climate shield, making optimum use of the sun and daylight. Sunlight reflects off the stainless steel panels, lighting up the north side of the neighbouring block. The light pours into the building interiors through the cut-out holes in the ‘sails’, which are fitted with various types of window.

Bottom The areas between the ‘sails’ are laid out as gardens, running down to the water’s edge. These semi-public spaces provide the Armada residents with a leisure area they can enjoy together.
Below (clockwise from lower left): roof window (horizontal section), roof window (vertical section), facade section, floor/facade detail.

Opposite: The evening light is reflected not only in the convex stainless-steel façades of the residential buildings but also in the water of the artificial basin.
1. From the exterior, the panorama window of the living area seems like a supersized picture frame, catching the far view into the landscape. But the interior also becomes a “picture” for those viewing from the outside.

2. Towards the valley, the living room façade consists completely of glass, providing the inhabitants with a panorama view of the landscape of Graubünden.

3. A staircase located in the middle of the building provides access to the living floors, organized as split-levels. At the top of the staircase, a roof window opens the view towards the surrounding panorama of the Alps.

4. The façade of the house consists of vertical wood siding with dark varnish in three different widths. These were assembled into elements and especially provide those parts of the façade without windows with a unique and non-conventional design.

A clearing at the edge of Sevgein, a village with 220 inhabitants in the Swiss canton Graubünden, became the site of the new home for the five-member Willimann-Lötscher family. Seen from the side of the hill, the house, designed by architects Bearth & Deplazes, is narrow and tall like a tower. Further downhill, it becomes wider, opening up to the wild and romantic valley of the Vorderhein. It is not until the observer walks around the building that its whole length becomes apparent. Each room has exactly one window, which allows the light to enter the house at a certain angle and, in the other direction, offers a framed view of the outside surroundings. In the living room, the whole façade window wall facing towards the valley has a single undivided pane of glass, providing the occupants with a breathtaking panoramic view. To keep construction costs low, the house was built as a wooden-frame structure made of prefabricated elements, in which the windows were already fitted. The owners attached the wooden planking of the facades themselves, but according to the exact plans of the architect. Altogether, three plank widths were used, which lend structure to the outside of the building and give the house its own unique and special character.
1. The residence “La Cerdanya” lies in the heart of the Pyrenees, bordering the small town of Das. From here, a far view extends towards the idyllic mountain panorama.

2. A natural stone wall constitutes the “backbone” of the building. The loads of the slanted roof are supported here. The transition from access corridor to the lower level of the living room is accentuated by the roof windows, integrated immediately below the ridge beam.

Cold and snowy winters as well as hot and dry summers are characteristic of the natural landscape of Das in the Comarca Cerdanya, in the heart of the Pyrenees. Bordering the town with a population of 165, at an elevation of 1200 meters, is where the residence “La Cerdanya”, designed by Architect Gelpi Arroyo, is located.

A slanted roof with large eaves is typical for this region. This way of building, determined by the climate, was also utilized for this house — next to another important element: a dry masonry wall of natural stone constitutes the visual and functional “backbone”. It divides the residence into a building volume oriented towards the south and two differently sized auxiliary tracts: with a shared interior courtyard, the patio, in the north.

The building is accessed alongside the wall. On the south, the “day zones” with a living and dining area with transparency towards the garden, kitchen and library. The two northern building volumes house the “night zones”, where the façades, also clad in slate to a large extent, remain closed, with the exception of a few ceiling-high openings with wood shutters. The parents’ suite with bedroom, dressing room and bathrooms is located in the west, a guest room and two generously sized children’s rooms with one bathroom each are situated in the east.

Even if the areas for parents and children/guests are strictly divided, the interior courtyard adjoins both and is accessed and used by both. Thus, all inhabitants may profit from the spectacular view of the mountain panorama offered here.

One floor below, built into the landscape slope, are the service areas, such as garage, heating and storage, as well as the apartment of the house servants. The sports room is quite narrow and has direct access to the swimming pool on the outside.

Slate and wood as choice of materials reflect the rough mountain climate. All the more astonishing is that one finds here a very light and open building. The continuous slate flooring, the light provided by the interior courtyard bordering the wall, as well as the equally distributed light from above enable a strong connection to the exterior. The roofing consists of slate as well. Slanted towards the exterior, it is visible as a slim edge from the patio.
BLACK AND SLENDER
BLACK HOUSE
IN PRICKWILLOW

The region of Ely in the English County of Cambridgeshire north of London is characterised by the drained moor landscape of the “Cambridgeshire Fens” and many old country barns with dark cement-based fibre board exteriors, which all seem as if a giant had rolled the dice on a flat surface. Their exterior has been adapted by architect Meredith Bowles for his design of the “Black House” in Prickwillow: the entire façade and the roof are clad in black corrugated cement-based fibreboard siding. The vertically applied siding makes the slender proportions of the house seem yet more slender and tall, emphasised by the fact that the house is built on stilts. The dominant colour black of the façade is interrupted by windows and doors in varying sizes, the colours of which provide a playful accentuation. Only exceptions are the roof windows, which adapt to the dark building exterior. The building interiors present themselves as unexpectedly light, illuminated with natural light in abundance through the windows, arranged according to the movement of the sun and the view of the exterior. A central core consisting of kitchen, bathrooms and staircase is surrounded by living room and bedrooms; as well as Meredith Bowles’ architectural office “Mole Architects”. Colour accentuations in green and pink continue the ideas present in the façade into the interior. The building, having received the RIBA Award 2004, among other awards, consists to a large part of recyclable materials and is equipped with a heat exchange unit, using the warm air vented from the interiors to pre-heat the fresh air intake and hot water.

1. Vertically applied siding consisting of corrugated cement-based fibreboard underscores the slimness of the building. The horizontals are highlighted by the mullion covering the butt joints of the fibreboard panels.

2. Altogether, six roof windows – three in each roof surface – provide the rooms in the upper level with daylight. Intensely patterned wall covering, an exception in the house, provides visual coherence of the staircase.

3. The Black House stands out from the rest of the village. However, the architecture of the building is nevertheless inspired by regional examples, most notably the country barns of the Cambridgeshire Fens.
The houses of the residential development Ny Moesgård in Skåde follow the steep slope in three rows. They are arranged in a way that allows almost all of them to enjoy the view towards the surrounding forest and the not-too-distant sea. At the bottom of the slope, a small meadow, which has been left in its natural condition, has become the “village green” as a shared free space for all the houses of the development. The manifold shape of the development with its many level changes is continued into the interiors of the houses: from single-storey to four-storey, everything is present in Ny Moesgård. However, even the largest houses with 124 square metres area do not have more than three rooms. The reason was a regulation by the local authorities with the intent to avoid the settling of families with many children, due to the fact that the local elementary school had reached its capacity. The architecture derived benefit from this: the building interiors are ample, lofty and light, double-storey interiors are frequent.

The masonry buildings with pale yellow stucco exterior are unusually deep at 12 metres and separate themselves distinctly from the surrounding forest and meadow landscape. The window frames and doors of the buildings are made of dark wood and contrast with the light coloured façades; the zinc roofing reflects the sunlight. Prominent “light chimneys” take over the position of the chimneys of traditional iconography. They are located directly above the roof ridge and introduce daylight into the open, central staircase. Openings in the interior walls literally direct the light into the most remote corners of the houses.
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Korea

Claes Cho Heske Ekornås won the International VELUX Award 2004 for his final-year design, a museum for the Korean artist Nam June Paik. Besides architecture, his interests are photography, film and art, philosophy and technology.

Claes Cho Heske Ekornås
Winner of International VELUX Award 2004 for Students of Architecture

D&A Before you started at the Oslo School of Architecture, you studied astronomy, math, chemistry, psychology and social science for four years. This is quite a broad academic background. What were your interests in all these subjects?

CCHE I have always been interested in science and biology and wanted to continue studying these at university. Before being allowed to study biology it was necessary to take 1.5 years of pre-courses. Therefore I changed institute and started to study social courses like psychology and social science. I might have become a shrink had it not been for yet another obstacle in my path to academic ‘enlightenment’: regardless of grades, there was about a 3-year waiting list to apply for a masters in psychology that gave you a license to practice. I ended up with a bachelor’s degree in cultural and science studies.

D&A What made you choose to study architecture in the end?

CCHE Throughout my childhood I always liked to draw, paint and build things. In between my high school years I went to the USA as an exchange student where I got total freedom in the art class. The thought of working within a creative profession came to mind again, and by chance I picked up an application for the architecture school in Oslo right before the deadline. I actually finished the work I had to submit at the post office...

D&A Do you feel that your multidisciplinary background gives you a specific approach towards architecture?

CCHE I have drawn many lines from my university studies to my studies of architecture, especially many elements from my social studies. Within every field of specialisation there is a danger of becoming narrow and single-minded. It’s important to be open to other fields outside of your specialisation in order to put things into perspective. My approach to architecture has been case-related, trying to understand and decipher the programme of each building I design. On the surface my works are often referred to as being slightly ‘crazy and wild’. If that is the case, it is just a product of my ‘own’ academic approach. My concepts have gone through a systematic and methodical analysis, and are linked with both visually graphical and physical models.

D&A What is your opinion about recent Norwegian architecture? Is there a lot of exchange with other countries?

CCHE Compared to Denmark, Finland and Sweden we have a lot of catching up to do within the architectural field. They have a history to refer to, and present, while we in Norway only have 1000 year-old stave churches (which I do like) to refer to. Only in the last few years have the words design and architecture become public work and something which is on the agenda in Norway. If one could name a common factor, I would say that elements such as light and weather and a close adherence to nature have a strong influence on the architecture. We have been restricted to small windows and thick walls and tilted roofs due to climate and tradition.

But we are up and coming. Technology and exposure to the international scene has carved a way for new possibilities, demonstrating that not everything has to look like a wooden hut. Right now there is a record in building activity in Norway. Larger projects also have a new-found international interest, such as the new opera to be built by...
Snøhetta architects. Renowned foreign architects are participating in the competition for projects in Norway. For example, OMA, together with Space Group, won the design for a new district at the harbour in Oslo, and next to it Renzo Piano is going to build a museum in collaboration with the Danish Louisiana Art Foundation.

D&A What effects does all this have on the labour market for young architects in Norway?

CCHE Fortunately I had a job to go to after finishing my diploma, but that was not the case for many others at the time. Nowadays, only 1.5 years later, it is easier to get employment.

D&A Have you ever studied abroad? If so, did you feel that there is a different approach to architecture in your host country?

CCHE I had ambitions to study architecture abroad, but it never came to be. I think we are privileged at AHO (Oslo School of Architecture and Design), compared to foreign schools. In some courses there are up to four teachers for a class of 30 students.

My impression of some of the foreign schools is that they are probably more technical and pragmatic in their approach. While some of the foreign exchange students in my class had a ‘finished’ project after two weeks, some of us were still dwelling at the concept stage.

D&A Which architects do you favour?

CCHE I respect architects that don’t approach the project programme from the given face value. The ones that try to cross style borders and social perceptions are those that I find interesting. Instead of being content with doing the safe thing, you should at least try to test things out and be visionary in order to meet the social development in society. By that I don’t necessarily refer to social building. Programmes should sometimes be challenged. As architects we must hope that we can in some way contribute and be part of social development, and not be lagging behind it.

D&A For the international VELUX Award, you designed a museum for the famous Korean artist Nam June Paik. Were there any links to the ‘real’ competition for the Nam June Paik Museum which was held about one and a half years ago?

CCHE Parts of my work for the international VELUX Award were actually taken from the diploma I did six months earlier. That’s why I didn’t give winning the award much thought, since it was originally not designed for the competition.

D&A In the project you establish a multi-disciplinary fusion between art, architecture, e.g. perceptions, light, staging etc. For what experience do you expect from this collaboration?

CCHE I haven’t had the opportunity to do so yet, but I would like to do more work with video and films, since it is a media that is related in many ways to architecture, e.g. perceptions, light, staging etc. For my diploma I had some discussion with my aunt Marianne Heske, who is also an artist and knew Nam June Paik personally.

D&A What fascinates you most besides art and architecture?

CCHE Besides being a techno and science freak, I have a fascination with movies and animated films. If I had more free time I would spend it on photography and drawing/painting. In the future I would also like to do something within furniture design.

D&A Your birth parents are from Korea. Do you still have personal links to the country?

CCHE At 4 years old I got adopted by my Norwegian parents. Apart from visiting Korea together with my parents in 1998 I don’t feel particularly attached to Korea. What fascinated me was that much of the old architecture was comparable with old Norwegian handicraft architecture. Both countries have a strong tradition of adhering closely to nature and this is reflected in the architecture.

D&A What did winning the International VELUX Award mean to you?

CCHE For this competition, I sent in an edited version of my diploma project. I was quite surprised to receive a phone call from Mr. Glenn Murcutt, the jury leader, who told me that I had been awarded first prize. To be given this award has really boosted my self-confidence, in view of the number of participants, and the outstanding selection of jury members. It also confirms that what I have been working on throughout my studies is valid beyond the local setting. Aside from winning this award, I would like to emphasise the seriousness of the VELUX competition and the work the jury put into it. There are not many awards for students and young architects that deal with conceptual “school” projects in this way.

D&A What are your plans in the near future – both from a personal and professional point of view?

CCHE I have now started working for Jar man/Vigsnæs Architects (www.jva.no). In Norway at least they have a reputation for being a ‘breath of fresh air’ on the architectural scene. So far I have been given engaging tasks and feel I will learn a lot from this practice. For the time being, I am quite happy to have the opportunity to work here, as there will be many interesting projects coming from this company. They are the only company from Norway represented at the Architectural Biennale in Argentina.

In the future I would want to have my own practice with some fellow partners. Maybe work abroad? It is hard for me to even predict one year ahead, and therefore it is only possible to follow one criteria, and that is to enjoy what I do. If ‘enjoy’ means 24-hour working days or working in Siberia then so be it. I’m open-minded to whatever the future brings!
This book about the new Netherlands Embassy in Mozambique is one of the few publications on architecture written by the architect of the building. The book has a scarce but modern architectural picture, photographs and drawings. The project is presented as a masterwork in the art of lending grandeur to buildings of modest dimensions. The building’s relative modesty (despite its exquisite detailing) is a reflection of the aesthetic-sociocultural situation in the country: a palace, even a water basin in the garden originally supported by Claes en Kaan (which could have been regarded as a waste of the valuable water resource drinking water) was out of the question.

The architects describe the building as an attempt to build in a foreign context, in the essay that follows the book’s opening. They considered the historical and functional needs of the Embassy, and additionally (with a format of 24 x 32 centimeters) extremely bulky. The presented mixture includes theoretical papers by Eisenman, description of realised and imaginary projects as well as essays by critics. The book is primarily addressed to an insider circle of Eisenman, experts and friends of post-war modernism. It is moral that more questions are raised than answered. Peter Noever shall be recited one last time in this respect. "Whoever professes Eisenman’s cheap applause, naive approval or even an instalment to build in this city has raised the point and seriously misunderstood the context."

Peter Noever (editor)
Hans Gantzi 2004-
ISBN 3-7757-1561-4

He is a 'master of hesitation, a virtuoso in decision and a magician who keeps things in suspense', writes the director of the Viennese Museum for Applied Arts, Peter Noever. He writes about the beginning of the book "Barefoot on white-hot walls". The American, to whom the MAK, early in 2005, dedicated an exhibition and the catalogue reviewed here, is in the centre of attention at a time when other masterminds of architecture increasingly turn towards functionality and purpose in order to rethink the production of God. "New Traditions", "Interventions", "Places of Refuge", "Sublime Icons", and "Modern Splendor". This is comprehensible, but rather meagre in the endeavour to trace late modern tendencies in spiritual architecture, the author has limited herself almost completely to architectural phenomena and seldom refers to religious contexts. Descriptions of historical models, which every design-build project has to examine, are restricted to individual cases. The historical models studied by the author in her introduction only go as far as Le Corbusier’s chapel “Notre-Dame-du-Haut” in Ronchamp (1955). As a part of a collection project “New Spiritual Architecture” it is quite acceptable that can be assumed, rather for his theory than his realised work. Possibly the last real deconstructionist “re-imagines space from its superficial functionalism and produce in order to rethink it without being able to reinvent it”, writes Noever in the introduction to the catalogue. In short, he places opposition above form.

For the Viennese exhibition Eisenmann presented a Paladio from White cubes inside the museum’s exhibition hall, with each of them containing a "knight" (in Eisenman’s terminology a kind of conceptual sketch) of one of his buildings. He builds itself also the focus of the catalogue, in which the Tate Modern is represented by four interviews with Eisenman’s architect: black and white, abstract, diaphanous and additionally with a format of 24 x 32 centimeters extremely bulky. The presented mixture includes theoretical papers by Eisenman, description of realised and imaginary projects as well as essays by critics. The book is primarily addressed to an insider circle of Eisenman, experts and friends of post-war modernism. It is moral that more questions are raised than answered. Peter Noever shall be recited one last time in this respect. "Whoever professes Eisenman’s cheap applause, naive approval or even an instalment to build in this city has raised the point and seriously misunderstood the point."

Phyllis Richardson
Dundee University Press 2004-
ISBN 1-56898-500-2

In 1992 Samuel Mockbee founded an institution in remote South Alabama, which became renowned: critics have already compared the "Rural Studio" with Frank Lloyd Wright’s Taliesin West. But Mockbee’s initiation is different, more societal. The students of the Rural Studio do not only plan residential and community buildings for the poor, primarily coloured residents of the Houl County, they also construct these houses themselves and raise funds. Over the last 13 years they have repeatedly proved that it is possible to construct functional and architecturally appealing residential buildings with 35,000 or 30,000, and sometimes even 25 visits to Maputo and finally opened with the official opening in May 2005. The different buildings cultures in The Netherlands and Mozambique became apparent in building tolerances sometimes measured in centimetres and the surface finishing made by hand.

Rut Gilbert of the South African partner practice EQF responsible for the realisation, and Jan William Smit, project manager of the Ministry of Foreign Affairs, picked up the narrative of the collapse of culture and the pick-up in South Africa. Not earlier than on page 85 the book moves space from its usual fictionalisation and additionally (with a format of 24 x 32 centimeters) extremely bulky. The presented mixture includes theoretical papers by Eisenman, description of realised and imaginary projects as well as essays by critics. The book is primarily addressed to an insider circle of Eisenman, experts and friends of post-war modernism. It is moral that more questions are raised than answered. Peter Noever shall be recited one last time in this respect. "Whoever professes Eisenman’s cheap applause, naive approval or even an instalment to build in this city has raised the point and seriously misunderstood the context."

Procceed and be bold
The Rural Studio after Samual Mockbee
Andrea Oppenhimer Dean, with photographs by Timothy Harsley
Princeton Architectural Press 2005-
ISBN 0-789208350

The book somehow clings to the requirements of the Rural Studio, the public interest keeps within bounds so that this unique institution continues to pursue its work.
The sculptor, installation artist and architect Paul de Ruiters’s work has been on view at the Tate Gallery in London. This ‘first great monograph’ (according to the publishers) on the Italian group of architects in Florence in the 1930s, 40s and 50s, with great food for thought upon repeated reading. This attractive little book is not an easy read, but it provides the reader with great insights into the ethical dimensions of an edition of Spanish magazine El Croquis. The focus this time is on the triangulation of architectural concept, context and content, with great food for thought upon repeated reading. It’s cheap (only 9.99 in Europe), looks like a store catalogue and is stuffed with 650 illustrations, the book not only looks at the new protagonists, such as Wright, Mies and Le Corbusier but also traces their roots right back to the 18th century. Special emphasis is placed on ‘sub-locations’ of modern architecture, such as India, Brazil or Mexico, with the history of ideas and ideals as expressed through architecture also forming a crucial part of this classic.

Olafur Eliasson’s installation art, with projects including the Seilergang, New York and Antwerp, a campus athletic center in Cincinnati and a speculative urban project in Beijing. One of the most significant works on 20th century architecture is now available in French. Richly packed with 650 illustrations, the book not only looks at the new protagonists, such as Wright, Mies and Le Corbusier but also traces their roots right back to the 18th century. Special emphasis is placed on ‘sub-locations’ of modern architecture, such as India, Brazil or Mexico, with the history of ideas and ideals as expressed through architecture also forming a crucial part of this classic.

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