



SCHOTT
glass made of ideas

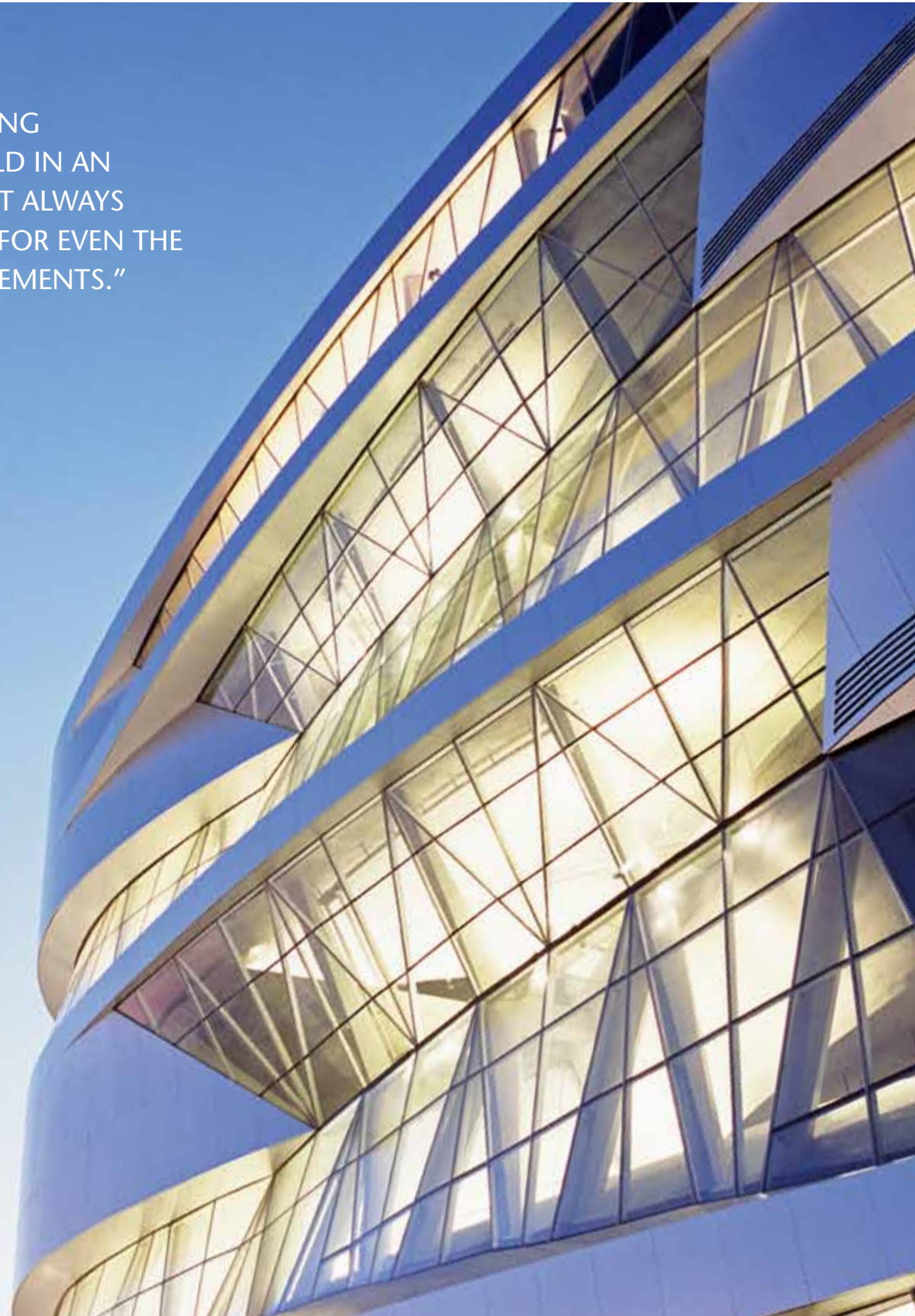
Architecture +
Design

The freedom to design

Prof. Tobias Wallisser

“IF YOU RELY SOLELY ON EXISTING KNOWLEDGE, YOU CAN’T BUILD IN AN INNOVATIVE MANNER. SCHOTT ALWAYS MANAGES TO FIND ANSWERS FOR EVEN THE TOUGHEST AESTHETIC REQUIREMENTS.”

Mercedes-Benz Museum, Stuttgart
 SCHOTT solution: butt joint glazing with screen printed PYRAN® S fire-resistant glass
 Architecture: UNStudio with Tobias Wallisser and Concrete Architectural Associates
 Photo: Werner Dieterich



SCHOTT is an international technology group with more than 125 years of experience in the areas of special glass, advanced materials and state-of-the-art technologies. SCHOTT seeks to contribute to its customers’ success and become an important part of people’s lives with its high-quality products and intelligent solutions.

SCHOTT works closely with architects and designers to extend the boundaries of design and create new opportunities for building culture – in terms of design and space, indoors and outdoors, for solar power and fire protection, aesthetics and functionality – sustainable and custom-tailored. That’s what makes SCHOTT a valued partner for architecture and design.

Cover: Novartis Forum 3 in Basel
 Architecture: Diener & Diener with Gerold Wiederin and Helmut Federle
 Photo: C. Richters



MAGIRA® LightPoints in the German Pavilion at Shanghai EXPO 2010
 Architecture: Schmidhuber + Partner; Exhibition design: Milla & Partner

Glass that expands boundaries

Doesn't glass allow light to pass through? Yes, sometimes it does. However, at times, glass from SCHOTT even glows by itself. It bundles light. Distributes it. Directs it over to a specific location. Provides protection from curious gazes. Protects against heat. Protects against radiation. Is either massive or invisible. Sturdy or delicate. Glass can be transparent. Or opaque. Or both. It shimmers and changes, displays patterns and adds color to our lives. It saves energy. And can be switched on electrically. In fact, it can conduct electricity. Or even generate it on its own.

Glass is diversity, made possible by generations of visionary architects, pioneering artists and designers who thought ahead and demanded more. Yet there is also a company that rises to creative challenges: SCHOTT. The results of SCHOTT's efforts have been critical to realizing creative ideas all over the world. It's a rare application that SCHOTT doesn't have a solution for. Be it building-integrated photovoltaics, smart glass with LightPoints, every conceivable kind of decorative and patterned glass, impressive lighting and spot-on light accents, aesthetic fire protection – the range of systems solutions is nothing short of exhaustive, for interiors and exteriors alike.

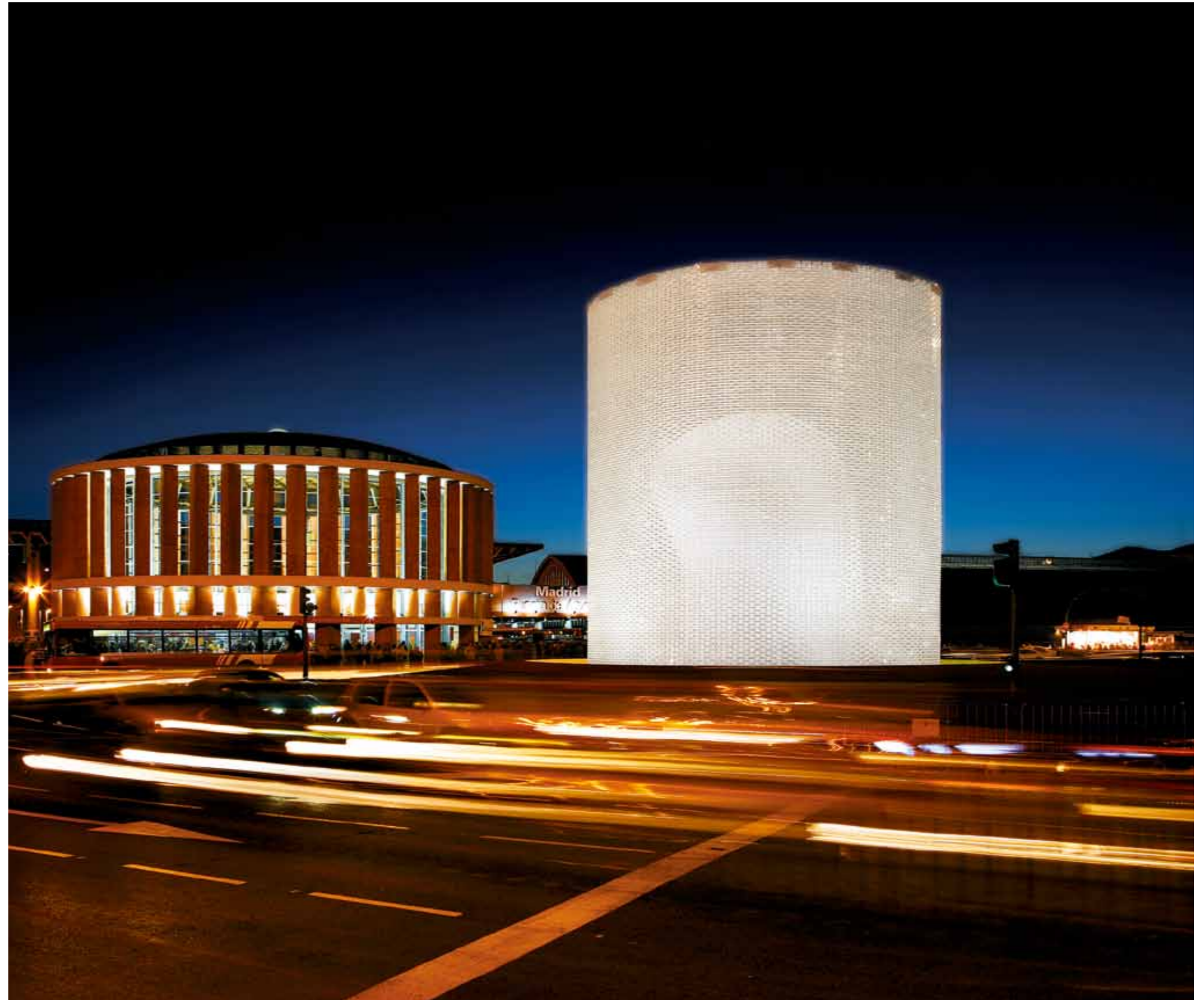
In fact, many SCHOTT products began as solutions developed for specific projects. This goes well beyond material quality and finishing. It also includes special processing techniques and integrated designs as well as in-depth technical advice and sharing experience. Or a logistics team that always delivers on time – all over the world.

By maintaining constant communication with architects and designers, SCHOTT finds ways that were never there before, pushes pre-established boundaries and forges new avenues for design. Experience, a spirit of innovation, expertise and the synergies of interdisciplinary collaboration all pave the way.

ESAÚ ACOSTA/FAM

“OUR INITIAL MODELS FOR THE DOME WERE MADE OUT OF ICE CUBES, BUT WHEN IT CAME TO IMPLEMENTING OUR IDEA, WE QUICKLY HIT OUR STATIC LIMITS. SCHOTT CAME UP WITH THE SOLUTION: GLASS BLOCKS THAT HAD BEEN Poured AND PRESSED IN MOLDS AND FLOATED BOROSILICATE GLASS FOR THE TRANSPARENT ROOF STRUCTURE.”

Memorial at the Atocha train station in Madrid, Spain
SCHOTT solution: borosilicate glass blocks and float glass developed in-house
Architecture: FAM Arquitectura y Urbanismo S.L.
Photo: Jens Meyer





Technology for ideas

Interview with Dr. Martin Rüttgers, Head of SCHOTT Architecture + Design

Dr. Rüttgers, SCHOTT offers a wide range of glass solutions. How important are special, innovative projects like the glass cylinders that the company produced for the memorial in Madrid? Very important. These types of landmark projects benefit everyone – designers as well as technicians. Secondly, they give us the chance to put the know-how that SCHOTT has acquired over the course of more than 125 years to work in a future-oriented way. This is important. SCHOTT is a global leader when it comes to expert solutions based on special materials, components and systems. You can only defend and strengthen this position if you continue to develop.

And, of course, we take pride in this, too. After all, it was our pressed glass blocks that enabled us to realize this spectacular design.

So, SCHOTT could actually sit back and say: You design it, we'll develop it. We would never do that because the best ideas are born while working with others! We at SCHOTT see ourselves as much more than an efficient supplier. We are also partners to architects and designers because we share a common goal: pushing back the boundaries, creating new things, and moving the culture of building forward.

In other words, your main focus is on working with others? Yes. We appreciate architects and designers who ask for innovative solutions and are willing to work with us to explore new avenues. Cooperation yields new solutions. We at SCHOTT have a tremendous amount of experience and in-depth basic knowledge that they are welcome to leverage. So, as you can see, knowledge is a strange thing. It grows if you share it.

But isn't it just a limited number of parties that benefit from this? No, on the contrary. It doesn't matter how large or unusual a project might be. The challenges often lie in the details.

Left: Manufacturing the compressed glass cubes for the memorial in Madrid
Middle: SCHOTT special glass manufacture in clean-room conditions
Right: Martin Rüttgers PhD, Head of SCHOTT Architecture + Design

Lennart Wiechell from Schmidhuber + Partner said in an interview on the work that was done on the German Pavilion at the EXPO in Shanghai: "We developed many new ideas together with SCHOTT and received expert advice on topics like fire protection, processing and glass statics." What does this type of praise mean to you? It means a lot. But most importantly, it motivates us.

Johann Wolfgang von Goethe

“COLORS
ARE THE
DEEDS
OF LIGHT.”

SCHOTT AG administrative building, Mainz
SCHOTT solution: Triple-layer insulation unit with
ASI® THRU photovoltaic modules
Design: Paul Wurdel
Photo: Carsten Costard





René Walkenhorst/ATELIER BRÜCKNER

“THIS GLASS
ENABLED US TO
REALIZE OUR
DESIGN IDEAS.”

Trading floor of the German Stock Exchange,
Frankfurt/Main SCHOTT solution: curved white
flashed opal glass OPALIKA®
Interior design / Scenography: ATELIER BRÜCKNER
Photo: Uwe Dettmar

Roger Diener

“DESIGN AND ENGINEERING BLEND
TOGETHER IN GOOD ARCHITECTURE.”

Novartis Forum 3, Basel
SCHOTT solution: IMERA® body tinted
colored glass
Architecture: Diener & Diener with
Gerold Wiederin and Helmut Federle
Photo: C. Richters



The Novartis building Interview with Roger Diener



Roger Diener; Photo: R. Ruis

Mr. Diener, Forum 3 on the Novartis campus is quite impressive thanks to its unusual façade. What role does the exterior of a building play in the architecture of today?

The architectural world considers the façade to be extremely important, particularly when it comes to developing new sites. We wanted to come up with a building that would have a major impact on the new campus. We wanted this effect to come from a powerful picture of a monumental architectural composition. Most buildings feature an iconic aspect. Forum 3 did not present this aspect of corporate identity as a direct metaphor, but it did provide a material sense of its presence. The expression is not stylistic; it is based on an extremely rudimentary decision to interpret a function using a specific façade. This means the building is extremely effective as a structure that actually speaks to how it is used. This building's expression leaves this edifice in the form of its inner structure, which draws on its purpose.

What role did building materials play for you as the designing architect? For us, the material is the color of the building. The refraction on the surfaces depends on it and as a result, so does the viewer's perception of its shape. Construction is extremely important here and continues to be refined from the very moment the initial idea is born throughout the planning stages. This is a process that extends from the design to the completion phase. We developed Forum 3 in collaboration with the artist Helmut Federle and the architect Gerold Wiederin. The client participated in this development and supported it. This was quite broadening, not limiting.

How did you finally end up working with Federle and Wiederin? We had already worked together with Helmut Federle on the Swiss Embassy in Berlin in 1995, for which he designed the wall that faces west. Federle's oeuvre showed us the possibilities that working together would offer us. Talking to him and experiencing his radical devotion to the autonomy of his work, despite his close cooperation with us, had a profound influence on our process, creating a sense of clarity that dominated the entire project at Novartis. And then there was the Night Pilgrimage Chapel in Locherboden, near Innsbruck, which was built in 1996 and designed by Federle in collaboration with architect Gerold Wiederin. This religious structure contained all of the sensual energy that we wanted to bring out in a completely different way on the Novartis campus.

What led you to choose colored IMERA® glass from SCHOTT for this project? Due to the polychromy of the glass grid, we decided not to use colored foils and used body-tinted glass instead. The wide range of colored glass that SCHOTT offers was an important factor in that decision. Besides, both we and Helmut Federle were already familiar with SCHOTT from our close work together on previous projects.

SCHOTT sees itself not only as a supplier, but also as a development partner for architects. A partner who strives to push the boundaries of design through its work. How important is this type of partnership to you? Close collaboration and in-depth discussion with manufacturers and the companies involved is extremely important to architects. Innovation in the implementation phase would be non-existent without this type of exchange.



Jean-Michel Wilmotte

“THE LARGE
FRAMELESS
DISPLAY CASES
WE DESIGNED
GIVE THE EXHIBITS
THE ATTENTION
THEY DESERVE.
FOR THE FIRST
TIME EVER,
WE WERE ABLE
TO USE ANTI-
REFLECTIVE, NEARLY
INVISIBLE PANES
OF GLASS.”

Museum of Islamic Art, Doha, Qatar
SCHOTT solutions: AMIRAN® anti-reflective glass,
fiber optics for the ceiling and showcase lighting
Architecture: I. M. Pei in cooperation with
Emmanuel Brelot and Fabian Servagnat
Interior design / exhibit design: Jean-Michel
Wilmotte
Photo: zedphoto.com



Lennart Wiechell / Schmidhuber + Kaindl

“IN THE FUTURE, A HOUSE
WILL HAVE TO GENERATE
ITS OWN ENERGY
TO MEET IT NEEDS.”

Balancity – German Pavilion at Shanghai EXPO
2010
SCHOTT solutions: solar façade made of
ASI® THRU solar modules, NARIMA® color effects
glass with MAGIRA® LightPoints LED glass in the
interior, fiber optics and LEDs for illuminating
exhibits, projection wall made of OPALIKA® white
flashed opal glass in the conference room
Architecture: Schmidhuber + Partner
Exhibition design: Milla & Partner
Photo: Alexander Sell

Building with the sun

SCHOTT glasses and modules use the energy of the sun – in the power grid and inside rooms

383 square meters large, integrated into the building, semi-transparent and powerful: the southern façade made of ASI® THRU solar modules was an important SCHOTT contribution to the German Pavilion at Shanghai EXPO 2010. Thin-film modules like the semi-transparent ASI® THRU pave the way for architects to reconcile aesthetics and sustainability. They deliver electricity yields even if the angle of incidence is not ideal, allow light to enter, protect against overheating, and can even be used as a projection surface. Without a doubt, this is the building shell of the future. Multifunctional, intelligent and versatile.

Solar modules from SCHOTT can be combined with standard metal structural systems to create roofs and façades that are either opaque or translucent. Nevertheless, the architectural benefit of the sun does not end once electricity is generated. Light is energy, both inside the room and in the power grid. Glass allows us to tap this potential on a broader basis. The SCHOTT headquarters building in Mainz is proof of this. Its flat roof consists of 300 square meters of ASI® THRU modules. AMIRAN® anti-reflective glass guarantees the highest possible light yield inside in the lower part of the façade, while the solar protection glazing above it precisely regulates heat and daylight. Only SCHOTT combines the

highest degree of expertise in solar applications with more than 125 years of technological leadership in the glass industry. This allows for comprehensive solutions. And it also explains why SCHOTT was the German pavilion exhibition partner for Concentrated Solar Power and Photovoltaics in Shanghai. A company that supplies key components for entire solar power plants and is the global market leader in this area certainly has the expertise needed to draw on the power of the sun to create a new building culture. With innovations that surprise and convince people.

"Market of the Future", the award-winning REWE Green Building concept in Berlin, is a flagship project for sustainable construction. Naturally, it employs solar glass solutions from SCHOTT in Germany. 8,712 solar cells are laminated into overhead safety glass elements, creating a solar roof that saves energy in two ways: it generates power and allows for a certain amount of daylight to enter the store. This has resulted in yet another milestone in solar architecture that carries the SCHOTT name. And it certainly won't be the last.

Above: Glass roof above the atrium of the SCHOTT Group's headquarters in Mainz with ASI® THRU solar modules
Conversion planning: JSK Dipl.-Ing. Architects
Below: Solar façade of the German Pavilion at Expo 2010 in Shanghai with ASI® THRU modules
Architecture: Schmidhuber + Partner





Nikolaus Bachler, Intendant

“EVERY WINDOW ALLOWS VIEWS.
THESE, IN TURN, CREATE NEW INSIGHTS.”

“Bühnenfenster” installation, rehearsal building of the Bavarian State Opera, Munich
SCHOTT solution: Laminated safety glass with the color effect glass NARIMA®
Architecture: GKK + Architekten
Design: Olafur Eliasson
Photo: Michael Heinrich, Munich

Hervé Martin, CEO Baccarat

“WHEN WE GAVE PHILIPPE STARCK CARTE BLANCHE FOR THE MAISON BACCARAT IN MOSCOW, WE KNEW HE WOULD COME UP WITH THE RIGHT MATERIAL TO COMBINE EXTRAVAGANT GLAMOUR AND INNOVATIVE DESIGN IN A SPECTACULAR MANNER.”

Boutique in the Maison Baccarat, Moscow
SCHOTT solutions: The white flashed opal glass OPALIKA® for the floor and fiber optic and LED components for display case lighting
Design: Philippe Starck
Photo: Pavel B.





Playing with spaces

Glass is the most versatile material for use in interior design

Gone are the days when interior design with glass meant only transparent room dividers. After all, not all glass is created equal. Special-purpose glass from SCHOTT opens up a new world of design, creating tension between accessibility and privacy, visibility and protection, lightness and substance. This gives designers and interior designers unprecedented freedom. And it can turn established habits upside down.

OPALIKA® is a white flashed opal glass that diffuses light so evenly that the light sources behind it cannot be seen. It has proven itself in illuminated ceilings and backlit room walls

around the world. In contrast to this, however, Philippe Starck used OPALIKA® white flashed opal glass to reverse the direction of light in the Maison Baccarat in Moscow – creating a luminous floor that the crystalline exhibits seem to float on top of.

The AMIRAN® anti-reflective glass creates views and insights that enhance presentation. In front of product displays and exhibits, it forms a wall that physically protects, but visually connects: free of reflection, true to color, and invisible. While retail depends on transparency, social and office building users often need to ensure confidentiality. Innovative glass

from SCHOTT can help. MAGIRA® SmartView switches from transparent to opaque at the touch of a button. This is made possible by a liquid-crystal film in the glass with crystals that align themselves when the power is turned on to make it turn transparent. Light truly makes the difference with MIRONA™ semi-transparent mirrored glass: If light shines from behind, it shines through the glass. If light shines in front of the glass panel, the glass becomes a mirror.

Whether it is used as surfaces and textures, patterns or color, the possibilities are endless. Colored glass like the brilliant product IMERA® body tinted glass or the shimmering

Left: Illuminated ceiling with OPALIKA® white flashed in the Sony Style Store in Berlin
Architecture: Helmut Jahn with arch-project Dipl.-Ing. Rudolf Grabowski.
Right: NARIMA® color effects glass as a partition wall in the Magasin Anne Fontaine in Lausanne
Interior design: Jean Jacob and Anne Fontaine

NARIMA® color effects glass, full surface or partial screen or roller printing, textured finishes like the finely grooved RIVULETTA® structured glass, MAGIRA® LightPoints LED glass that contains LEDs floating inside glass without any visible wiring – the list of design options is long. And all decorative glass types can also be processed into laminated safety glass and insulating glass to add even more functions. Be it fall protection, fire protection, radiation and personal safety, noise or UV protection – SCHOTT will find the solution.

Roger Narboni

"FOR ME, THE MAIN ADVANTAGE OF FIBER OPTICS FROM SCHOTT WAS THE GLASS! ALL THE OTHER SYSTEMS I KNOW USE LIGHT GUIDES MADE OF PLASTIC. THAT WAS OUT OF THE QUESTION: FIRST, THEY AREN'T NEARLY AS DURABLE AS GLASS, AND SECOND, THEY TINT THE LIGHT BLUE."

Notre Dame Cathedral, Reims
SCHOTT solution: fiber optic elements
Lighting designer: Roger Narboni / Agence CONCEPTO
Photo: C. Cegelec





ASI® THRU solar module at the German Pavilion
at Expo 2010 in Shanghai
Architecture: Schmidhuber + Partner

SCHOTT

Experts in glass

Smart glass types open up new creative avenues in design and architecture. With expert advice and a wide range of processing options, SCHOTT helps you fully explore these possibilities and use them in groundbreaking planning. Whether the goal is to integrate additional functions such as light protection, soundproofing, or thermal protection, or to match the innovation to the location with special sizing, SCHOTT is there to provide you with advice and assistance and develop tailored solutions for your project.

Please contact us.

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