

EPSE AWARDS

2015



AWARDS

BACKGROUND

European Polycarbonate Sheet Extruders (EPSE) were founded in 2003, by 5 prominent polycarbonate manufacturers, as a Sector Group of European Plastics Converters.

Today EPSE is comprised of 11 leading producers of polycarbonate multiwall, corrugated, and solid sheets* who are supported by 3 resin producers**.

EPSE promotes the use of polycarbonate sheets in the European market and develops industry standards.

The group manufactures over 120 000 tonnes of polycarbonate sheets every year and generates a turnover of over 500 million €. The EPSE members are present all over the EU28.

COMPETITION

EPSE Awards is an internal, biennial competition and the Awards 2015 is the 7th edition. The aim of this event is to promote unique properties of polycarbonate and a wide array of applications in which it may be used.

Polycarbonate is a material which can be easily worked and modelled, and therefore, it can be used virtually for any kind of application. It is widely used in the construction sector, mainly for big-size installations like stadiums, arenas or olympic venues. PC sheets are commonly used in engineering and among others in the automotive, electronics and medical industries. More recently polycarbonate caught the attention of interior architects & furniture designers, artists and number of other niche markets.

The projects submitted to the 2015 edition of the Awards are a perfect example of the intrinsic properties of PC sheets. They clearly demonstrate high impact- & fire-resistance, durability, flexibility, lightweight and transparency of polycarbonate.

JUDGING PROCESS

There are 2 steps in the judging process. In the first step the jury panel judges the projects individually. The 3 best graded projects go on to the second step which is public voting. The projects pre-selected by the Jury are published on the EPSE website where the public votes on their favourite project in each of the 3 categories. The following brochure presents all the other entries submitted to the EPSE AWARDS 2015 highlighting the winners and runners up.



SUSTAINABILITY



INNOVATION



DESIGN

*



Koscon Industrial S.A.
SHEETS AND SYSTEMS IN POLYCARBONATE



POLYCASA
Your home for plastic sheet



**



BIOGRAPHIES - JURY PANEL



DIPL.-ING. THOMAS HEGGER

MANAGER - FACHVERBAND TAGESLICHT UND RAUCHSCHUTZ E.V

Since March 2015 he has taken the position of manager of FVLR GmbH, Detmold - a service company of the association at the German producers of rooflights and smoke vents.

Before that he was holding for 6 years the position of manager of marketing and technology at Essmann GmbH in Bad Salzuflen, Germany at a company producing rooflights, smoke-protection and smoke-detection.



PROF. EWA KURYŁOWICZ, PH.D. DSC ARCHITECT

GENERAL DESIGNER, VICE-CHAIRMAN - KURYŁOWICZ & ASSOCIATES - ARCHITECTURE STUDIO

Ewa Kuryłowicz is a Graduate of the Faculty of Architecture of the Warsaw University of Technology and the Faculty of Architecture, Iowa State University, Ames, Iowa, USA. She is expert in universal designing of the Architects' Council of Europe since 2005, consultant of the University of Warsaw for issues of designing with special attention to the needs of the disabled, since year 2000 until today. In the years 2000 - 2008, she was Director of Work Programme "Spiritual places" of the International Union of Architects UIA, Paris Winner of architectural competitions (in teams of APA Kuryłowicz & Associates), among others: competition of the Association of Polish Architects (SARP) and UIA for the project of the Polish History Museum 2009 (commendation), competition of the Association of Polish Architects (SARP) no. 933 for educational building of the University of Warsaw at Dobra Street in Warsaw (2006, 1st prize), the National Music Forum, Wrocław, (1st prize, 2005) Biennial of Architecture in Cracow in year 1996 (commendation), prizes and nominations in competitions "Zycie w Architekturdze" (Living in Architecture) (2013, 1998, 1993), and others. Since 2011 General Designer of the new facilities (already constructed or under construction) such as chief designer (Retail and culture complex Galeria Warminska, Olsztyn 2014; Sport Stadium Bialystok 2014, Office complex Nowy Plac Unii, Warsaw 2013, the National Music Forum, Wrocław 2015.



FRÉDÉRIC MIDY

CEO - ALIAXIS (EMEA)/ CHAIRMAN - EUPC B&C DIVISION

Frédéric Midy has 15 years of experience as "full" CEO, COO, Managing Director (EMEA, France, Benelux, Spain, Scandinavia, Eastern Europe) within big international and industrial groups as well as mid sized structures and within matrix and multicultural organizations. Leadership, Strategic Vision, Deployment and Execution are acknowledged skills demonstrated both during growth and crisis periods. Evolution within various shareholders structures: LBOs, big groups and family-owned companies. Dynamic, Competitor, Decision Maker and Leader.

BIOGRAPHIES - JURY PANEL



STÉPHANE MIGET

EDITOR IN CHIEF - 5 FAÇADES

Stéphane Miget is a freelance journalist who is working for printed media as well as broadcasting. His main area of expertise is building & construction and within this sector architecture, energy, art and environment. He is as well Chief Editor of the "Planète Bâtiment" (Editions des Halles).



ERIC WINNEPENINCKX

HEAD OF THE DEPARTMENT STANDARDIZATION, SPECIFICATIONS AND QUALITY OF PRODUCTS AND SYSTEMS - BELGIAN BUILDING RESEARCH INSTITUTE (BBRI)

Eric Winnepenninckx is head of the department Standardization, specifications and quality of products and systems of the Belgian Building Research Institute (BBRI). He received his engineering degree in 1992 and started working for the BBRI in 1997.

Having been involved in technical approval work as an engineer at the national level, he became secretary general of the Belgian approval body (UBAtc) in 2009, assumed the secretary general role of the European Union for technical Approval (UEAtc) in 2011 and became EOTA Technical Board member of the European Organisation for Technical Assessment (EOTA) in 2006.

Eric has been involved in standardization for almost 20 years. He chairs CEN/TC128 (roof covering and wall cladding products) and is secretary of CEN/TC277 (suspended ceilings). He represents NBN in the EC-CEN Task Force (CEN/BT WG102) and in the CEN Construction Sector Network Core Group.

Eric Winnepenninckx visited numerous candidate EU member states introducing the Construction Products Directive at the turn of the century and became the second president of the Group of Notified Bodies in the framework of the CPD in 2002. He continues to be closely involved in the Belgian mirror group to the GNB's Advisory Group. Given Eric's broad involvement in standardization and conformity assessment, especially with regards to CE marking of construction products and the BBRI's collaboration with the Belgian Construction Confederation, Eric Winnepenninckx is also FIEC Technical Commission 1's rapporteur since 2006.

MEDIA PARTNERS

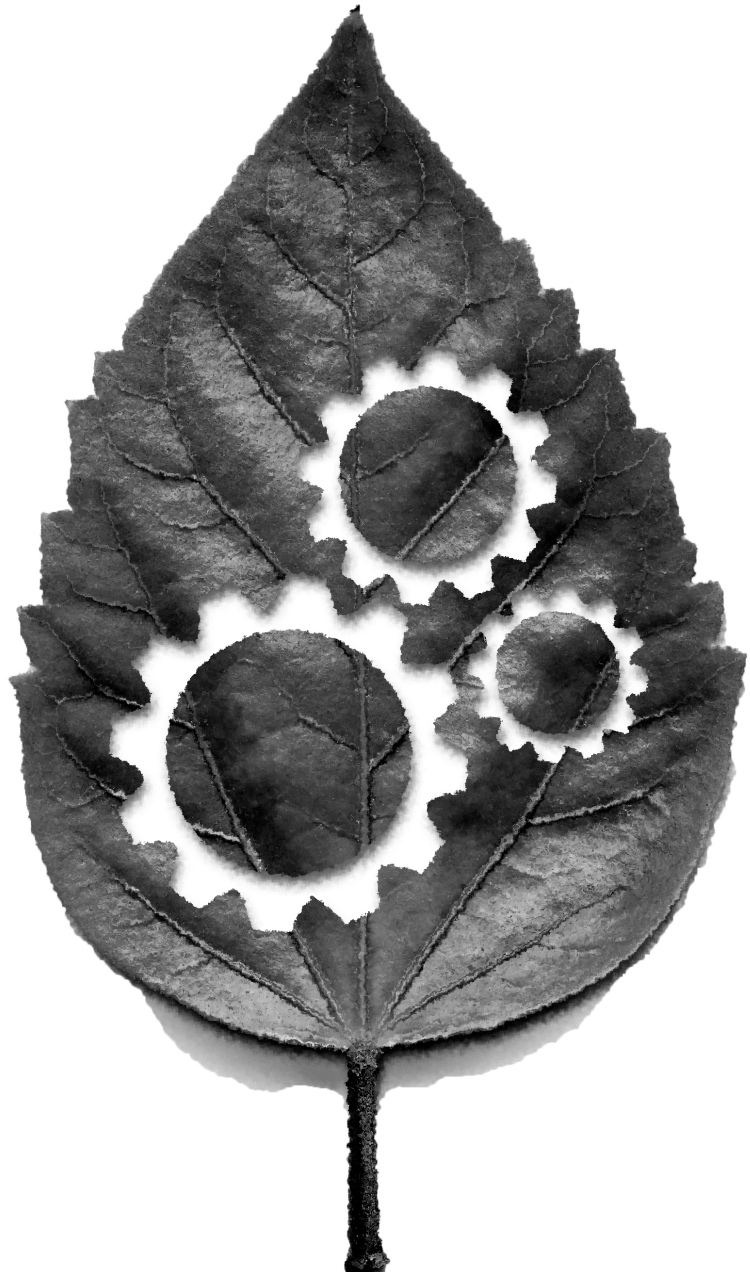


EPSE AWARDS 2015

SUSTAINABILITY

“Sustainability is the key to our survival on this planet and will also determine success on all levels”

Shari Arison



GENOVES PARK'S LOOKOUT AND PROTECTION BUILDING

CADIZ, SPAIN

ARCHITECT: JOSÉ LUIS BEZOS ALONSO

KOSCON INDUSTRIAL S.A.



Courtesy of José Luis Bezos Alonso

The project is one of the winning proposals of an international contest promoted by the Town Hall of Cadiz together with the local Architects Association. The objective of the contest was to re-organize and urbanize the grounds of the esplanade of Santa Bárbara which works as a fence to protect the Genoves Park. The exotic World Heritage Species inhabiting the park need to be protected from the adjacent sea and its marine environment. Previously, a high, masonry blank wall preserved them from rough weather and the ocean's breeze, completely shielding the park from the coastal area. This new building project has replaced the wall and, thanks to its transparency, allows for a more permeable relationship with the Santa Bárbara Esplanade, while meeting the same protective functions.

The materials used in this project allow for a feeling of lightness and transparency. Apart from polycarbonate sheets, glass and steel were also used in this project. The façade, which is made of glass on the ground floor and of a double translucent polycarbonate skin in the upper level, is backlit at night, creating an extensive beam of light opposite the bay.

Polycarbonate was used in the "Genoves Park's Lookout and Protection Building" project with a double purpose: for technical and aesthetical reasons. From the technical aspect, the application of polycarbonate panels allowed to create an extremely light yet resistant outer coating to protect the steel and concrete substructures permanently exposed to the rough weather and winds coming from the sea. At the same time, the polycarbonate panels are used as well for the interior to partition the walls between the main structure and for the users' facility.

From the aesthetic aspect, the translucent polycarbonate panels permit coverings that let the sunlight penetrate the inside of the building during the day, without any disturbing glaring effects. At night, the backlit panels, visible from the outside, colourfully illuminate the building. The extreme flexibility of the polycarbonate sheets created fully integrated, seamless walls whilst at the same time uniformly following the particular line of the building which completely project.

The aim of the project Genoves Park's Lookout and Protection Building was to make a better use of its surrounding area and to create a link between the Genoves Park and the Esplanade. It is not only a lookout or a protection building, but this new transformed area will now host cultural activities as well as accommodate a restaurant, a reading room and other areas.

The extreme flexibility of the polycarbonate system create seamless, fully integrated walls at the same time following uniformly the particular line of the building, which completes the aim of the Genoves Park's Lookout and Protection Building project.



GARAGE MUSEUM OF CONTEMPORARY ART

MOSCOW, RUSSIA

ARCHITECTURE STUDIO: OMA

DOTT.GALLINA



The architectural firm OMA had the goal to visually reconnect the interior of the museum to its surrounding park, combining the original reinforced concrete structure of the Soviet era with a new translucent facade made with innovative construction techniques.

The applied facade is made of two skins walls of multi-wall polycarbonate systems with an 800 mm interspace in which it a controlled air flow is mechanically conveyed. This, together with a considerable saving of artificial lighting, has led to an economy of air conditioning during the entire year. In summer, the external wall of polycarbonate coextruded with IR absorbers filters the solar radiation. Together with the temperature-controlled air interspace, it prevents overheating of the interior rooms.

In winter, the management of air flow allows the recovery of heat developed by the IR absorbers inside the interspace, achieving the ideal climate comfort. Finally, the natural setting of the park has been preserved thanks to the optical properties of the polycarbonate that reduces the visual and environmental impact of such a large building, by reflecting external conditions.

To the original building, a structure consisting of metal uprights of the same pitch of the polycarbonate panels was applied. Outside, a system of double-wall polycarbonate 10 m high and 78 mm thick with IR absorbers was built to maximize insulation during the entire year.

The inner wall, which is required to close the air interspace, was realized with 12 mm thick panels to guarantee maximum light transmission, ensuring visual continuity required by Designers. All polycarbonate panels are linked and at the same time separated from the vertical metal profiles by the use of transparent 50 mm thick polycarbonate profiles which scatter light and reduce the shadow lines of the substructure.

The same system has been used to create two large sliding doors at the entrance with dimensions 10x10 m. The use of corner profiles in polycarbonate has created a continuity in the facade too.

LA HALLE DE PANTIN

PANTIN, FRANCE

ARCHITECT: NORBERT BRAIL

DS SMITH PLASTICS



“La Halle de Pantin”, or Pantin Hall built in 1942, is the largest commercial hall dedicated to the building market in France which will house under one roof eight brands spanning the entire range of building materials: POINT.P Matériaux de Construction, La Plateforme du Bâtiment, CEDEO, Décocéram, PUM Plastiques, CDL Elec, Outiz and SFIC.

The building is characterized by its high energy performance and perfect airtightness. That could be achieved by using PC sheets for the skylight openings. The energetic consumption of the hall is kept on a level of 77 kW of primary energy/m² per year which is much less than the minimum required by the French Thermal Regulation (RT 2012). The aim of Norbert Brail, the architect who worked on this renovation project of 35 000 m², was to refurbish the three juxtaposed parts of the roofing composed of inclined sections of glazed skylights by using a minimum of pillars and supports while reusing the existing concrete structure in order to help improve the flow of traffic inside the building.

Another objective was to allow a maximum of sunlight into the building. The use of PC sheets allowed for optimal light transmission without producing a dazzling effect which could occur had glass canopies been used.

Cellular polycarbonate was used for the roofing and cladding. A total of 1000 m² of wired glass was replaced with polycarbonate translucent panels equipped with a clip system which were fixed to the already existing concrete structure to which steel supports were attached.

Thanks to the high thermal insulation properties of the PC sheets used in this project and therefore excellent airtightness the heat losses of the polycarbonate part of the building are extremely low.

The installation company that worked on “La Halle de Pantin” is certified as “responsible in eco lighting” by OPUS LIGHT in Paris.



ROOFTOP GREENHOUSE

JERUSALEM, ISRAEL

**ENTREPRENEUR: K.B.K. HON
HOLDINGS**

PALRAM

With the majority of the people now living in cities and urban areas, there is an ongoing demand to capitalize on the natural resources without exploiting them.

This rooftop greenhouse takes the concept of vertical farming to another level not only by making use of a space with commercial production of vegetables near a city center profitable, but also by doing it in an arid desert.

This advanced commercial greenhouse is located in Southern Israel, a five minute drive from one of Israel's major metropolitan centers.

It supplies fresh vegetables to the city's markets with a minimal expenditure of energy for transportation. It makes use of the greenhouse to cool the building during the day, and to heat it during the night.

At first glance, it seems that you are in an ordinary industrial-commercial park containing high-technology enterprises, industrial manufacturing plants and logistic centers. But when you climb up to the roof of one of these industrial facilities, you will gasp in amazement.

The third floor is occupied by a 4,500 square meter commercial greenhouse which produces fresh herbs with a yield that would require 200,000 square meters of cultivated land if it were to be grown in an open field. When considering the climatic conditions of this dry and windy desert area, the magnitude of this innovation becomes even greater.

The crops are grown by hydroponics, thus does not require irrigation pipes, heavy machinery, and, more importantly, is pesticide free. All the water and fertilizers are recycled back into the growing system. This system brings food production closer to city centers while freeing agricultural lands to raise other crops.

Overall, this innovative project can serve as a model of how to utilize roofing in urban areas, while saving natural resources and energy costs.

One of the main considerations when constructing this greenhouse was its energy efficiency. The aim was to allow sufficient light penetration while ensuring thermal insulation.

The rooftop greenhouse is covered with clear embossed corrugated polycarbonate sheets which allow optimal light transmittance, combined with a high level of light diffusion, dispersing the light evenly and preventing shade patches and improving plant morphology and development.

By thinking outside the box and using innovative technology, one entrepreneur managed to challenge the climatic obstacles and make the desert bloom under a polycarbonate covering.

Since all construction materials had to be elevated by a crane to the roof, polyethylene sheets were not considered as they would have to be replaced on annual basis.

The lightweight greenhouse structure made it possible to erect such a large structure on a roof that was not originally designed to withstand the weight of an additional floor.

Corrugated sheets of 7.4 meters long, stretching from ridge to gutter, were installed. This length enables minimal overlaps, thus sparing material and metal structure.

PALRAM's unique side lap fastening accessories were used at the corrugation overlaps, turning the greenhouse roof into a single solid unit that prevents energy loss at night and enables controlling heat gain and loss during the day.

These tailor made side lap profiles also prevent tearing at strong winds and hermetically seals against dust accumulation, insects and water leakage.

EPSE AWARDS 2015

INNOVATION

“Innovation is taking two things that already exist and putting them together in a new way”

Tom Freston





FRANCE

MANUFACTURER: SIH (SOCIÉTÉ INDUSTRIELLE DE HARAS)

DS SMITH



Courtesy of @Gilles Vidal

Today, noise is one of the principal sources of pollution in urban environments. From a medical but also labour legislation point of view, or simply for matter of comfort, there is no doubt, nowadays sound insulation is essential to avoid problems due to noise or stress. Ensuring sound insulation in a workplace or at home has thus become crucial.

Therefore, SIH developed Pearl Inside®, an innovative patent consisting of filling multiwall polycarbonate sheets or panels from DS SMITH with micro-glass beads. This technology makes distinction of the two sources of noise pollution either coming from outside or from rain impact. Pearl Inside® allows for enhanced sound insulation in addition to an improved natural light diffusion by up to 20 %. Energy savings can thus be achieved both in the summer and winter thus significantly reducing heating, cooling and lighting costs.

Cellular polycarbonate sheets offer clear advantages compared to conventional glazing: high thermal insulation performance, cold bending and impact resistance. However, the sound proofing properties of polycarbonate are limited in a noisy environment or during a rainstorm as polycarbonate has a rather low acoustic insulation. Pearl Inside® combines the advantages of both materials (PC sheets and micro-glass beads), which, when combined, result in enhanced acoustic insulation.

Multiwall polycarbonate sheets or panels from DS SMITH are filled with micro-glass beads inside of their structure.

Pearl Inside® is completely in tune not only with the requirements of the French Thermal Regulation (RT 2012), but it also fulfills the requirements of the High Quality Environmental standard and sustainable construction. It is 100% recyclable, chemically stable and UV resistant.

An important advantage of Pearl Inside® panels is that they are around three times lighter than double glazing.

Originally designed to equip home skylights, Pearl Inside® technology is also used in cladding or sheds, but it is also particularly popular with designers for interiors. With its outstanding soundproofing performance, Pearl Inside® is frequently used for removable walls or partitions defining spaces, like open space areas in an office. Pearl Inside® is covered by a Technical Approval issued by CSTB since last fall.

PUBLIC SWIMMING POOL

KIRYAT GAT, ISRAEL



ARCHITECT: YITZHAK MOR

PLAZIT POLYGAL



The panels of the roofing system are colored with a special pigment that prevents solar rays' penetration to the inner space ("High White" volume pigment). The additional metallic co-extruded selective layer (Polyshade-Silver) reflects sun radiation in visible and Infra-Red range. A unique combination of coloring technologies creates comfortable conditions for sport activities during a very hot Middle East summer season.

A specially-designed inner structure of multi-wall panels with increased thermal insulation allows energy saving for the water and air heating of the swimming pool during cold seasons. Polycarbonate sheets used in this project, together with the internal walls and a metallic silver external layer, contribute to a highly effective thermal insulation with an extra strength for roofing.

These PC sheets are available in different widths and are ideal for glazing in closed structures with large - span openings. Additionally, they guarantee absolutely opaque performance and savings on heating and energy costs. They are suitable for hot climates and are covered with a 10 Year Warranty for color and resistance. Moreover, rigid panel structure provides extra strength under wind and snow loads.



COCO SWEET

FRANCE

MANUFACTURERS: BENETEAU, IRM,
O'HARA

DS SMITH PLASTICS

Coco Sweet is a brand-new and original alternative to the classical tents and campers. The concept was developed by the French brand Beneteau together with IRM and O'Hara.

This innovative and cosy project combines several concepts: a mobile home, with its rigid frame, flooring and real door structure; a tent, with its flexible PVC covering; and a tunnel-shaped chamber with a wall made with cellular polycarbonate sheets – uncommon in this kind of application.

The unique properties of PC sheets – its lightness, high thermal insulation and excellent light transmission – take on a new form with the COCO SWEET concept which offers an intermediary solution to camping as it is less expensive than a mobile home and more comfortable than an equipped tent.

Coco Sweet, thanks to the smart mixture of different materials, protects its users from bad weather, rain and wind whilst allowing daylight to penetrate the interior. Polycarbonate parts in this structure allow for direct sunlight as well as rounded shape. Opaque PC panels protect the intimacy of the users and at the same time give a comfortable atmosphere.

Coco Sweet is a fantastic alternative for all those who do not fancy tents but enjoy being close to nature.

EPSE AWARDS 2015

DESIGN

“Design is not just what it looks like and feels like. Design is how it works.”

Steve Jobs





CAIXA FORUM

ZARAGOZA, SPAIN



ARCHITECT: CARME PINÓS

SABIC

Courtesy of: Ricardo Santonja, Estudio Carme Pinós

Four mm polycarbonate sheets were chosen for the distinguished 1600 m² façades of the new Caixa Forum, a cultural and social center in Zaragoza, designed by Catalan architect Carme Pinós. Thanks to its unique structure, the building appears as a sculptural element amidst the park. Translucent PC sheets play a key role in illuminating the lighted organic drawings at night to create a unique atmosphere on the façades of the building.

The façades are designed with perforated or dented metal panels with the polycarbonate sheets on the back and lighted with light emitting diodes (LED). Polycarbonate sheets used in this project are cut in different shapes in order to follow the total organic drawing in each façade. A special type of PC sheets was the material of choice due to uniform illumination with superior optical brightness for eye-catching display as well as its excellent fire safety behavior (of B-s2-d0 rating) according to the European EN standard. PC sheets employed in this project - unlike conventional sheet products - offer both uniform light diffusion to eliminate LED "pinholes" and a view of light sources, and superior light transmission for exceptional optical brightness at lower energy costs. In fact, this type of PC sheet boost light transmission to more than 50% versus PMMA. The product has a matte finish on its outward-facing surface to reduce reflections, and provides excellent UV protection as well as the renowned impact resistance.

In her project for CaixaForum Zaragoza, Carme Pinós sets a building "that creates city and which, when lived in, allows visitors to feel part of it". The building designed by Pinós splits into two high, geometric large structures that house the exhibition halls, creating a new public space on the ground floor that will connect the station with El Portillo city center. The "skin" of the building is covered with 1,600 m² perforated aluminum/polycarbonate sheets that allow locating the lights that provide the bluish lighting. The building can be seen walking through or from all sides making the park an extension of the city. At night, you can see illuminated organic drawings on the façades obtained by perforating the plate and using PC sheets as the diffuser, to get two different aesthetics, one during the day and another during the night. The PC sheets used in this project allow for high light transmission, combined with high light diffusion: for uniform illumination (light source not seen from outside) and to prevent bright spots (allowing fewer LED lights and lower total product cost). Additionally both surfaces of the panels are UV-resistant. They are as well impact resistant and have an outstanding white color retention after weathering and are easy to manufacture.

LONDON OLYMPIC STADIUM

LONDON, UK

ARCHITECT: MARK CRAINE

BRETT MARTIN



Located in Queen Elizabeth Olympic Park, the iconic London Olympic Stadium is being redeveloped for London Legacy Development Corporation. The Stadium is due to open in October 2015 to host the Rugby World Cup. The stadium will be home to West Ham United Football Club as well as the new national centre for athletics.

The project features a 44,000m² roof, which at a depth of 84m is the longest cantilevered roof of its type in the world. The new roof is twice the size of the original and covers every seat in the Stadium, improving acoustics and the spectator experience. The original roof covered only 40% of spectators.

Doubling the size of the original roof has been a significant challenge. Providing enough support for a new roof of this size required substantial strengthening work to the main roof trusses with substantial cost implications. A primary design consideration in this project was the incorporation of a light weight yet robust and resilient roofing material which would offset the amount of steel required. A further design consideration was that the material would offer the necessary versatility and workability to allow it to be configured to fit the complex concentric roof structure and unusual purlin alignment.

Possessing the necessary strength to weight ratio, impact resistance, for long term weatherability, ease of workability, fire performance and over 90% light transmission, Brett Martin's polycarbonate sheets used in this project made the architectural vision a reality.

These unique material properties inherent in PC sheets have enabled the stadium designers to achieve a roof structure which simply would not have been possible at this scale otherwise. The cantilevered roof is made up of 21,862m² of polycarbonate, a total of 4,484 individual PC roofing sheets, which contribute to a mere 2% of the weight of the overall roof structure. Over 60% of the polycarbonate sheets have been cut to shape to fit the structure. The roof is made up of two sections running concentrically around the stadium. The rear section is covered with a single ply membrane and the front, more steeply pitched section, comprises PC sheets.

Over 4,484 sheets of polycarbonate have been used to form this front section of the roof canopy covering an area of 21,862m². 2mm thick, special width PC sheet material was supplied to achieve specific spanning requirements.

The subsequent installation has been achieved within the project timeframe and has resulted in a roof structure which is now part of the iconic sky line of the City of London.

VIDEO: <https://www.youtube.com/watch?v=VKY3HE0eKkk>



BARCELONA HOUSE MODELLING

BARCELONA, SPAIN

MANUFACTURER: IRPEN S.A.U.

DS SMITH PLASTICS

In this project, the use of mobile panels which consist of two multiwall polycarbonate sheets and an intermediate sheet of methacrylate, brings both color and light transmission to the composition. With this system of mobile panels, spaces can be compartmentalized while offering privacy as well as lighting and soundproofing.

It consists of a set of sliding screens that separate two environments - kitchen and living room - plus some doors for cabinets within the same area. These sliding doors are made up of three layers: multiwall polycarbonate sheets that give the exterior finish, and an intermediate sheet of methacrylate, that brings various possibilities of color to the composition.

These materials are assembled with a perimeter frame, using sheets of different sizes, bringing color and the possibility to play with design of different forms. The distribution of the mobile panels was used in this design for: On the one hand for the formation of mobile panels, that creates a partition between two spaces: the living room and dining room. These panels also allow these two spaces to be separated while bringing in diffused light - a dynamic feature that could not be achieved with a common wall.

The formation of these two panels as sliding doors brings color to the composition and gives this space an atmosphere of transparency and privacy, as well as lightness to the partitions.

DISPLAY STAND - TOURIST OFFICE NANCY

NANCY, FRANCE

DESIGNERS: LÉPOLD CART,
CÉLIA GAILLARD, THOMAS
LUCBERNET, MORGANE WELTER
/ ÉCOLE NATIONALE SUPÉRIEURE
D'ARCHITECTURE NANCY/

DS SMITH PLASTICS



The core structure of this project is made with transparent, cellular polycarbonate sheets held together by horizontal silver poles. The main design point of this project is the optical illusion created when the structure is illuminated with sun rays. Indeed, the polycarbonate can completely disappear in the sun rays or can, on the contrary, reflect light. The silver poles thus act like a filter and depending on the viewpoint, they can become transparent. Due to the varying lengths of the silver poles (from 1.5 to 3 meters), the top of the structure is mobile. This subtle motion gives a certain lightness to this project – like wind blowing through a field of wheat.

The project was developed as a part of the “Innovative Structures” competition which was launched by the Tourist Board of the city of Nancy in France. In this competition newly graduated architects were asked to create a brand new, unusual design for a furniture displaying promotional material like brochures, maps and leaflets.

The project was inspired by the Tjibaou Cultural Center located in Nouméa, New Caledonia which was designed by Renzo Piano. The architects took inspiration from the cocoon shape of the Piano’s building. The egg-shaped furniture creates a semi-closed area which results in creating a more intimate and peaceful place in a public place. The seats and the tables were reinforced with plywood, an opaque material, encouraging the public to use the furniture.



PRADA FOUNDATION MUSEUM

MILAN, ITALY

ARCHITECTURE STUDIO: OMA

DOTT.GALLINA

When designing the Prada Museum project, the prestigious architecture firm OMA and architect Rem Koolhaas, had a precise plan: the new buildings would be built to complement the existing ones, composing different environments that coexist but remain distinct. They would function as a collection of original architectural spaces that would be exposed in the Museum.

OMA's concept for the museum entrance provided some primary functions and distribution inside translucent volumes, like sculptural monolithic prisms. These volumes were able to be created thanks to an innovative facade system with interior walls and ceilings made out of polycarbonate sheets able to interact with light.

This project used polycarbonate for all the elements included in the walls: opening sides, ceilings, doors to a ticket desk and bookshop check-out, furniture, an elevator to the external roof with technical elements such as smoke blower covers

PC sheets were selected for this project for their unique characteristics, unmatched by any other solution on the market of translucent elements for facades and roofing.

The multiwall polycarbonate system used in this project is the first example of a self-standing system which does not require any metal supports.

The wall thickness of 30cm was constructed with two external "skins" made with a multiwall polycarbonate panel (13mm and 60mm wall thickness), guaranteeing natural lighting and visitors' comfort.

A grey-matt surface finishing coextruded was specially designed for this project and the support structure consists of innovative transparent uprights.

This solution allowed to eliminate metallic structures and chassis, otherwise visible in backlight.

OMA's goal was to hide from view the fastening elements of the outer panels at the same time eliminating an interrupted surface which led to the design of unique and innovative details, such as the vertical edges made by milling and continuous folding of the multi-wall panels, as the bottom and side guides embedded into the floors and walls.

For the sealing of the edges, polycarbonate profiles hot folded were inserted into appropriate milling realized under the external surface of the panels. This solution has ensured the panels' water resistance, thermal expansion and internal ventilation.

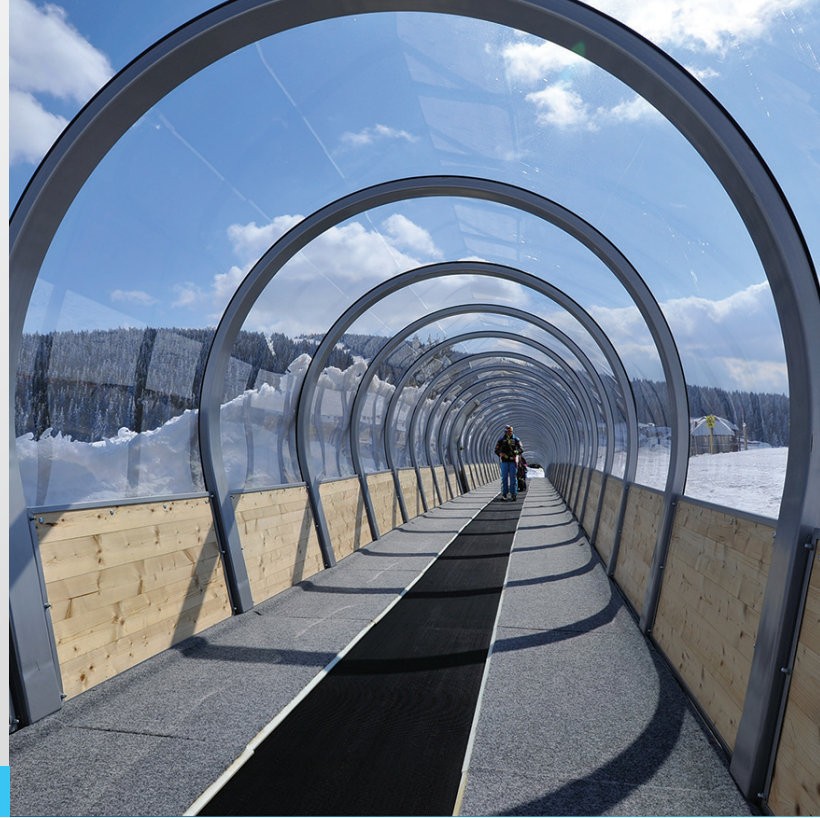
The pleasant tactile and visual effect of the walls is enhanced by the details' linearity and elegance: angles, arcs, insertions and combinations with other materials - details designed and manufactured under the careful and wise supervision of OMA architects.

SKI TUNNEL

KOPAONIK, SERBIA

OUTER PANEL MANUFACTURER:
ORACLON,
SKI TUNNEL COMPANY: **ADVERTSKI**

POLYCASA



The mountain region of Kopaonik is Serbia's largest ski resort and is visited by around 500,000 people each year. To help the many visitors get to their ski lanes, a ski tunnel complete with moving conveyor belt was required.

The design is attractive, modern and functional. Around 900 people every hour now use it at a conveyor belt speed of up to 0.8m per second. Although it is currently 75 metres long, the tunnel can be extended to up to 300 metres if required.

Polycasa was approached by the outer panel manufacturer, Oracalon, on behalf of the ski tunnel producer, Advertski. 317.5m² of PC (around 45 sheets) were supplied by Polycasa to Advertski and they put it to use with a great effect. The craftsmen who were responsible for bending and assembly were extremely pleased with the behaviour of the material in temperatures as low as -18 C.



TAKE MY LIGHTNING BUT DON'T STEAL MY THUNDER

LONDON, UNITED KINGDOM

DESIGNER: ALEX CHINNECK

BRETT MARTIN

Taking residence on the East Piazza at Covent Garden in London is a new and unique artwork which sees a section of the building magically levitate – with one of the key structural elements of the illusion provided by multiwall polycarbonate sheet.

Modelled on the original architecture of the 184 year old market building, the artwork 'Take my lightning but don't steal my thunder', has been designed by London artist Alex Chinneck and built by a 100 strong team who have conjured up the illusion that a 40-foot-long building has broken from its stone base and then floated 10 feet into the air with bewildering weightlessness.

With this unusual engineering marvel designed around both weight and aesthetics, the building had to be as light as possible but still look like a stone and brick building. Built from a steel and timber frame, the walls were created using strong, lightweight multiwall polycarbonate sheet. Polystyrene was then intricately carved using robotic hot-wire cutters, and glued to the polycarbonate sheet prior to the application of the plaster and granite sand finish to match the existing market building.

Another type of polycarbonate sheets were chosen for the artwork for its exceptional strength and rigidity. Ordinarily used in roofing and glazing applications, the multiwall structure of PC sheets provides a very high stiffness to weight ratio. The sheet is strong yet light in weight, a key consideration for this architectural illusion.

Following a pre-fit at the fabrication shop to ensure it all went together like a jigsaw puzzle, the artwork was then shipped by 10 arctic trucks and installed over 4 days at the Piazza.

With this stunning floating building wowing visitors to Covent Garden, the use of multiwall polycarbonate has played a key role in this magical illusion, demonstrating the product's versatility and durability in the most unusual of building applications.

VIDEO: <https://goo.gl/9KwSBx>

THE ROOF WINDOW

FRANCE

MANUFACTURER: PLASTRANCE

COVESTRO



The new panoramic cabin from CLAAS did not leave any specialist indifferent. Developed five years ago by PLASTRANCE, the roof window in Bayer's polycarbonate sheets will be awarded at the SIMA farming fair in Paris in 2015. Measuring 1000 x 800, this new roof window revolutionizes the way of driving and using a farming tractor. Regardless if in an inside or an outside environment, the user of the new Arion T4F has a much better visual field thanks to this panoramic cabin. PLASTRANCE's front window and roof window are connected very nicely, without any cross-piece.

From the floor to the roof, the wide front window combined with the PLASTRANCE roof window provides a unique comfort for the use of the farming vehicle and an optimal comfort in the driver's place. The CLAAS cabin offers a permanent wide vision. There is no dead angle hindering the visibility of the driver on its shovel, they can thus operate safely in various environments. In the countryside, similar to the mountains, its design allows an optimal use of the front shovel and a perfect control of the lifting and the laying of charges.

Thanks to the polycarbonate sheets used in this project and to the technical development of PLASTRANCE, the user's comfort has been put at the heart of this new design. Thanks to this, it was possible to eliminate maximum of repetitive and unpleasant moves, to which a driver is usually exposed, in order to avoid the usual back and neck aches. The composition of PC sheets reduces thermal radiation, thus lowering at the same time a greenhouse effect inside the cabin and offering an outstanding optical transparency. The heat in the cabin is reduced and the daily work conditions of the driver in the summer are improved. Moreover, the PLASTRANCE roof window is equipped with an anti-scratch coating and a UV protection which improves the resistance to abrasion, extreme weather conditions and yellowing.

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