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PVC in architecture and design



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FOSSIL-FREE PRESCHOOL AND CLIMATE-FRIENDLY PVC PIPES

THE CITY OF GOTHENBURG, SWEDEN, IS BUILDING THE FIRST FOSSIL-FREE PRESCHOOL WHICH WILL BE READY FOR PLAY AND LEARNING IN 2021.

Aiming for climate-neutrality by 2050, the City of Gothenburg is building the first fossil-free preschool as a model for climateneutral buildings. Named 'The Hope Project', the preschool will open in 2021. The project will use the most sustainable processes and materials in its construction while bringing together sustainability experts, innovators, entrepreneurs, and suppliers to deliver a truly sustainable community building.

Maria Perzon, project manager from the consulting company Bengt Dahlgren, commented "To reduce our dependency on fossil fuels, not only do we need the help of the construction industry and material manufacturers, but we also need to use the most innovative products and solutions available on the market." Other requirements for the selection of construction products included recyclability and sustainability performance assessed from a life cycle perspective, including transport to the construction site. The pipes to be used to build the preschool's piping system, an essential component of any buildings, are produced from climate-friendly, recyclable, bioattributed PVC that provides CO₂ savings of 90% compared to conventional PVC. The PVC pipes were developed by the manufacturer Pipelife Sweden, a VinylPlus® partner, in collaboration with the PVC resin producer INOVYN, a member of ECVM, a founding member of VinylPlus.



PVC is the most widely used plastic in building and construction. It is found in a wide range of products such as pipes, windows, flooring, cables, roof coverings and gutters. Durability, recyclability and lightweight are key characteristics that make PVC an ideal construction material.

There is ample evidence that a PVC sewer pipe, for example, can last for at least 100 years with experiments demonstrating that it can be recycled many times over without losing its technical properties. From a life cycle perspective, the lightweight of PVC pipes also has a clear advantage over traditional materials, such as metal and concrete, by reducing the climate impact of transport.

To enhance the circularity and sustainability of PVC, the European PVC industry has invested massively in the collection and recycling of PVC over the past two decades. In Europe, more than 5.7 million tonnes of PVC have been recycled since 2000 through VinylPlus, thus preventing the release of 11.4 million tonnes of CO₂ into the atmosphere.

VinylPlus[®] is the Voluntary Commitment to sustainable development of the European PVC industry.

Its regional scope is the EU-27, plus Norway, Switzerland and the UK.



A GLANCE

Find out more about VinylPlus® at: www.vinylplus.eu



LILY FLOATING PLAYGROUND

TECHNICAL – **INFO** PVC Membrane

ARCHITECTS

WAO - Wild Architectural Objects, Paris, France www.wild.paris

LOCATION

Chasseneuil-du-Poitou, France



Lily is a floating structure designed by French architects at Wild Architectural Objects (WAO), which offers visitors playful and fancyful experiences on the central lake of the Futuroscope. Made up of five giant buoys moored to a deck that spans 40m in diameter, the installation offers visitors distinct experiences depending on their mood.





The deck that encircles the floating playground itself is a soothing walk, inviting people to watch and admire the voluminous white installations floating in the water. The buoys can be either places of relaxation or exhilaration where visitors can jump on trampolines or lie down to enjoy the sun.

Moving with the twists and jumps, the playground is reactive to spontaneous movements, echoing the visitors' joyful spirit that it amplifies in return.







The floating playground's buoyancy, kinetic energy and sense of joviality create magical moments where weightlessness, euphoria and wonder intersect. Lily is the culmination of 500 hours of design, 1,400 hours of realization and 1,200 hours of assembly. The entire structure consists of 1000m² of PVC membrane, 410m² of braided mesh and 450m³ of air.







PICTURE CREDITS Sergio Grazia

SPEED SKATING STADIUM

- TECHNICAL INFO PVC Roof Membrane

ARCHITECTS

Behnisch Architekten, Pohl Architekten, Stuttgart, Germany www.behnisch.com

LOCATION

Inzell, Germany





In 2019, the Bavarian town of Inzell hosted the World Single Distant Speed Skating Championships. To create the world-class conditions required for this competitive event, the existing outdoor speed-skating track was upgraded with the construction of a high-performance, intelligent roof structure. The revamped arena can now hold up to 7,000 spectators and offers maximum flexibility that can accommodate both large-scale worldclass competitions as well as regular seasonal speed-skating training.

A wide-span structure that is free of interior columns, the 200-metre long and 90-metre wide arena allows athletes and spectators to enjoy panoramic views of the Bavarian Alps through the glass façade that encircles the arena. The glass façade stands as a transparent circuit that intermediates the cloud-like roof and the concrete grandstands that flow into the landscape. Outside the arena, passersby can look into the stadium's interior and catch a glimpse of the daily activities.

Designed with the interior climate concept in mind, the arena's roof that is fitted with a PVC membrane stretched between the lower cords of the ten-meter high timber and steel trusses, ensures efficient, economic and sustainable day-today operations of the ice track. The function of this PVC membrane is to reflect the ice's own cold thermal radiation back onto the speed track to maintain the low temperature of the ice surface. Simultaneously, the PVC membrane maximises the quantity of diffuse daylight that streams into the stadium through the roof's 17 large north-facing skylights.







PICTURE CREDITS Meike Hansen, David Matthiesen

DUBLIN, AIRPORT TERMINAL 2

– **TECHNICAL** INFO PVC Ceiling

ARCHITECTS

Pascalls + Watson, London, UK www.pascalls.co.uk

LOCATION

Dublin Airport, Dublin, Ireland







Terminal 2 forms the centrepiece of Dublin Airports' extensive fiveyear renovation programme. The comprehensive masterplan of Pascalls+Watson encompassed over 100 individual projects. The most significant of them all and the one that transformed the passenger experience is the new 75,000m² Terminal 2. Thanks to the renovation, Terminal 2 has increased Dublin Airports' capacity to 32 million, positioning it as one of the top 20 European airports for international traffic. The building also sets new standards in sustainable terminal design, achieving a 17% reduction in CO₂ emissions when compared to statutory compliant designs.

Externally, the terminal is symbolic and sculptural, suggesting metaphors of flight. Despite its bespoke appearance, the freeflowing and fluid forms of the two main volumes were created using standard systems and componentry. Internally, consideration of passenger



movement was a fundamental part of the design process, ensuring logical and intuitive sequential journeys. The plan layout is responsive to the airport's operational requirements and the constraints of a site that can become particularly congested.

Maximising natural light and creating a quiet atmosphere, the lighting scheme reinforces the building's inherent directional guidance, allowing passengers to navigate with ease throughout the terminal. Daylight enters from the glazed façades and roof skylights along the spine of the building and the false ceiling made with light-coloured PVC membrane reinforces the interior's spatiousness. Solar shading was designed to minimise heat gains yet permitting sunlight penetration in selective areas, ensuring maximum leisure for passengers.

Terminal 2 provides an iconic gateway to Ireland and is the recipient to numerous awards including the CMG Building Design Awards' Public Building of the Year in 2010.

PICTURE CREDITS

MEDIATHEK





TECHNICAL – **INFO** PVC Coated Fabric

ARCHITECTS

Laboratory of Architecture #3, Tbilisi, Georgia www.facebook.com/ LaboratoryofArchitecture.3

LOCATION

Tbilisi, Georgia



'To be inviting' is at the core of the architectural concept of the third municipal Mediatheque that opened in Tbilisi, Georgia.





The building is located at the centre of a park in an area where the housing blocks are surrounded by vast and industrial zones. Serving as a traditional and multimedia library for children and adults, the Mediatheque fills the deficit of cultural and educational facilities in the area. The venue serves a multitude of functions with reading halls, play areas for children and spaces to hold lectures, concerts and exhibitions.

The architectural form consists of two parts, enclosed within a single rectangular frame. The building is situated at the end of the main pathway of the park, which continues under the PVC coated fabric steel contour. The rectangular frame is cantilevered, extending 12 metres to the front and envelopes the building's dynamic self-standing composition.









Visitors must walk upwards through a spiraling ramp to arrive at the building's entrance but setting foot near the entry already gives an impression of soft access. The shape of the spiral is inspired by playground slides, serving as a welcoming gesture for children. Surrounded by frameless glass, the interior consists of oval-shaped functional rooms, which also host the second floor.

PICTURE CREDITS Nakanimamasakhlisi



VARIATIONS

- TECHNICAL INFO

Inflatable PVC Globes and PVC Tubes

DESIGNERS

Collective Parenthèse, Paris, France www.collectifparenthese.com

LOCATION

Théâtre du Chatelet, Paris, France





What if music took shape in the Théâtre du Chatelet and its notes became visible and palpable to the senses? From the vibration of sound waves unfolding in the surrounding space, a game spontaneously unfolds between gesture and sound.







For the 5th edition of Variations, the Collectif Parenthèse wanted to encapsulate and manifest this sensory immersion within the Théâtre du Chatelet. The proposed scenography develops like an acoustic echo, propagating a sound wave from the stage to the chandelier. The acoustic echo's circular formations that reverberate towards the ceiling both mimic musical rhythm and mirror the shape of the great hall's balconies. The lightness of musical notes dancing in the light is symbolised by clusters of transparent and sparkling globes.





Composed of large suspended transparent PVC globes and circular configurations made of black PVC tubes, this scenography allows artistic duos to be immersed in their performance while accentuating the site's architectural marvel.



Camera framing is possible from the balconies and around the stage, in the heart of the installation itself. The PVC globes are transparent so as not to obstruct the framing of the artists and the architecture while capturing the play of lights and shimmers.

PICTURE CREDITS Hana Ofangel

BOOMY

TECHNICAL INFO PVC Fabric

DESIGNER

Matteo Nunziati, Milano, Italy www.matteonunziati.com

PRODUCER

Coro, San Pietro Mosezzo, Italy www.coroitalia.it

LOCATION

Si Sawat, Kanchanaburi, Thailand

Boomy deckchair expresses the sophisticated pursuit of shapes, textures and colours that combine contemporary life with fine craftsmanship, creating stylish products that embody aesthetics, quality and sustainability.



PICTURE CREDITS



The cumulation of its physical attributes – the seat, the lines, the details and the fabric – come together harmoniously to perfectly illustrate the designer's vision. The Boomy deckchair with a seat made of durable, light and recyclable PVC

fabric, can be adjusted to three different sitting positions and comes with a safety brake to prevent complete closure. Headrest and kidney support cushions can be added to enrich the user's comfort.

— TECHNICAL INFO PVC Roofing Membrane

ARCHITECTS

Aurélie Poirrier, Igor-Vassili Pouchkarevtch-Dragoche and Vincent O'Connor, Nantes, France

LOCATION

Loire-Atlantique, France

MR PLOCO'S CABALLON



Mr. Plocq's Caballon gives the opportunity to rediscover an almost-forgotten side of the Loire river estuary in the West of France - that of the naturalists, those adventurous explorers from another time whose rich and remarkable stories amalgamate the taste of faraway travels to the land's memory. The project is inspired by Émile Plocq, also known as the bird charmer - a local from the Vendée region who supposedly built a ship to perform expeditions to African shores with the guide of migrating birds.



The project was created for Imaginary Nights - a unique concept-event created by Loirestua. The event chooses a different location every year along the Loire estuary where participants are allowed unique nightly sojourns in an extraordinary place. Between May and October each year, guests can immerse themselves in the bird charmer's universe while enjoying his expedition vessel for a night.



Guests will find a structure with a wooden hull interior, that draws inspiration from both naval carpentry and aircraft design. Each pod is 6.5m long, 3.8m wide and 3.3m high, offering a generous amount of space along with various subspaces for guests to enjoy.

Access is made through a vertical double-swing door that opens into steps that lead to the entrance deck. The cockpit, separated from the



rest of the ship through a wood clad dashboard, allows temporary tenants to sleep under a starry sky and wake up to the sunrise. The wooden structural frame is enclosed with a white PVC roofing membrane that can be easily opened by the guests.

Opposite to the cockpit stands a hollow barrel-shaped 360° rotating door called a "shower airlock," that opens into a hidden bathroom equipped with a sink and a dry toilet.





Thanks to this maneuvering door, guests can opt for complete privacy or enjoy the surrounding landscape when turned towards the cockpit.

Storage spaces are available inside the double wall that separates the cockpit from the bathroom, while the dashboard which also serves as the head for the bed, encloses the ship's commands. When the night falls, gentle low angle lights can be activated to accentuate the curved walls of the Caballon that further enhance its architectural features.

PICTURE CREDITS

Corentin Schieb, Aurélie Poirrier

WonderfulViny



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