ZOOS
BOTANIC GARDENS

vector foiltec

CREATE. SUCCESS.

NEW MANGROVE HALL.
ARNHEM

GONDWANALAND.
LEIPZIG

ELEPHANT PARK.
ZURICH

TEXLON® ETFE SYSTEMS – IT WON'T GET ANY CLOSER TO NATURE THAN THIS

TRANSPARENT ROOFS ARE OUR BUSINESS. BUT DELIVERING A HOME FOR YOUR PLANTS AND ANIMALS IS OUR PASSION.

The beauty of nature is hard to mimic. And creating a manmade environment for plants and animals starts with understanding the fragile ecosystems and their inhabitants. The global elite of those who understand zoos and the best botanic gardens, have been partnering with Vector Foiltec for more than 35 years. Why? Because we understand what it takes to create an artificial space that is as close to nature as it gets. The impact of natural light, temperature and humidity is closely tied to the performance of your building skin.

The Texlon® ETFE system is the transparent roofing solution that covers unique spaces and can be tailored to the exact needs of the project.

Benefits of working with Vector Foiltec:

/ Market leader in ETFE application
/ Most experience with zoos
/ ETFE detail design and engineering competence
/ Expertise in interface management of ETFE and structure
/ In-depth understanding of the interface between cladding and structure
/ Worldwide presence

Natural daylight (also UV!) floods through the lightweight panels with unique shapes. Limitations of the building structure magically disappear to enable owners and architects to make their dreams of large spaces without posts and pillars possible. A place to roam around and feel as comfortable as in nature – with a roof that protects you from the elements, but virtually disappears when you look up at the sky.

Vector Foiltec has completed thousands of projects over last decades, covering spaces for many different applications such as retail, offices, sports stadia and of course zoos and botanical gardens.

Benefits of ETFE:

/ UV transparency for optimal plant growth
/ Self-cleansing under natural acts of rain
/ Low maintenance efforts
/ Durability of the system
/ No limits on architectural creativity
/ Lightweight design allows innovative structures
/ Eco-friendly and green

NEW MANGROVE HALL ARNHEM NETHERLANDS

Project:
Burgers‘ Mangrove

Owner:
Burgers‘ Zoo

Architect:
ABT

Texlon® System:
3 Layers of transparent ETFE foils

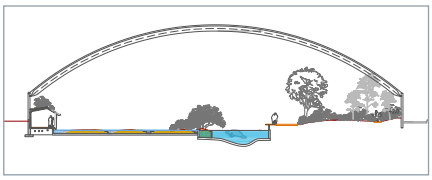
Structure:
Exterior steel structure

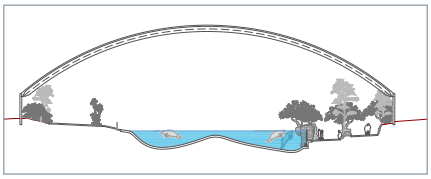
Vector Foiltec Scope:
Texlon® ETFE system design, fabrication and installation, support with steel structure design, perimeter connection and gutter system

TURN AROUND HOW A ZOO WORKS.

In 1982, Antoon van Hooff of Burgers‘ Zoo had a vision. He wanted nothing less than to completely turn around the concept of how a zoo works. The ‘normal‘ zoo was a chain of cages and compounds where visitors walk from one to the other to gaze at the animals on display. Van Hoff‘s idea: In his new jungle hall, there would be one big space where all of the animals could live as close to their natural environment as possible. And the people visiting in this space would be surrounded by nature and animals.

In collaboration with Vector Foiltec, Burgers‘ Zoo created the concept of a large hall without structural pillars, to grant maximum freedom of movement for the animals. The level of transparency chosen provides natural light and enough UV impact to work without artificial lights and pesticides.





Burger‘s Zoo and Vector Foiltec are long term partners. The Mangrove is the newest addition to the portfolio of Texlon® buildings.

CHALLENGE 1: SHORT ERECTION PERIOD.

With only 2 months, construction time was cut very short. Vector Foiltecs installation crews worked hand in hand with the steel erectors to ensure an on time opening ceremony.

CHALLENGE 2: VALUE ENGINEERING.

Several options were drafted and evaluated for optimized cost, architectural intent and the most practical solution for erection and operation.

CHALLENGE 3: FREE SPANS.

With the chosen setup, the zoo created a hall of 3,000 m² floor space with no supporting pillars obstructing the interior with its lake, housing hundreds of different plants and animals.

GONDWANALAND
LEIPZIG
GERMANY

Project:
Gondwanaland

Owner:
Zoo Leipzig GmbH

Architect:
Henchion Reuter Architects

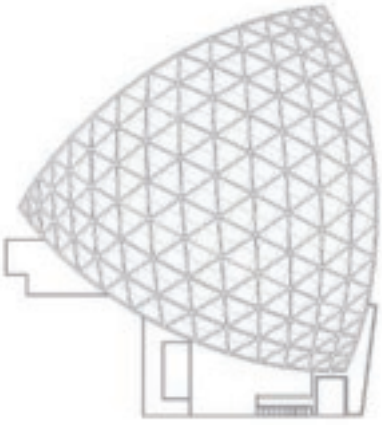
Texlon® System:
3 Layers of transparent ETFE foils

Structure:
Exterior tubular steel structure

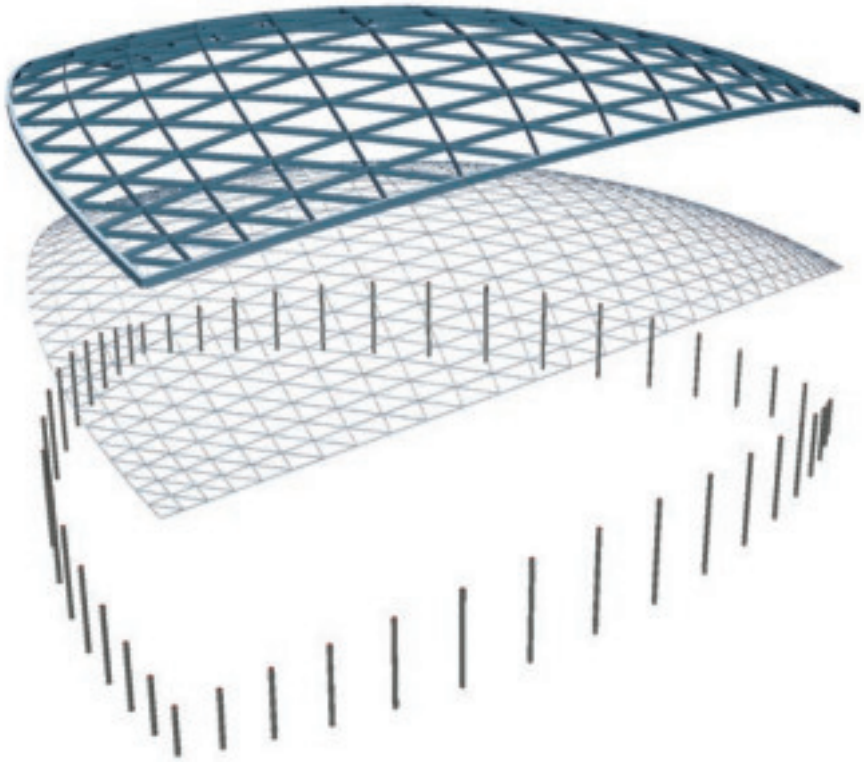
Vector Foiltec Scope:
Texlon® ETFE system design, fabrication and installation, roof surveillance system, support with steel structure design, gutter system

NOT A COPY: ZOO LEIPZIG BUILT AN ACTUAL RAINFOREST.

Artificially creating a tropical rainforest is not easy. Doing it in the middle of Germany, where the climate is far from the temperature and humidity levels you find close to the equator, made it an even bigger challenge. When the team of Zoo Leipzig, around legendary Prof. Dr. Jörg Junhold, proclaimed that building the new Gondwanaland Hall was “impossible”, this was not an acceptable response for the team of architects, engineers and contractors. The sheer size of the space that needed to be covered was already a challenge with free spans of up to 154 meters. And value engineering was the name of the game in the partly state-funded project that needed to be completed on a tight budget.



Manage the interface between structure, gutters and sidewalls and ETFE.



The steel structure carries the 20,000 m² Texlon® ETFE shell, consisting of 439 single foil cushions in the roof and 138 foil cushions for the facade, many of them bigger than the footprint of the average 1-family house.

The zoo team had very specific requirements for the interior climate – which required tight specifications for the building skin to ensure the proper climate for animals and plants. This had to be accomplished while minimizing operating costs. The setup of the transparent Texlon® ETFE system was specifically optimized per the requirements of the climate engineering team.

Vector Foiltec was a vital partner in the team of experts and optimized an exterior steel structure, that carries the 20,000 m² Texlon® ETFE shell, consisting of 577 single foil cushions for roof and facade.

While the interior climate was the main concern for the operations team, optimization of the complex structure, the interfaces, and the huge gutter system needed to be considered for the construction team. And the deadlines were tight: An erection time of just 3.5 months put additional constraints on the project. Team collaboration was key, and Vector Foiltec was able to design a system within budget, that also met the time constraints of the construction phase. This allowed for an on-time opening of the Gondwanaland Tropics Hall – which has become a landmark in the zoological world.

CHALLENGE 1: CLIMATE DESIGN

Temperature and humidity are crucial for the survival of more than 140 exotic animals and 500 different plants. The UV-transparent system ensures proper lighting while operable panels control ventilation.

CHALLENGE 2: CUSTOM ENGINEERING

The exterior structure required a custom designed suspension system for the roofing elements that measure more than 80 m² each.

CHALLENGE 3: SNOW LOAD MITIGATION

Harsh outside climate does not just require good building-skin insulation. The Texlon® ETFE system was equipped with snow sensors that make sure the cushions withstand all possible snow loads.

ELEPHANT PARK ZURICH SWITZERLAND

Project:
Kaeng Krachan Elephant Park

Owner:
Zoo Zürich AG

Architect:
Markus Schietsch Architekten

Texlon® System:
3 Layers of transparent ETFE foils with hail protection layer

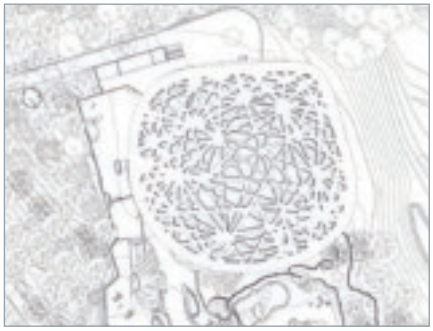
Structure:
Custom shaped wood structure

Vector Foiltec Scope:
Texlon® ETFE system design, fabrication, installation and complex climatic analysis

SOLVING COMPLEX DEMANDS IN A WOODEN BUILDING.

The Elephant Park in Zürich is an architectural gem on the world map of zoo buildings. The intent of Markus Schietsch Architekten and the Swiss zoo operators was to create a structure that resembles the random pattern of trees and leaves in the animal's natural habitat.

The complex 3D-bent structure spans 85 m and holds 271 custom-shaped Texlon® ETFE cushions – a challenge for our designers. Vector Foiltec also supported the client's team in creating a favorable climate for the Asian Elephants, whose well-being was a top priority for the building system design. The impact of sunlight on animals and plants, surface temperatures and humidity were the zoo-keepers concerns. These needed to be tightly aligned with building skin and structure.



The extreme variety of shapes and sizes that made up the shell and skin of the building, required a high level of focus and organization.

CHALLENGE 1: INTERIOR CLIMATE.

The required humidity levels pose a threat to all building materials. Vector Foiltec helped design systems and interfaces that prevent negative impacts and create the feel-good atmosphere for the animals.

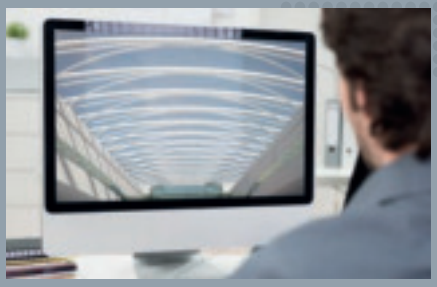
CHALLENGE 2: LOCAL CODES.

The strict Swiss building codes call for special measure to protect the building and its inhabitants. A dedicated protection system was developed and installed that met all code and insurance requirements.

CHALLENGE 3: SITE LOGISTICS.

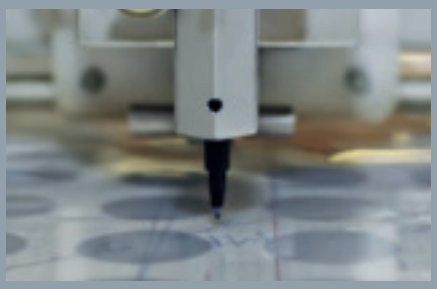
The extremely complex 3D wood structure with the 271 uniquely sized Texlon® cushions needed expert-knowledge in site logistics and installation methodology to make the puzzle fit.

ONE-STOP-SHOP



CONCEPT AND DESIGN.

When a project first hits the drawing board, it is vital to have final result in mind. And that does not just go for structure and cladding, but also for the use of the building. With far more than 1,000 references, we have an extensive pool of knowledge that we share with our clients from day one. Getting your project right from the start saves you money and takes away risk.

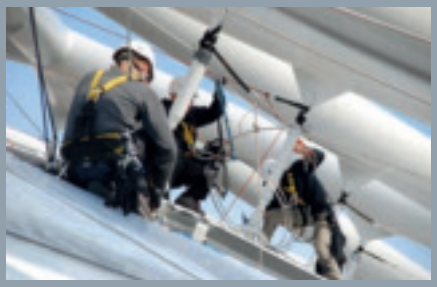


THE TEXLON® SYSTEM.

As the inventors of the Texlon® ETFE system, we can humbly say: We know our stuff! An optimized supply chain, the most rigorous quality assurance measures, and our in-house design and engineering team, make the core of our system the best in the industry. And if you have big plans: We‘ve got you covered with our two high performance production facilities that grant on-time delivery, even for the biggest challenges.

ALL AROUND THE TEXLON® SYSTEM.

Putting together the structure, skin and perimeter interfaces seems easy on paper, but contractors know: The devil is in the details. At Vector Foiltec we believe that the best ETFE system is only one piece of the puzzle. But rest assured, we have the other ones covered as well!
An orchestrated arrangement of optimized components is what really creates the overall success.



PUTTING IT ALL TOGETHER.

Access, hoisting, schedule, local restrictions: There are a lot of challenges on the last mile of a building marathon: The construction / installation. That’s why you should choose a partner that knows the ins and outs.
So here we are! With 18 offices around the world, connections to local labor unions and the solution to that little detail that no one thought about.
In short: Let us put it all together for you!

YOU’LL NEVER WALK ALONE!

There is not much additional that our Texlon® ETFE system needs. But for the few things that it does need, our Service Team will be there! We care for your system and make sure it serves you well for decades. Our maintenance crews come for regular check-ups. And in urgent cases, we are right around the corner. That is our promise as a true global player.

You will find Vector Foiltec with 18 offices all around the world.

Vector Foiltec
Headquarter
Steinacker 3
28717 Bremen
Germany

inquiries@vector-foiltec.com