



A CULTURE  
OF INNOVATION





**ANISH KAPOOR SCULPTURE**  
GIBBS FARM, KAIPARA HARBOUR,  
NEW ZEALAND

### **Structurflex is a world leading producer of tensile membrane structures.**

Our structures provide the opportunity to create uniquely designed spaces with uncluttered spans unachievable using traditional building methods.

We design, manufacture and install PVC, PTFE and ETFE tensile membrane structures for customers throughout the world. Because we understand the close connection between architecture, engineering and construction, our structures set a very high standard in detail and functionality. We make sure the customers' needs are at the forefront of every design and construction decision.

### **An innate desire for excellence**

At the core of our ability is an effective connection between design and advanced engineering. Structurflex works closely with architects, engineers, construction professionals and owners to create inspiring and successful solutions. The most important outcome for us is that everyone we work with – suppliers, consultants and customers – has 'a very satisfying experience'.

### **Unmatched performance**

Traditional building materials are unable to match the design flexibility, light-transmitting qualities and visual impact of tensile membrane systems. The structures we create are lightweight, light-filled and strong enough to withstand the most extreme weather conditions. Our designs win awards, as well as the hearts of those who choose Structurflex.

### **A relentless quest for improvement**

Structurflex has a firm commitment to on-going research and development. Structurflex's processes are rigorously assessed as an ISO9001 certified organisation. We're determined to remain at the forefront of emerging technologies, so our engineers, designers and project managers maintain a rigorous continuing education programme of conferences and networking events. Structurflex is constantly searching for new and improved materials to utilise in unique applications.

### **A global view of the market**

Currently Structurflex has operations in New Zealand, the United States, Malaysia, United Arab Emirates and Brazil. But our expertise is not limited to these countries. We're keen to take on projects anywhere in the world. We have undertaken work on six continents. The practical knowledge we've gained over more than 75 years of working with technical membrane materials has led to a very impressive portfolio of successfully executed tensile membrane structures.

# INSPIRED ENGINEERING



# The benefits of tensile architecture

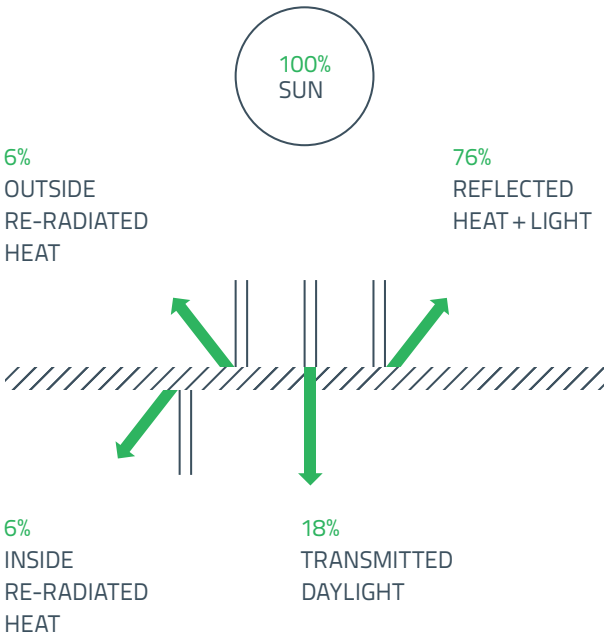
Buildings featuring tensile structures have the ability to explore technology and form, ultimately resulting in structures that resonate with the community and complement existing architecture as well as the natural environment.

Structurflex systems are cost effective when compared to conventional structures, as their innovative form and inherent efficiencies lead to a reduction in the building materials required to build the structure.

The smooth, reflective surfaces of our tensioned membrane structures reduce lighting and cooling costs, reduce solar gain and make the buildings more energy efficient.

It is the combination of these factors that make Structurflex Tensioned Membrane Structures popular amongst architects and the public alike, and we receive many accolades and international design awards.

EFFECT OF HEAT AND LIGHT ON PVC & PTFE TENSIONED MEMBRANE STRUCTURES



FROM ORDINARY TO THE EXTRAORDINARY

INDIAN WELLS  
TENNIS GARDEN PAVILLION  
PALM SPRINGS, CALIFORNIA, USA





RIO TINTO STADIUM  
SALT LAKE CITY, UTAH, USA





# Structurflex services and process

Our tensioned membrane structures offer new answers to old problems. Bring us your challenges and let us apply engineering discipline that is evenly balanced with inspired creativity.

During the consultation process, our engineers and designers can work closely with your own team to identify the practical and aesthetic requirements of your project. Together we can work through all stages of the process, from creative design development through to construction and of course, post-project maintenance.

This collaborative approach ensures your structure achieves the highest level of aesthetic, technology, and functionality.

**1 Consultation**  
The discovery phase of every project determines the success of the outcome. Our engineers and designers will work closely with your team to identify the practical and aesthetic requirements of the task. Ideas flow both ways during this process, so that the project receives the benefit of combined thinking power.

- Structurflex offers advice from the most preliminary of concept development on:
- General configuration and shape development
  - Approximate costs
  - Critical path, design analysis and building logistics
  - Provision of preliminary reaction loads

**2 Design and development**  
A substantial part of Structurflex engineering and design activity is dedicated to conceptual design. Once the big idea is right, we add the detail required to turn vision into reality. Our design team will be thoroughly informed with the building control rules that apply to your location, so you can be confident that there won't be any expensive re-engineering down the track.

Our designers actively participate in design forums, to ensure they get the stimulus and input required to push boundaries. Continuous improvement is embedded in our culture.

**3 Construction**  
Implementation of your solution draws on other resources within our skill set. Our installation teams are experienced, precise and dedicated to on-time delivery. You can trust us to adhere to the highest quality standards, to ensure the longevity and on-going usefulness of your structure. Our teams work under stringent safety standards to ensure the health and well-being of our team as well as those around us. We always comply with local safety regulations and assume the most stringent of standards. Site safety is of paramount importance to Structurflex.

**4 Maintenance**  
Structurflex can design and deliver a post-project maintenance programme, to keep your structure safe, clean and attractive.

Most of our fabric structures have a lifespan in excess of 25 years, provided they are well-maintained.

PUSHING  
BOUNDARIES ON  
A GLOBAL STAGE









# Why choose a tensioned membrane structure?

## Natural light and energy efficiency

Tensioned Membrane Structures typically reflect 75-85% of external heat and light, which removes the inherent heat load of alternative clear and transparent materials such as glass or polycarbonates.

Typically the fabrics used in membrane structures allow 9% - 18% transmission of daylight, which provides softly diffused light within the structure that can even support the growth of specific plants. What's more, this transmission of daylight greatly reduces (and often eliminates) the need for artificial lighting, therefore increasing the energy efficiency of your structure. Structurflex can also offer membranes with transparency approaching 98% for clear and virtually unobstructed light transmission.

## Reduced lighting requirements

At night the vast expanses of tensioned membrane structures are transformed into softly lit surfaces as they both diffuse and reflect surrounding lighting. By reflecting ambient light, these structures can reduce the lighting requirements of your structure by over 40%. When using ETFE, a metallic based and reflective frit can be applied for highly dramatic effects when underlit. By day, the frit also improves shading properties.

## Signage opportunities

The smooth surfaces of membrane structures provide the perfect background to display logos or corporate imagery. The use of creative lighting and imagery can be applied to these structures to create a highly visible, and incredibly unique, marketing tool.

## Sound quality

Tensioned Membrane Structures also provide superior sound reduction from rain, hail and wind when compared to metal roofing. This is because the curvatures and materials used in the membrane panels allow sound absorption and reflection to work in a non-accumulative action.

## Roofing

Tensioned membranes offer both structure and cladding within the one element, and can form incredibly large spans that result in highly unique structures. With tensioned membrane systems, the structure is the architecture and the architecture is the structure. The combination of flexibility, price and creativity of tensioned membranes as a roofing solution is unparalleled in conventional roofing systems.

## A relocatable structure

Membrane structures have been used for decades primarily in the relocatable events and exhibition spaces where large shelters are required for short periods, or relocated from venue to venue. The use of membrane structures in these spaces has helped refine and develop membrane technologies, resulting in structures that have been designed for rapid relocation and re-erection. Tensile membrane systems are easily packaged in a compact manner allowing for transport to all corners of the globe. The deployment process is repeated in an identical manner at each location.

# Membrane types

## PVC

PVC membranes – a polyester base fabric coated with PVC – often have additional protective PVDF fluoropolymer coatings on both sides, which helps protect the surface, and also creates a membrane that is easy to clean. This fabric is the most common in tensile architecture with a lifespan exceeding 20 years, and typically offers the owner the best overall value.

## PTFE

The most durable membrane used in tensile membrane systems comprises of a woven glass fibre base fabric coated with polytetrafluoroethylene (PTFE). This coating is highly inert and generally unaffected by environmental contaminants and ultra-violet light, and additionally has superior fire resistant properties. The lifespan of PTFE is proven to exceed 30 years.

## ETFE

Ethylene Tetrafluoroethylene (ETFE) offers a creative and lightweight alternative to glass. It is a transparent extruded film, or foil, with similar light transmission to glass, but is just 1% of the weight. With a lifespan of over 20 years and excellent weathering properties, it's no wonder ETFE has been used on many high profile projects and stadiums around the globe. Structurflex has been at the forefront of mechanically prestressed systems using ETFE and has experience in pneumatically prestressed systems, also known as ETFE cushions.



**PVC – THE VERANDAH, CAFÉ & FUNCTION CENTRE**  
HAMILTON, NEW ZEALAND (Above)

**PTFE – COLUMBUS COMMONS BICENTENNIAL PAVILLION**  
COLUMBUS, OHIO, USA (Centre)

**ETFE – FLYING SAUCER, ALFRESCO CANOPY**  
FORTWORTH, TEXAS, USA (Below)

# TRANSFORMING AND PROTECTING LIVING ENVIRONMENTS



### Engineering

Our tensioned membrane structures comply with the same design standards and loading regulations applicable to conventional building structures. In addition, we undertake form-finding and deflection analysis during the design and engineering phase to ensure our structures are designed to withstand local environmental conditions such as wind, snow, heavy rains and seismic activity. This means we can be sure that water will not 'pond' on surfaces during heavy downfalls, and snow will not overload the structure.

### Fire safety

Structurflex structures feature fabric membranes which are compliant with US, BS and DIN standards. The materials are non-combustible, do not support a flame, have a zero flame spread index and no smoke index. In some cases, such as with PTFE, they are Class A rated roofing materials.

### Cleaning

Due to the smooth and continuous surfaces of our fabric structures, cleaning them is a breeze. All that is needed to clean the structure, or for basic spot cleaning, is a basic domestic detergent, a soft brush or cloth and a low-pressure water system.

### Repairs

While our fabric structures are incredibly strong and have a life expectancy of over 20 years, they can be damaged by flying debris during severe weather or acts of vandalism. Typically damage such as small tears can be repaired quickly on site, while larger areas of damage may require the removal of the affected panel, to be repaired or replaced by the manufacturer. If a panel requires replacement, we work with you to ensure this simple process is performed with minimal disruption to your site.



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**WESTLAKE GIRLS HIGH SCHOOL  
SPORTS FACILITY**  
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