S-028

STRUCTURAL TENSION
CREATIVE
شد إنشائي إبداعي

SPAN DESIGN SERVICES

We are committed to providing all of our clients with a consistently high quality, professional service, from testing a single fabric sample, or giving budget prices for canopies, right through to the full design, supply and installation of the structure and membrane. Within the tensile fabric structure industry itself, fabric testing, patterning and detail design form the basis of the services we offer.

The core of our business lies in our design and detailing work for tensile fabric structures. With our broad collective expertise covering the full range of skills from concept design right through to installation on site, we can offer economical, creative and reliable solutions to our clients in all aspects of tensile membrane canopies.
The full design, manufacture and installation of structures requires great care and attention to detail in all the other disciplines involved. There is more information about designing fabric structures in our articles page.
Whether you need budget prices, sketches, or full CAD graphics, we can help you plan and create great tensile structures.
We use the latest Autocad software to produce realistic and detailed 3d images to enable us design the supporting structure more accurately and efficiently. This combined with our specialist “form finding” software gives us great flexibility to explore and develop client requirements at early consultation and planning stages.

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WHAT IS HOT DIP GALVANIZING ?

Hot Dip Galvanizing is a form of corrosion protection method, which involves coating an iron or steel structure with molten zinc.

SCREWS

Stocked in stee l zinc plating.

- Available in 18-8 stainless steel
- Hot dipped galvanized, plain, and black oxide.

GAS EPOXY MIO JOTUN

Paint epoxy high-quality composed of two compounds formed with a thickness large, anti-corrosive, contains chips iron oxide colored layer of a solid buffer against the passage of moisture and air pollutants and reflect UV rays and prevents access to the layer resin.

CABLES

cables serve one of two purposes – as a boundary cable, or as a tie cable.

Boundary cable is fitted into a pocket on a curved (scalloped) edge of a membrane. It effectively acts as a restraint, a curving edge to which the fabric is connected. The pull of the fabric against the cable puts some very high tension forces at each end of the cable. The membrane plates fitted at each end of a boundary cable are designed to transfer these loads into the supporting steelwork.

Tie cable is simply a straight cable linking two points. They are often fitted with a tensioner or adjuster to ensure the correct length. Their purpose is primarily to keep the supporting steel frame correctly positioned, particularly in high winds when some parts of the canopy can be in uplift, and others in download.

SAFETY

Even the best designed and manufactured tensile fabric structure can be dangerous in gale force winds until installed unless properly restrained. You wouldn't want to be trying to take down a structure if high winds are going to cause you problems.

Will it have a safe wind speed limit?
This is often a sticking point, because if we were to provide a structure that is designed to withstand say a 40km/hr wind, then you would have to make sure it's taken down before the winds exceed that limit. And you would most likely need quite calm conditions in which to take it down safely. It is possible to design safety features into such a structure, but unless it really HAS to be demountable, we would always go for the safety and durability of a permanent fixed installation.

PROVIDING THE FOUNDATIONS

In a normal contract the client has their own "design and build" team of architect, structural engineer and main contractor.
We would supply to the client loadings that our structure would impose on the clients building/ground. The clients engineer would then assess these loads and design a suitable foundation/supporting structure, according to local ground conditions/underground services.

In some cases the client requires us to design and supply the foundation, and we are happy to do this, once an on-site inspection has been carried out to assess ground conditions and services. We can usually provide indicative loadings very early on in a project so that due consideration can be given by the client design team in the planning stages.

REPAIRING

As you would expect, this depends on what the damage involves, and the type of structure affected. A small cut or puncture damage to the fabric can usually be patched on site without detensioning, although older fabrics can lose their "weldability" properties.
If the area of damage is more substantial, eg as result of a fire, or large tear, it may be deemed appropriate to take the canopy back to the fabrication shop and replace a whole panel or section.
However, it's important to stress that all of the fabrics are extremely strong and durable. They are generally specified with a very high factor of safety over and above the maximum working loads they may be subject to during a hurricane or under a huge snow load. Accidental rips and punctures are not common occurrences, but it is a reassurance for all parties to know that small patches can be applied discreetly should this be necessary.

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