



# Shade Sail Structures

The Complete  
"How to" Guide

Provided by:-  
Sail Shade World Pty Ltd



There are 5 steps in creating a custom made shade sail structure:

1. Planning your structure
2. Installing your fixing points (posts/brackets etc.)
3. Measuring your area
4. Ordering your shade sail using our online ordering system
5. Installing your shade sail

Follow these steps carefully and you will have a wonderful shade environment.

## **Step 1 – Planning Your Shade Sail Structure**

There are many, very important considerations when planning your structure, and in fact this is the single most important aspect of the whole process. Proper planning will ensure that your sail structure performs in the way it was intended.

You will already have an area in mind that you wish to cover with a shade sail. It may be a paved area, a courtyard, a deck, a pool; regardless, the area is known but the "how to" remains in doubt. There may be opportunities for creating attachment points for your sail on areas of existing structures, or you may need to install steel or aluminium posts to create a totally free standing structure. To follow are many points you must consider during the planning phase:

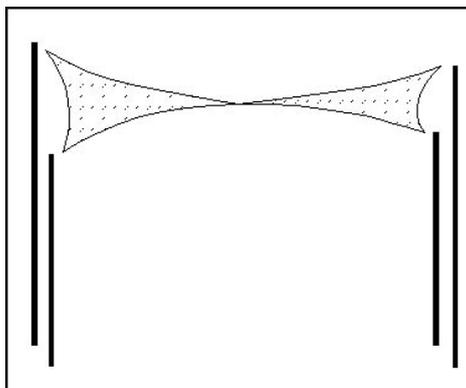
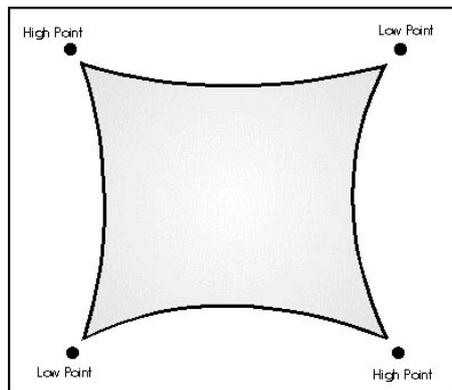
### **1. Movement of the Sun**

The sun rises daily in the east and sets to the west. As the seasons progress, it also moves from low in the sky during the cooler months to high in the sky during summer. Your structure should be planned to provide maximum shade protection during the height of summer, or summer solstice, as this is when it will be needed most.

### **2. Sail Design & Architectural Twist**

Sails work best when they are designed to have a "twist", or architectural hyper effect. This is where the fixing points, being steel posts or brackets, are created at different heights, such that the sail is then twisted in order to fit. A flat sail is harder to tension correctly, and in times of heavy downpour can catch and hold water for long periods of time, thus putting excess load pressure on the fixing points. Further, from an aesthetic perspective, they look boring. We recommend you install your fixing points with diagonally opposite high and low points, to avoid these problems and create a visual such as the following:





A comprehensive range of sail structures that we have created is available for viewing online at our website [www.sailshadeworld.com](http://www.sailshadeworld.com) and we encourage you to visit our Product Gallery to help you with some design ideas.

### 3. Sail Size

You may have noted in the pictures above that the sail is actually smaller than the area between the columns. In order to fully tension the shade sail, we require a space between the sail and fixing points for rigging tensioners, and also catenary curves in the sides of the sail. For larger sails, these tension gaps and catenary curves need to be quite large, to ensure maximum tension and thus maximum longevity of the sail. For this reason, we strongly recommend that you install your fixing points reasonably further apart from each other than the actual shaded area you desire. As a general rule, your sail will begin about 300mm (12") away from the fixing point, although this varies depending on the size of your sail.

### 4. Fixing to Existing Structures

Caution is imperative when considering fixing to existing structures, such as your house. In instances of poor weather and strong winds, the loads placed on fixings by the sail are enormous, and should not be underestimated. To ensure that your existing structure is adequate to handle such loads, you may need to consult a local engineer or qualified builder. For the best safety practises, you should remove your sail when high wind conditions are forecast.

### 5. Steel vs. Timber

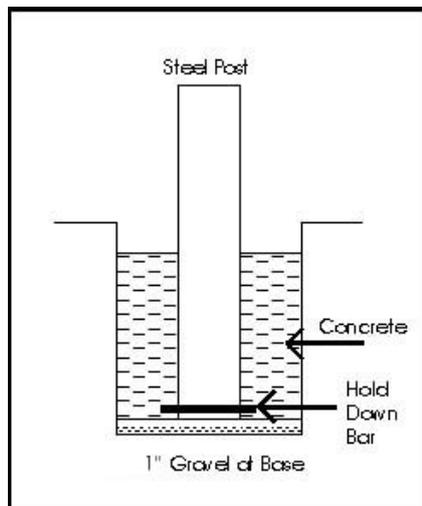
We recommend you use steel or aluminium posts, and not timber posts, for your sail structure. Steel is stronger, will not overly deflect (i.e. bend from the ground up), and will not rot. Rust factors can be compensated by using galvanised steel or aluminium. Note that steel is inherently stronger than aluminium, and thus is typically cheaper to obtain, however this does vary from country to country.

That said, if you are prepared to remove your sail periodically, or to have it up only temporarily on necessary occasions, then many of our customers have successfully used timber posts.

### 6. Post Footings

Required footing sizes vary dependant on the size of the structure and the height of the post out of the ground. An old conservative engineering principal is "1 third in, 2 thirds out", which means posts out of the ground by 2400mm (8') need to be at least 1200mm (4') into the ground. This is typically considered conservative, however we recommend you strongly consider this principal, as correcting a post that has been leant over in high winds due to an undersized footing is a difficult, sometimes impossible, job. Even a small movement of your footing will also compromise the ability to tension the sail, thus reducing the likelihood of maximum longevity. If you are digging through land fill or raised garden beds, these depths should not be included in the overall depth of the footing. An ideal situation follows:





As a general rule, hole diameters should be around 350mm (1'2"), however increasing as column sizes increase. Depth, however, is the most important factor.

### 7. Underground Services

Ensure your area is clear of underground services, such as sewage and water plumbing, or electrical cabling, prior to digging holes for your footings. Damages to services can be dangerous, and expensive to correct. Consider a services search prior to digging if you do not have plans of underground services available.

### 8. Local Authorities

You should also check with your local authorities as to relevant building regulations that may be a factor in your development of a shade sail structure.

Once you have properly planned your shade sail structure, it is time to move on to the first of the installation phases – installing your fixing points.

### **Step 2 - Installing Your Fixing Points**

Once you have resolved the issues raised in step 1, it is time to install your fixing points. As previously stated, never underestimate the importance of being conservative with your footing dimensions – a well installed shade sail will last many years, and become a very cost effective means of shading any area. Also, take extreme care in fixing to existing structures, as mentioned in Step 1 above. The more conservative you are in these earlier phases, the longer the life of the sail structure you build.

### **Step 3 – Measuring Your Area**

You may have noted from our "Shade Sail Quotes" feature on our website ([www.sailshadeworld.com](http://www.sailshadeworld.com)) that in order to manufacture a quality shade sail, we require quite comprehensive measurements from our customers. In "triangulating" the sail construction, we automatically take into account the variances in fixing heights and necessary angles to best create your product. This includes diagonal measurements as shown on our guides. It would not be possible to properly create your shade sail without these measurements, and we strongly advise that you spend the necessary time to obtain these measurements thoroughly and correctly.

Use our template (refer the last page of this guide) that corresponds to our 3 sided, 4 sided, 5 sided, or 6 sided sail diagrams as shown on the "Shade Sail Quotes" feature of our website. Take the relevant measurements, from fixing lug to fixing lug, and write them on our template. Do not forget to take the diagonals as we require them. Once you have your measures, you simply need to visit the website and follow the processes as outlined below.



## **Step 4 – Ordering Your Shade Sail**

We have developed the world leading system for you to obtain instant online quotations and order your shade sail. No waiting for sales representatives to contact you with a price, our system will generate a quotation for you instantly, including worldwide delivery to your door.

In our “Shade Sail Quotes” section, simply enter your measurements, your required fabric colour, and your selection of stainless steel fittings or none, and you will have a custom made shade sail quotation in seconds. A copy of the quotation will even be instantly emailed to your inbox. This is a feature offered to you exclusively by Shade Sail World and our global distributors.

Proceeding with your order is simple. Visit our “Special Orders” page, enter your quotation number and details as requested, follow the online prompts that take you through our payment gateway, and you will soon be relaxing comfortably under your magnificent shade sail structure.

## **Step 5 – Installing Your Shade Sail**

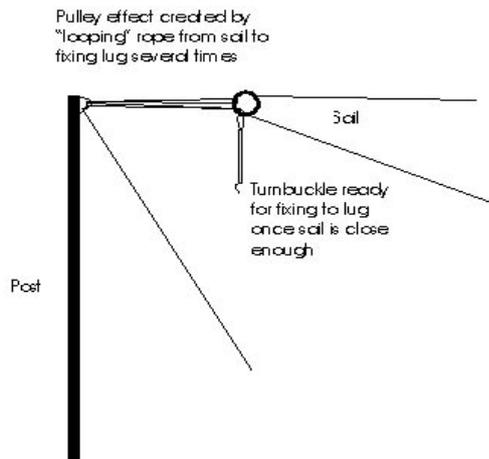
Once your sail is fabricated to our highest quality standards and sent to you, the installation process is eminent. This process is also extremely important in ensuring maximum longevity of your product. We recommend you follow these steps:

### **1. Lay out and attach your components**

If you ordered fittings (not available of the shade-sails.com site) Each sail point will have a combination of shackles and turnbuckles. Unwind the turnbuckles to full extension, and use the shackles to connect the turnbuckle to the sail corner points.

### **2. Attach your sail**

Fix your turnbuckle (which is already attached to your sail) to the relevant fixing lug on your fixing points. At this stage, leave the turnbuckles fully unwound, until all points have been attached. Move from point to point until all points of the sail are fixed as required. **NOTE:** In the manufacturing process, we have allowed for the fact that the fabric may stretch. This means that considerable force will be needed to wrench up the last points to get them close to the fixing points. We guarantee that this is the best way to manufacture your product, even when you think your sail may have been constructed too small. We recommend you consider creating a quasi-pulley effect to pull the last points up. This is done by tying rope onto your sail corner point, and looping it back and forth to the relevant fixing point



You may have access to purpose built pulley systems such as block and tackle, and if so we recommend you use them. Continue this process until all fixing points are in place. Your turnbuckles should still be fully unwound.



### 3. Tension your turnbuckles

Now simply move around from point to point, and tension each of the turnbuckles as required. As previously mentioned, the longevity of your sail product is dependant almost completely on how well you maintain tension in the sail. The sail materials, perimeter webbings, and corner fixings are designed to be placed under very heavy load, so do not be too afraid to pull the sail up extremely tight.

Note that if you are using your sail for temporary purposes only, and will be installing it and removing it on regular occasions, the tension aspect for longevity is not as crucial. However, should the day be a little windy, try to maintain as much tension as possible, as the constant gusty movement of the sail could eventually damage the corners and compromise the whole structure.

And that's it! Your custom made shade sail area is now completed, so sit back, relax, and enjoy.

#### Measuring Guidelines

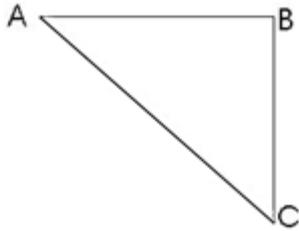
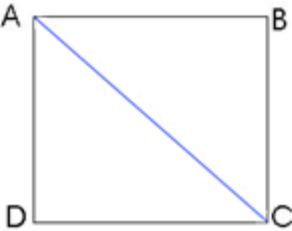
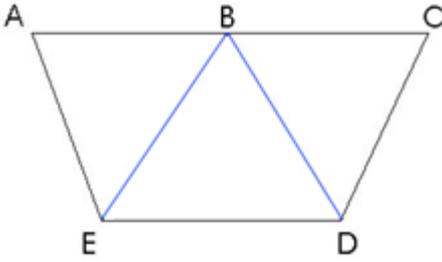
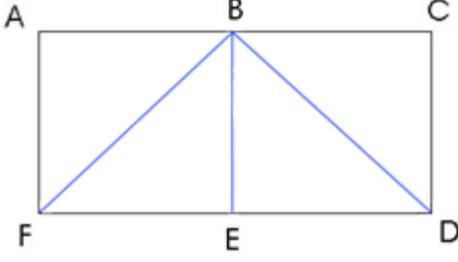
The final page of this guide is a measurement facility to guide you through the measurement process. Please complete the information as accurately as possible, as this will enable us to manufacture a perfect sail for your area.

Please note that we require all measurements be entered in MILLIMETRES or INCHES, depending on the common method used in your country. You may need to refer to the website to determine exactly which measurements are required.

If for some reason that's a little confusing, feel free to use our "Questions" area in the website to send us your measurements, however you have taken them and understand them best, and we will do the conversion and advise accordingly.

We are only here to serve you, the customer, so please tell us what we can do to assist in the overall process.

Your shape will not necessarily be exactly as per the following, however please select the visual diagram that best represents how many sides your sail has. The measurement of the diagonals as marked enables us to plot your sail and cut it accordingly.

	
<p align="center"><b>3 – Sided Sail</b> (3 measures required)</p>	<p align="center"><b>4 - Sided Sail</b> (5 measures required)</p>
	
<p align="center"><b>5 – Sided Sail</b> (7 measures required)</p>	<p align="center"><b>6 – Sided Sail</b> (9 measures required)</p>

#### Measuring Guide



Fill in the measurement column prior to obtaining a quote

Measurement	3 sides	4 sides	5 sides	6 sides
	A-B	A-B	A-B	A-B
	B-C	B-C	B-C	B-C
	C-A	C-A	C-D	C-D
		C-D	B-D	B-D
		A-D	B-E	B-E
			D-E	B-F
			A-E	D-E
				E-F
				F-A

#### Sail Shade World websites

This document refers to sailshadeworld.com but it might be that you obtained this from another of the company's websites

**The coolest shade under the Sun<sup>TM</sup>**

 [sailshadeworld.com.au](http://sailshadeworld.com.au)

 [sailshadeworld.co.uk](http://sailshadeworld.co.uk)

 [sailshadeworld.es](http://sailshadeworld.es)

 [sailshadeworld.fr](http://sailshadeworld.fr)

 [sailshadeworld.de](http://sailshadeworld.de)

 [sailshadeworld.us](http://sailshadeworld.us)

 [sailshadeworld.nl](http://sailshadeworld.nl)



 [sailshadeworld.it](http://sailshadeworld.it)

 [sailshadeworld.gr](http://sailshadeworld.gr)

 [sailshadeworld.pl](http://sailshadeworld.pl)

 [sailshadeworld.no](http://sailshadeworld.no)

 [sailshadeworld.dk](http://sailshadeworld.dk)

 [sailshadeworld.se](http://sailshadeworld.se)

 [sailshadeworld.at](http://sailshadeworld.at)

 [sailshadeworld.com](http://sailshadeworld.com)

