Crust

index

We started with …

INTRODUCTION & SOME EXPRESSIONS

slice: cut the crust with an angle, and pulling away a piece of it

tenesmus: turn some corners of the crust, and it become out of two dimensions.

What We've done at first…

1. check the internal parameters of the crust.
2. trying to get information about environment..
3. Making a chart of what we have to do in priority for not losing the time,
4. having a notebook in share so each group of members, could write the report in, and taking photos at least from two side of the situation.
5. making a grid for the back ground of where we take the photos..

to start the experiences each member has to pay attention to the rules:

1. there have to be 3 member at least
2. date, exact time of starting and finishing the experience must be written by the members
3. in each experience, just one parameter should be experienced till one is done, after that , the second parameter, can be added…

then we started…

the first parameter we checked was proportions of the **crust**, the shape was a condition of the proportion. We knew that after this we couldn't choose the shape, but it was the **first step**.

next step was trying different **splits** on different shapes. We changed the size of the split, and record the results.

After this, we put the split away of a line, the **slice** formed..

We changed the angle as a parameter , and experienced three different angles :

45°

90°

135°

In this time we had enough information to choose the shape, and the kind of cut on it, our choice was square.

The split always need an auxiliary force to stand in a good position.

So we left it behind & continue…

As a flexible material clothe has this ability to give us varieties shapes & forms.

To reach to a suitable form sometimes we can use a large piece of clothe & make slice ‘s & add tension to them.
and sometimes we can reach to our idea by using small pieces & reproducing them. this reproducing can be happen in various directs, so it can help us in:

1. increase in height
2. decrease in height
3. making division
4. providing horizontal & vertical surface
5. providing skin

this reproducing could be happen by the means of using string-string/ form-string & ring-string joints. Although we should consider the use of this crust & choose our joints which can help us to reach to our idea.
but this reproducing is be affected by site’s features, such as light, wind speed , wind direct,…and the shape we are going to reach must be a form that produce an abstract ,optimized frame.

Joints

For the joints we test kinds of knots. For jointing string to crust:

These knots are suitable :

1. double overhand knots

2.figure8

Knots

Figure8:

Step1:strech a length of the rope out in front if your parallel to the ground and twist to form a loop.

Step2:bring the right-hand end of the rope around to the left of the lope.

Step3:brig the end around and poke it through the lope and pull to tighten .it resemble the number 8.

Knots

Figure8:

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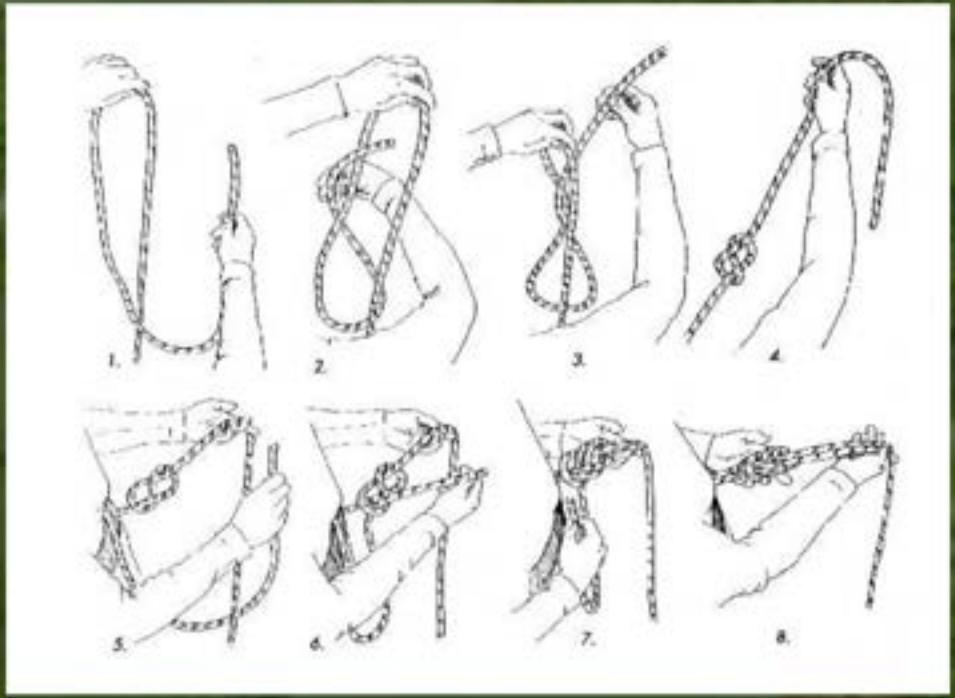
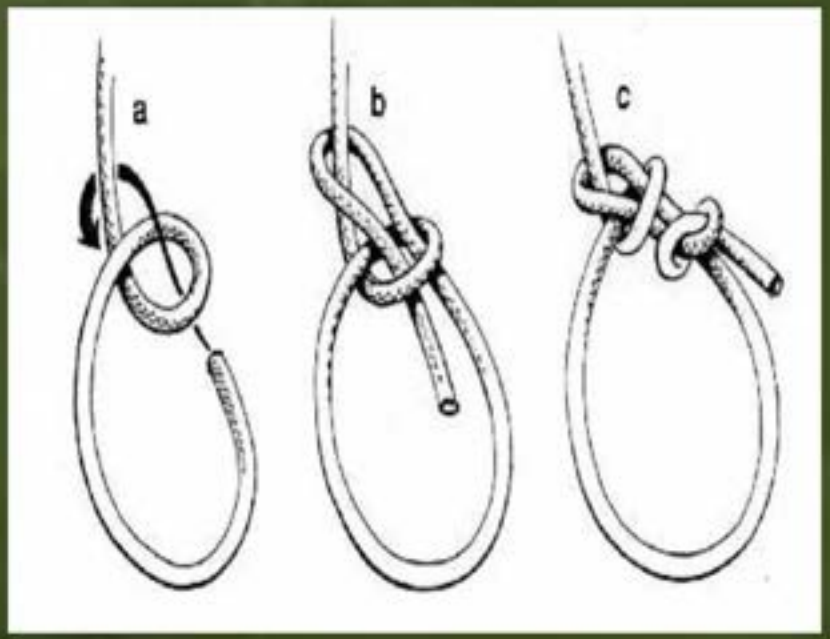


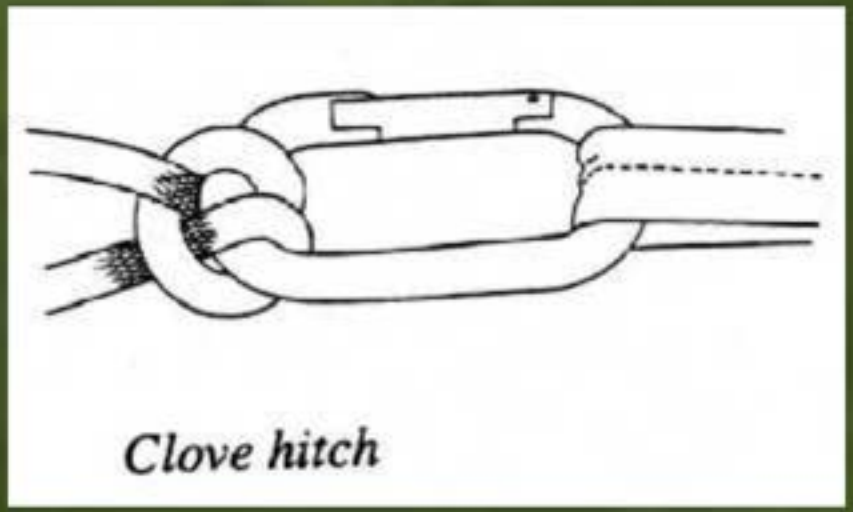
Knots

It is made of two overhand knots whit a simple change.



Hitch

For joining string to frame this knot is suitable.



Clove hitch

Result

Unseen string is a suitable case among all of above. but there is a mistake :it is efficiency depends on weather changing and contraction and expansion affect on it.

Comparing strings

	Be flexible	Be unvisible	access	beauty	be steady
unseen string	●	●	●	●	●
Silk string	●				●
Cupper wire					●
Knitting yarn	●		●		
rope	●		●		●

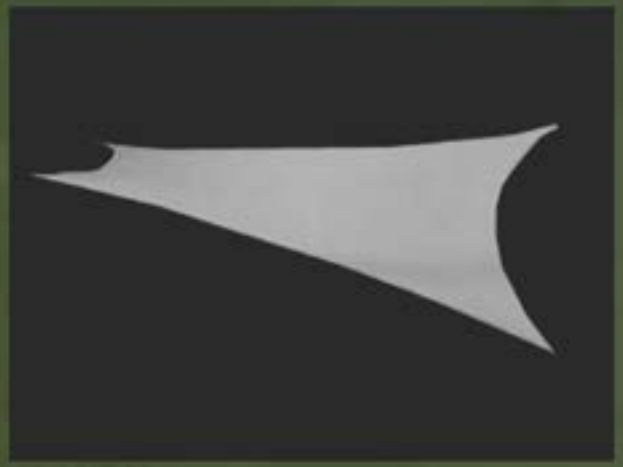
Shape Experiment

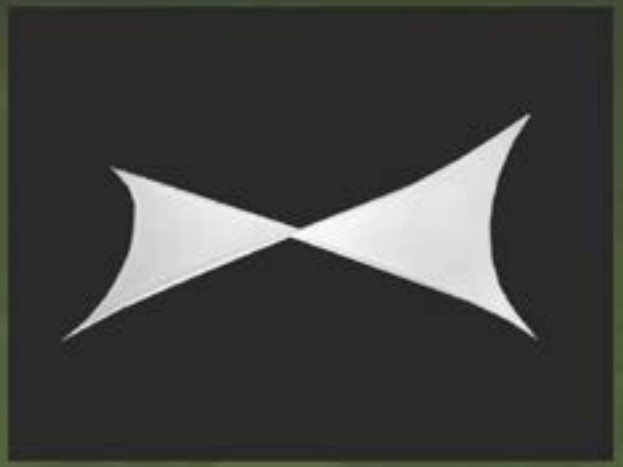
First of all, we tried to find a suitable shape for our crust .

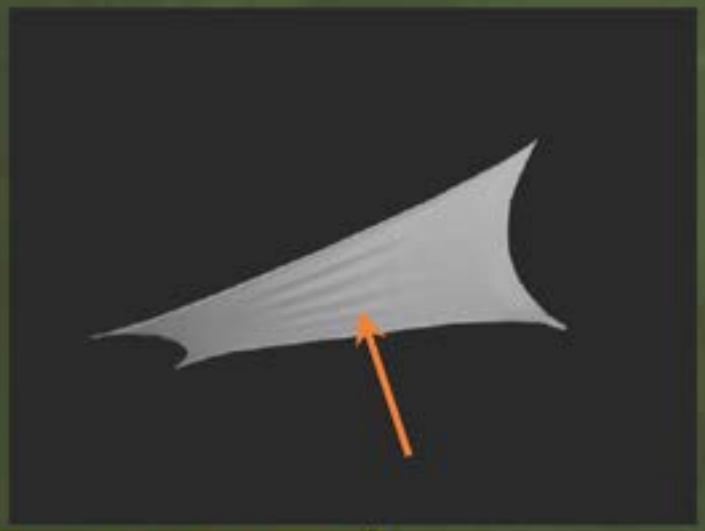
we omitted lots of shapes before starting to reach to simple and geometrical shapes : Rectangle , Square , Triangle .

In these experiments , we tried different proportions , to find the best.

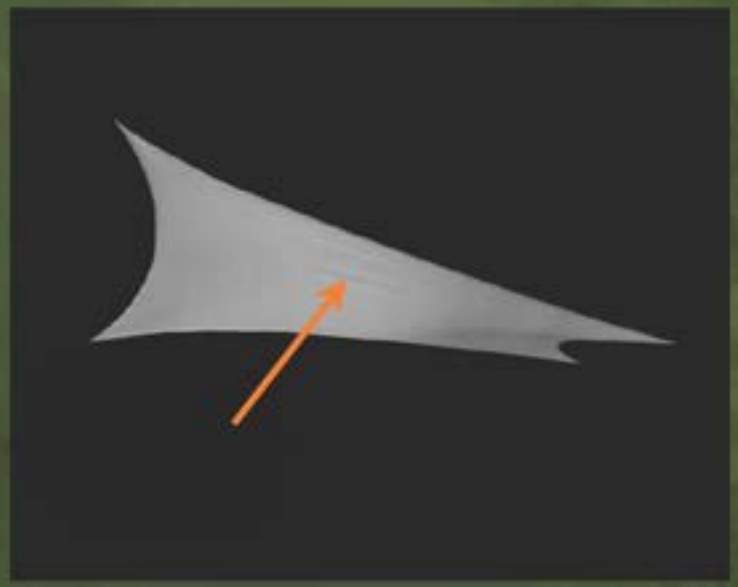
Also it was obvious for us that at the end of these experiments, we would not have enough information for choosing the shape, but it was the first step…



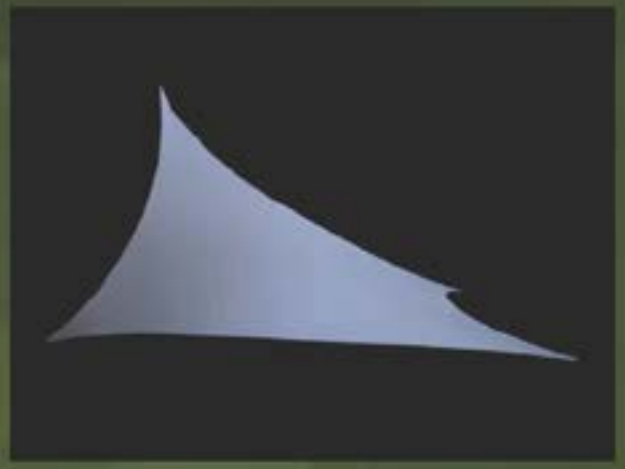


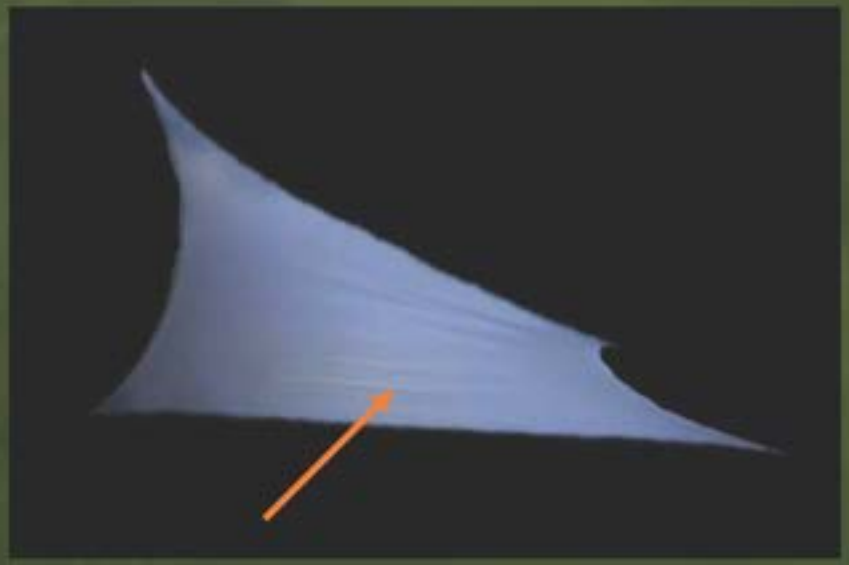


FAILURE POINT



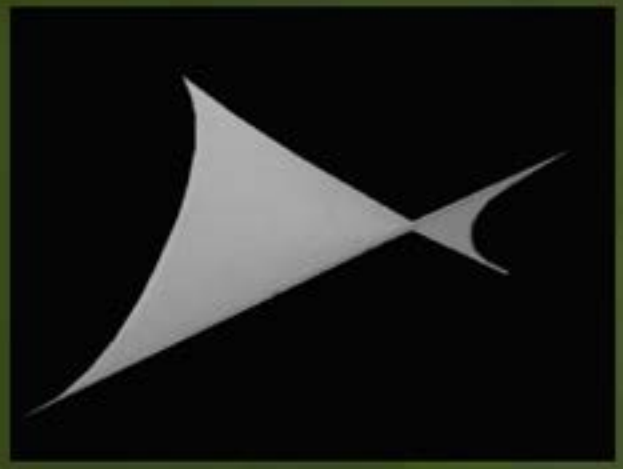
Rectangle 35*50 cm

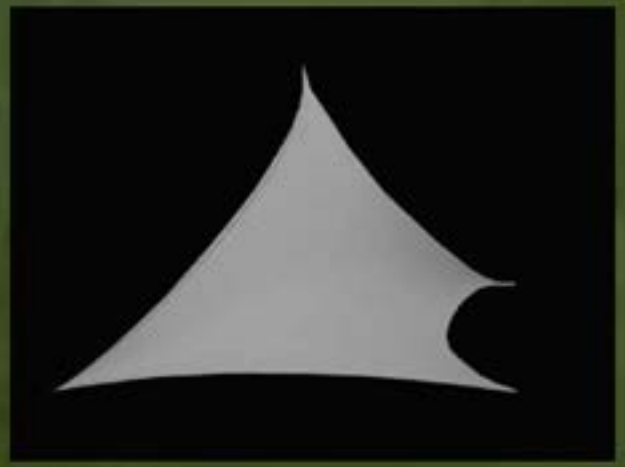




FAILURE POINT

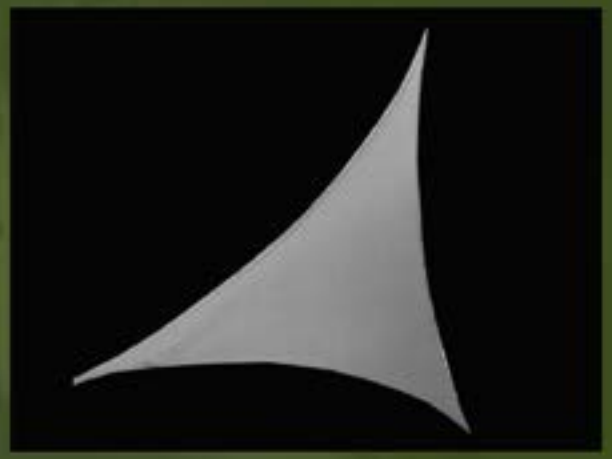
Rectangle 40*50 cm





Square 50*50cm



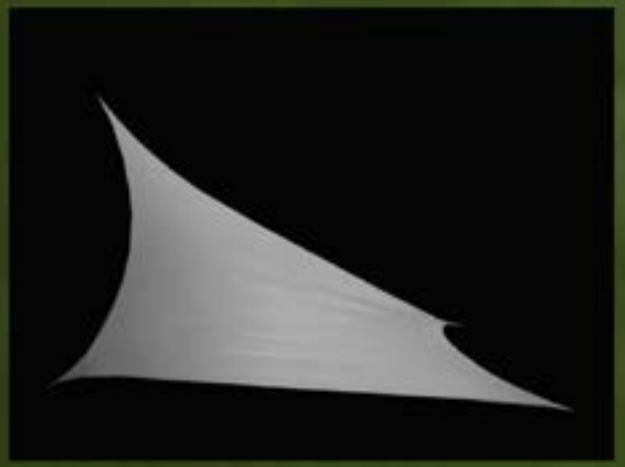


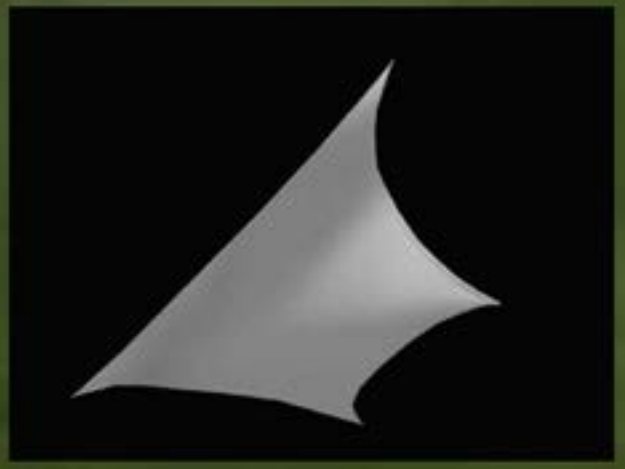
Triangle in different sizes

30*30*30

50*50*50

70*70*70





Rectangle 40*50cm

Square 50*50cm

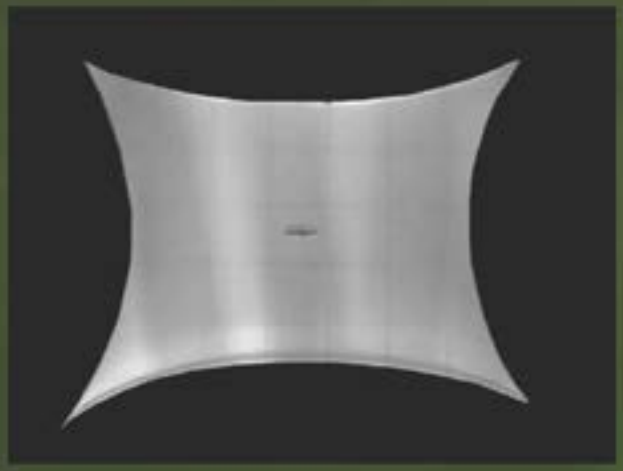
									
# of edge	3	3	3	3	3	4	4	4	4
Minimum points of tennsion	3	3	3	3	3	4	4	4	4
min edges under tension	0	1	1	1	3	0	2	2	0
Flexibility	0°	0°	0°	0°	0°	90°	120°	60°	80°

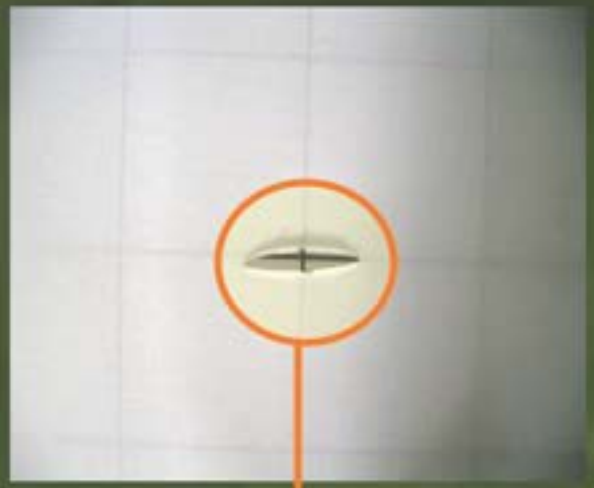
In the **rectangle** shapes tension was affective in all region of the surface of material, **square** has a larger period of angles which could be use in we process than rectangle.

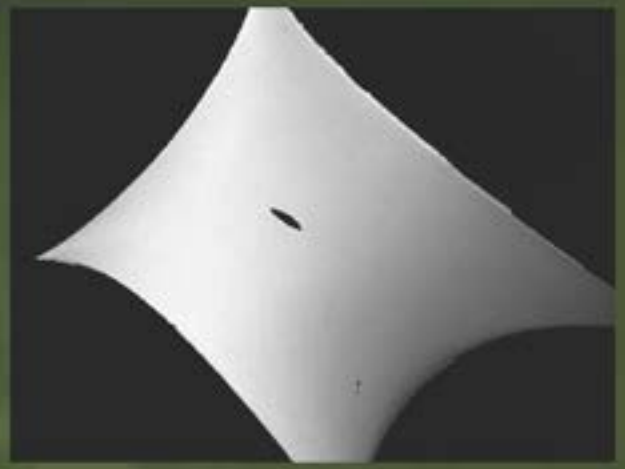
Triangle in different angles can provide only a simple shape.

Spilt Experiment

This experiment includes **spilt** in the center with different sizes and then we transfer the place of spilt.

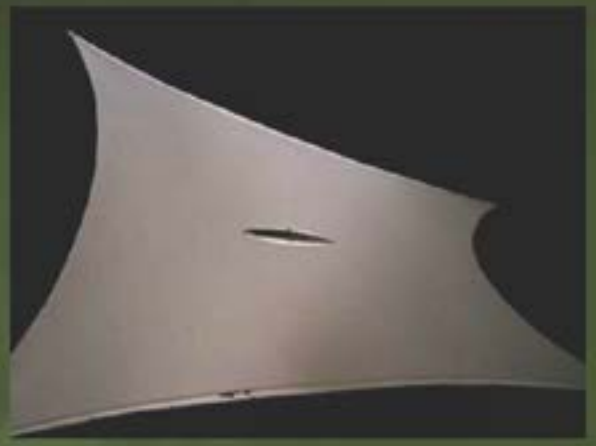


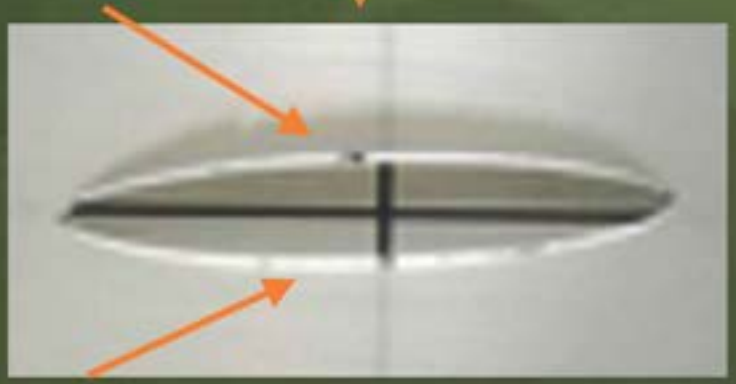




FAILURE POINT

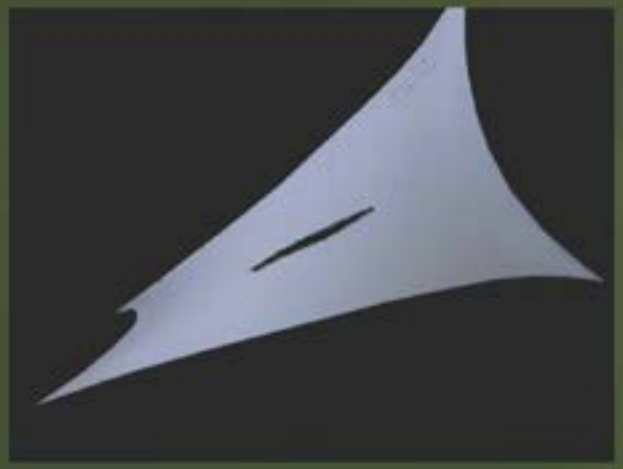
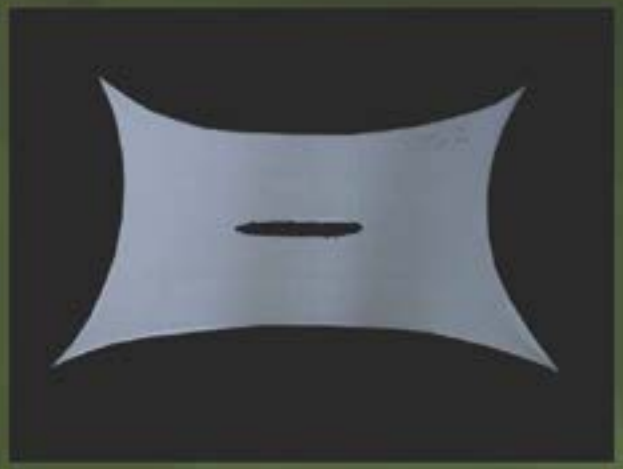
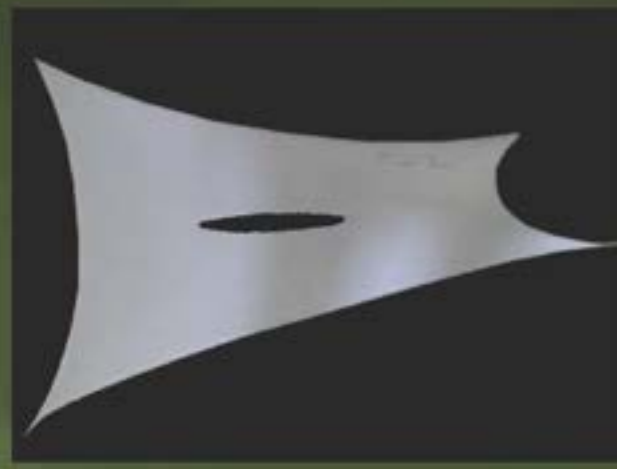
5cm split in the center.

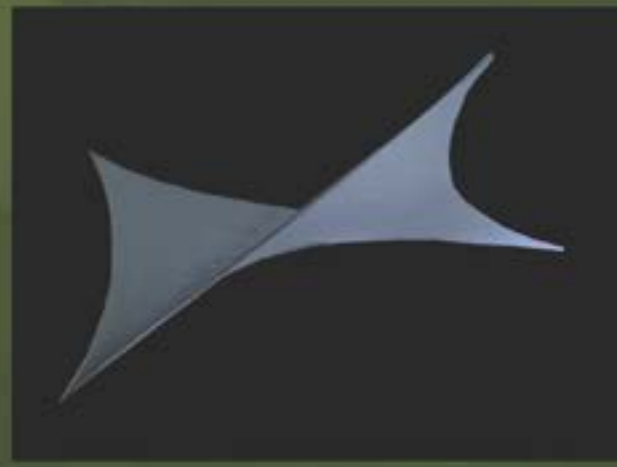




FAILURE POINT

10cm split in the center.



FAILURE POINT

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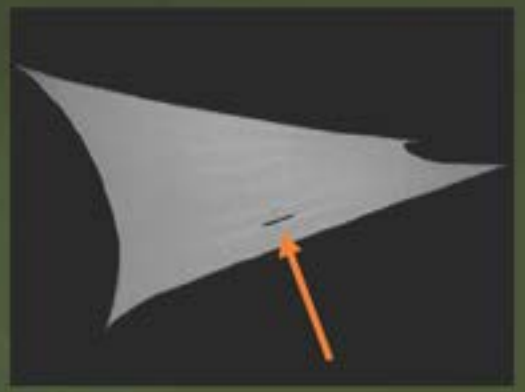
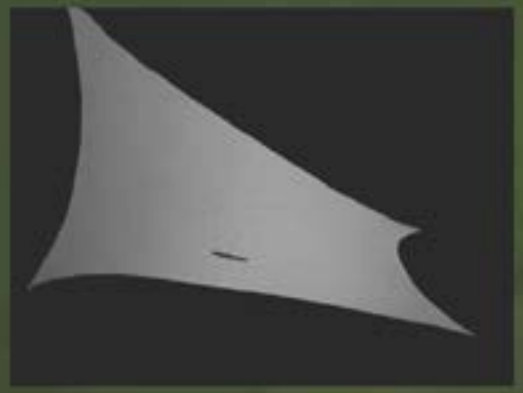
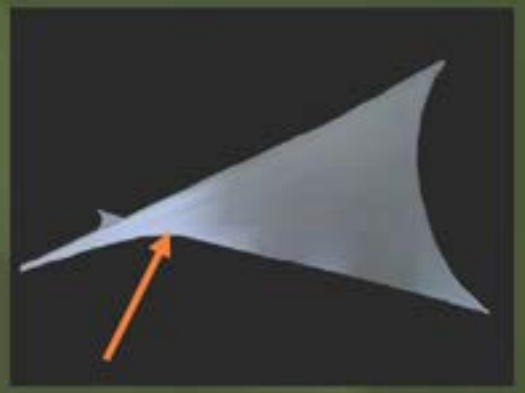
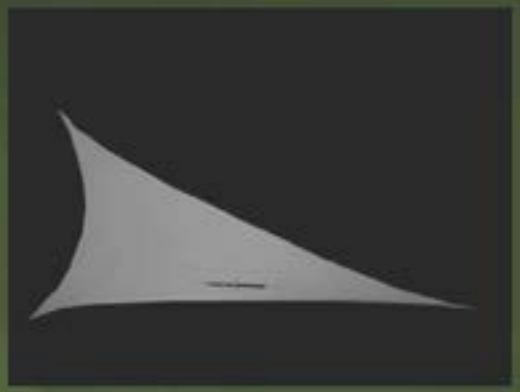


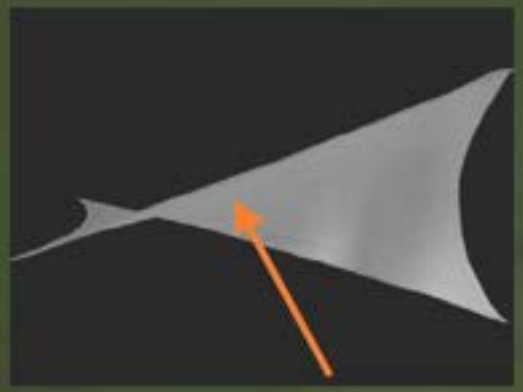


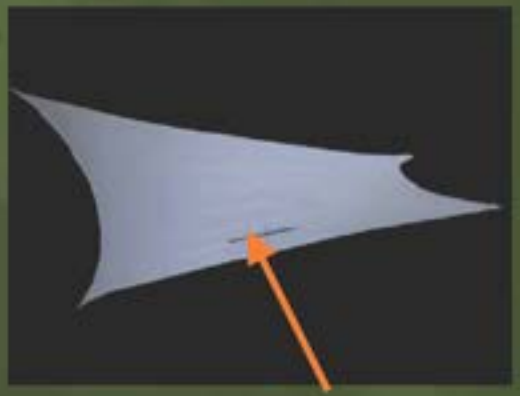


FAILURE POINT

5cm spilt which is near the long side.

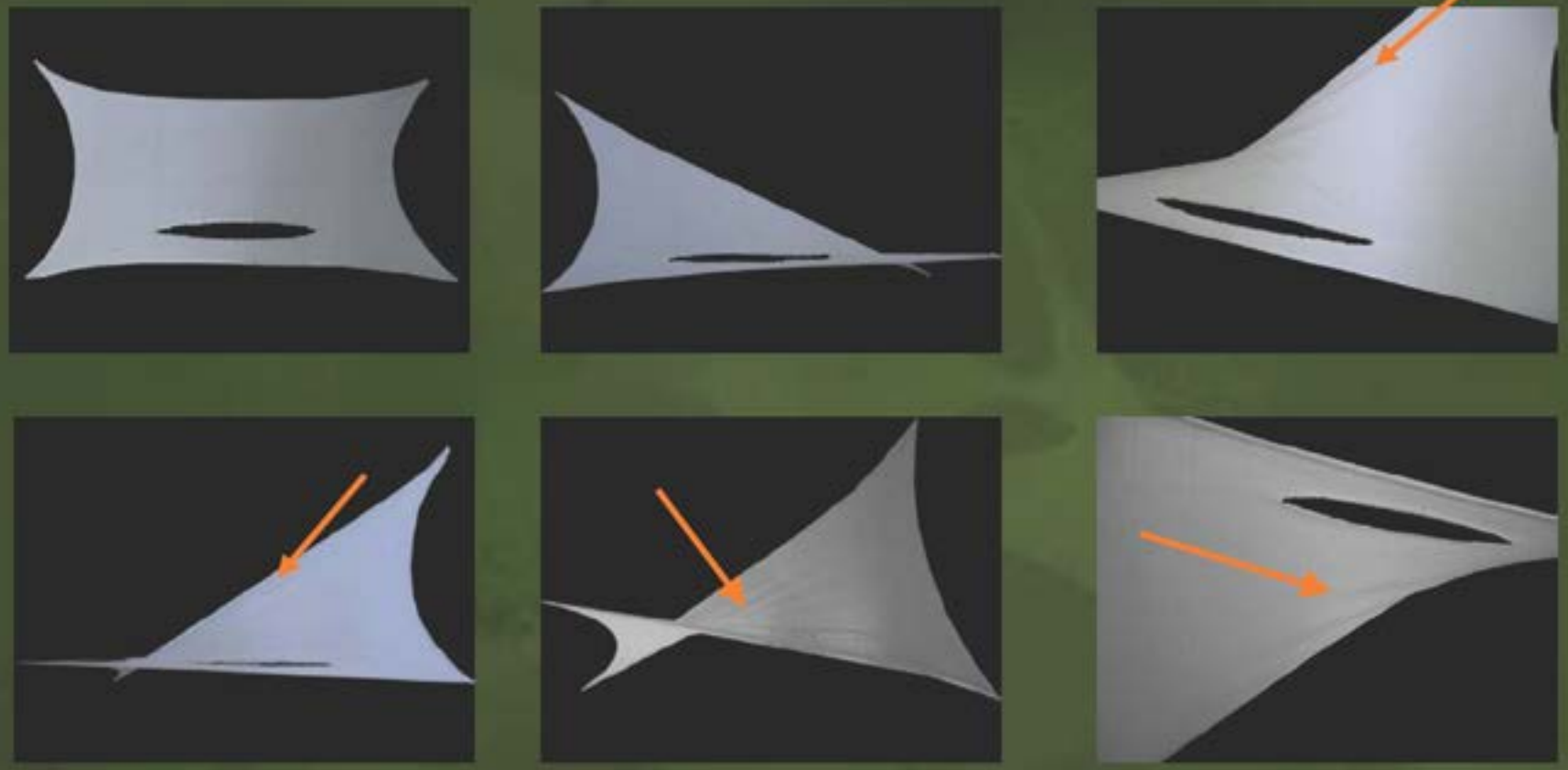






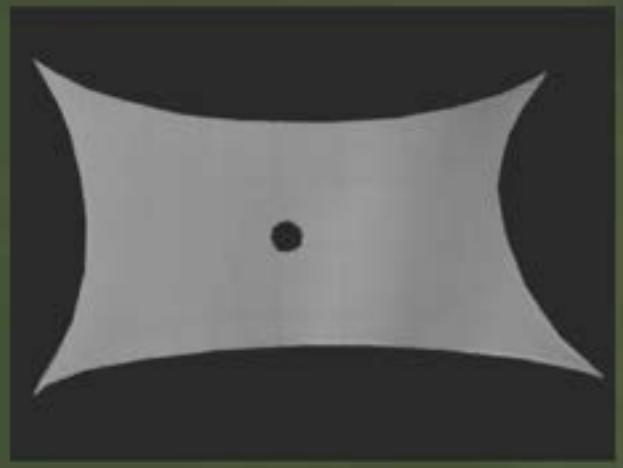
FAILURE POINT

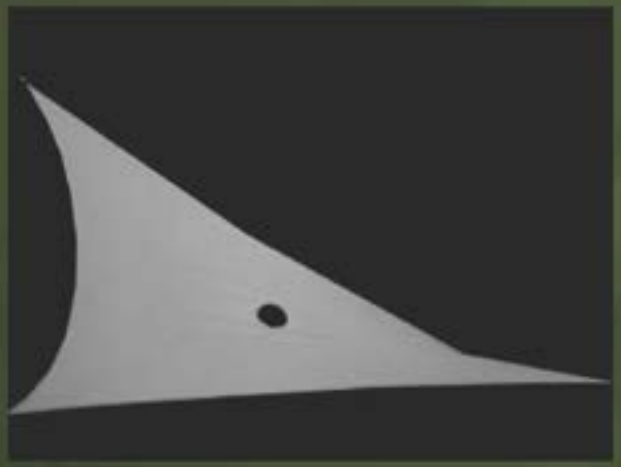
10cm spilt which is near the long side.

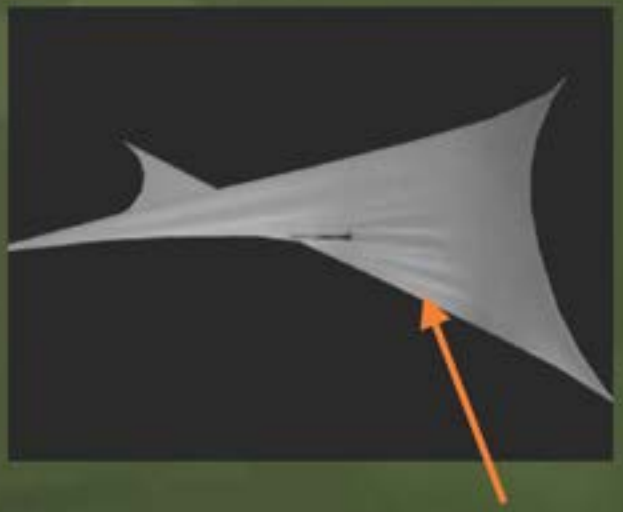


FAILURE POINT

20cm split . near the long side



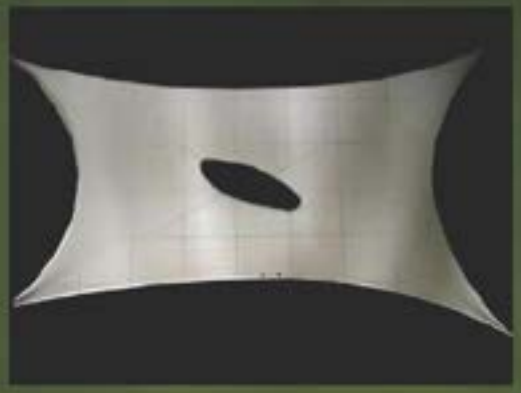


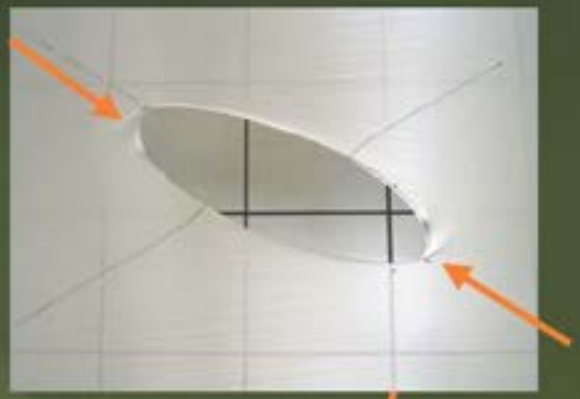


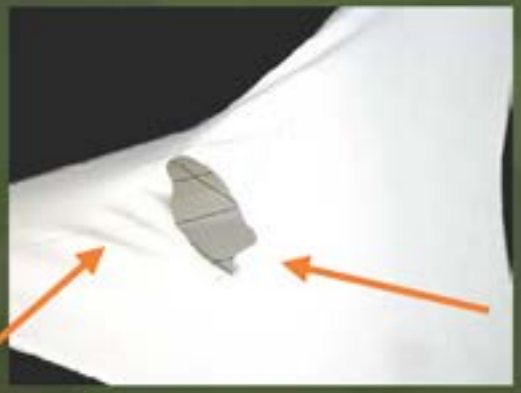
FAILURE POINT

5cm spilit in the center which is parallel with short side.

The tension of the cloth is in the way of the long side.

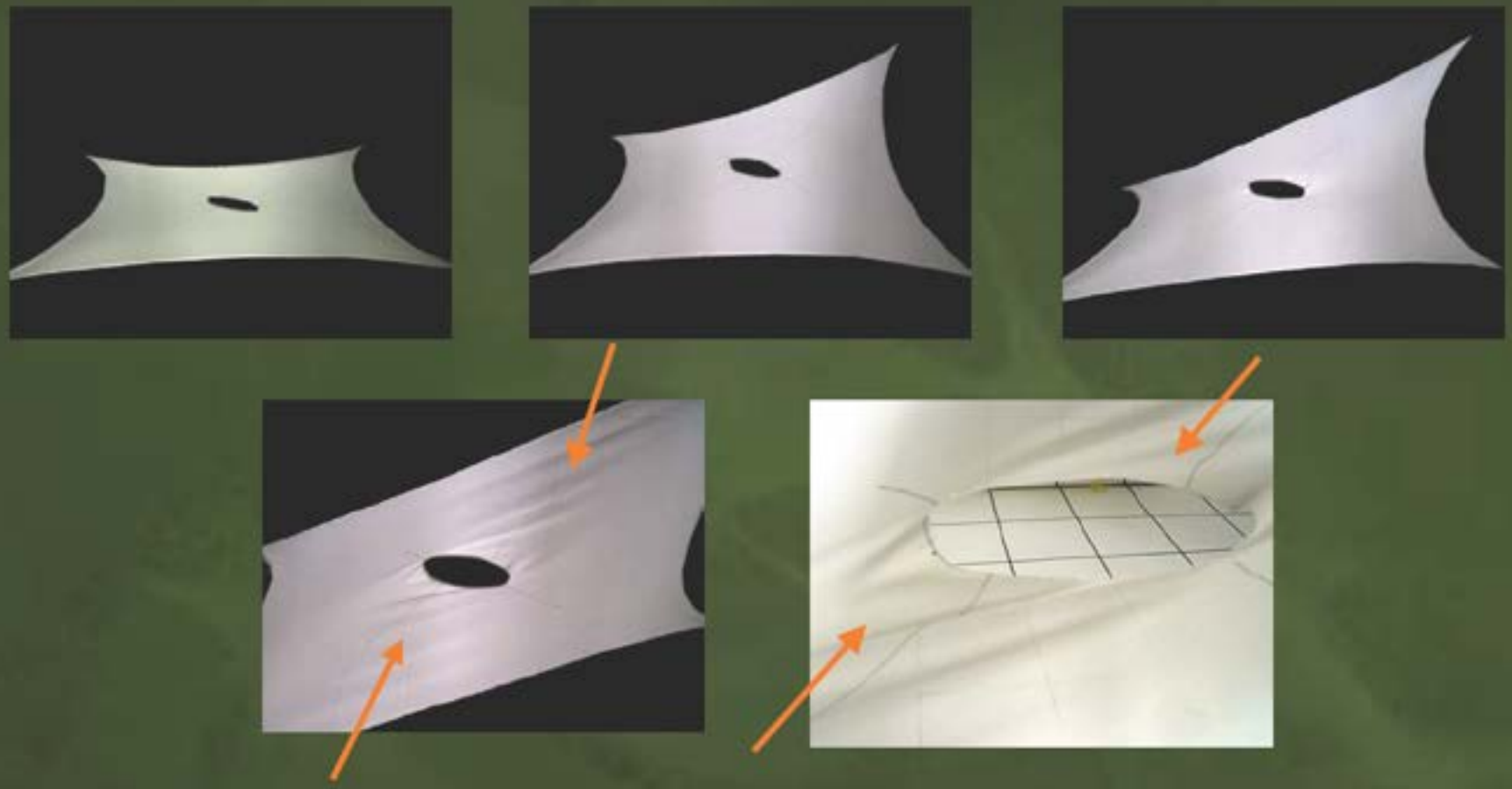






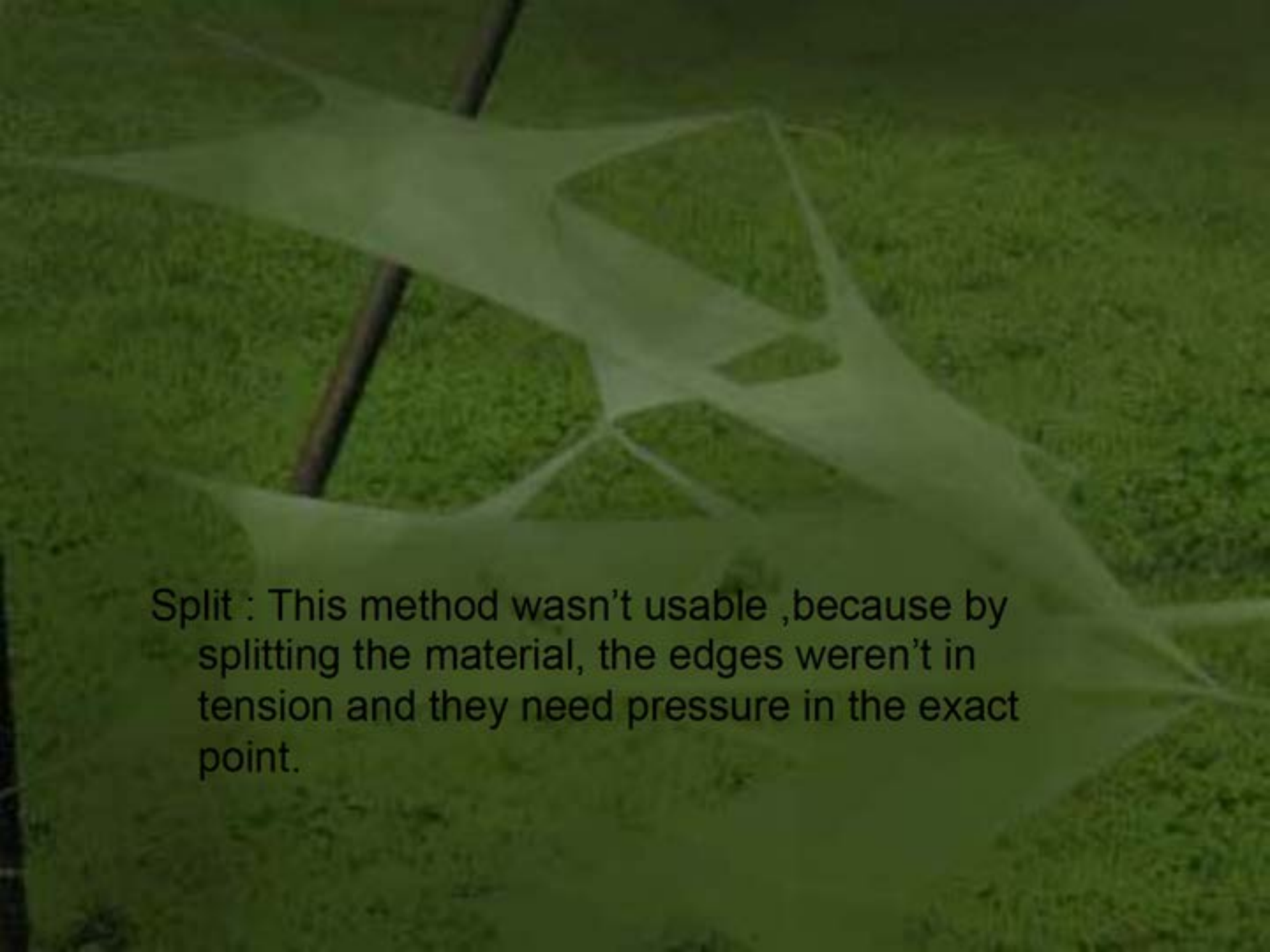
FAILURE POINT

10cm split in the center which is in the way of diameter.



FAILURE POINT

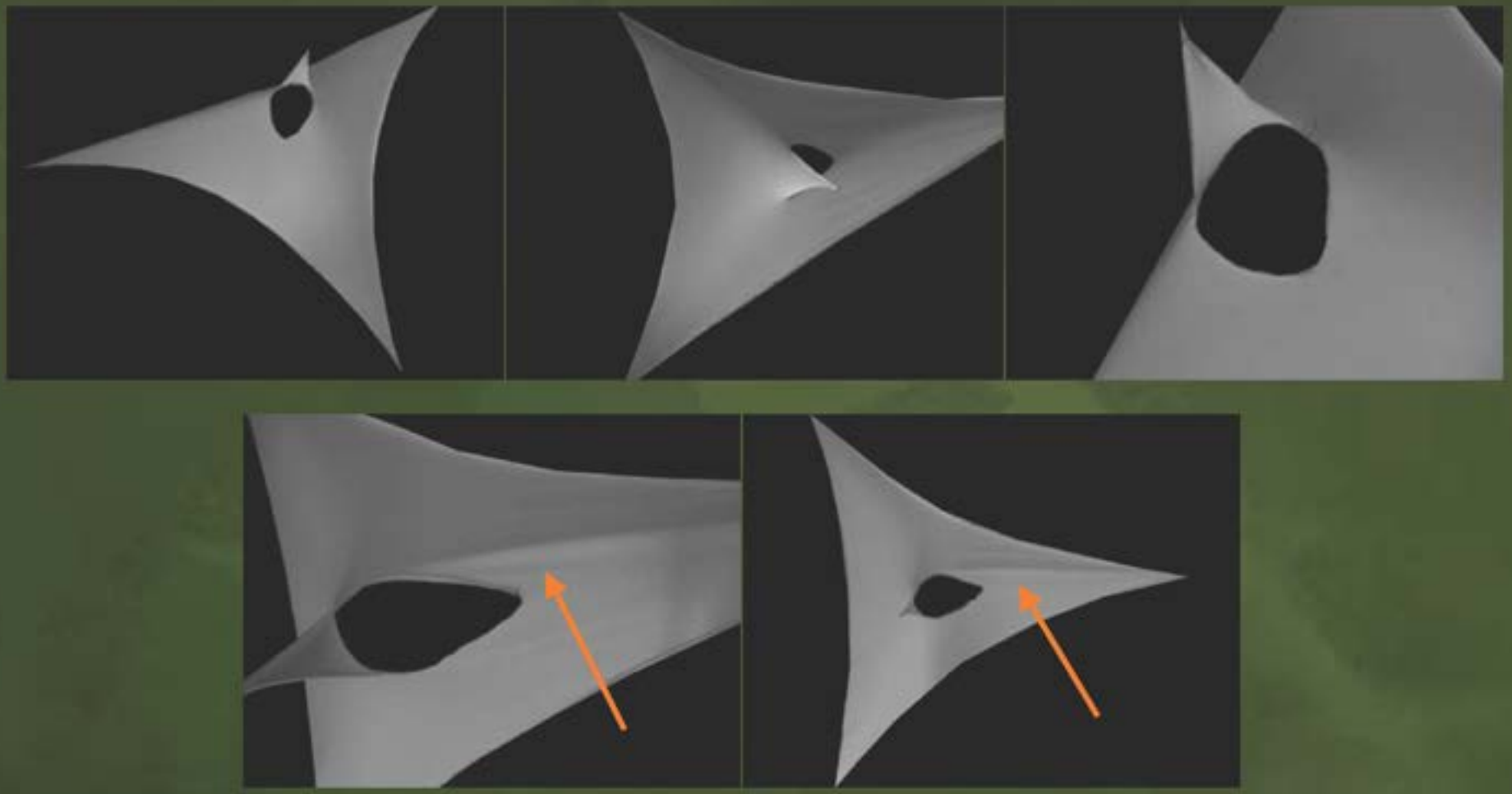
20cm split in the center which is in the way of diameter.



Split : This method wasn’t usable ,because by splitting the material, the edges weren’t in tension and they need pressure in the exact point.


Slice
1.Triangle
2.Square
3.Rectangle

Slice
triangle
angle:45’
length: 5cm



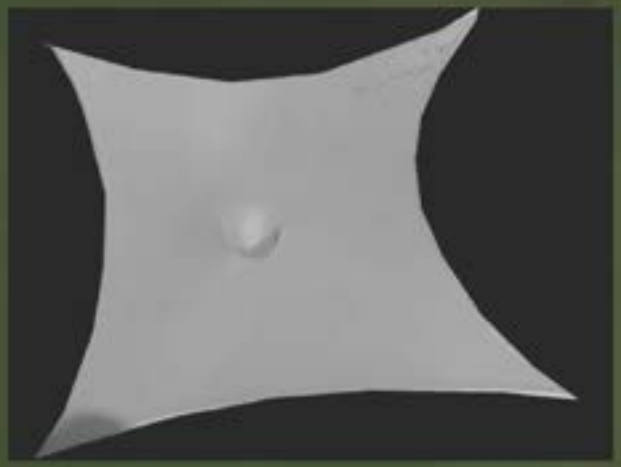
FAILURE POINT

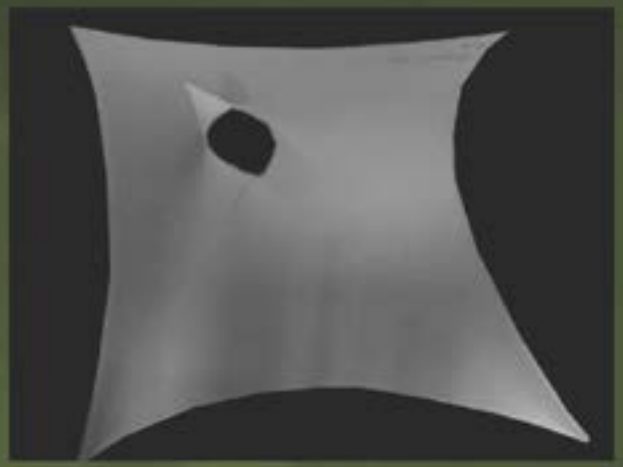
Slice

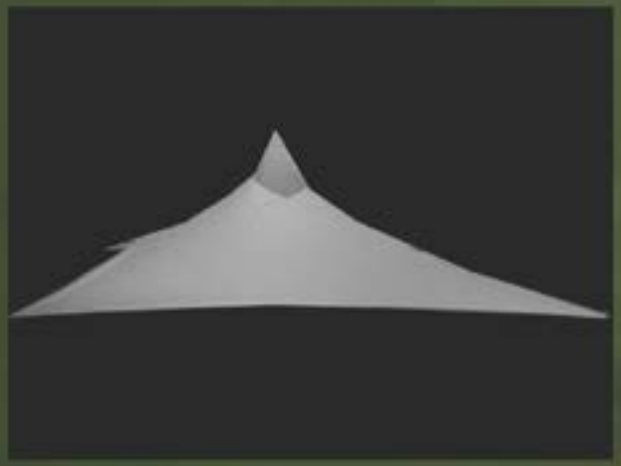
triangle

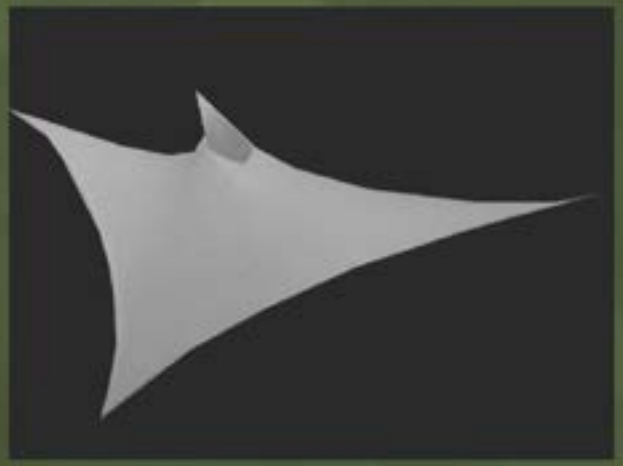
angle:45'

length: 10cm

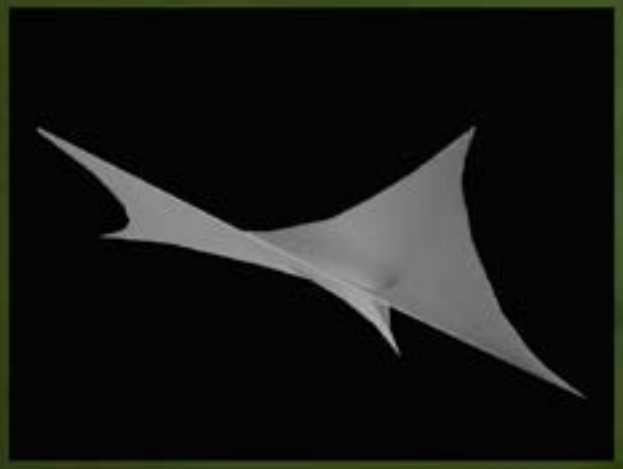


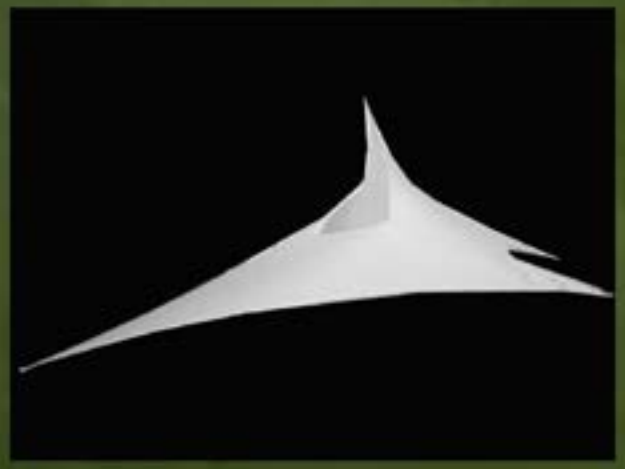




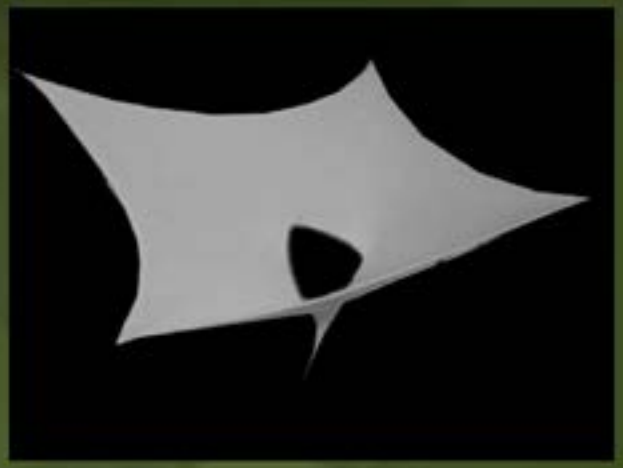


Slice
triangle
angle:135
lenght:5cm
Failure point in **tension**

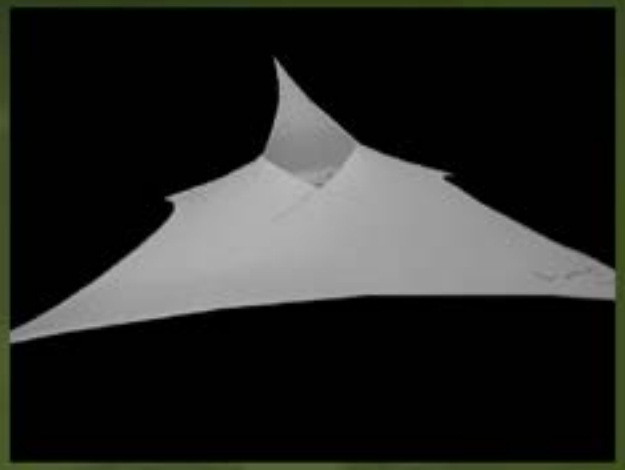


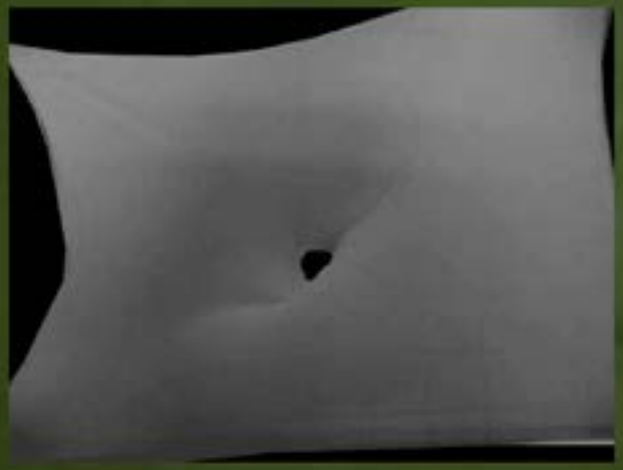


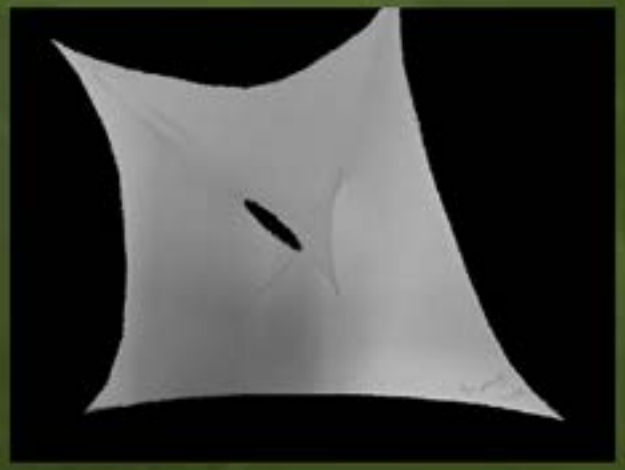
Slice
angle:135
lenght:10cm

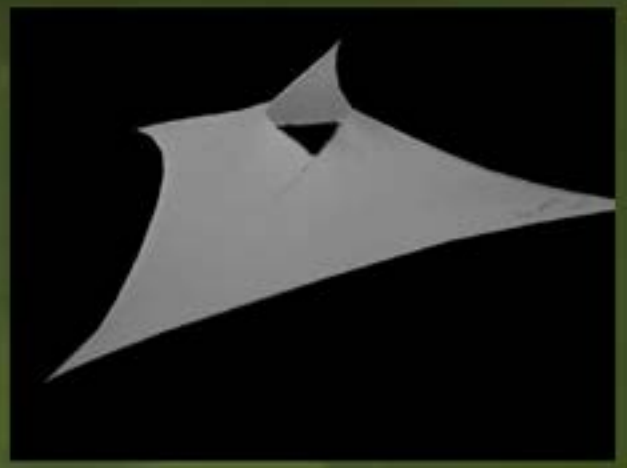
Slice
angle:135
lenght:15cm



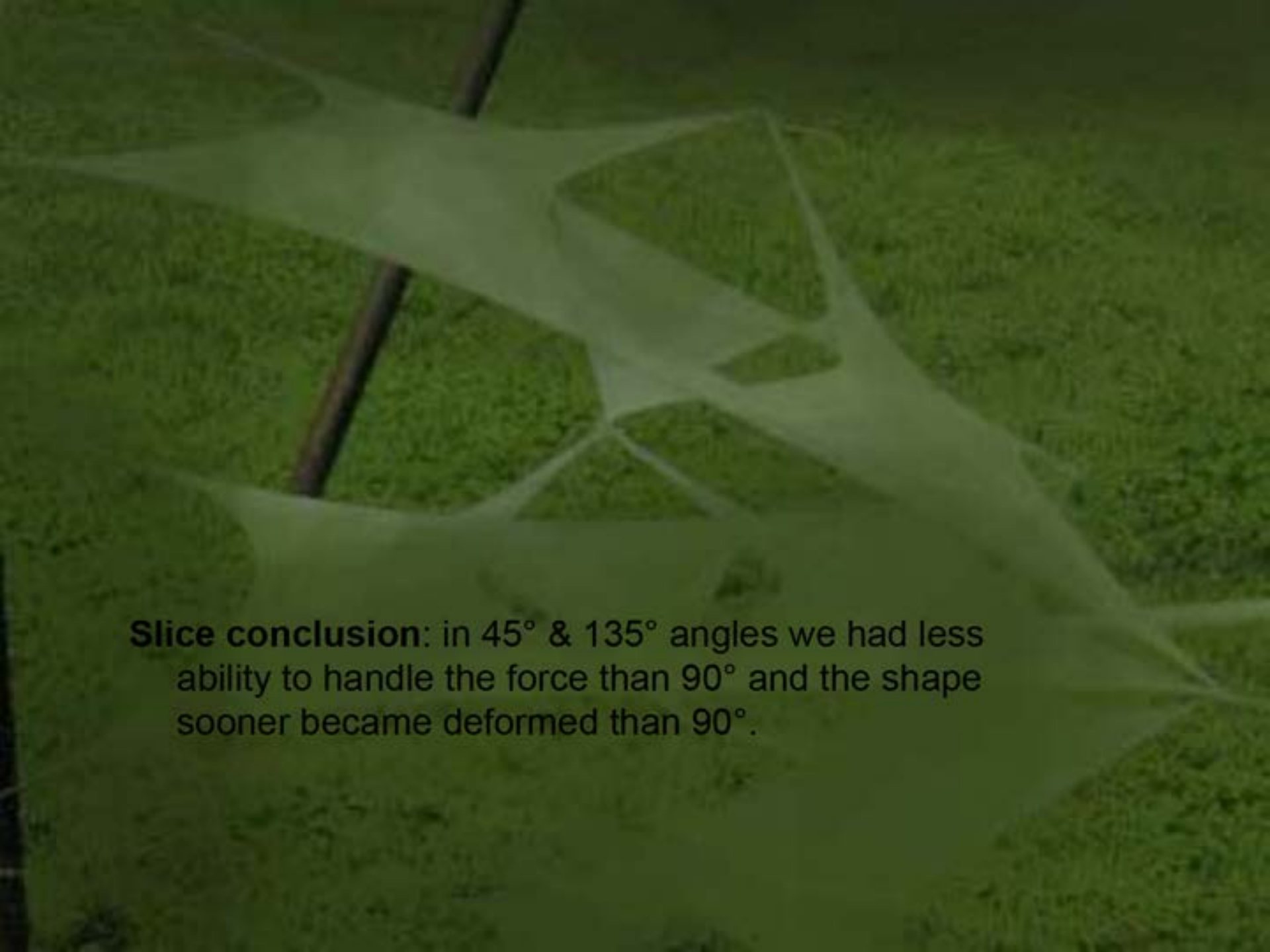




Slice
angle:90
lenght:10cm



Slice
angle:90
lenght:15cm



Slice conclusion: in 45° & 135° angles we had less ability to handle the force than 90° and the shape sooner became deformed than 90°.



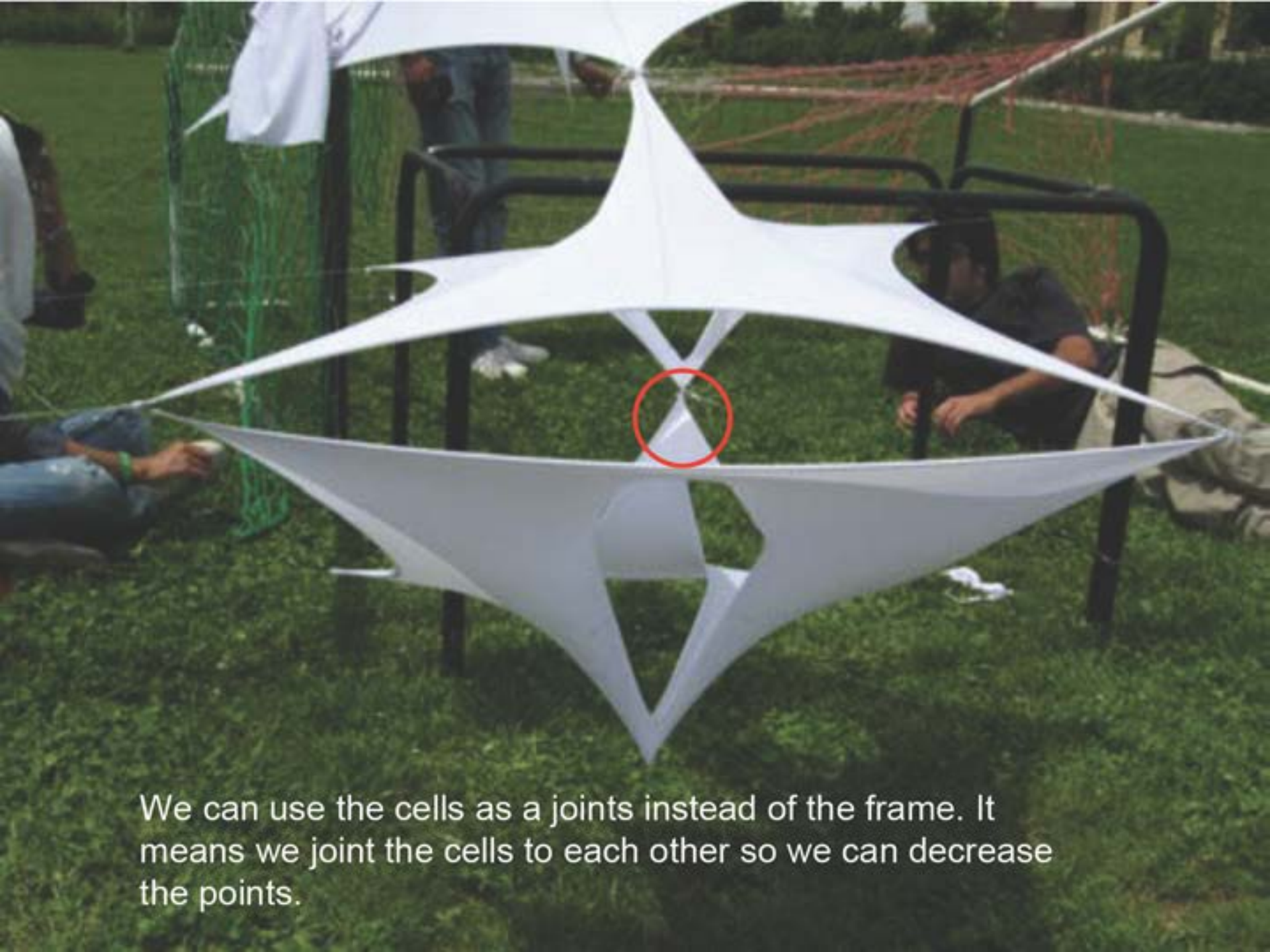


Final conclusion

after testing all forms that came to our mind, we reached to combination of two slice to have a better form with better shadows. so we decided to use this method in the main idea of our project.

COMBINATION OF CELLS

we choose a cell after all experiments. The square is 50x50 with two slices. Now we try to combine it with the same cells to achieve the suitable frame. we find the joints points and make them optimal then on the base of that points we find the magic frame.



We can use the cells as a joints instead of the frame. It means we joint the cells to each other so we can decrease the points.






Frame form finding

in fact we need some frames for fixing materials, so we started to find more common spots which were necessary for fixing & having the best form. During the experiment we tried to use optimum spots. Then we put some in a vertical or horizontal lines & replace those lines with a bar. sometimes we found bar in different angles. step by step we understood how many bars & spots are needed.

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