

Thomas Oates

LIGHTING

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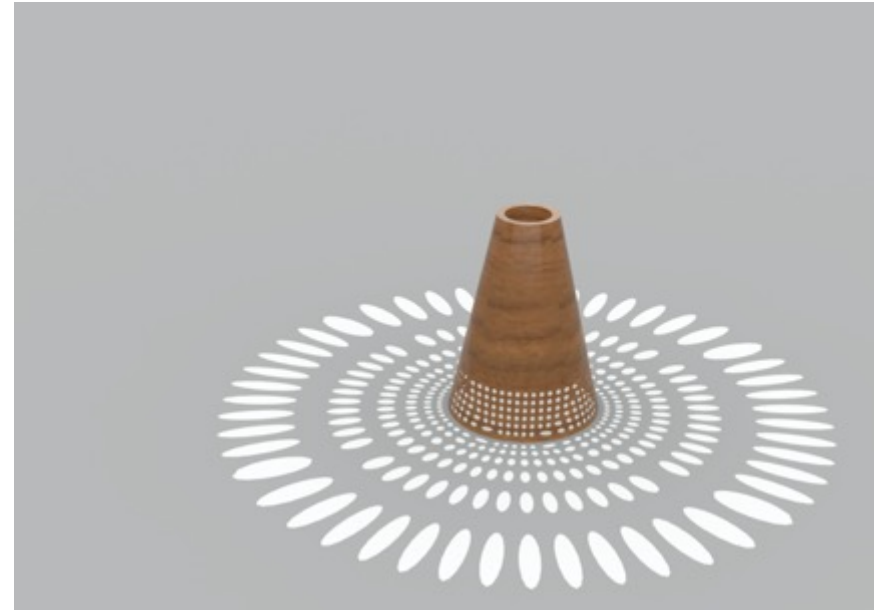
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What is my project?

For this project I will be constructing a lighting system that will bring another element to lighting other than just turning on the switch. This lighting system will bring a decorative effect to the surroundings spaces with the use of patterns and shadows. When the light is not on I still want the light to blend in with the environment where they are placed. I will be doing this through the use of woods and Veneers. I will be giving the lighting system a natural presence thus I will make the light more atmospheric by making the room feel more calm and magical, with the use of patterns and shadows to change how the light feels when it is switched on. I will also be looking into scale which will include a floor, wall, desk light and a chandelier to explore how this will changes depending on the different sizes that I will make them.



Research

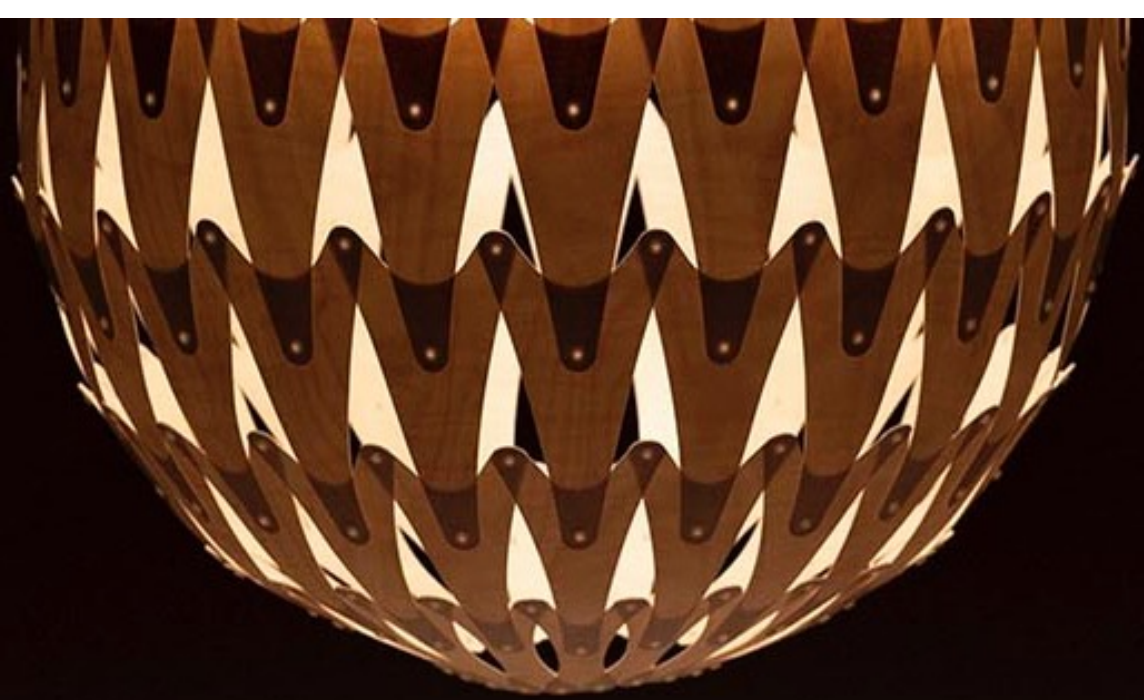


For some initial research I have looked into a handcrafted designer called Tom Raffield. This designer makes lighting and furniture using a method called steam bending. I came across this designer while I was researching for my second year project when I made a steam bent angle poised light from cherry wood.

Tom Raffield uses a different handcrafted method to produce his work which is a process called steam bending. He takes sections of wood and places them inside a box which is pumped full of steam which then softens the wood to make it more malleable and manageable to form the shapes that he wants.

I'm fascinated by his lights both in how they are made and how the lights produce different effects formed by the shadows that the light emits.





For some initial research I began to look at a designer called David Trubridge. He is a sustainable designer who creates his lighting from a material called bamboo plywood. The reason why I looked into this designer is because he produces similar work to what I am planning to produce at the end of my project.

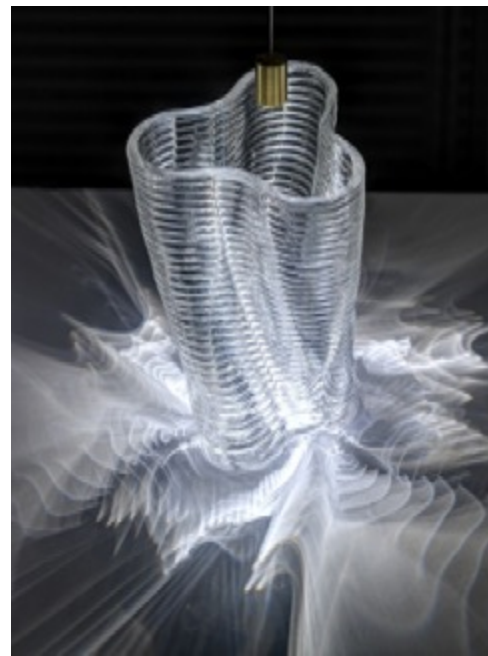
His lights are a net that then make a 3D object which once lit up creates shadows across the room which gives the light another aspect to the light which I found very interesting and inspiring.



When I was researching I came across a designer who works with 3d printing glass to produce vessels and lighting fixtures.

The designers name is Neri Oxman an American- Israeli architect who combines nature and biology with engineering and architecture.

The use of natural materials combined with a manufacturing process is something that interested me as there is a natural element that you have no control over and another element is the man made side which is the 3d printing machine which you can control. Combine these two elements together like Neri Oxman uses I found interesting and maybe something to consider in my own project.

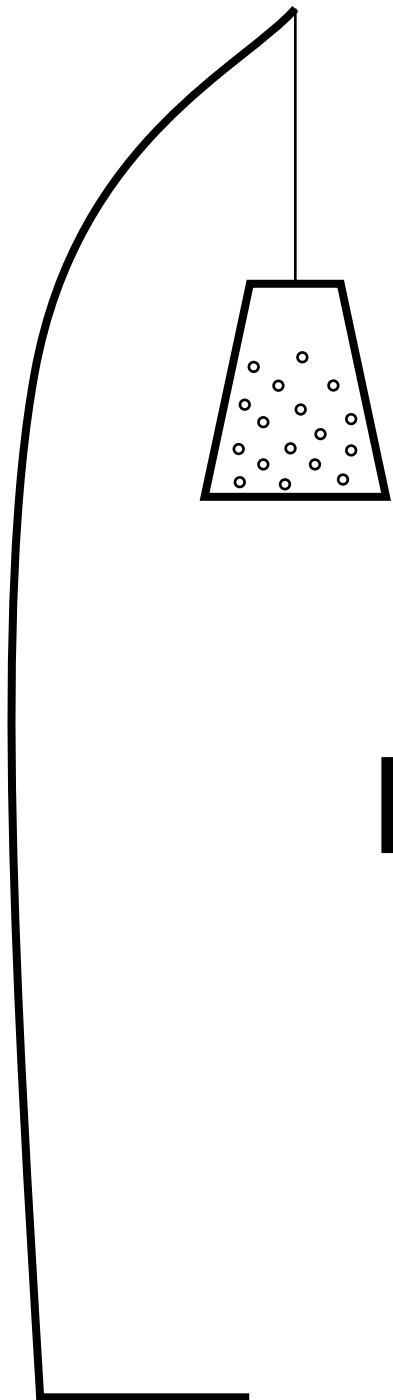


https://www.architectmagazine.com/technology/mits-neri-oxman-on-the-true-beauty-of-3d-printed-glass_o



<https://www.3dprintingmedia.network/neri-oxmans-3d-printed-glass-columns-star-lexus-yet-installation-milan-design-week/>





MATERIAL EXPERIMENTATION

To start this project I knew I wanted to work with veneers and I knew that the light shade would need to be round, so that it would surround the light bulb when it was attached.

So, to start I needed to find out if it was possible to manipulate the veneers as this wood is very thin and there is a possibility that the wood may crack and not work.

Learning from last year when I used the steam bender to form a light that I made, I knew that the steam and water will soften the wood. So I applied what I knew about the steam and applied this to the veneer.

To try and avoid this and to stop the veneers from creaking I placed them in to a water bath to soften the veneers.





Placing the veneers in water helped them to bend, but with the nature of the grain in the wood some cracked with the grain wanting to splinter off as I tried to form them.

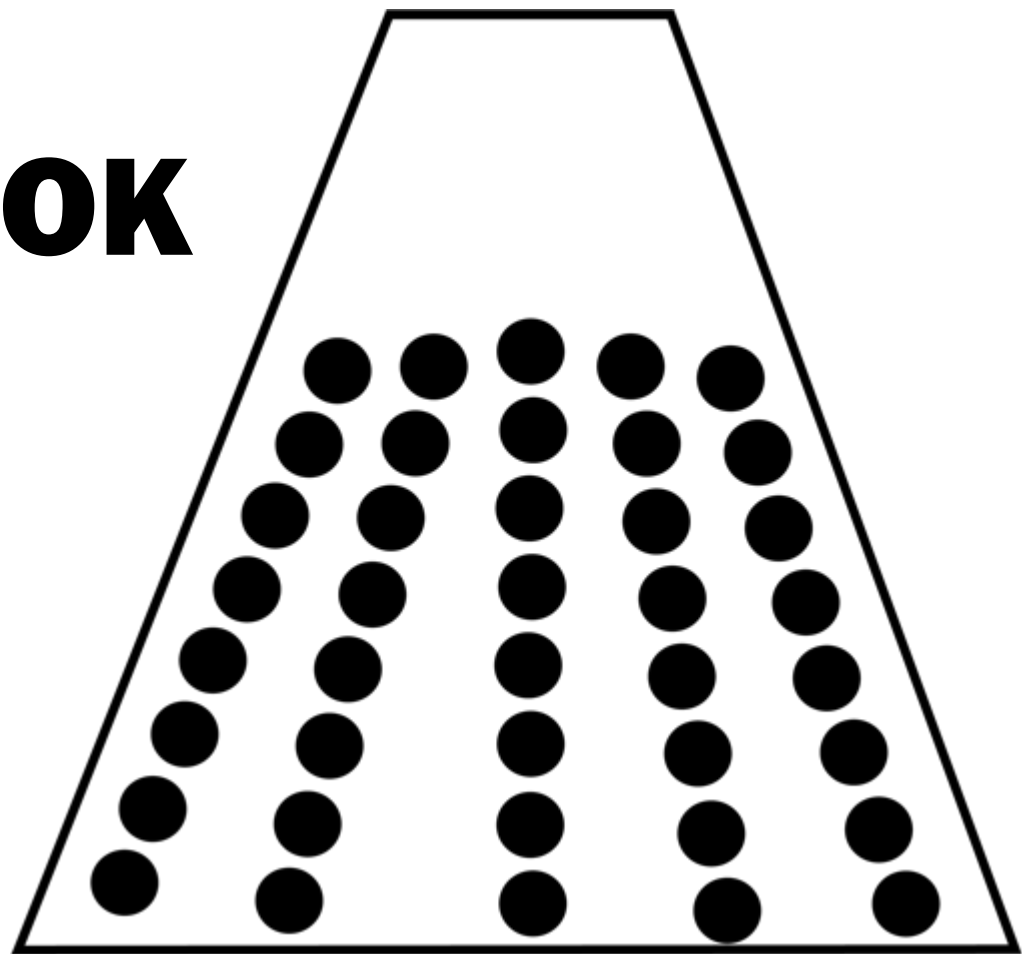
This didn't help with how the veneer was stored at the university. Most of them were too dry and very fragile even before they were being formed.

After doing some research I found that veneers like to be stored in a dark damp room, so that they don't dry out and stay moist.

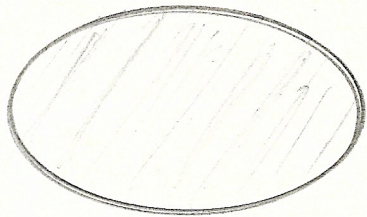
I tried a few more attempts and found that some wanted to stay in a shape but others wanted to go with the grain and if I was to force them into a shape they would just snap with parts breaking off.



SKETCHBOOK



Bottom



Thin veneer block the light but also allow to glow

Side



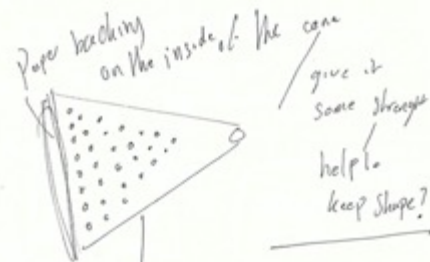
Force the light out the little holes

Veneers

Buy press - three piece then glue together

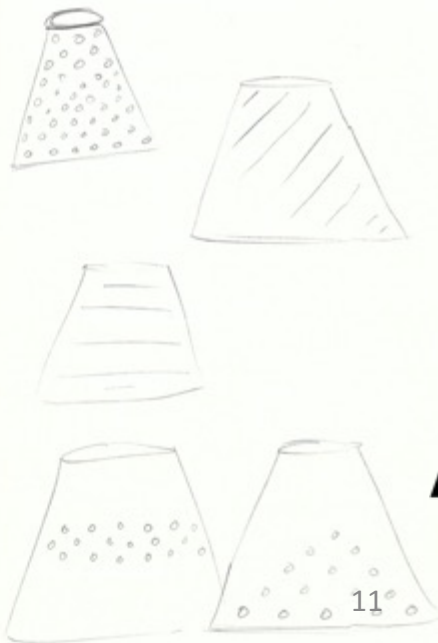
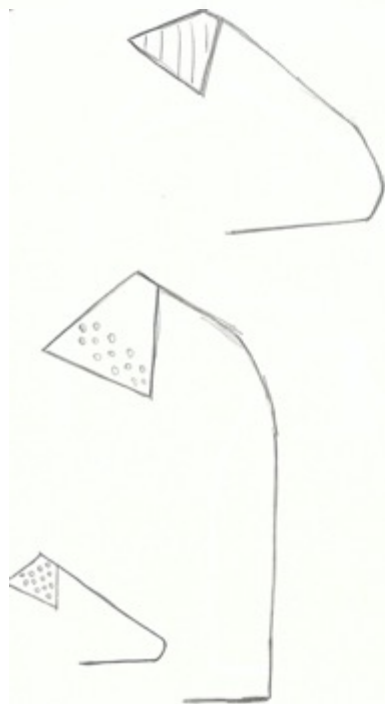
↓
Add a backing to the veneer to stop them cracking

↓
like a fabric paper } something to allow the light to escape



drill the hole before sanding or not?

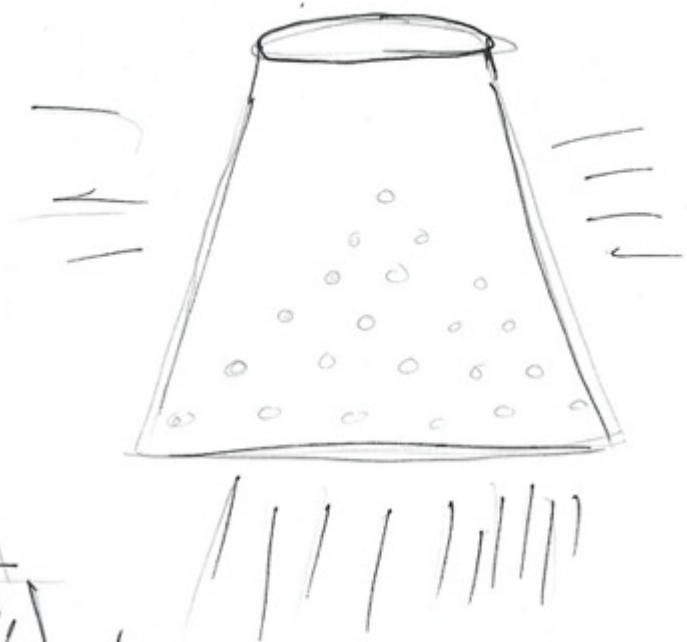
help to put masking tape on them to help stop the veneer from separating when drilling!





- Big ceiling light

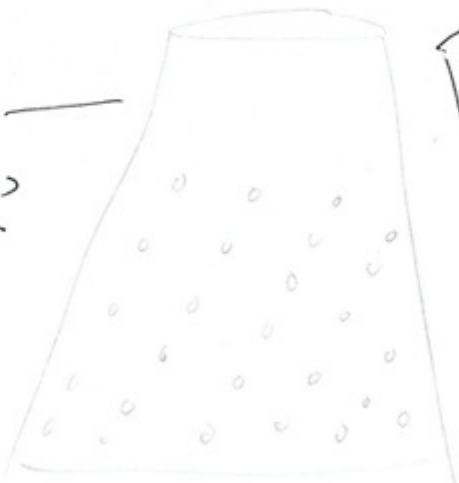
light escapes from the bottom and the sides



different patterns on the cones

shades under cone

different patterns on the cones

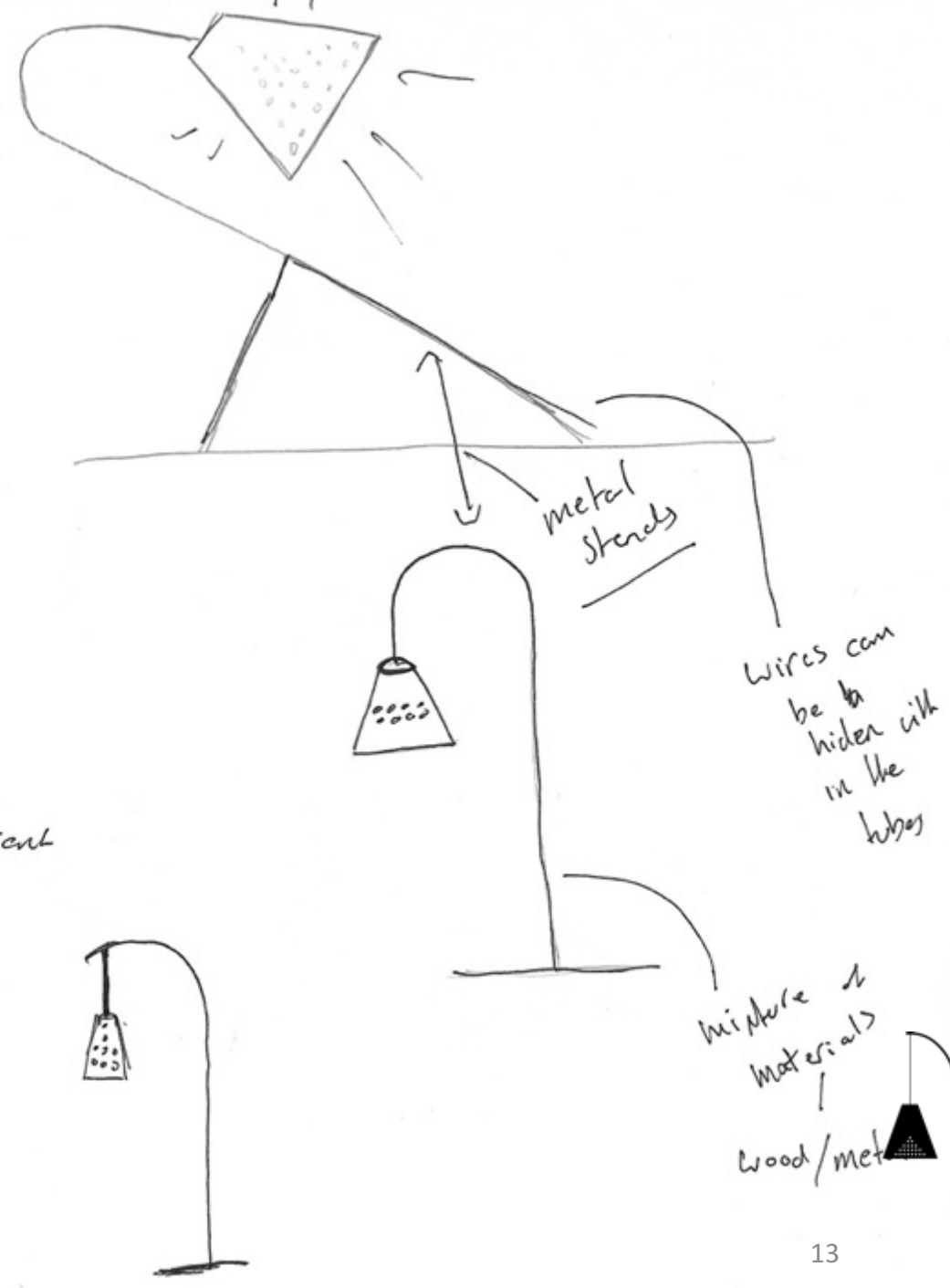
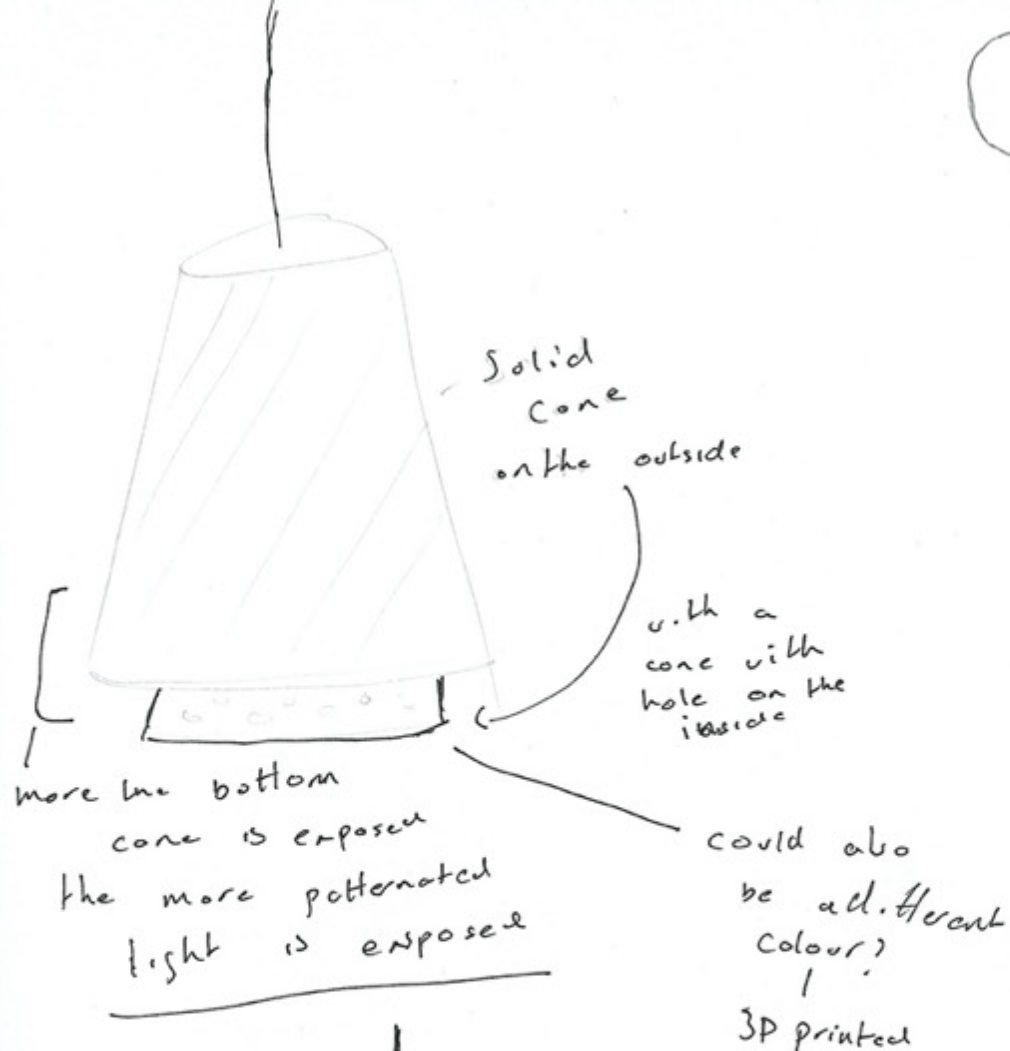


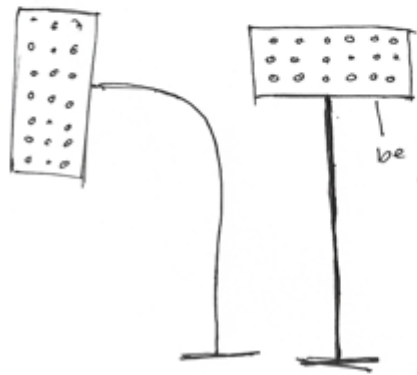
- have them at different angle

Some taller
Some shorter

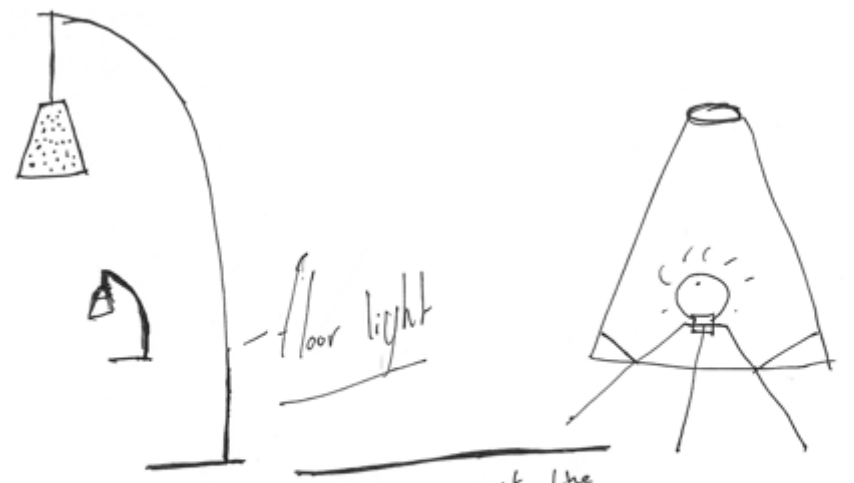
Floor light



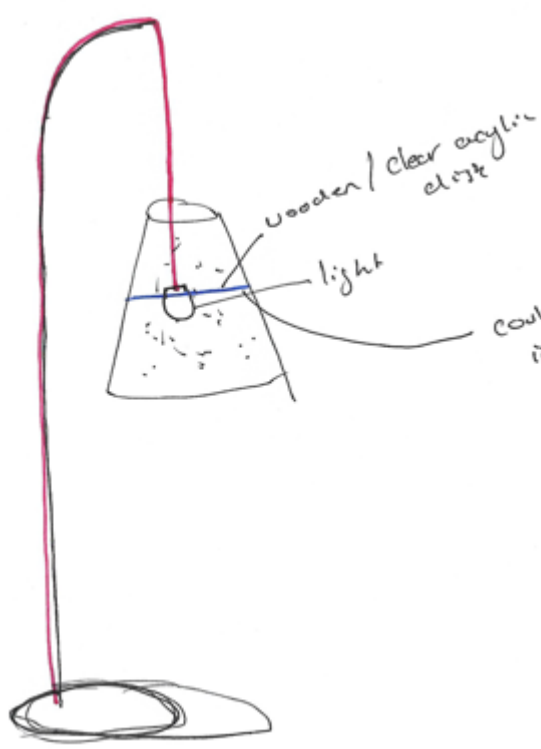




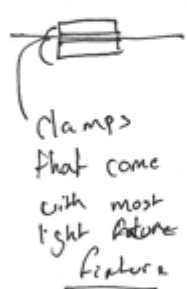
be another ring inside
outside ring could turn to allow and shut the light out



want the stand to be minimal so it does not take anything away from the cone

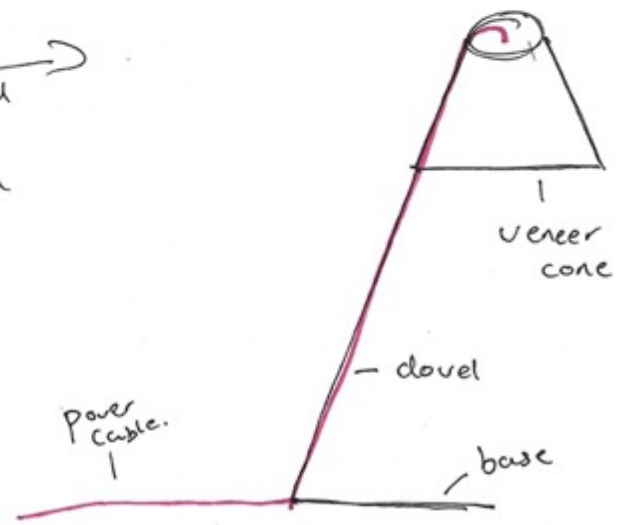
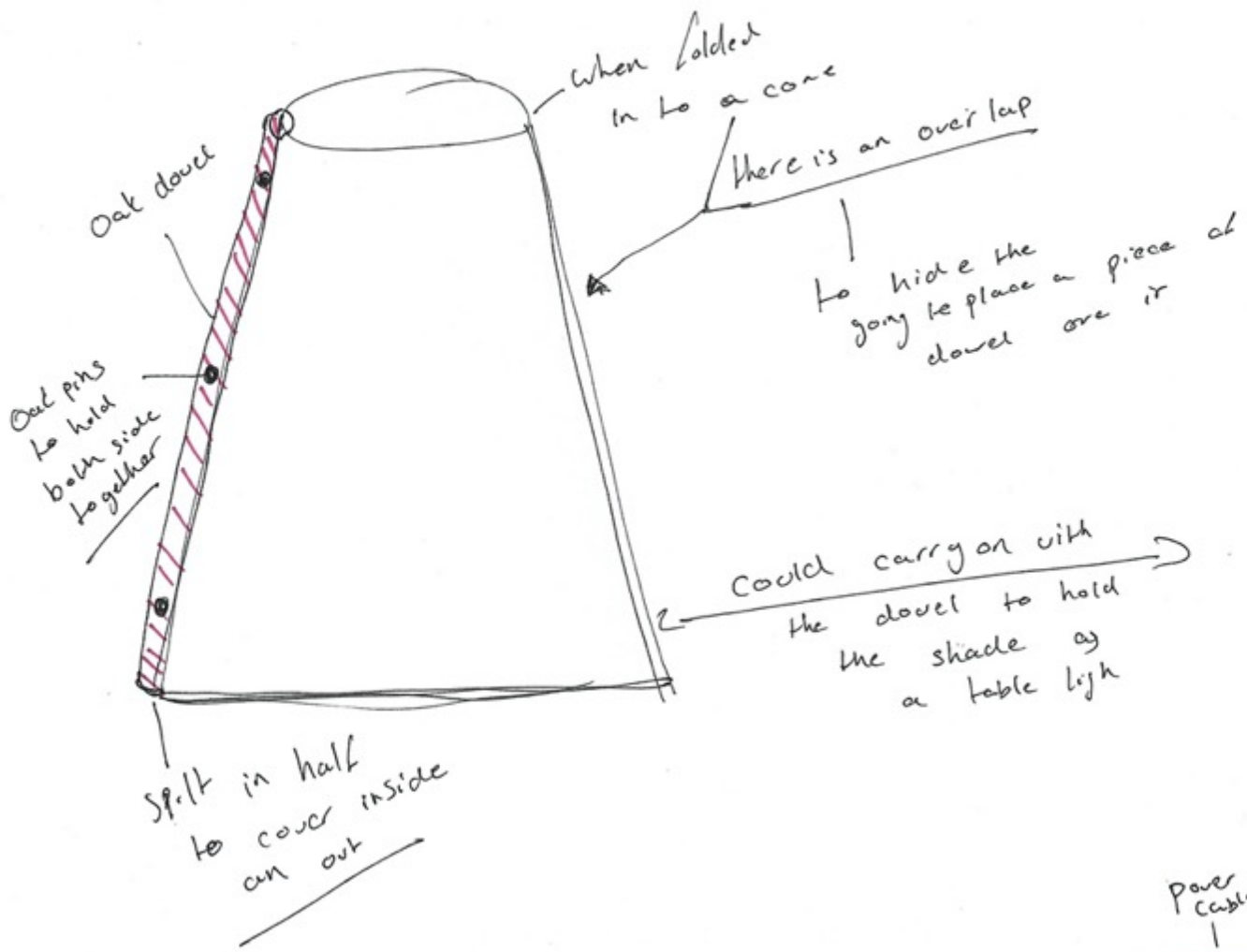


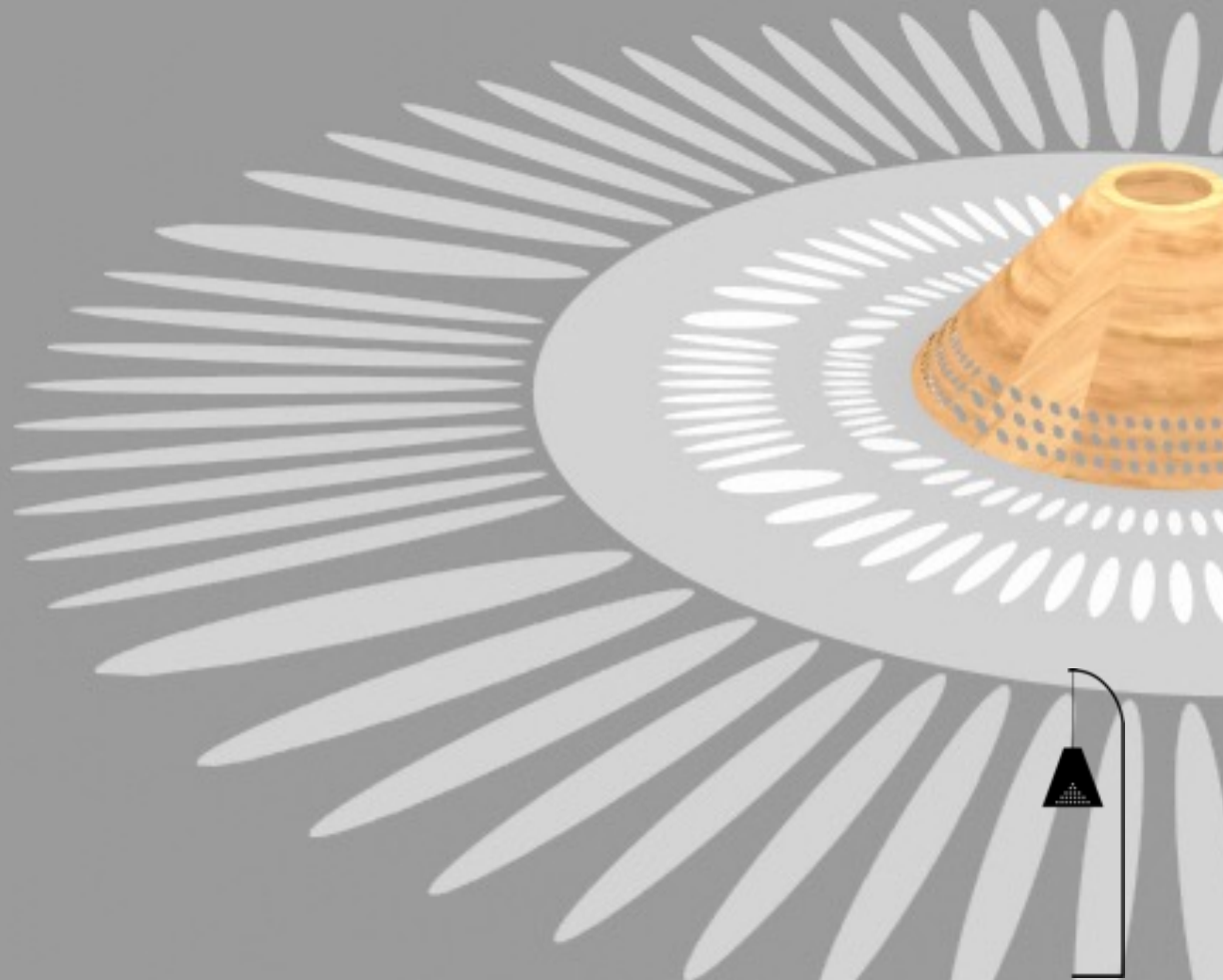
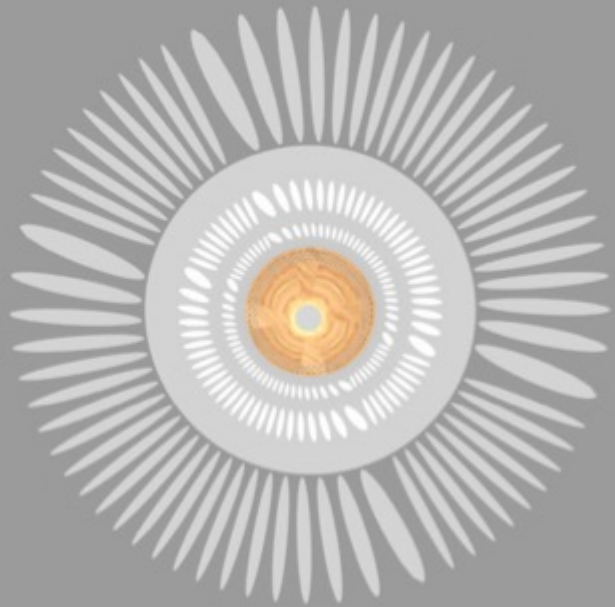
could come in a range of size.
different size either increase or decrease the intensity of the patterns

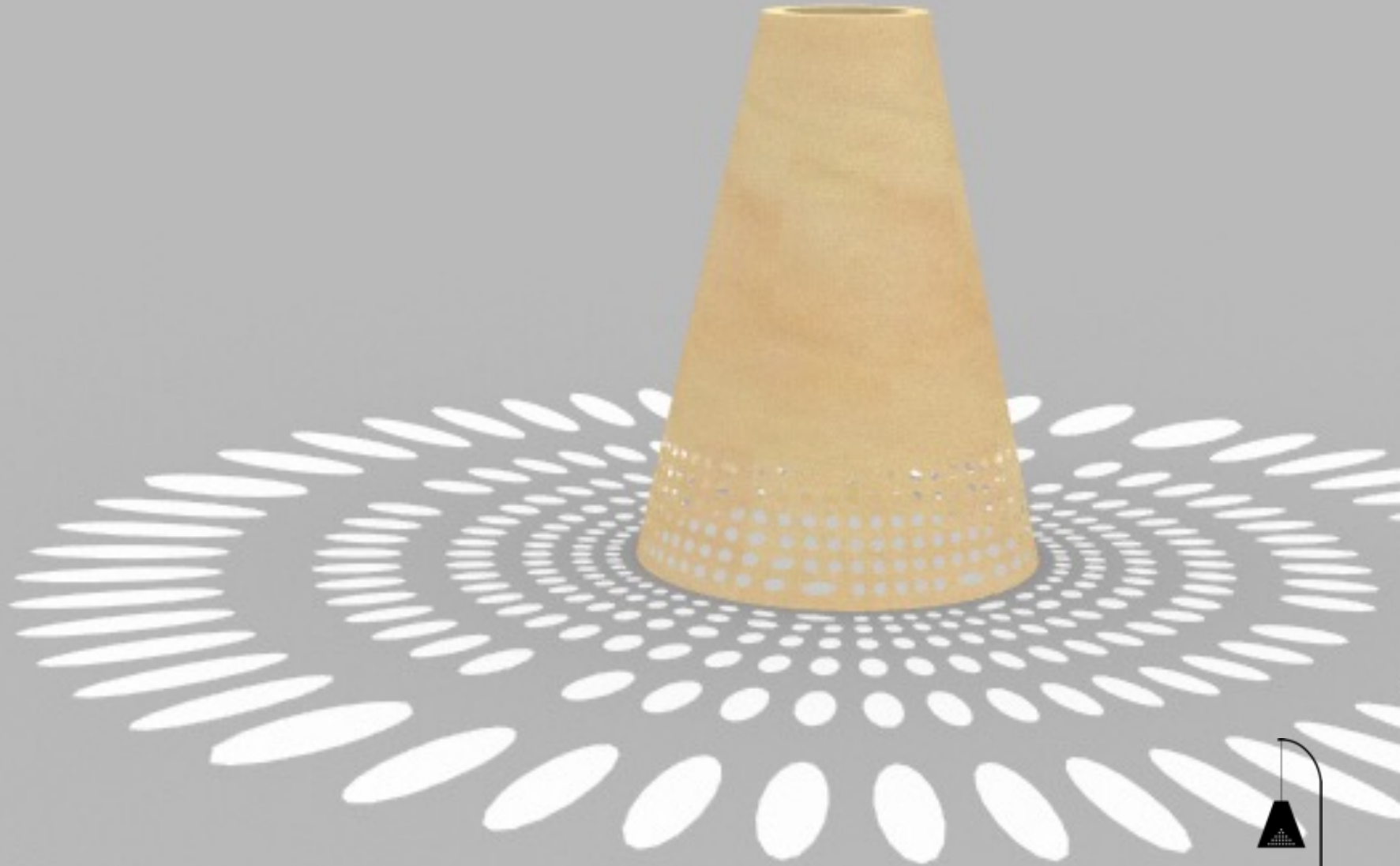


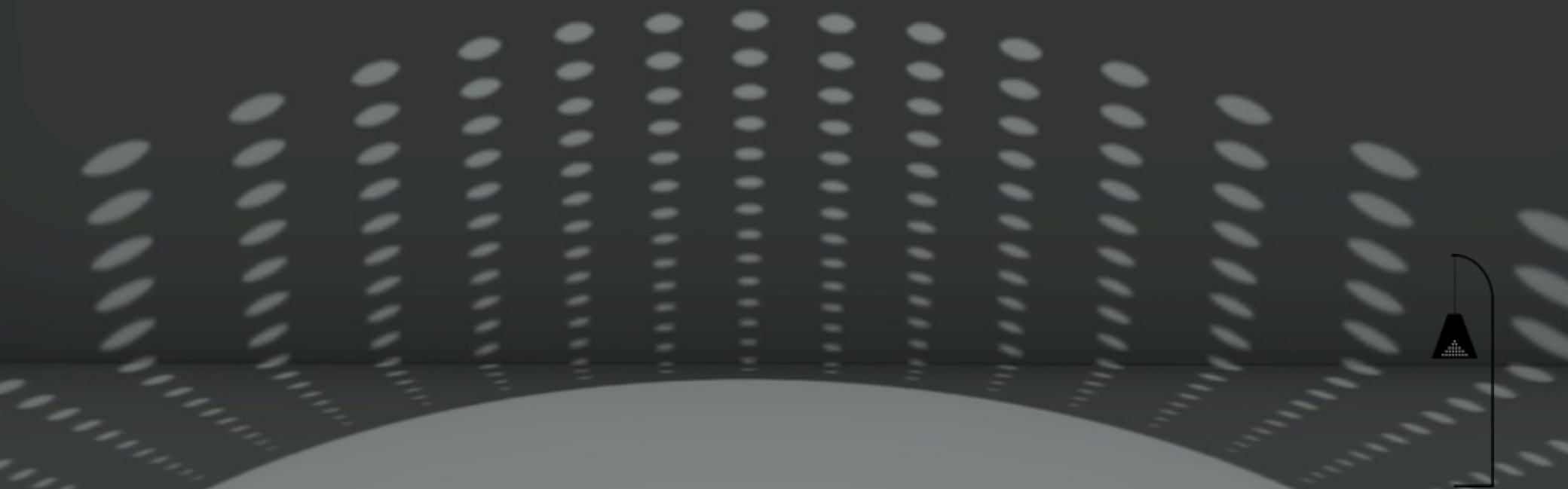
clamps that come with most light fixtures



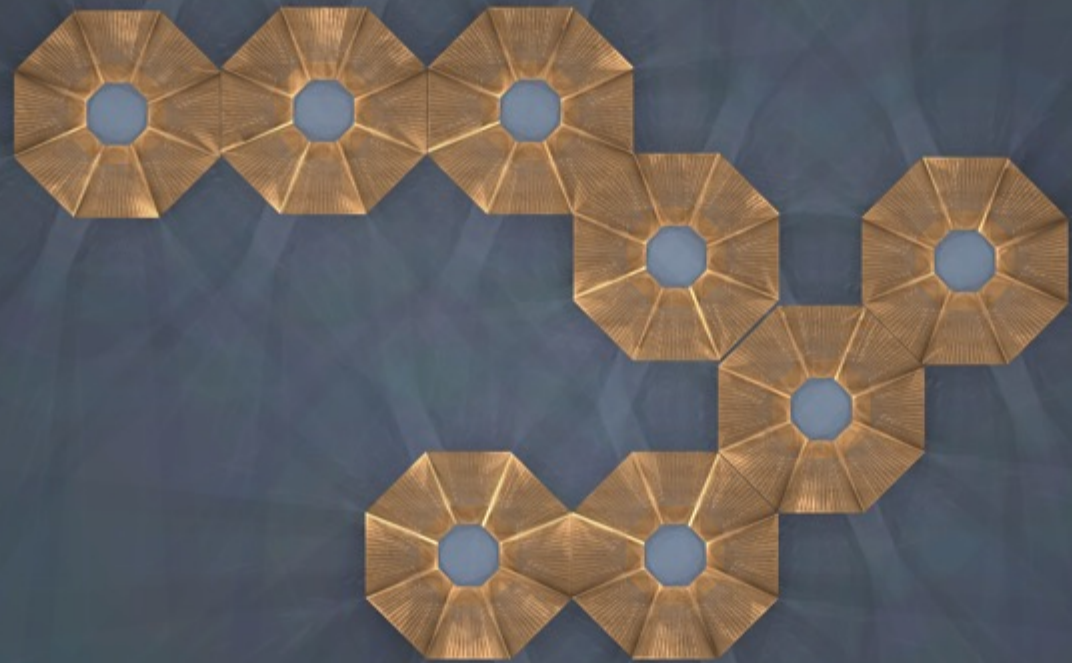


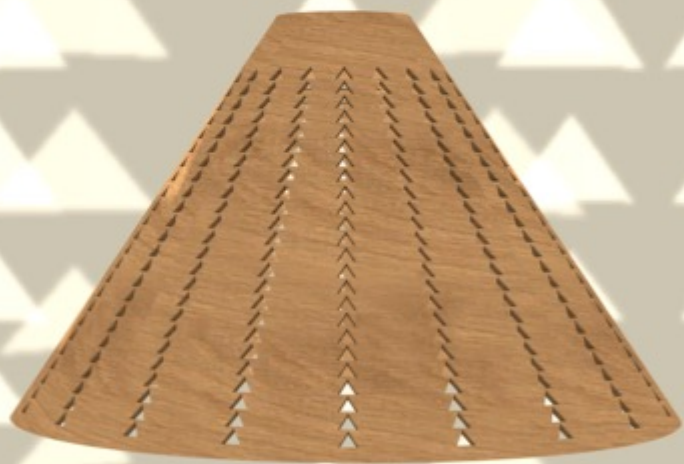




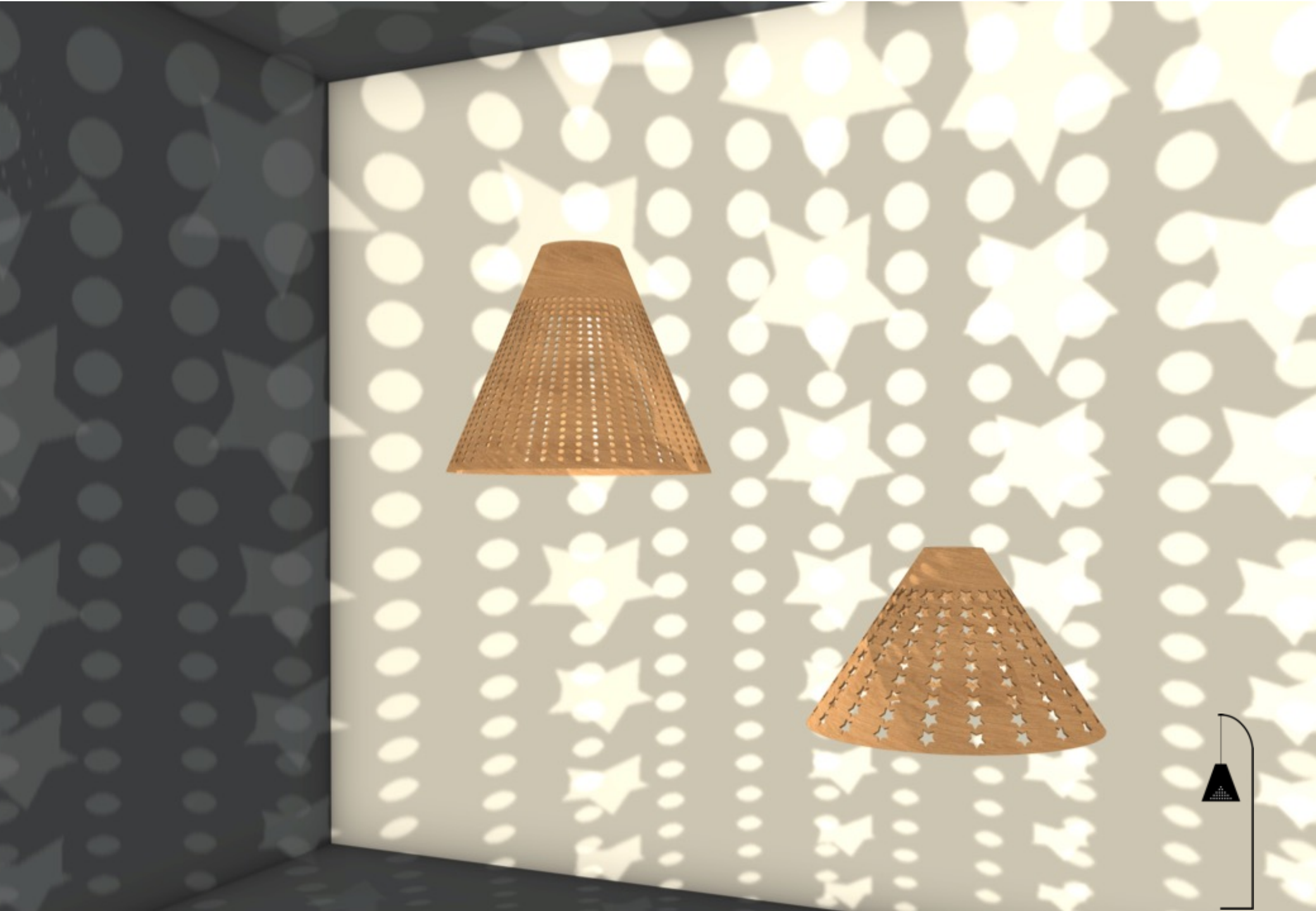




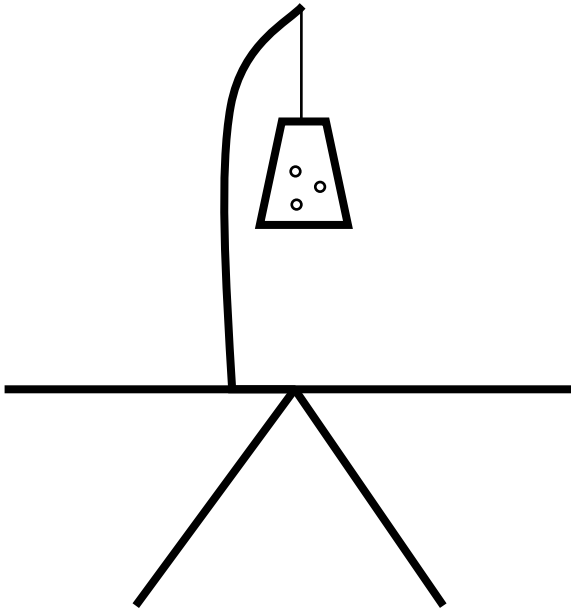






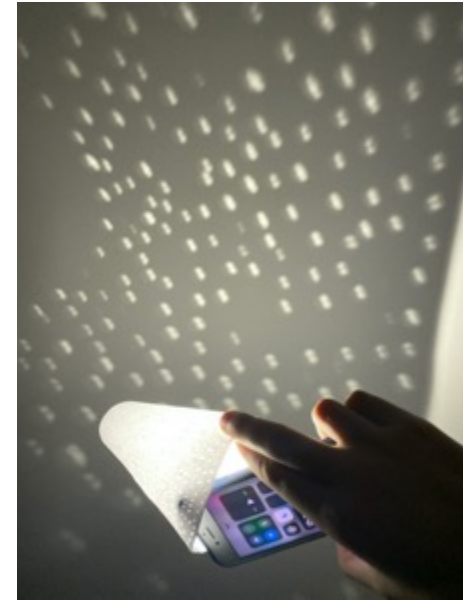
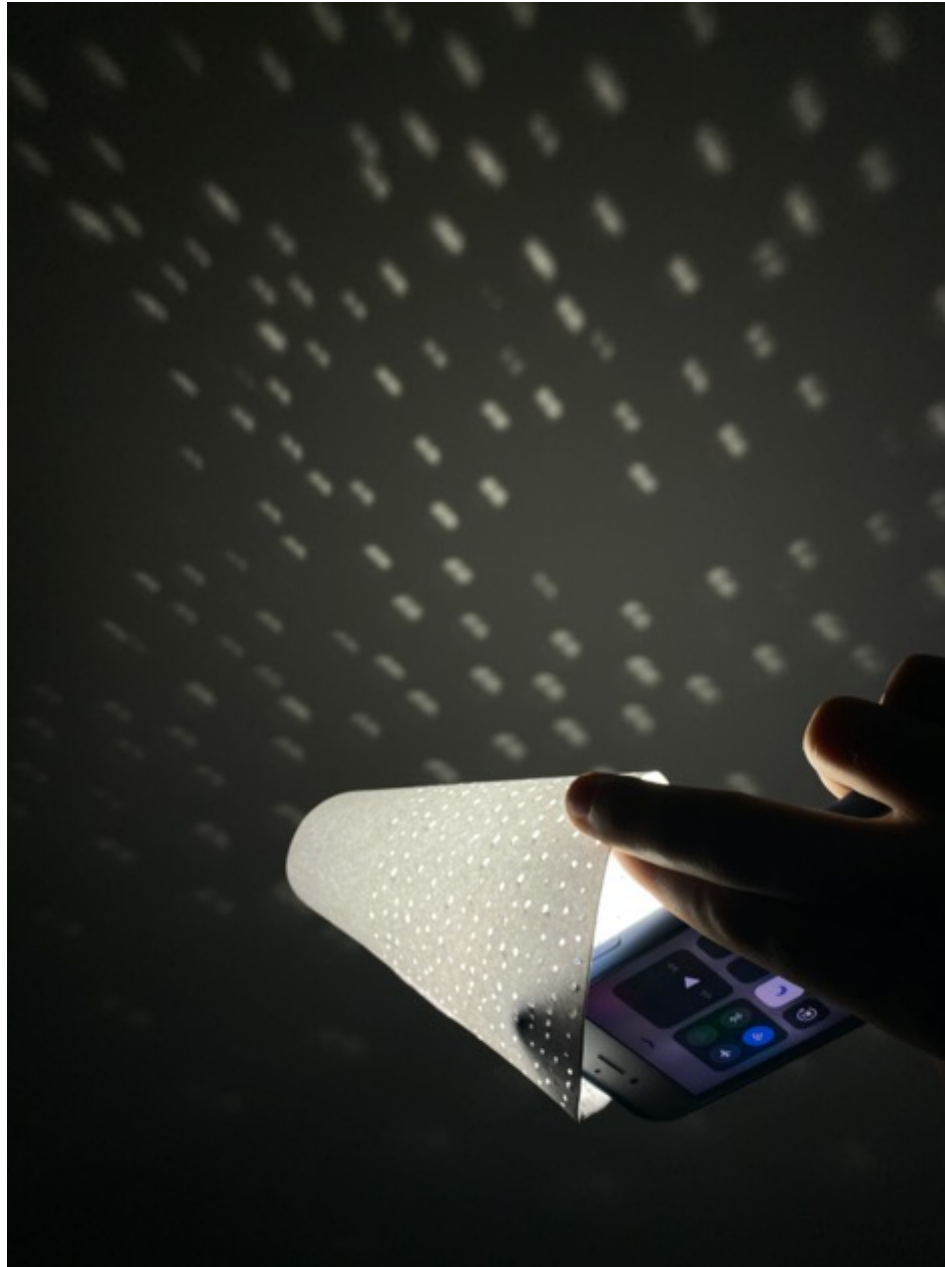


Material testing & Prototyping -Cone



To start the modelling process I started with paper cones. I began poking hole into the paper as a quick way to get the idea off the paper into 3D.

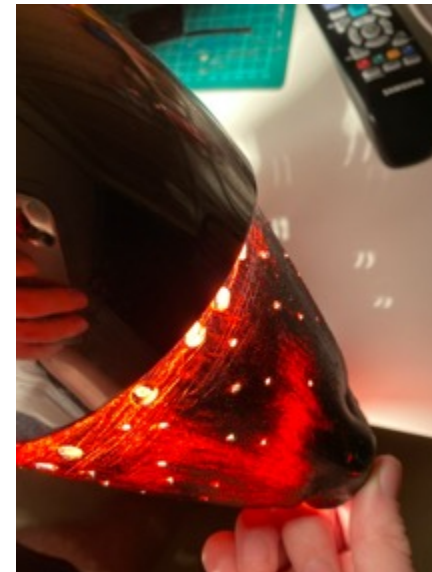
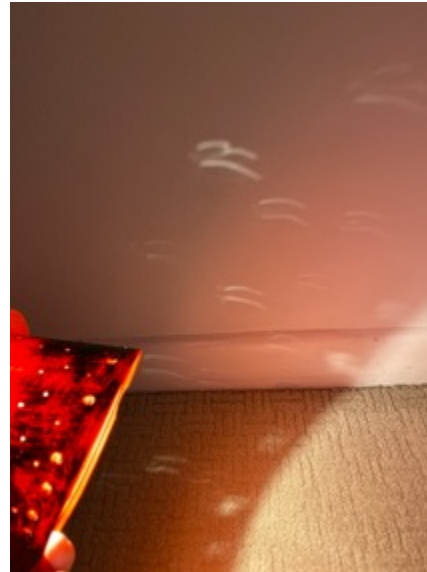
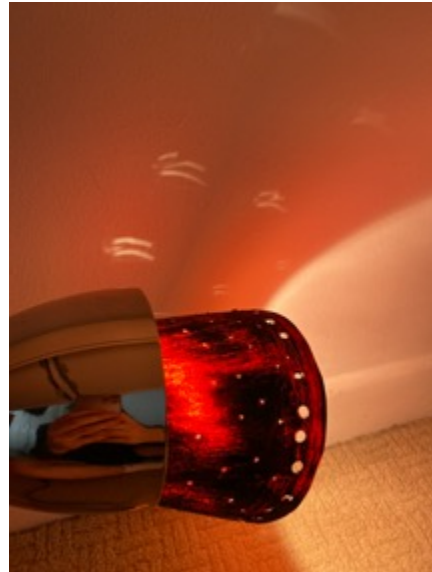
I found that this worked and looked quite effective but the only thing with this is that it took a long time to make and also I wanted the holes on the cone to have more of a structured pattern .

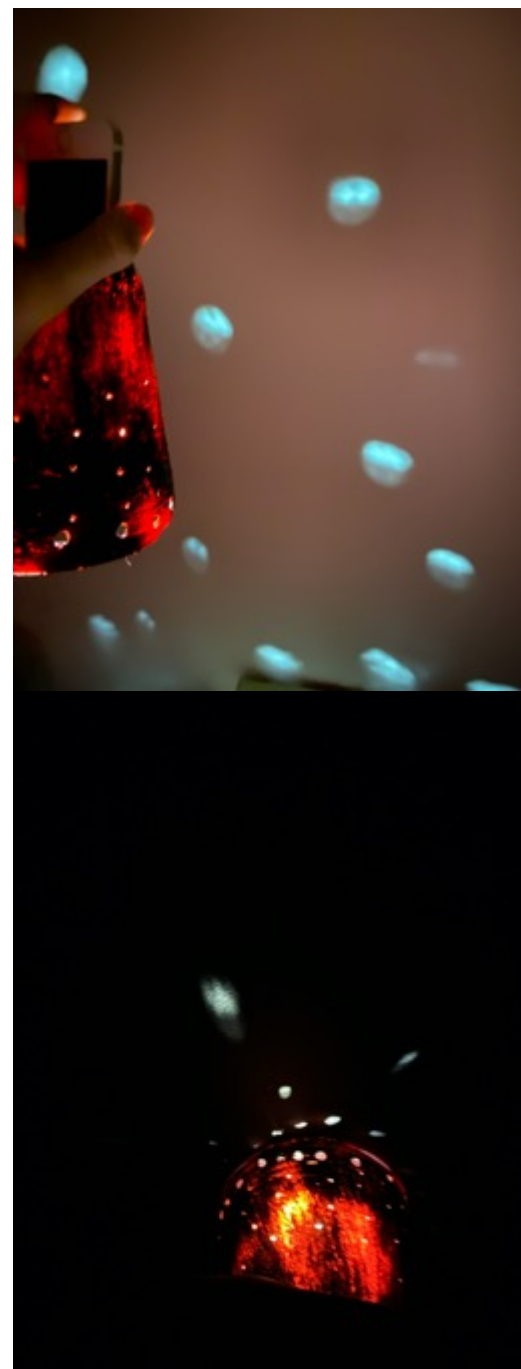


I then moved on to a plastic cone where it was a similar thickness to the veneers that I plan on using. I started by drilling holes into the cone.

This was to get an understanding off how the cone was going to direct the light once the holes where drilled into it.

Once the hole where drilled into the cone I still want the light to work as if the holes didn't exists.

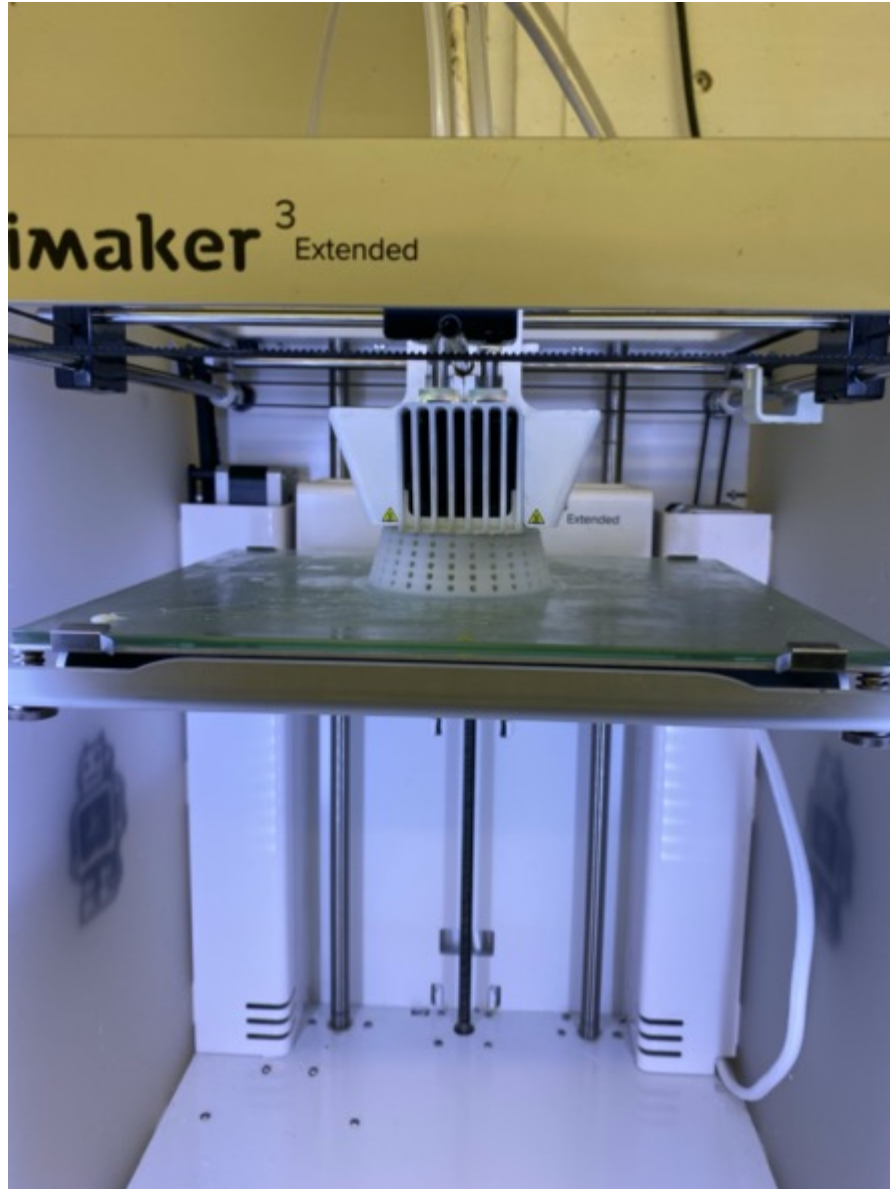




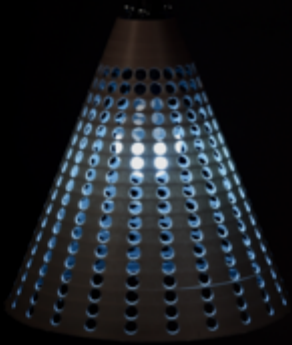


From using the plastic cone I then 3D printed a cone that I could hold and use to see what the end product could end up looking like.

From this I learn't that there needed to be more holes to get the desired effect that I was hoping for. I would also have to explore how I intend to attach the light



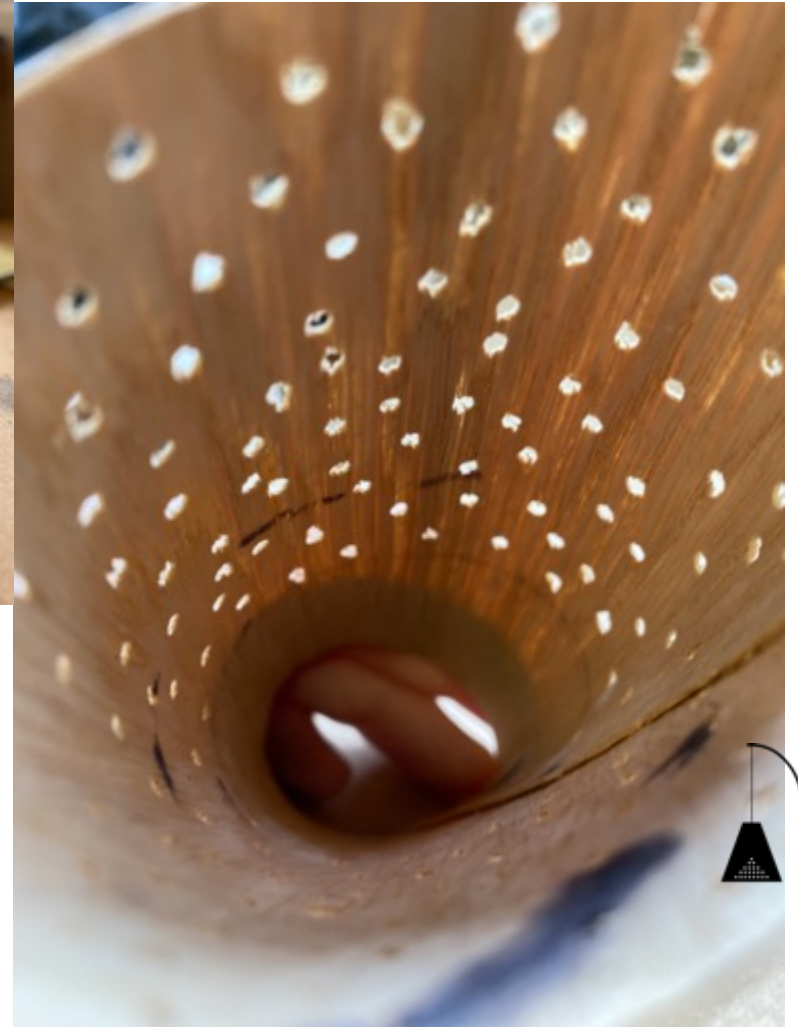




Once I knew that I would be able to form the cones with the wood veneer, I then started to make the design that I had drawn with the holes in the veneer.

I Started by using a drill but this wasn't really working as the drill kept splitting the wood which meant I was getting inconsistent shapes when forming the cones.

This was due to the wood veneer not being stored in the correct conditions. The condition of the veneer was down to the wrong temperature. The veneer should have been stored in a humid place to keep the moisture in the veneer.

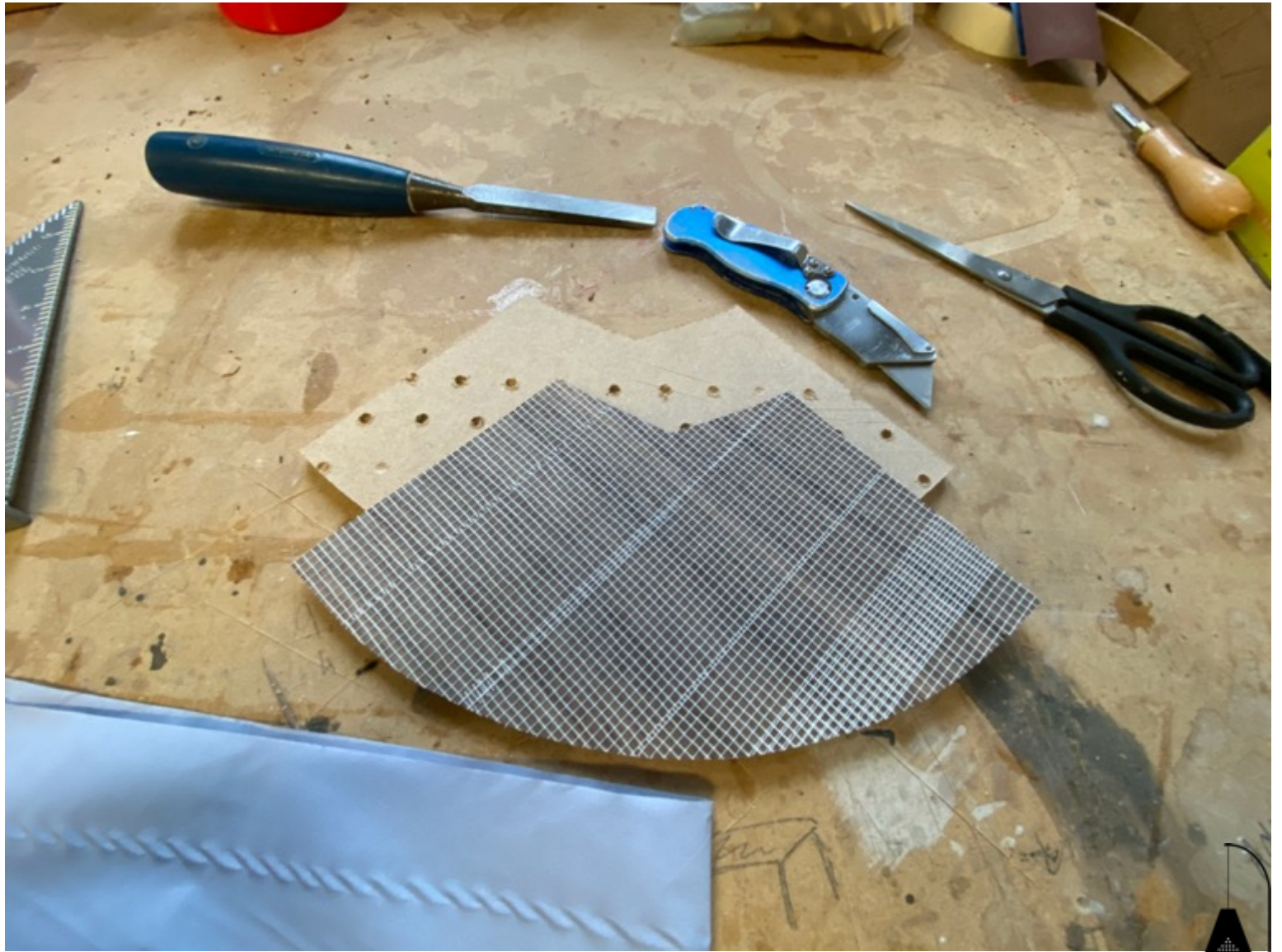


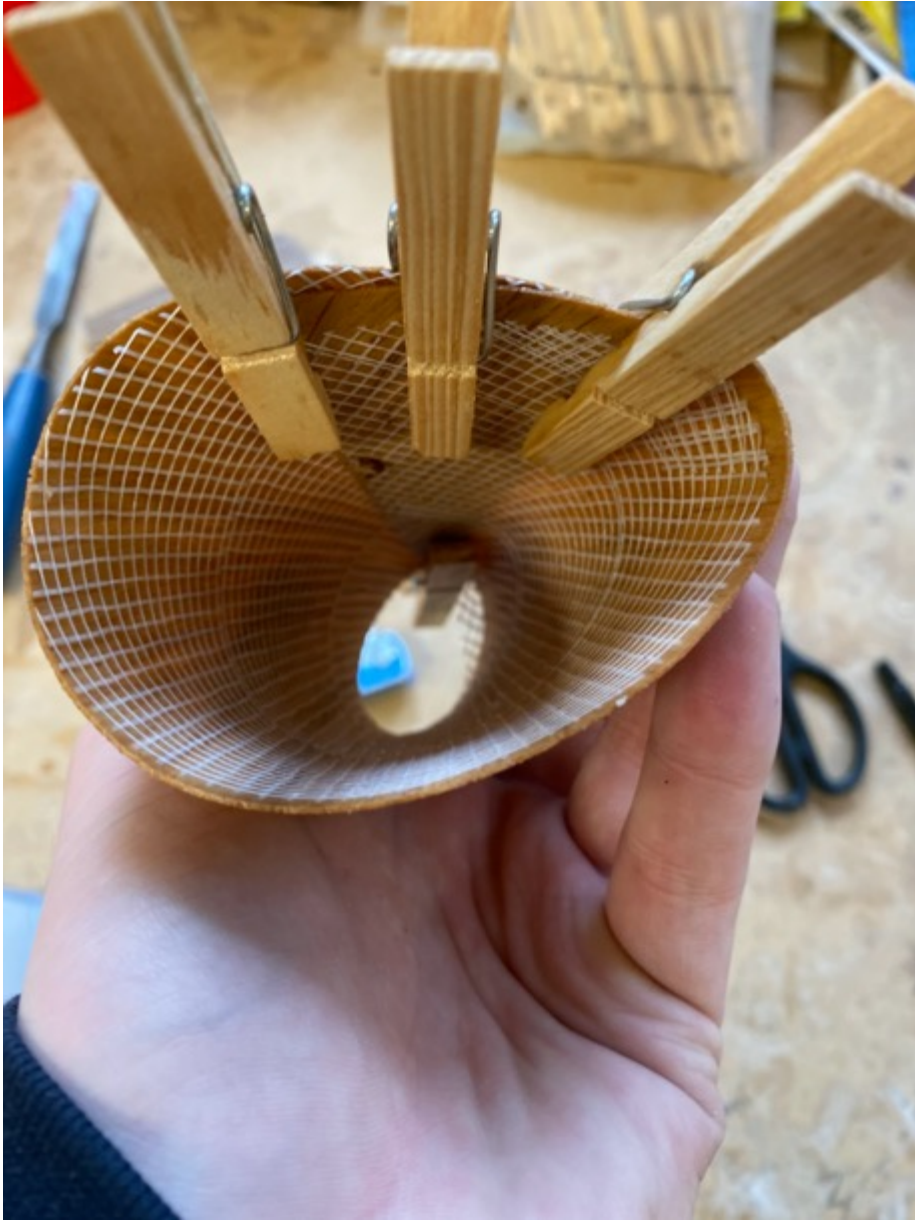


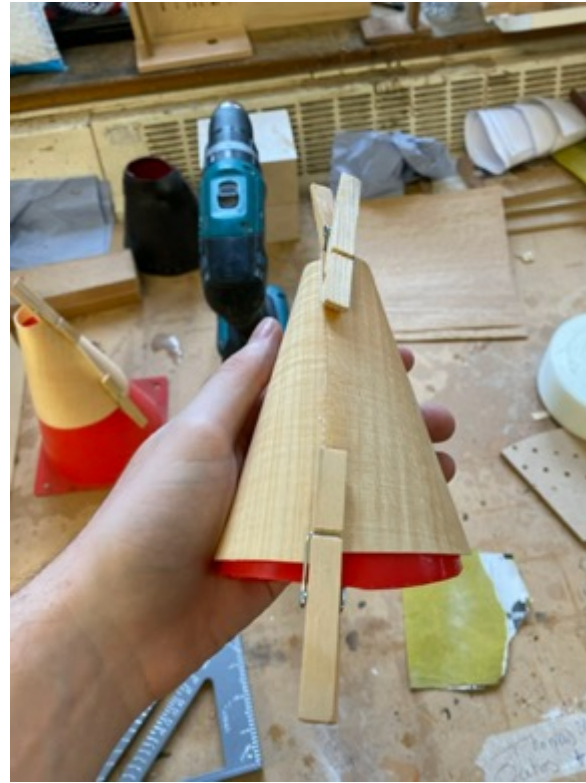


When designing the last set of cones that kept breaking and not forming properly, I then discussed with my tutor who suggested to look at a product called scrim tape.

Scrim tape is normally used to cover joins when plastering, but I found that when you applied this tape to the back of the veneer it supported it enough to allow me to form the cones and stop them from cracking apart.

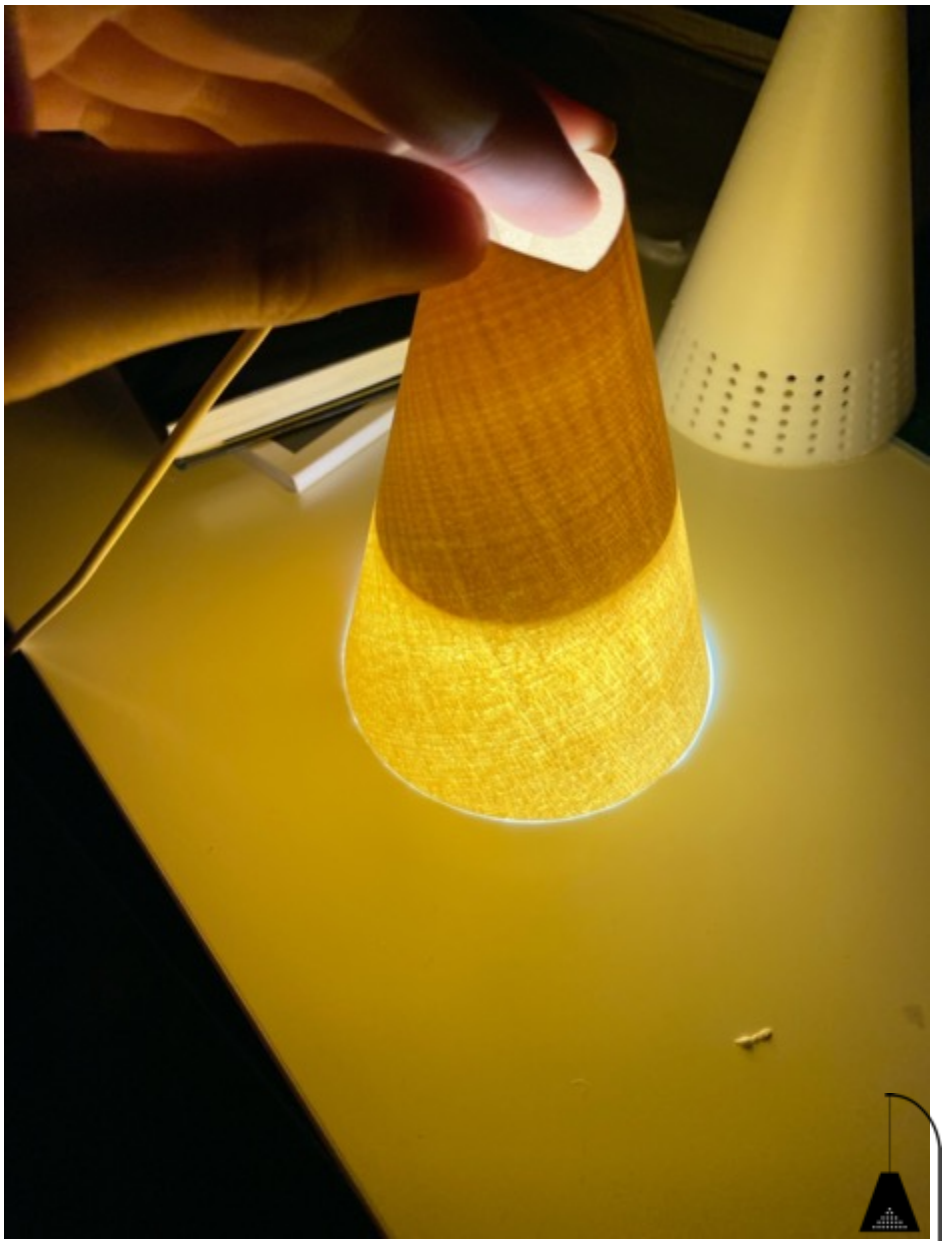
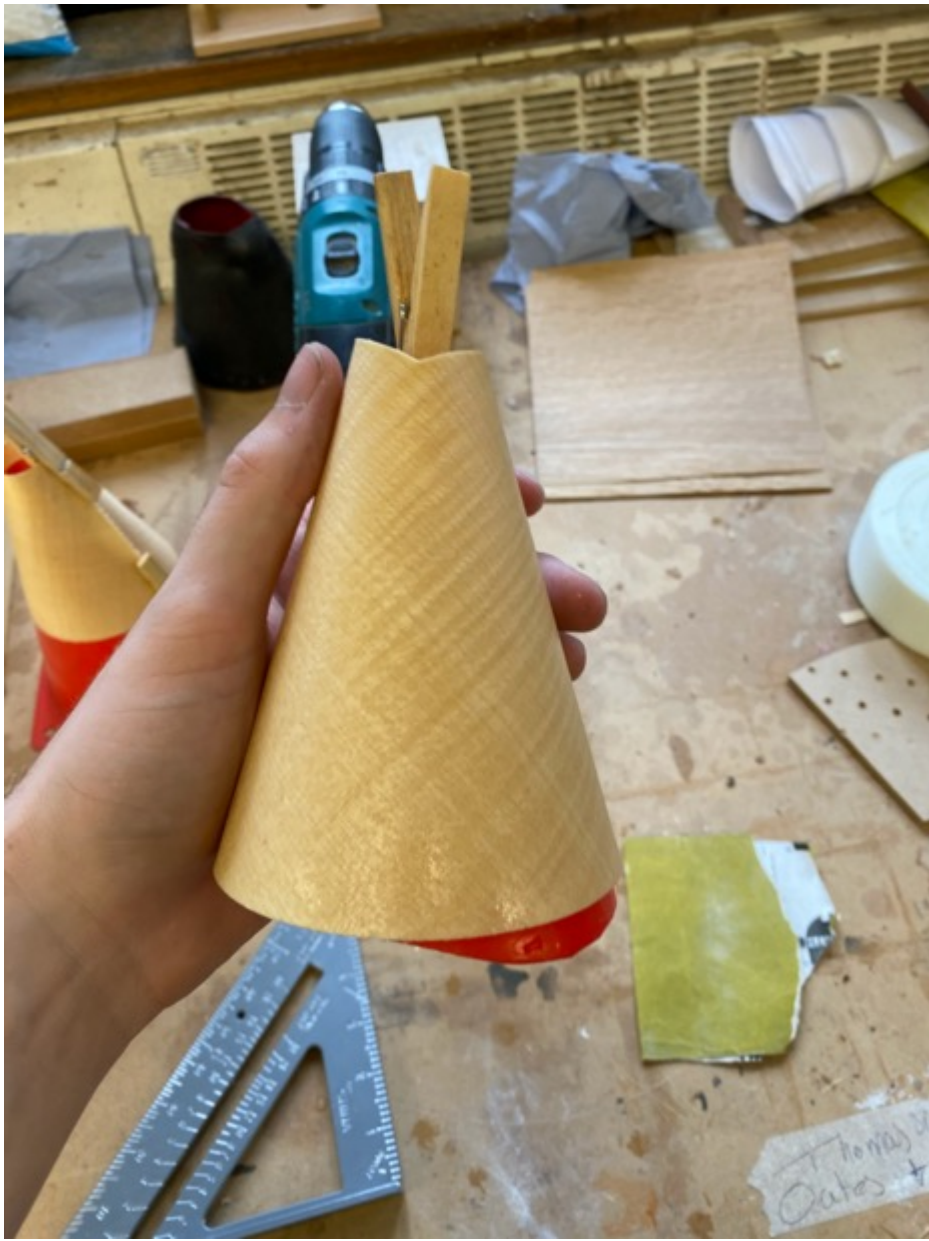






With the help off the scrim tape to support the veneer, I was able to start to form the cone. Using the additional help off some old football cones that I was able to cut down to use as formers, I was able to start turning the veneer in to cone like shapes. The additional help off pegs allowed to me to clamp the cones in to position quickly as I found out that multiple attempts weakens the veneer, so by using the pegs I could quickly form the cone with both hands into the position before attaching the pegs.

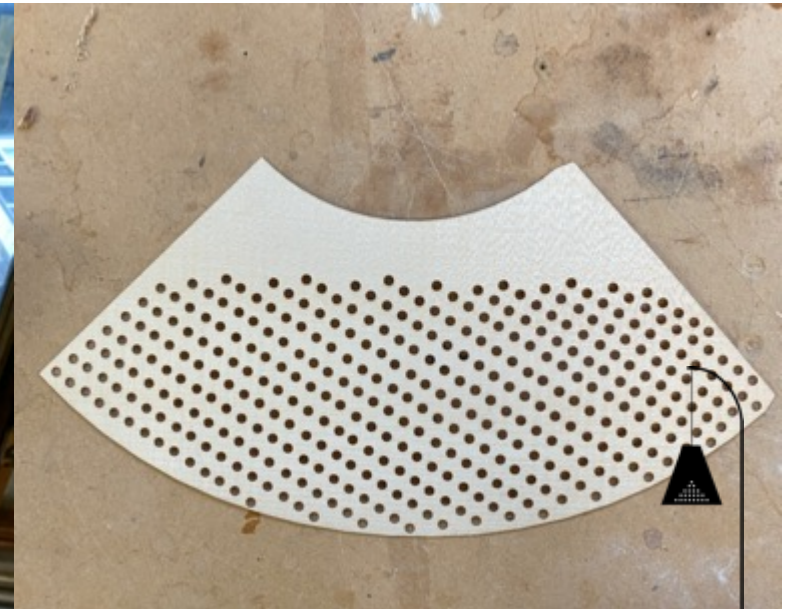
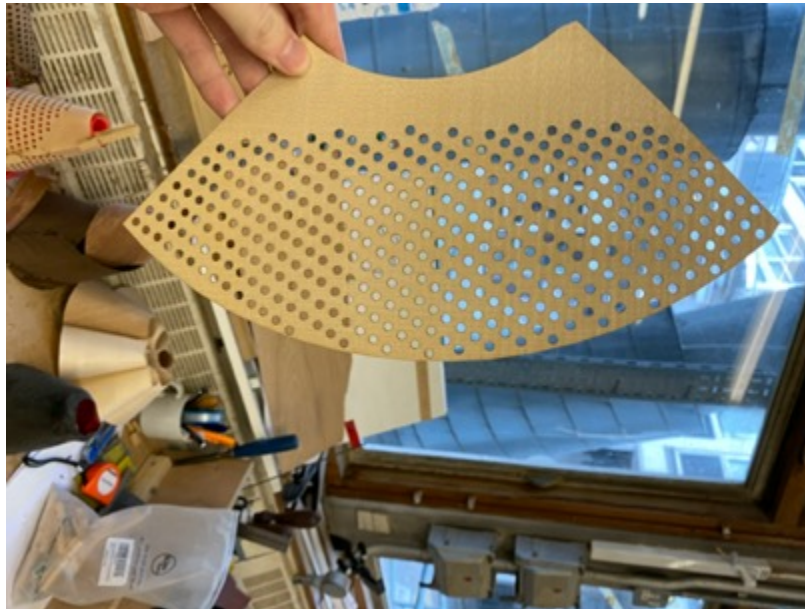
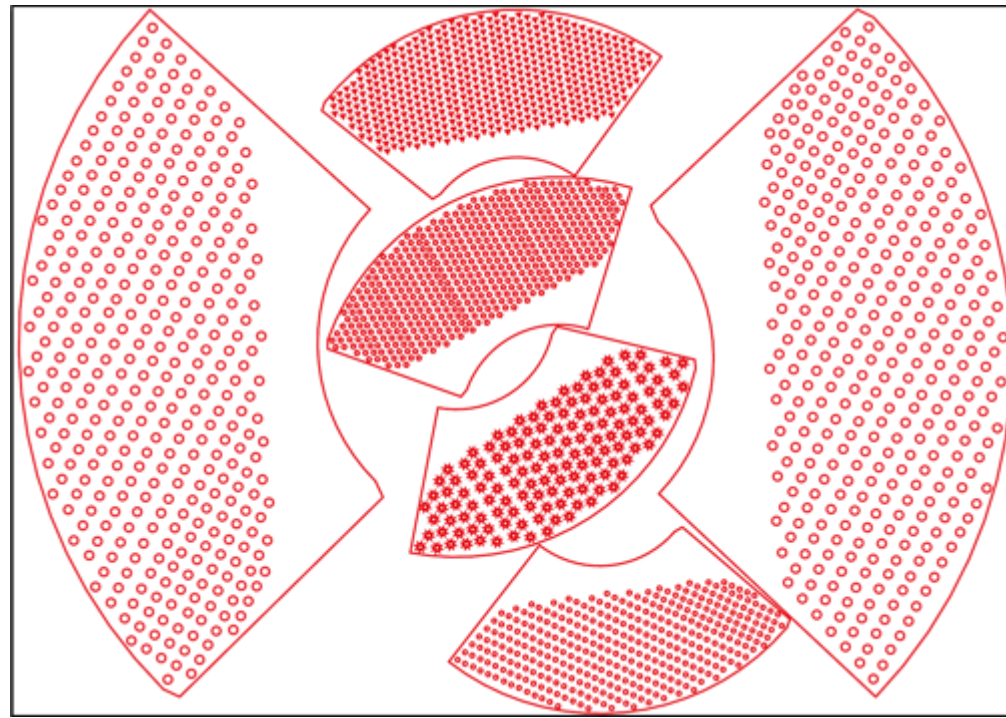




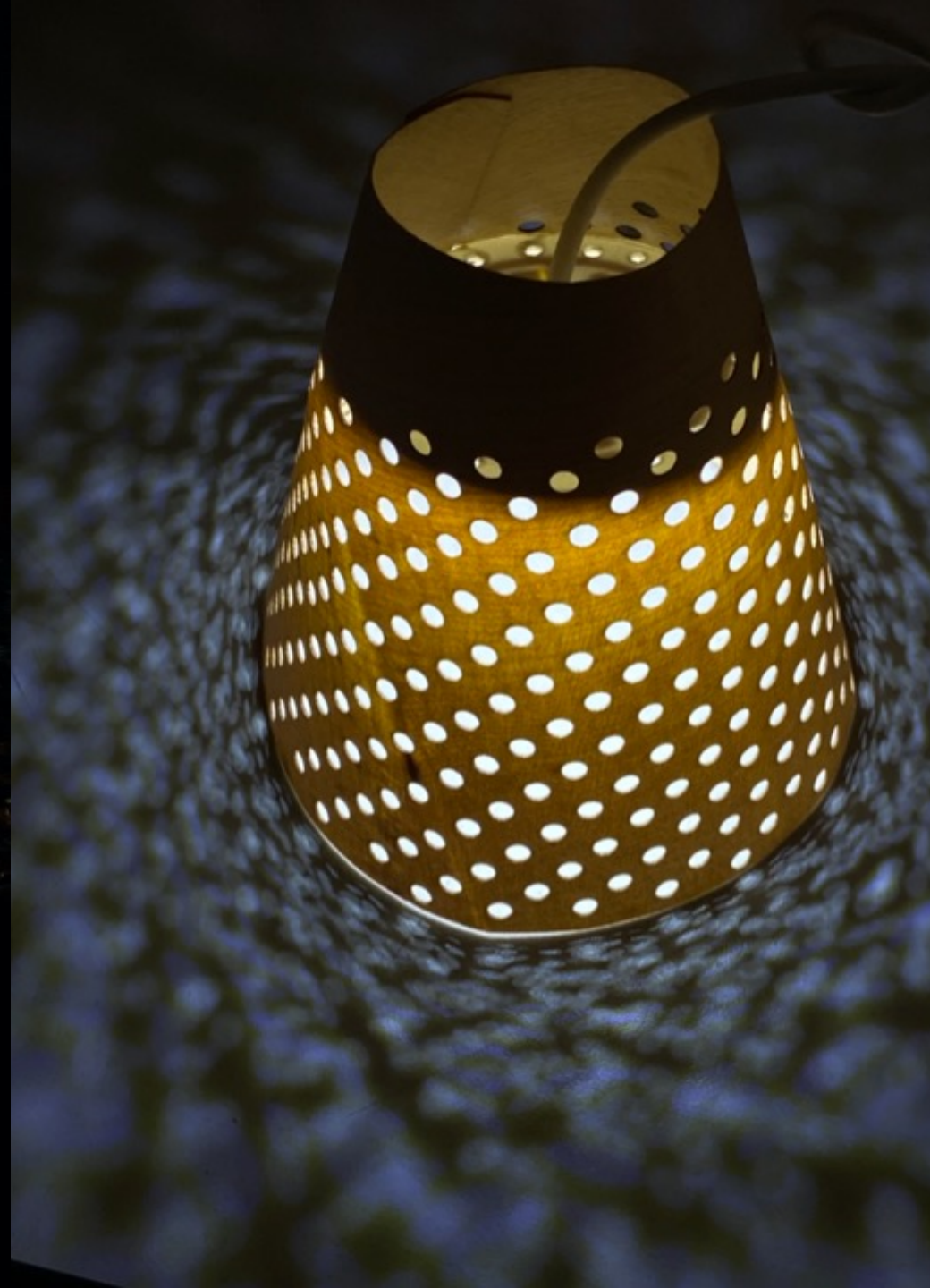
Now that I new I could form the cones and I had a method that was working I then needed a way to repeat the process and get every cone looking identical.

Firstly I went on to InDesign and made a file where I could then send over to get laser cut.

I chose to use the laser cutter because It was quick and could give me consistent and precise result over and over again.







Because of the veneer that I had available to make the cones with, they weren't always making the correct shapes and to get hold of the correct veneer that had been stored properly would have been very expensive, therefore I found a cheaper type of veneer.

The veneer is called decoflex and it's a flexible type of veneer that is still wood its just had a paper backing put on it so that it allows the veneer to be formed more easily.

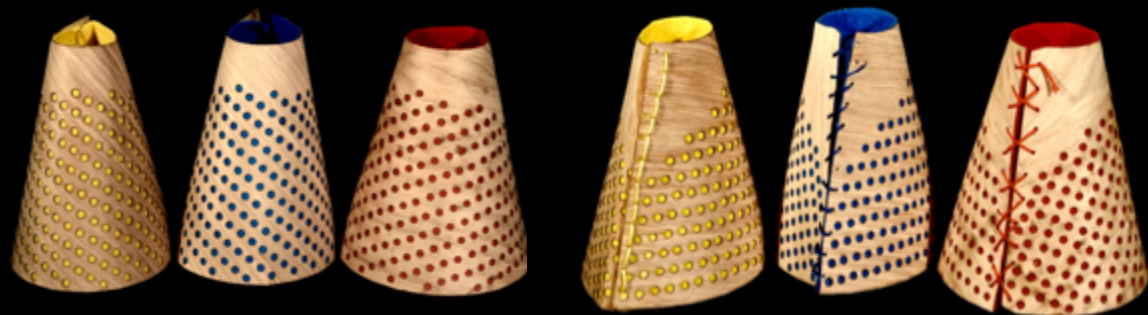
Using the material still allows me to use the laser cutter to be able to get the same result that I wanted to achieve.

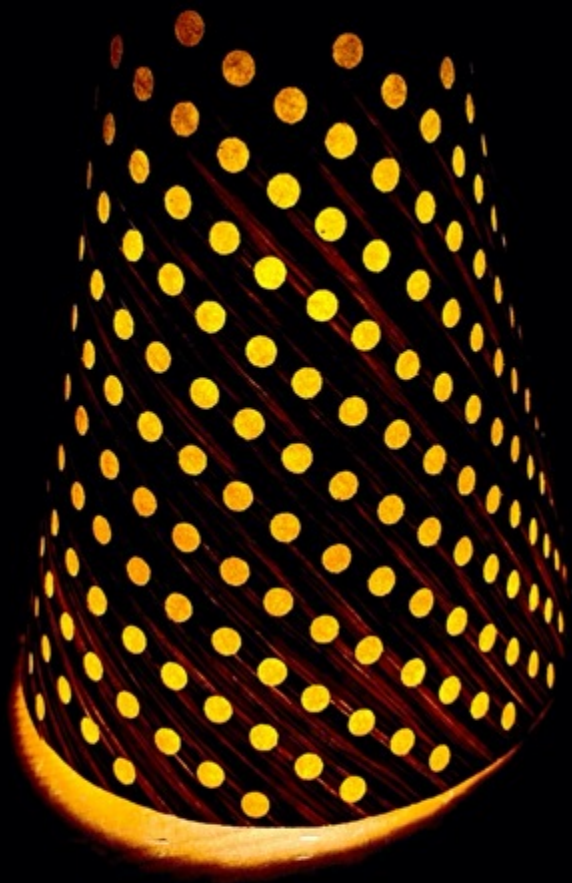


With understanding off how the decoflex is going to work and that its going to be a suitable material to use for the making of my cones.

I wanted to experiment with some different shapes and patterns and also so different backing.







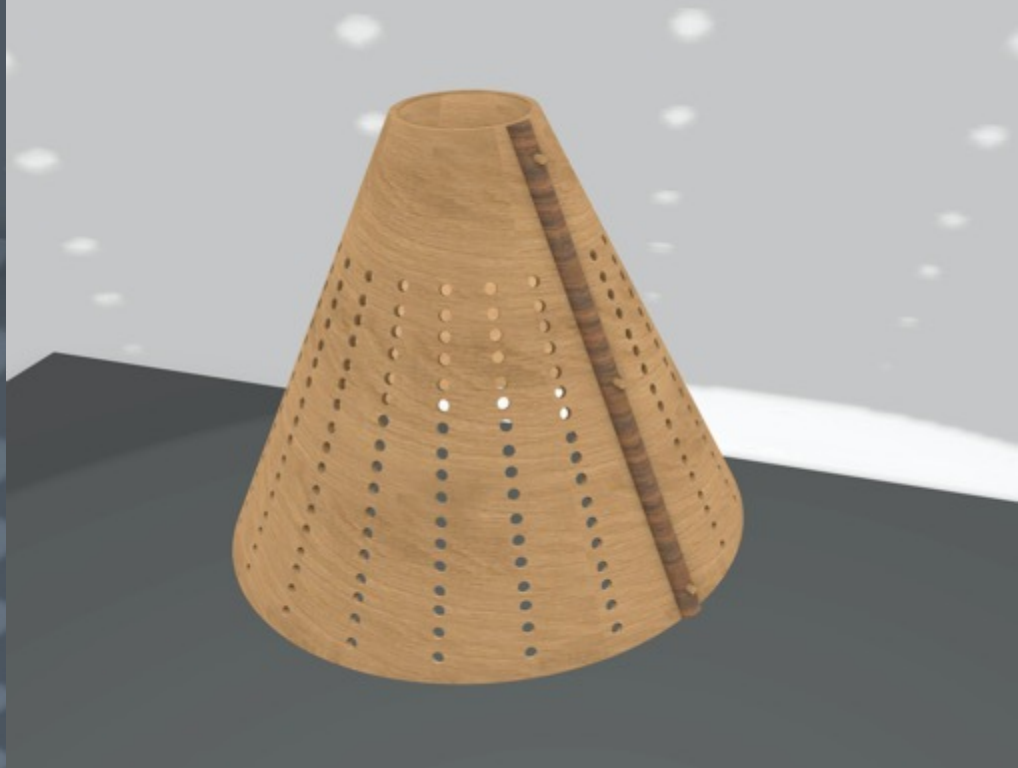
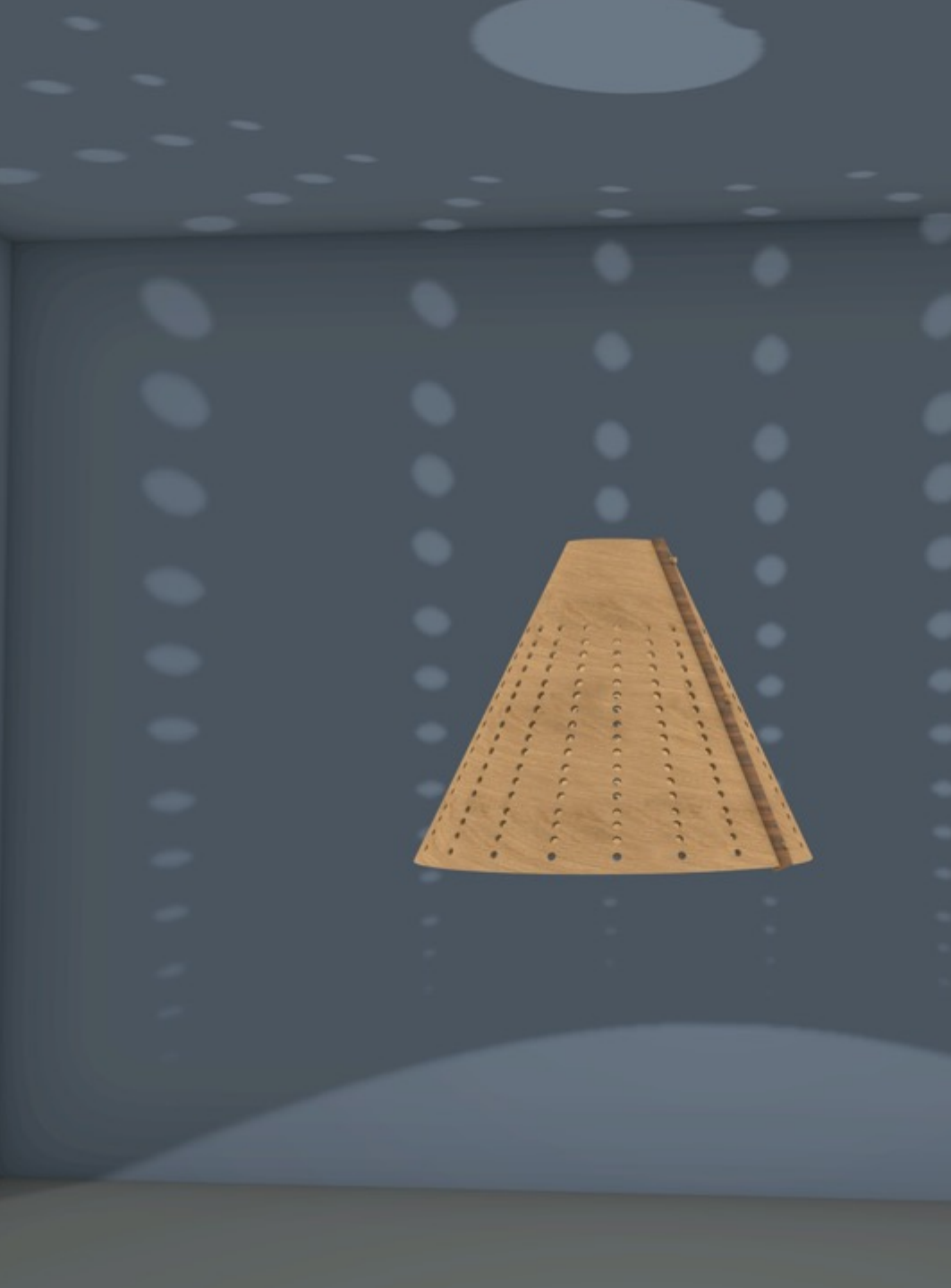


Now that I knew that the decoflex was going to work and was going to give me the desired look that I wanted to create there was one thing that didn't look they way I intended and that was the join.

In order to form the cone I had to glue the two ends together which left a seam.

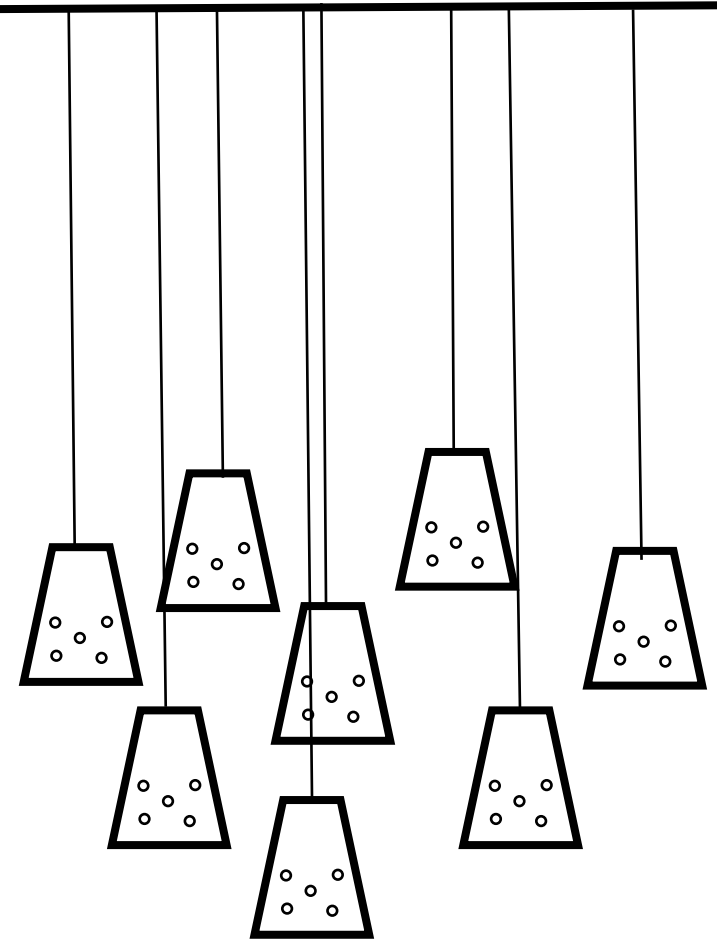
So, to cover this I placed a piece of dowel over the seam. This complemented the cones and covered the seam.







Prototyping -Chandelier



<http://seattlerefined.com/lifestyle/a-visit-to-chihuly-garden-and-glass>

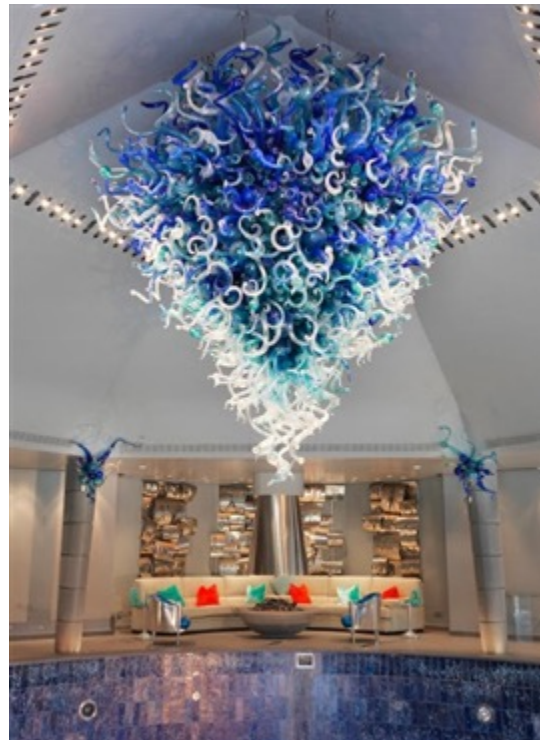


Chihuly is one off the designers that I have researched into while developing my chandelier.

When making his chandelier he uses individual sections of glass and then joins together to make a large scale piece of work.

Using coloured glass to create illusion with the different shapes that he creates. His work gives a playful and out of this world feel.

<https://www.chihuly.com/work/installations>



http://www.artnet.com/artists/dale-chihuly/massive-chandelier-XzibYri_DF9HcT-a1JKkEg2



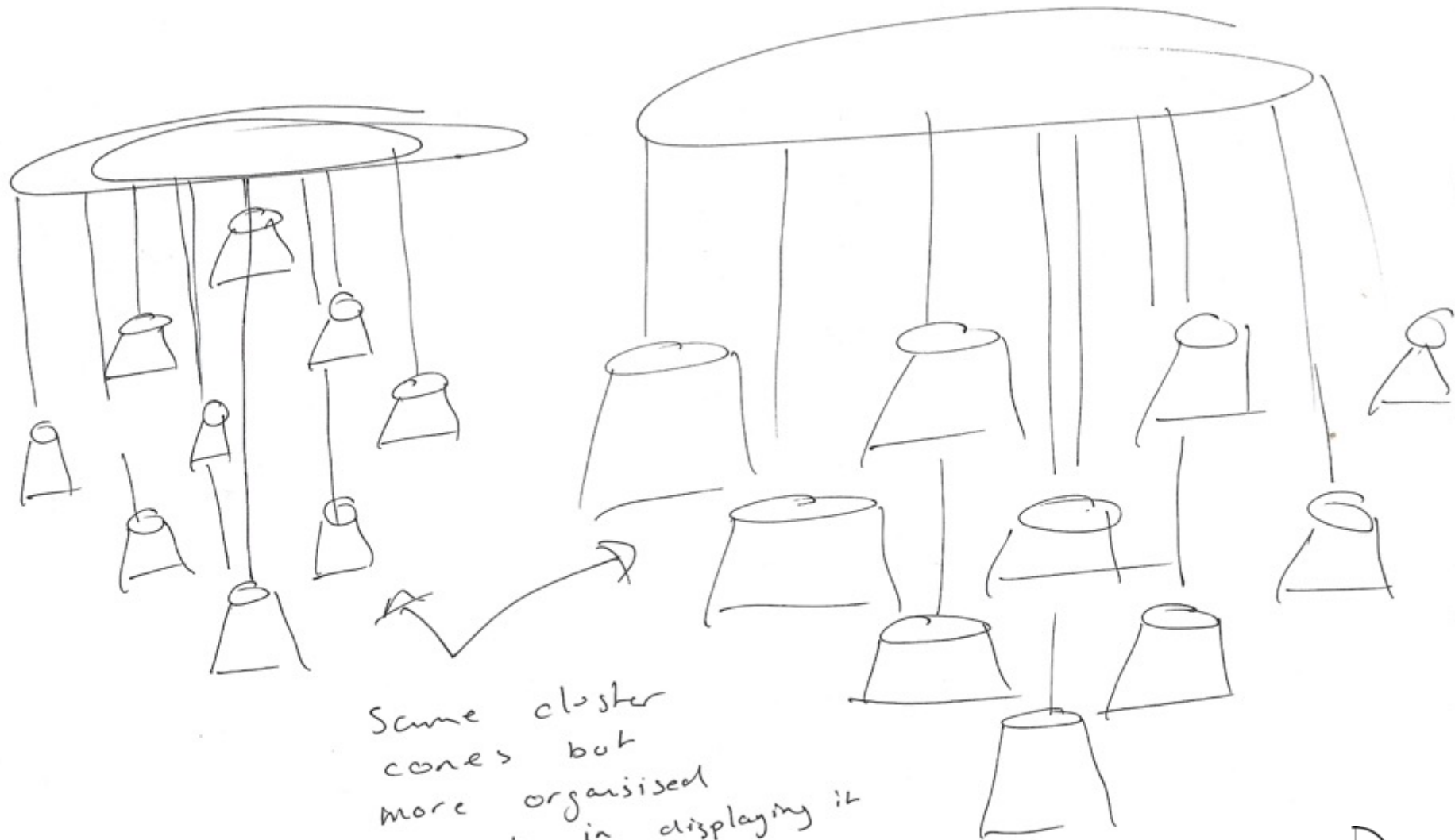


Another designer that I have already look at is Tom Raffield. Other than just making small scale table lights and larger floor lights, he also makes large scale chandeliers.

Using similar methods to that Chihuly uses and how they both use smaller pieces to create a large scale piece when all join together. I like that you cant see any fastening and that your attention is solely on the work and the shapes he has created using the process of steam bending.

So looking at his work and Chilhuly's by using smaller scale sections to create a larger scale interested me and how I could use my small cones to create a larger scale piece.



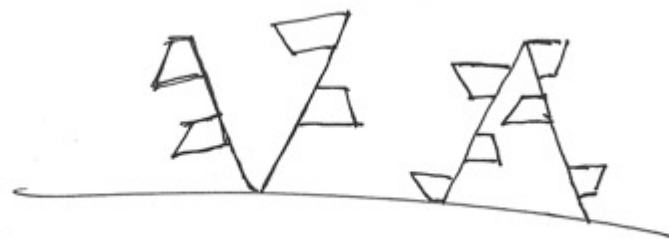


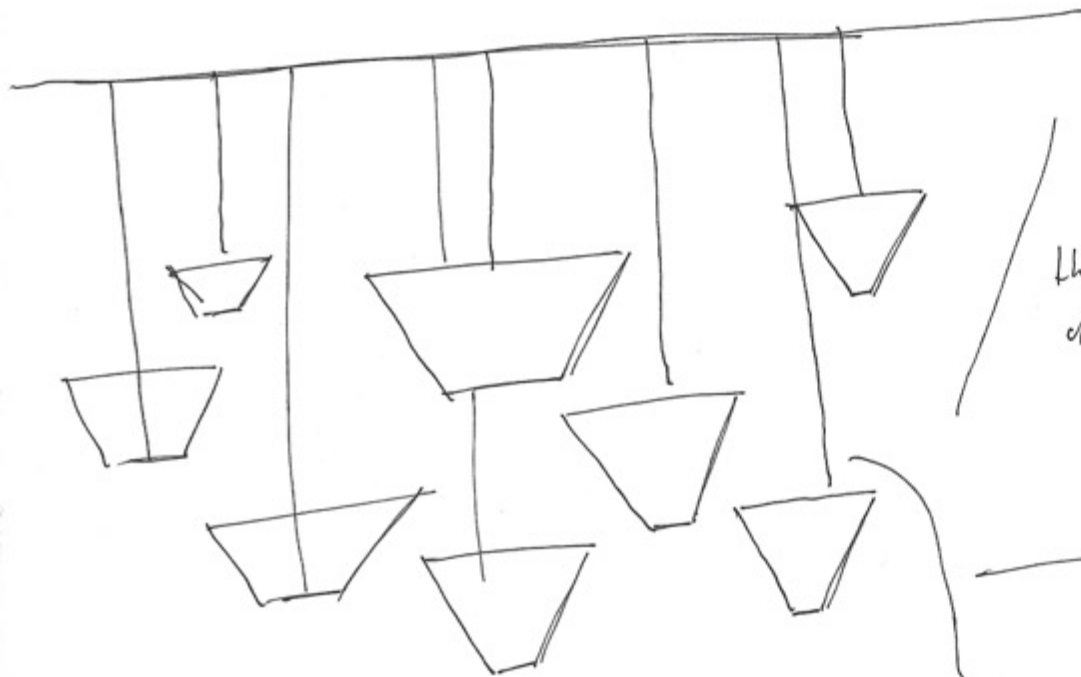
Same cluster
cones but
more organised
approach in displaying it



does a chandelier
have to be on
the ceiling

why can't it
be on the
floor





the use of
different size
of cones
allows and restricts
light.

also using different
materials to contrast
the wooden cones

the cones can also
be used as
up lighting

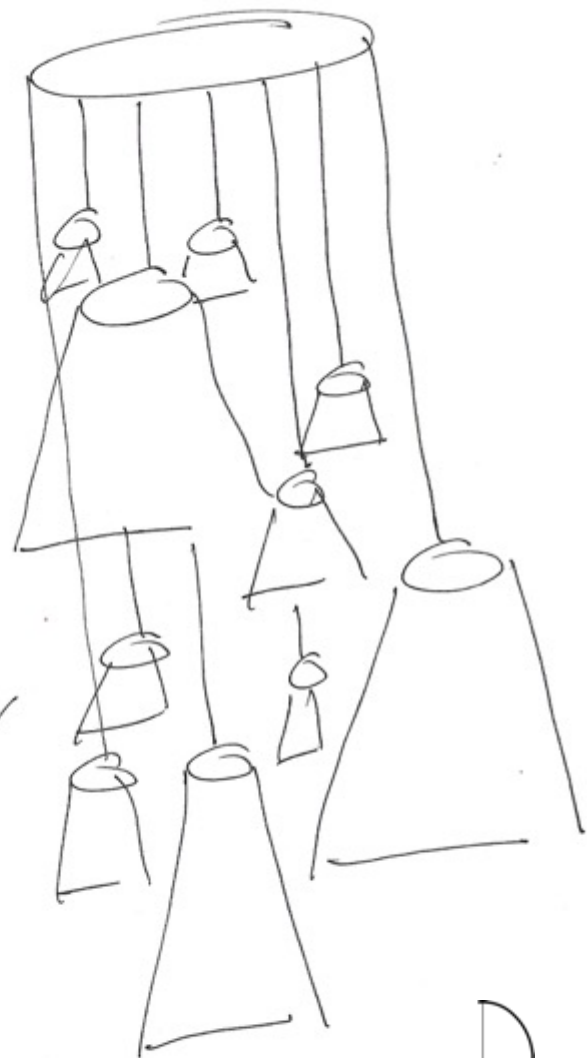
the use of
tubes can hide
the cables use
for the lights





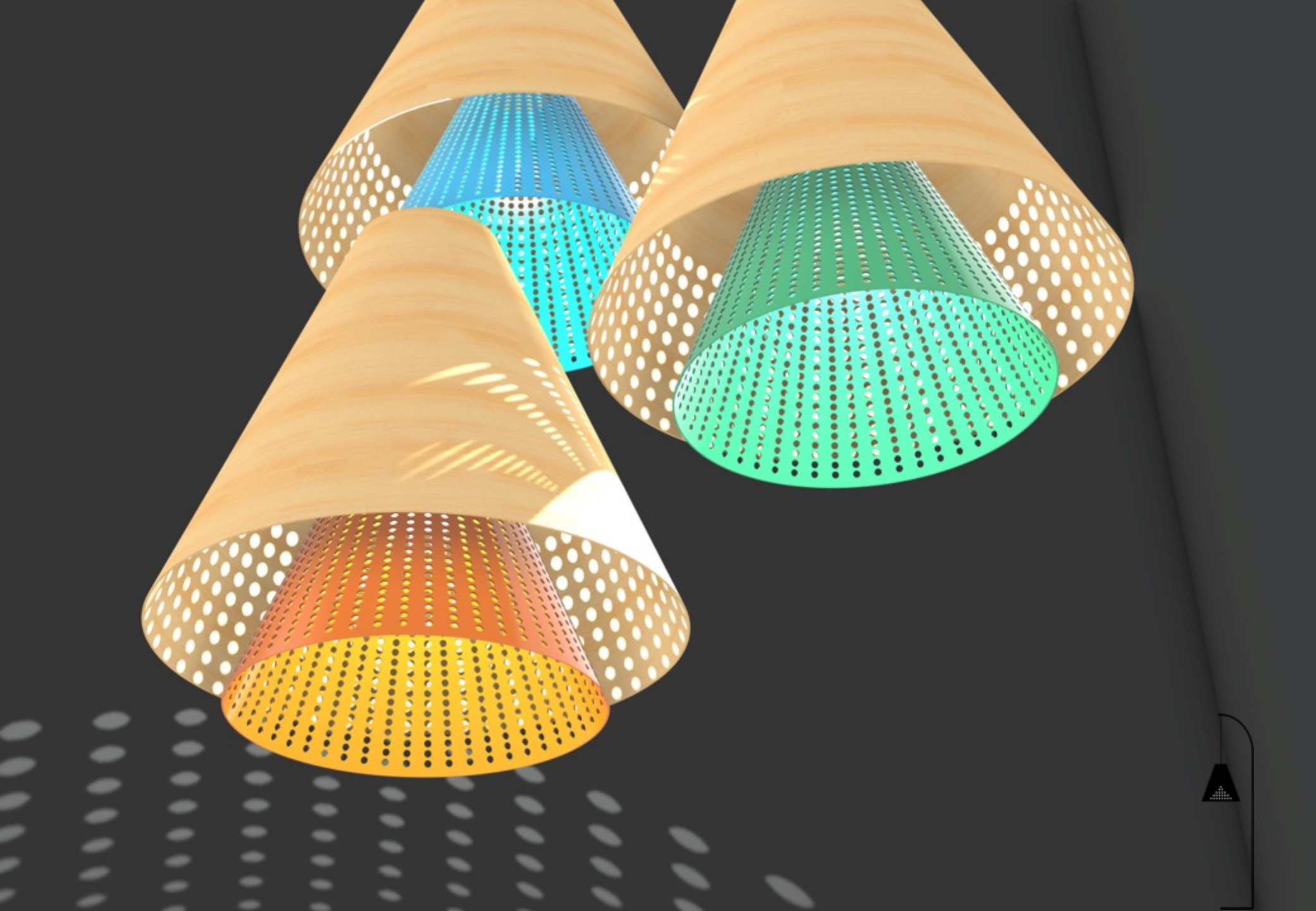
- different
mixture of
cones

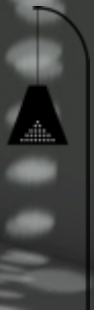
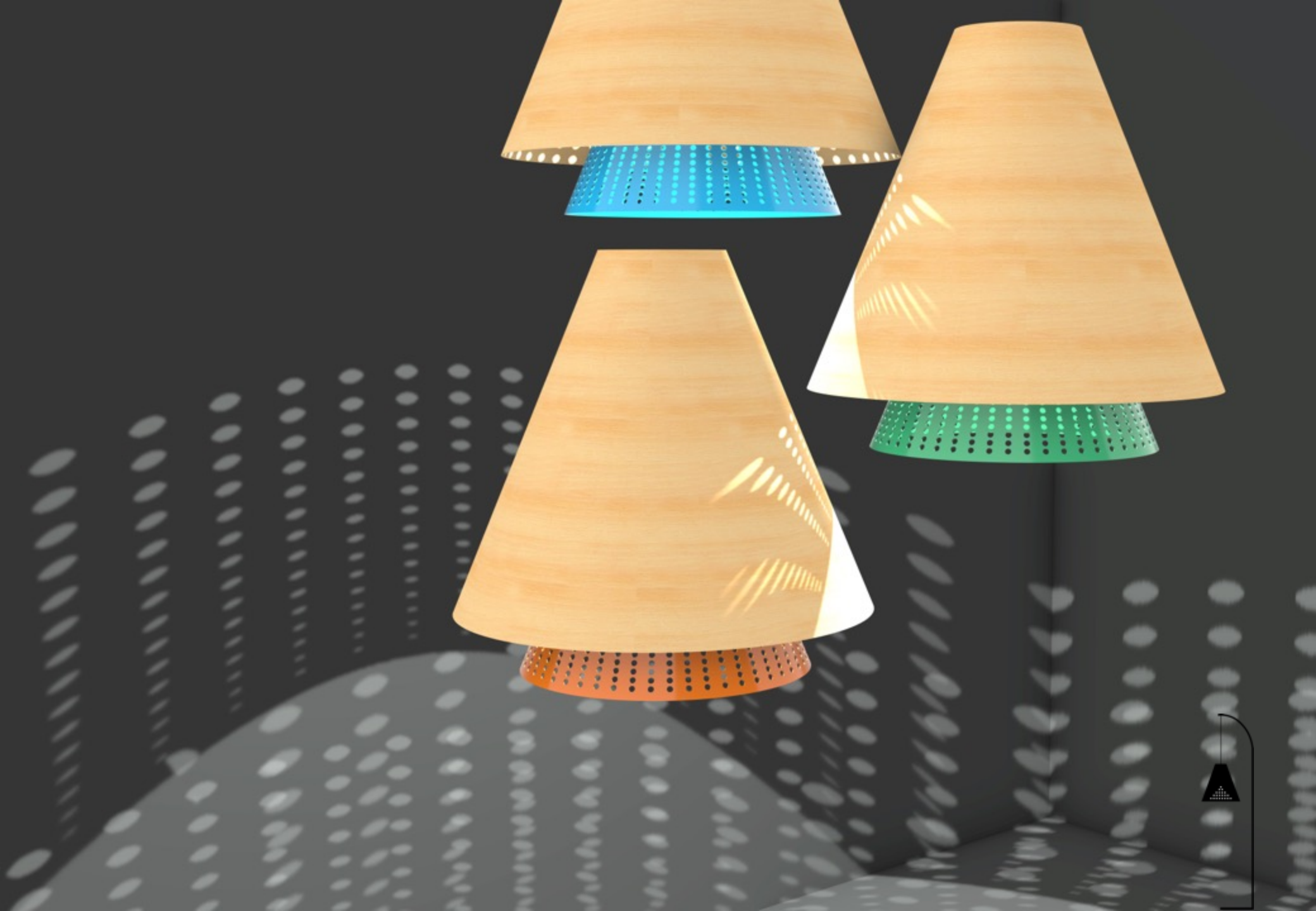
Creating
a cluster
light chandelier

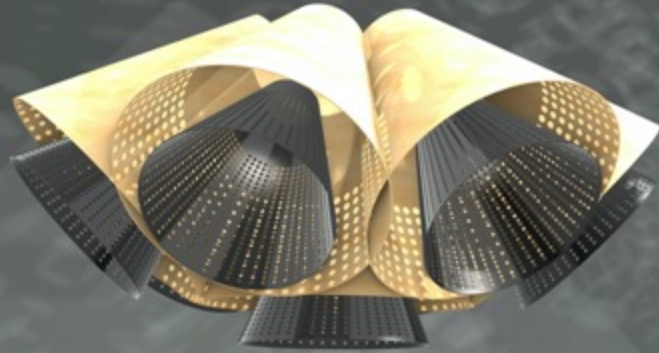
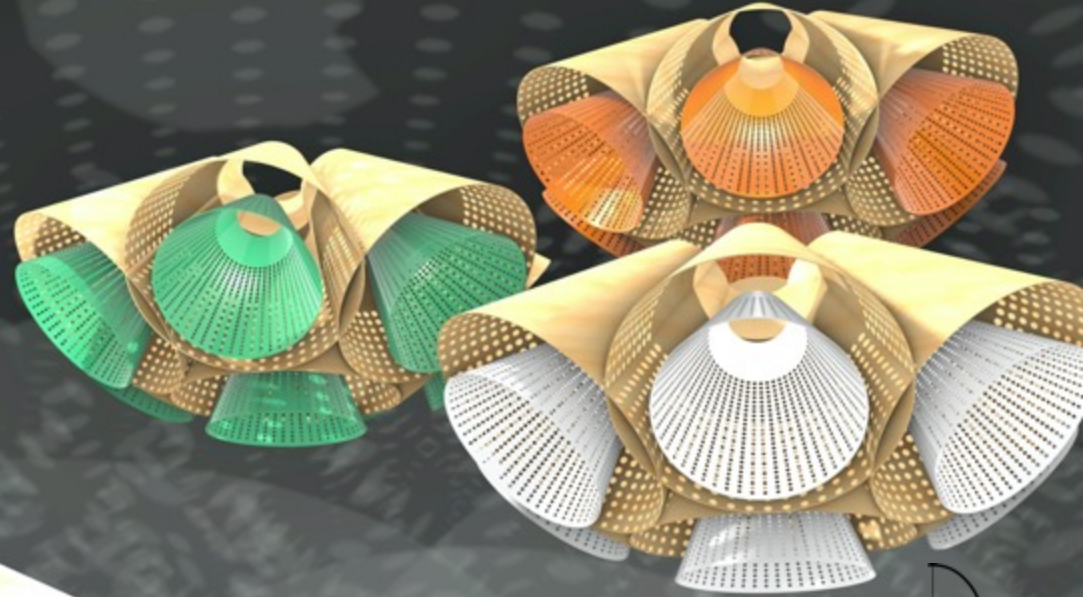
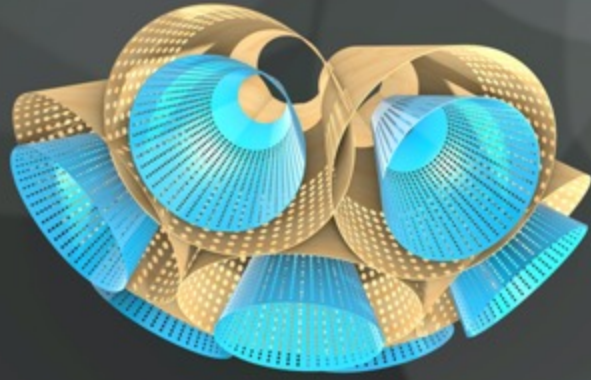


Same
cluster concept
but mixture
of large and
small cones

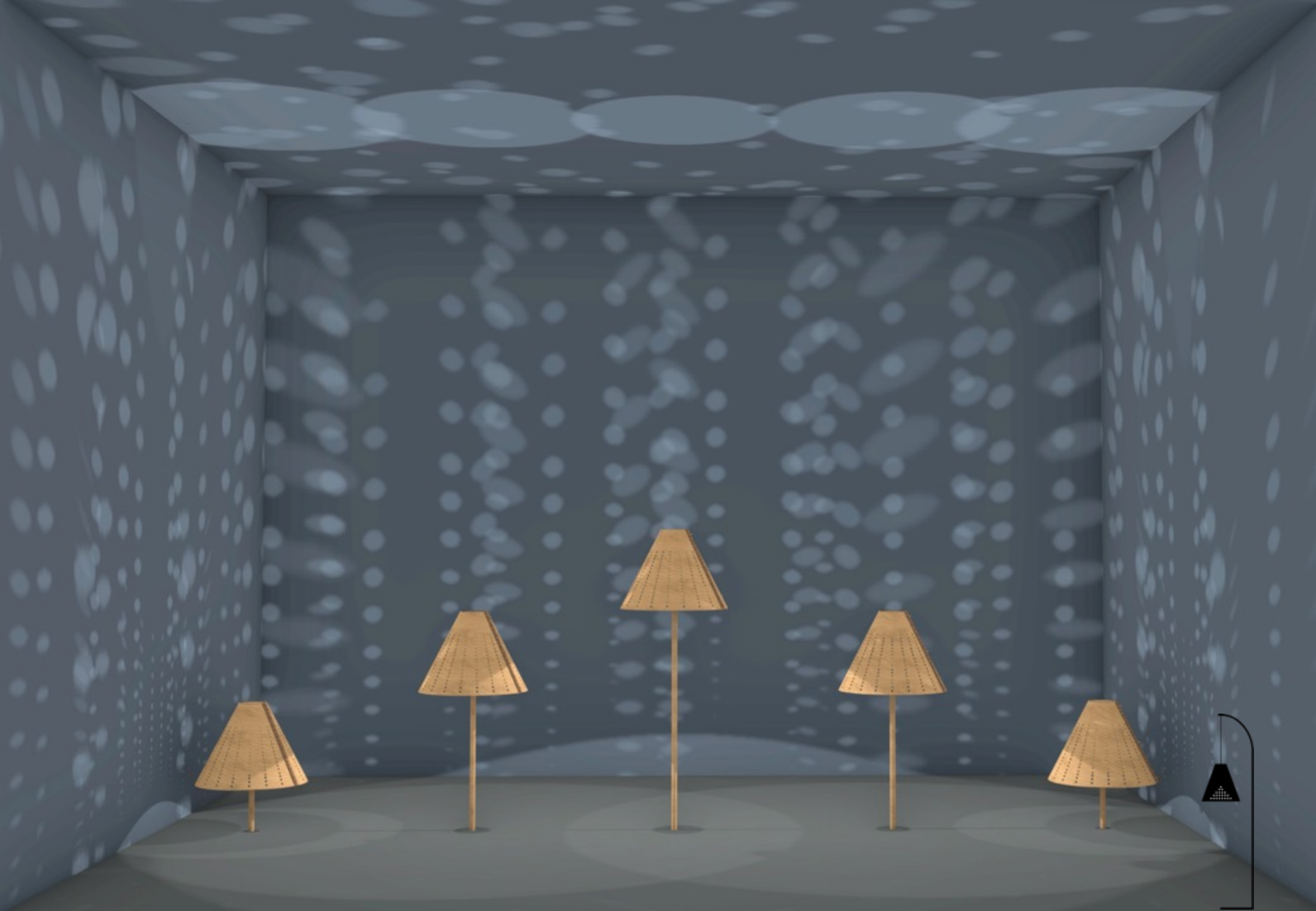


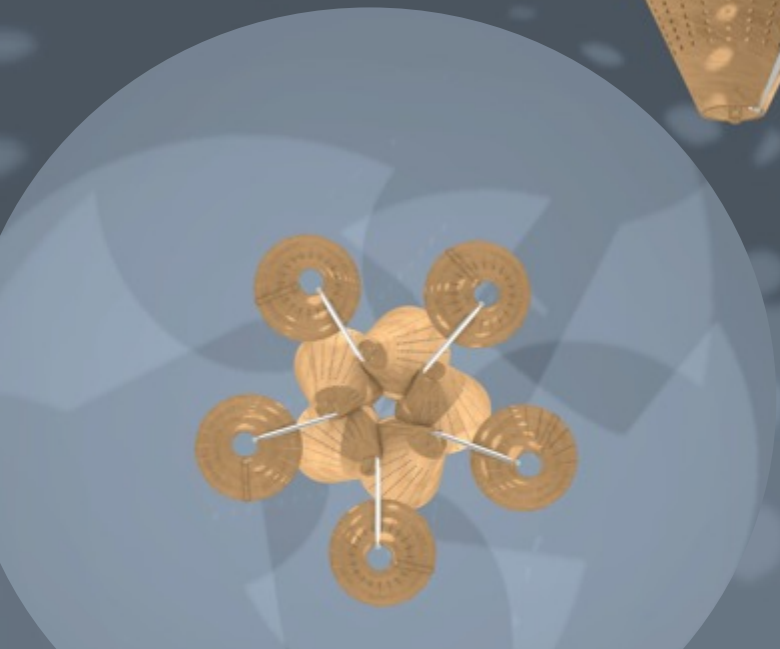
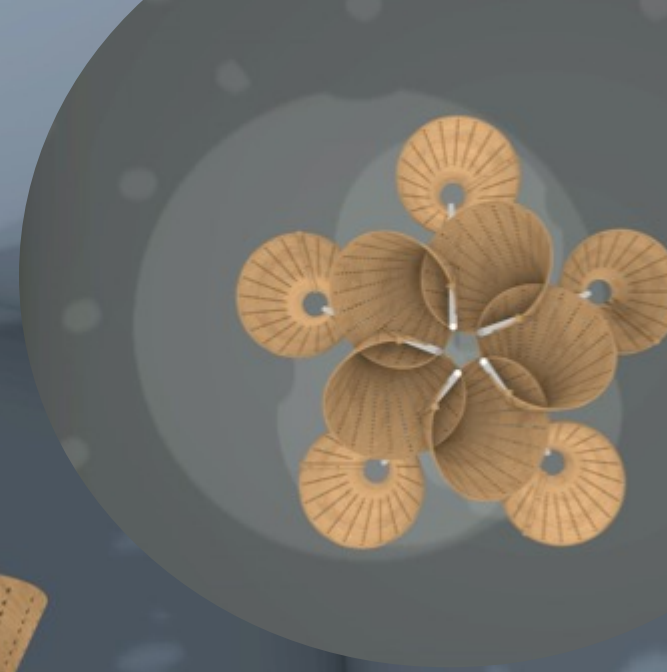
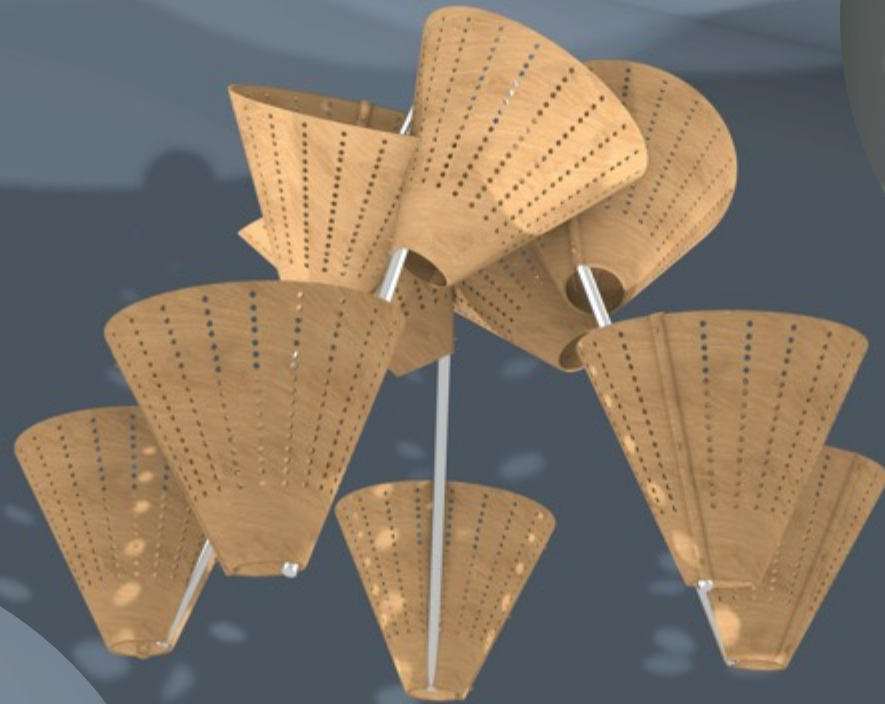


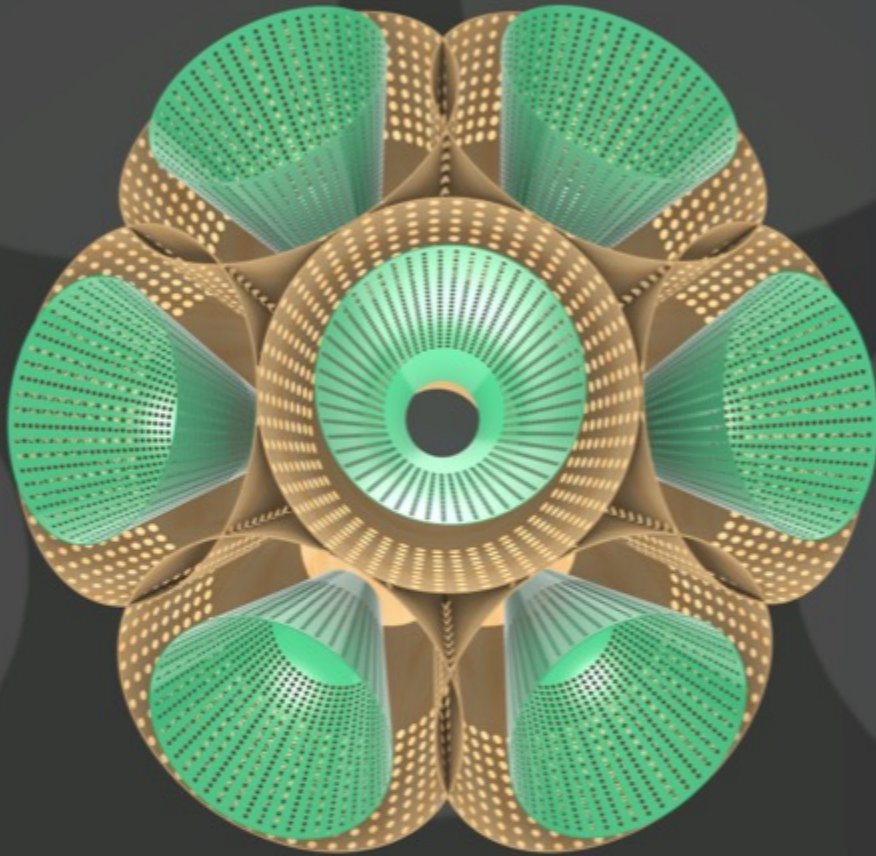


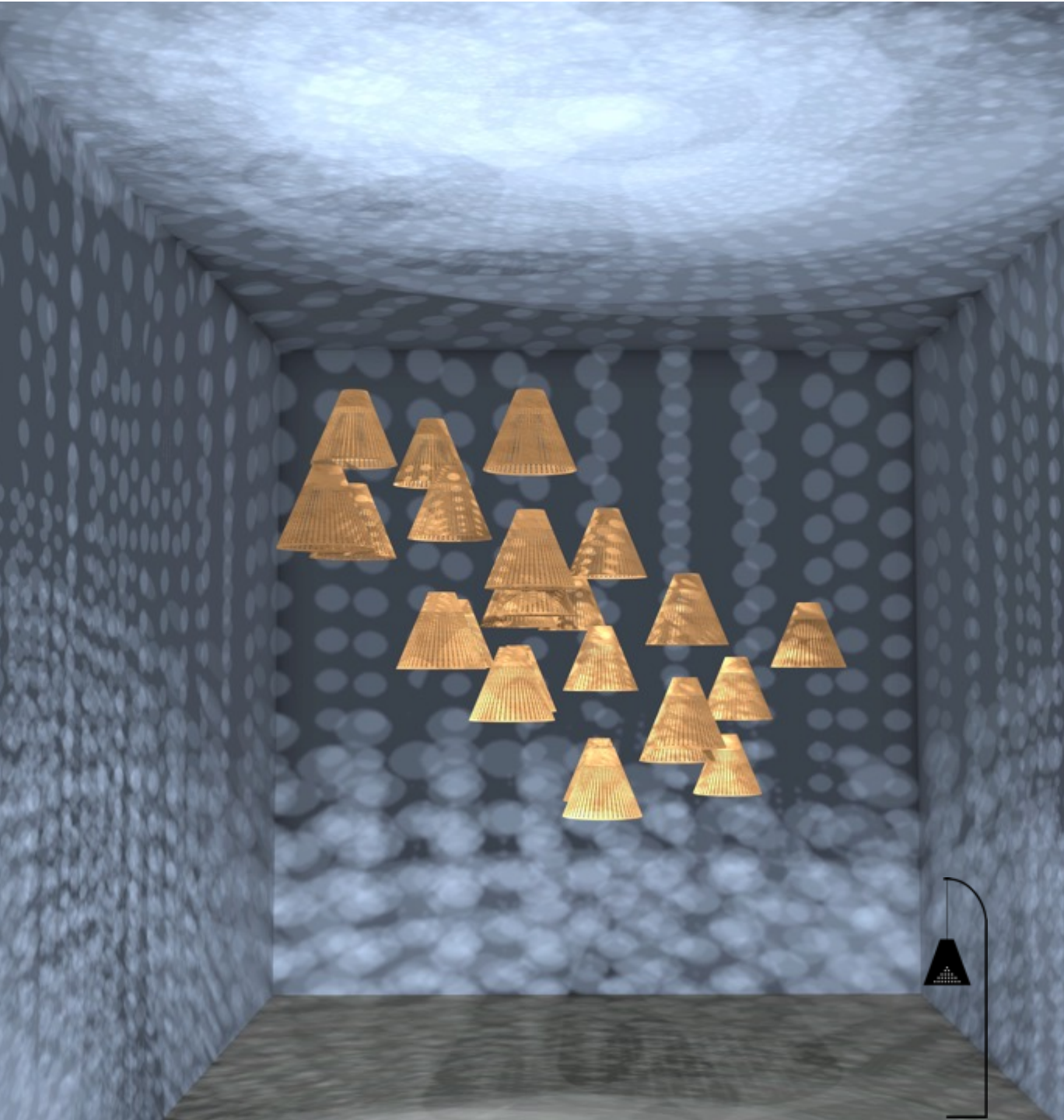












Due to covid-19 I was unable to finish making the final chandelier. The finished product would have looked something like this.

The research of both Tom Raffield and Chihuley's work and the method of using smaller pieces to make a large scale piece of lighting, has enabled my design to come together to show off this light in its natural form.



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