

# MYLeather

Collaborate • Educate • Revive

## Context

The Armour Plate is situated close to the river medway in the Kent Chatham Dockyards. The location is one of the numerous buildings in the Dockyard that have been left empty and used for storage. Chatham offers an abundance of small enterprises, charity stores, and recycling facilities. Because there are currently plenty of retail establishments in the region that would have had to dispose of textile waste, this is an ideal opportunity to address the current problem of textile waste.

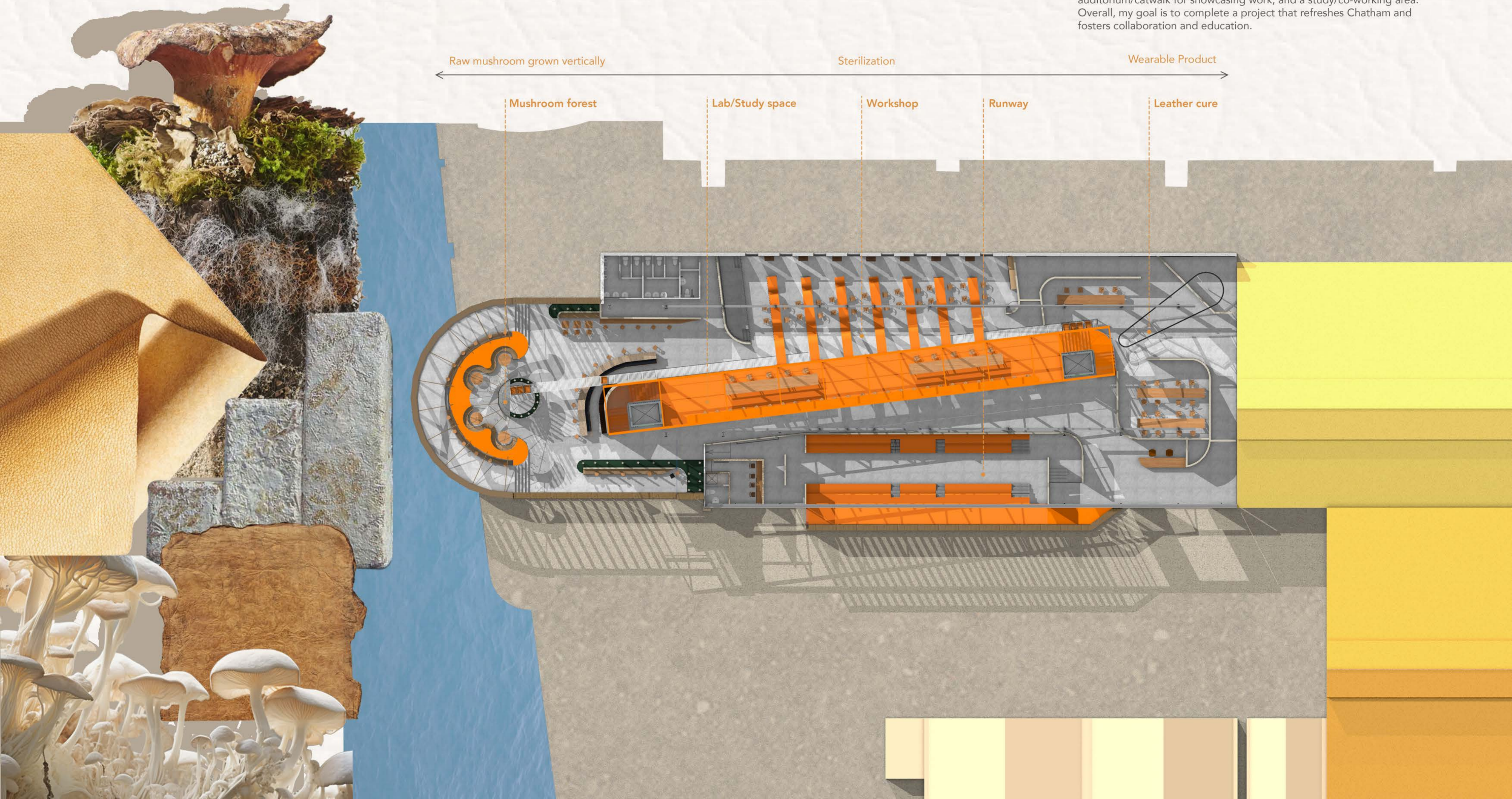
## Importance

Considering the environmental problem of textile waste that we currently face, I made the decision to investigate sustainable methods of producing fashion. Upon my initial visit to Chatham, I observed that the neighbourhood was undeveloped, packed with charity shops and general waste. This insight had me evaluating the innovative methods where local businesses and communities can work together. As I learned more about sustainable fashion, my investigation resulted into exploring mycelium, or fungus spores.

## Aims

A new material called mycelium is pliable and adaptable to many forms. Utilising waste fabric as a base material to create vegan leather is one technique to give it shape. In response to this interest, my proposal (MYLeather) gathers fabric scraps from neighbourhood businesses and citizens, converts them into vegan leather; then sells the leather workwear to benefit the community of Chatham. This programme begins by shredding waste fabric and applying it as a substrate to grow mycelium. After that, the material is sterilised and manufactured into vegan leather.

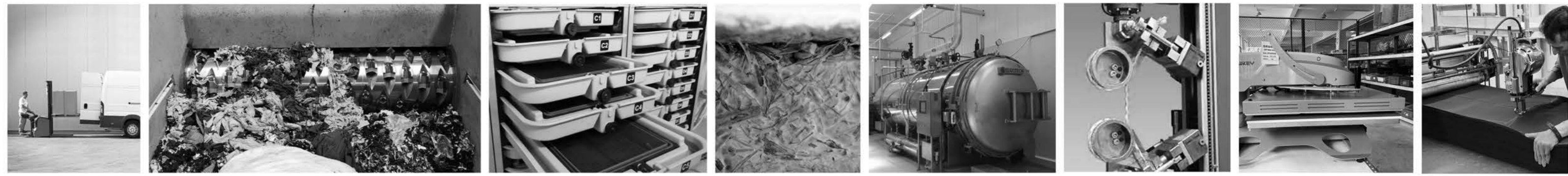
The "MYLeather" project involves vertical farming to produce mushrooms, sterilisation in a lab, leather curing for dyeing and drying, workshop space, an auditorium/catwalk for showcasing work, and a study/co-working area. Overall, my goal is to complete a project that refreshes Chatham and fosters collaboration and education.



# MYLeather process

Mycelium Leather process

This diagram shows the process that takes place within my proposal. Starting from collecting fabric waste from the local area to being processed into a wearable alternative to leather.



**COLLECTION** → **SHREDDING** → **COMBINE** → **STERILIZE** → **INCUBATE** → **BOILING** → **TENACITY** → **PRESSING** → **CUTTING**

Biodegradable material waste is collected from local charities and residences in Chatham.

**SHREDDING** →

The fabrics are shredded in fibers for Mycelium cultivation.

**COMBINE** →

Coffee and water is added to the shredded fibers. Coffee is sourced from the local coffee shops, as well as the cafe on site and Water from purified Medway river.

**STERILIZE** →

The fiber mix is then sterilized in a high pressure chamber to remove bacteria and other organisms.

**MUSHROOM SPORES**

Once sterilized the fiber is also mixed with mushroom spores

**INCUBATE** →

The mix is then placed in an incubator with great control on density and humidity for Mycelium growth.

**SPARE FABRIC & MYCELIMUM PRODUCE**

Spare fabric left is combined with soil to biodegrade and help cultivate green space on site. Mycelium produce is taken further in the process.

**BOILING** →

The Mycelium produce (Vegan Leather) is boiled to stop mycelium growth and to kill any micro-organisms and bacteria

**DYEING**

The leather is coloured with natural dyes, to gain variety in styles and colour

**DRYING**

Then they are dried to reduce water content and make the leather more durable

**TENACITY** →

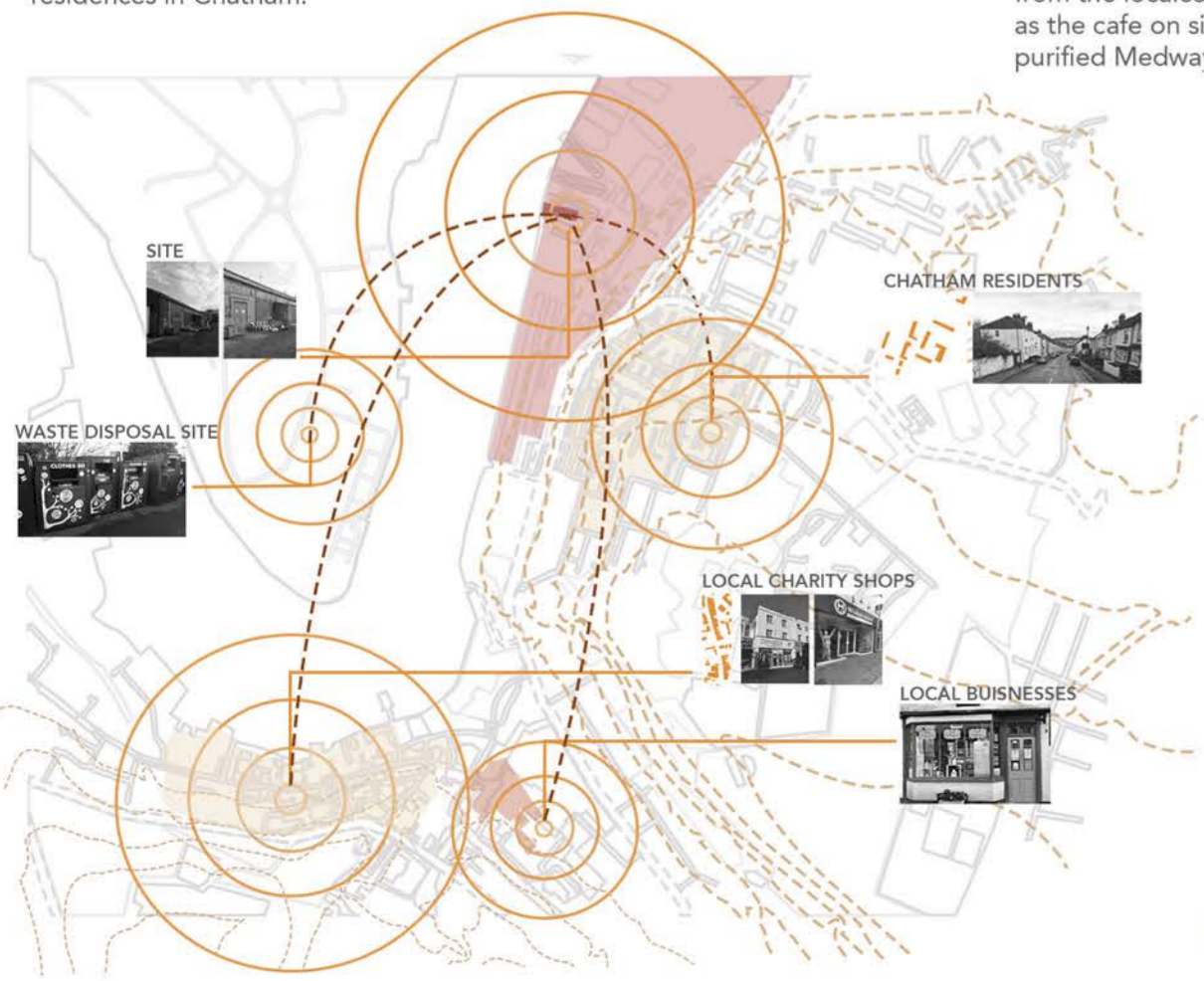
The Leather is then tested for tensile strength and durability

**PRESSING** →

Using a heat press the Leather is pressed together for easier cutting

**CUTTING**

The Leather is cut and sewn into pieces to create products to sell.



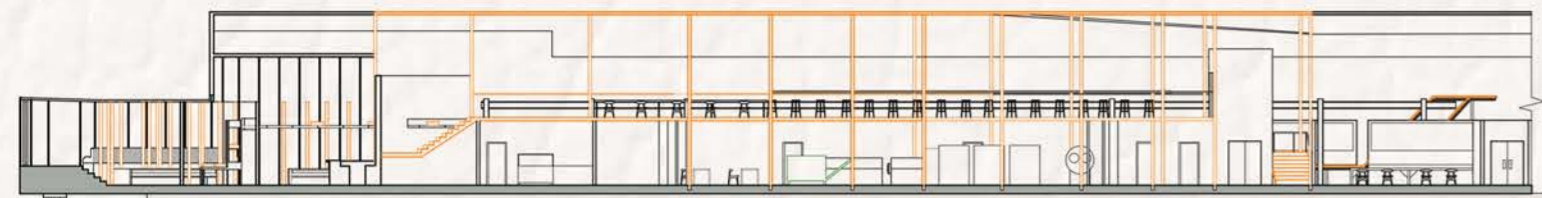
Sourcing fabric waste



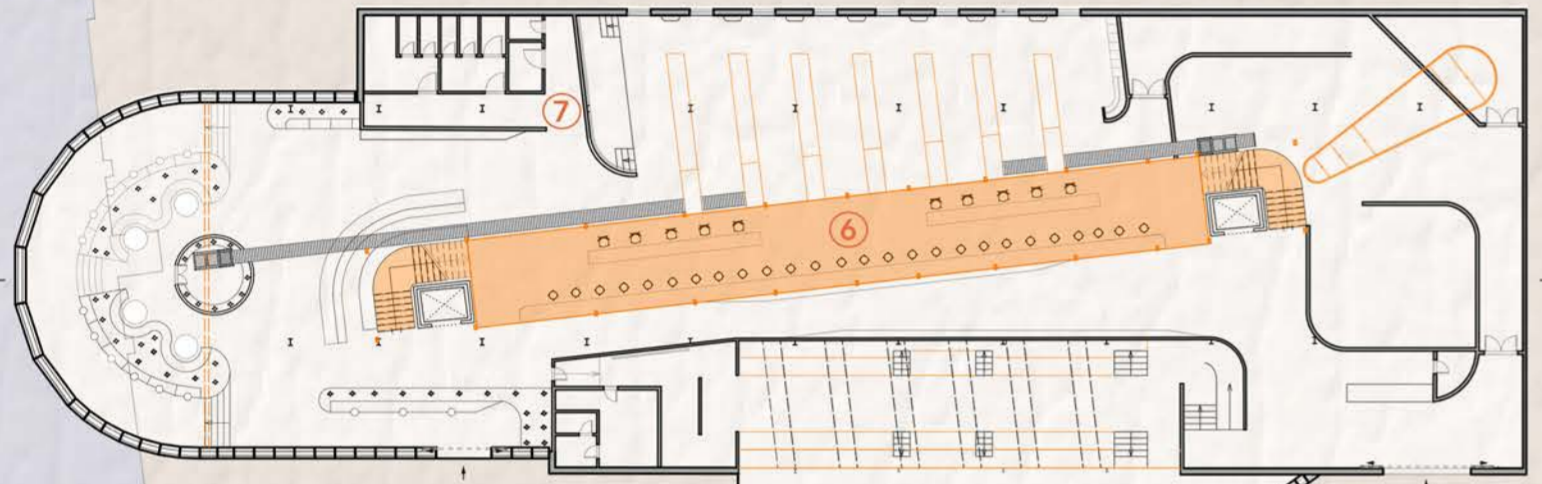
<p><b>CUTTING</b> →</p> <p>The leather is cut into pieces that make up the boot.</p> <p>↓</p> <p><b>SKIVE</b></p> <p>Skiving the leather makes the edges thinner, which makes it easier to fold, bend and stitch.</p> <p>↓</p> <p><b>STAMP</b></p> <p>Stamps/Tags are sewn or stamped onto the leather, emphasizing the brand.</p> <p>↓</p> <p><b>EYELET</b></p> <p>Eyelets and hooks are added to the boots for the laces.</p>	<p><b>INSOLE</b> →</p> <p>Place an insole on a last and it gets trimmed to size</p> <p>↓</p> <p><b>TACK &amp; PULL</b></p> <p>Tack and pull the leather to the shape of the insole, making sure its straight.</p>	<p><b>CURE</b> →</p> <p>Once the leather is tacked to the shoe last into the insole the boot then sits to cure around the last.</p> <p>↓</p> <p><b>TACK &amp; PULL</b></p> <p>The leather gets pulled and tacked in place. Several boot tacks are placed around the heel area.</p> <p>↓</p> <p><b>SANDING</b></p> <p>The bottom of the boot gets sanded to make it flat to make sure the shank lays properly up against the insole</p> <p>↓</p> <p><b>TACK &amp; PULL</b></p> <p>Lasting tacks the removed from the from the toe area and flare it out for the stitch down construction</p>	<p><b>SHANKING</b> →</p> <p>Veg tan shank and arch piece are nailed to the insole of the boot. A rubber squeak pad is glued to prevent noise and squeaking between the two leather pieces</p> <p>↓</p> <p><b>INKING</b></p> <p>The midsole gets inked the same colour as the edge of the boot</p> <p>↓</p> <p><b>HAMMER &amp; NAILS</b></p> <p>Both the boot and the midsole are hammered and glued into place to remove air between the two layers and also helps to activate the glue. Nails are hammered into the midsole</p>	<p><b>LAST</b> →</p> <p>The last is removed</p> <p>↓</p> <p><b>MCKAY LOCK STITCH</b></p> <p>The boot is taken to a Mckay lock stitch machine to stitch the midsole to the boot.</p> <p>↓</p> <p><b>OUTSOLE &amp; TRIMMING</b></p> <p>The bottom of the midsole and the bottom of the outsole are glued to a rubber outsole. When placing the rubber outsole a hammer is used to remove air bubbles and activate the glue.</p>	<p><b>RAPID E</b> →</p> <p>The Rapid E machine will stitch two rows all the way through the outer leather, midsole and outsole. Creating a stitch down construction.</p> <p>↓</p> <p><b>LEVELING</b></p> <p>Heel bases are added to the boot and nails are used to attach the heel to the midsole. The boot is then sanded down to make sure its levelled</p> <p>↓</p> <p><b>RUBBER CAP</b></p> <p>A rubber cap is nailed to the heel base.</p>	<p><b>SANDING</b> →</p> <p>The boots edges are sanded with great care, as one mistake could make the boot inadequate for sale</p>	<p><b>SOCK LINING</b> →</p> <p>A sock liner is glued in</p>	<p><b>INKING</b></p> <p>Ink is added to the midsole and heel stack.</p> <p>↓</p> <p><b>BUFFING</b></p> <p>Once the inking is complete its run through a buffer to make sure the boot has a smooth finish.</p>
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# Process within proposed

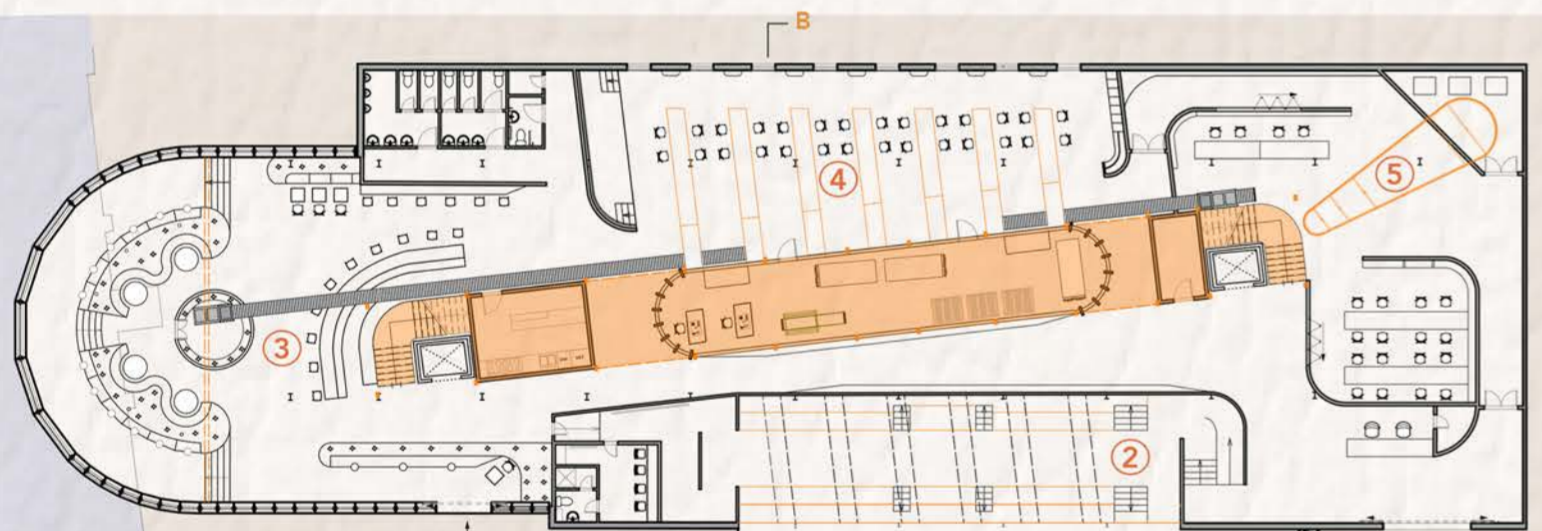
Plan & Sections



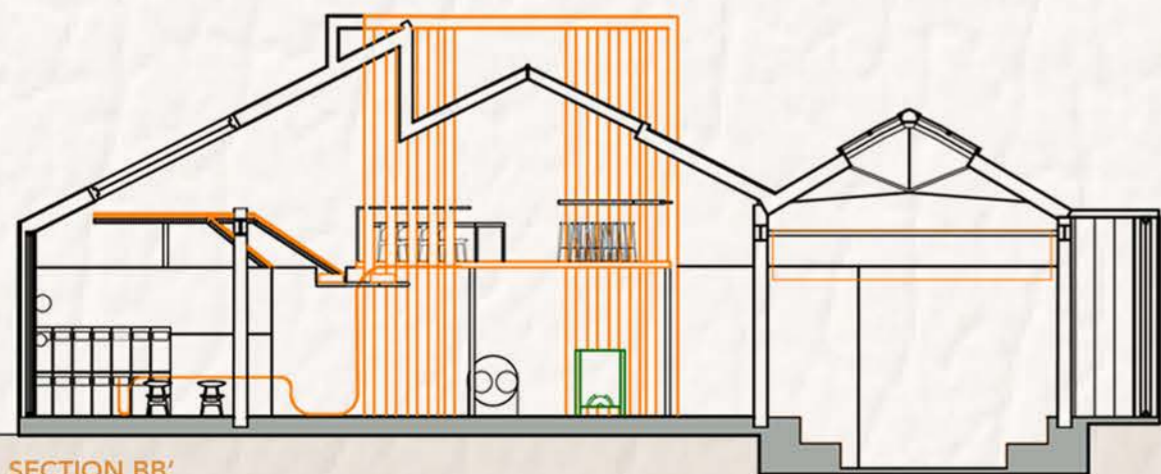
SECTION AA'



1ST FLOOR



GROUND FLOOR



SECTION BB'

- |  |                |
|--|----------------|
| 1 Entrances/Exits                                    | 5 Leather Cure |
| 2 Lower ground floor, Runway space                   | 6 Study space  |
| 3 Restaurant/viewing platform space, Mushroom forest | 7 Toilets      |
| 4 Workshop   |                |

**Mushroom forest 1** Within this space, mushrooms are grown vertically to allow more to harvest and to create a 'forest' environment to the interior. They are grown from the floor to the ceiling and are plotted around the user as they circulate/use the space, this can either be through sitting down at the bar/restaurant or the viewing platform that shows views of the medway.

This is the first stage of the mushroom to leather process, as mushrooms are needed to extract their pores for mycelium growth in the shredded material.

**Lab/Study space 2** The Lab is an enclosed space for professionals and trained individuals, as this space houses heavy and hazardous machinery such as; shredders, incubators and boilers ect. The mushrooms are transported to and from this space through conveyor belts.

At this stage the mushroom spores are extracted from the picked mushrooms from the 'mushroom forest' and added to shredded material. This material comes from the collaborative work of the local area and businesses. Conveyor belts transport the sterilized leather out for dyeing and cutting.

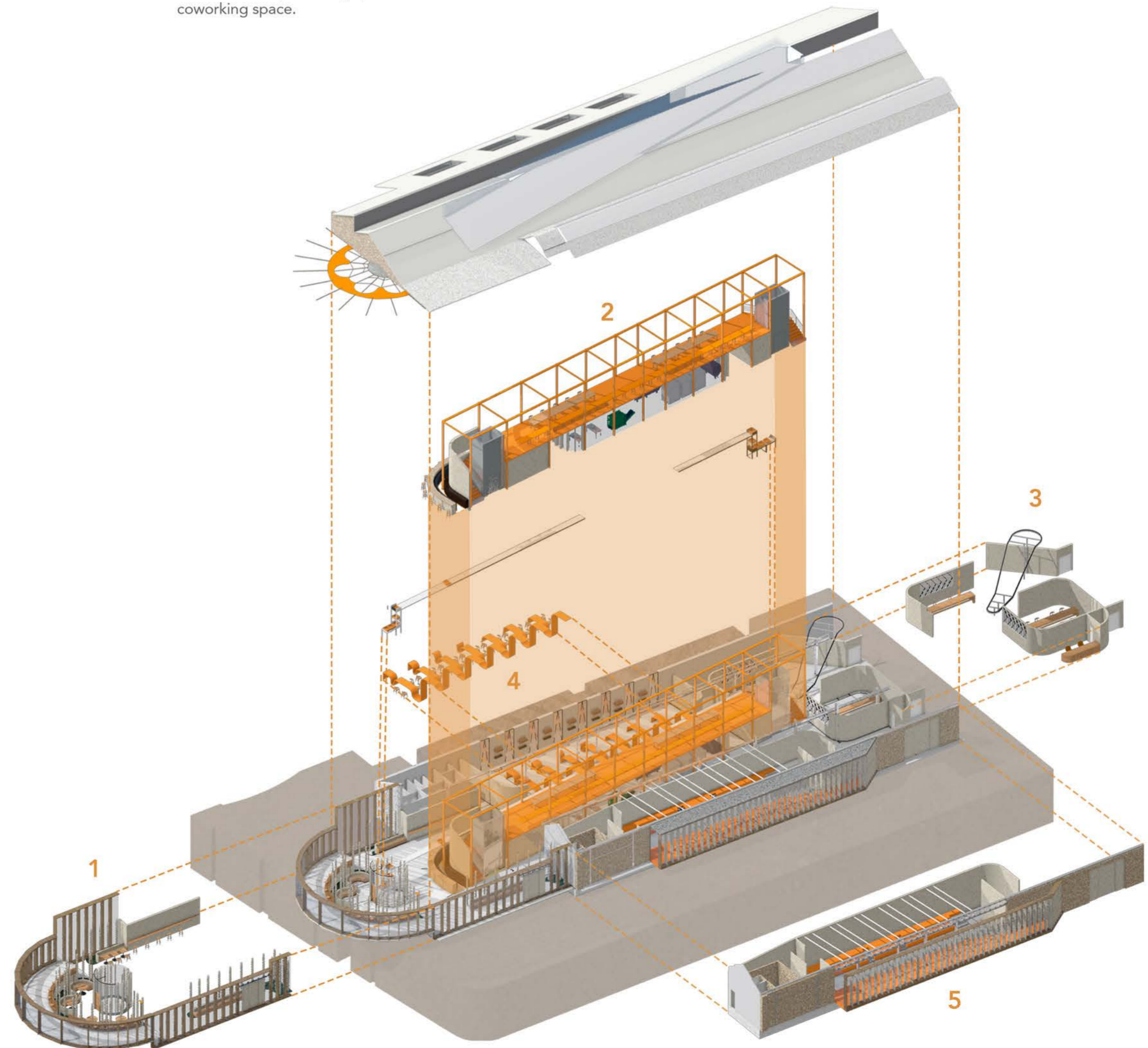
Above the Lab, is a study space that can be used as a coworking space.

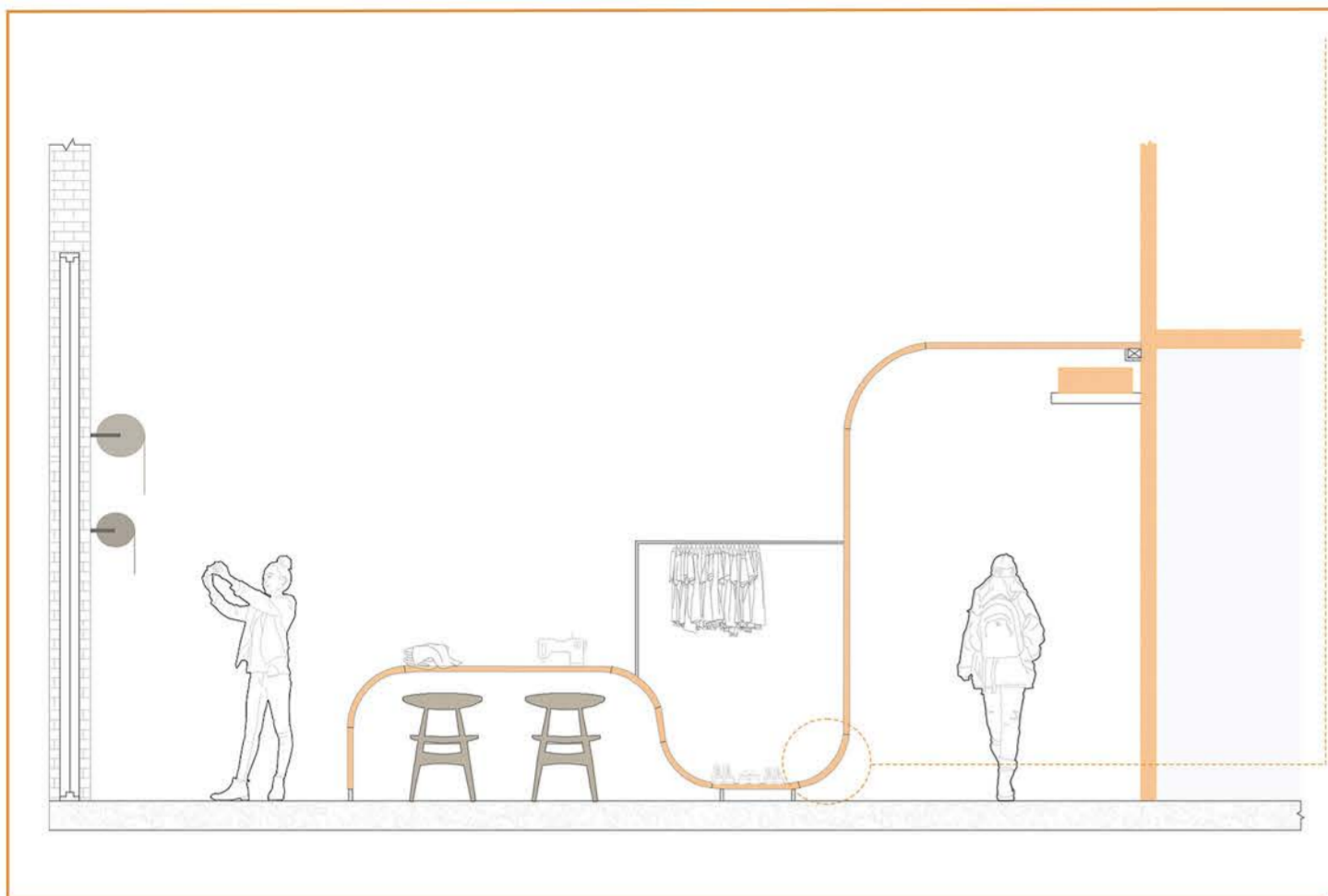
**Leather cure 3** Once the mycelium has formed into a leather-like material, its then transported to leather cure were its dyed, dried, cut and made into work wear. The drying process is visually more interactive, as the leather is hung on a moving conveyor that transports the drying leather above people walking underneath. Additionally, the leather is cured for workshops.

**Workshop 4** A space for creation, education and collaboration.

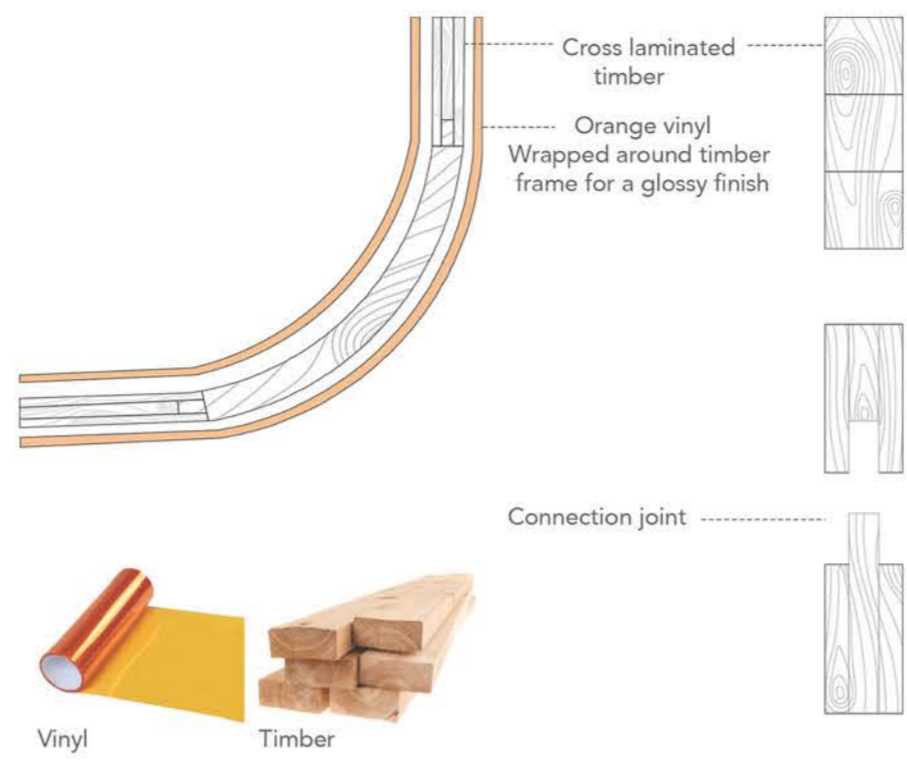
The workshop space provides an educational and creative venue for the public. This open space is free to use and can also turn into a more private environment, playing host to fabric/leather workshops that aim to educate the public about mycelium and sustainable material within fashion.

**Runway 5** After the leather is created into wearable clothes whether in the the workshop or the leather cure. Individuals have the opportunity to showcase their work on the 'Runway', which can also change into a more intimate space through leather curtains hanging from the ceiling that can be rolled down to make the 'Runway' smaller. Due to the this, the space can also double as a lecture/presentation space.





**Detail**  
Workshop construction

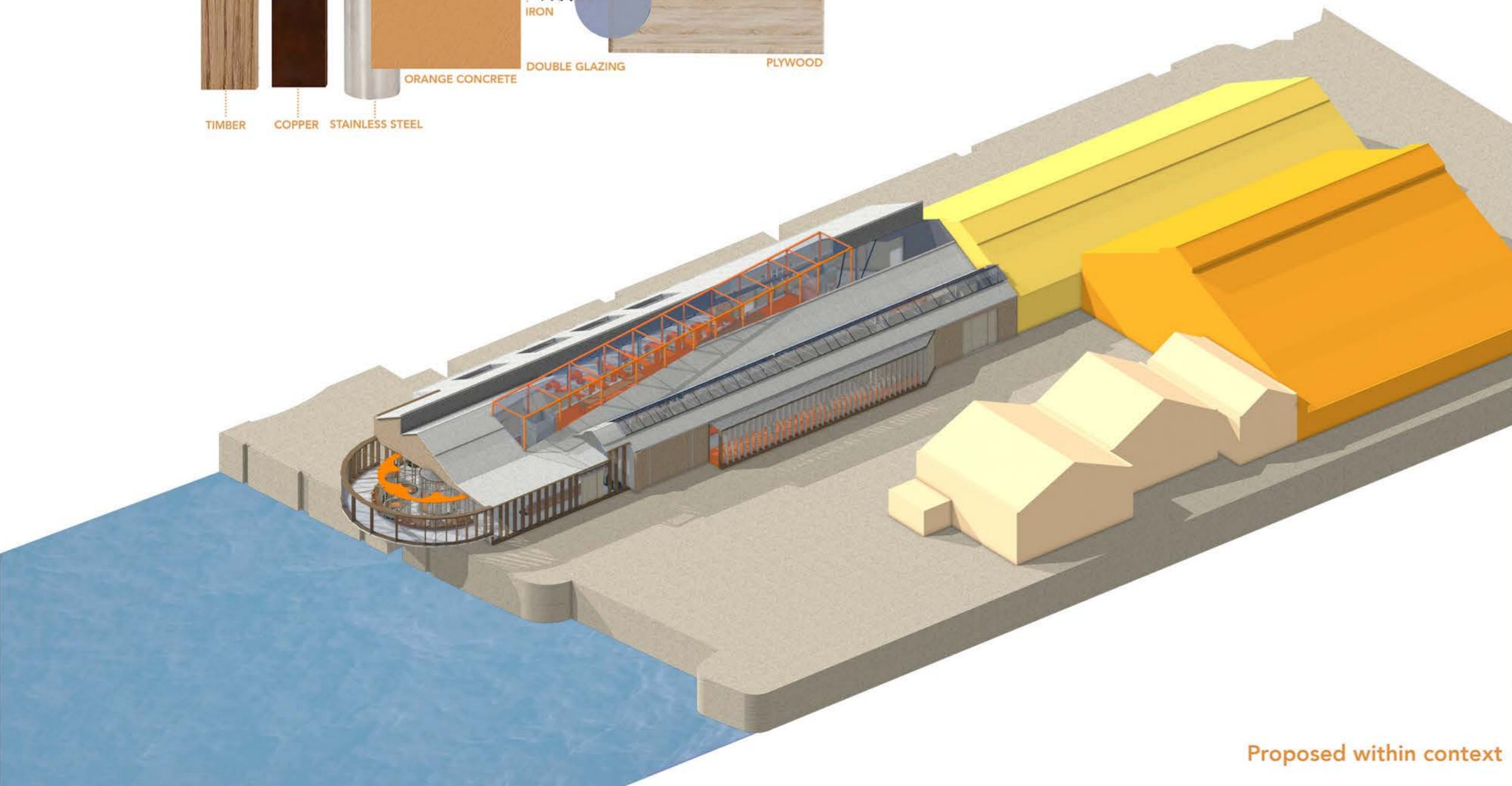


**Creating curved timber structures;**

**Steam** - Steam softens wood before its placed on a frame

**Kerf** - Multiple incisions are created on the back of the wood

**Water** - Hot or boiling water makes wood pliable enough to bend



Proposed within context

Views



Mushroom Forest



Workshop



Study/Co-working