

# Graduation Concept

## Living architecture

### Context

### Technique

### Program

My preference for how I would be able to create a pavilion is by the usage of robotic techniques. For what I've research for now is that the fungus is grown within moulds. With the usage of 3d printing those moulds can be created to form free form structures which then will be overgrown and consumed by fungi.

But since it is a relatively new material there is much more to discover when it comes down to the way of production. Therefore I am required to do a lot of research into the material properties and the way the material interacts with different robotic techniques, like hot wire cutting for example.

Besides the interaction with robotic techniques it is interesting to analyse the effect on nutrition on the fungi itself as well as the differences between the fungi. The different in aesthetics for the building process.

Not only that is interesting it is also worth investigation if the fungi could remain alive during the whole process, in that way the building can keep on growing and living thus creating mushrooms for food production but also it can keep on using its soil cleansing properties. Since it's alive an investigation into bio voltaic by using fungus as a source could also be very interesting.

In order to maintain a healthy living environment for everyone and everything on the planet we need to make radical change in our behaviour. Therefore we should also change the way we look at architecture and the way we produce architecture. This change is already ongoing and many people are coming up with different ideas. It is there where things are happening that sparkle my fascination.

The phenomenon that truly fascinates me is the usage of living materials as the main building material for architecture. The ideal part of using these living materials is that they can be regrown over and over again and fit perfectly fine within the idea of circularity of building materials. Within mind that the fungi should also be able to become a zero waste building.

Besides those aspects living materials can be used to produce buildings which have a carbon neutral or negative footprint. With these material properties we can counteract the challenges of climate change and mineral depletion. But we can only do such things when the new materials show that they can replace their predecessors for the better. That's why I want to investigate fungi as a feasible building material and grow architecture out of it.

It is very hard to determine what a building made from fungus should be at this stage of the msc3. This due to the fact that it is a material which first requires a study to its properties. But what I do know is that it should be building that should use fungi to the maximum preferably as its only material. This change lets the building material show its full potential for the future.

But I did have some thoughts of what the building could do. So what if I were to design temporary housing units with their sole purpose being the cleansing of the soil which are too polluted to build house on yet. Imagine the Pernis refinery in shutdown, its grounds too polluted to build on, but the whole area covered in fungus buildings cleansing the area as the pioneering species when conquering inhabitable nature.

Likewise the building could be implemented at the AMC or any other hospital and should function as an internal urban farm for mushrooms with antibiotic cures. Making some sort of natural factory within a hospital providing the building blocks for medicines.

Or maybe something completely different depending on other material properties



illustration 3d printing of a mould

<https://www.dezeen.com/2013/10/20/mycelium-chair-by-eric-klarenbeek-is-3d-printed-with-living-fungus/>



illustration Mycelium

[https://commons.wikimedia.org/wiki/File:Mycelium\\_RH\\_\(1\).jpg](https://commons.wikimedia.org/wiki/File:Mycelium_RH_(1).jpg)



illustration as a solution for soil pollution

[https://www.ted.com/talks/paul\\_stamets\\_on\\_6\\_ways\\_mushrooms\\_can\\_save\\_the\\_world?t=587730](https://www.ted.com/talks/paul_stamets_on_6_ways_mushrooms_can_save_the_world?t=587730)



illustration overview 3d printing fungus

[https://static.dezeen.com/uploads/2014/03/Eric-Klarenbeek\\_Chair-Samples\\_Dezeen-and-Mini-Frontiers\\_644.jpg](https://static.dezeen.com/uploads/2014/03/Eric-Klarenbeek_Chair-Samples_Dezeen-and-Mini-Frontiers_644.jpg)



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<https://www.bbc.com/news/magazine-28712940>



illustration

<http://www.fungal-futures.com/MYX>



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<http://block.arch.ethz.ch/brg/project/mycotree-seoul-architecture-biennale-2017>



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<https://www.mandm.earth/work/#/grown-structures/>



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<https://www.mycote.ch/biobo>



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<http://www.asiagreenbuildings.com/14221/green-building-material/>