[Mycelium acoustic tile design and production]

INTRODUCTION

[Our project was developed within the HAN University of Applied Sciences, in close collaboration with the HAN BioLab. The assignment was commissioned by Iwan van Bochove, Community Manager of HAN@ConnectR, the very building where this symposium takes place. As the building supervisor, he presented the challenge to Rob van Beek, senior engineer at HAN. Rob then assembled a multidisciplinary team of eight students to tackle the project.

The team, called *FunGuys*, consists of four Mechanical Engineering students: Dylan Mariott (our only international team member), Johan Duyndam, Matthijs Boers, and Rob Wienholts, and four students from the Industrial Product Design program: Dominique de Mooij, Julia Obdeijn, Marlon Reijlink, and Thijmen Tavenier. Together, we've worked intensively over the past four months to develop and deliver a meaningful and feasible solution.

Project Challenge

Rob van Beek has been working for some time on developing a bio-based material using mycelium, the root network of fungi, as a binding agent. The goal: to create acoustic panels with sound-dampening properties. Previous student teams successfully developed a functional mycelium mixture. This project built upon that foundation.

The ConnectR building includes a large, reverb-prone workspace that is actively used. Our client Iwan expressed a strong desire to reduce the reverberation in this space, presenting an ideal opportunity to apply the newly developed material in a real-world context.

Our assignment was to take this promising material and develop it further into a marketready product. This included designing the panel itself, a mounting system, creating a viable production plan, and substantiating the acoustic performance of the panels through research and testing.

For us as a team, this was an exciting opportunity to work with innovative and bio-based materials. It also offered a valuable balance between experimentation and conceptualization.]

JOURNEY & LEARNINGS

[This project has been a valuable learning experience for all of us. One of the first challenges was working in a multidisciplinary team. We had to get to know each other, divide responsibilities, and establish an effective working rhythm. Fortunately, this process went smoothly. Throughout the project, we were able to collaborate closely, support each other, and grow both professionally and personally.

The project itself came with its own set of technical and logistical challenges. A key part of our work involved growing mycelium panel samples, a process that requires precision to avoid contamination. The cultivation process initially took around two weeks, and any error meant starting over. After thorough research and testing, we managed to reduce this growth period to just one week by introducing a new way of preparing the substrate. This was a breakthrough moment for the team and something we are especially proud of.

Each team member was also assigned an area of expertise within the project, taking full responsibility for their domain and driving it forward. By dividing the workload into eight distinct focus areas, we were able to achieve substantial results in a relatively short period of time.

This way of working, built on trust, individual ownership, and a solutions oriented mindset, has been a major factor in our success. We are proud not only of the end result, but also of how we reached it: we did it as a team.]

OUTCOME & IMPACT

[After more than four months of development, we successfully created a working prototype of our acoustic panel. The final design showcases not only the visual form of the panel but also its modularity, allowing for aesthetic customization. We've also developed and demonstrated a mounting system, tested its usability, and outlined a scalable production plan that enables these panels to be manufactured on a larger scale.

Our team identified and applied an optimized production method and conducted extensive acoustic testing to determine the most effective design in terms of sound absorption. These results show that it is indeed possible to create a fully biobased and recyclable product that is both functionally sound and visually appealing.

While the market for mycelium-based acoustic panels is still emerging, our work adds to the growing momentum of sustainable material development. With this project, we hope to contribute to a shift toward more circular, biobased production methods, where nature and technology work together.

We are especially proud of the fact that we were able to bring together research, design, testing, and production into one cohesive and functional result. At the symposium, we're excited to present not just the finished product, but the journey behind it, including our experimentation process, the challenges we faced, and how we solved them.

Visitors can expect a hands-on experience: we'll demonstrate how the panels are mounted, share videos and photos from our time in the BioLab, and, as a highlight, offer an interactive sound experience that allows you to hear the real impact of the panels in action. So come by and see, or rather *hear*, for yourself!]

