

**Samorost**

Innovative project from Buřinka



Mycelium  
**SAMOROST**  
Sustainability

Presentation of mycelium products

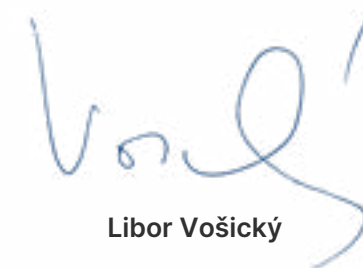


Mycelium, the path  
to sustainable living

A chance  
for our  
planet



*"Introducing furniture and interior accessories based on mycelium. Let yourself be inspired by products made from mycelium that go hand in hand with nature. **Sustainable living is one of Buřinka's top priorities.** We have long supported science and research in the fields of construction and architecture. We are a bridge between the academic and commercial spheres. After 3D printing with concrete, it is the fungi that have caught our attention and where we see huge potential. We have joined forces with experts from MYMO who are researching mycelium. And so the Samorost project was born. I am proud that thanks to us, the Czech Republic will join the world leaders in research and development of sustainable construction. We still have a long way to go, but what you can see here is proof that we are heading in the right direction," says **Libor Vořický**, Chairman of the Board of Directors of Stavební spořitelna České spořitelny.*



Libor Vořický












# Sustainable and environmentally friendly material

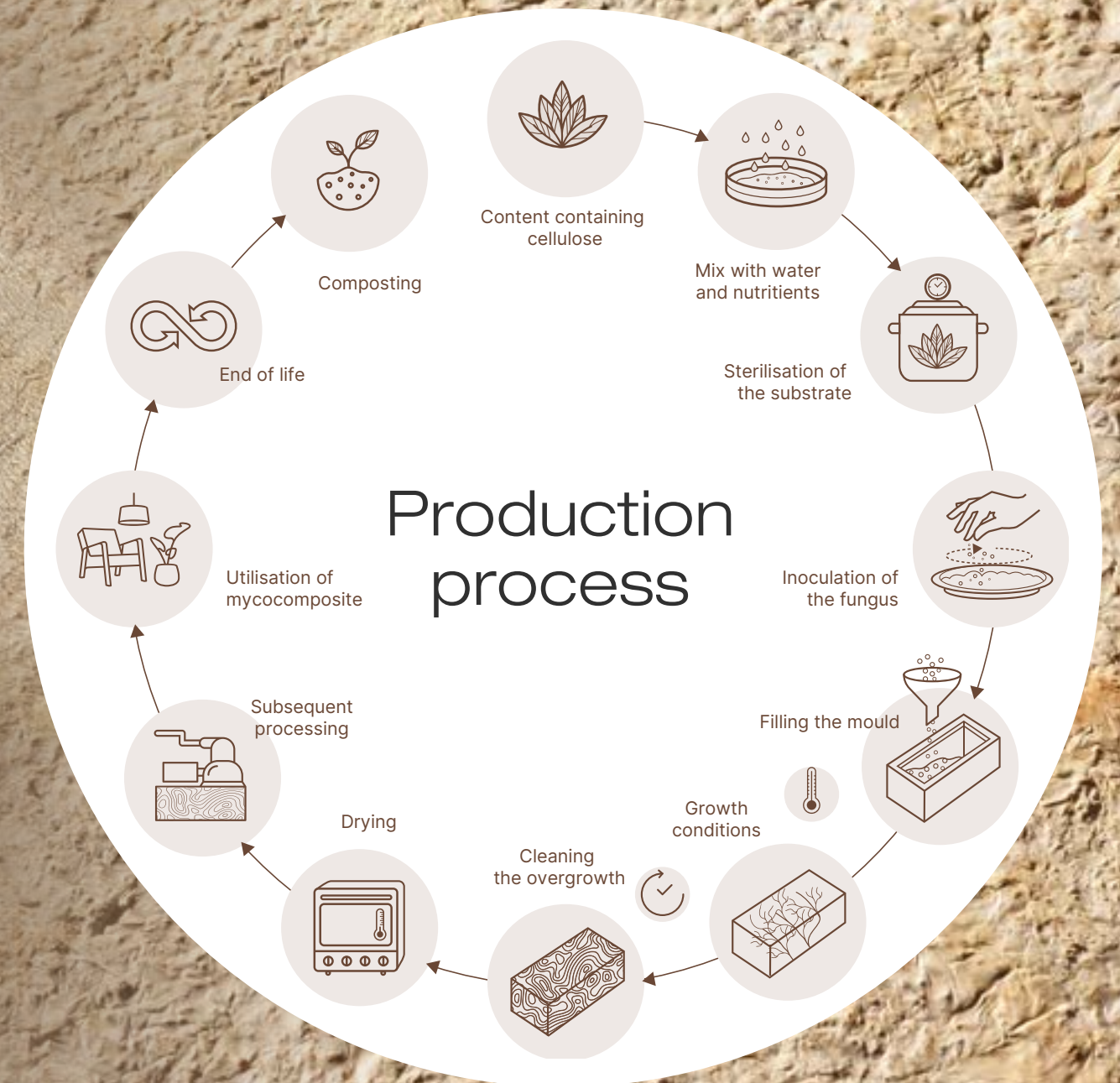
We focus on sustainable construction, architecture and design. We are researching and developing new natural materials, based on mycelium. At the same time, we are processing waste material that would no longer find a use in everyday life.

The main role in the Samorost project is played by the glossy ganoderma fungus. We let the filaments or hyphae of its mycelium grow through the substrate and they form dense and tight networks. The glossy ganoderma likes cellulose and will accept for its growth such things as sawdust pressed into pellets, ordinary paper or cardboard. Plasterboard paper, which cannot be recycled and for which there is no further use, is also suitable.

The combination of mycelium and substrate produces a solid material called a mycocomposite. It has one fundamental and remarkable property. If we crush it and put it in a mould, its hyphae will link back together and start to grow and form an even stronger mycocomposite. But this time, in the shape we give it. Once dried, the mycelium ceases to be alive and we obtain a material with unique properties, ready for further processing. We usually use 3D printing to produce the moulds from recycled plastic.

## Properties of mycocomposite

-  **Insulating:** excellent thermal insulation properties for use in insulation
-  **Self-supporting and lightweight:** comparable to polystyrene but stronger
-  **Flame resistant:** mycelium contains chitin, which slows down the spread of flame. It does not sputter or emit toxic gas
-  **Health-safe:** evidenced by the expert opinion of a leading Czech toxicologist RNDr. Mgr. Jaroslav Klán, CSc.
-  **Solid:** able to withstand pressure. It can also be compressed to increase strength. It can then be used to replace plywood or brick
-  **Hydrophobic:** it is naturally waterproof on the surface, water will leak through, but only with time
-  **Environmentally friendly and biodegradable:** the material made from mycelium can be composted at the end of its useful life...





# Project Samorost

The Samorost project was launched in April 2023 and represents a path to sustainable housing. We have started to explore the use of mycocomposite in the fields of construction, architecture and modern design.

We started from properties that were already relatively well known - **lightness, self-supporting, strength, environmental friendliness**. We had it tested for health safety. For use in the construction industry, the material needs to be professionally tested in the laboratory in areas that are crucial for this field. That is why we subjected the mycocomposite to the necessary tests during the summer of 2023:

🍄 **combustion**

🍄 **pressure**

🍄 **tension**

🍄 **flakiness**

**And the result is great.** Tests have shown that mycocomposite can replace almost any polystyrene in a building. At the same time, it is an ecological and attractive material that creates original and unique structures. Mycelium-based material is the future of sustainable construction.

*"Mycocomposite is suitable for insulating external walls, floors and roofs. As with polystyrene, mycocomposite insulation will increase the energy efficiency of the building. Due to its waste-free mouldability and greater fire resistance, mycocomposite can also be used to insulate interiors with a variety of surface typologies for sound diffusion and aesthetics. The material can also be used in construction to minimise thermal bridges,"* says **Jakub Seifert** of MYMO.

We see the results of the testing as a green light to continue our project. That's why we have embarked on the next phase, which is interior design, and we are starting with this unconventional exhibition.

Detailed test results at [www.inovaceodburinky.cz/en/](http://www.inovaceodburinky.cz/en/)





# Lamps



## The Trygger lamp

Designer / Jakub Seifert

Trygger is the very **first of a series of lamps**. This interesting mycelium colour depends on the conditions of production and is a feature that we will explore further.



## The Bedlák Lamp

Designer / Tomasz Kloza

The lamp is inspired by interesting mushroom patterns, such as the parasol mushroom. The lamp thus takes on a new dimension thanks to the interplay of light and shadows.



## The Houbák lamp

Designer / Kateřina Sýsová

Houbák is exceptional in its design, which **reflects the structure of mushrooms**. Only thanks to mycocomposite and a mould from a 3D printer could we achieve this effect.





# MYCELION

## Acoustic lamp

Designers / Karolína Petřeková a Petra Jašicová

Mycelion is an aesthetically minimalistic lamp that **supports sound harmony in the interior** with its favourable acoustic properties. What makes it special is that the designers let the cable from the LED light source grow directly into the lamp. This highlights the spectrum of possibilities that the material offers.



# The Nadhoubák lamp

Designer / Kateřina Sýsová

**Mycocomposite** can also be used to create clean, smooth shapes, which are of interest in architecture and complement the interior with their surface pattern. The mould was created by 3D printing from recycled plastic.





# Acoustic panels



## HIKARI Backlit panel

Designers / Karolína Petřeková a Petra Jašicová

Hikari is an artistic light object that reflects the style of **japandi**. Jute fibre in conjunction with mycelium is an attempt to illuminate this otherwise light-impermeable material. The result is an ambient backlit object that becomes a kind of window into the world of mycelium in the interior.



## AKUSTA Acoustic tiles

Designers / Karolína Petřeková a Petra Jašicová

Akusta acoustic tiles represent a combination of aesthetics and functionality. These organically shaped tiles have the ability to improve the acoustics of an interior and, thanks to the possibility of variable stacking, visually interesting design effects can be achieved. The rounded curves and surface allude to nature and provide optimal sound insulation.



## Wall-mounted acoustic panel

Designer / Tomasz Kloza

The panel finds inspiration in the organic structure of **edible mushroom tubes**. The pattern of the panel was created to appear infinite, the individual panels build on each other without visible transitions.





# Mycocomposite furniture



## CEPELLA collection of table and stool

Designers / Karolína Petřeková a Petra Jašicová

- 🍄 They grew in a form made of plastic
- 🍄 18 kg of mycocomposite used

**The Cepella collection consists of a stool and a table that resemble a mushroom in shape.**

The mycelial shell of the stool is directly connected to the wooden base. This exceptional characteristic of mycelium as a "natural glue" indicates the possibility of fusing with wooden materials. The table with its all-mycelium base and removable wooden top mirrors the stool in its shape. Its added function is storage space for small objects.





# Café table

Designer / Tomasz Kloza

- 🍄 Grown in a mould made of wood and PET film
- 🍄 34,5 kg of mycocomposite used
- 🍄 1100 mm diameter x 400 mm table height

The table was created in such a way that no waste was generated during production. We worked with rectangular panels that were filled with mycocomposite. The specific curvature was achieved by a curve that divided the panel into 2 parts. The individual curves evolve gradually, so that the resulting table blends seamlessly between the ribs into a continuous organic shape. The table confirms the function of the mycelium as a load-bearing support structure. The load-bearing capacity of the table is supported by the structure that holds the plates together. The non-abrasive design also allows the mycelium to be seen through the transparent surface of the table.







# Fí shelf cabinet

Designer / Jakub Kraus

- 🍄 Built in a mould made of OSB and plastic
- 🍄 51,6 kg of mycocomposite used

The Phi product was created as a pilot attempt to use mycelium for larger utilitarian products, in this case furniture. It makes maximum use of the properties of this biocomposite without the use of additional reinforcements and supporting elements. The formal simplicity directs attention purely to the material itself.

At the same time, an interesting manufacturing process has been tested on Phi, but it is hidden in the final product. These are the anchor points for attaching the legs. These have been designed in a wood that is acceptable to the fungus. The elements were loosely inserted into the mould and allowed to grow into the housing without any machining.





# Accessories



## Acoustic image TRIMY

Designer / Matěj Róth

Trimy is not only a painting, but can also be used as a "planter" for plants to spice up any space. The picture frame itself has its own designer, Pavel Klvna.



## Bricks

Designer / Jiří Vele

**Mycelium bricks can be used for slope stabilisation.** They can be used to create any kind of curved wall. Once the slope has grown through the plants and is firmly held by their roots, the bricks will no longer be needed. Their charm lies in the fact that they compost themselves over time.



## Grill

Designer / Tomasz Kloza

**Mycocomposite has properties that make it possible to produce more than just furniture and interior accessories.** This grill was used to demonstrate the burning test. In action, it clearly showed that the material burns very slowly, or rather, gradually detaches. The heat release is also gradual.





# Paravan Akustina

Designer / Tadeáš Rulík

 25 days of preparation

This design, on the other hand, offers the possibility of using waste plasterboard, specifically recycled cardboard crumb. At the same time, it playfully solves the problem of noise, the division of space and the creation of privacy, especially in offices, but potentially in other spaces as well.

We used acoustic panels made from mycelium to create an acoustic and dividing wall. This is made up of individual pieces that are vertically strung one on top of the other on a rod. This design allows the parts to rotate around a central axis, providing the possibility of using the wall in two ways - as a soundproofing surface or as a dividing wall.

The wall is designed with the idea of using as little material as possible, while being easy to assemble with a minimum of additional material for joints, gluing, etc.





# Who's behind it

The journey to sustainable living has brought together a team of experts. It brought together specialists in growing and developing mycelium with architects from the Institute of Model Design of the Czech Technical University and visionaries and supporters of affordable housing from Buřinka (Stavební spořitelna České spořitelny).

## Vision and financial support

As a building society, we feel a commitment to the construction industry, which we fulfil by supporting innovative practices and materials used in house building. To learn more about our projects in support of science and research in the construction industry, visit [www.inovaceodburinky.cz/en/](http://www.inovaceodburinky.cz/en/)

**STAVEBNÍ S**  
České spořitelny

Libor Vošický

Ondřej Zahořík

Monika Kopřivová

## Mycelium, appearance and functionality

MYMO is made up of two successful companies. It brings together **Mykilio** and **Molab**. In our project, **Mykilio** is in charge of producing all the products as the individual designers have conceived them. They are in charge of everything around mycelia. **Molab** takes care of the production of the moulds from the 3D printer, which are then filled with the mycocomposite. They use recycled plastic in the process.



Supervision and assistance with professional communication

AMI COMMUNICATIONS

## Mykilio



Jakub Seifert

*"My journey to mycelium began in collaboration with Matěj Roth, with whom I founded a company focused on growing*

*edible mushrooms. What attracts me to mycelium is its fascinating and often unexplored world. Mushrooms are underrated organisms that have enormous potential. I enjoy discovering their abilities and using them in a variety of ways. Mycelium is a great material for upcycling waste materials, which for me is not only a challenge but also a way to contribute to a sustainable society."*



Matěj Róth

*"I studied biology at Masaryk University. I have loved nature since my childhood. At primary school I was into growing*

*carnivorous plants, at one point I had up to 46 species, but even then I was interested in mushrooms and fungi. I made my first experiments with growing mushrooms at the age of 12. I originally thought I would pursue plant propagation using in vitro techniques, but in the end, mushrooms won out."*

## Molab



Kateřina Sýsová

*"My innate affection for drawing led me to the profession of architecture lecturer - at the same time I love teaching.*

*Matěj Róth called us to Molab at the Faculty of Architecture of the Czech Technical University. Mycelium is a material not very well known in architecture, and it is necessary to try what can and cannot be done with it. I enjoy the experiment. My idea and Jitka's idea of Reborn Design, where students were given mycelium, is successful. There are many more experiments to come and that's great!"*



Jiří Vele

*"I have a passion for architecture that has been with me since I was a child, when I liked to make models of chateaus and castles. This passion led me to*

*decide to study at the Faculty of Architecture of the Czech Technical University. During my studies I discovered 3D printers and immediately saw their great potential for rapid prototyping and modelling. I was so excited that I built several printers of my own. At the same time, I started to explore large format concrete printing, which I considered to be the next innovative technology in the construction industry."*



# Young designers

**Petra Jašicová**

*"In my work I prefer to focus on interior design, which goes hand in hand with product design. My work has always been of a good standard, but something was missing. It's the overlapping and going beyond the so-called comfort zone in the use of non-traditional materials. Being exposed to alternative yet sustainable materials, such as mycelium, drove me to think more deeply about the essence of my designs and move them towards the user and the future in general."*

**Jakub Kraus**

*"I am a product designer and co-founder of NAHAKU, a studio dedicated to the use of industrial waste in the design of new products. I always try to create products with respect to production technology and material properties and with minimal waste."*

**Tadeáš Rulík**

*"I am a student at the Faculty of Architecture of the Czech Technical University. In my design I have focused on creating a product made of recycled plasterboard in combination with mycelium. I went back a bit to my childhood, when I helped my mother and grandmother cut up collected mushrooms and carefully fold them into unfolded newspapers. And then drying and drying, hoping and praying that the mold wouldn't catch it all."*

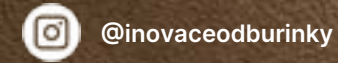
**Karolína Petřeková**

*"From the beginning of my studies, I found a passion in sustainable materials, which have been a key characteristic of my work for many years now. It was at school that I was introduced to mycelium and as a nature lover I was instantly drawn to the material. I delved deeper into it in my undergraduate thesis, which gave rise to my first mycelium product - MyCompanion, an off-grid camping kit consisting of a cooler and a disposable grill."*

**Tomasz Kloza**

*"I am a final year student of the Master's degree in Architecture and Urbanism at the Faculty of Architecture of the Czech Technical University in Prague and also of the specialisation module of Computer Aided Design. I completed my undergraduate studies in Denmark and New Zealand, where I also worked for a year at the renowned international firm Warren and Mahoney Architects. I am interested in the concept of using agricultural and forestry waste in combination with living and growing fungi in the resulting alternative natural material. I look forward to promoting the use of mycelium in the country as a mushroom and cottage nation."*

# Continue to follow our journey







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Do you have any questions?  
Are you interested in the exhibited pieces?  
Write to us

