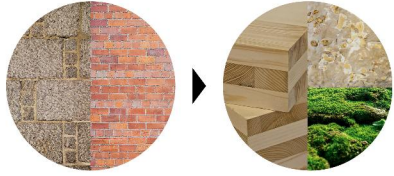


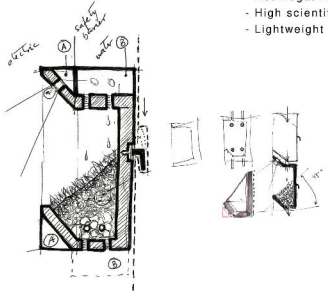
G2G Social Housing - (FROM) GRANITE TO GREEN

Mycelium as both Thermal (Insulating) and Protective Layers + New proposed design for a *micro-ecosystem, self-sustainable, Net-Negative* interior *bio-facade* system.

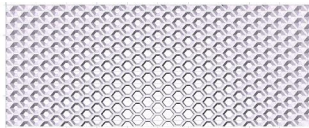
MARCO ANTONIO PAZ GARCIA



- Granite - Expensive
- Red brick - Hard to replace
- Traditional - Dull
- Dated - Hard to work
- Heavy
- Moss
- Mycelium
- CLT
- Sustainable
- Cheap
- Built for Dissassembly
- Biophilic
- Net Negative
- High scientific interest
- Lightweight



What would happen if we embraced Nature to take over Architecture?
What if she was the ultimate designer we needed to save our planet?
Should we let her take back what once was all hers?



Designing a Parametric interior facade (Grasshopper + Lunchbox) where we could fit our modular panels. (see 1:100 model images)
Hexagonal, pentagonal, squared mold shapes can be possible.



TECHNICAL DETAILS OF MYCELIUM MODULAR INTERIOR FACADE

Vertical Section. 1:2 model sample
200mm x 200mm panel

70mm MOSS LAYER

SOIL / SUBSTRATE

SPRINGTAILS (HEXAPODS)
2mm long

They are soil-dwelling and often-mycophagous omnivores. Although they feed off decaying organic matter, they do not intervene in its decomposition. They also contribute to the control of soil microbial communities. These soil-keepers help each of the interior facade panels to be constantly under maintenance - they are key to the -CO2 vs +O2 cycle.

CHARCOAL

MYCELIUM LAYER
Mushroom: Red Reishi
Grain: Rye + Coffee beans

Mycelium can be a very important food source for many invertebrates, such as springtails. It has been identified as the largest living organism on earth - and we only know 14% of the species.

Once it has been properly cooked (varying temperature and cooking time), mycelium possesses exceptional acoustic properties that show strong absorption at around 1500 Hz.

MDF MOUNTABLE FRAME

For every 1kg of Mycelium, 2kg of CO2 will be eliminated from the environment. Making this facade system not only Net Zero but Net Negative (does not produce CO2 but generates O2 indefinitely - until it decays after life span).

If thrown into nature it will take 2-3 weeks approx. to completely biodegrade.



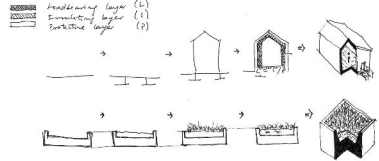
1:100 model

Moss can be used as decoration when put as the external surface. It has acoustic and cleansing properties. In comparison with green walls that need water, artificial light, or fertilizer, moss is maintenance free, long-lasting, fire-proof, and absorbs moisture. Furthermore, if we were to use moss as exterior facades, it would act as an air filter, cleansing the air from dust particles improving the air quality and reducing the stale air temperature 1-2oC approx. This effect can help reduce the overall temperature of warm cities such as Rome or Madrid, making them more inhabitable (Urban Heat Islands).

Opposite to say clays, moss has a high porosity (accounting for its roots and soil where it will rest) and high absorptivity. In our moss mycelium interior facade panels, a 50mm thick moss layer would be able to absorb frequencies above 500 Hz. As it is a lightweight material, it would be pre-mounted to a MDF holding structure of a thickness between 10-20mm, which makes it a modular piece that is easy to install.

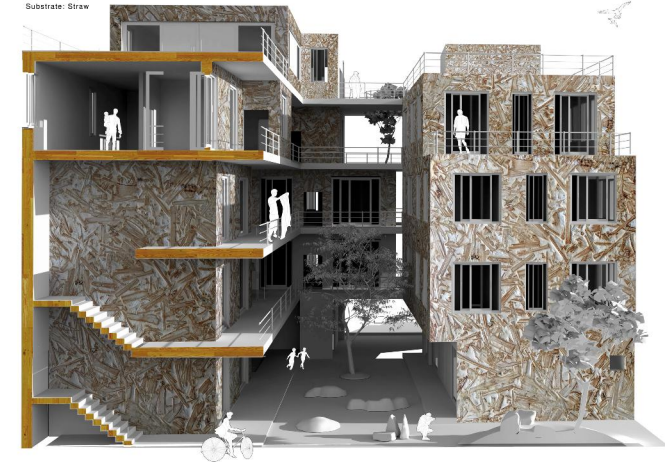
Modules can be replaced; have the mold shape changed; or even experiment with hundreds of other mushrooms to get a different hue/texture. Moss can also be changed during Summer or Winter for a more resilient one - depending of the geographic location.

MYCELIUM AS BOTH THERMAL AND PROTECTIVE LAYERS

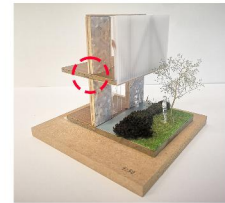


PERSPECTIVE SECTIONAL ELEVATION

Aesthetic look
Mushroom: Oyster
Substrate: Straw

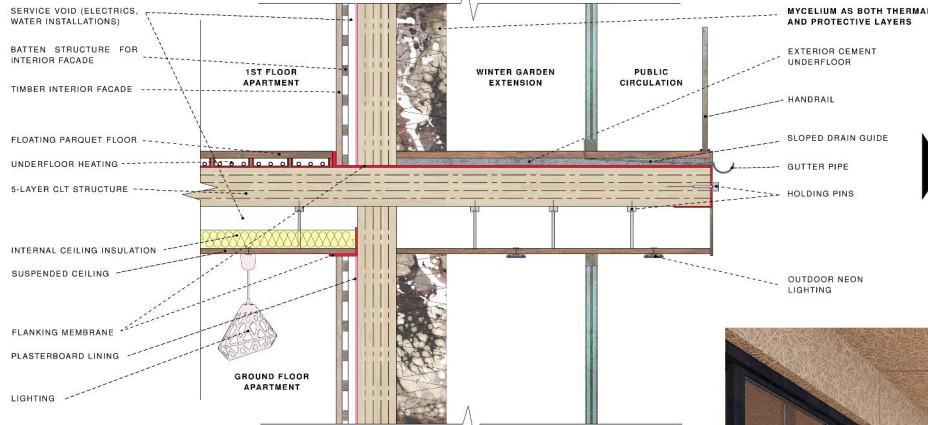


Ground floor level and 1st floor level



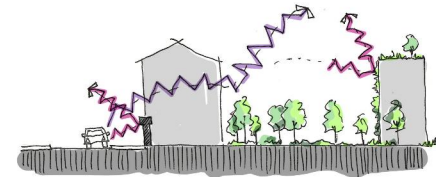
1:50 model

STRUCTURAL CLT DETAIL SECTION



MYCELIUM EXTERIOR FACADE AS A NOISE BUFFER

'Green City' Urban Heat Island



FIRE-RETARDANT

Laser thermometer: 495oC for over 4min without a flame being generated

