Ecovative

We grow materials

World Materials Forum

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problem

The 20th Century was dominated by synthetic polymers that were fossil fuel derived and require a high embodied energy. Ecovative has looked to nature to growth, rather, than manufacture the next generation of high performance, low cost materials.

mushrooms

Mushrooms are **nature's recycling system**, growing on plant-based materials, self replicating without any outside energy inputs.

mycelium

Mycelium is the vegetative tissue (roots) of a mushroom. Mycelium grows exponentially when provided with the correct nutrition and environment, which is covered in Ecovative's family of patents.

chitin

Mycelium is composed of **chitin**, which is water resistant and fire retardant. The mycelium strands are 1 micron in diameter.

ag byproduct

Any **lignocellulosic materials** (agriculture byproducts, wood fiber) are applicable raw materials. These materials are abundant, regional, and less expensive and volatile than fossil fuel recourses.

in situ resin production

Two robust polymers are grown on inexpensive farm waste in just four days without any human interaction.

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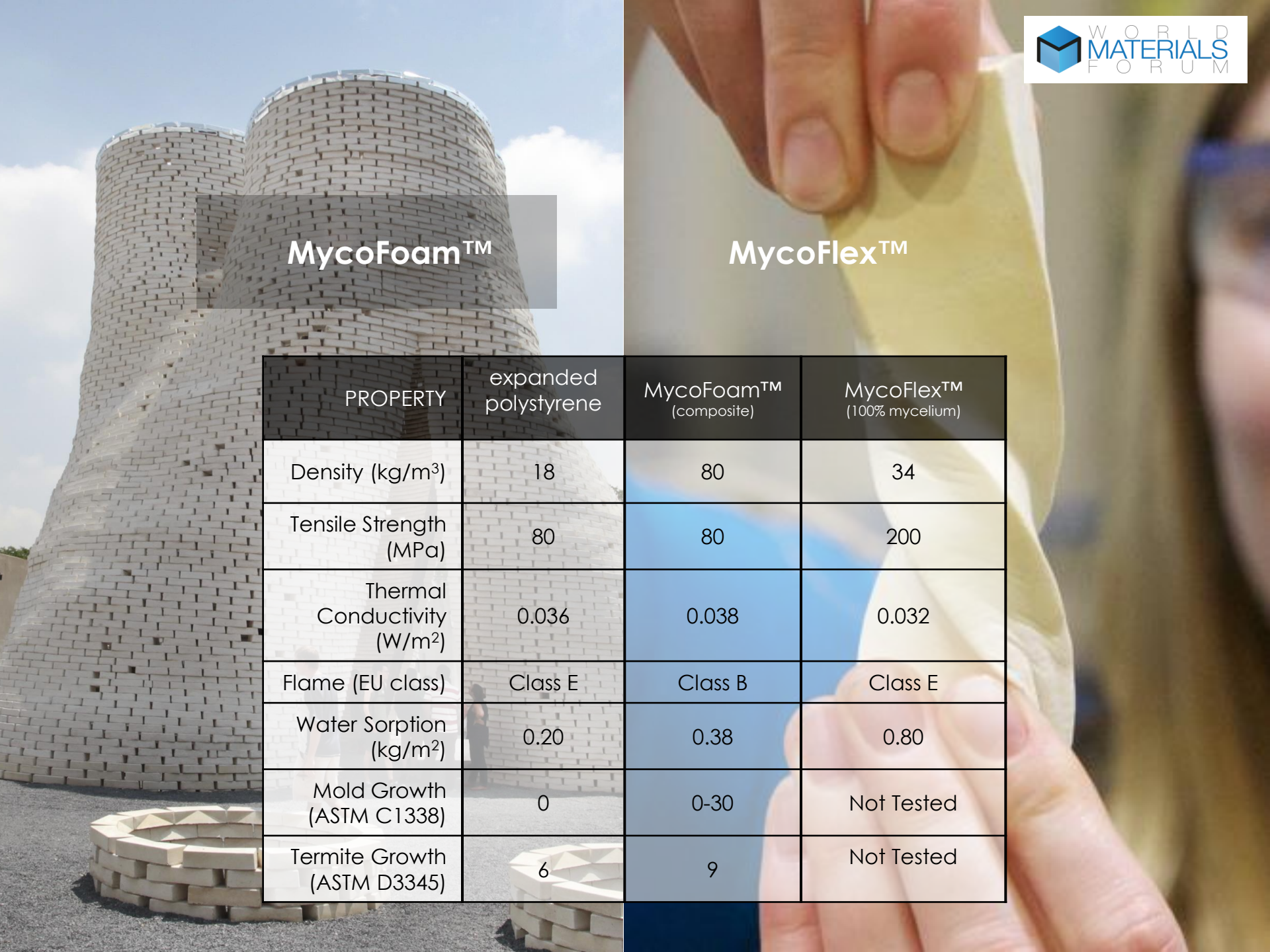

MycoFoam™

MycoFlex™

PROPERTY	expanded polystyrene	MycoFoam™ (composite)	MycoFlex™ (100% mycelium)
Density (kg/m^3)	18	80	34
Tensile Strength (MPa)	80	80	200
Thermal Conductivity (W/m^2)	0.036	0.038	0.032
Flame (EU class)	Class E	Class B	Class E
Water Sorption (kg/m^2)	0.20	0.38	0.80
Mold Growth (ASTM C1338)	0	0-30	Not Tested
Termite Growth (ASTM D3345)	6	9	Not Tested

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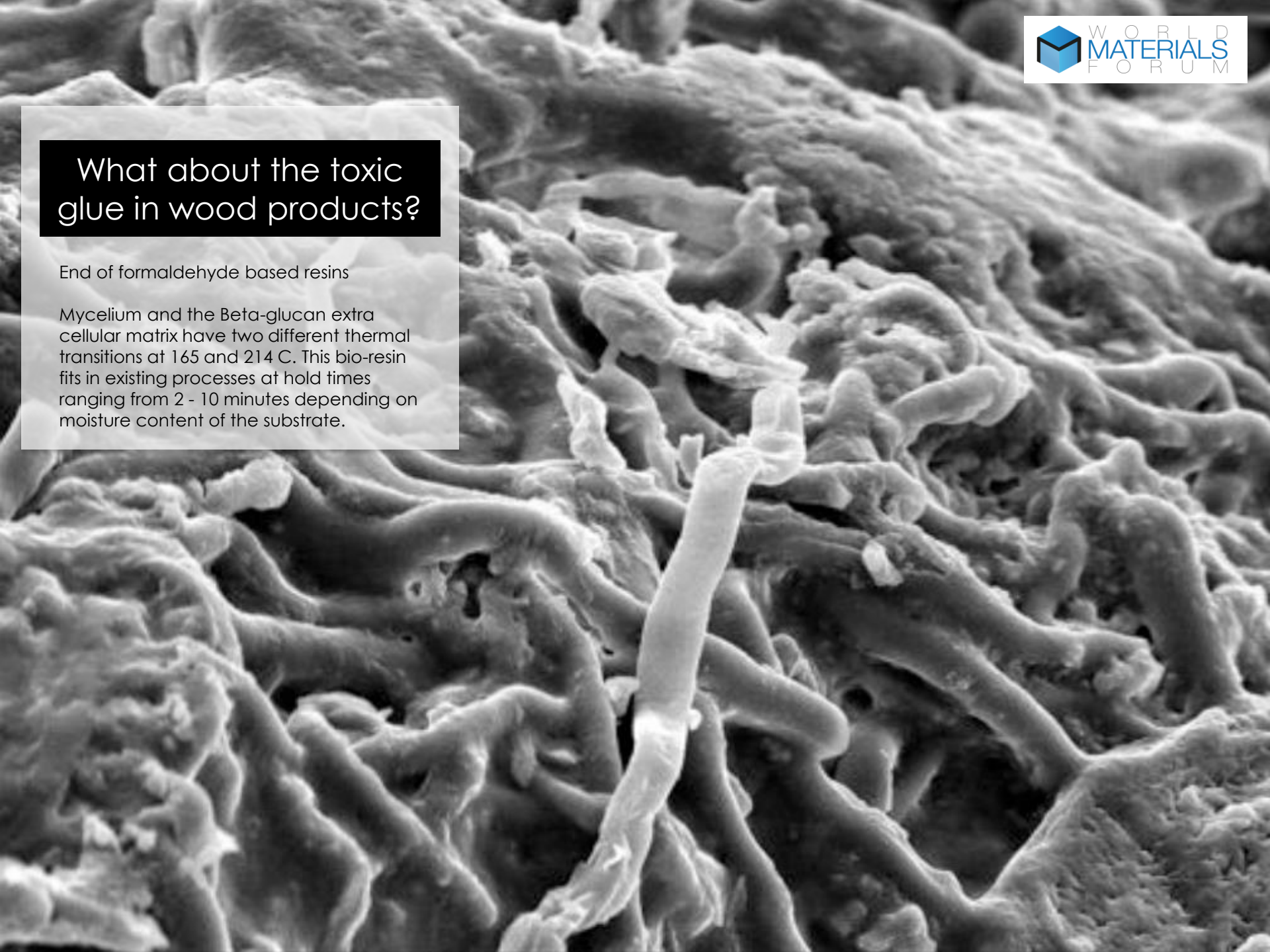
grow your home

The Mushroom Tiny House was grown in 10 days, for less than $5,000. The insulation and structure are entirely grown using local agricultural waste streams. Empowering people around the world to grow their own home.



What about the toxic glue in wood products?

End of formaldehyde based resins

Mycelium and the Beta-glucan extra cellular matrix have two different thermal transitions at 165 and 214 C. This bio-resin fits in existing processes at hold times ranging from 2 - 10 minutes depending on moisture content of the substrate.

MycoBoard™

The Savor Chair from Gunlocke Furniture was the first piece of furniture to include MycoBoard™ as an upholstered back. Launched at NeoCon in May 2014, this product won the Editor's Choice Award at Best of NeoCon.

Molded Board

PROPERTY	Particle Board (ANSI M3, 0.50")	Myco Board™ (0.50") Hemp - 20912
Density (kg/m^3)	800	800
Strength (MPa)	15.00	15.55
Stiffness (MPa)	2500	3276
Screw Hold (N)	1000	978
Internal Bond (MPa)	0.50	0.58
Flame (US class)	C (140)	A (19)
Aldehyde (ppm)	5	0.01

ecovative grows materials

open – loop feedstocks (within 100 km)

less CO_2 (12.5%) and embodied energy (10%)

healthy and safe

compatible with the environment

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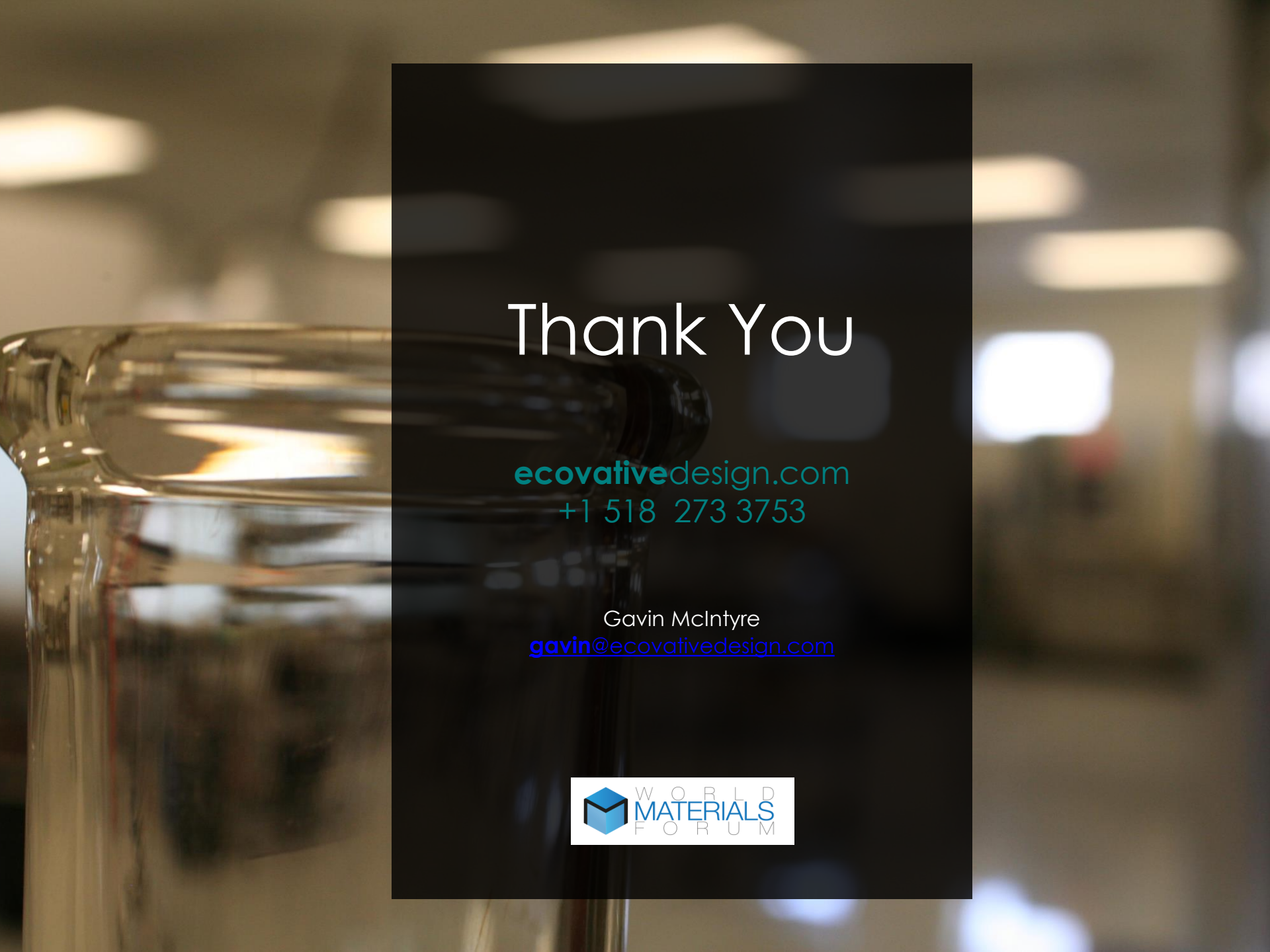

Thank You

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