MATHILDE WITTOCK OBSERVATORY

design - sound - material science

MWO

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THE STUDIO

MWO is a Brussels-based design studio by designer Mathilde Wittock, working at the intersection of material science, art, and sensory design. Dedicated to circular and ethical creation, the studio researches and develops innovative materials from local, renewable, and waste-based resources, implementing them into acoustic solutions such as wall paneling, custom installations, and furniture pieces.

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CYMATIC TILES

Cymatic Tiles are biodesigned acoustic surfaces made from plant roots. Each tile is cultivated within a mould shaped by cymatic patterns, which are visual representations of sound vibrations translated into geometry. As the roots grow, they take on this form, and once harvested, they are dried to create a stable, porous structure with natural acoustic properties. Grown and crafted in Belgium, Cymatic Tiles merge biodesign, material research, and acoustic innovation. Tested under ISO acoustic standards, they can be specified as architectural wall compositions or commissioned as site-specific installations that transform the geometry of sound into material form.

* Technology currently under patent application.

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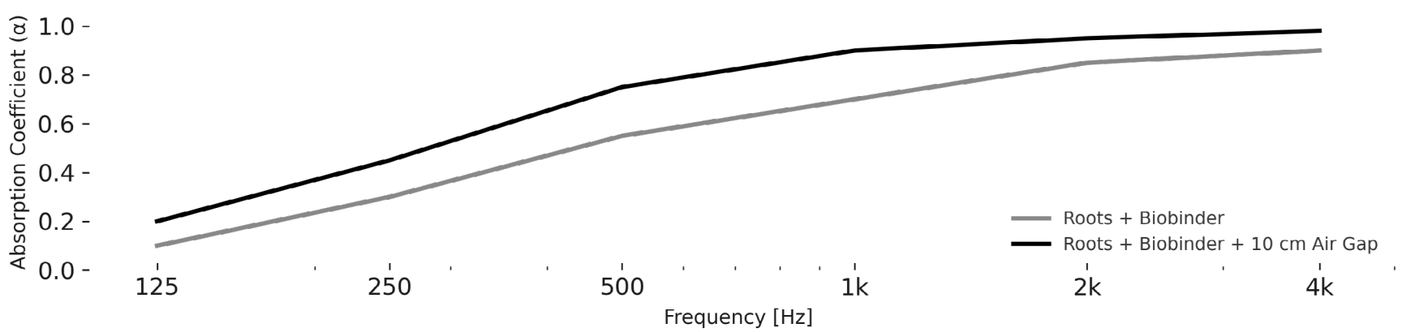
TECHNICAL DATA

Technical Property	Description / Value
Sound absorption coefficient (α)	0.60 – 0.85 (tested under ISO 10534-2, depending on wall configuration)
Thermal conductivity (W/m·K)	0.045 – 0.060 (similar to natural fibrous panels)
Reaction to fire	Class E (in progress under EN 13501-1)
VOC emissions	Very low — solvent-free, non-toxic (meets ISO 16000-9)
Weight	≈ 500 g
Durability	Stable in dried interior conditions
Maintenance	Dry brush or low-pressure air



Composition & Structure
Structured and dried plant roots grown in cymatic moulds
Self-supporting matrix with integrated hanging system.
Back coated with algae-based varnish for stability.
Open, porous, and naturally toned surface.

Sustainability Data
Regenerative and carbon-negative (≈11 kg CO2 /m²).
Growth-based, low-energy fabrication.
Grown and crafted in Belgium.

Acoustic Performance
Broadband absorption from 250 Hz upward, balancing low-frequency control and mid-high clarity. Ideal for offices, classrooms, libraries, and public spaces.

Product Range
Modular or custom cymatic wall compositions.
Natural unpigmented finish.
Integrated hanging system.
Available for site-specific commissions.

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Composition	Interlaced plant roots, hanging system
Dimension	≈ 29 x 29 x 4 cm
Weight	≈ 500g
Impact	Fully regenerative and carbon-negative process
Colours	Natural
Commission	Custom wall configurations available (see slide Patterns for selection).

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Each Cymatic Tile pattern originates from the visualisation of a specific sound frequency, where vibration is translated into geometry. These patterns form the base of the moulds in which the roots grow, giving each tile its unique structure and acoustic signature.

Designers and clients can select from existing patterns to create site-specific compositions. Patterns may be repeated, rotated, or combined to form larger surfaces, allowing each wall to become a visual soundscape.

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Title Cymatic Tiles
Medium Grown Root, Hanging System
Dimensions ≈ 29 x 29 x 4 cm
Process Biowoven, harvested,
post-treated with algea-based varnish

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ROOT TAPESTRY

Root Textile is a regenerative material grown entirely from plant roots. From germinated seeds, the roots expand and interlace into a soft, flexible textile that is grown rather than manufactured. Once harvested, each piece is post-treated with an algae-based varnish developed in our studio, where mineral pigments are added for natural colouring and lasting protection.
The result is a biologically formed surface that combines acoustic and tactile qualities within a fully regenerative process. Designed for both architectural and artistic contexts, it can be used for wall coverings, art tapestries, lamps, and acoustic installations, each piece unique in texture and tone.

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Composition	Interlaced plant roots, algae-based varnish, and bamboo hanging system.
Weight	≈ 500g / m²
Thickness	2–4 mm (variable by growth)
Impact	Fully regenerative and carbon-negative process
Colours	Natural, eige, brown and ochre tones
Commission	Available as commissioned works, tailored in size, colour, and density
Production	Made to order, each piece unique in growth pattern and density

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Title Soundroot Tapestry, 2025
Medium Root Textile, mineral pigments
Dimensions 220 x 190 cm
Process Biowoven, harvested, hand-dyed, and hand-stitched

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Title Soundroot Tapestry, 2025
Medium Root Textile, mineral pigments
Dimensions 134 x 93 cm
Process Biowoven, harvested, hand-dyed, and hand-stitched

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Title Soundroot Tapestry, 2025
Medium Root Textile, mineral pigments
Dimensions 300 x 150 cm
Process Biowoven, harvested, hand-dyed, and hand-stitched

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ROOT LAMPS

Root Lights are sculptural luminaires grown from Root Textiles, materials cultivated from locally germinated seeds. Two distinct textiles are harvested: one formed entirely from roots, with a light fibrous tone, and another combining roots and shoots, yielding a warmer, straw-like hue.

The length of the growth period naturally defines the degree of transparency within each textile, allowing subtle variations in light diffusion and visual texture. After harvest, the materials are dehydrated and protected with an algae-based bio-varnish developed in the studio, which stabilises the surface while preserving its organic tactility.

Shaped and sculpted by hand, these textiles evolve into modular, sculptural luminaires that reveal the living geometry of their growth through light.

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Title Bouze One, 2025
Medium Woven shoots and roots, Algea-based varnish
Dimensions 99 x 40 x 25 cm
Process Biowoven, harvested, hand-Sculpted.

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Title Root One, 2025
Medium Woven roots, Algea-based varnish
Dimensions 106 x 30 x 25 cm
Process Biowoven, harvested, hand-Sculpted.

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TIME & DELIVERY

Production	Handmade in Belgium, produced on demand to ensure quality and care.
Lead Time	depending on quantity and project scale.

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