

Aectual

Circular & tailor-made interior architecture made easy

Wood
Series



First edition

Aectual
Wood Series



This document shows a selection of Aectual's furniture and finishes made from 3D Printed Wood, based on wood waste.

For a full overview of all our interior solutions made from a variety of recycled materials, please have a look at our website and Product Playbook.

Starting from waste, no waste in the process, and re-printable after use

Fully circular

Aectual is the World's leading furniture and finishes manufacturing platform that creates products in a circular loop via XL 3D printing of recycled waste materials.

Circularity is at the core of our company. We print with waste materials, and during our printing processes, zero waste is created. Because all our items are printed on-demand, we create a tailored fit for every project, and have no dead stock. All items are part of our take-back service, which means that after use they are taken back, shredded, and recycled into newly printed products.

This allows us to digitally improve the designs of our products with every material cycle. This approach, combining a data-driven design loop with a material feedback loop, was recently dubbed the 'Ultimate Upcycling Approach' by Forbes Magazine.

Our research and development of 3D printing with wood waste is constantly evolving. We are excited about the material properties of wood, as it is a versatile, tactile material with a natural appearance. By adding colorants, we created 3 standard colors that form a subtle palette. Because of the use of recycled materials, minor color changes may occur in the final product. The 3D printing process builds up the material layer by layer, causing its layered effect. Small irregularities may occur, as this is inherent to the printing process and gives it the material its charm.

+ www.aectual.com/about



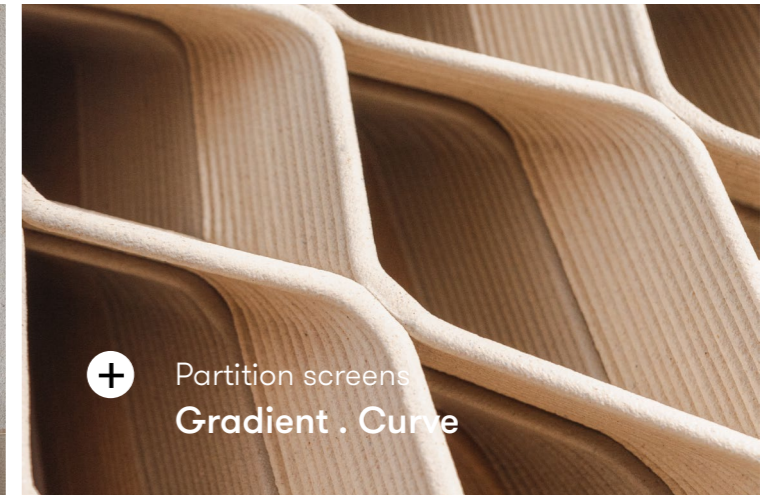
Create your tailor-made, interior products & architectural finishes in a circular way

+ Hanging screen
Gradient . Curve

+ www.aectual.com



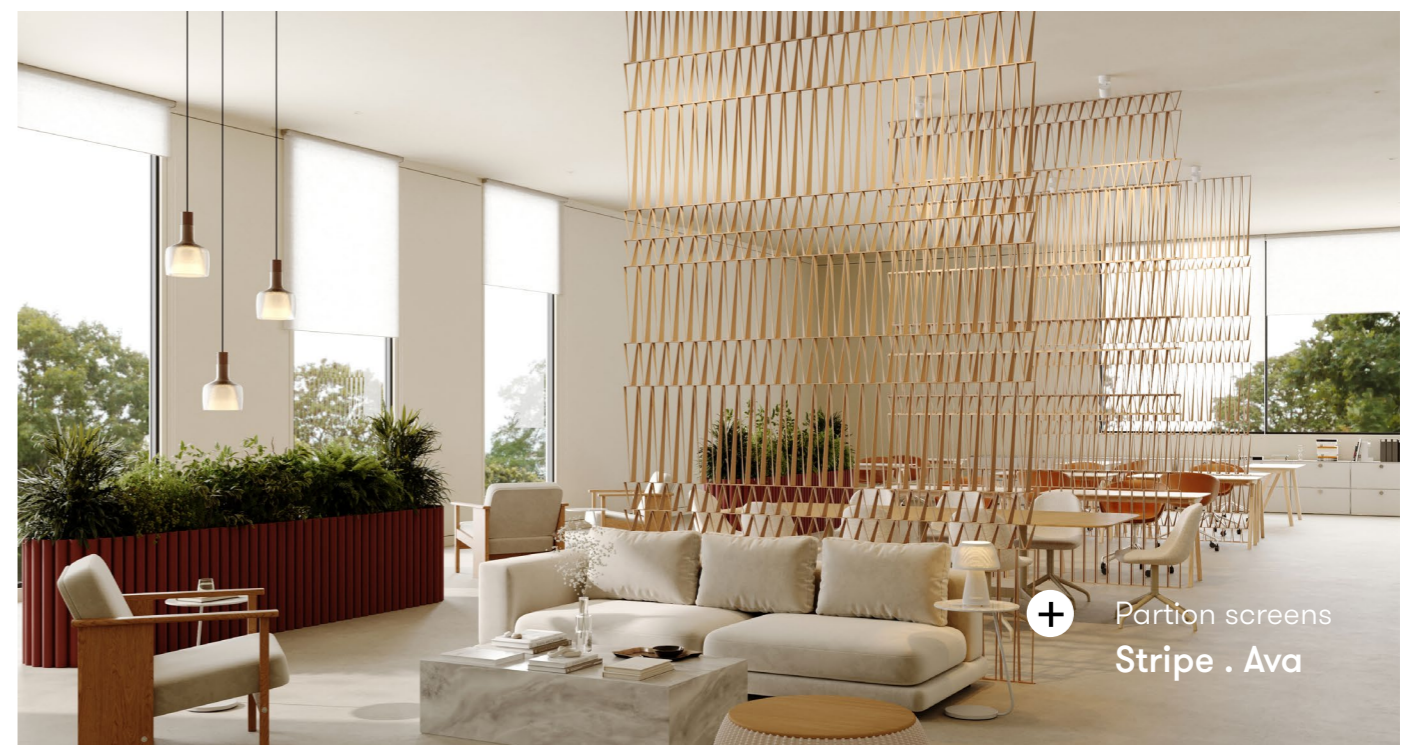
+ Partition screen
Mesh . Diamond



+ Partition screens
Gradient . Curve



+ Window screen
Gradient . Nazka



+ Partion screens
Stripe . Ava

Customize to fit your project

Tailor made

All our furniture and finishes are custom 3D printed to fit your project. Under the 'furniture' chapter on our website you find an overview of all solutions, such as poufs, room dividers, and planters. You can directly configure these via the online configurators, and play with sizes, colors, and surface textures. The online configurators of our wooden products will soon be online, keep an eye on our website for updates.

For larger bespoke screens go to the systems section of our website for an overview. If you email us the dimensions and pattern of your choice, we will generate an exactly fitting design and share the shop drawing for your approval.

+ www.aectual.com/about



Partition screens
Stripe . Ava

Choose from Aectual's selected colors from recycled saw dust



Circular Recycled Wood Series*

*please be aware that due to the use of recycled material, sometimes products are not completely uniformly colored and might slightly deviate from the exact color coding

.01



Birch

.02

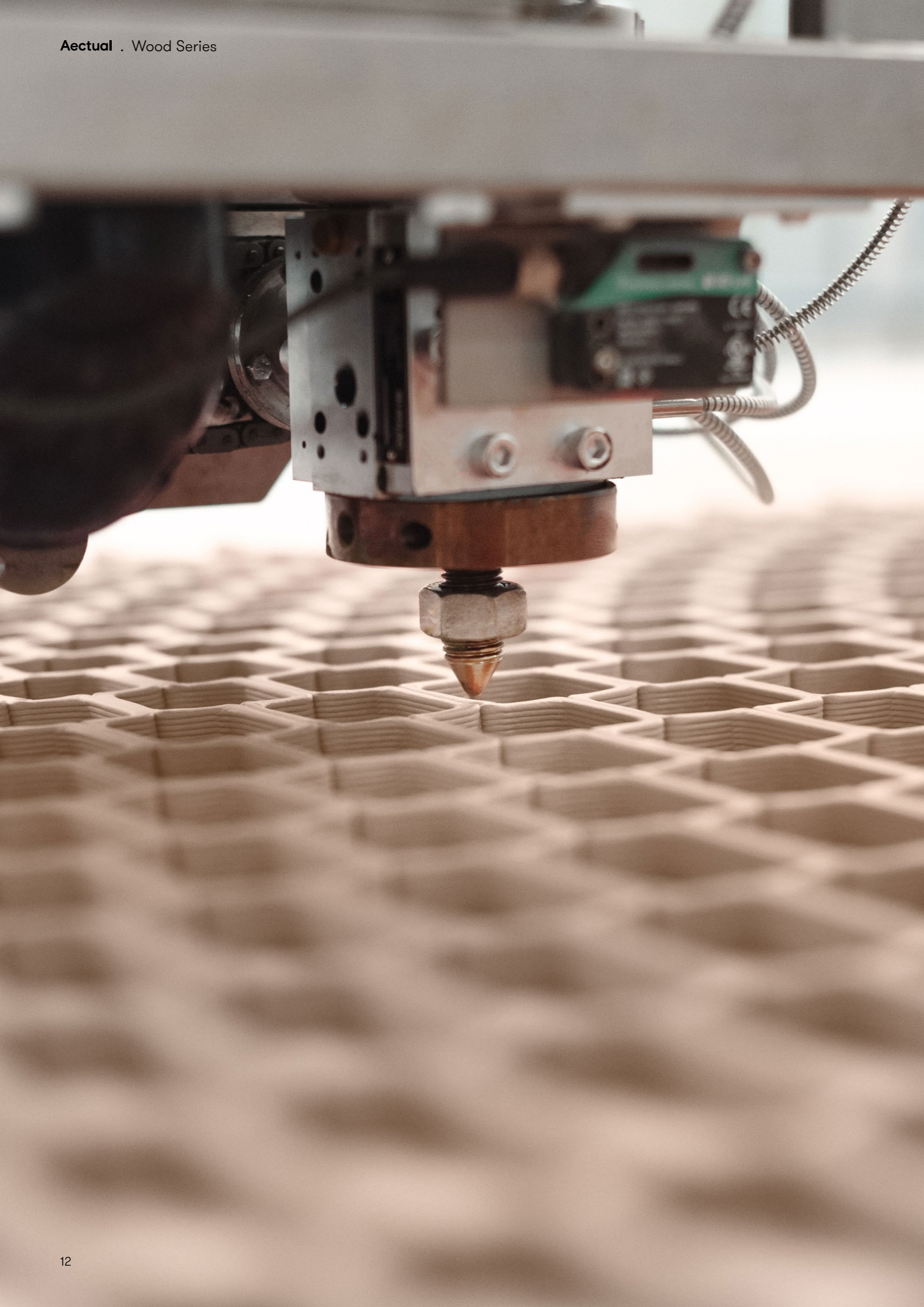


Ash

.03



Oak



Products which are available in recycled saw dust material.

Systems & Furniture

Gradient

Products: Curve, Nazka

Stripe

Products: Ava

Mesh

Products: Diamond

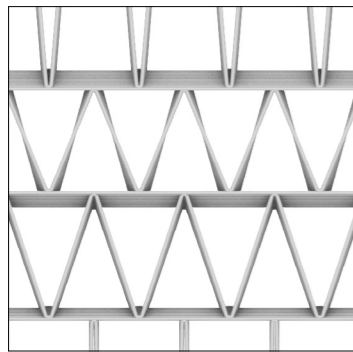


Stripe . Ava

Partition screen

The Stripe . Ava system in 3D printed wood fuses V-shapes and orthogonal lines. Drawing inspiration from the bold forms of 1950s Brise Soleils, this design enables designers to craft unique compositions, weaving horizontal, vertical, and diagonal lines into captivating patterns. Use as a hanging divider or as an entire made-to-measure feature wall that's connected to the floor and the ceiling for support.

Product line



Stripe

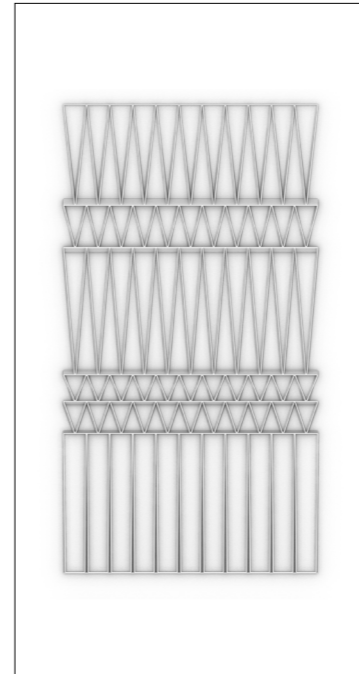
www.aectual.com/systems/stripe-ava



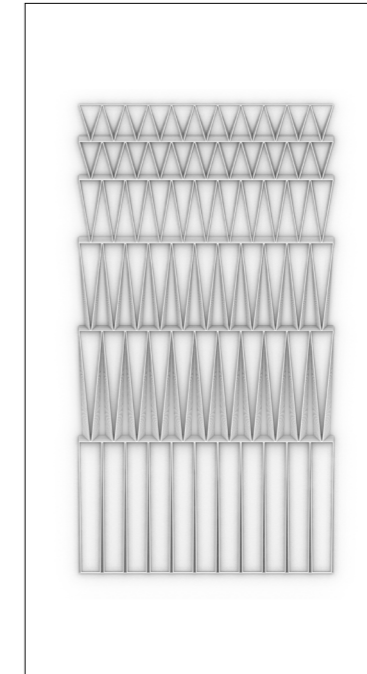
+ Partition screens
Stripe . Ava



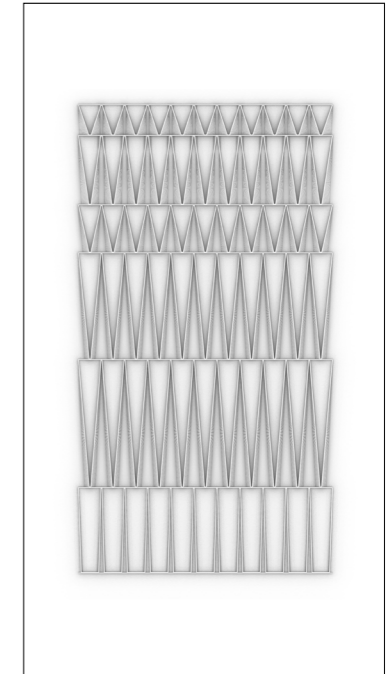
Selected Presets



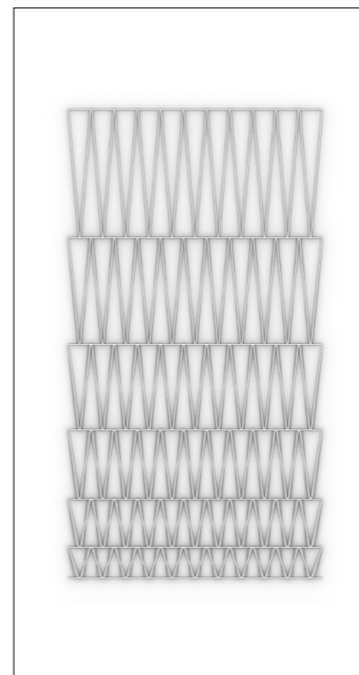
Screen #B 3.1
Type: Stripe
Texture: Cell connection gradient
Size: 100 × 180 × 2.7cm



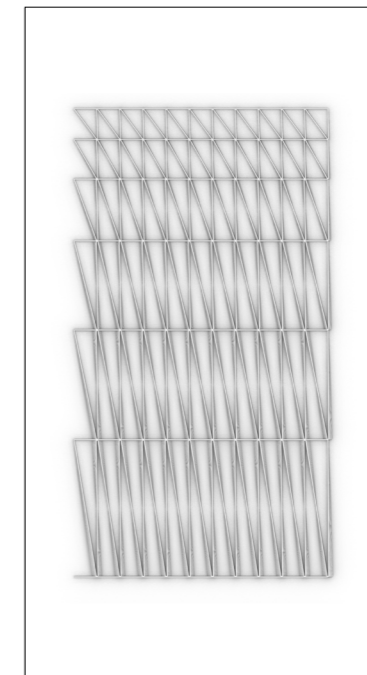
Screen #B 3.2
Type: Stripe
Texture: Cell connection gradient
Size: 100 × 180 × 2.7cm



Screen #B 2.3
Type: Stripe
Texture: Cell gradient
Size: 100 × 180 × 2.7cm



Screen #B 1.4
Type: Stripe
Texture: Cell gradient
Size: 100 × 180 × 2.7cm



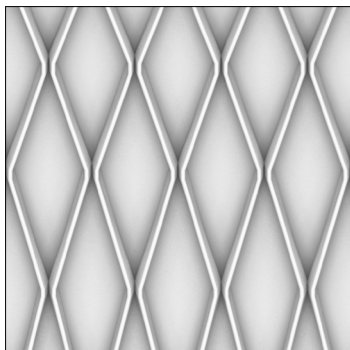
Screen #B 2.5
Type: Stripe
Texture: Cell gradient
Size: 100 × 180 × 2.7cm

Mesh . Diamond

Partition screen

The Mesh . Diamond pattern allows you to play with diamond shapes in combination with vertical lines. Stretch and manipulate the diamonds to create slender, vertical forms that add a touch of sophistication to any environment.

Product line



Diamond

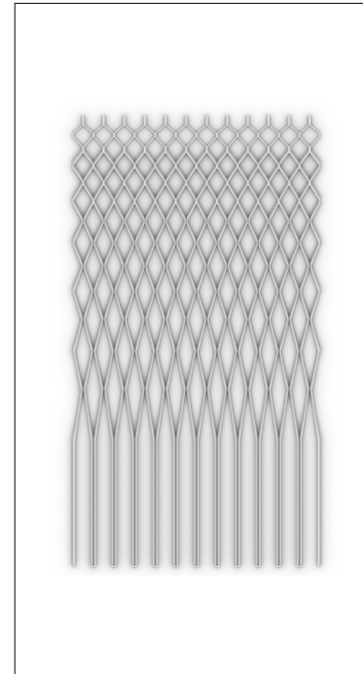
[+ www.aectual.com/systems/mesh-diamond](http://www.aectual.com/systems/mesh-diamond)



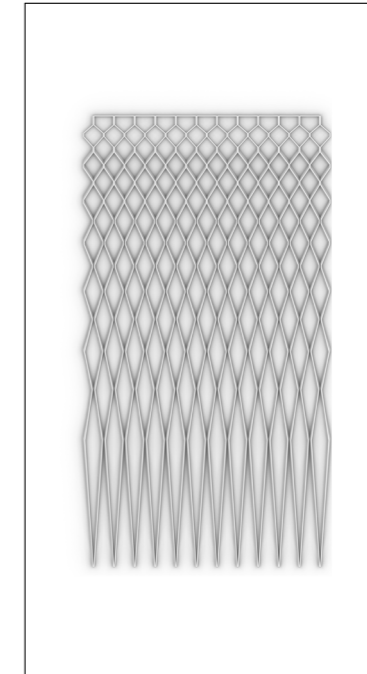
[+](#) Partition screens
Mesh . Diamond



Selected Presets



Screen #A 3.1.5
Type: Diamond
Texture: Gradient
Size: 100× 180 × 2.7cm



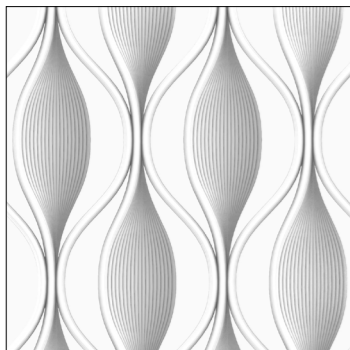
Screen #A 3.1.3
Type: Diamond
Texture: Gradient
Size: 100× 180 × 2.7cm

Gradient . Curve

Partition screen

The Gradient Curve system plays with light & privacy through adaptive patterns that gradually open and close. Every curved cell has a louver that can be positioned at an exact angle. This allows you to create bespoke graphic and brand designs, precise sun shading, and play with privacy. Use it as hanging screens to provide tailored shade in front of windows, or self-standing room divider.

Product line

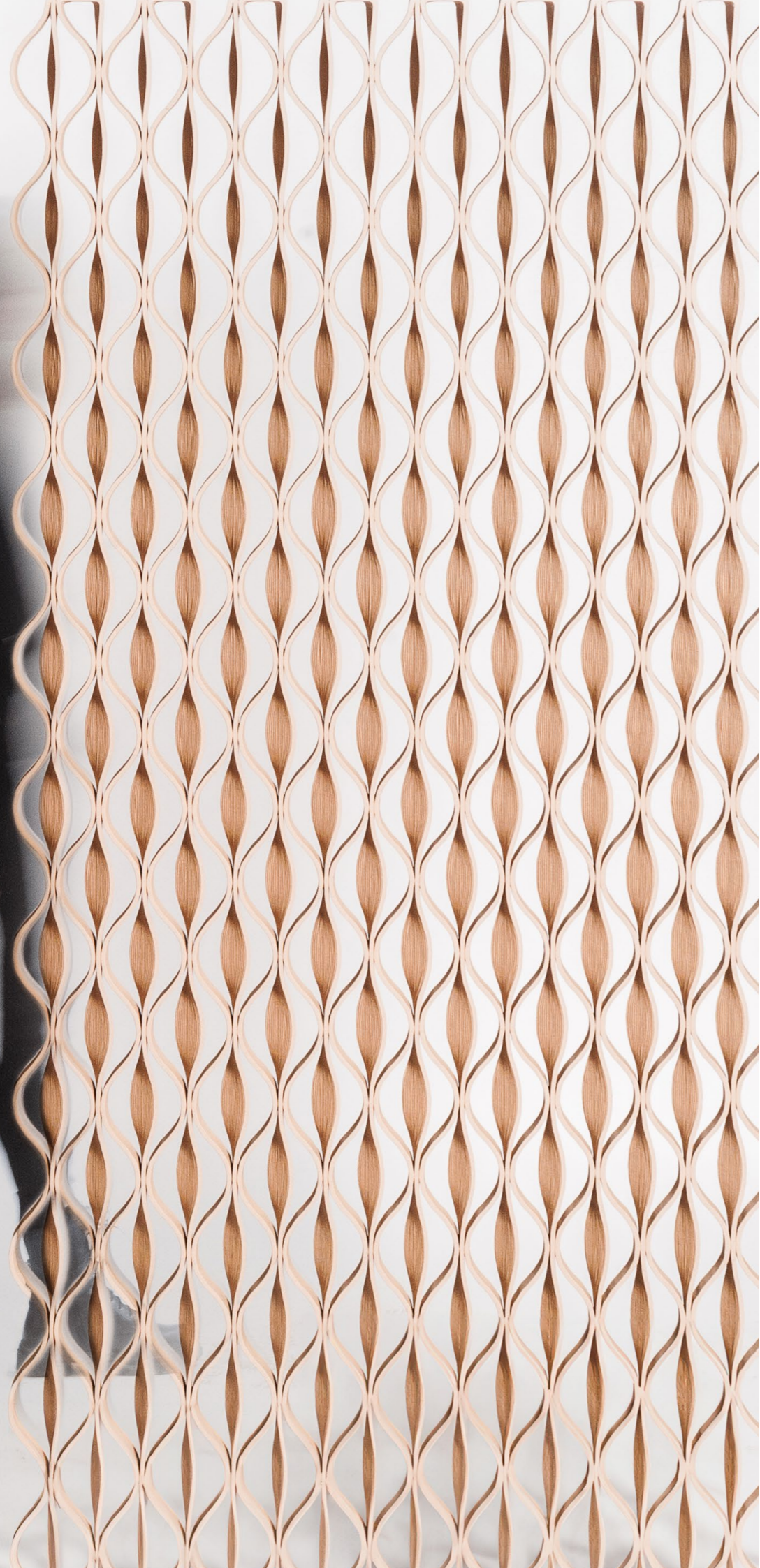


Curve

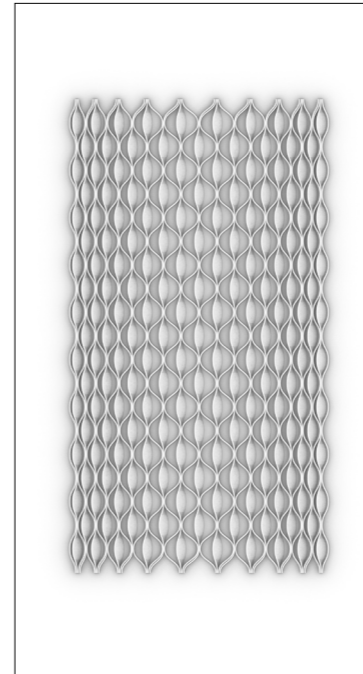
[+ www.aectual.com/systems/gradient-curve](https://www.aectual.com/systems/gradient-curve)



Partition screens
Gradient . Curve

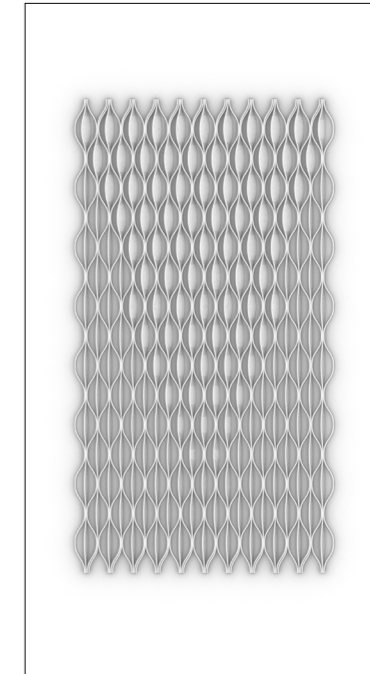


Selected Presets



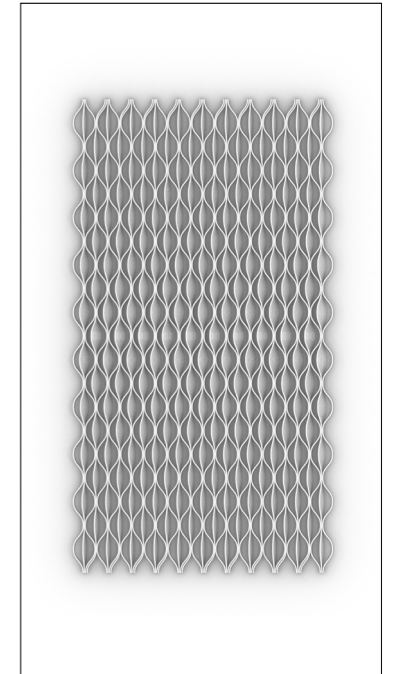
Screen #C1

Type: Curve
Texture: Cell gradient
Size: 100 × 180 × 2.7cm



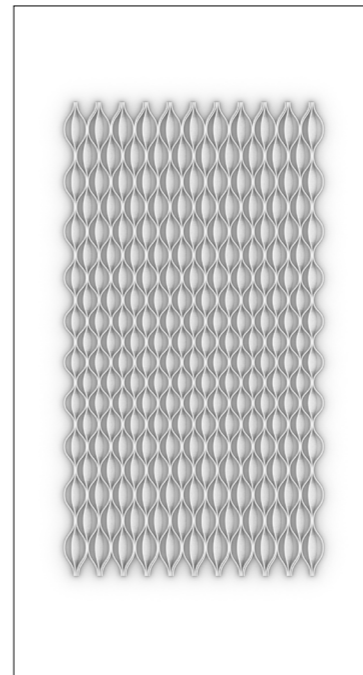
Screen #C2

Type: Curve
Texture: Custom gradient
Size: 100 × 180 × 2.7cm



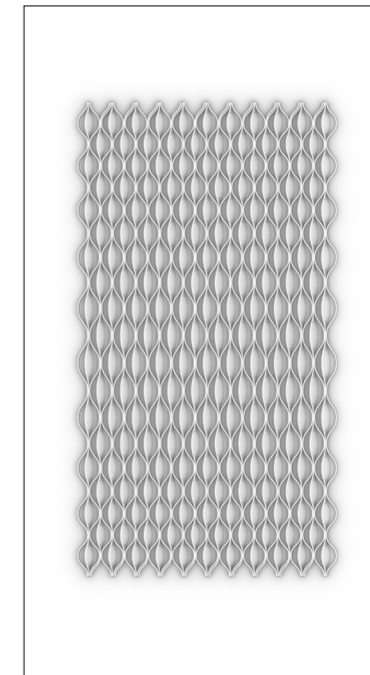
Screen #C3

Type: Curve
Texture: Opening gradient
Size: 100 × 180 × 2.7cm



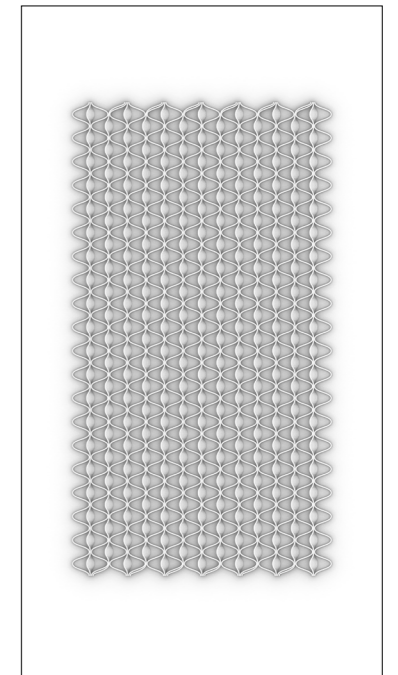
Screen #C4

Type: Curve
Texture: Cell gradient
Size: 100 × 180 × 2.7cm



Screen #C41

Type: Curve
Texture: Cell gradient
Size: 100 × 180 × 2.7cm



Screen #C5

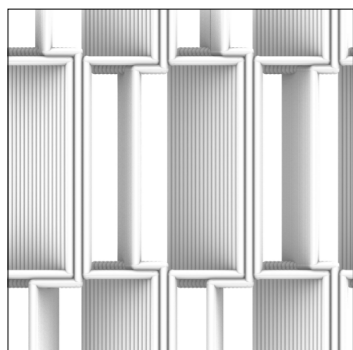
Type: Curve
Texture: No gradient
Size: 100 × 180 × 2.7cm

Gradient . Nazka

Partition screen

The Gradient Nazka system plays with light & privacy through adaptive patterns that gradually open and close. Every rectangular cell has a louver that can be positioned at an exact angle. This allows you to create bespoke graphic and brand designs, precise sun shading, and play with privacy. Use it as hanging screens to provide tailored shade in front of windows, or self-standing room divider.

Product line



Nazka

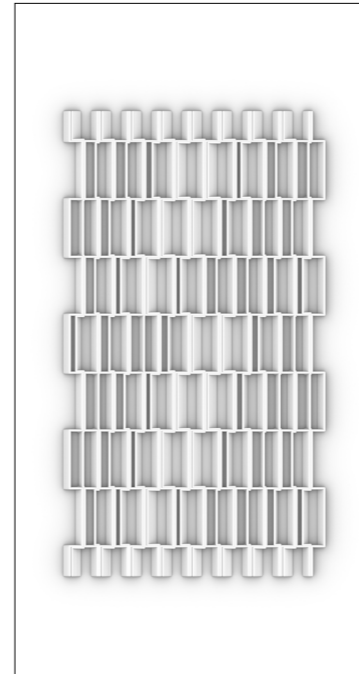
[+ www.aectual.com/systems/gradient-nazka](http://www.aectual.com/systems/gradient-nazka)



+ Partition screens
Gradient . Nazka

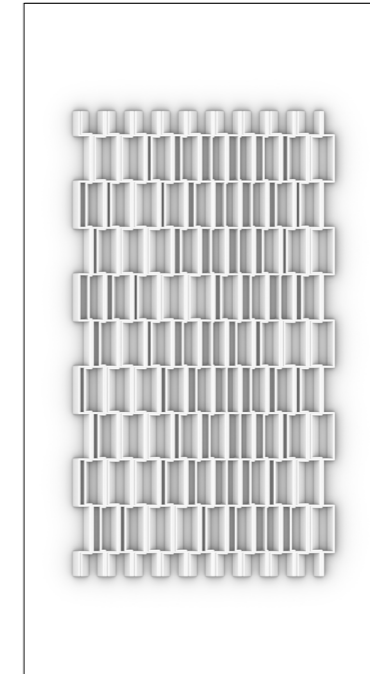


Selected Presets



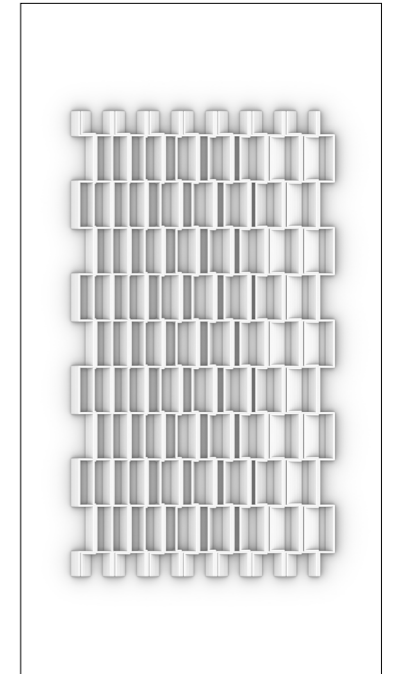
Screen #N1

Type: Nazka
Texture: Opening gradient
Size: 100 × 180 × 2.7cm



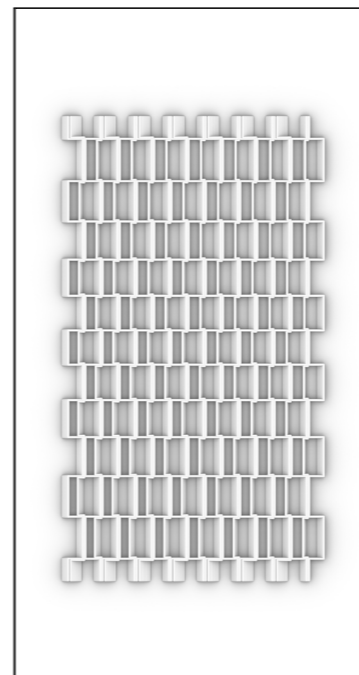
Screen #N2

Type: Nazka
Texture: Custom gradient
Size: 100 × 180 × 2.7cm



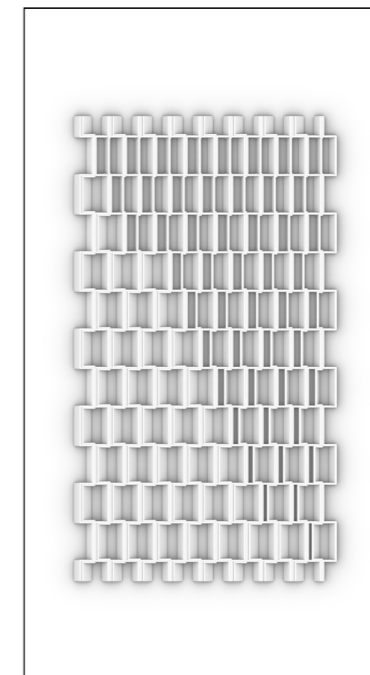
Screen #N3

Type: Nazka
Texture: Opening gradient
Size: 100 × 180 × 2.7cm



Screen #N4

Type: Nazka
Texture: Cell gradient
Size: 100 × 180 × 2.7cm

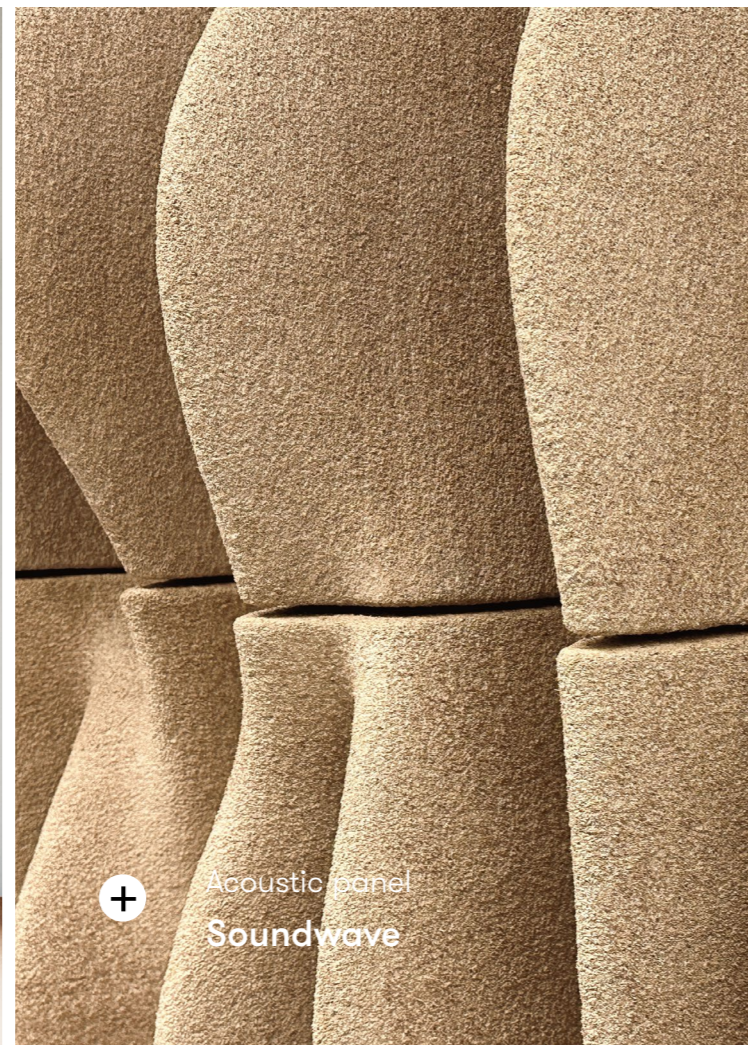


Screen #N5

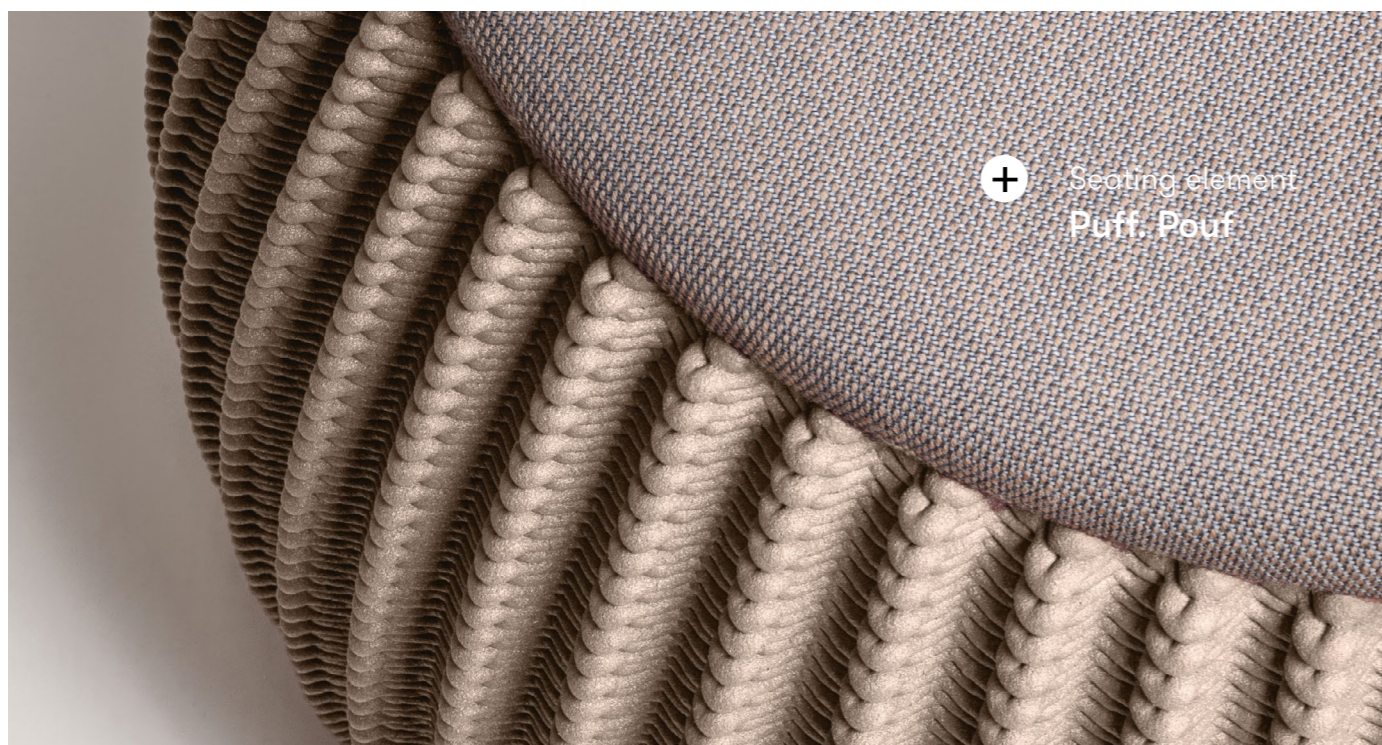
Type: Nazka
Texture: Opening gradient
Size: 100 × 180 × 2.7cm



+ Shelving
Wrap . Cannelure



+ Acoustic panel
Soundwave



+ Seating element
Puff. Pouf

In development*

*products not available yet

Acoustic panels

Products: Soundwave

Wall panels & shelving

Products: Wrap . Shelfy

Seating elements

Products: Puff Pouf

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FAQ . Aectual's 3D Printed Wood Series

What is the material made of?

Aectual 3D Printed Wood products are made with residuals of the wood & paper industry. This means wood chips, paper pulp, and sawdust. The main wood components in these ingredients are lignin and cellulose which are used to create a bio-polymer compound made with a minimum of 71% renewable resources. Other components are natural mineral fillers to create a compound which can be used for 3D printing on a large scale, connected to our interior product portfolio. The material is organic and biodegradable in a composting environment.

What is the strength of the 3D printed products?

The material has a similar composition, appearance, and properties to those of wood, but it is a thermoplastic so it can be melted upon heating and used for 3D printing on a large scale. The wood material is very hard and stiff which makes it an excellent product for interior furniture and finishes. For now, it we use it in applications that do not carry additional external load, but that can stand up by themselves, or can be hung from the ceiling, or mounted to a backstructure.

Why are the 3D printed wood products sustainable?

From a sustainable viewpoint, the material is:

- Made with organic waste streams
- 100% re-printable
- Storing CO2 in a long lifespan
- Biodegradable in a composting environment

This is on top of the general benefits of 3D printing:

- No waste, since compared to subtractive manufacturing we only use the material we need with our additive way of manufacturing
- Made on demand, so no stock
- Made-to-measure, so no cutting loss and easy instalment
- Low-energy production process

Is the material applicable outdoors and is it waterproof?

Aectual focuses on interior finishes and furniture and that's what the material currently is suited for. But in the future we can see it also becoming applicable outdoors. Please email our team for updates. The material is water resistant and can be rinsed with water to clean.

How does your take-back service operate?

As part of our commitment to a circular economy, Aectual offers a convenient take-back service. Used products can be returned and are meticulously shredded, transforming them into reusable flakes that we seamlessly integrate back into the production of new 3D-printed items. The materials we use for our products, such as recycled beverage cartons, reclaimed ocean waste, and linseed, can undergo this process already up to 10 times. This sustainable approach not only conserves resources but also delivers ongoing value to our clients. To participate, simply gather your items and pack them in a large bag or box – no need for delicate handling, as the material will be shredded. We cover the cost of shipping for your convenience.

Could we use the 3D Printed Wood material for our own creative designs?

We're using this material especially for our in-house developed growing furniture and finishes product systems. Our systems all have a wide range of customization features, enabling you to create your own tailored version of the product. Within specific cases we develop new systems together with clients & designers, please always share your ideas with our team. For now, we do not sell the material to other 3D print manufacturers.

How is the material printed?

We print with robotic Fused Granulate Fabrication (FGF), an extrusion-based XL 3D printing technique where granulates (pellets) are melted and guided through a nozzle, creating every product layer by layer in an additive manner.

What is the production location? And what is the leadtime?

We print in our facilities in Europe. Leadtimes vary from 6 – 10 weeks depending on project size.

What is the maximum size of a panel?

Maximum panel sizes are 1 × 2 meters. Pattern designs can extend across multiple panels, creating an uninterrupted pattern.

Can we print with our own design pattern with your wood?

We first will try to match your pattern with one of our existing system patterns and see if we can reach a matching design. All our system patterns have a high level of customizability, enabling you to create a unique tailored pattern. If this is not a match, in some specific cases, it can be possible to create your own pattern at extra costs.

Which colors do you have in 3D Printed Wood?

We have 3 colors: Birch, Ash and Oak.

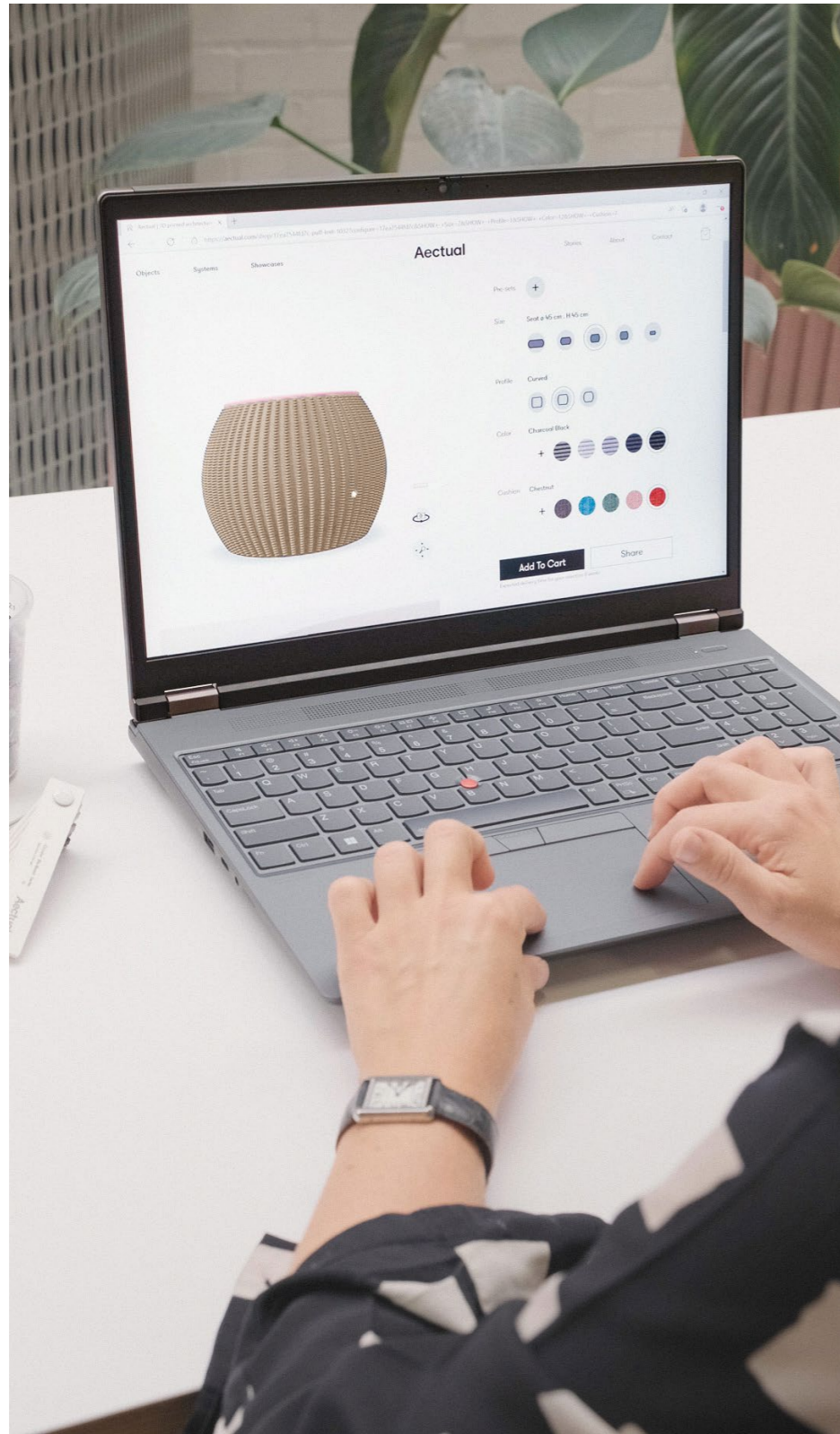
Wood Series

Technical data & properties

Description	Panels in custom size, pattern and shape. Tailor made for the client
Application	Wall cladding, furniture paneling, dividing screens
Material	Thermoplastic bio-compound from lignin and cellulose (wood residuals)
Color	Wood shades, birch, ash and oak. Custom colors upon request
Process	3D Printing, FGF, Fused Granulate Fabrication
End of Life	100% mechanically recyclable (by Aectual - option for subscription model) 100% biodegradable in a composting environment (EN13432)
Size	Single panel up to 1000×2000 mm
Thickness	20-40 mm, 30mm
Weight	ca. 3-7 kg / m ²
Hardness	Hard; 7+ Shore D Good scratch resistance
Softening point	95 °C
Temperature resistance	-15 till 65°C
Reaction to fire	No classification
Handing & Packing	Unpack with great care; un-installed panels are very fragile. Use clean gloves
Health	The product does not contain substances classified as hazardous to health or the environment according to the requirements of Regulation (EU) 1272/2008 (CLP) and subsequent amendments and adaptations.
Cleaning instructions	Dust of dry. Remove stains by spraying on the spot with a mild cleaner, leave for a minute and brush clean with a soft brush along the printlines. Wipe dry with a clean non pilling cloth or paper.
Environmental Footprint	Made with organic wood residuals No waste & low energy production method, tailor made to measure Long lifespan & store CO ₂ 100% recyclable & biodegradable in a composting environment

Disclaimer

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& create your
tailor-made solution

Check latest
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& possibilities
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Wood Series