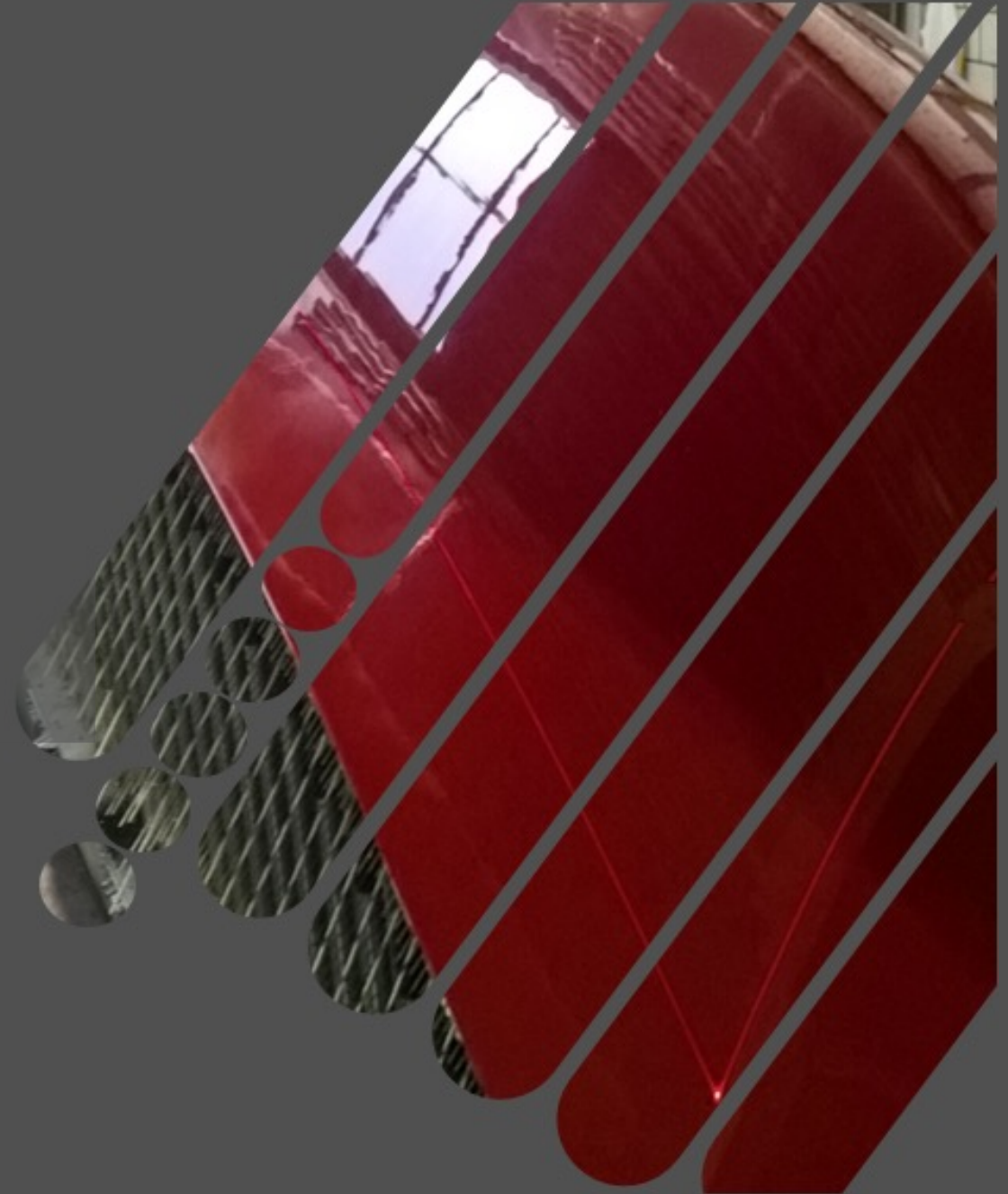


Building with bamboo using adaptive moulds

Tahira Ahmed
Director Curve Works

Curved Panels + Panel Assemblies

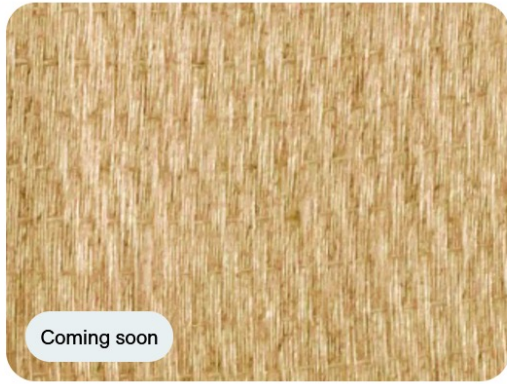




Some context...



Yarn



Textile



UD-Tape

 bambooder



Net



Mat



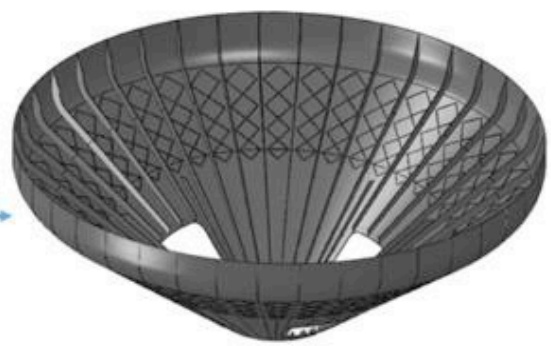
Knitting fibers, no flow

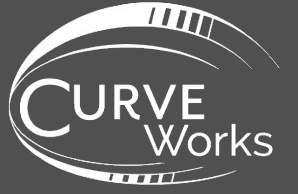


Focus on **composite materials**



Engine Thrust Frame





Curve Works was born

Our mission:

To manufacture lightweight structures, responsibly

Vision:

Moulds need to be 100% reusable

Large products will not be made using large moulds

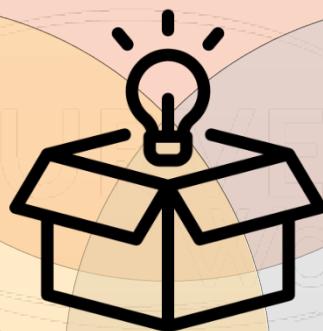
ethical

functional

Design

carbon
footprint

social



Material

Manufacturing

supply chain
security

durable

cost

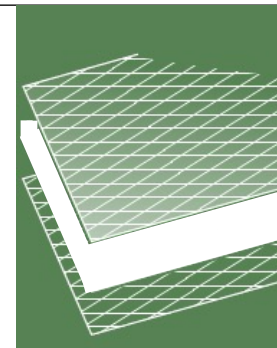
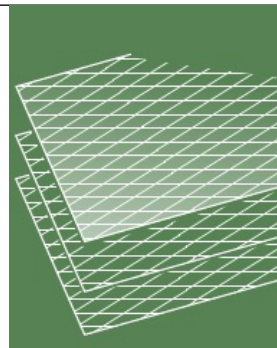
Weight is everything

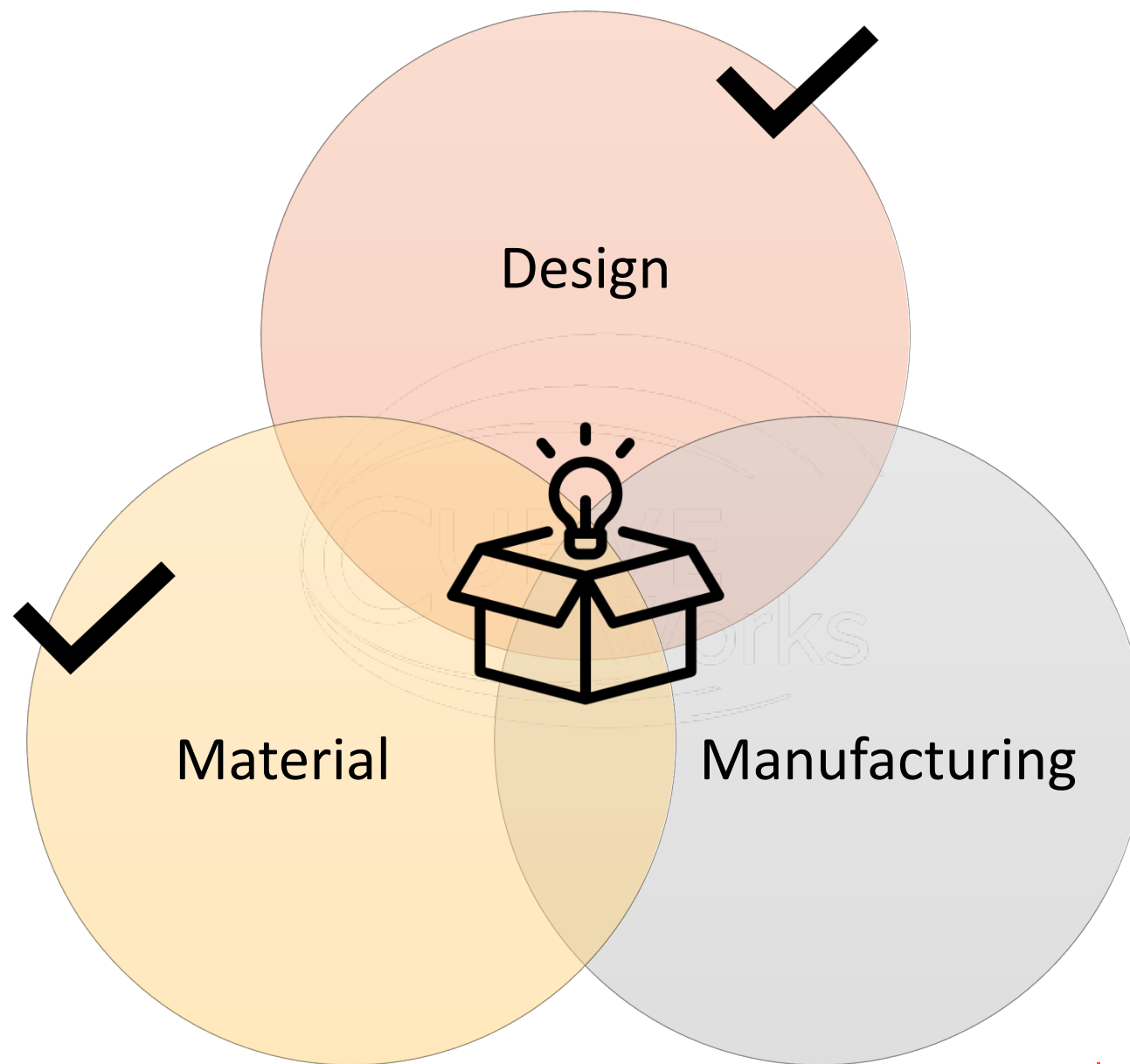


- Linear relationship between weight and carbon footprint
- Hardest work is at the design-materials side
- Manufacturing processes are a small contributor

↓ cost

	Monolithic	Sandwich
Materials	90%	80%
Production process	10%	20%









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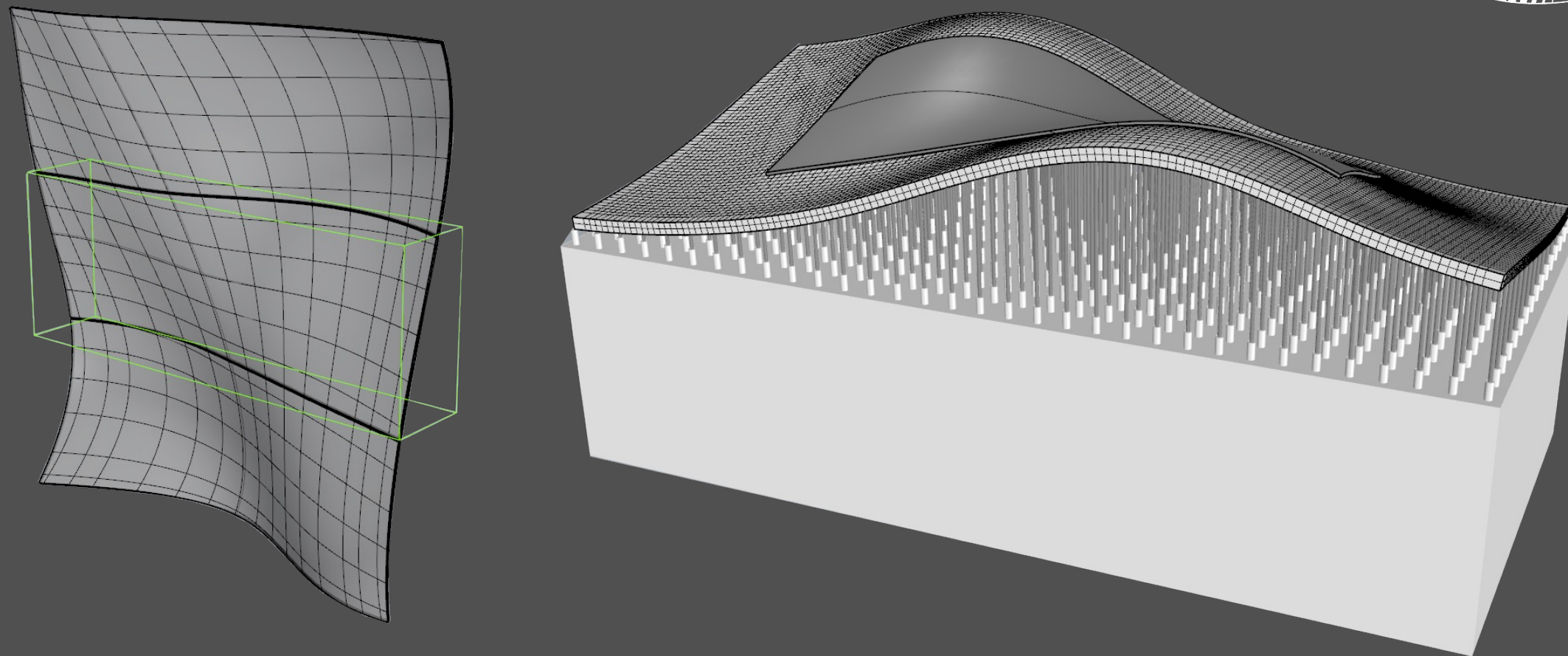
Introducing
the
adaptive
mould



adappa
adaptive moulds

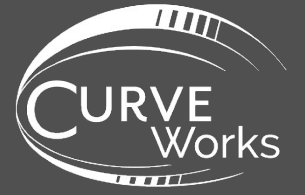


| Curved Panels + Panel Assemblies



From design to production in virtually the click of a button.

Our design approach



The entire manufacturing process is carefully designed to reduce weight, waste, environmental impact and cost.

Conscious material choices

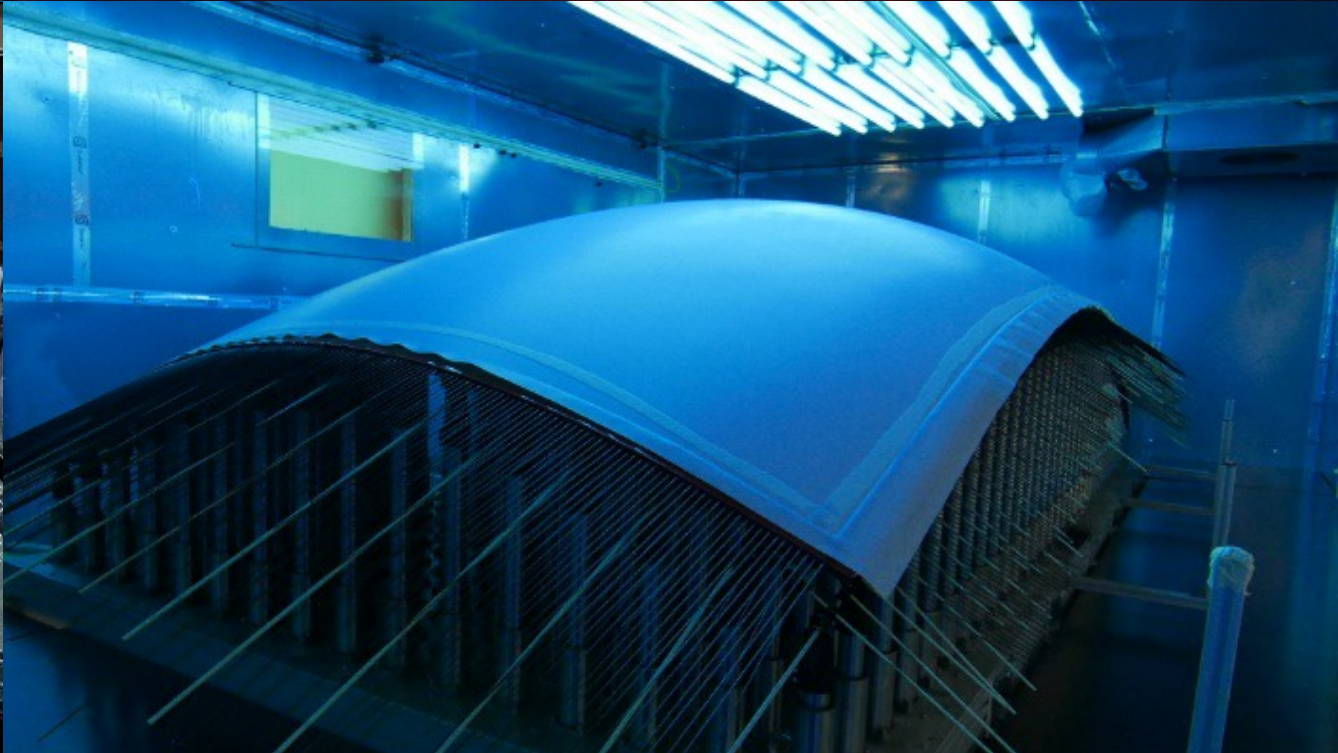
Use of minimal materials, or combinations of materials

Adaptive Moulds

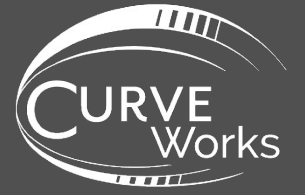
The panel is manufactured on top of our adaptive moulds, eliminating the need of single use moulds.

Manageable panels

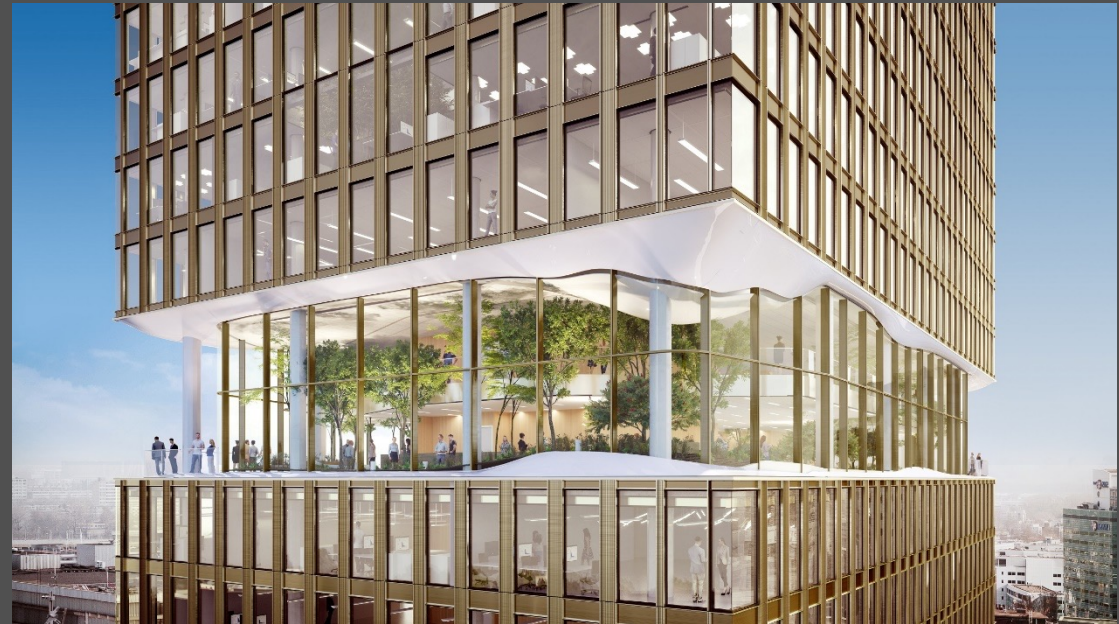
The lighter weight and smaller size reduces the size of the transport and lifting equipment required.



Proven technology for architecture



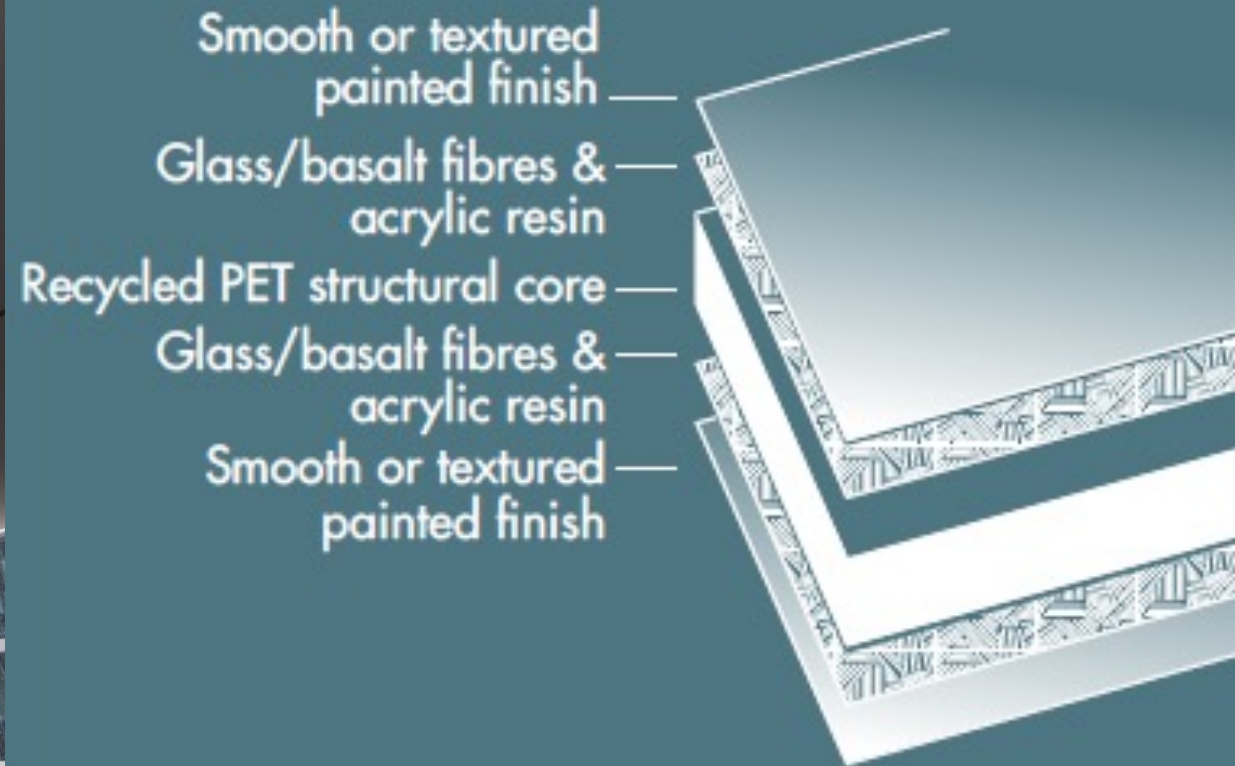
Central Park – Utrecht



| Curved Panels + Panel Assemblies



Composition



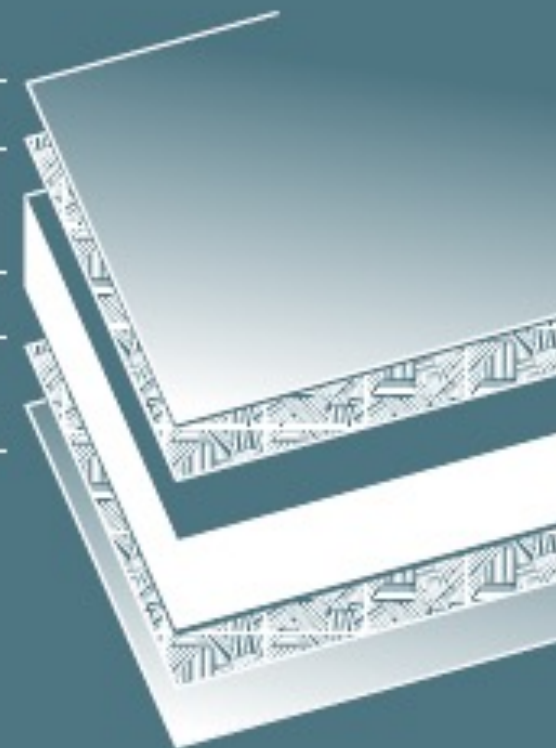
Benefit of composite materials

- Excellent substitute of GRC cladding with only 8-15Kg/m².
- Fire class B s1 d0 according to EN 13823.
- Thermal expansion identical to steel.
- Not affected by corrosion.
- Water based resin
- **Very competitive pricing**



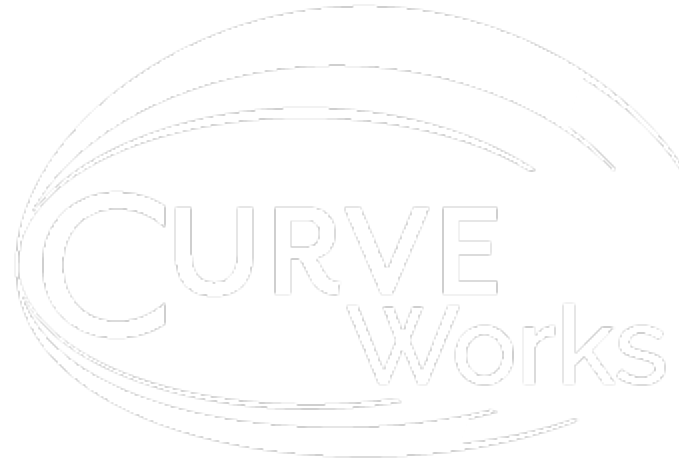
Composition

- Smooth or textured painted finish
- Glass/basalt fibres & acrylic resin
- Recycled PET structural core
- Glass/basalt fibres & acrylic resin
- Smooth or textured painted finish





What about seamless designs?



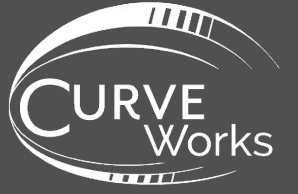
Proven technology for boat-building



Formosa [Taiwan]. Photograph by John Thomson, 1871.



| Curved Panels + Panel Assemblies



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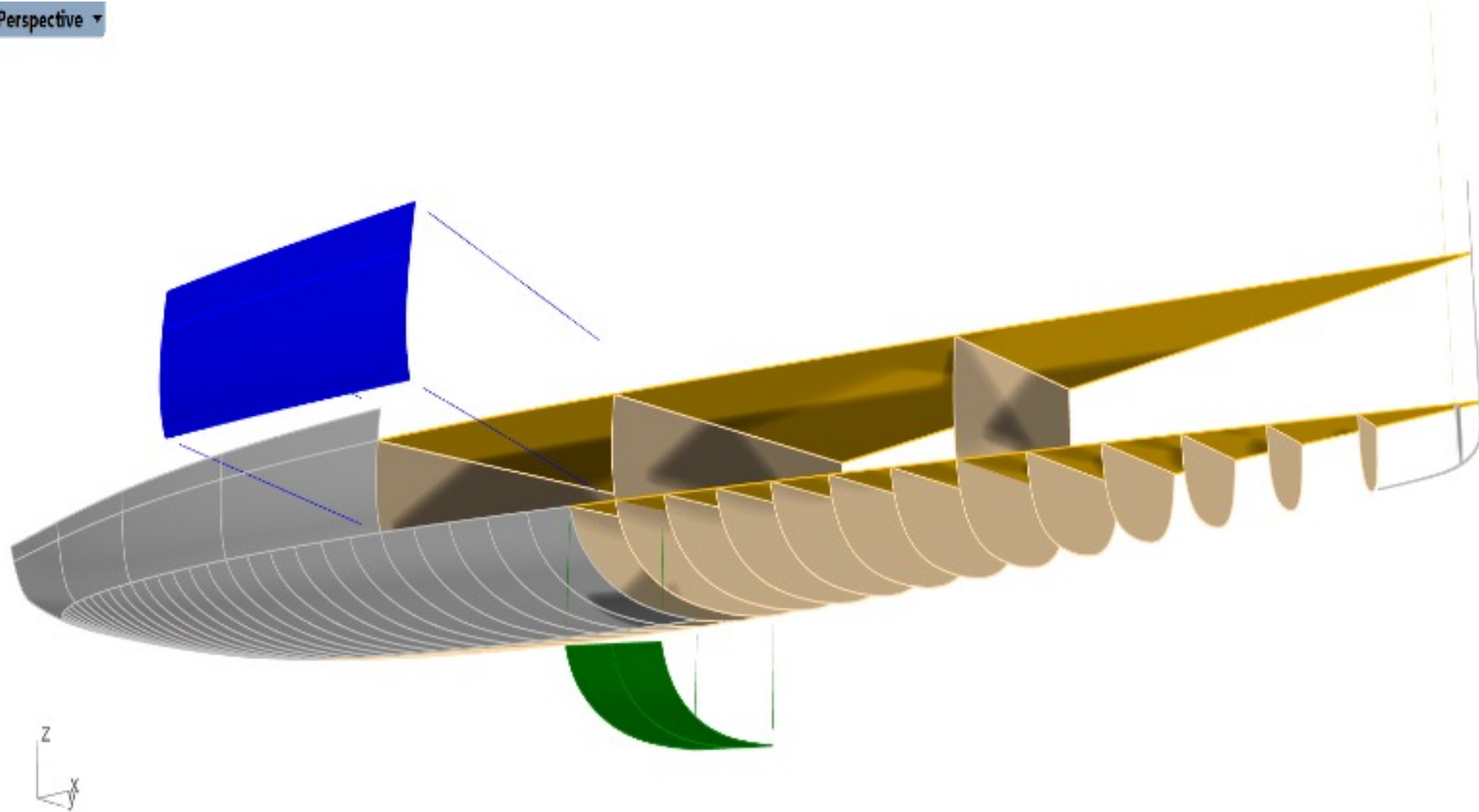
Large products will not be made using large moulds

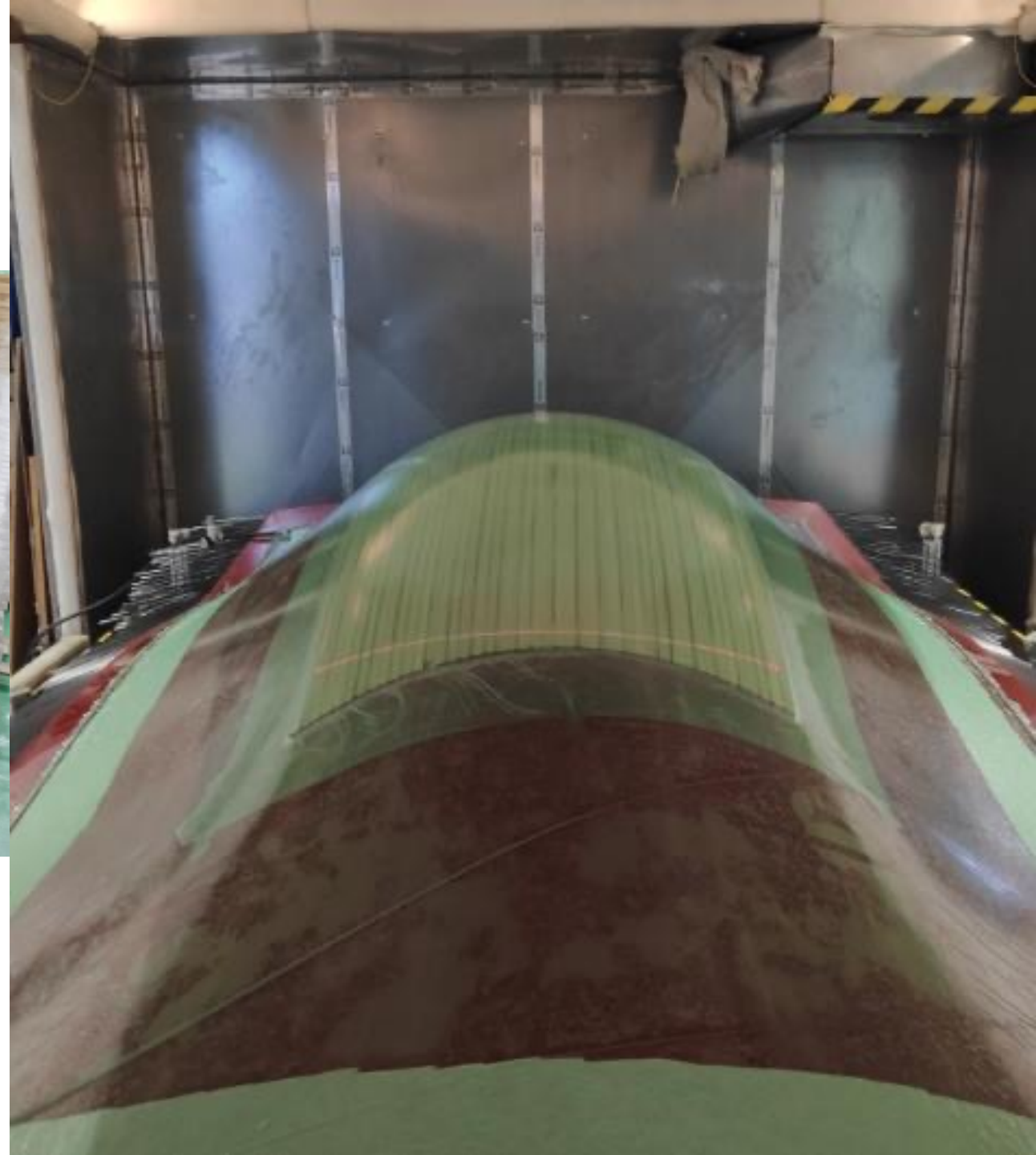


Panel assembly for seamless design



Perspective ▾









| Curved Panels + Panel Assemblies



| Curved Panels + Panel Assemblies



Final thoughts with inspiration from Ibuku Architects

CURVE
Works

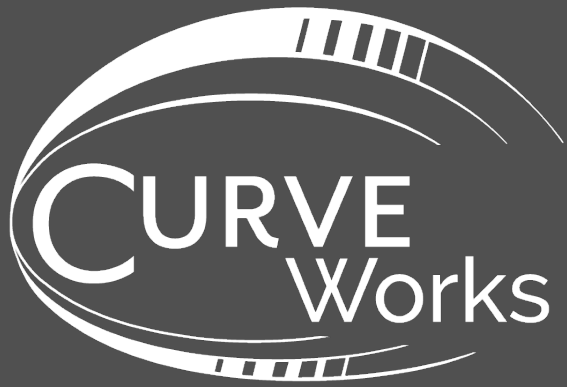


Roelof van der Werff



Henk Bergsma



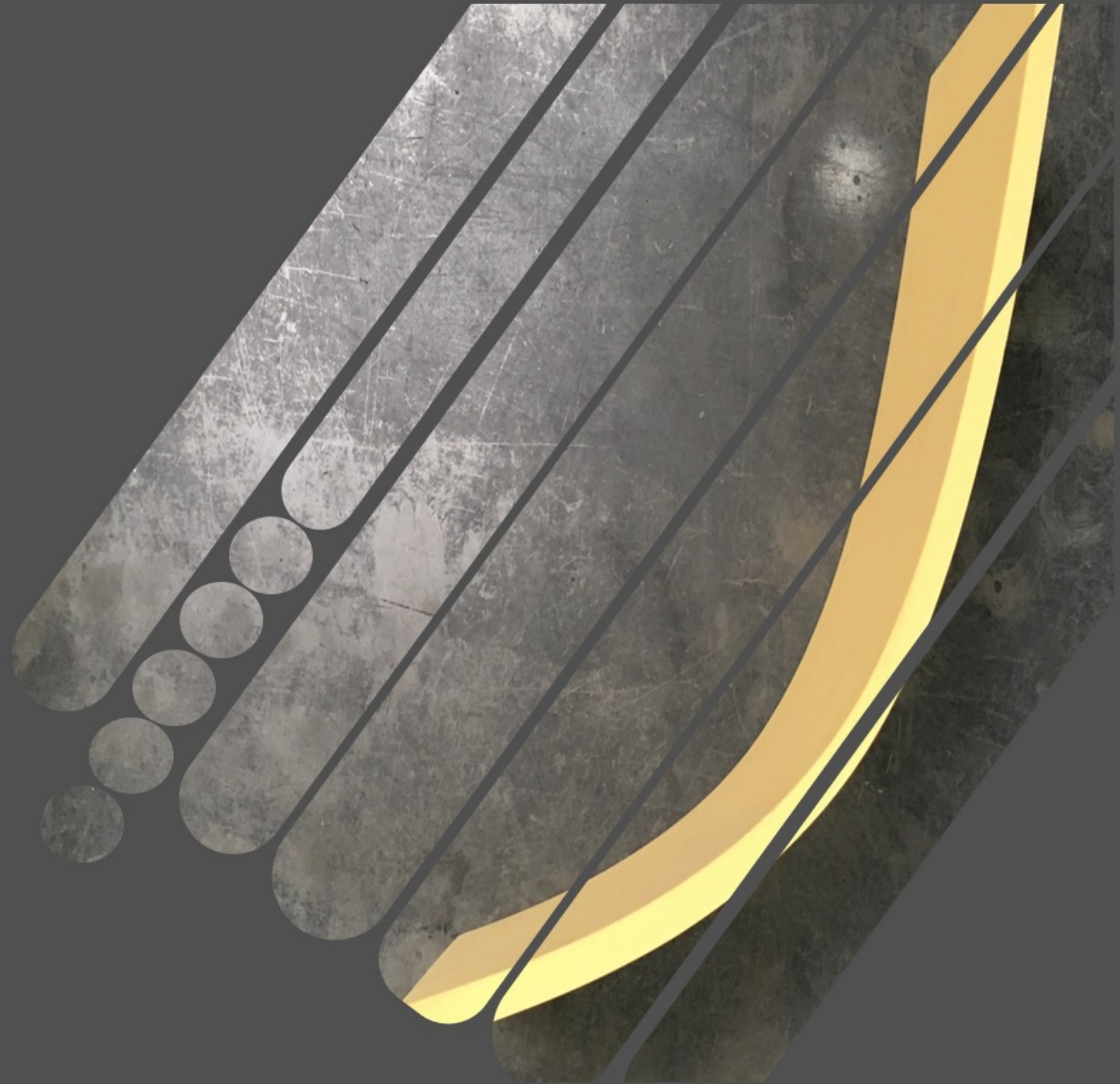


Thank you

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The Netherlands

Curved Panels + Panel Assemblies



Snowball effect from smaller elements

