

Structural applications with Bio Composites

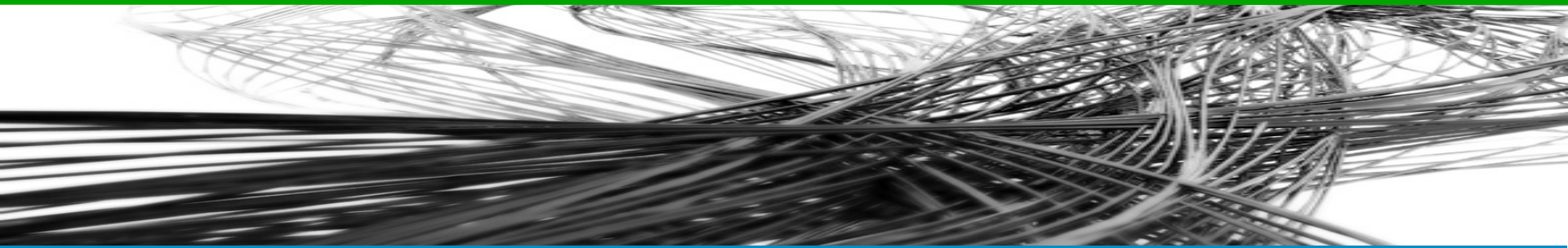
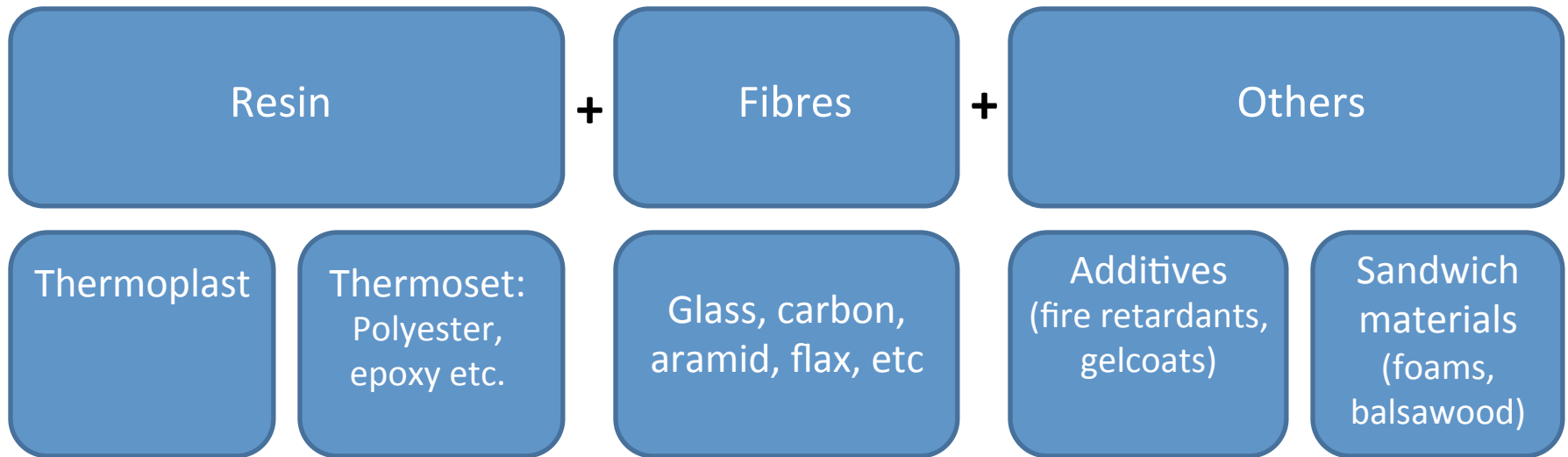
Willem Böttger
NPSP Composieten



NaBasCo; natural fibre reinforced composites in structural applications – W. Böttger

Composites are fibre reinforced plastics

Fibres give strength, the resin protects and keeps in shape



Composites are a growth market because of their advantages ...

Light

Low maintenance

Double curved forming

Function Integration



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... but do have a disadvantage

2008



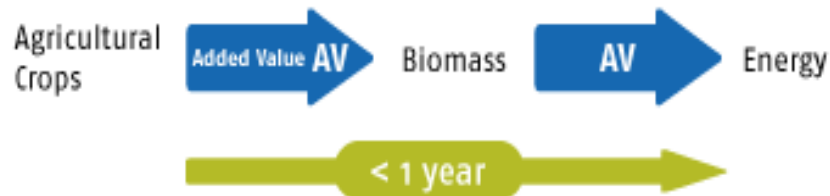
Future



Our vision:

Bio based composites are the future low CO2 material

Biomass



Biocomposites



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Mission NPSP Composites

***‘It is our mission to make sustainable
composites common ground.’***

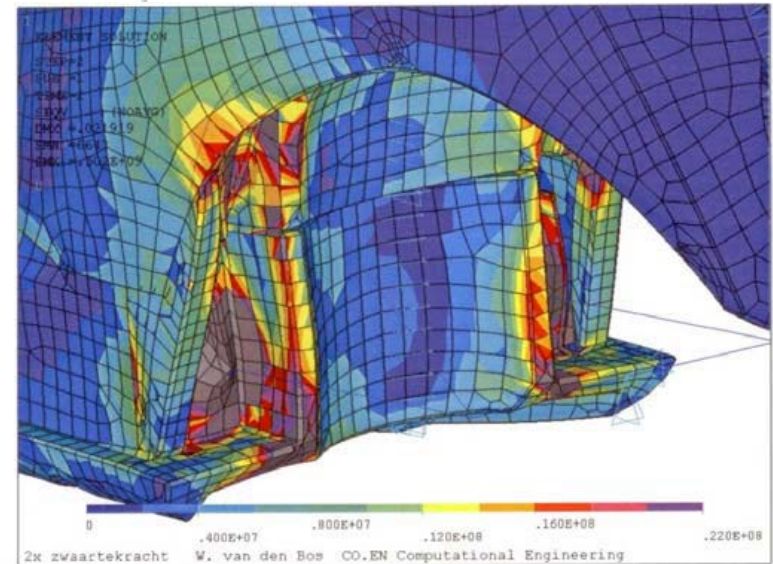
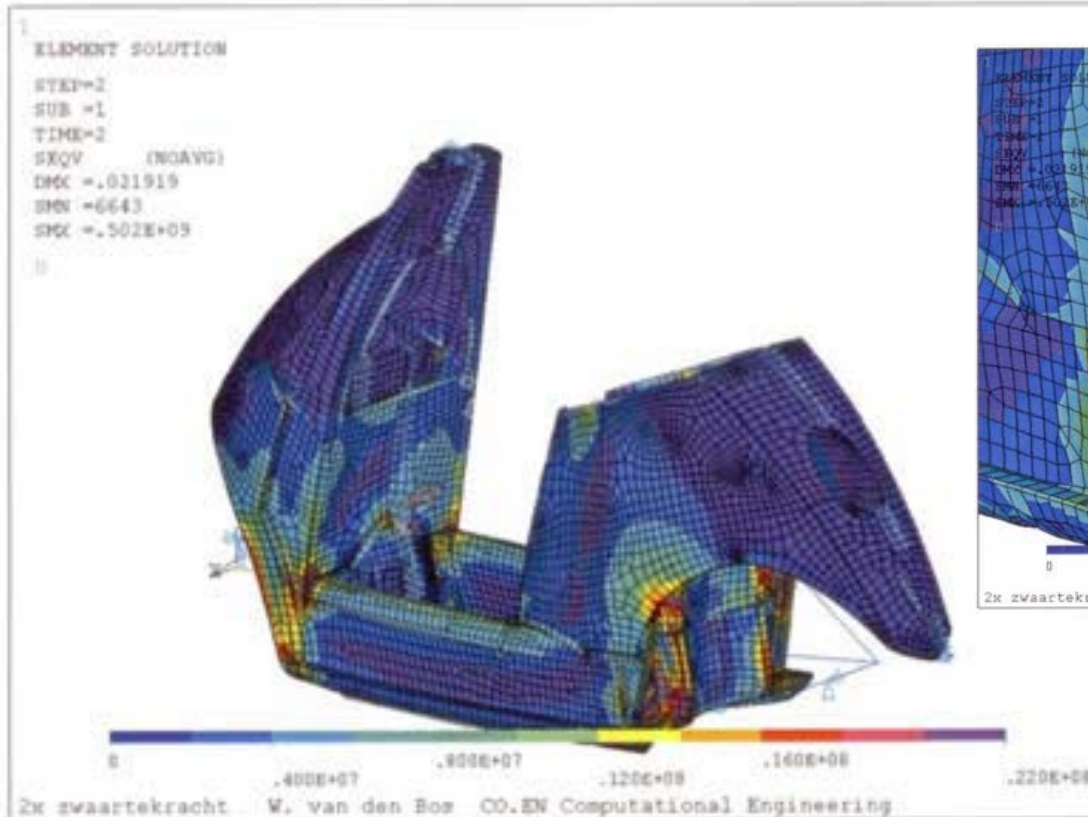


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The Process

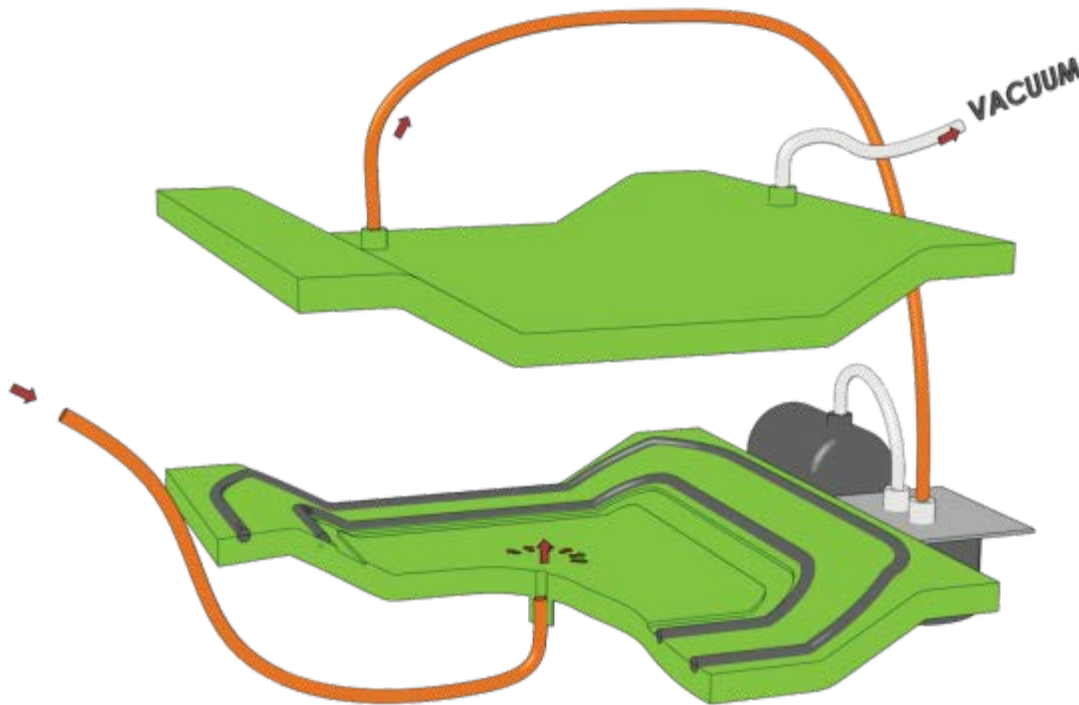
FEM analysis

Results in laminate configuration

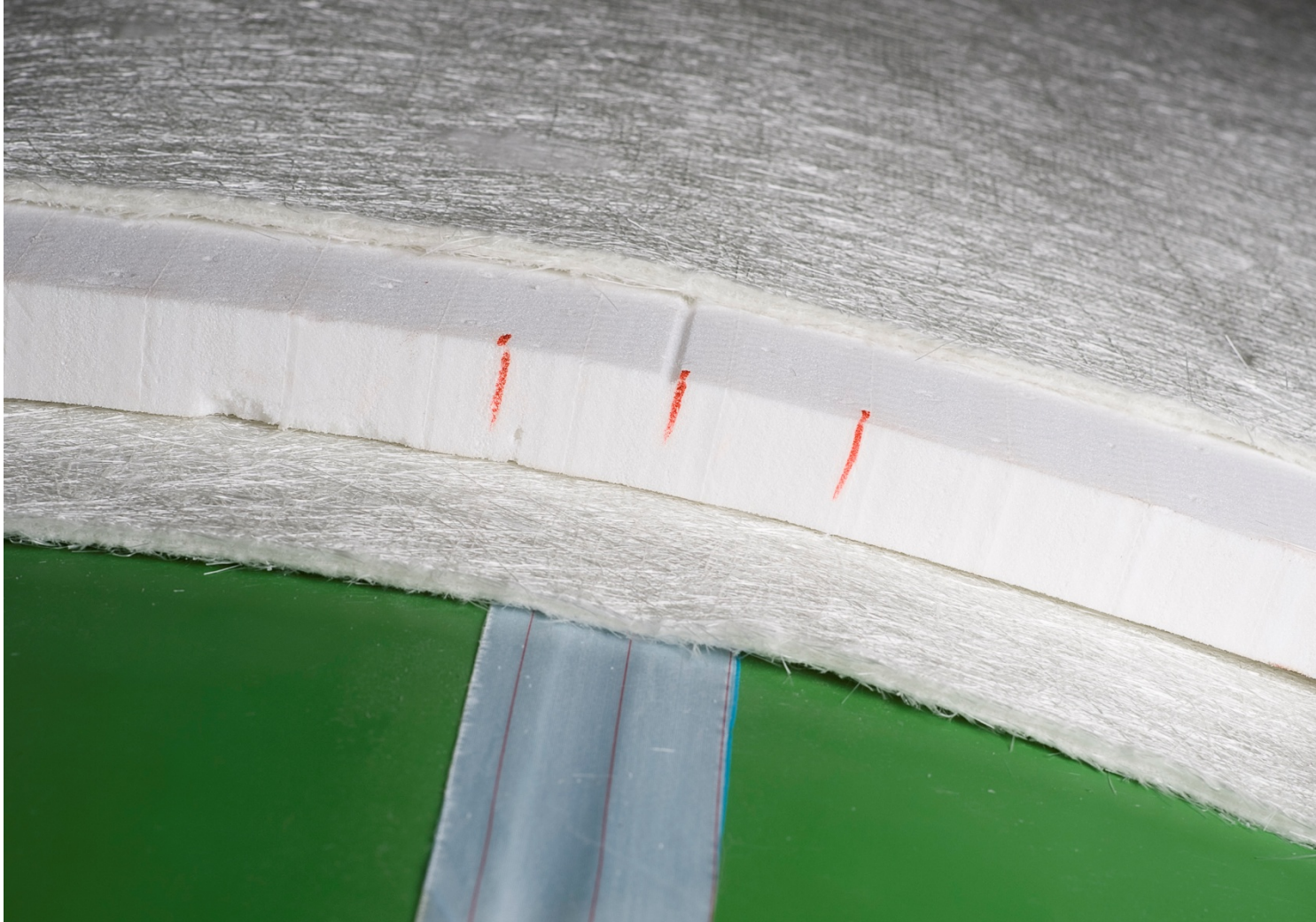


Production process

Vacuum Assisted – Resin Transfer Moulding

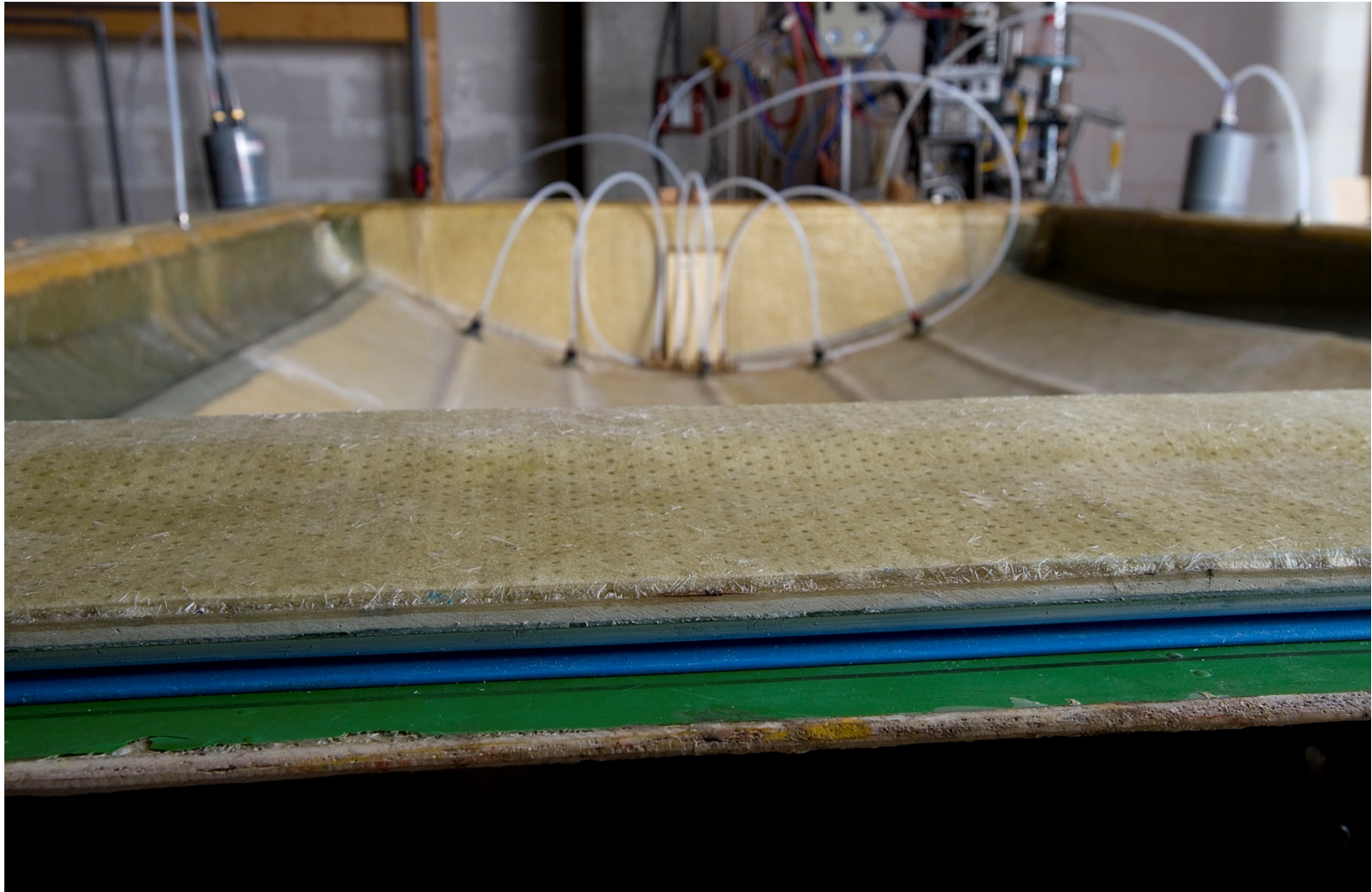


Production process



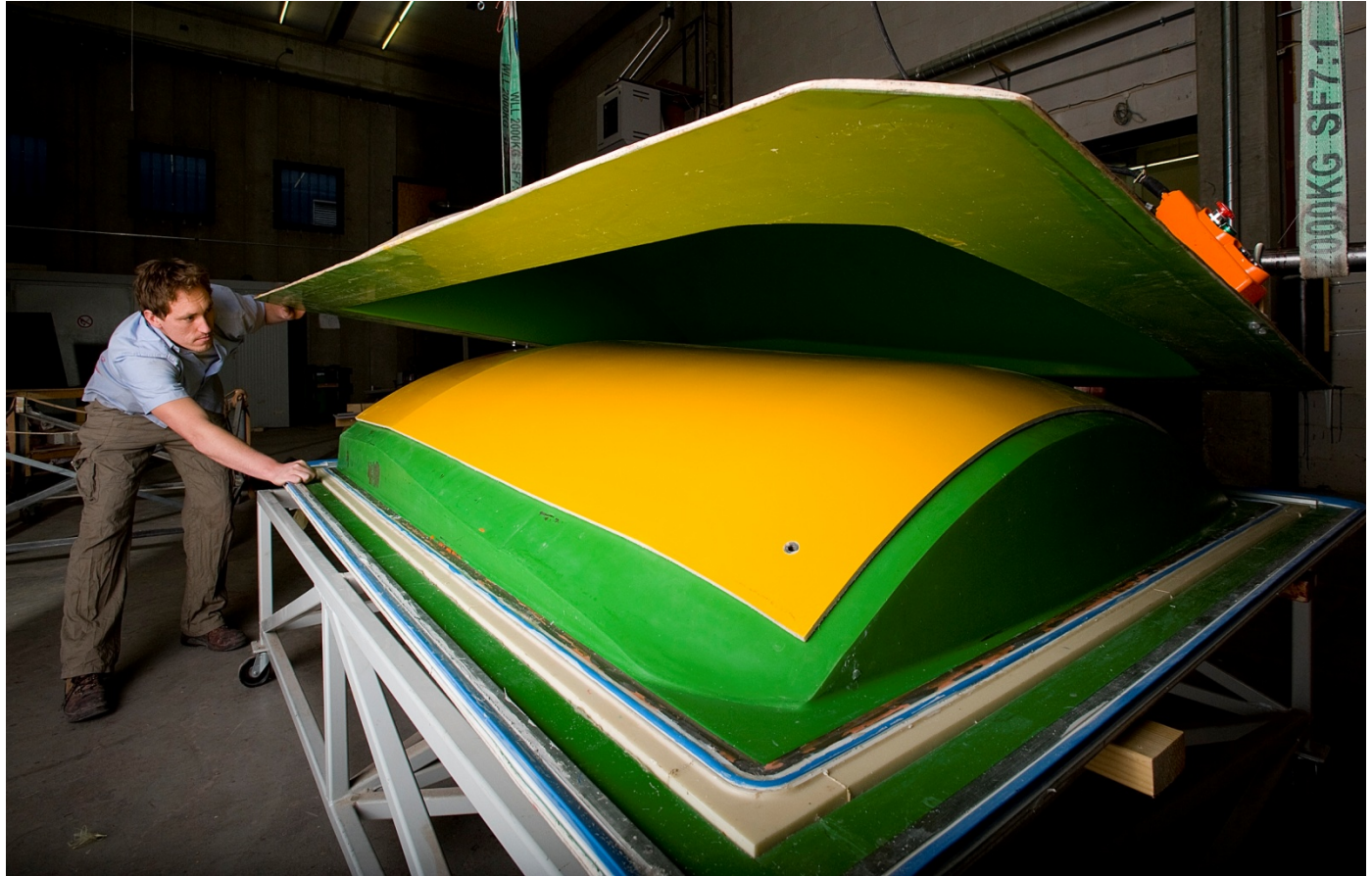
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Production process



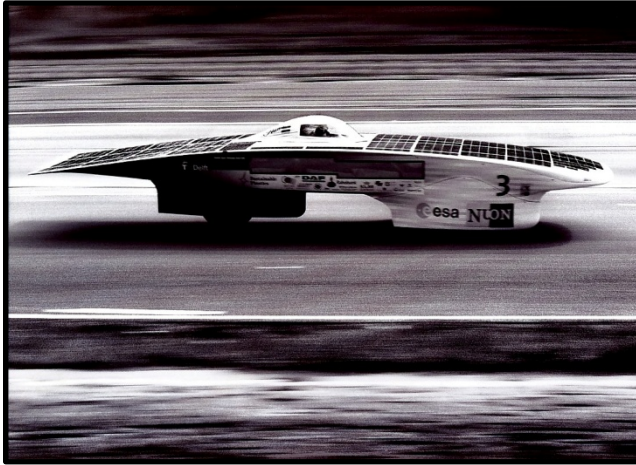
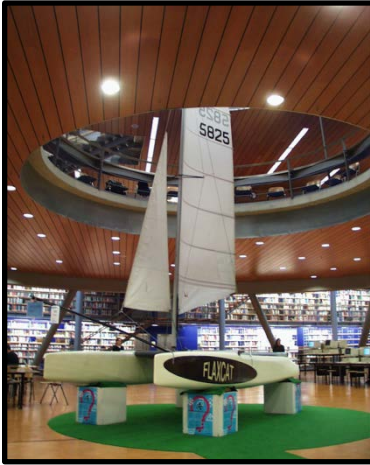
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Production process



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We are: NPSP Composieten



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Some examples in natural fibres...

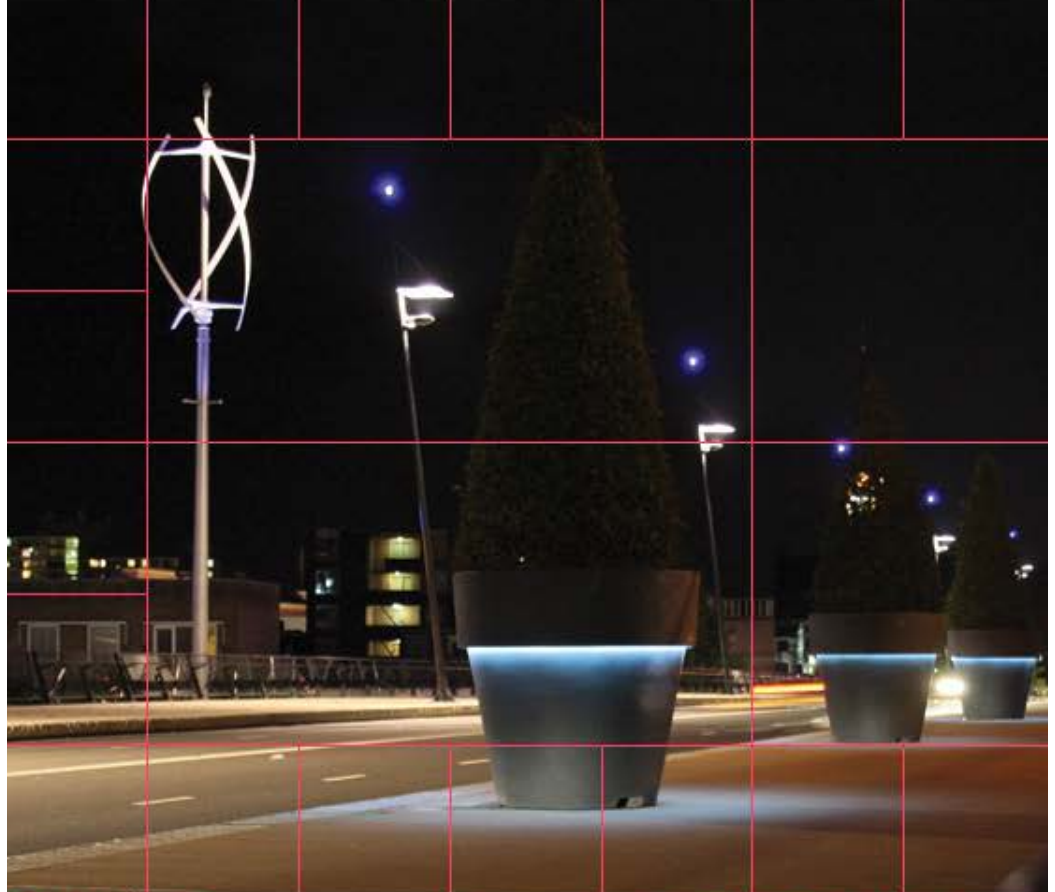
Nabasco

Design Chair for Pastoe



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Bio based Tree pots for Dijon



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Natural fibre combined with recycled jeans



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Natural fibre windmill hoods



(Bio) Composites for facades

Façade for utility building

- Inner wall, outer wall and isolation in one panel
- 100 panels
- Up to 13 meter x 3 meter x 25 centimeter
- Zero energy building
- Quick to mount, because of low weight
- Including 125 windows

Composites make light & large possible



DSC_7287.jpg



DSC_7240.jpg



DSC_7289.jpg



DSC_7298.jpg



DSC_7247.jpg



DSC_7250.jpg



DSC_7265.jpg



DSC_7210.jpg



DSC_7246.jpg



DSC_7233.jpg



DSC_7314.jpg



DSC_7325.jpg



The result

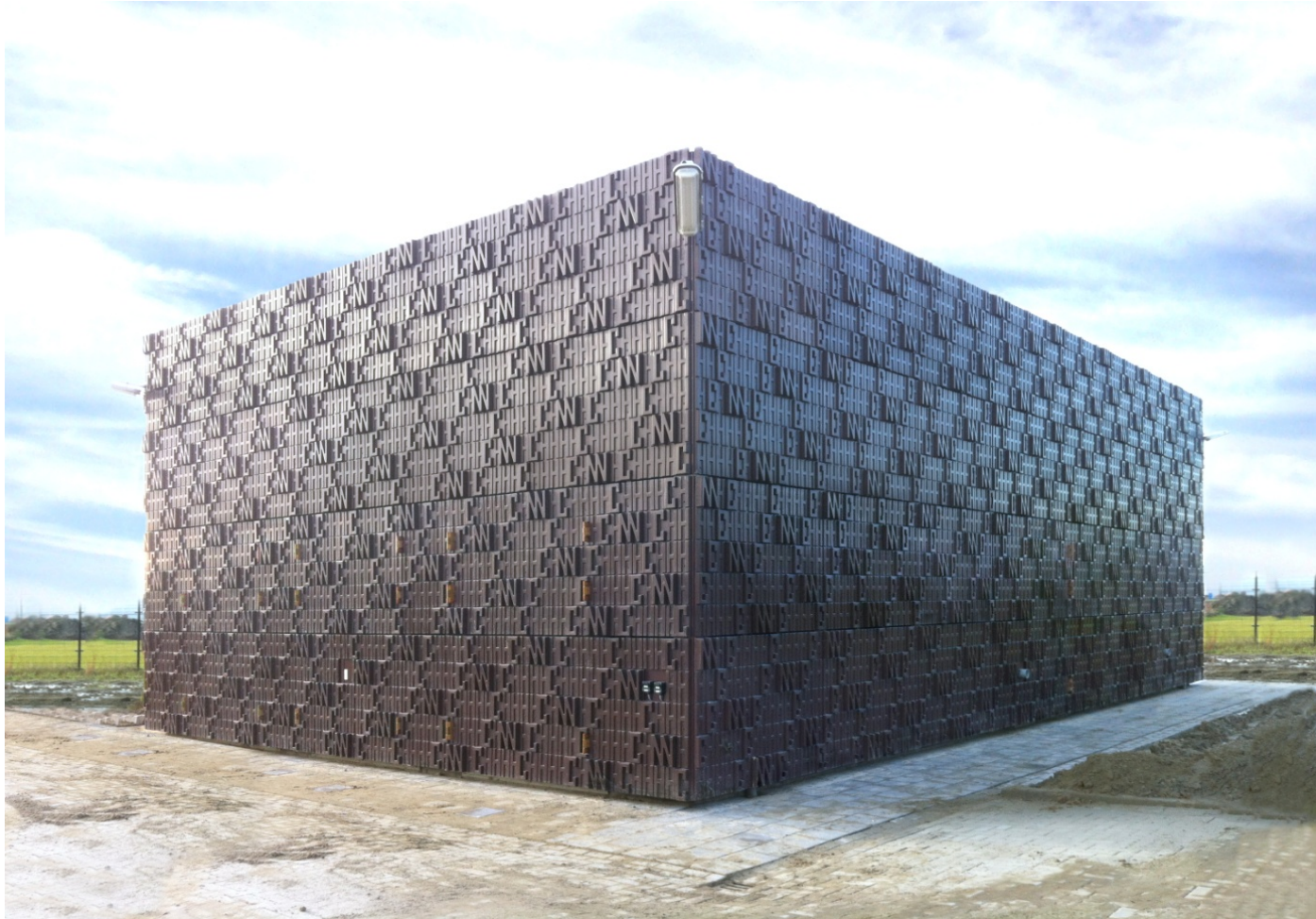


First bio based composite façade

- Gas throughput station
- 100 panels
- 140 x 185 centimeter
- Sandwich material
- Formula of natural gas CH_4 and Nitrogen are visualized in the facade



Bio based Façade



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