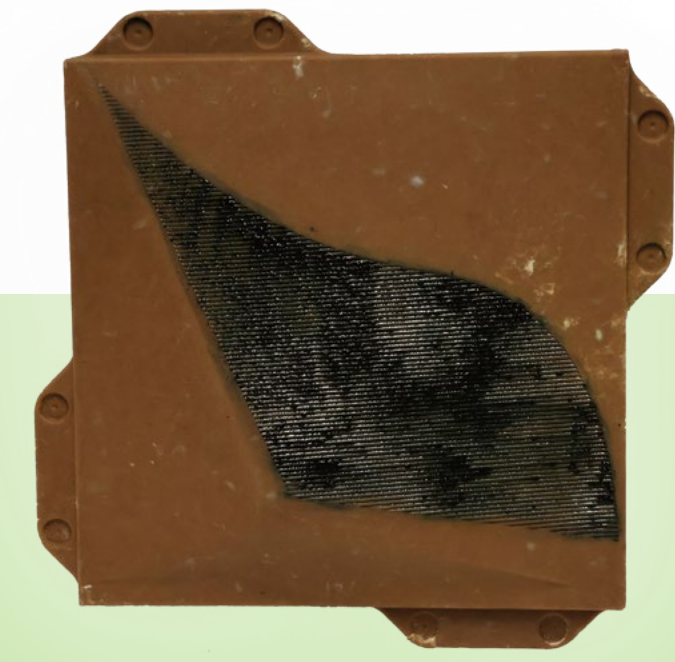
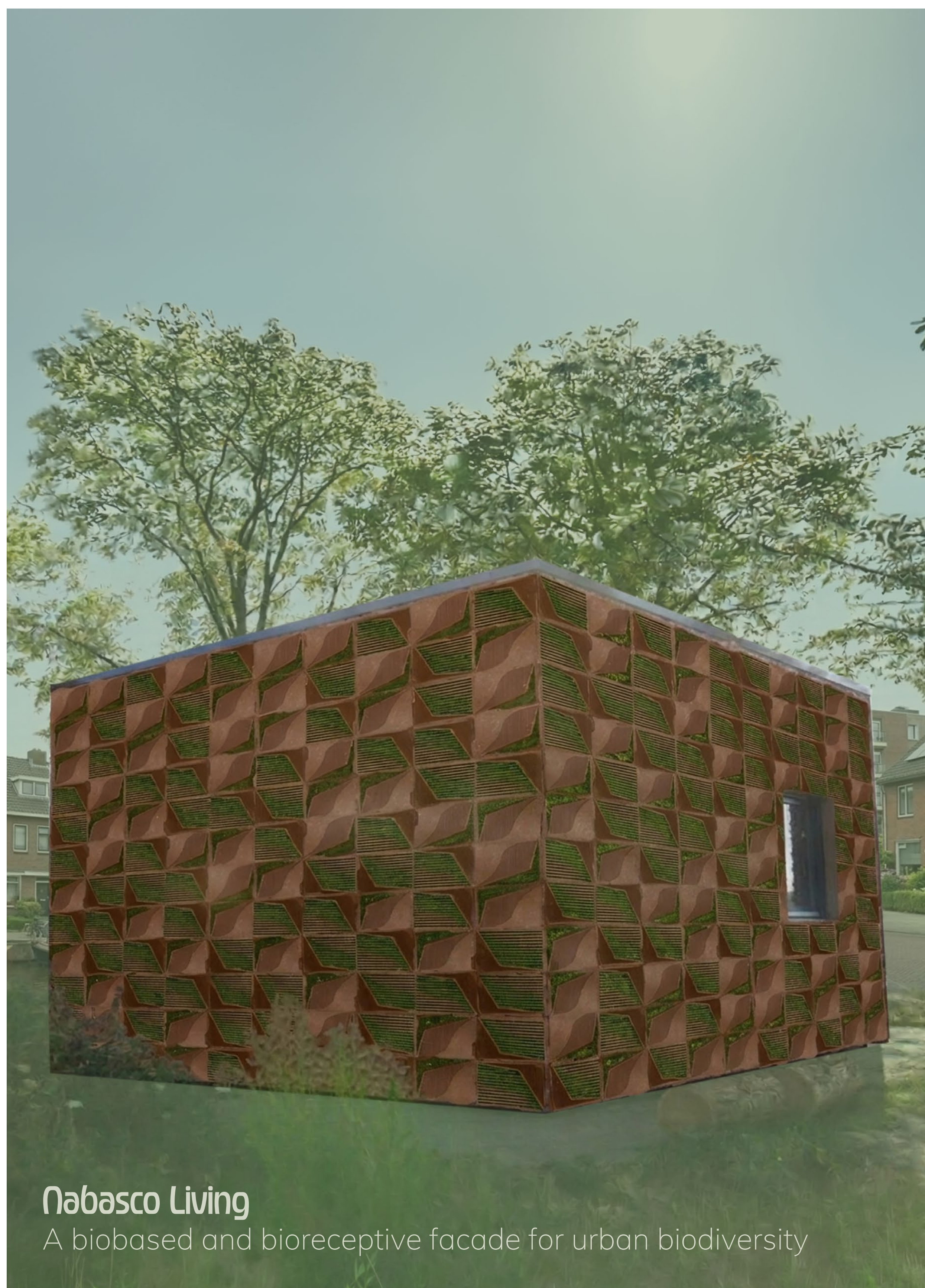


Designing for Spontaneous Growth

Towards a Biobased and Bioreceptive Facade Supporting Pioneer Organisms



Challenge

Urbanisation contributes to **biodiversity loss** and environmental pressures. Facades offer opportunities to support ecological processes within cities.

Context

NPSP develops biobased facade materials, but current materials involve a trade-off between full biobased content and visual freedom. The newly developed colour-neutral Oribond resin offered an opportunity to explore a fully **biobased** and **bioreceptive** facade concept.

Design assignment

Develop a biobased and bioreceptive facade panel for NPSP using the Oribond resin.

Contributions

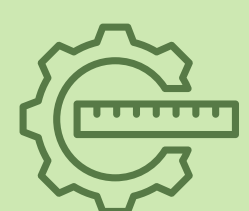
- **Biobased composite**
Developed an Oribond-based composite with mechanical properties suitable for facade applications



- **Colonisation factors**
Identified factors influencing biological colonisation and evaluated the material against these conditions



- **Validation method**
Developed a water retention setup for assessing early-stage attachment conditions.



- **Surface roughness**
Designed roughness modifications retaining 31× more water after 43 min and improving particle retention.



Milou Eijbroek

Designing for Spontaneous Growth: Towards a Biobased and Bioreceptive Facade Supporting Pioneer Organisms

2 July 2026

Integrated Product Design

Committee

Dr. Stefano Parisi

Dr. Ir. Jelle Joustra

Company

NPSP

