

PROJECT: CELLULOSE BASED WALL PANELS

The building processes and materials in construction industry remained the same over decades. Due to the increasingly urgent climate situation, the sector is now forced to aim for more sustainable materials. Materials like steel and concrete are harmful to the environment considering transport and use. Furthermore, they cannot be processed and reused easily. Other important challenges the housing market is facing nowadays are a shortage in trained craftsman as well as the limited production capacity.

Goal of this project is to develop sustainable (cradle-to-cradle) wall panels from cellulose. The panels need to be lightweight, and low-cost, but also need to meet certain mechanical properties such as strength.



TASK DESCRIPTION

In a previous project a cellulose-based foam was developed with insulation properties that is the core material of the sandwich panels. Now the challenge is to make a sandwich structure with this foam and a textile material to create the actual wall panels. The textile material needs to be made of cellulose fibres and meet certain properties to be suitable as a panel element. The student assignment will focus on the desired textile properties, having the final application in mind. Based on these properties, potential woven and non-woven materials will be selected. Next several lab-scale prototypes will be made to create the sandwich structures. Then the prototypes can be tested on technical properties.

Are you interested in the development of a **sustainable** and **innovative construction material**? Then join this project at the research group S&FT. This project is a cooperation of the company XEO B.V. and the Saxon research groups, Nano, Lightweight Structures, Sustainable Building Technologies and Sustainable & Functional Textiles.

Practical Information

Student profile: We are looking for students working on their final thesis:

- Master students Innovative Textile & Development
- Bachelor students Fashion & Textile Technology

The student will need to work independently as well as in cooperation with researchers from various research groups in Saxion. We are looking for and pro-active student with interest in technical building and construction materials. You like to dive into technical textiles, their properties and experiment with these materials in the textile labs as well as the Nano lab and lightweight structures lab.

Contact person(s) for this assignment: Please contact Ms. Laura Erkens for more info: l.m.erkens@saxion.nl

Research group Sustainable and Functional Textiles: saxion.edu/sft