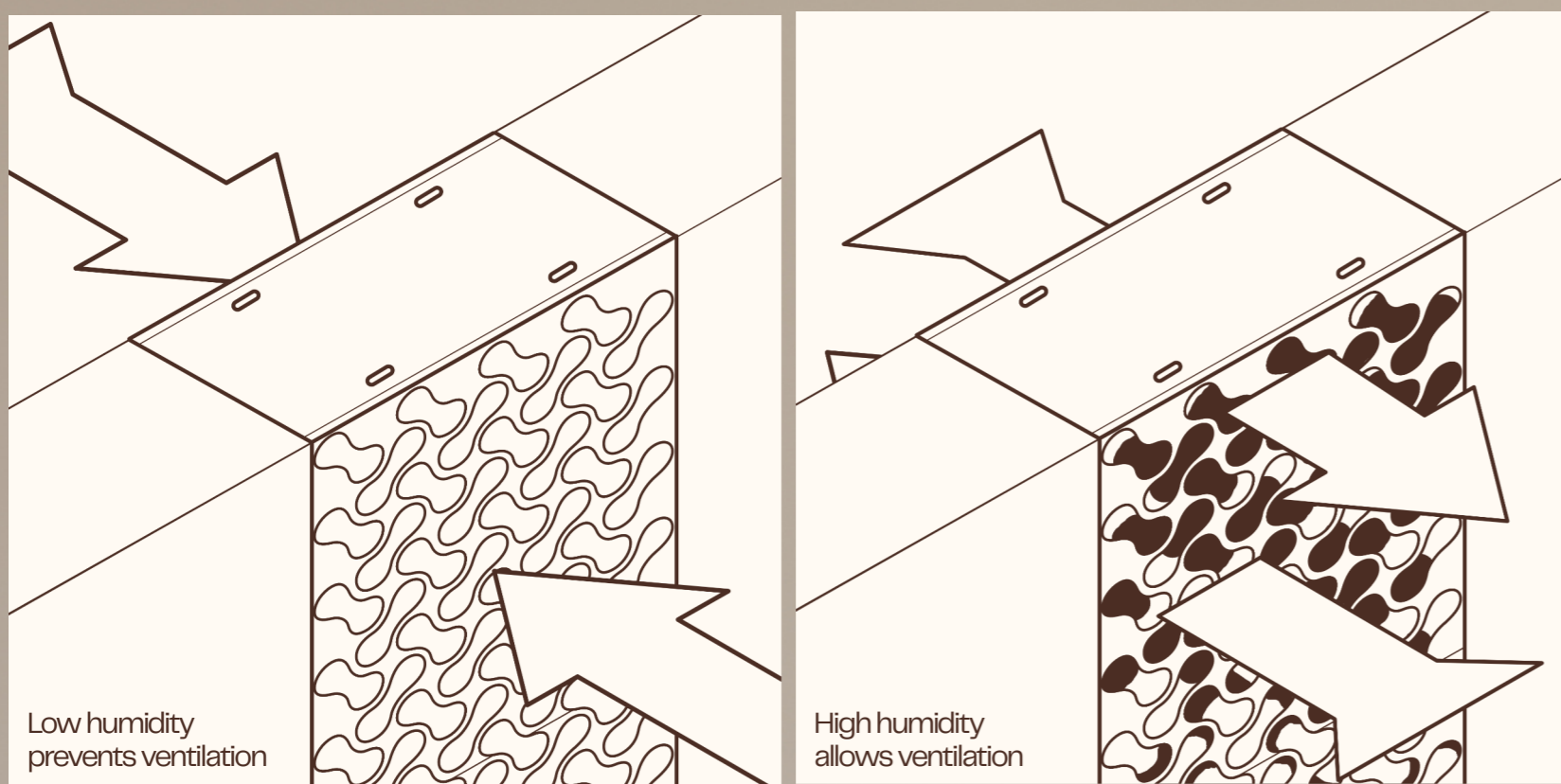


HygroWall

HygroWall is a novel passive device designed to regulate humidity levels in ventilation systems, utilising hygromorphic timber actuators as modular wall units.

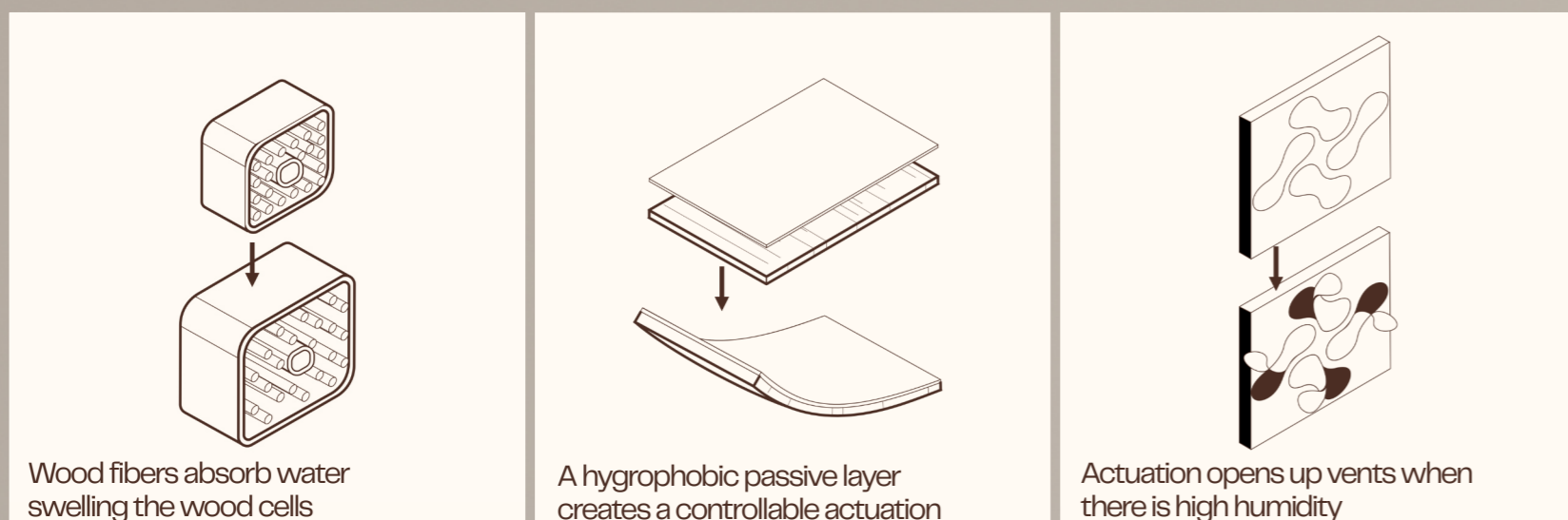
It reconsiders walls as smart porous organisms that fluctuate to help improve air quality through cross-ventilation.



Smart Wall Porosity

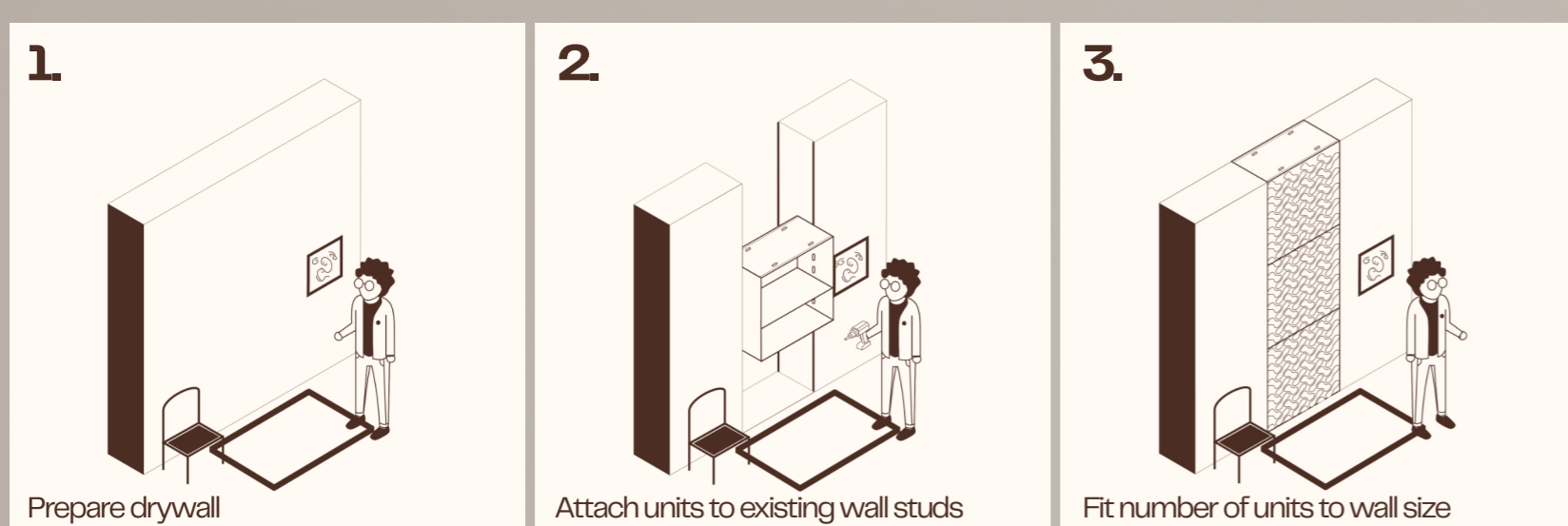
Optimal ventilation is vital for maintaining good indoor air quality. HygroWall, designed with hygromorphic timber actuators integrated into ventilation openings in the walls, intelligently adjusts airflow rates and directions based on the sensed humidity levels.

This dynamic control ensures improved ventilation efficiency, facilitating the mobilisation of pollutants, allergens, and odours through and out of indoor spaces. As a result, occupants benefit from fresher, cleaner air that promotes a healthier living environment.



Zero Energy Actuation

HygroWall operates without the need for continuous electrical power, unlike actively powered sensors and humidity regulators. By harnessing the hygromorphic properties of timber actuators, it minimises energy consumption. This energy-efficient approach helps reduce the overall energy demand of buildings, contributing to the goal of net-zero energy.



Retrofit-ready Installation

The modular design enables retrofitting the passive device into existing buildings without significant structural modifications. This adaptability allows for the widespread implementation of the technology, even in older or heritage structures.

William Eliot Sebastian Tam



Hygromorphic actuators

Acoustic panelling

Installation structure