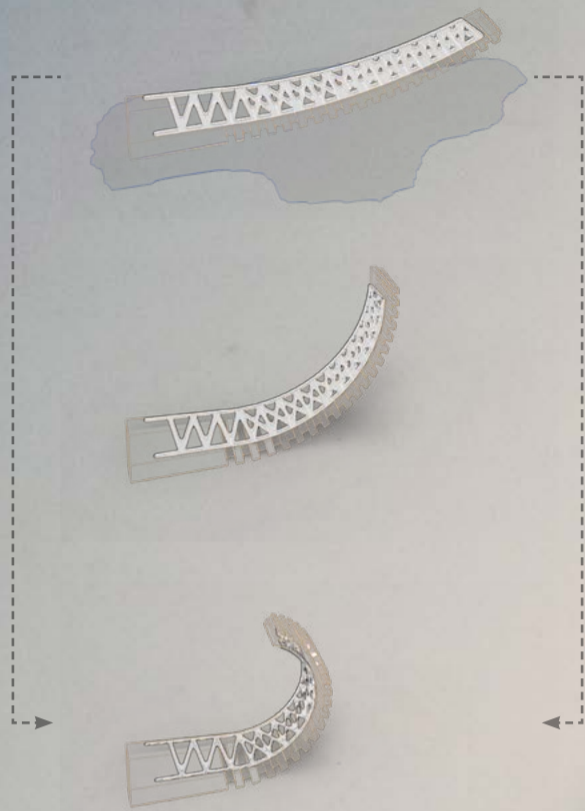


HYGROFLEX

Integrating Hydrogel and Wood
for Adaptive Building Solutions



The reversible bending process involves hydrating and dehydrating the hydrogel in conjunction with wood to achieve bending effects.



The image depicts the condition of naturally curved wood accompanied by dehydrated hydrogel panels.

Subtraction - Additive fabrication workflow

Reclaim timber



collect the raw material from industrial wood waste (fig from internet)

CNC milling



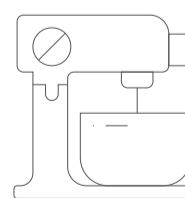
Mill the collected wood into frame for extrusion

Filt sawdust



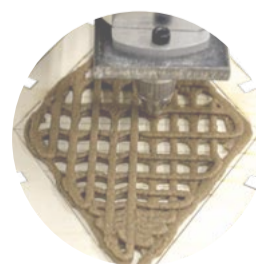
Collect and filt sawdust for robotic extrusion

Material preparation



Mix fine sawdust with prepared chitosan based hydrogel

Robotic 3D printing



Extrude sawdust hydrogel composite on the milled wood

Robotic assembly



Robotic assembly will be the further step to study (fig from Design for manufacture, the Bartlett School of Architecture presentation 2023)



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