

A PROPOSAL TOWARDS BIOBASED AND BREATHABLE DESIGN FOR HEALTHIER RESIDENTIAL ARCHITECTURE

25 June 2025

Carlos Damberg 5437288

Architectural Wood | Timber for Urban Density
Architecture, Urbanism and Building Sciences







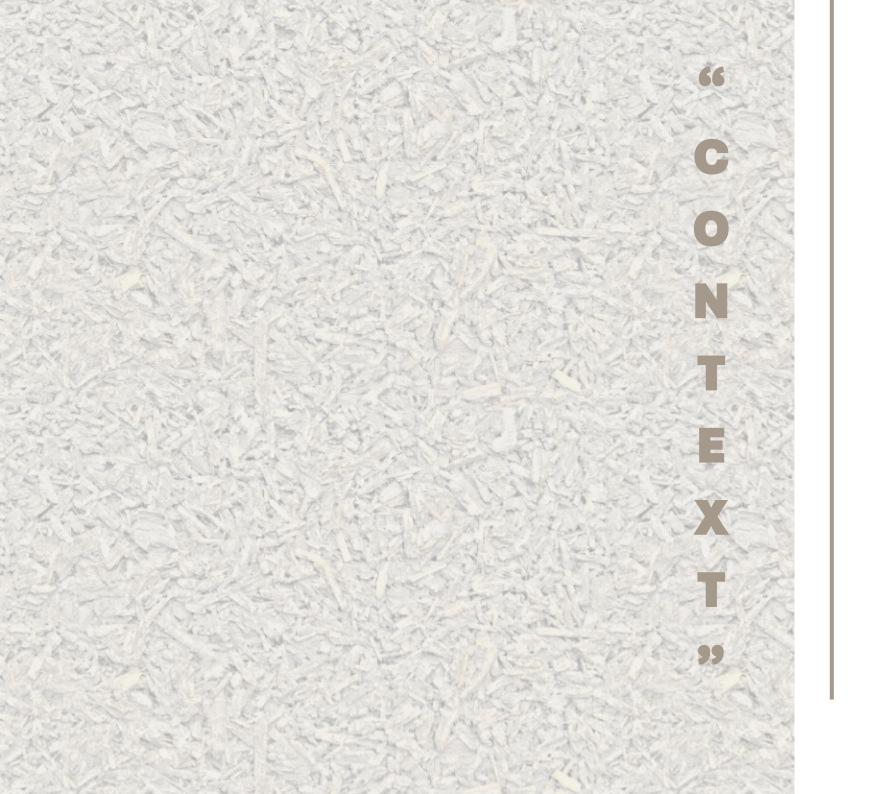
Design mentor: Loes Thijssen Research mentor: Stijn Brancart Building technology mentor: Pierre Jennen

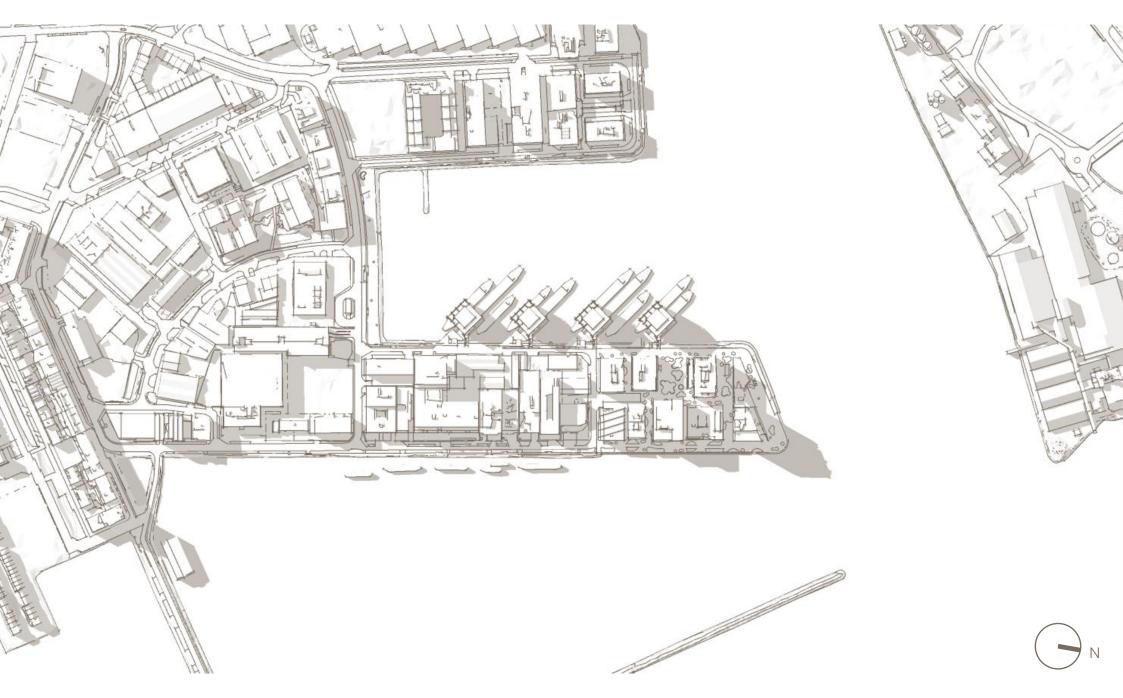
> Studio chair: Prof. Alex de Rijke Studio coördinator: Gilbert Koskamp

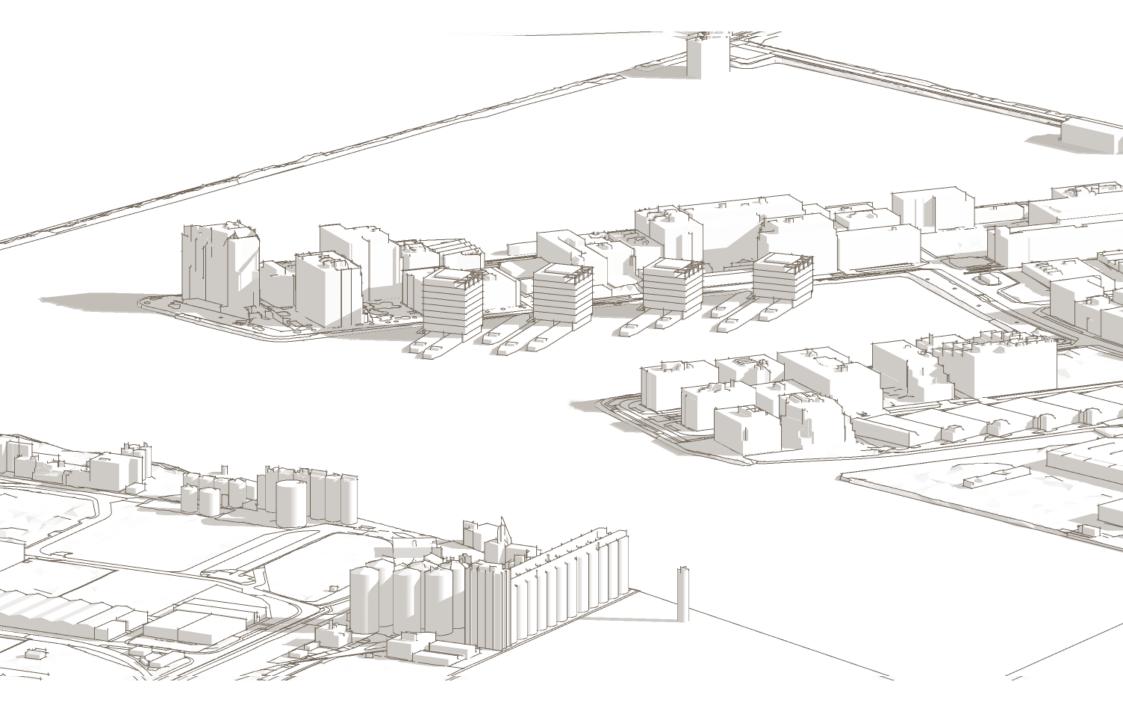
P5 Booklet: Final presentation

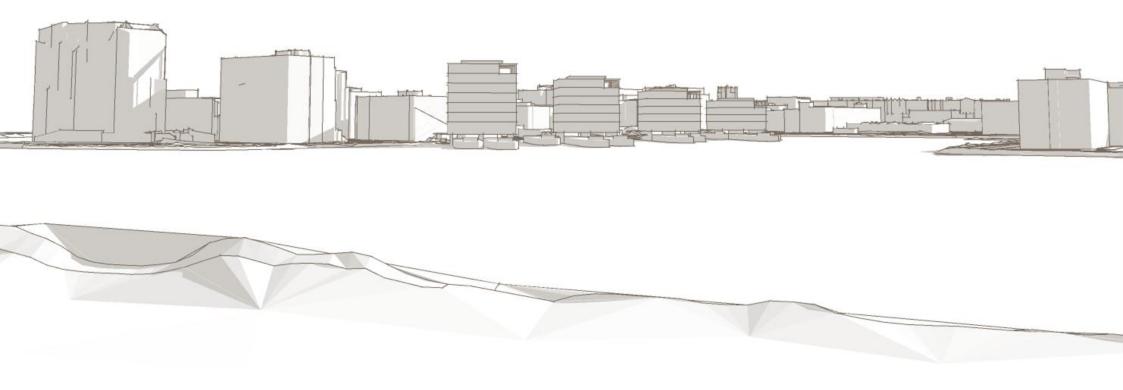
[Deliberately empty page to build some excitement..]

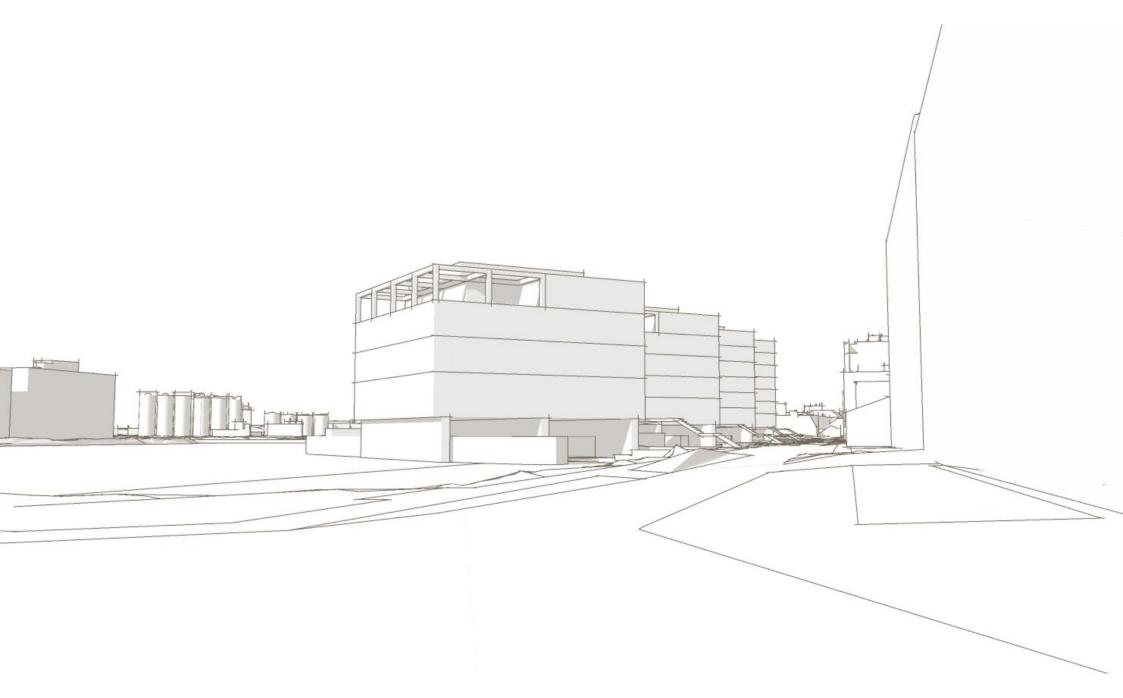


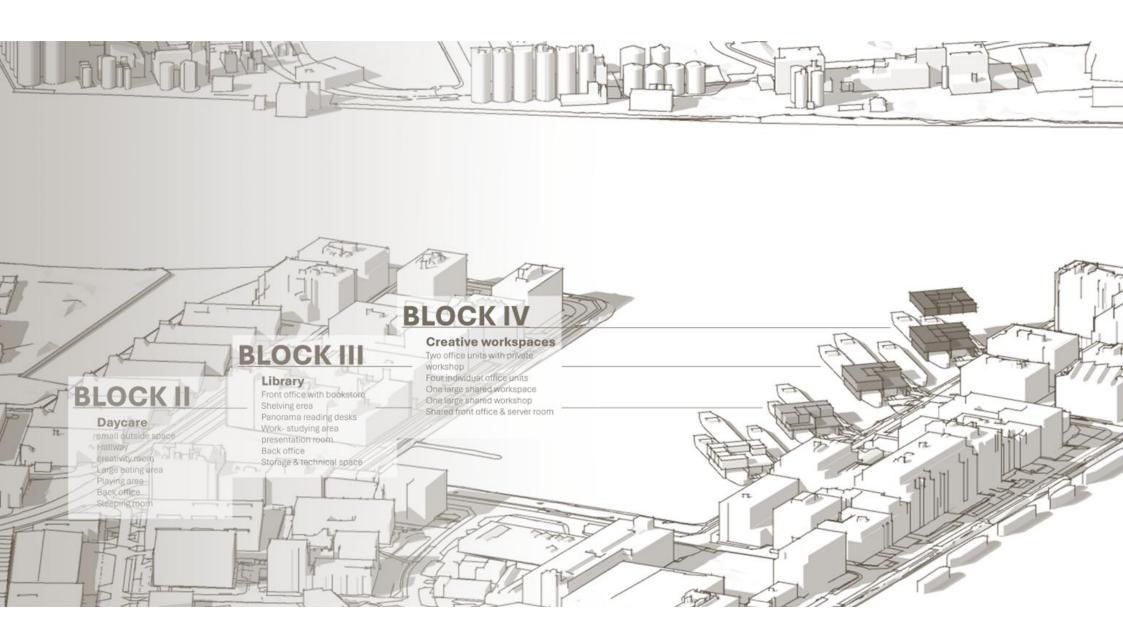




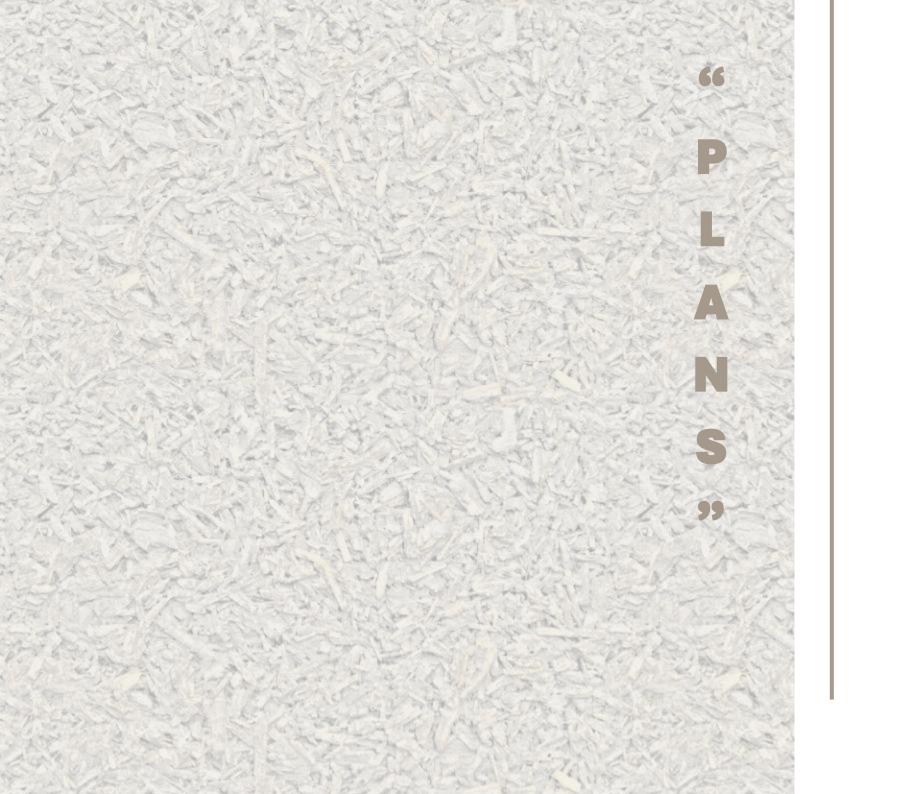


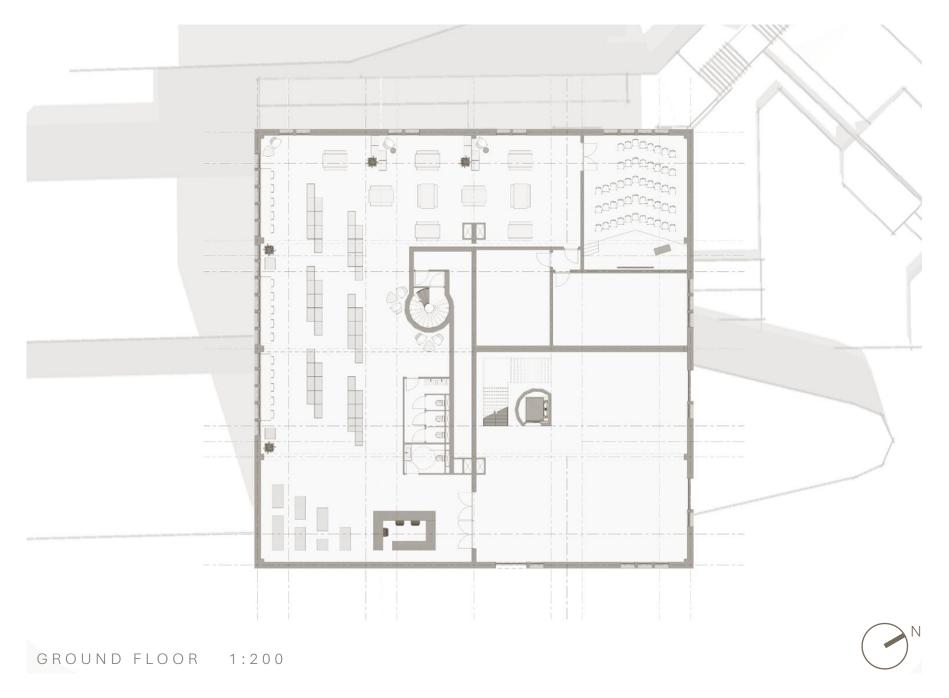












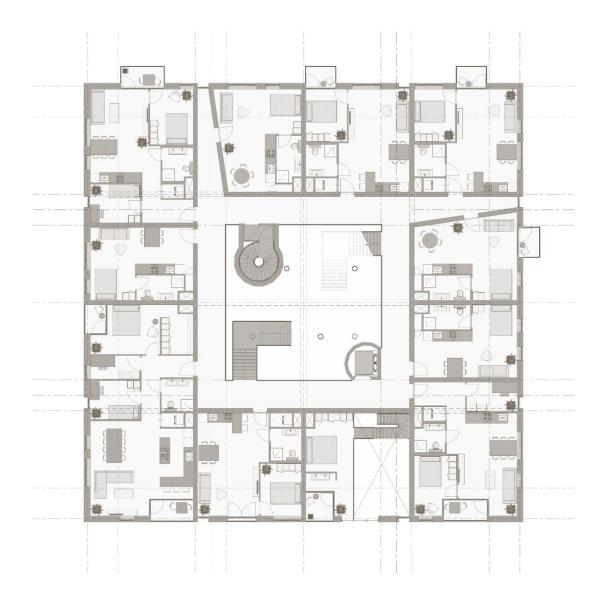


1st FLOOR 1:200

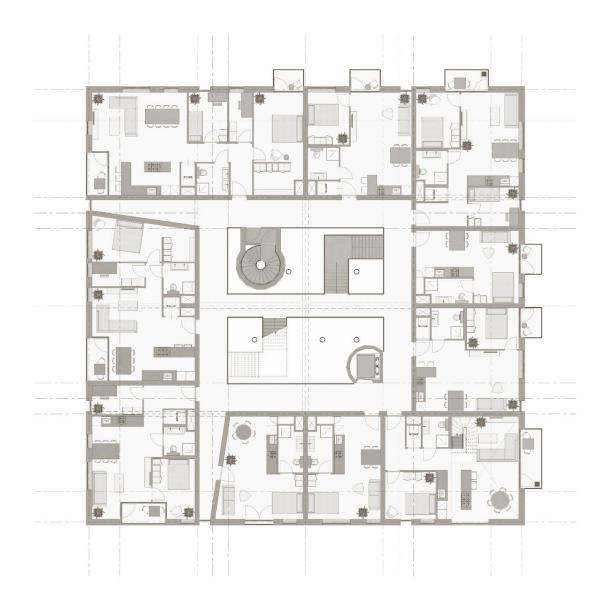




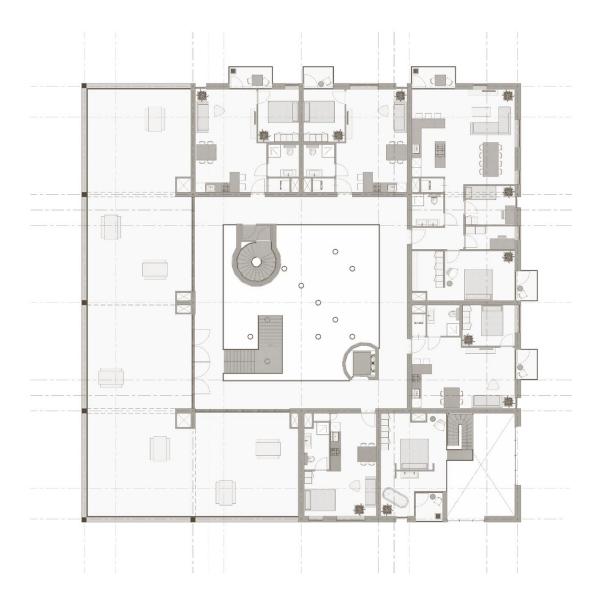




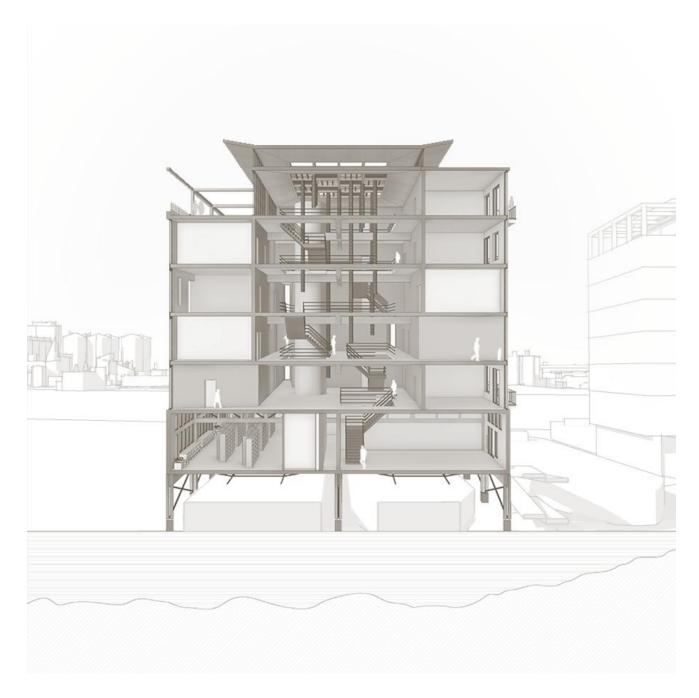






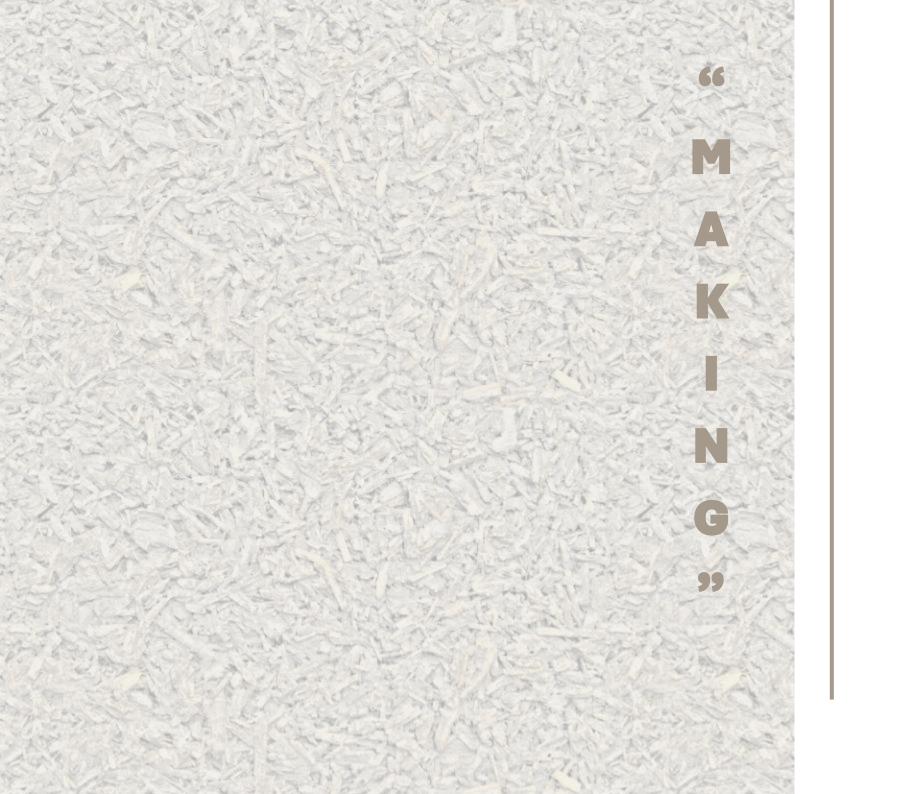






SECTION 1:200





M A K I N G

Modelmaking played a central role in the development of the design, serving as both a tool for exploration and a means of communication. Throughout the process, a wide range of models was produced—each one testing spatial, structural, and material ideas at different levels of resolution.

From large-scale urban studies at 1:1000 to detailed construction fragments at 1:5, these models allowed for a hands-on investigation into form, proportion, and assembly. Working with authentic materials and building techniques, the models became physical prototypes—bridging concept and reality and simultaneously grounding abstract ideas in tangible experimentation.

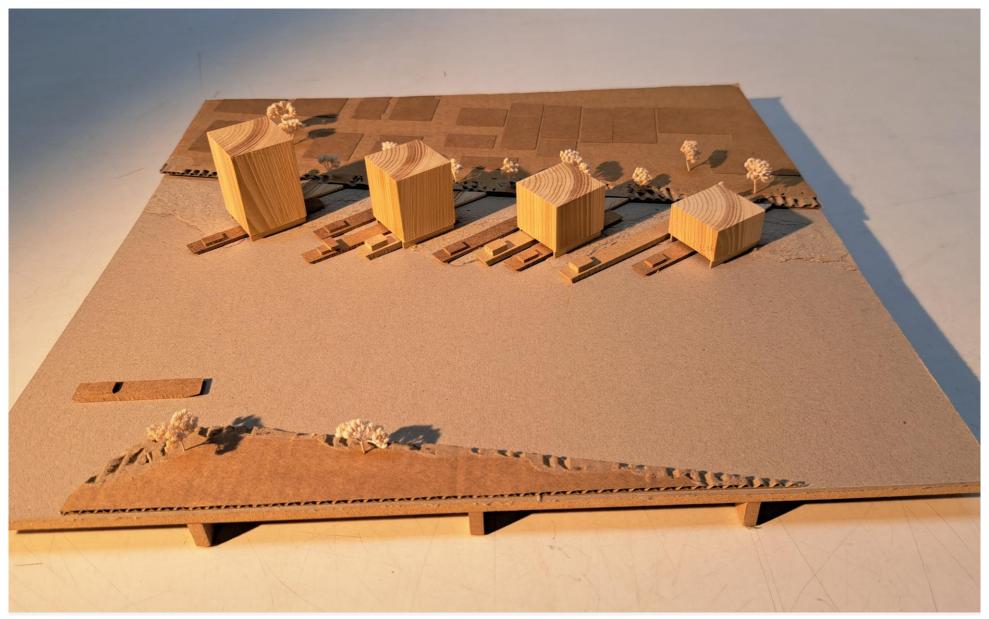
This collage presents a visual archive of the modelmaking process, capturing the iterative and tactile nature of the design journey and the layered decision-making it supported.



CONCEPT 1:100 CARDBOARD



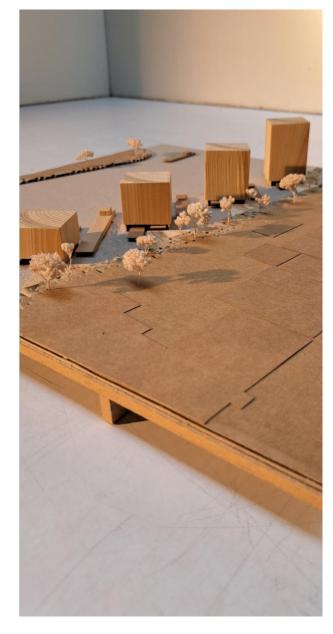
CONTEXT 1:1000 WOOD



CONTEXT

1:1000

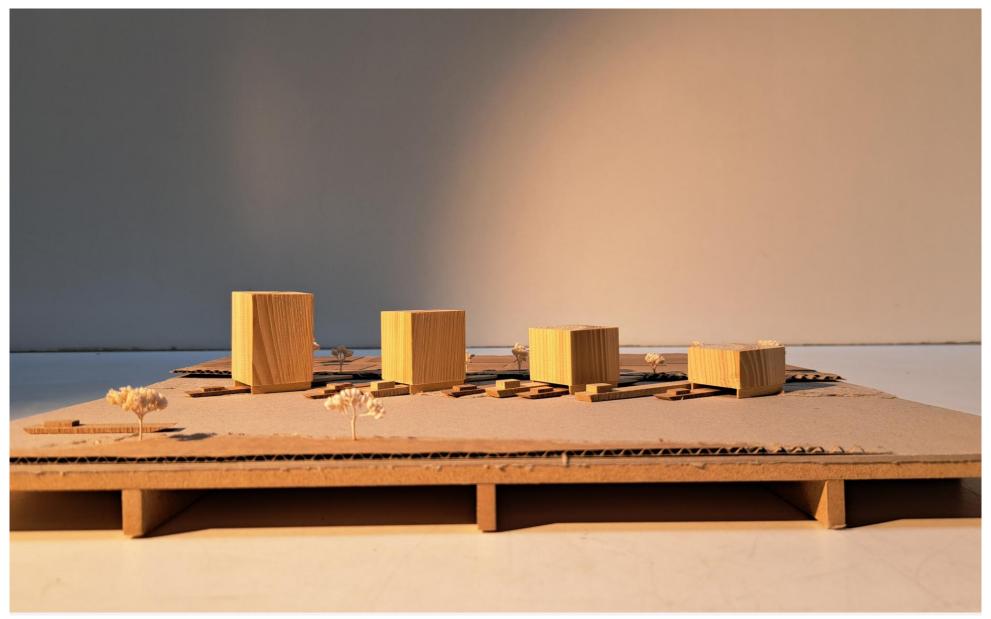
WOOD | CARDBOARD



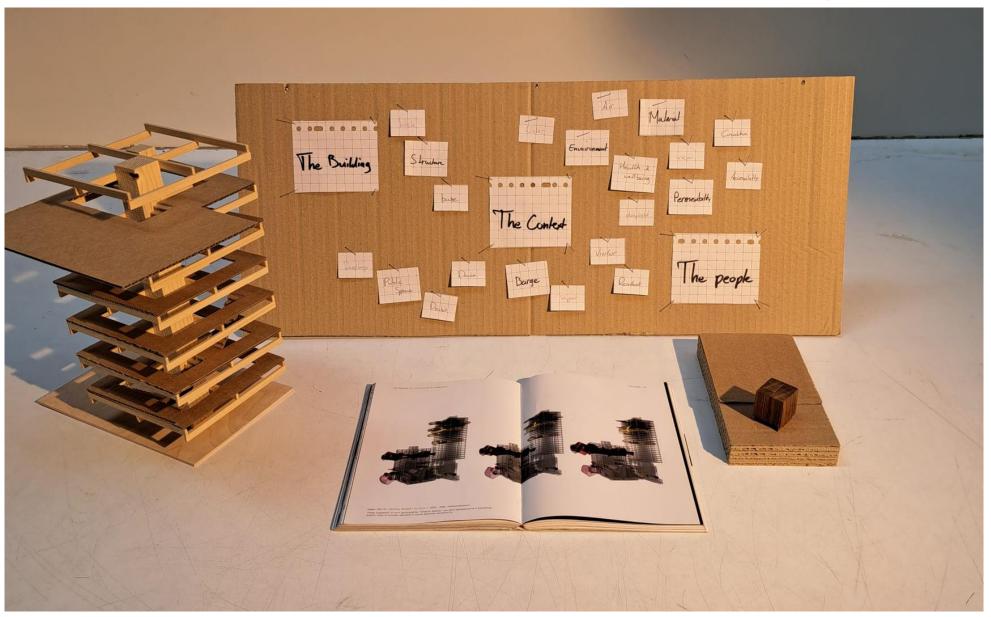




CONTEXT 1:1000 WOOD

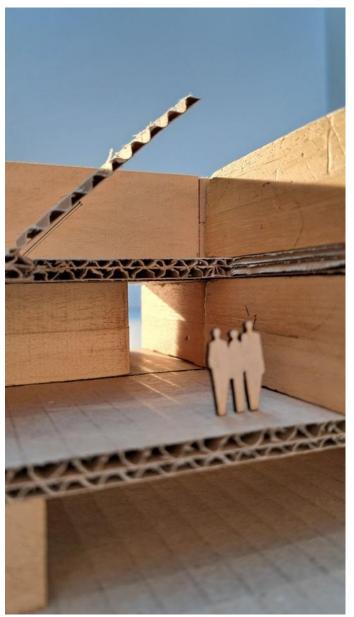


ATRIUM STUDY 1:100 WOOD | CARDBOARD



ATRIUM STUDY 1:100 WOOD | CARDBOARD





POROSITY 1:200 WOOD

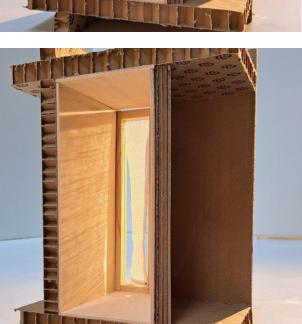






MATERIALITY





1:20





WOOD | GLASS | FABRIC





COMPOSITION 1:5 WOOD | HEMP | CLAY

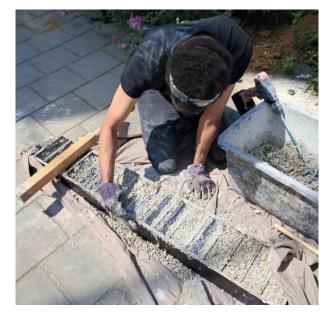


COMPOSITION





1:5





WOOD | HEMP | CLAY





COMPOSITION 1:5 WOOD | HEMP | CLAY



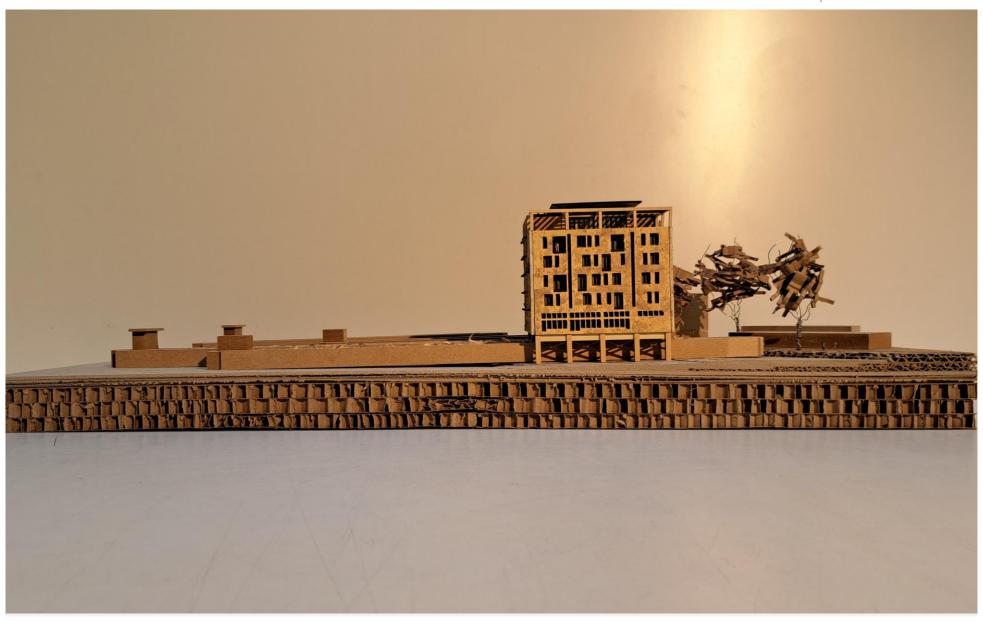




"THE HYBRID" 1:200 WOOD | CARDBOARD



"THE HYBRID" 1:200 WOOD | CARDBOARD



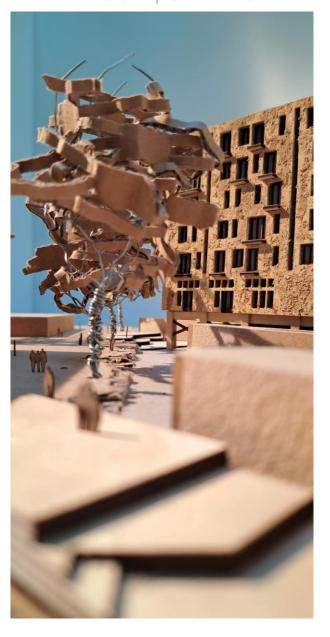
"THE HYBRID"



1:200



WOOD | CARDBOARD





REFERENCES

As part of the design journey for "THE HYBRID" in Amsterdam's Minervahaven, I explored a series of reference projects that reflect our core ambitions: building with timber and embracing a fully biobased building envelope. These precedents served as both inspiration and technical foundation, offering insights into material expression, construction detailing, and the spatial qualities unique to the biobased architecture.

This booklet gathers a visual summary of these reference projects—each one a steppingstone in the design process. From exposed timber interiors to innovative prefabricated facade assemblies. These images illustrate the potential of building sustainably without compromising on aesthetics, performance, or urban integration. Together, they map out the lineage of ideas that informed and enriched our design vision.





House of Switzerland Pavilion / Dellekamp Arquitectos

https://www.archdaily.com/868720/casa-de-suiza-dellekamp-arquitectos





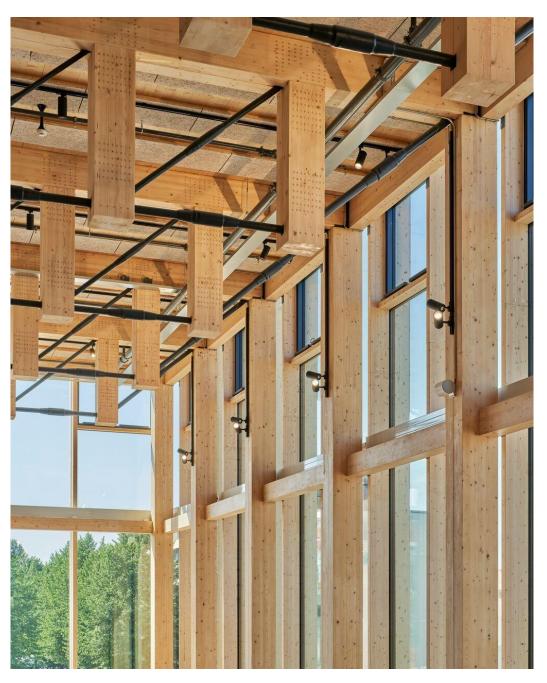




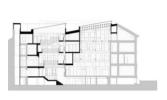


Sara Cultural Centre

https://archello.com/news/newly-opened-sara-cultural-centre-demonstrates-the-viability-of-timber-as-a-sustainable-and-innovative-highrise-and-complex-building-material





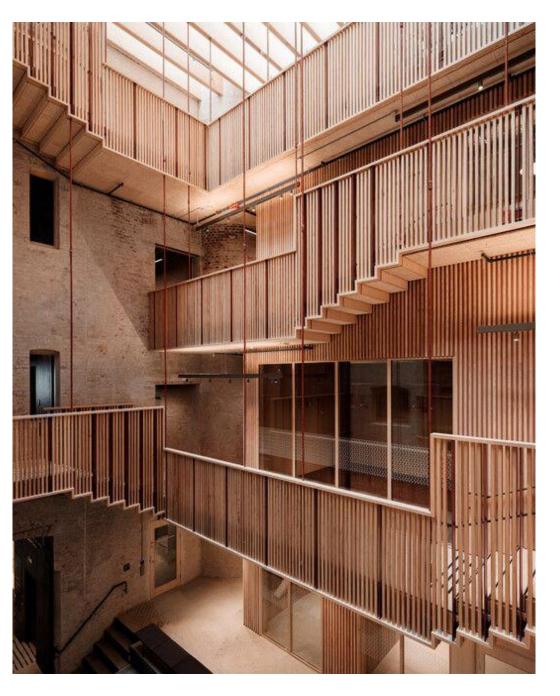






Norwegian Press House / Atelier Oslo + KIMA Arkitektur

https://www.archdaily.com/984244/norwegian-press-house-atelier-osloplus-kima-arkitektur?ad_medium=gallery





Pierre Chevet Sports Equipment

https://archello.com/project/pierre-chevet-sports-equipment



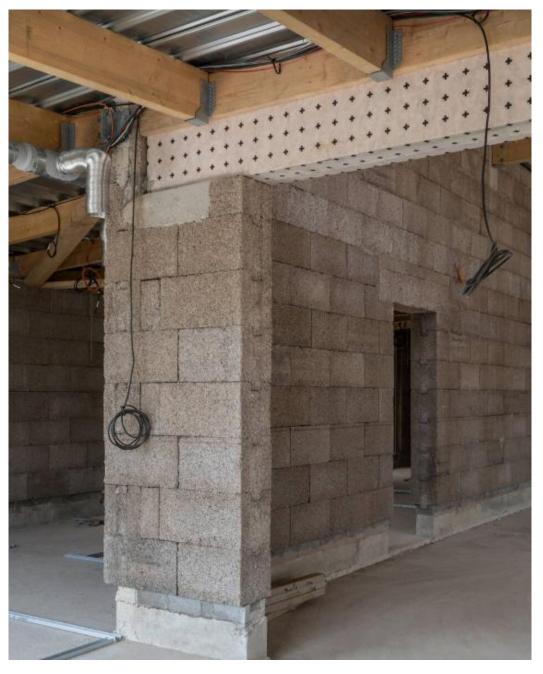


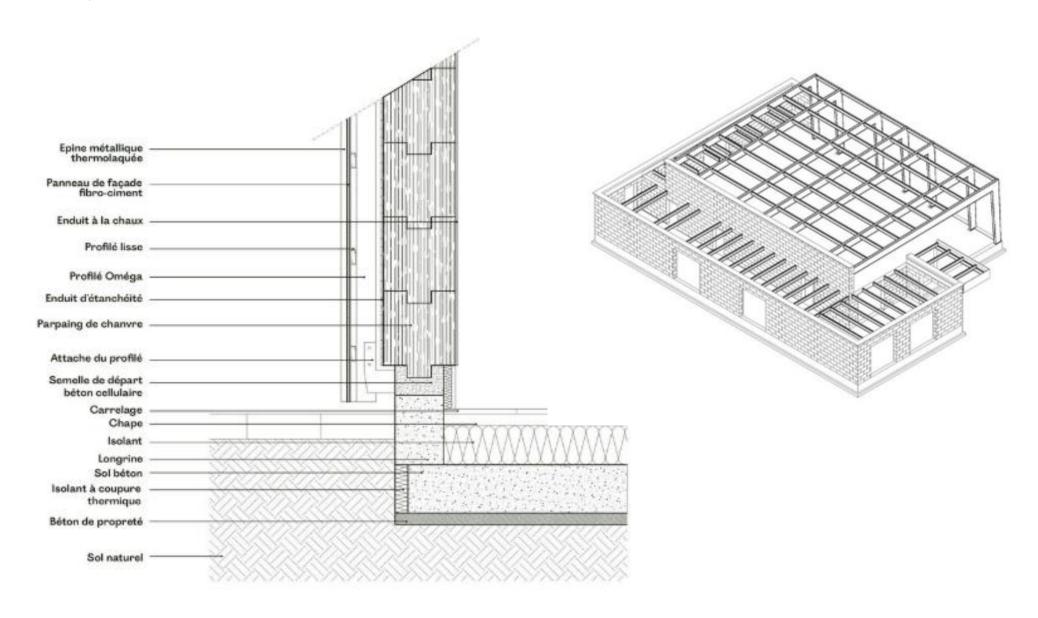




Pierre Chevet Sports Equipment

https://archello.com/project/pierre-chevet-sports-equipment





Pierre Chevet Sports Equipment



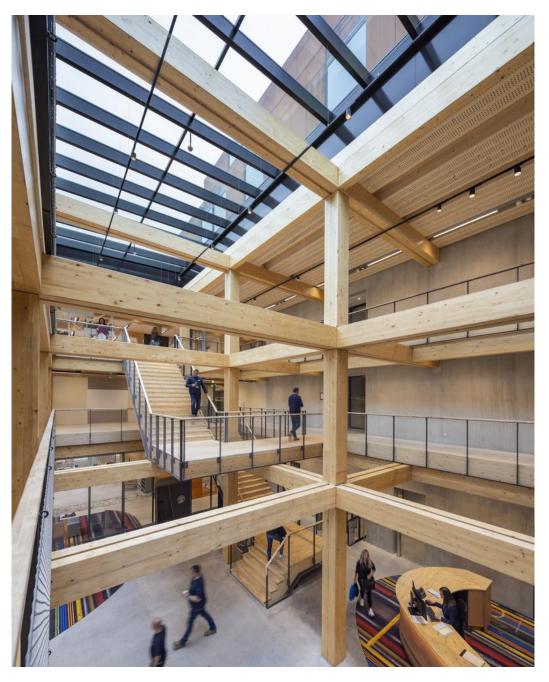






Liander Westpoort / De Zwarte Hond

nttps://www.archdaily.com/1009042/liander-westpoort-de-zwarte-hond











Detail: hempcrete facade of town hall Voorst

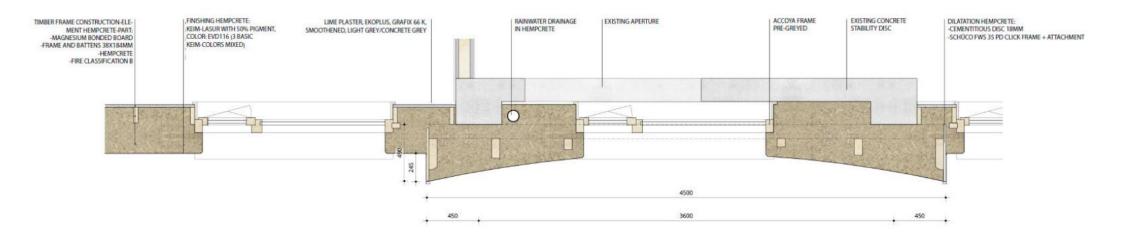
nttps://archello.com/news/detail-hempcrete-facade-of-town-hall-voors





Detail: hempcrete facade of town hall Voorst

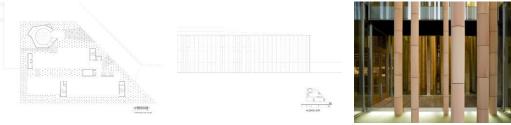
https://archello.com/news/detail-hempcrete-facade-of-town-hall-voorst





Detail: hempcrete facade of town hall Voorst





Spanish Pavilion Expo Zaragoza 2008 / Francisco Mangado

https://www.archdaily.com/479306/pabellon-de-espana-para-laexposicion-internacional-zaragoza-08-francisco-mangado







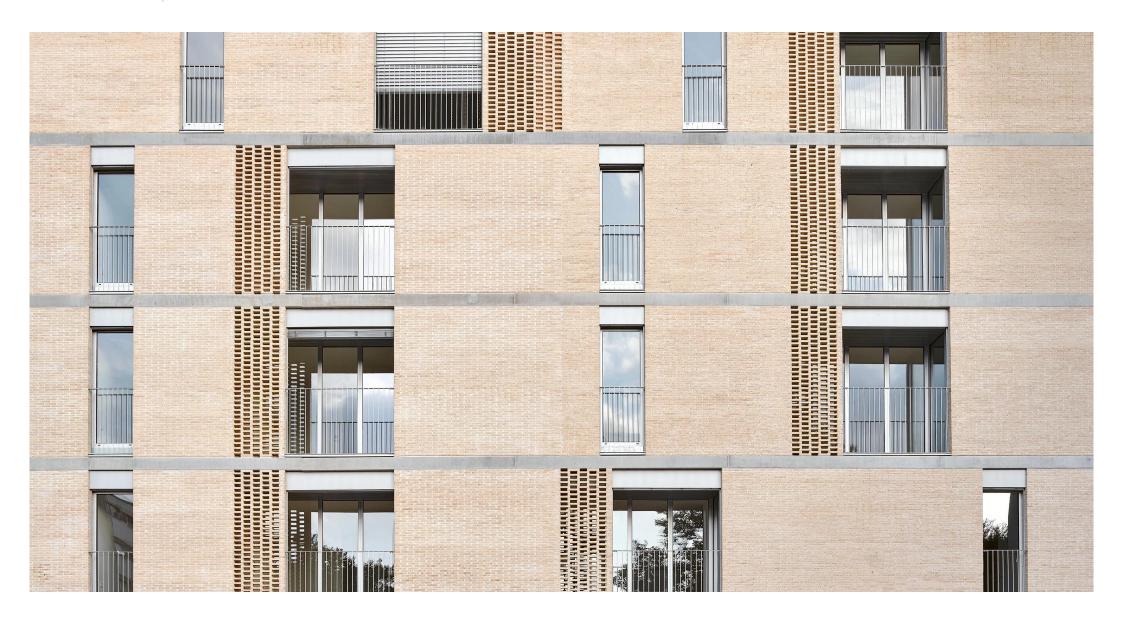




House with Atrium in Barcelona

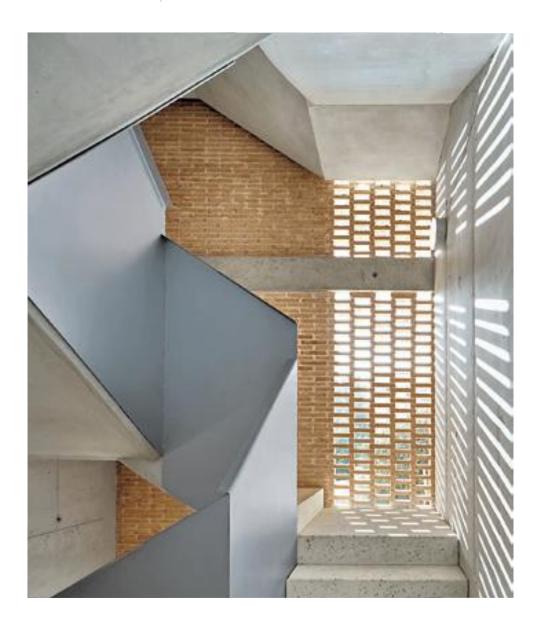
https://arch-inspiration-detail-de.tudelft.idm.oclc.org/house-with-atrium in-barcelona-116089.html





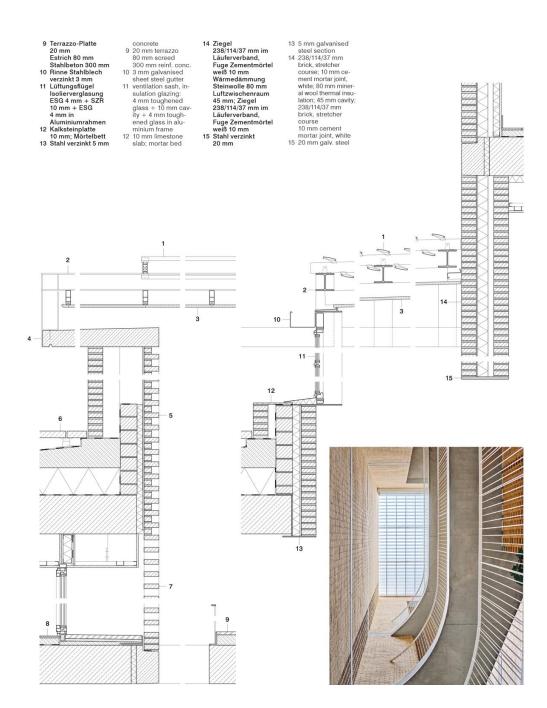
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"Feeling good in one's own skin"

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Delft University of Technology

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