

An aerial photograph of Rotterdam, Netherlands, showing a dense urban grid and a complex network of waterways. The city is surrounded by green fields and forests. In the foreground, a white seagull is flying towards the left. The sky is a clear, pale blue.

**ROTTERDAM  
NATIONAL  
PARK  
2100**



Existing Natura 2000 Area

End

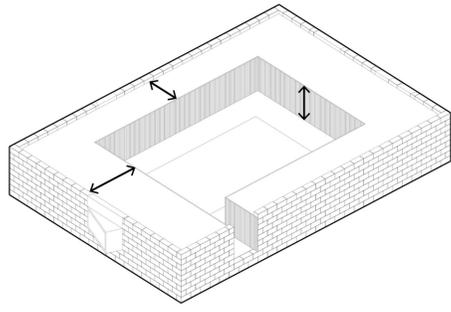
The Outpost

Start

# THE OUTPOST 2025

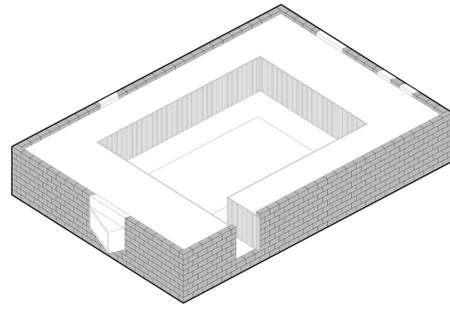
Jonas Althuis

*The Outpost* is the building at the heart of Rotterdam National Park, halfway along the Post-Port Trail, between the city centre of Rotterdam and the coast. Constructed using existing materials sourced nearby, the building has a robust outer shell, protecting its inhabitants and users from the extreme weather situations of the future. It's designed to be able to change in parallel with the development of the national park surrounding it, and its function can be adapted to shift from a research lab & monitoring station at first, to a visitor centre & over-nighting hut in the future. The interior courtyard is a transition space from the outside to the comfort of inside, and can be host to various activities.



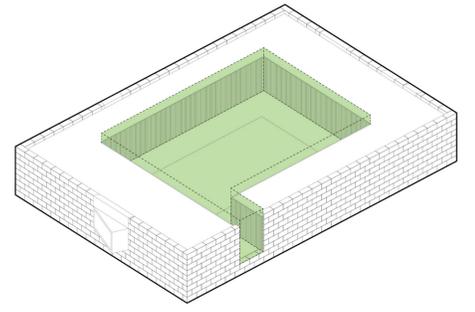
## FLEXIBILITY

Dimensioned for the program to change as the national park surrounding it develops.



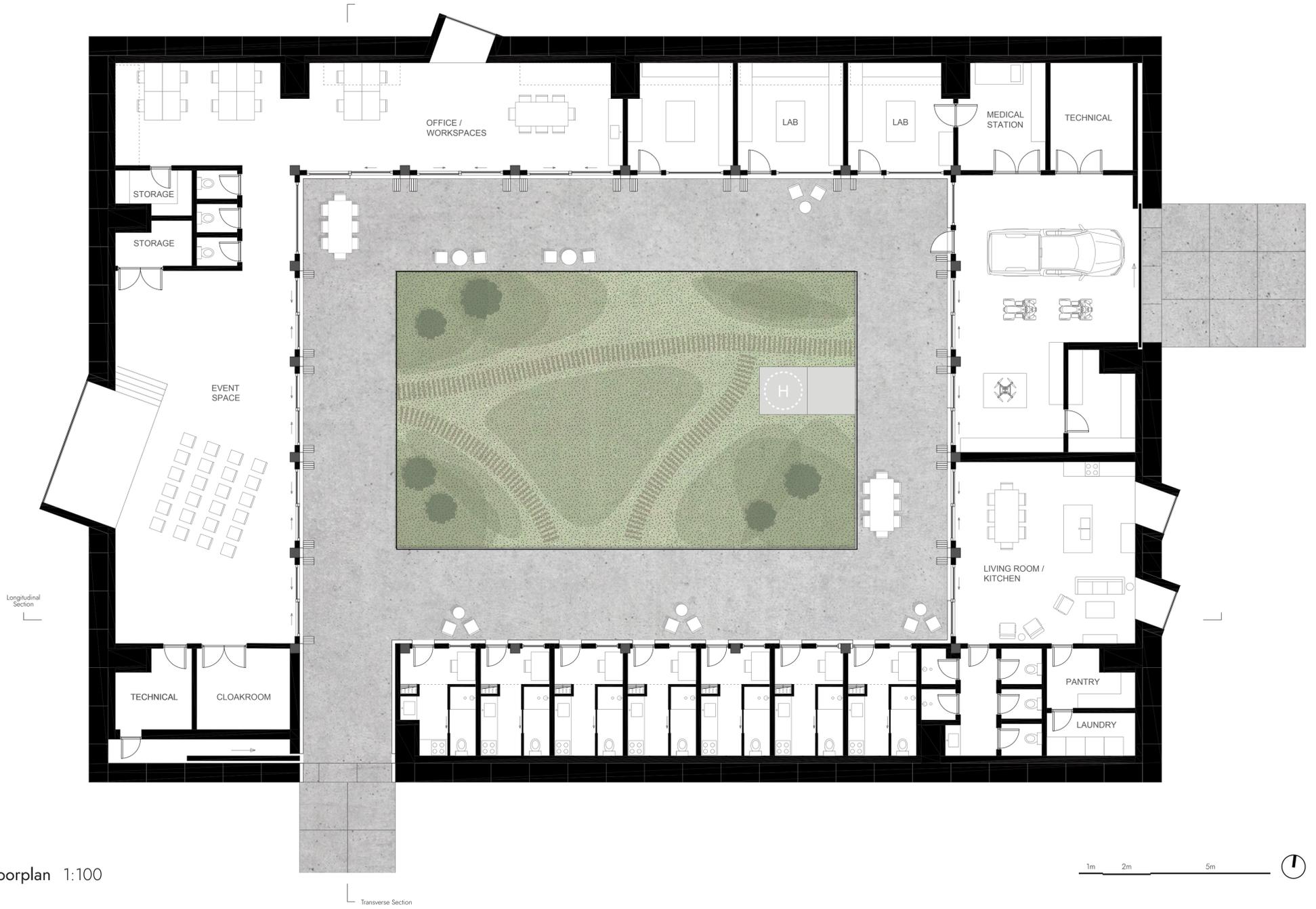
## ROBUST OUTER SHELL

A thick outer wall that protects against extreme weather in a changing climate situation.

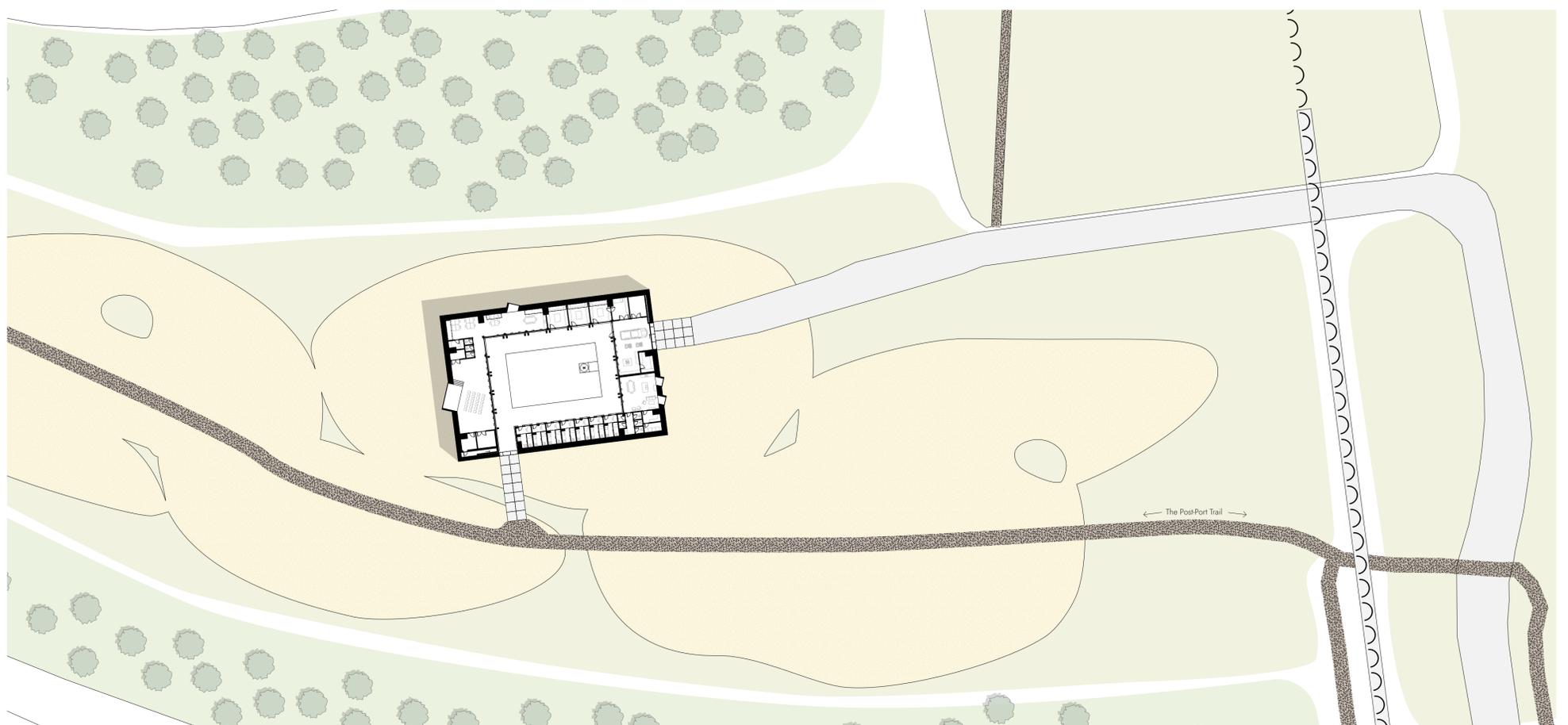


## COURTYARD TYPOLOGY

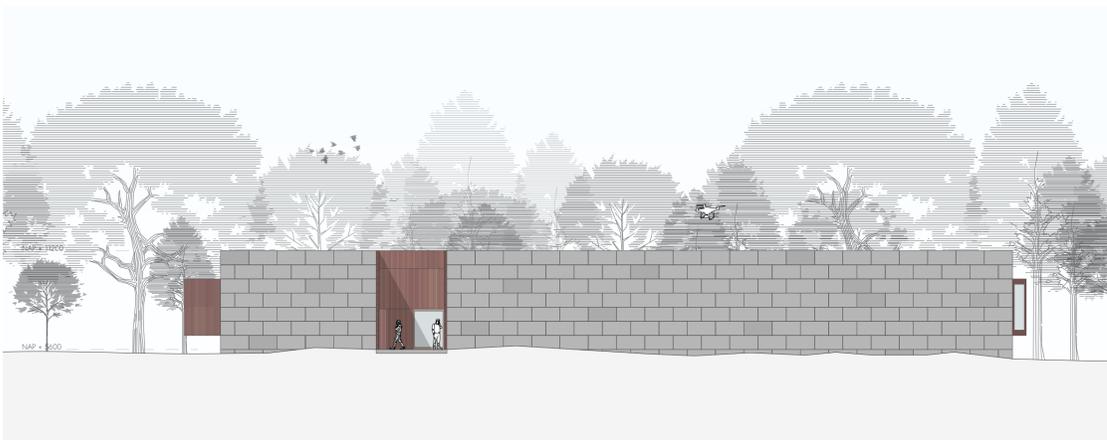
An established architectural form with a sheltered inside space.



Floorplan 1:100



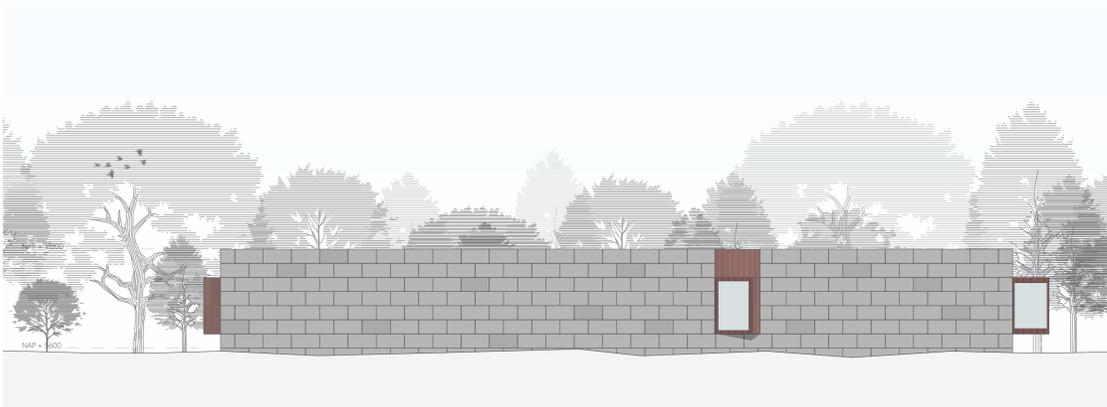
Site Plan 1:1000



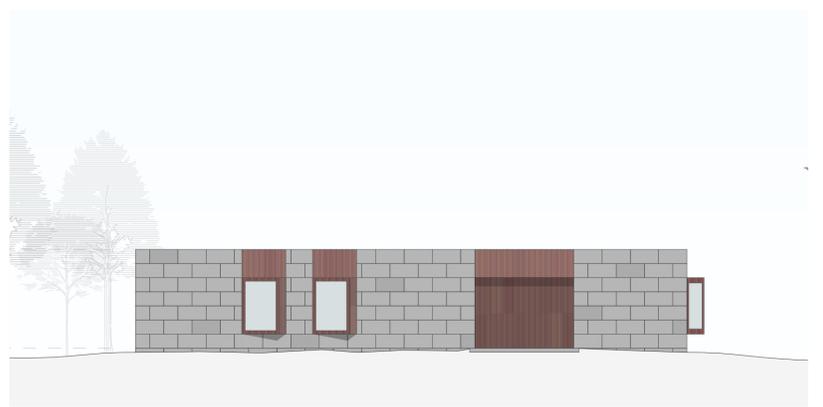
South Elevation 1:200



West Elevation 1:200



North Elevation 1:200



East Elevation 1:200

1m 2m 5m



Longitudinal Section 1:100

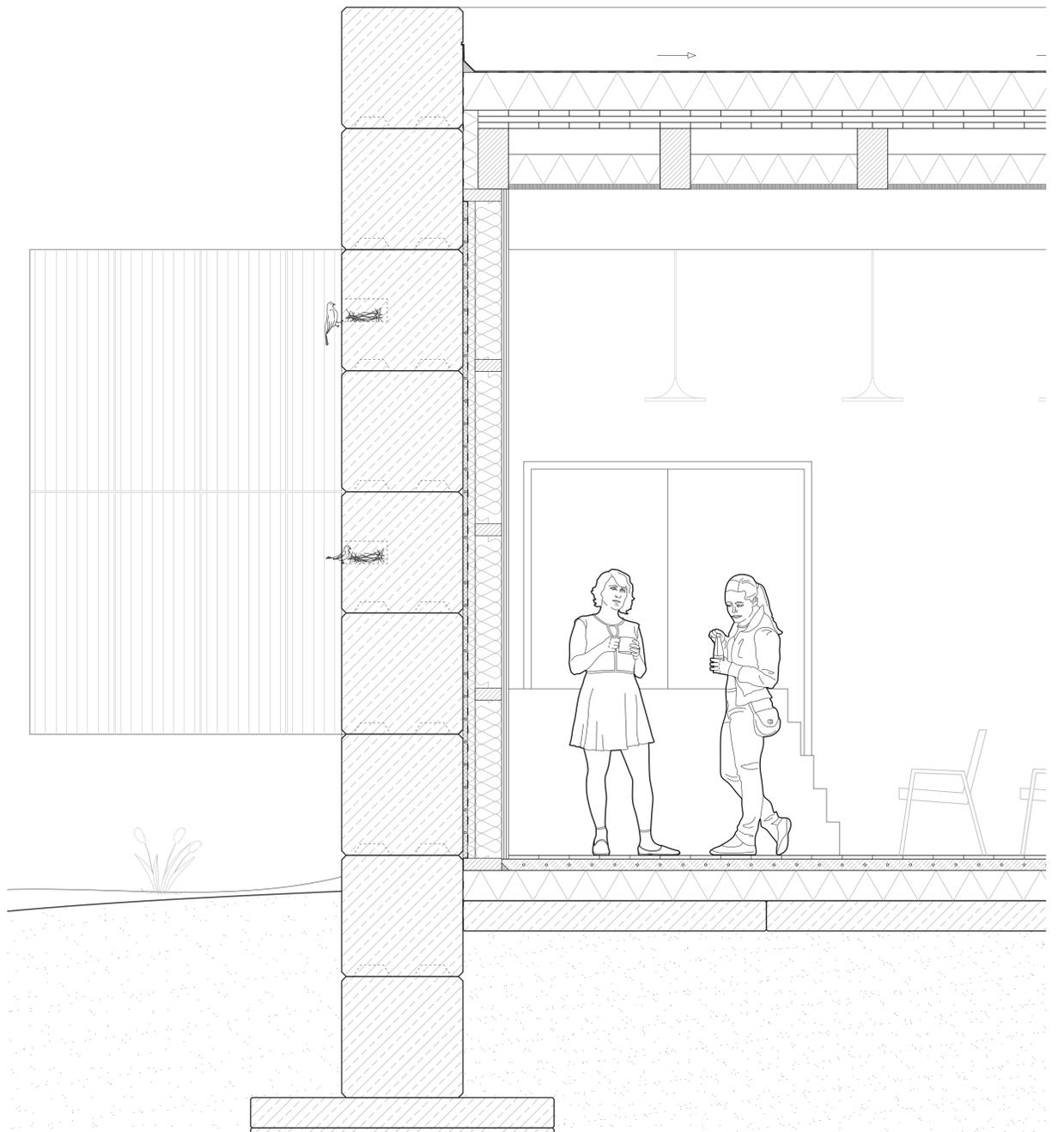


Transverse Section 1:100

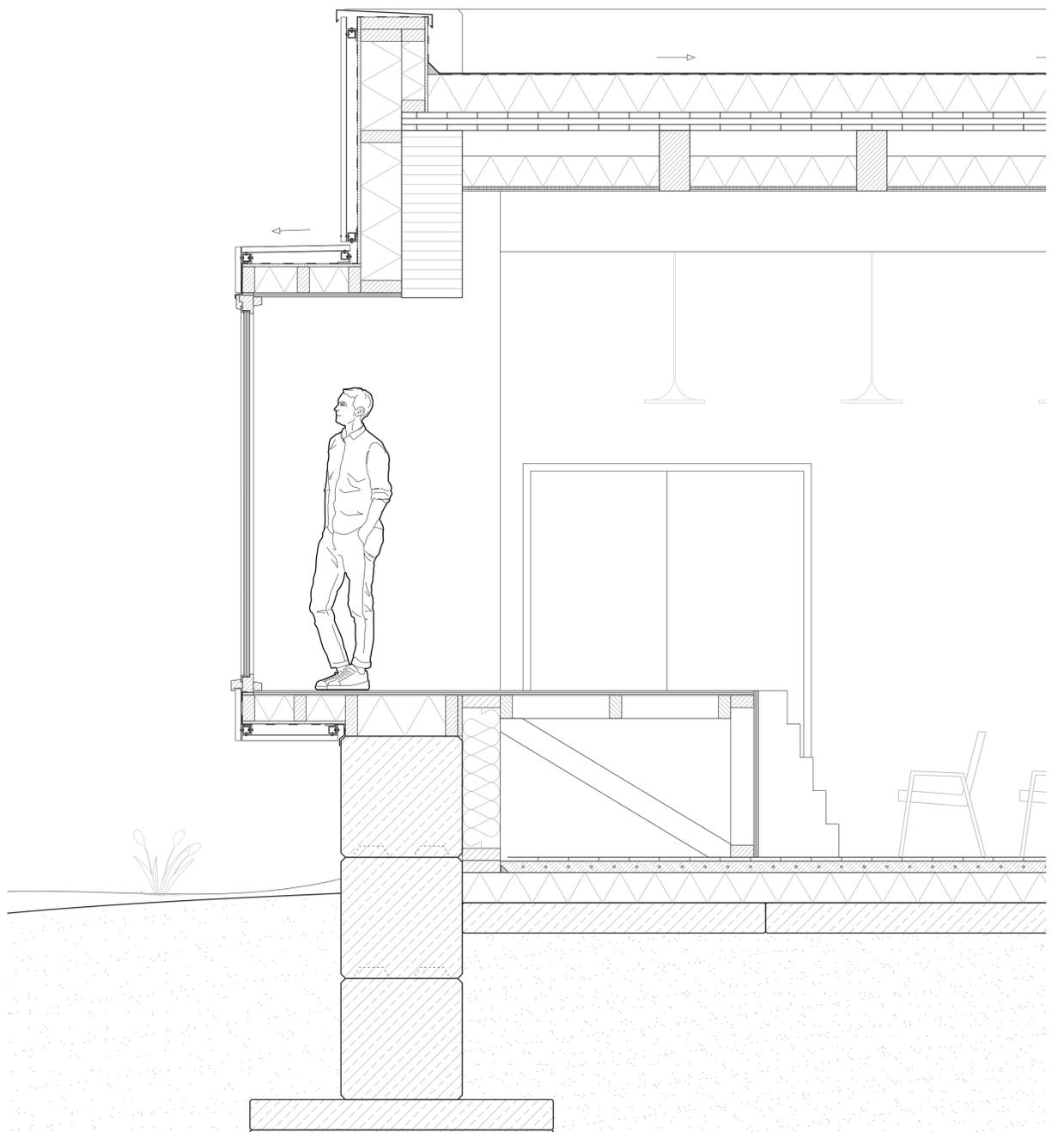
1m 2m 5m



Facade Fragment 1 1:20



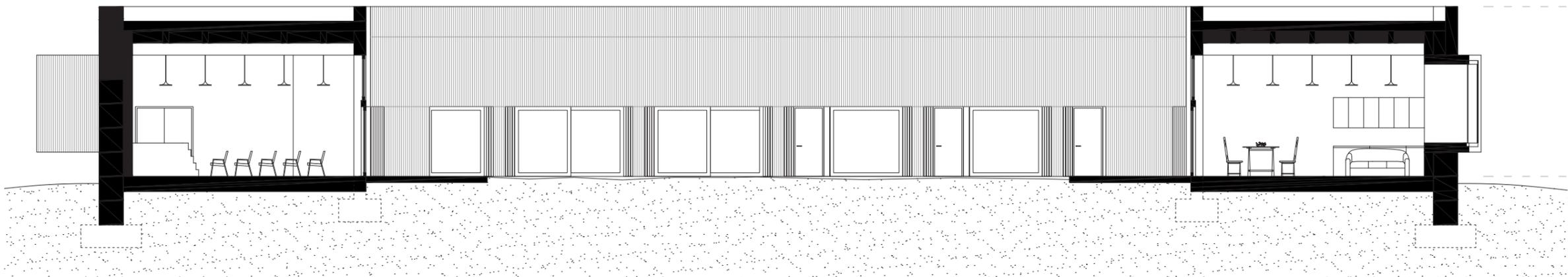
Facade Fragment 2 1:20



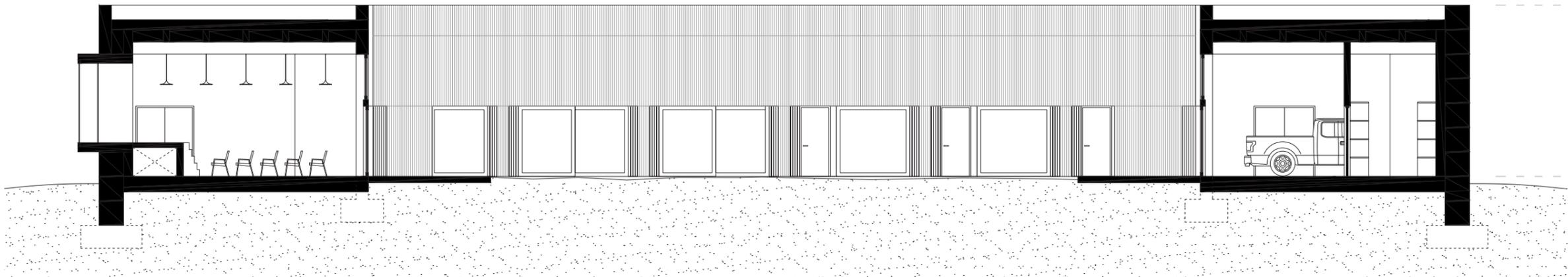
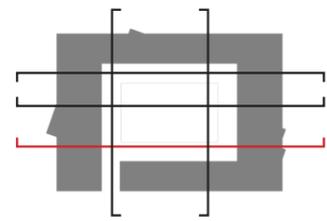
20cm 40cm 100cm

**The Outpost**  
Additional Documentation  
Jonas Althuis | P5

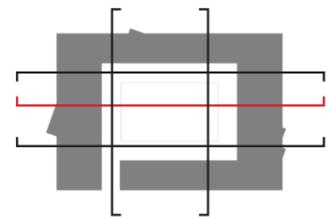
BUILDING SECTIONS (SITUATION 2025)



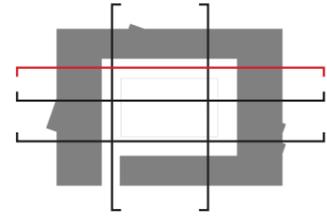
SECTION A



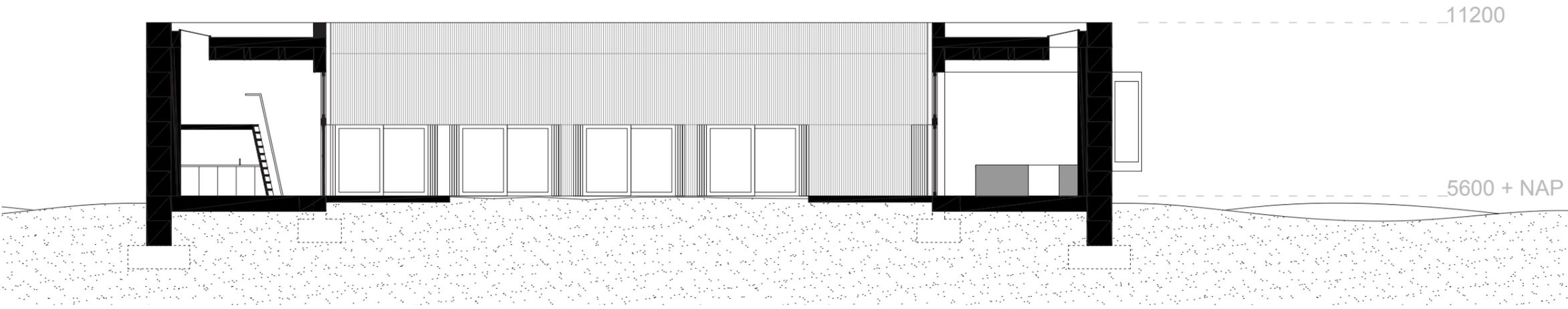
SECTION B



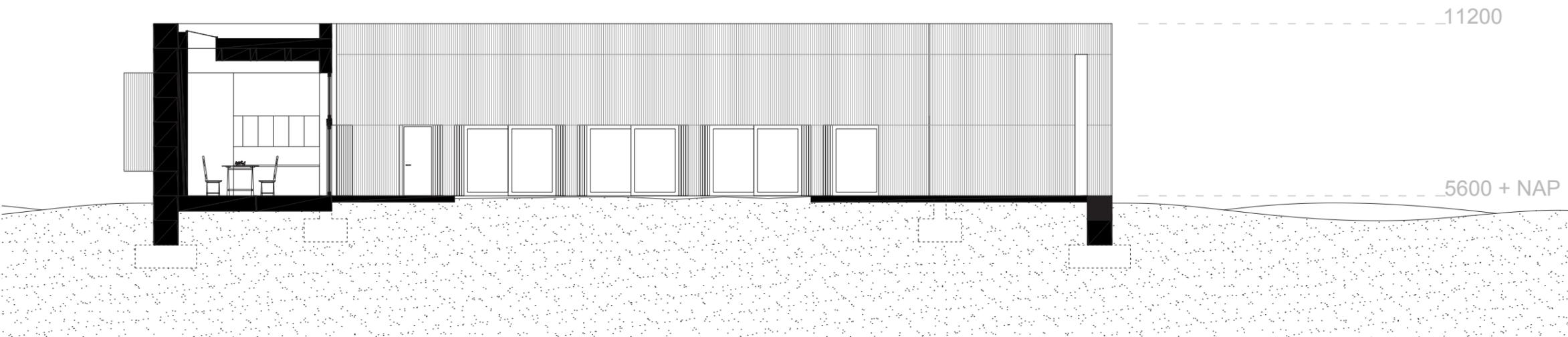
SECTION C



BUILDING SECTIONS (SITUATION 2025)



SECTION D



SECTION E

1m 2m 5m

PRIMARY MATERIALS



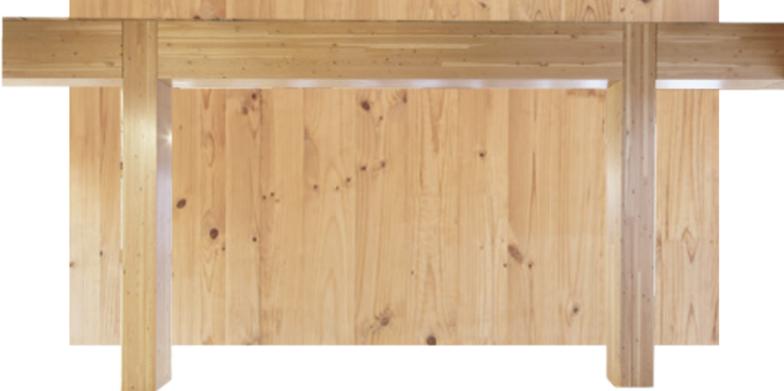
CONCRETE BLOCKS

Existing concrete blocks, sourced from nearby industrial lots.



CONTAINER PANELS

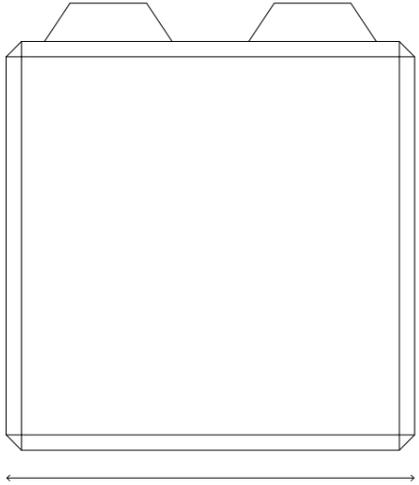
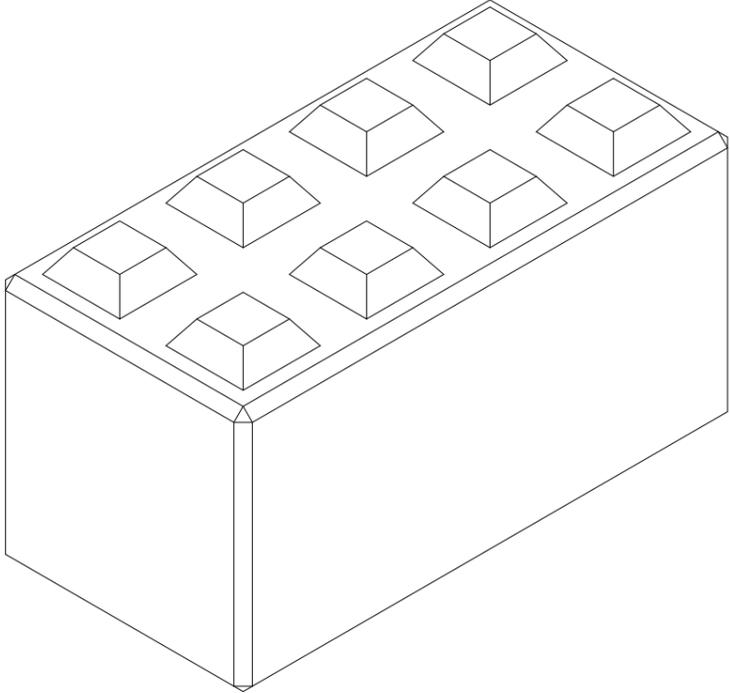
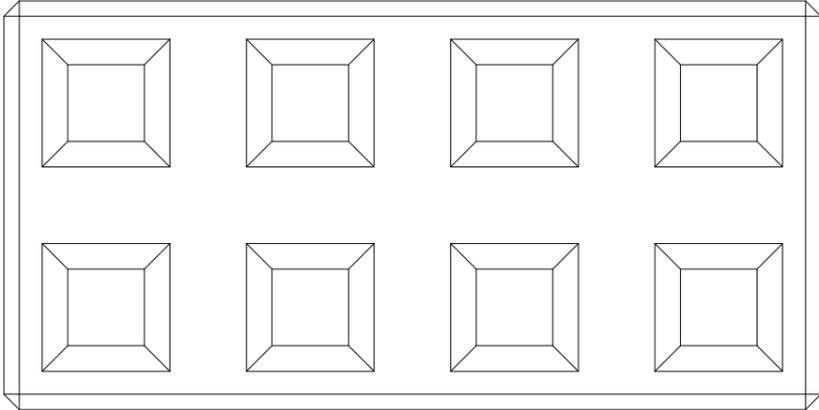
Side walls of containers, cut into facade panels and perforated to allow light transmission.



WOODEN INTERIOR

A fully wooden interior, for warm and comfortable living and working spaces.

CONCRETE BLOCKS



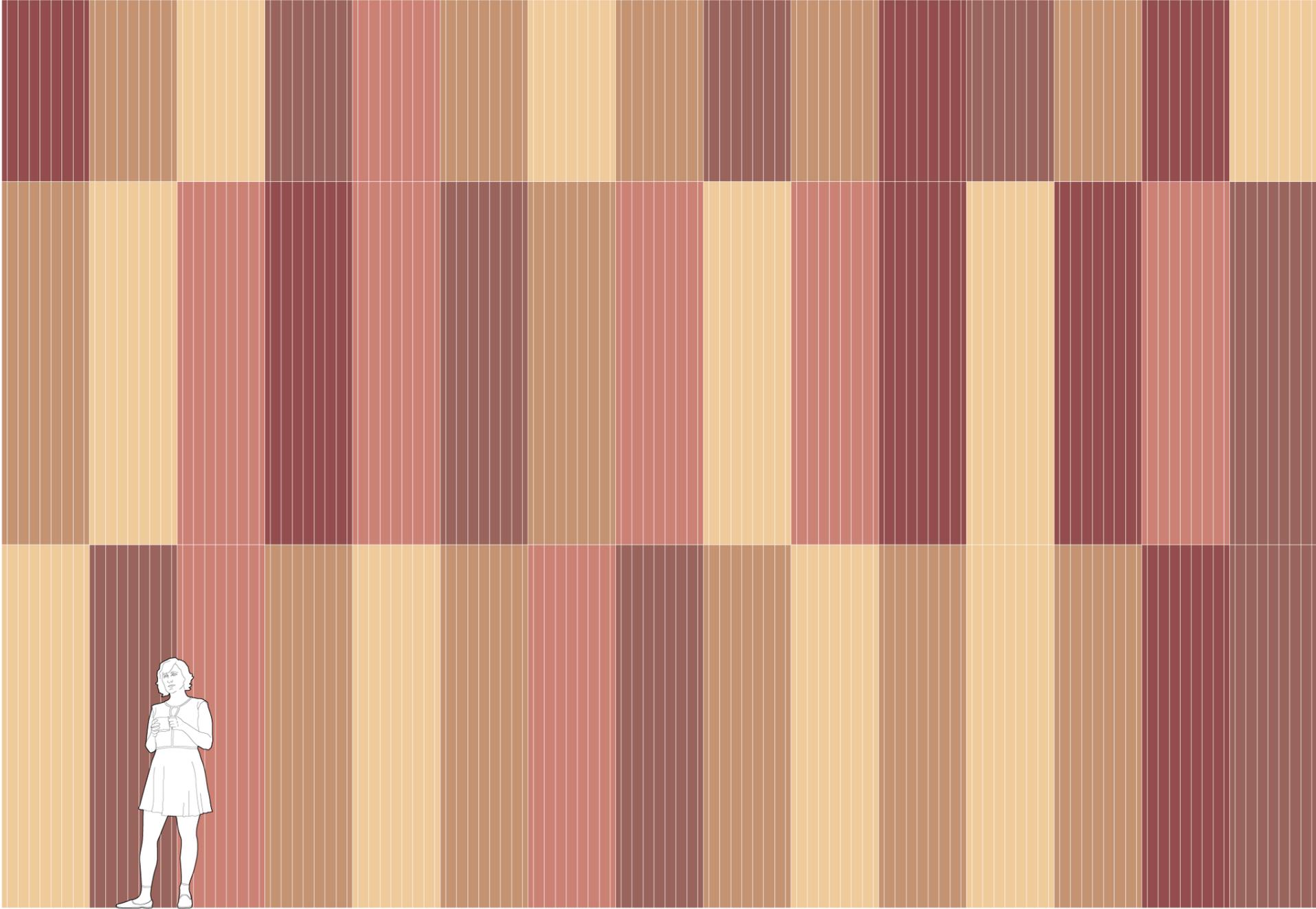
1600mm

800mm

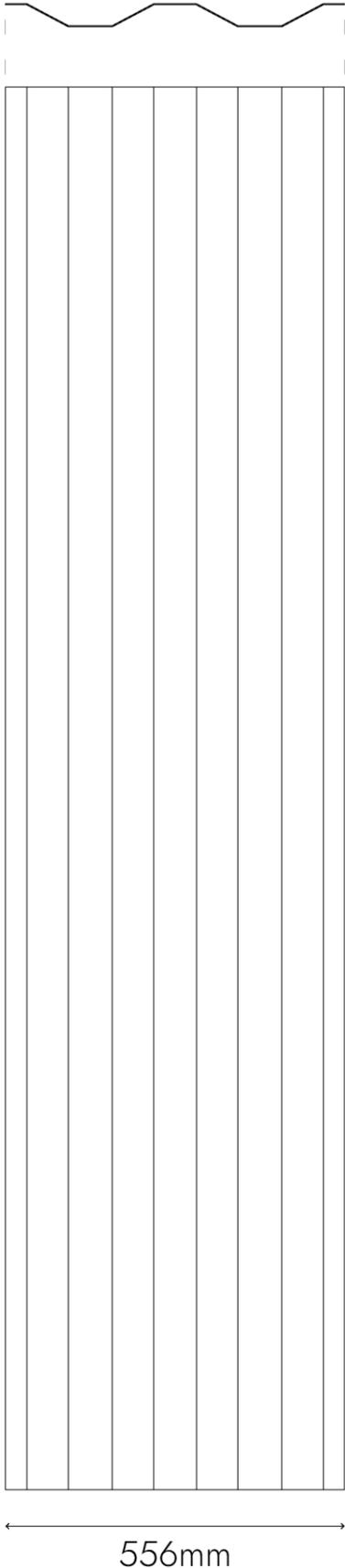
800mm



# CONTAINER PANELS



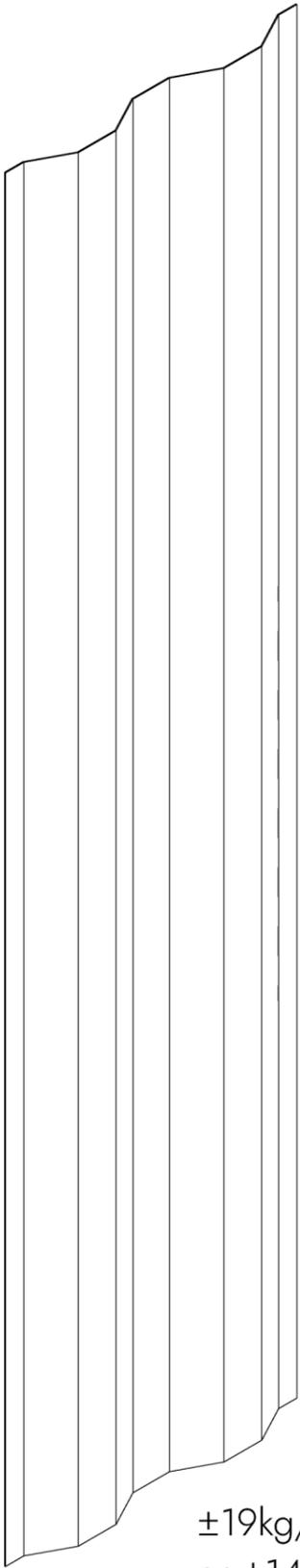
CONTAINER PANELS



2300mm

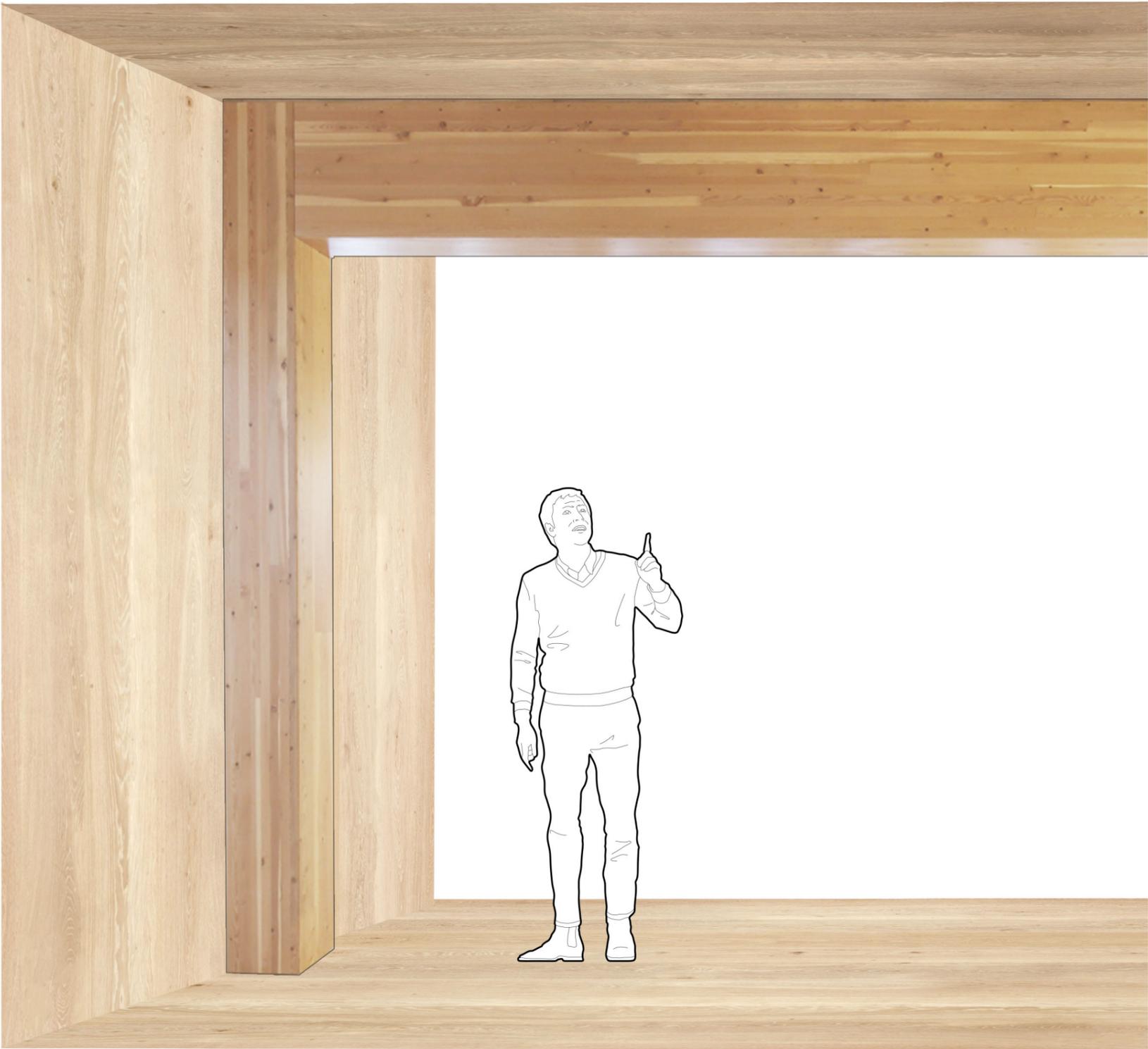
556mm

37mm



±19kg/panel  
or ±14.9kg/m<sup>2</sup>  
(without perforations)

WOODEN INTERIOR



Glu-lam columns & beams

Ash flooring and wall paneling

# MATERIALS MAP

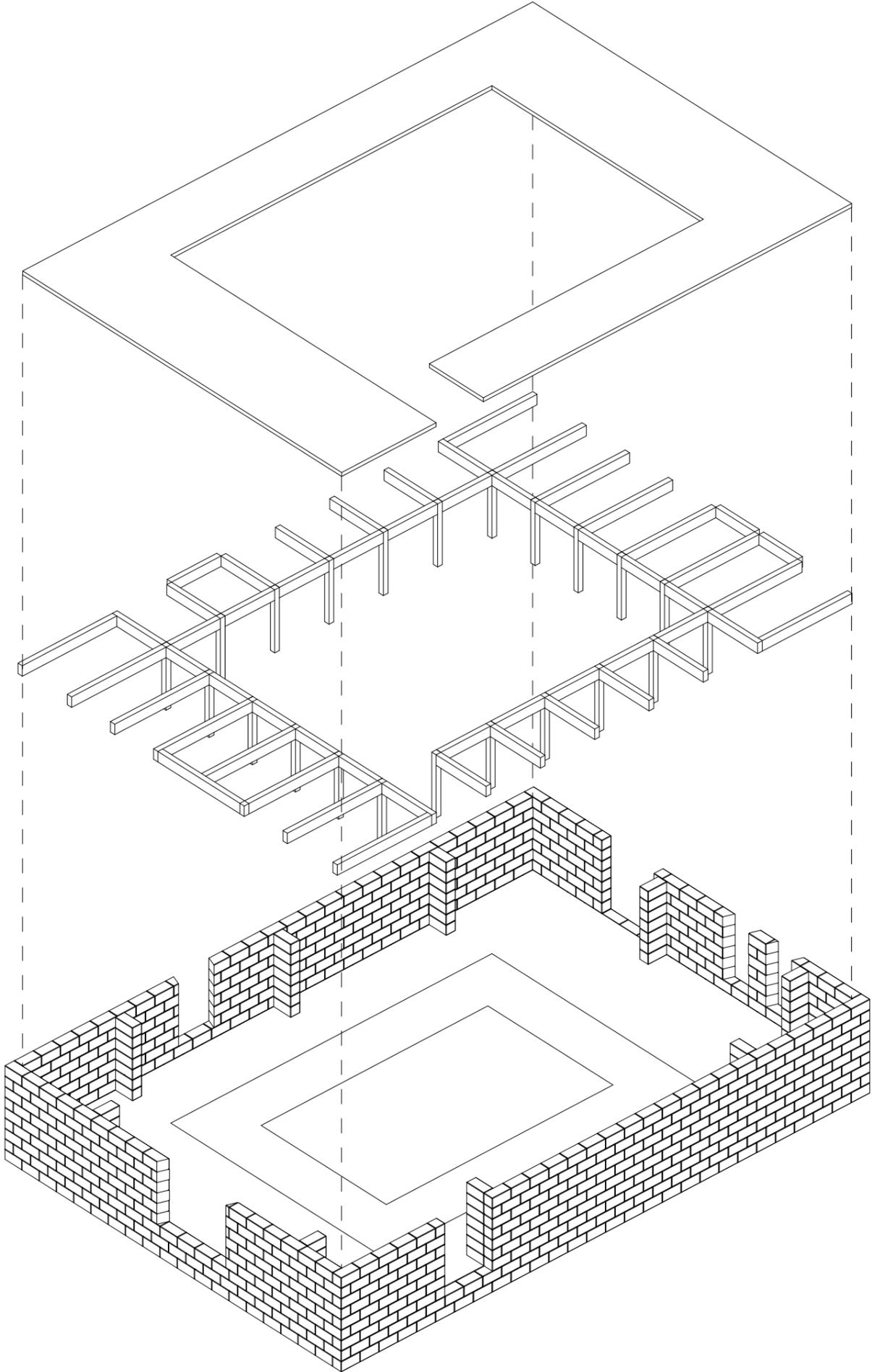


EXPLODED STRUCTURE AXONOMETRIC

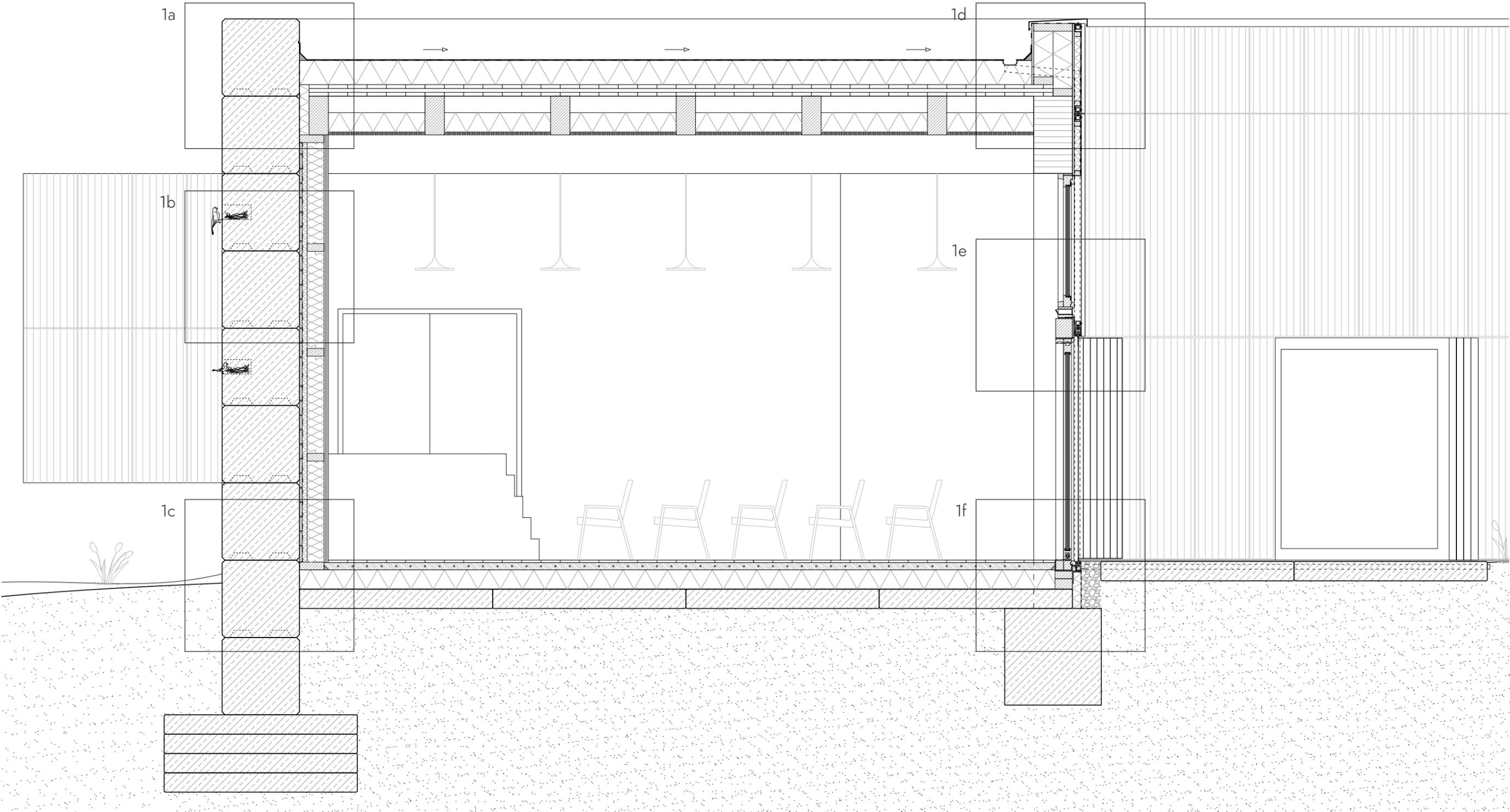
Cross-laminated-timber roof

Glu-lam columns & beams

Interlocking concrete blocks with perpendicular stability walls



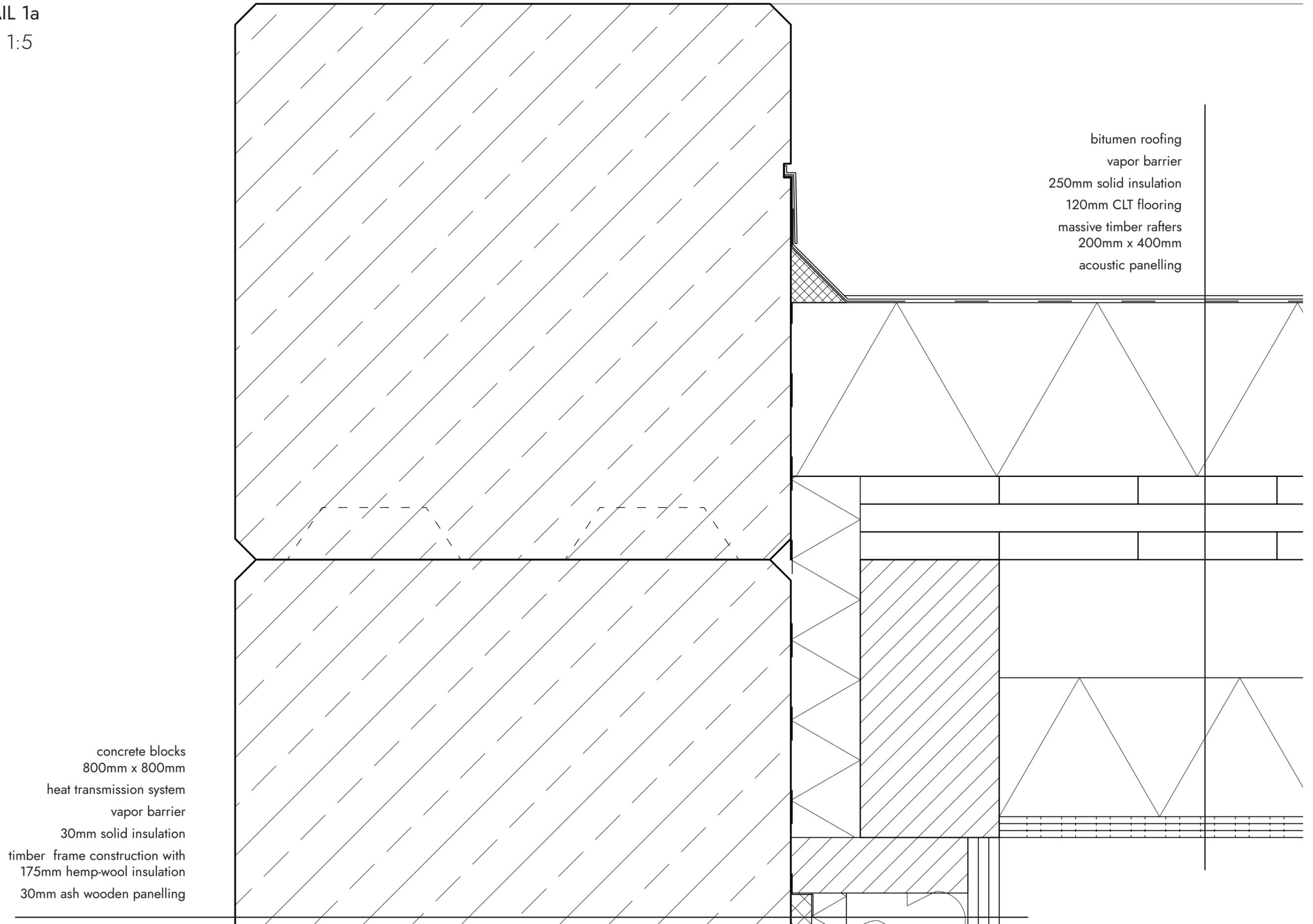
FACADE FRAGMENT 1



1m

DETAIL 1a

scale 1:5

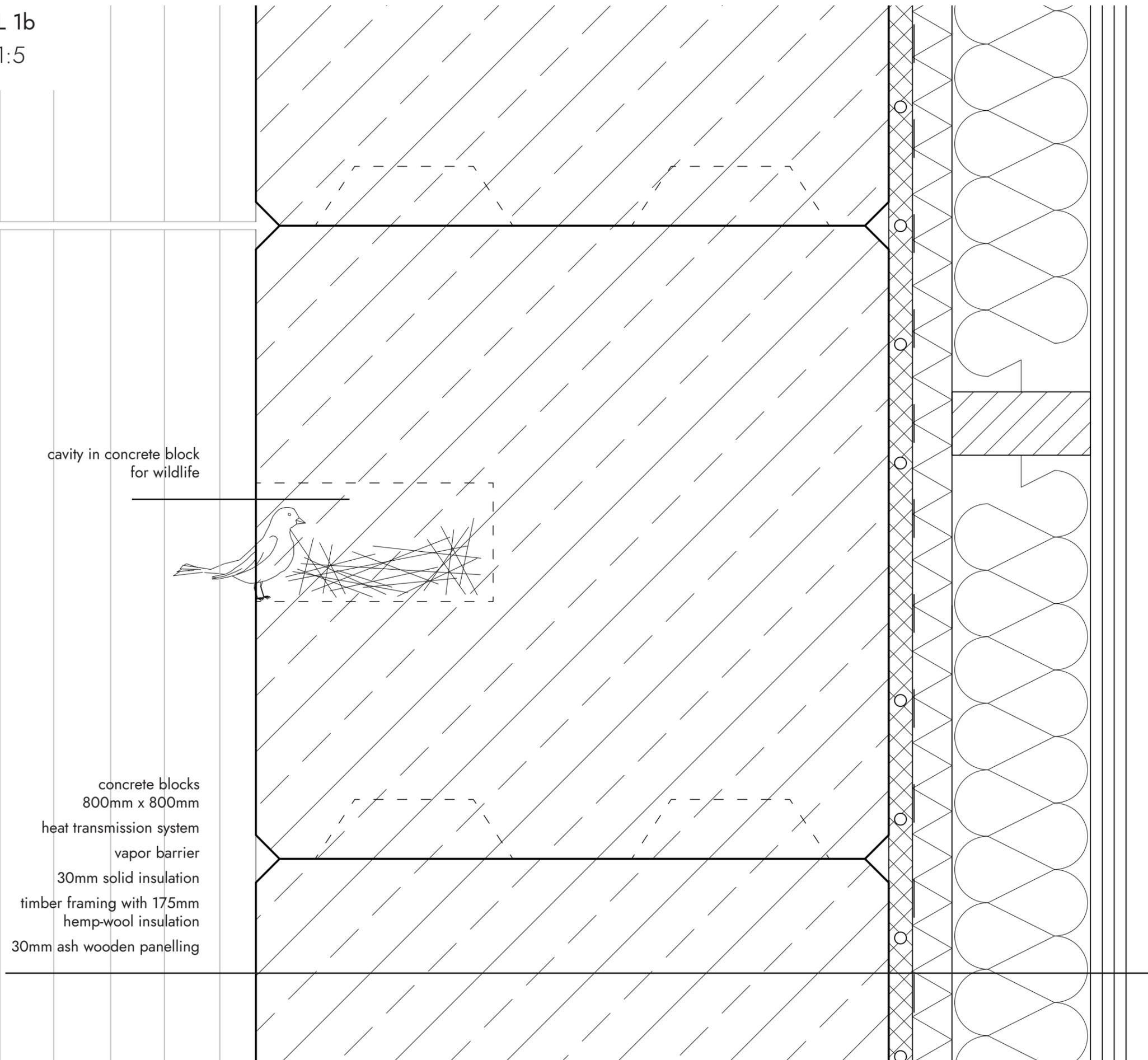


bitumen roofing  
vapor barrier  
250mm solid insulation  
120mm CLT flooring  
massive timber rafters  
200mm x 400mm  
acoustic panelling

concrete blocks  
800mm x 800mm  
heat transmission system  
vapor barrier  
30mm solid insulation  
timber frame construction with  
175mm hemp-wool insulation  
30mm ash wooden panelling

DETAIL 1b

scale 1:5

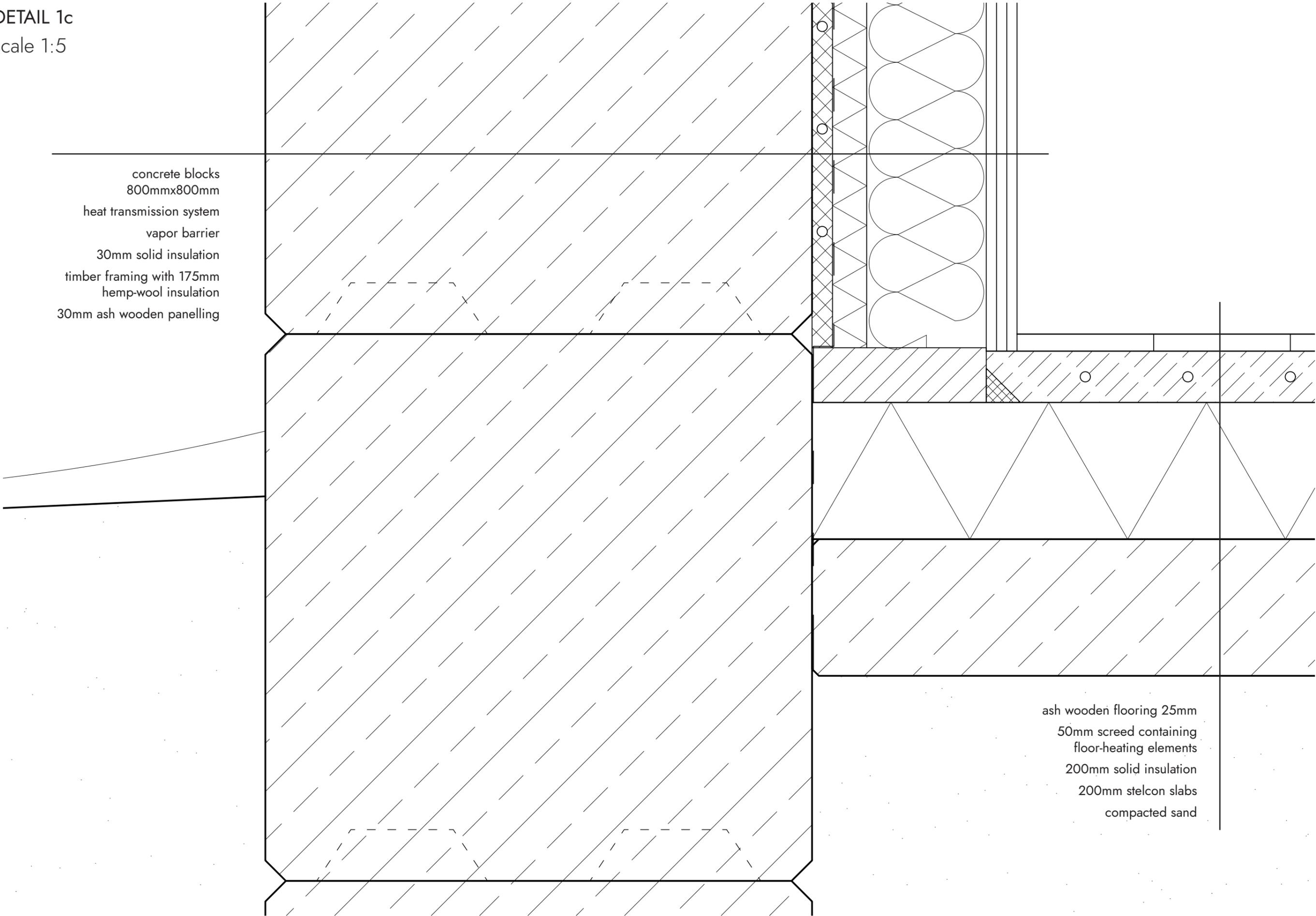


cavity in concrete block  
for wildlife

concrete blocks  
800mm x 800mm  
heat transmission system  
vapor barrier  
30mm solid insulation  
timber framing with 175mm  
hemp-wool insulation  
30mm ash wooden panelling

DETAIL 1c

scale 1:5

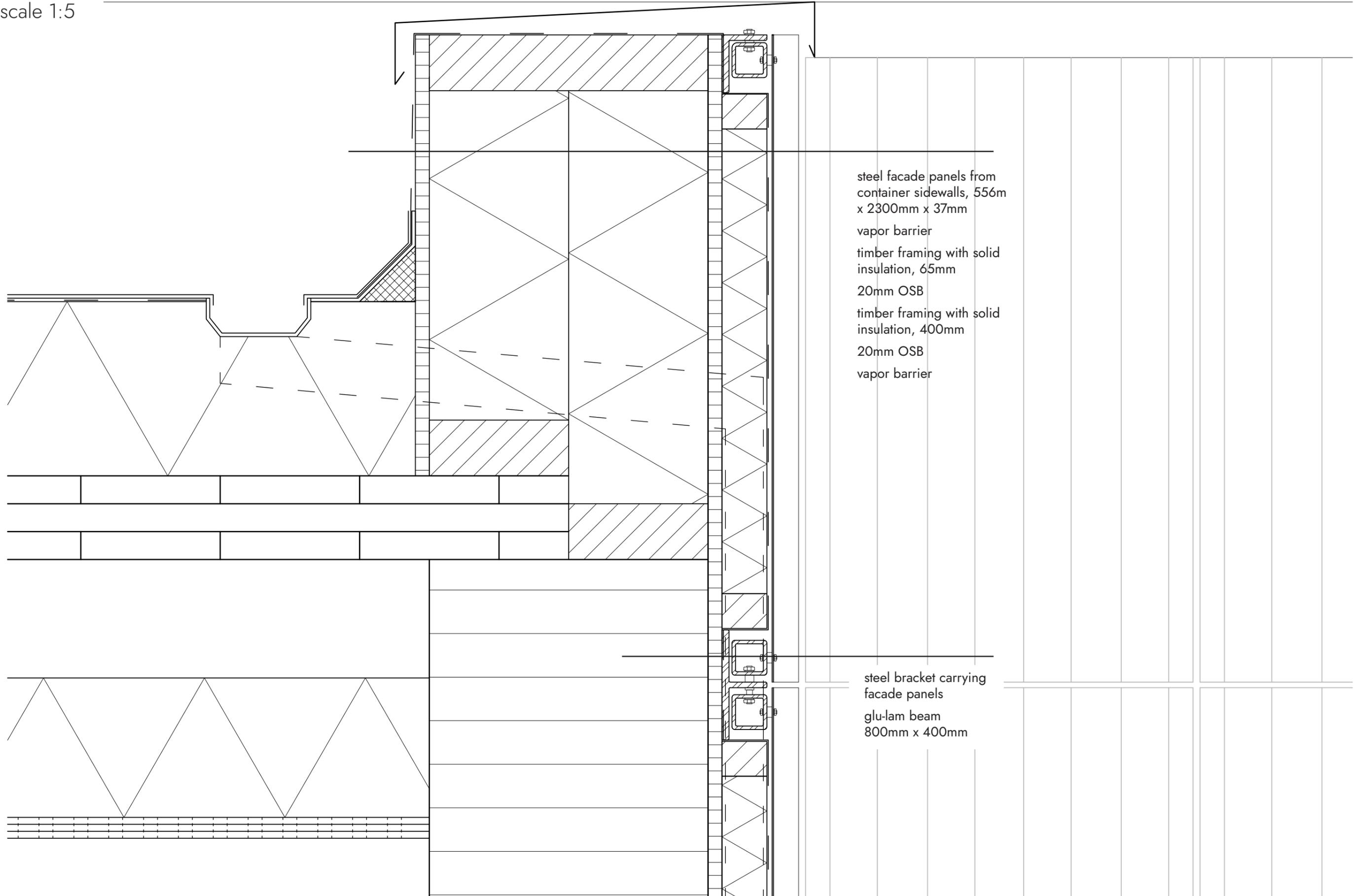


concrete blocks  
800mmx800mm  
heat transmission system  
vapor barrier  
30mm solid insulation  
timber framing with 175mm  
hemp-wool insulation  
30mm ash wooden panelling

ash wooden flooring 25mm  
50mm screed containing  
floor-heating elements  
200mm solid insulation  
200mm stelcon slabs  
compacted sand

DETAIL 1d

scale 1:5

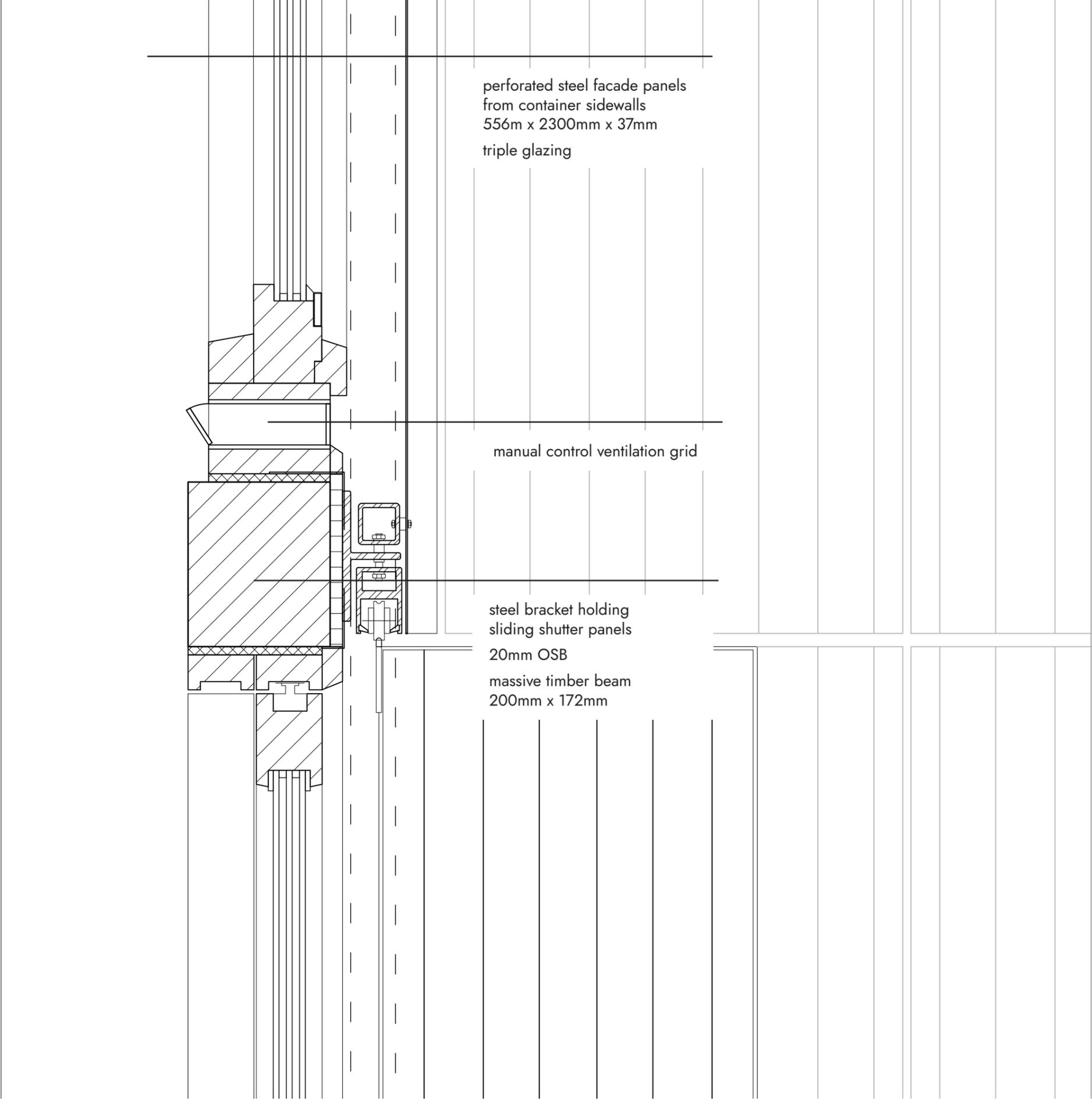


steel facade panels from  
container sidewalls, 556m  
x 2300mm x 37mm  
vapor barrier  
timber framing with solid  
insulation, 65mm  
20mm OSB  
timber framing with solid  
insulation, 400mm  
20mm OSB  
vapor barrier

steel bracket carrying  
facade panels  
glu-lam beam  
800mm x 400mm

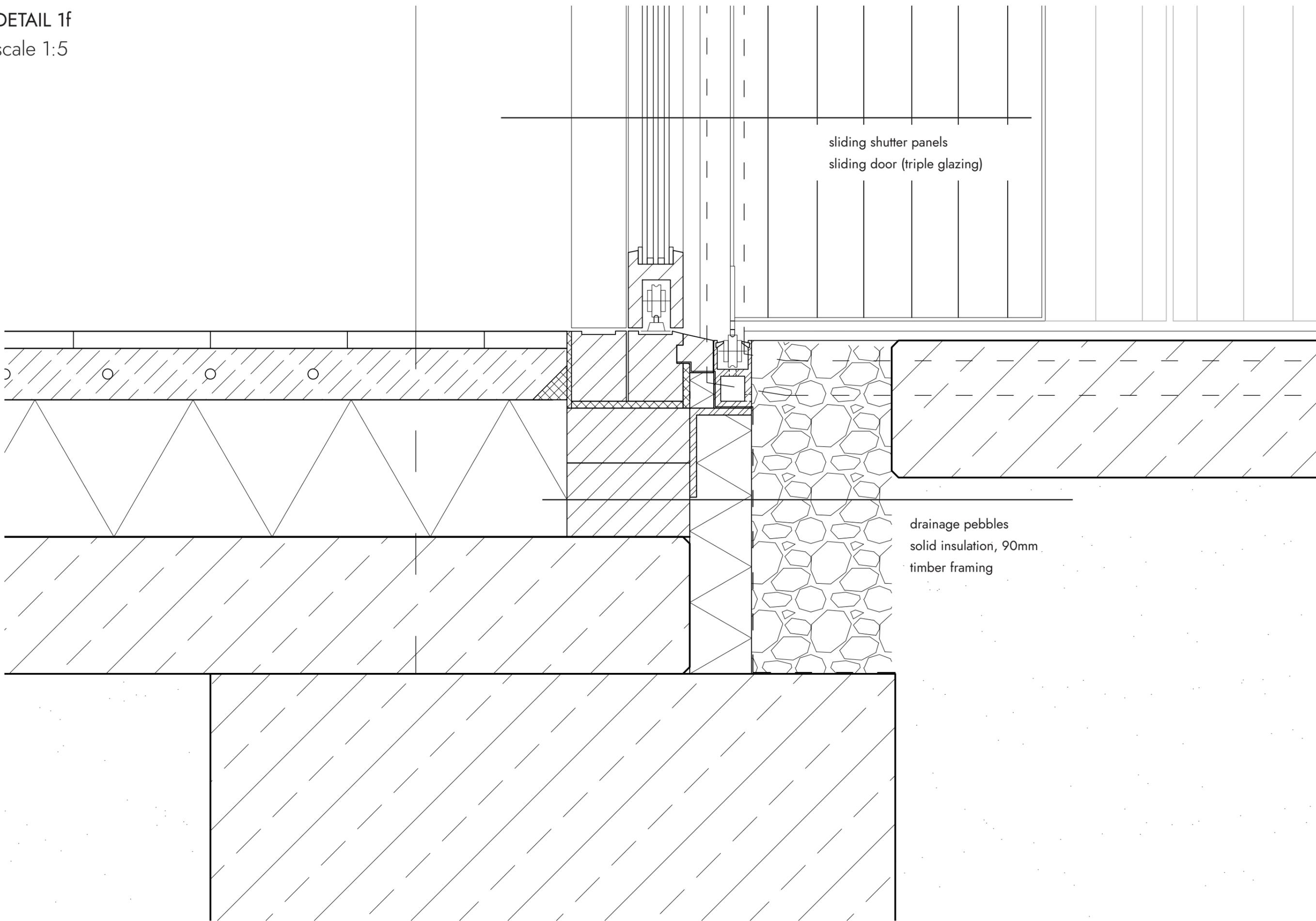
DETAIL 1e

scale 1:5



DETAIL 1f

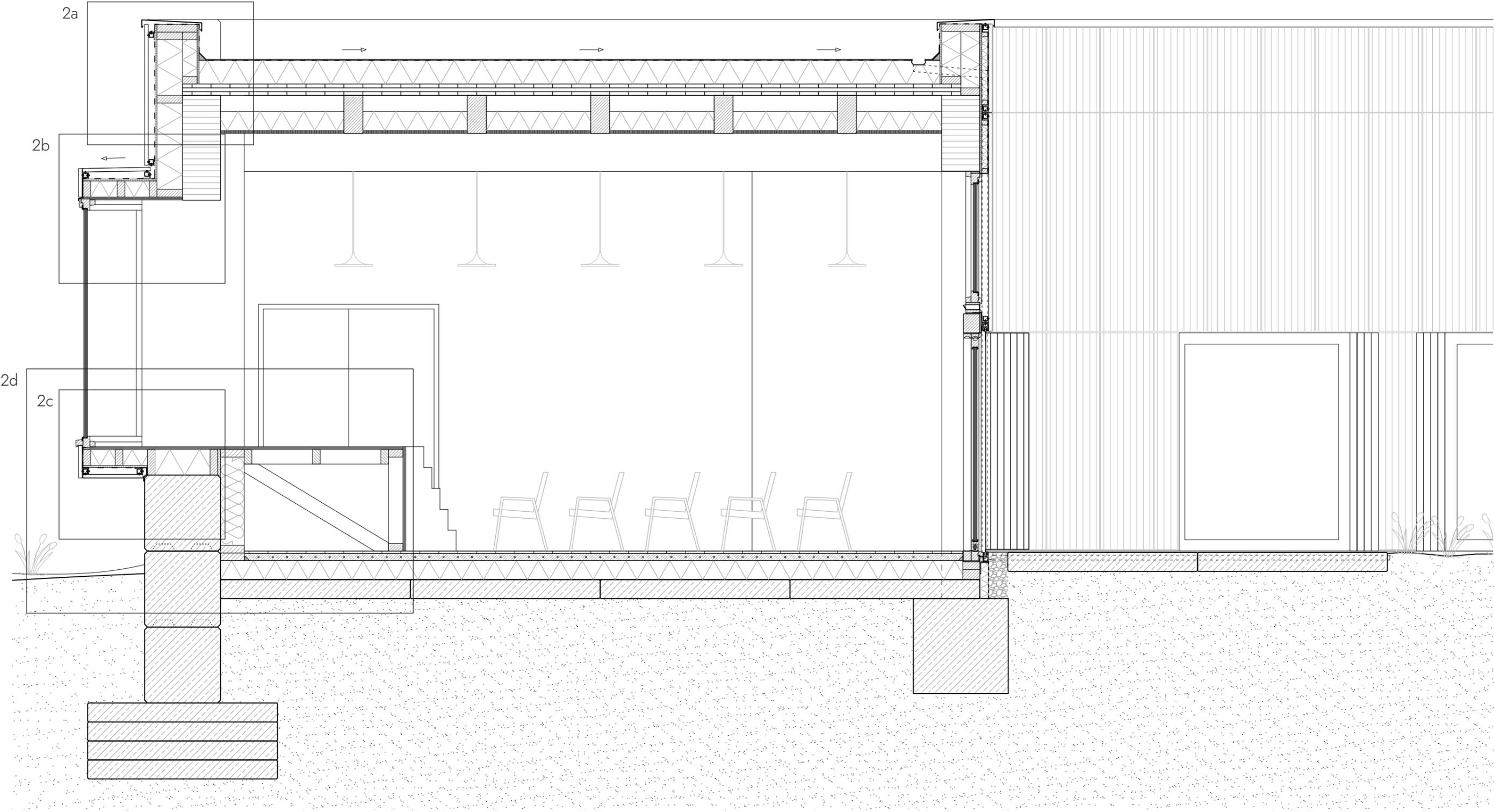
scale 1:5



sliding shutter panels  
sliding door (triple glazing)

drainage pebbles  
solid insulation, 90mm  
timber framing

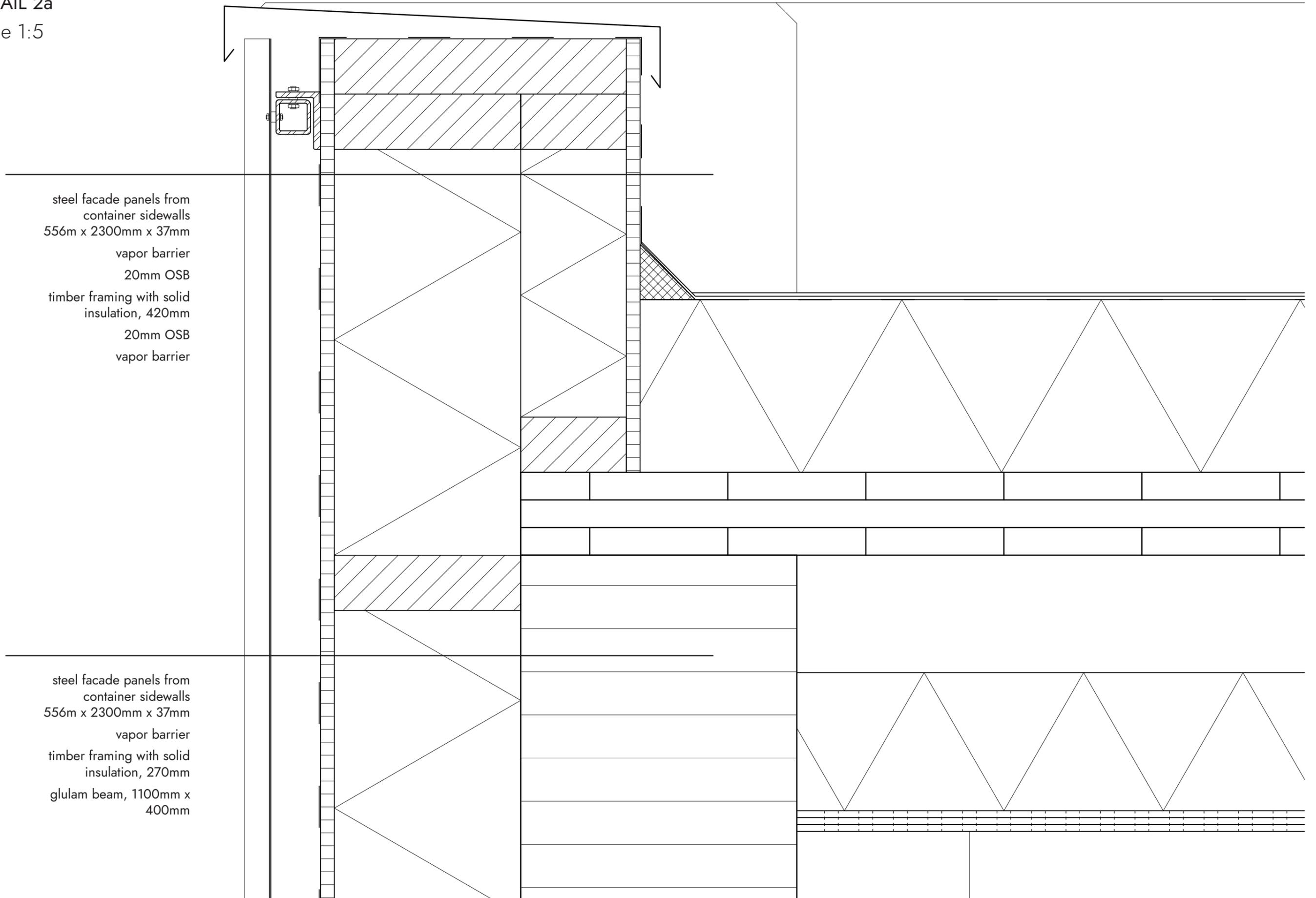
FACADE FRAGMENT 2



1m

DETAIL 2a

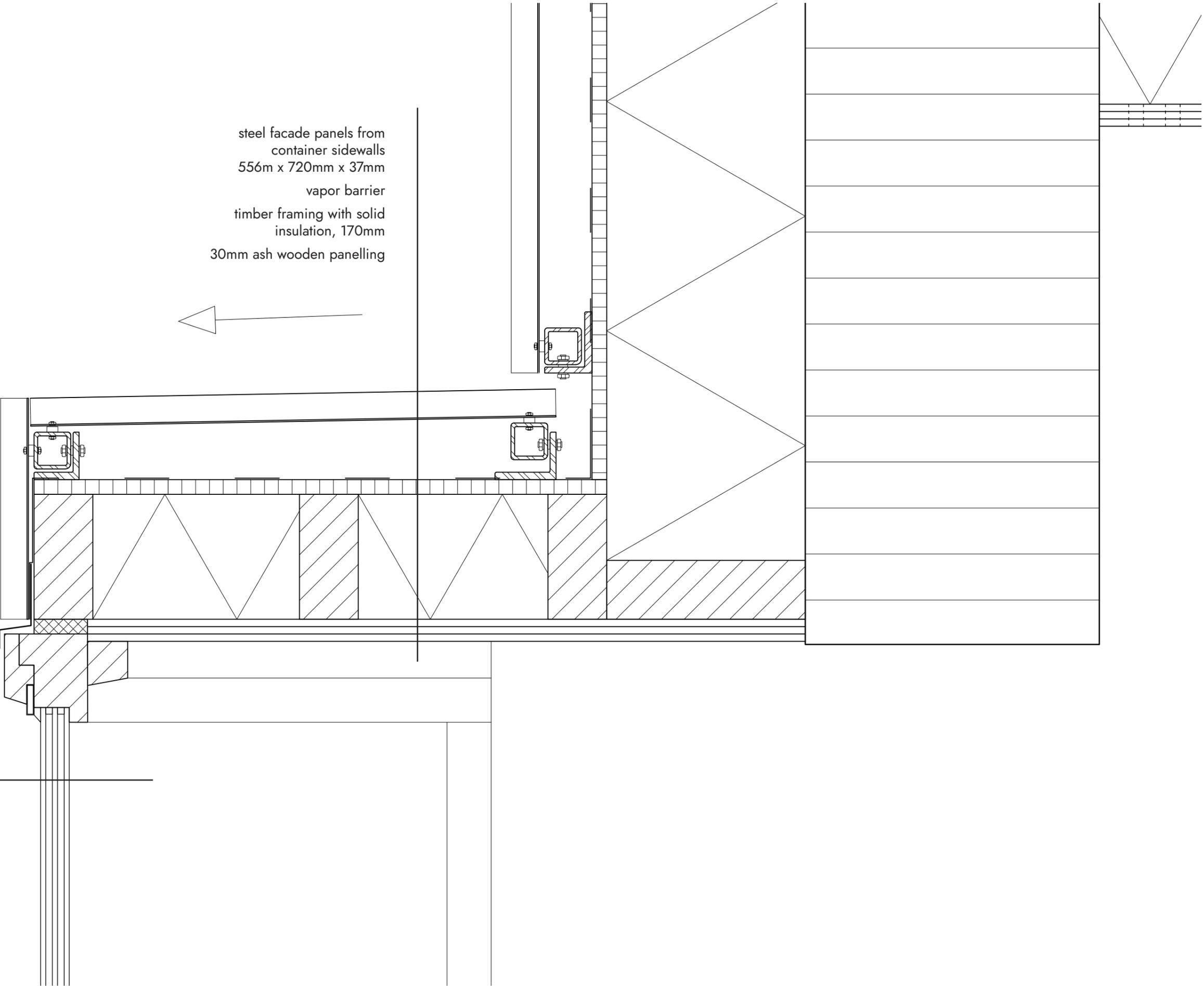
scale 1:5



DETAIL 2b

scale 1:5

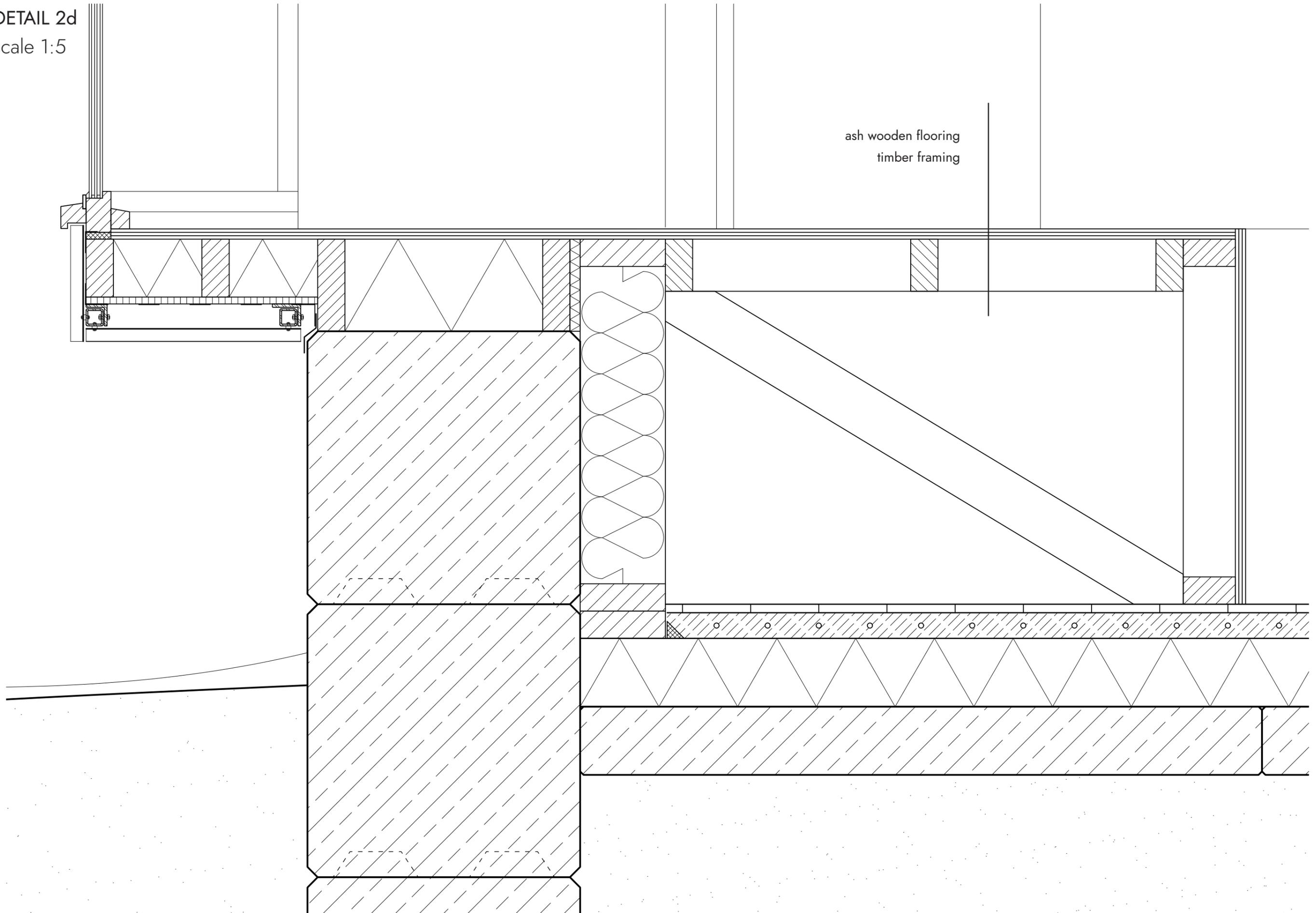
steel facade panels from  
container sidewalls  
556mm x 720mm x 37mm  
vapor barrier  
timber framing with solid  
insulation, 170mm  
30mm ash wooden panelling



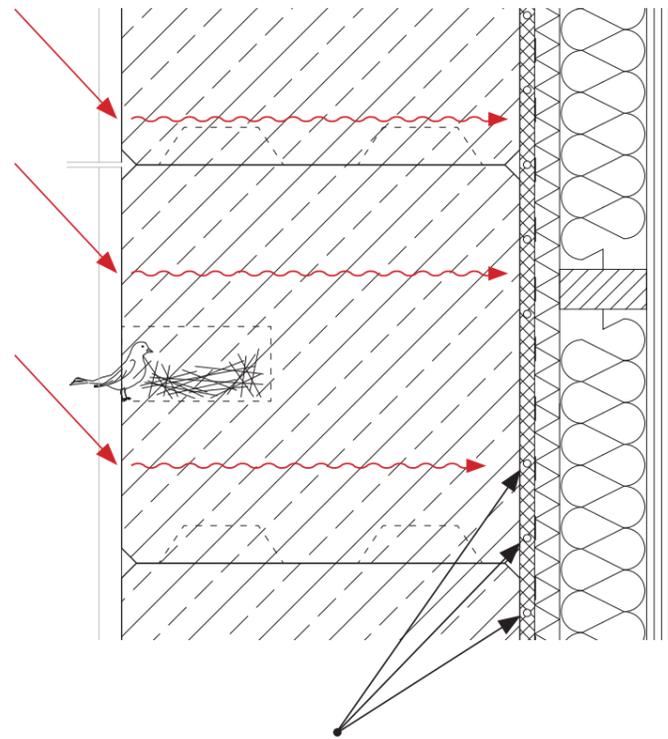
triple glazing



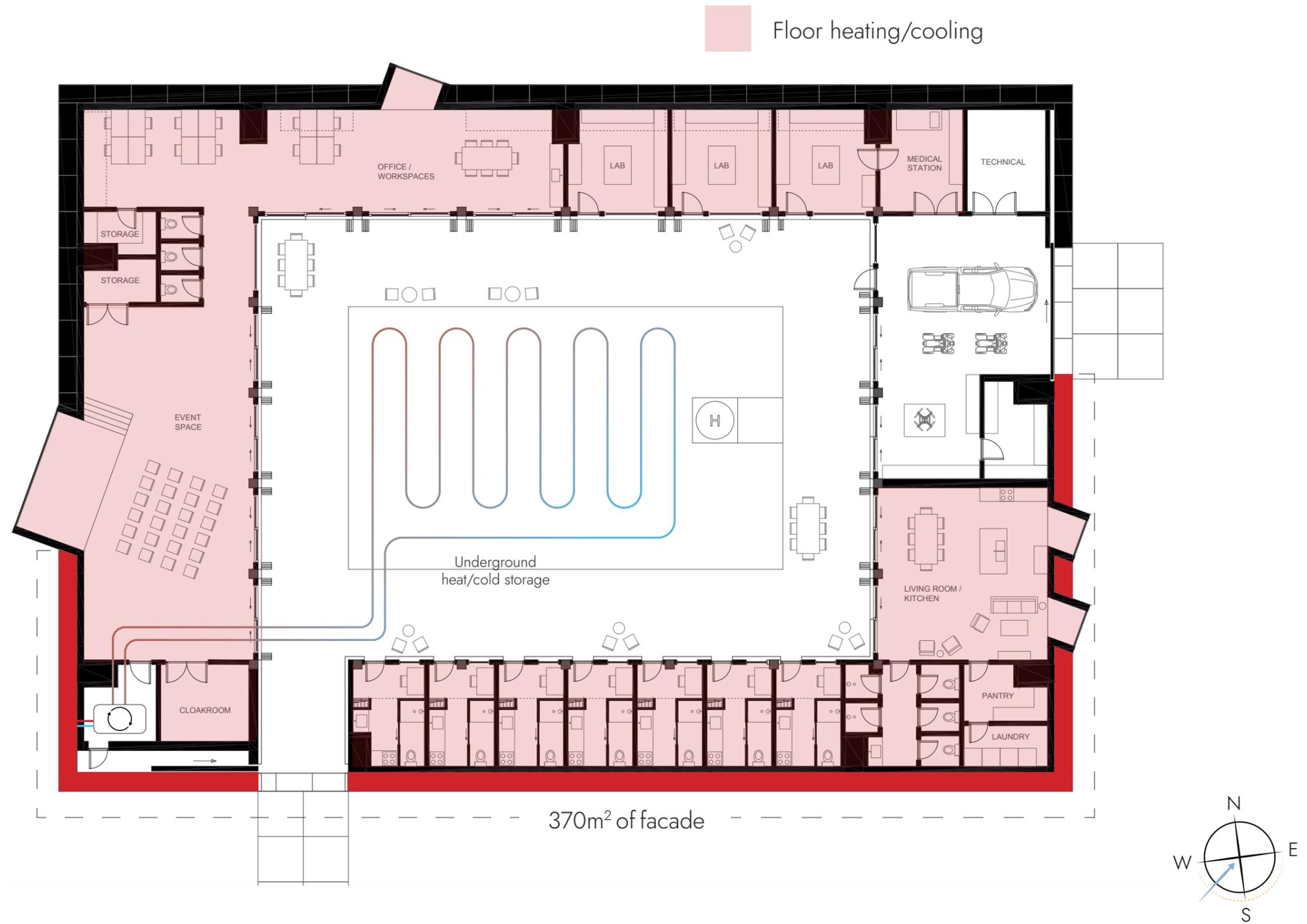
DETAIL 2d  
scale 1:5



# HEAT EXCHANGE SYSTEM

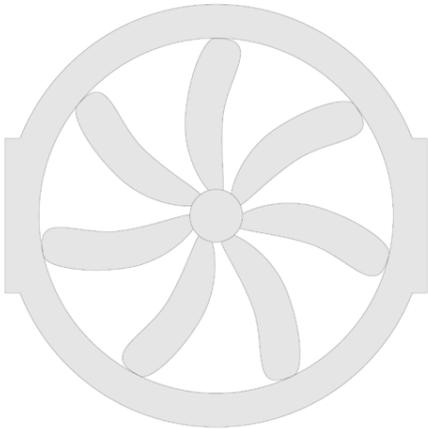


Heat & cold collection from concrete wall, used with heat exchange system to heat in the winter and cool in the summer.



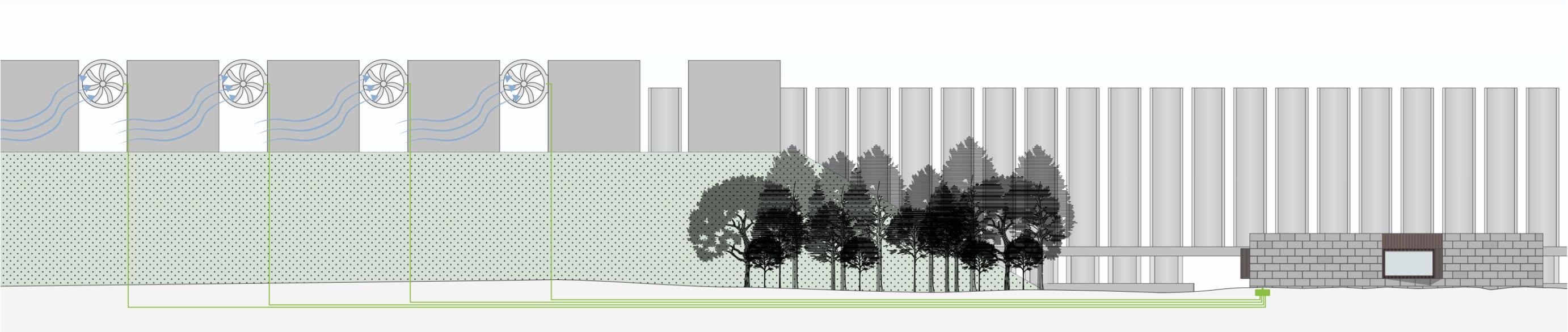
# SUSTAINABLE ELECTRICITY

Electricity required for working and living quarters:  
 $350\text{m}^2 * 60\text{kWh}(\text{avg}/\text{m}^2) = 21000\text{kWh}/\text{year}$



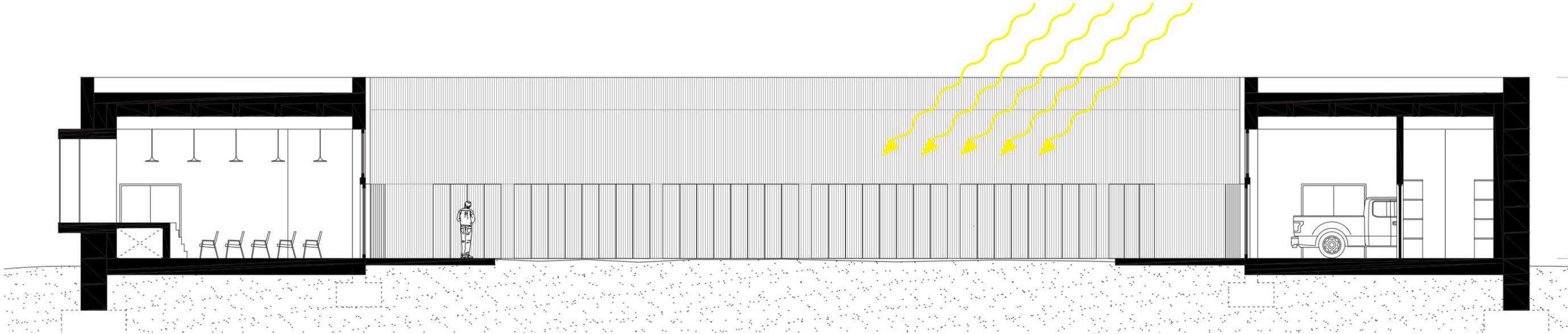
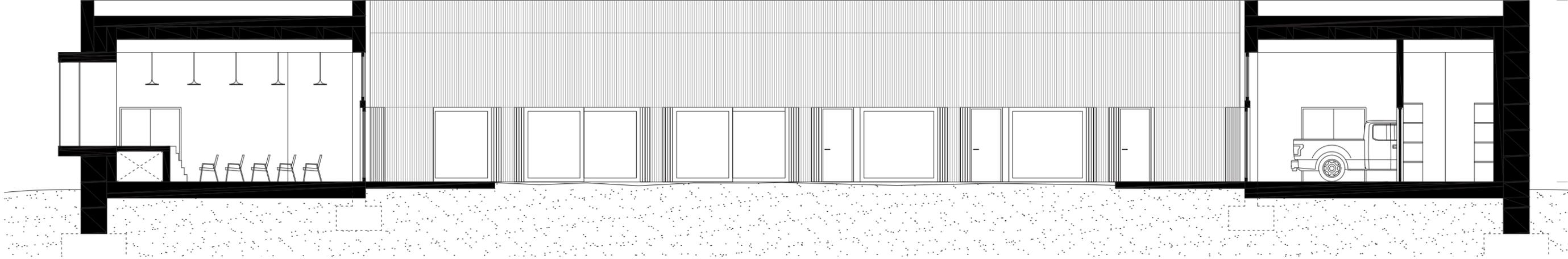
**4x = ±24000kWh/yr**

diameter: 5m  
power: 5kW  
yield: 6000 kWh/yr



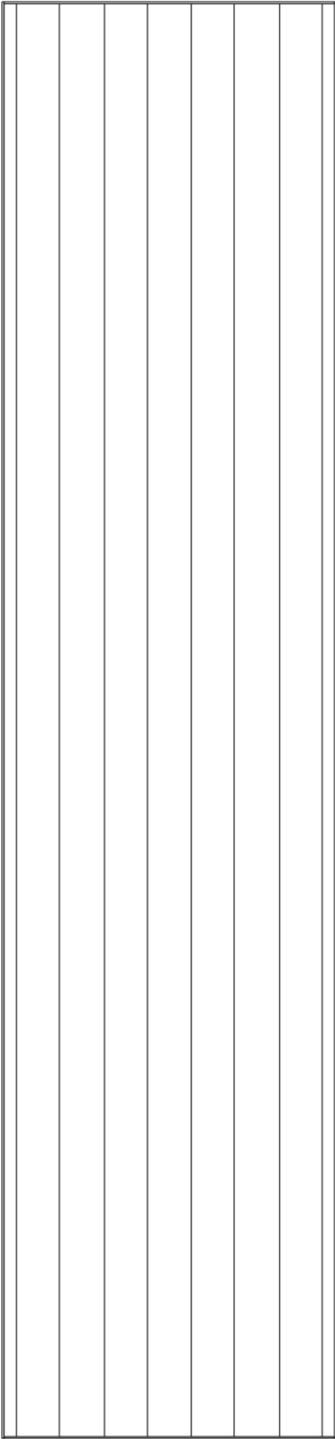
# SOLAR SHADING

South-facing, east-facing and west-facing interior courtyard facades.

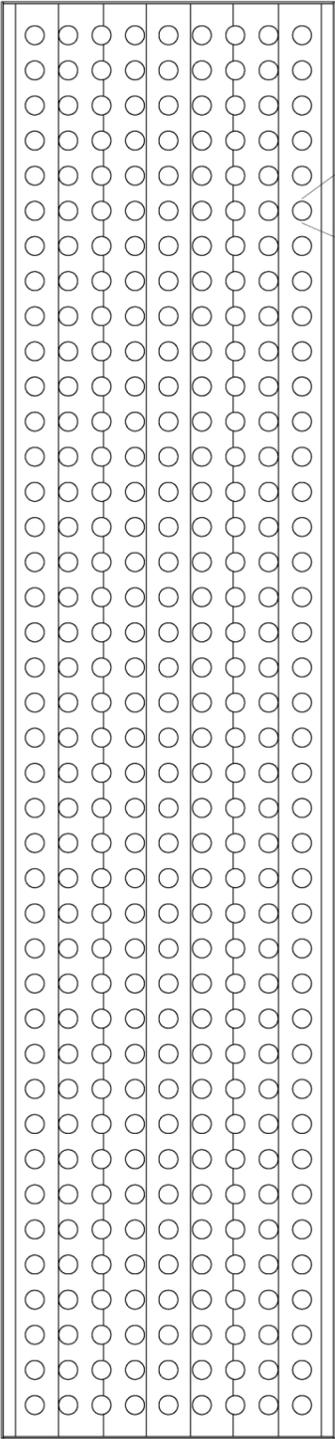


Reduces solar heating on sunny days, in turn reducing cooling demand.

# SOLAR SHADING PANEL PERFORATION



unperforated

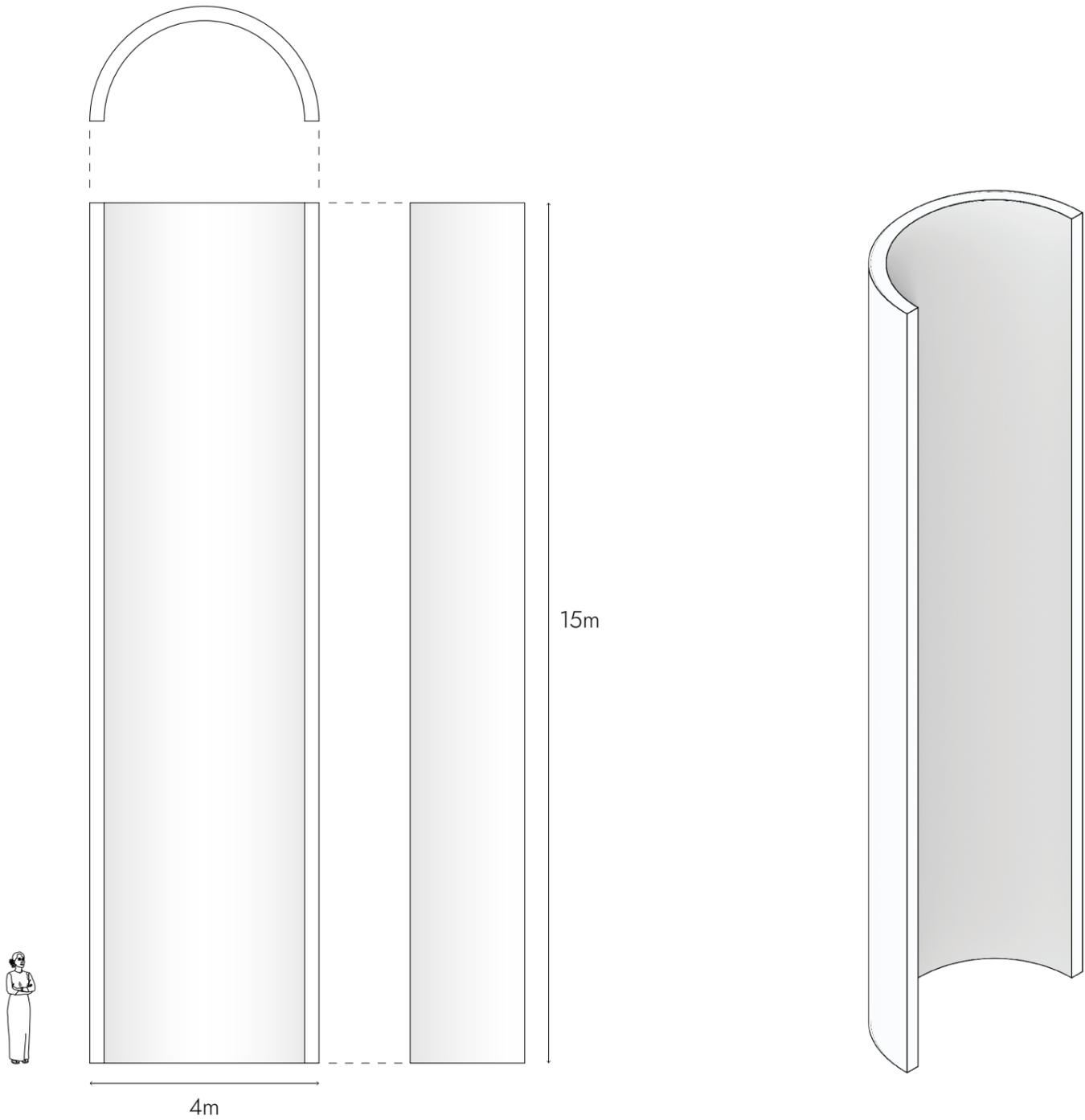


grid



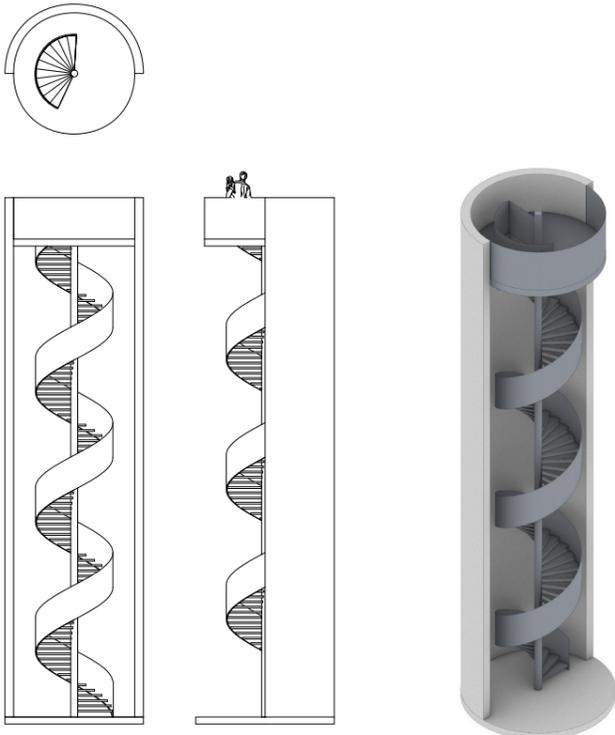
on site water-jet steel cutting machine

TRAIL STATIONS

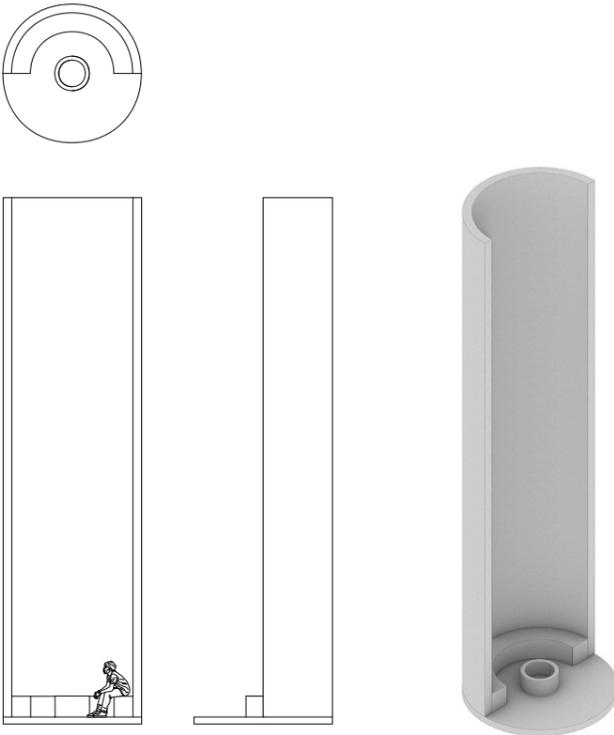


Use of existing windcreens as landmarks marking the Post-Port Trail.

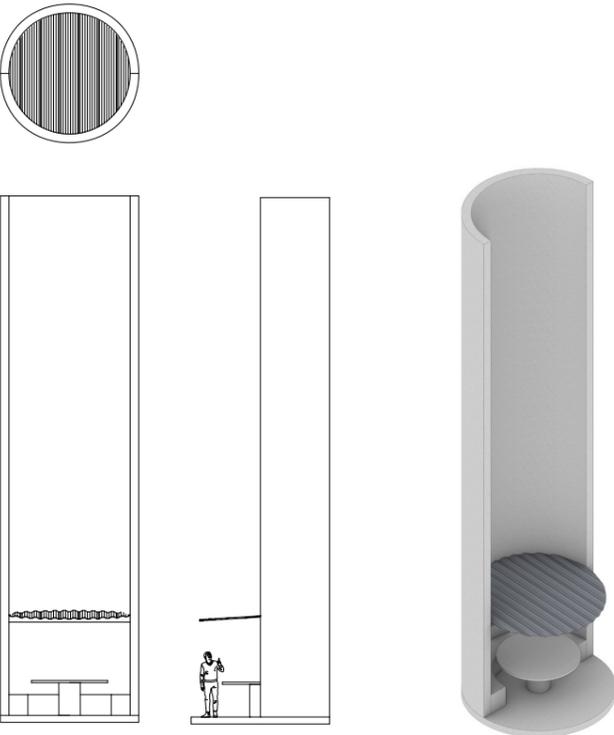
TRAIL STATIONS



Watch tower



Barbecue & camp spot



Covered lunch table