

ENABLED BY DESIGN

AR3AD110 - thesis exploration by Alexia Lund

problem: disabled by design

incapabilities associated with mobility aid users - whether from age or other factors - aren't as much of a concern as the **built environment** that **aggravates** them.

hence, modifying **restrictive environments** makes more sense than modifying the **individuals** whom they **disadvantage**



CAPABILITY

"possession of the **means** or the skill to do something" (1)

CAPABILITY

"possession of the \boldsymbol{means} or the skill to do something" (1)

"what people are able to do or be as a result of what they're provided with" (2)

[Amartya Sen approach]

CAP**ABILITY**BARRIERS

<u>not</u> about skills

factors which impose limitations to someone's opportunities, depriving them from attainable potentials they could otherwise attain

DISABILITY

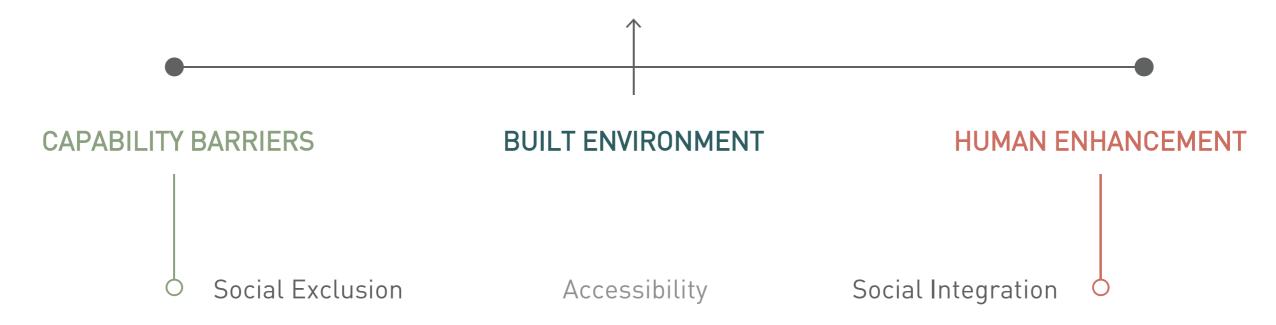
deprivation or limitation of opportunity

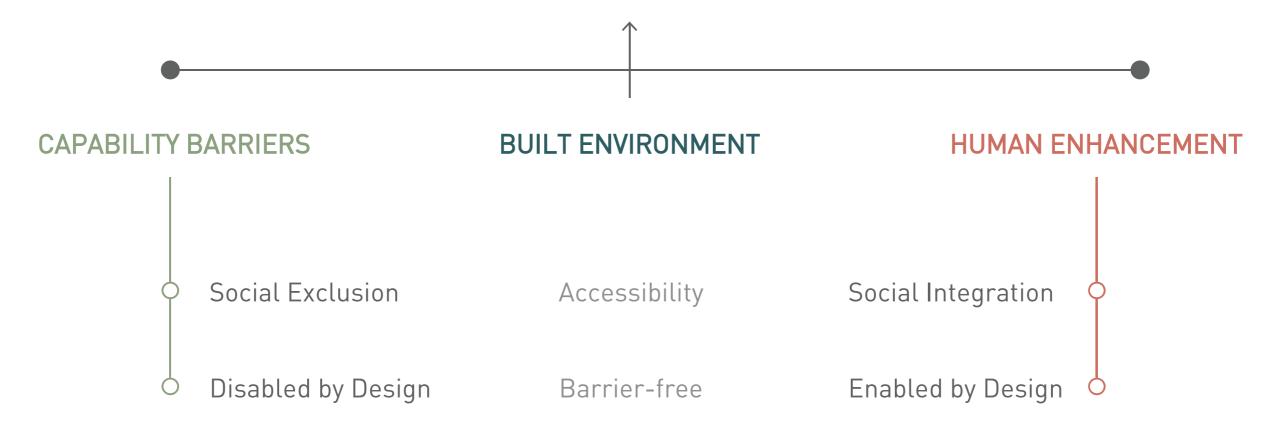
interaction of an individual's characteristics with the conditions offered by their immediate environment

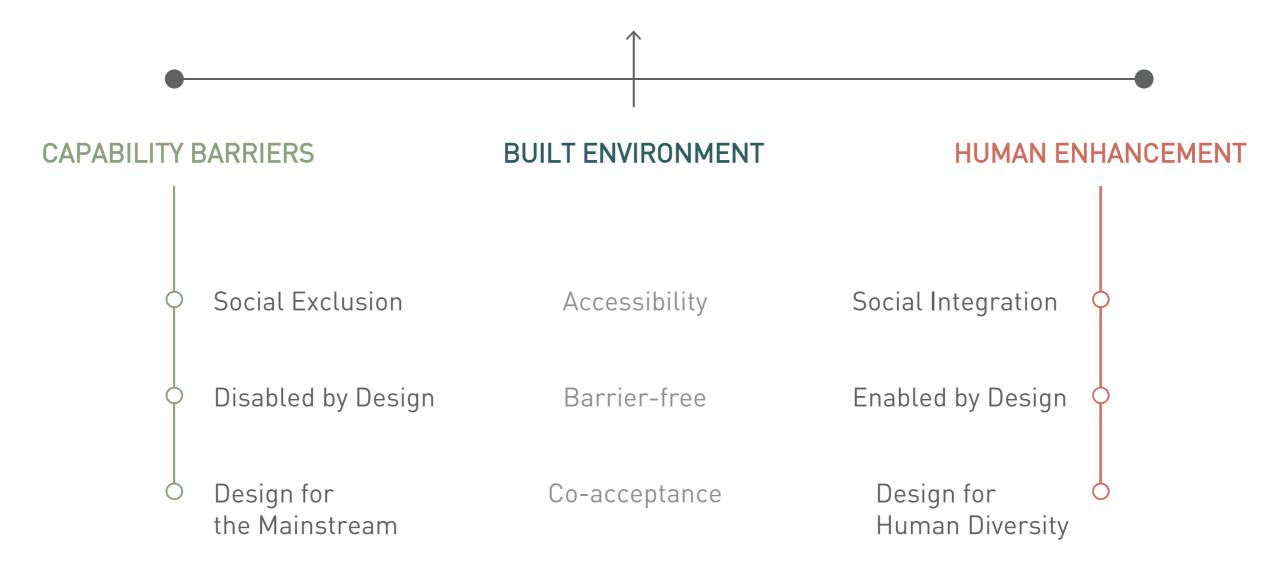
"the loss or limitation of opportunities to take part in the life of the community on an equal level with others" (3)

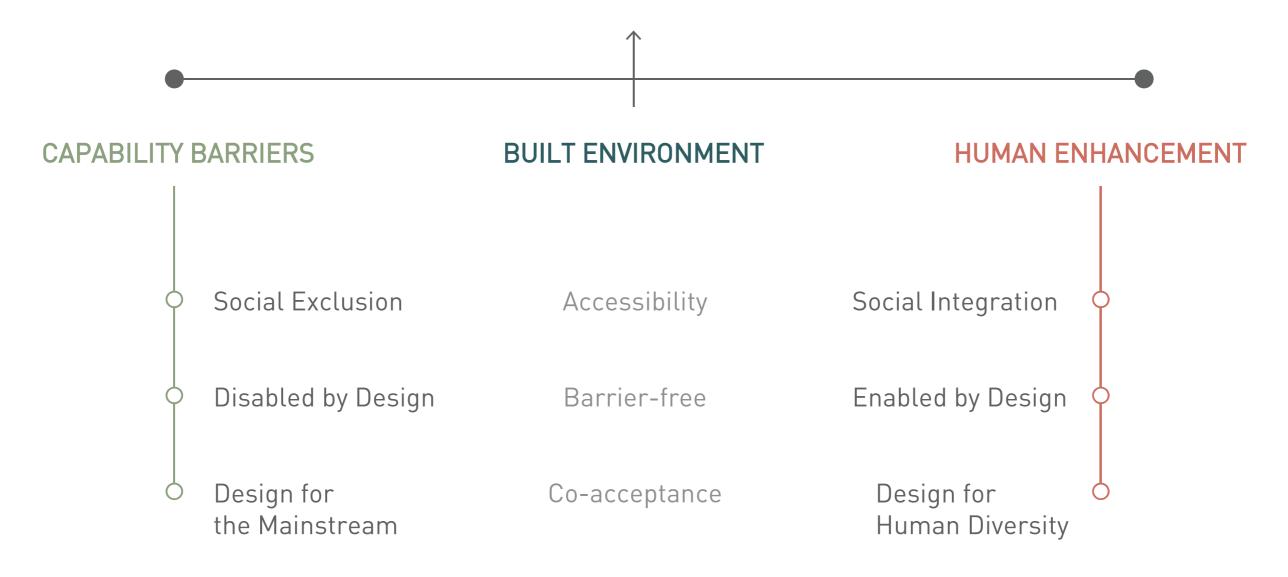
CAPABILITY BARRIERS HUMAN ENHANCEMENT



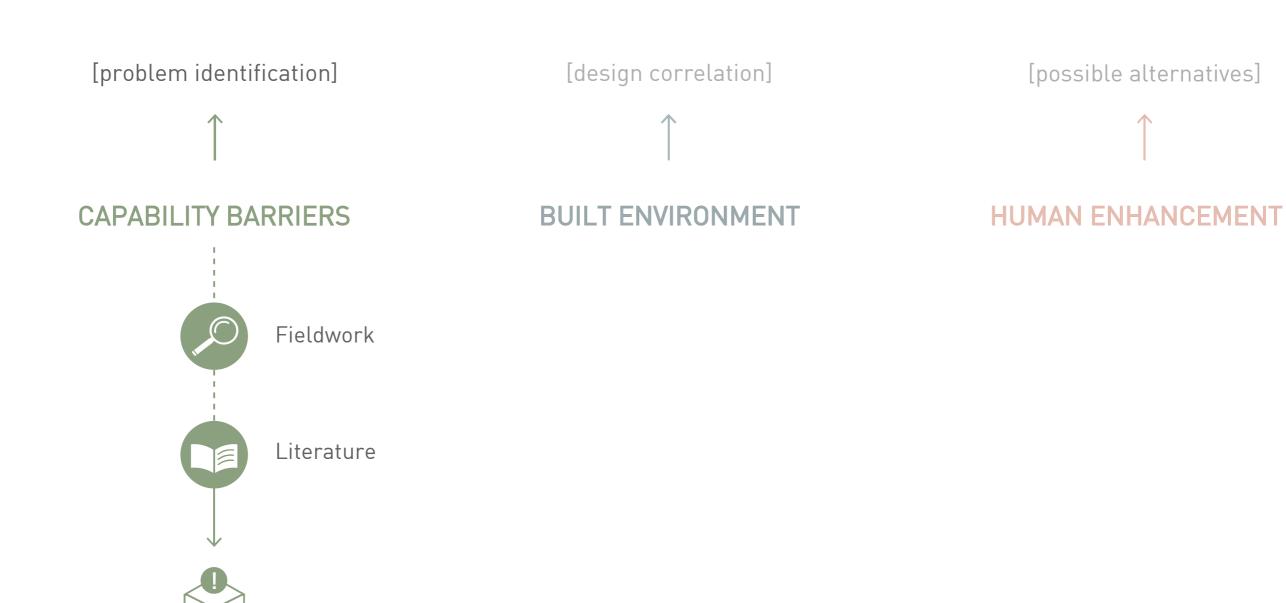




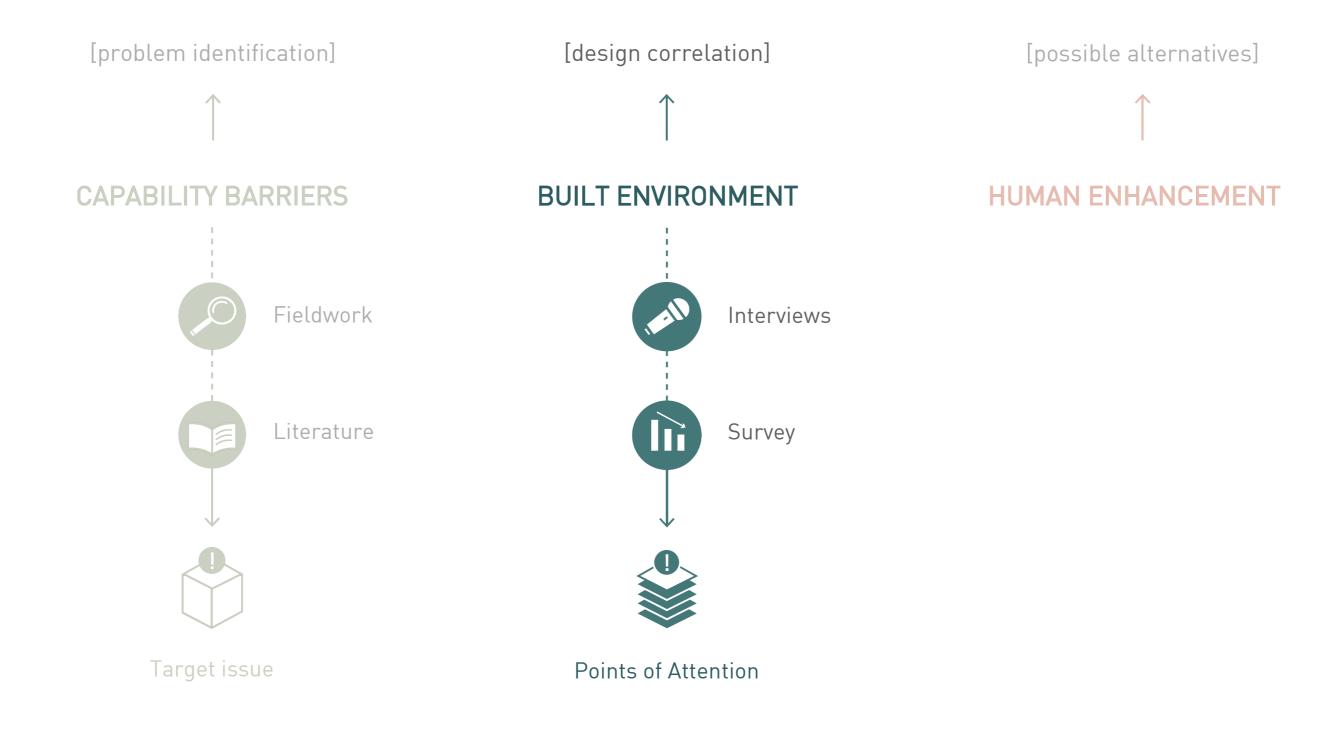


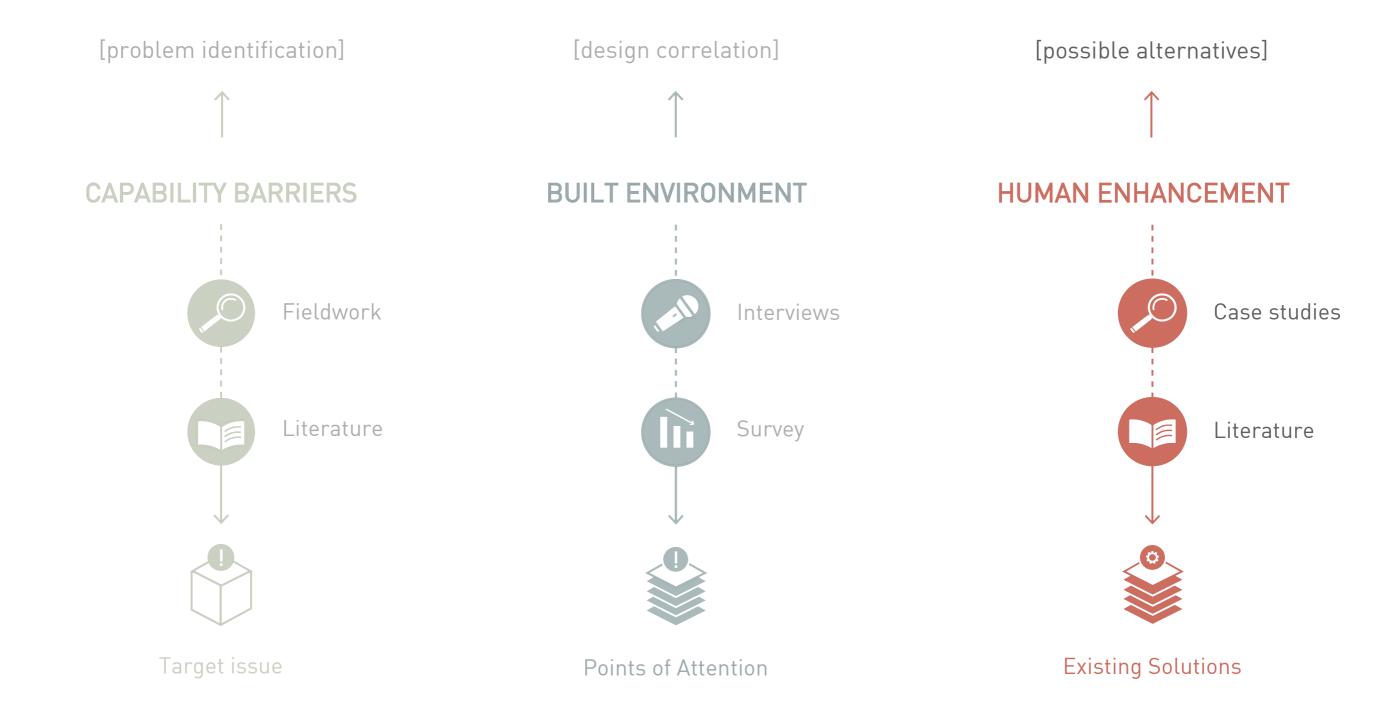


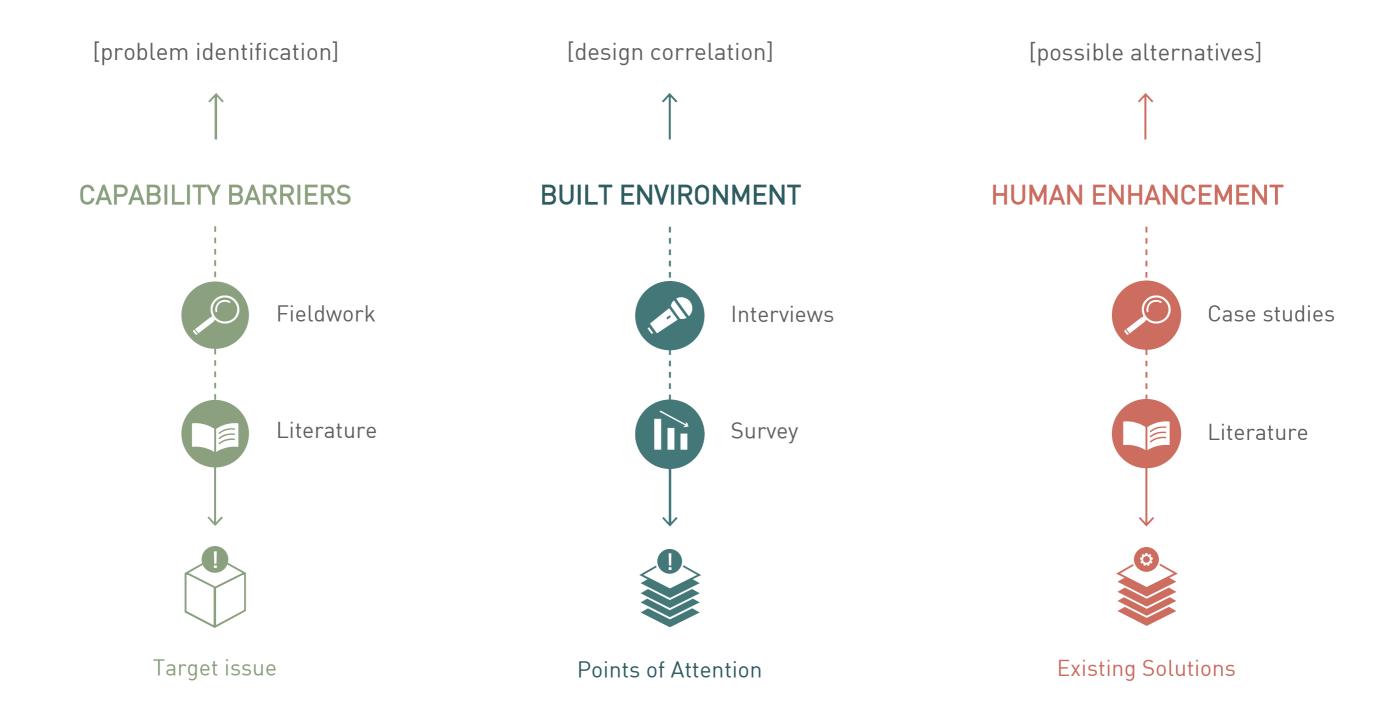


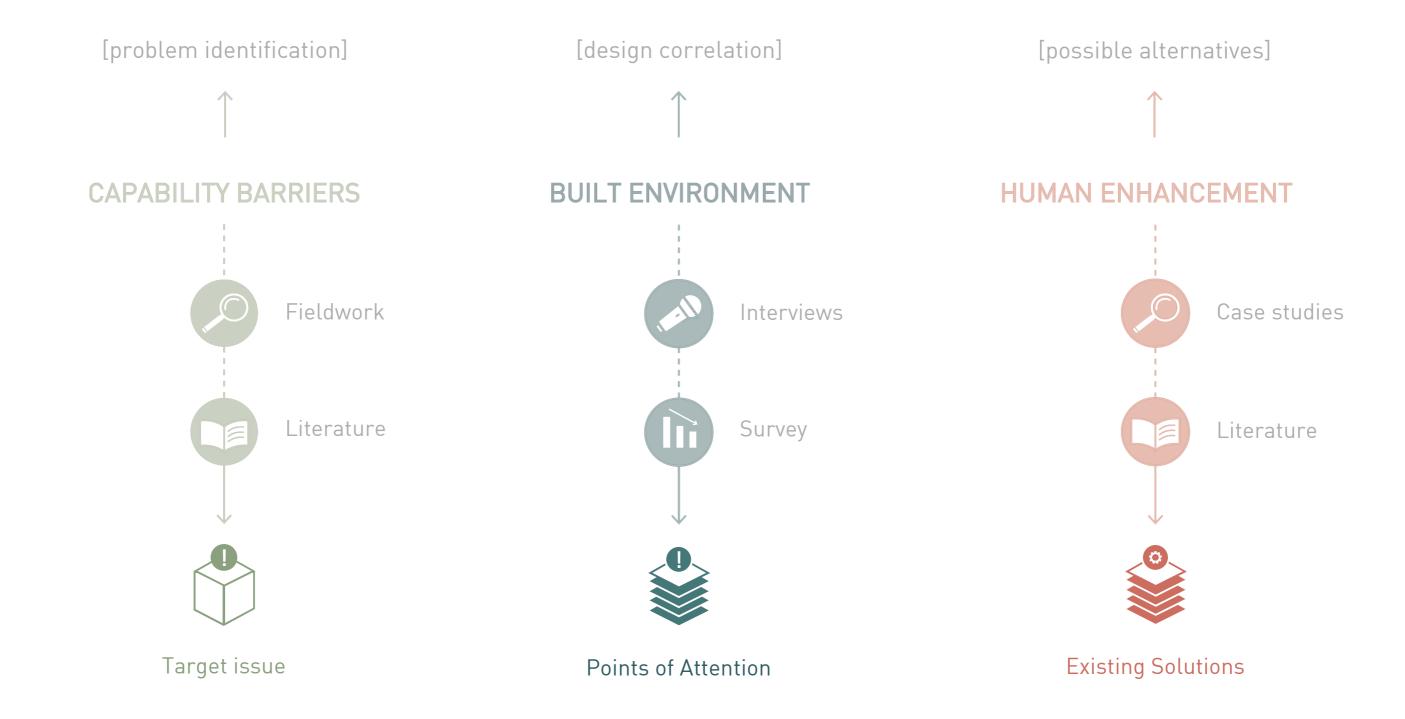


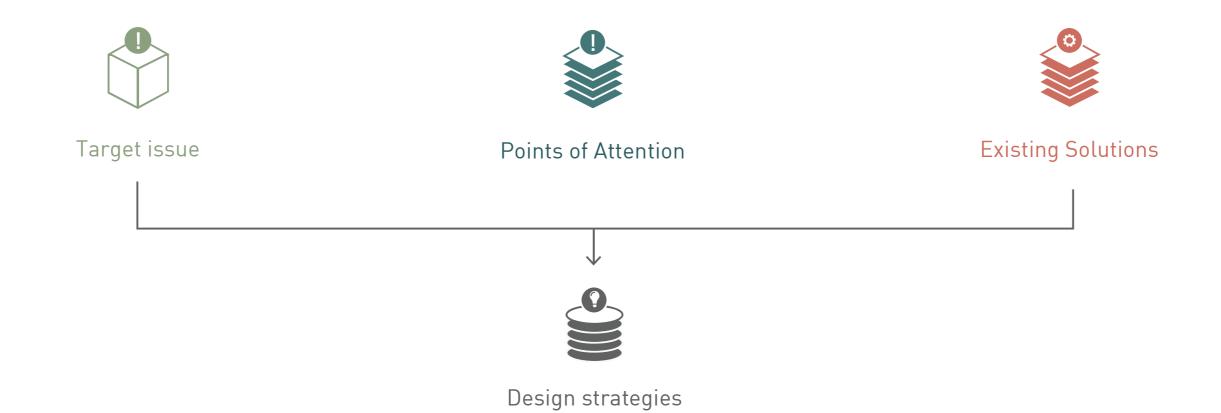
Target issue













PROBLEM IDENTIFICATION

points of attention

Building Scale

barriers that mobility aid users within buildings and their vicinity

Urban Scale

barriers that mobility aid users face in the neighborhood contex



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Building Scale

barriers that mobility aid users within buildings and their vicinity

Urban Scale

barriers that mobility aid users face in the neighborhood contex



Circulation





routing

maneuver





Movement



reachability



balance aid



aesthetics



materiality



PROBLEM IDENTIFICATION

points of attention

Building Scale

barriers that mobility aid users within buildings and their vicinity

Urban Scale

barriers that mobility aid users face in the neighborhood contex



Circulation



routing

maneuver



Transport





transit

parking



Movement



reachability



balance aid



aesthetics



Refinement



materiality



Points of Attention



Navigation



access routes



wayfinding



Nature

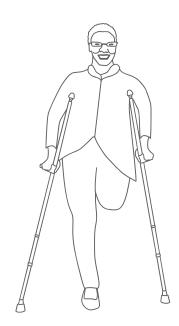


terrain



climate

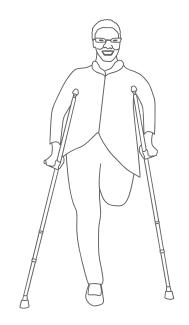
interviewee profiles



ERIN BROWNdisability rights consultant and para-athlete

Single mother Erin Brown underwent a lower limb amputation during her long battle against osteorsarcoma. As a proud user of many assistive devices, Erin's story depicts the importance of how different mobility aids lead to very contrasting spatial experiences, many of which strongly relate to design.

interviewee profiles



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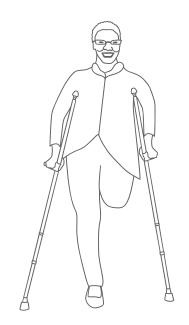
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DANIEL TOROarchitect and tennis player

Daniel's choice to become an architect was precisely due to the difficulties resulting from spatial barriers in the process of transitioning into life as a disabled person. Through a design-oriented view, his story brings light to specific design flaws that architectural practices continue to overlook.

interviewee profiles



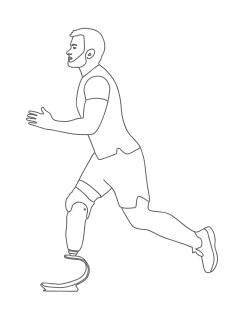
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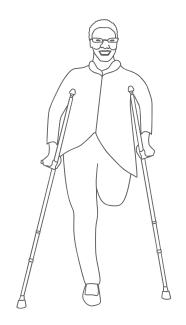
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JAMIE GANE architect and tennis player

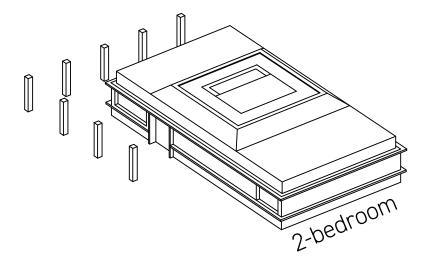
Due to a chronic illness, Jamie's experiences as a disabled person have taken different shape throughout his life phases. From an everyday wheelchair user to then using a mobility tool that makes his disability invisible, his story reiterates the barriers of living with a disability in an ableistic society.

interviewee profiles



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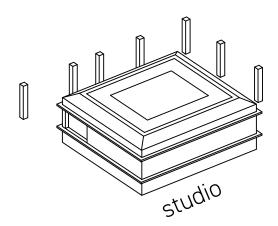
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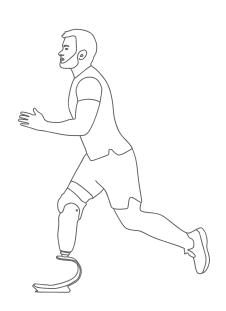




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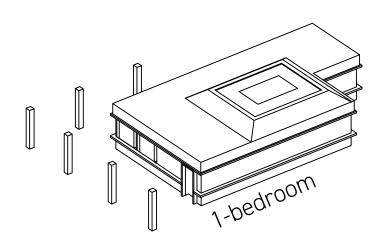
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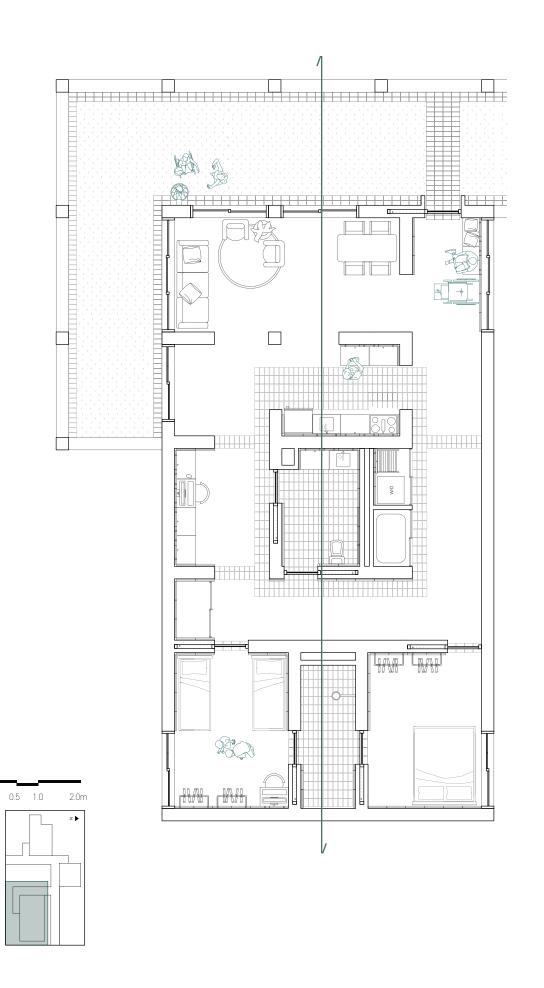
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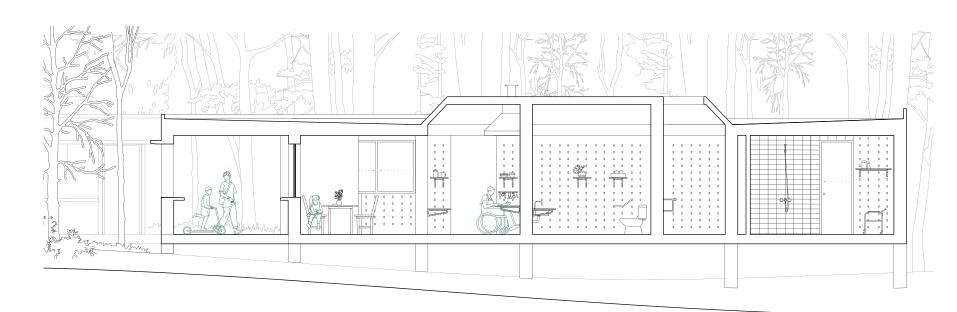


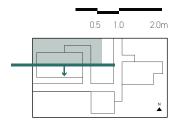
TYPOLOGIES - ERIN

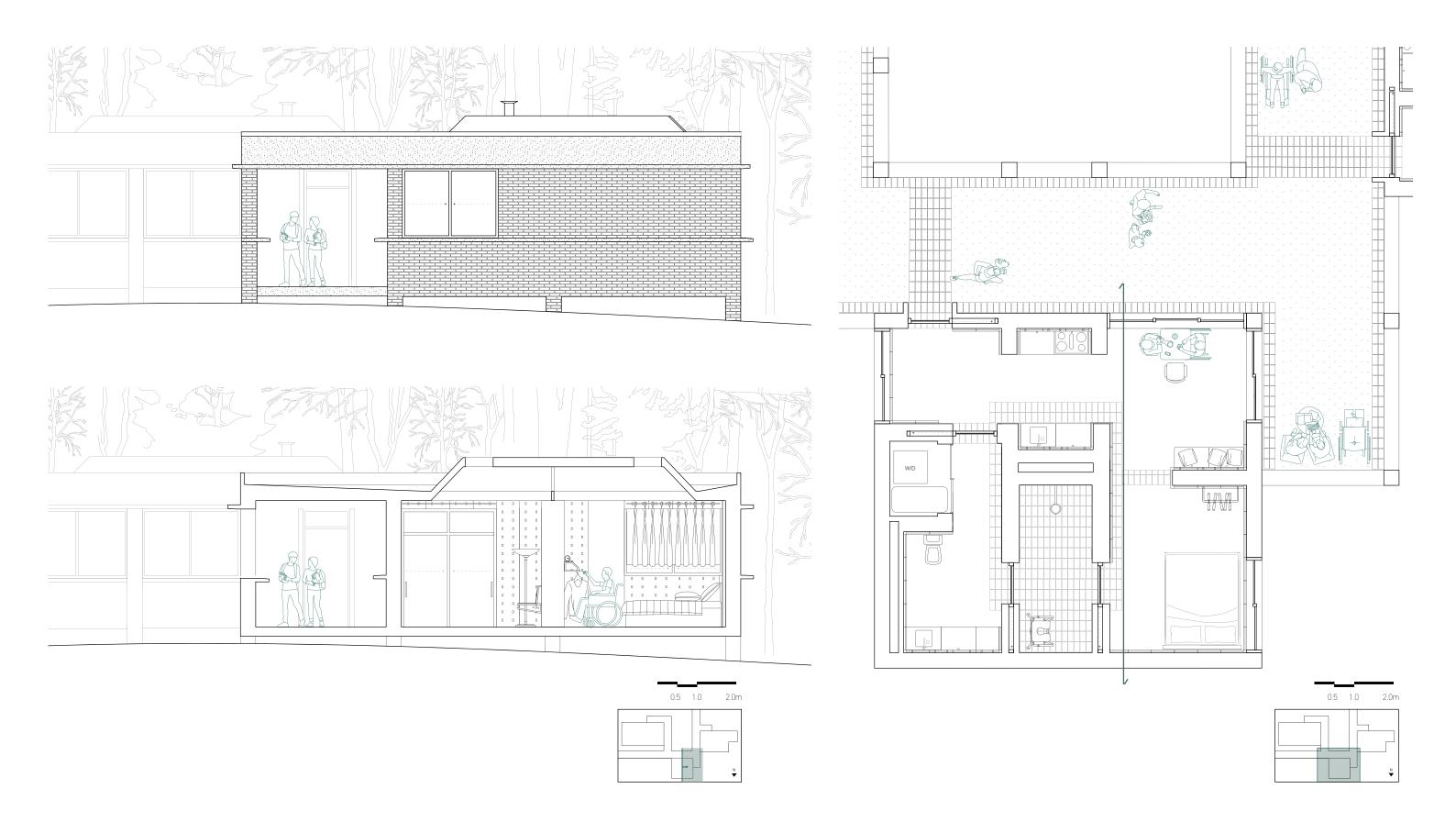
2-bedroom 1:100

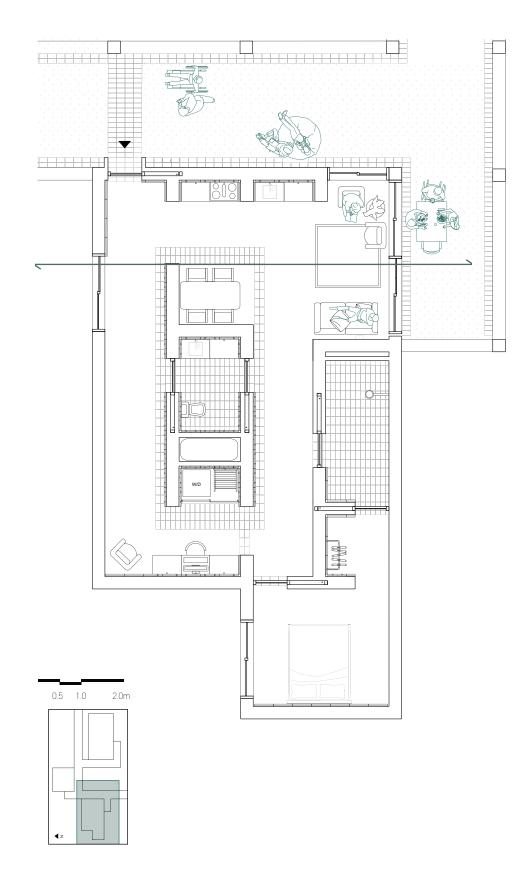




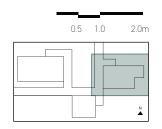












MATERIALITY

exterior vs. interior

Exterior

CONCRETE





reinforced concrete window sills offer outdoor plugin vessel

BRICK





brick walls and colonnade pay tribute to site's background



flooring accents mark tactile paths for eased wayfinding





colored window frames for differentiation of clusters



coated metal parapet and roof trim for distant color recognition

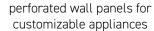
Interior



shape and color variation for tactile and visual trailing cues

BRICK



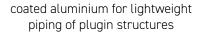




material continuation in ceiling panels for seamless connection







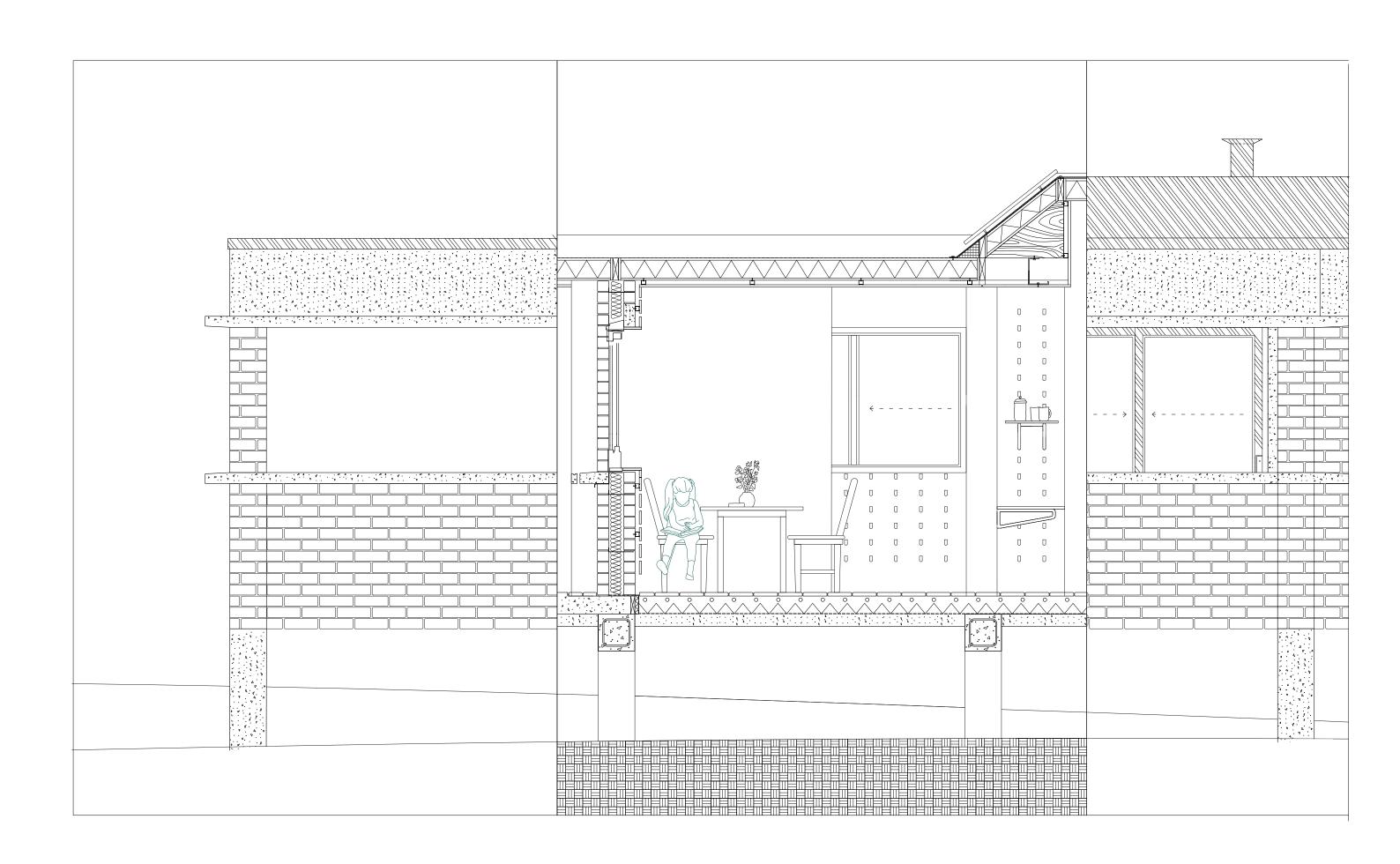


coated door frames for contrast indication of passages

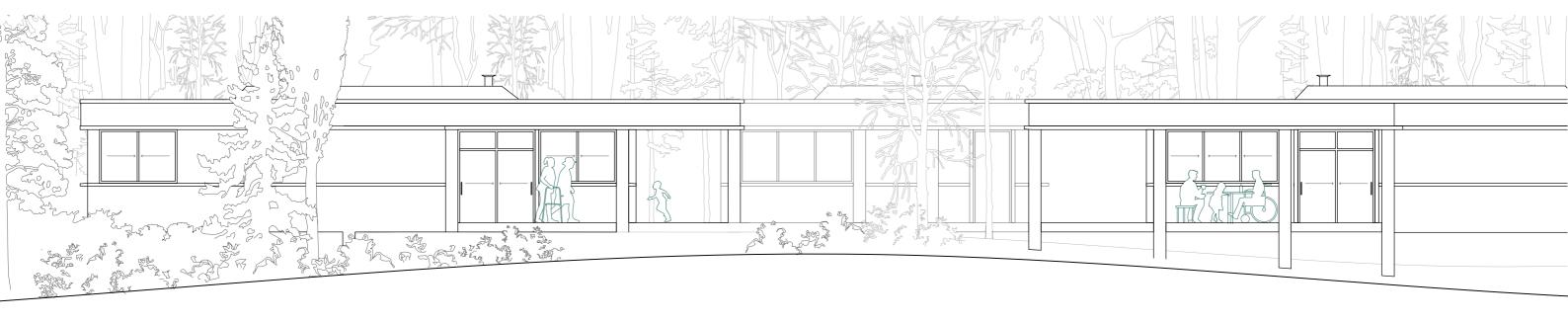




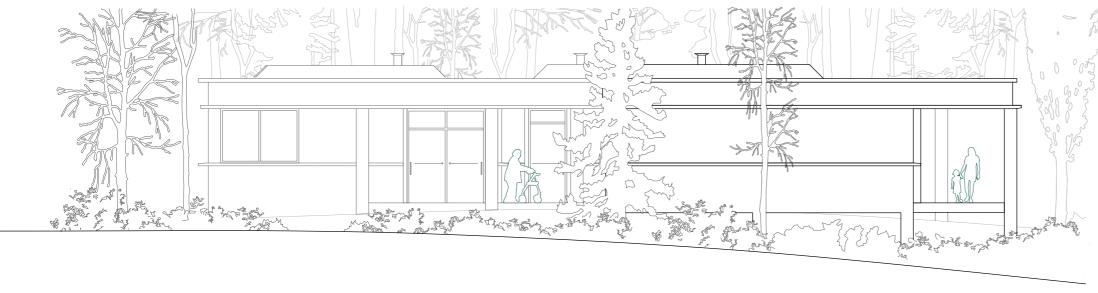










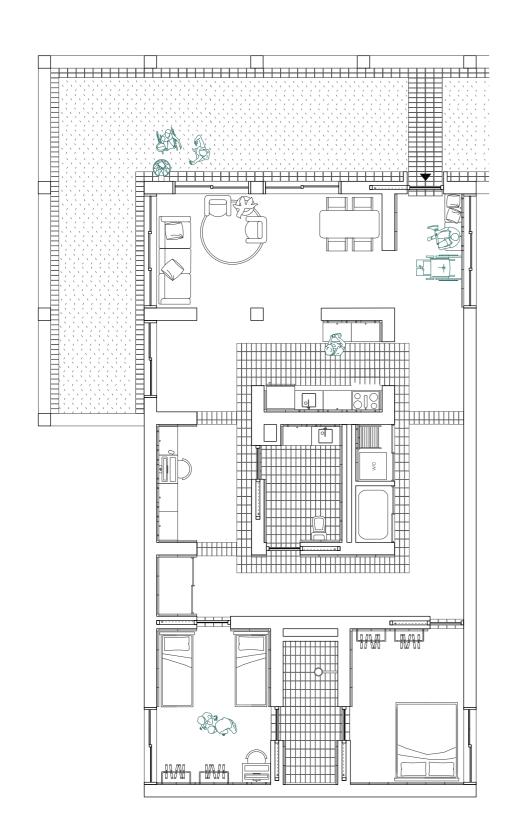


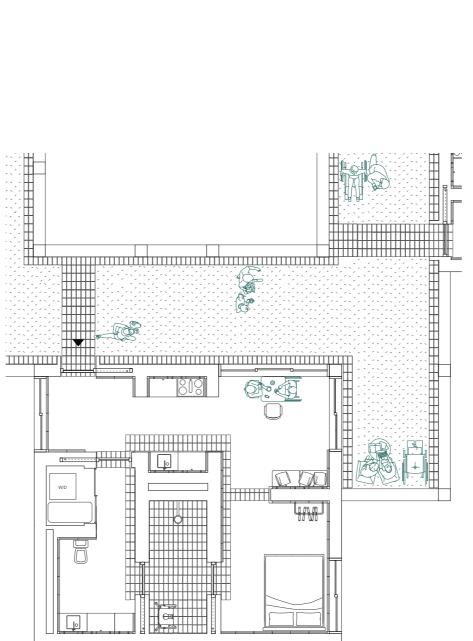
CLUSTER - EAST ELEVATION 1:100

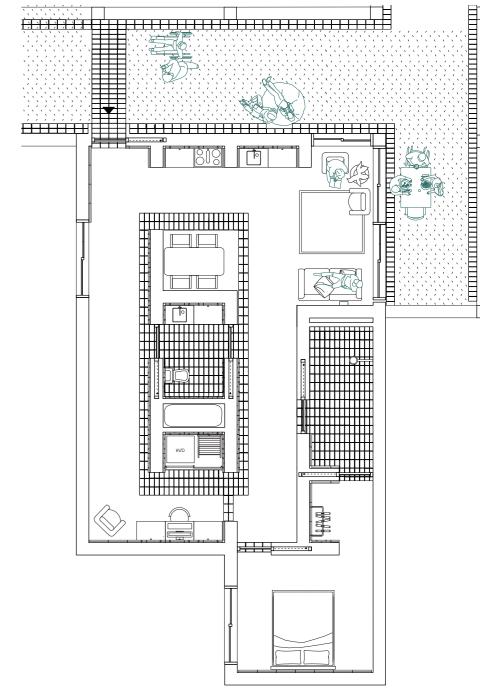


TYPOLOGIES

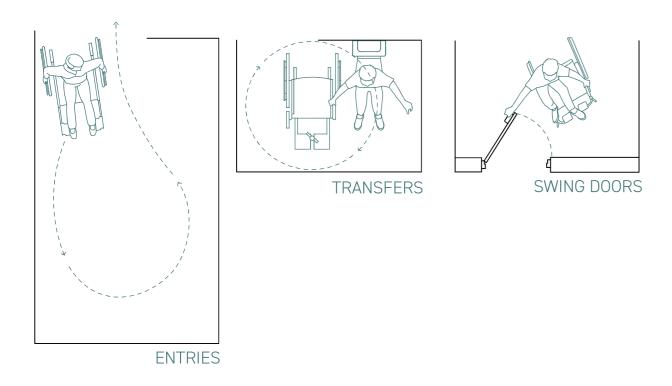
design elements



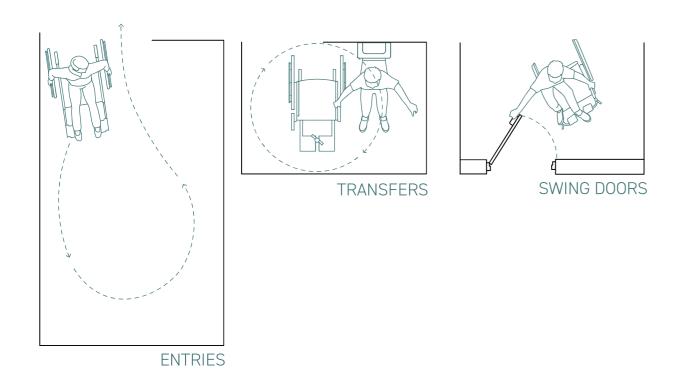


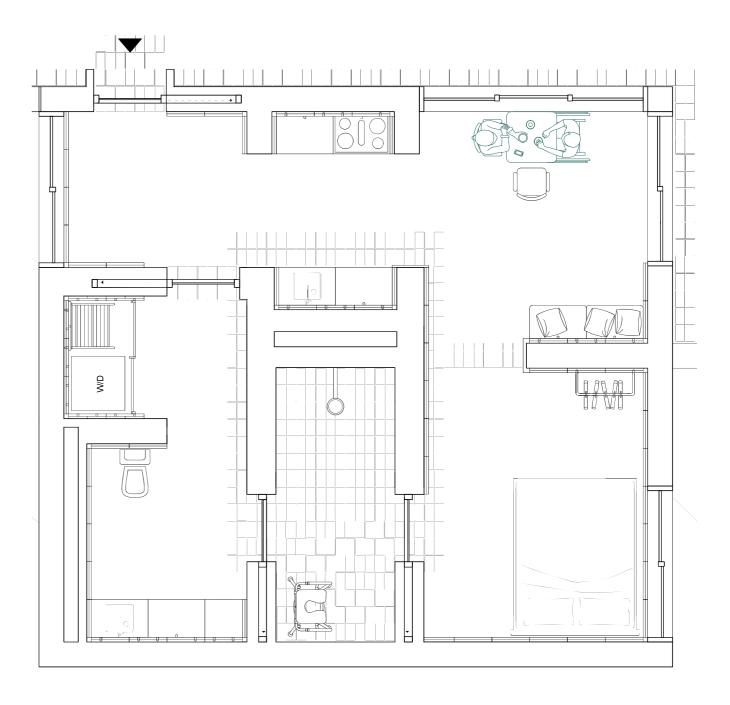




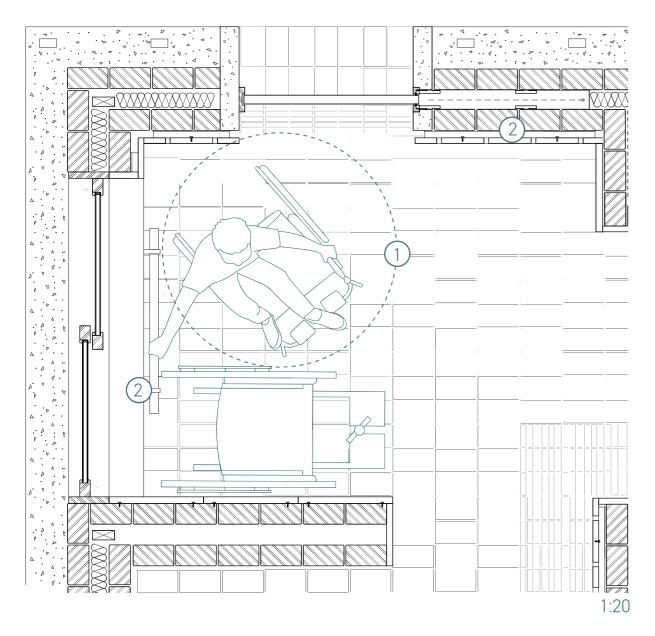


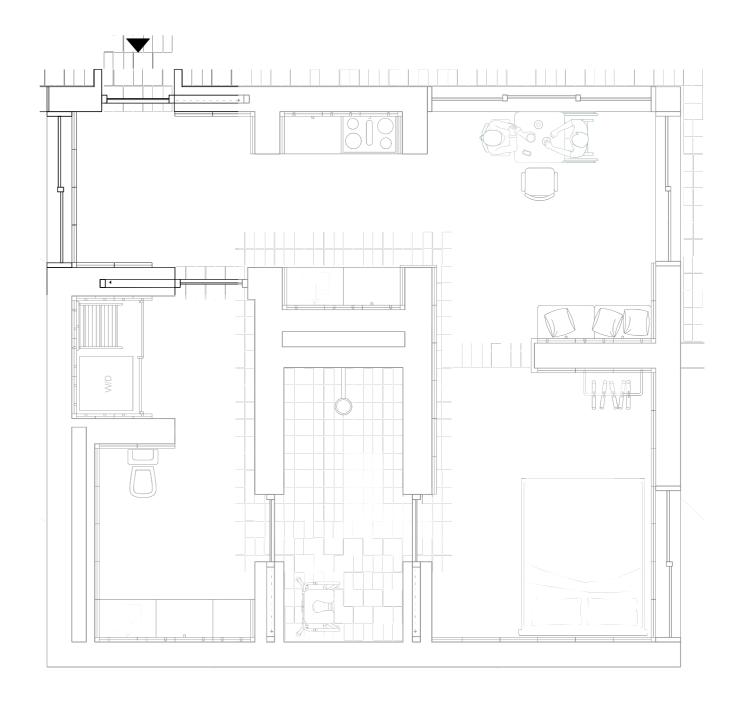






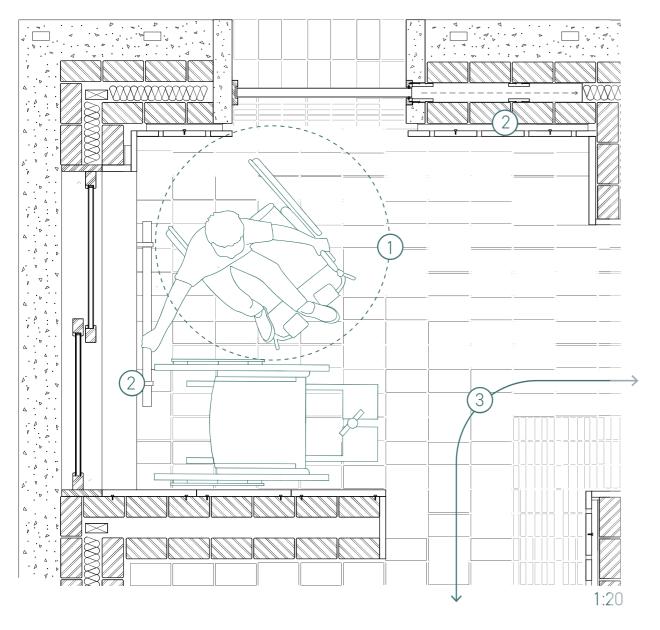


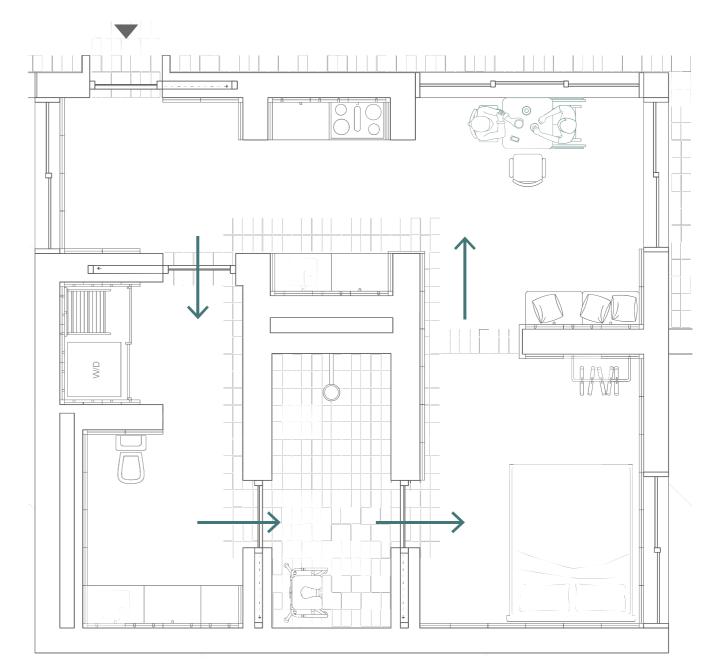




- 1) space clearance for eased transfer between outdoor and indoor aids
- 2 adjacent plugin panels for choice of multiple support options

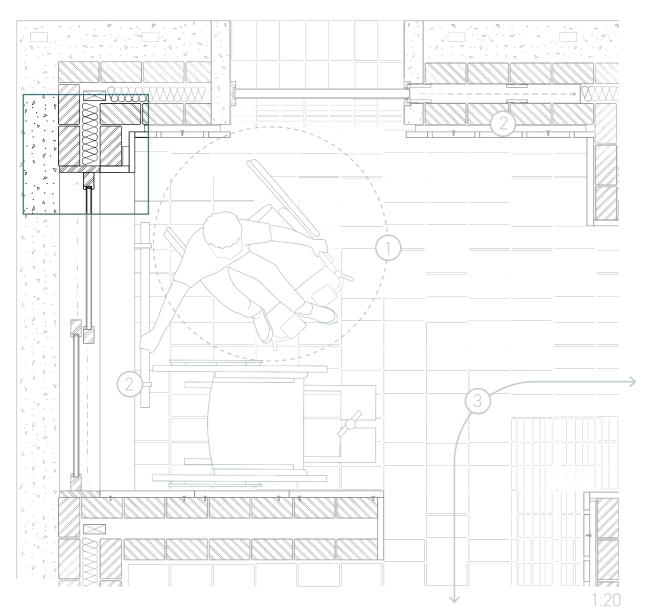






- 1) space clearance for eased transfer between outdoor and indoor aids
- 2 adjacent plugin panels for choice of multiple support options
- 3 dual access to avoid unnecessary maneuver

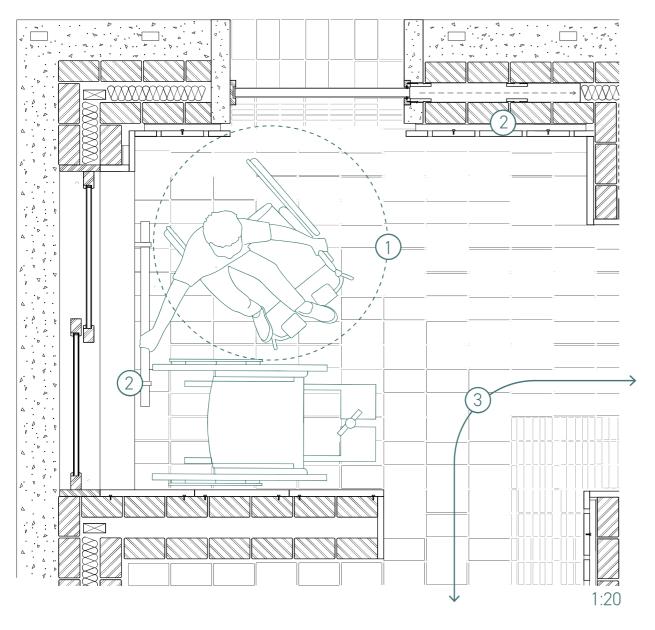




- a 1:5
- a. concrete window sill
- b. insulated glass
- c. airtight seal
- d. window ventilator
- e. aluminium frame
- vapour barrier
- g. termination bar
- h. metal strut connector
- perforated plywood panel
- rigid insulation
- k. outer brick wall

- 1) space clearance for eased transfer between
- 2 adjacent plugin panels for choice of multiple support options
- (3) dual access to avoid unnecessary maneuver

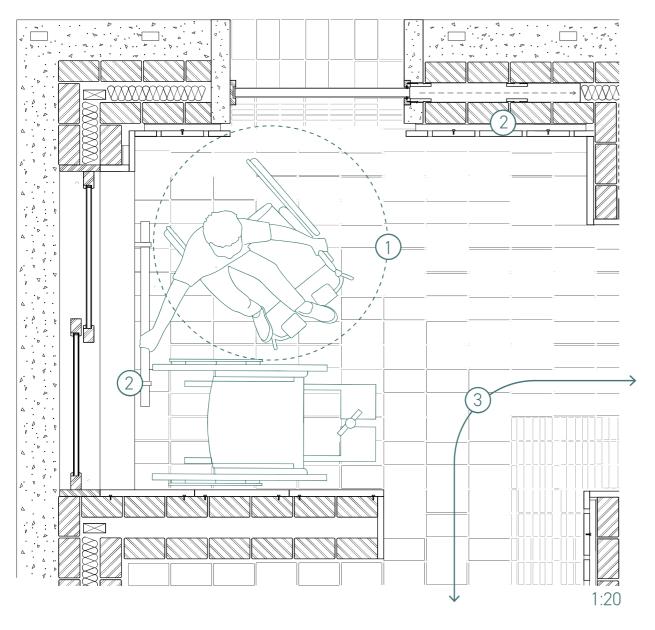


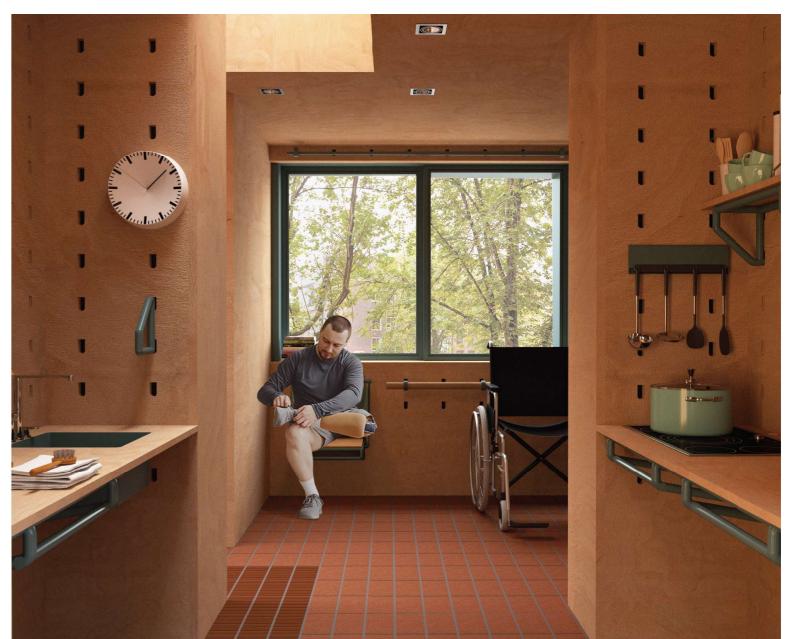




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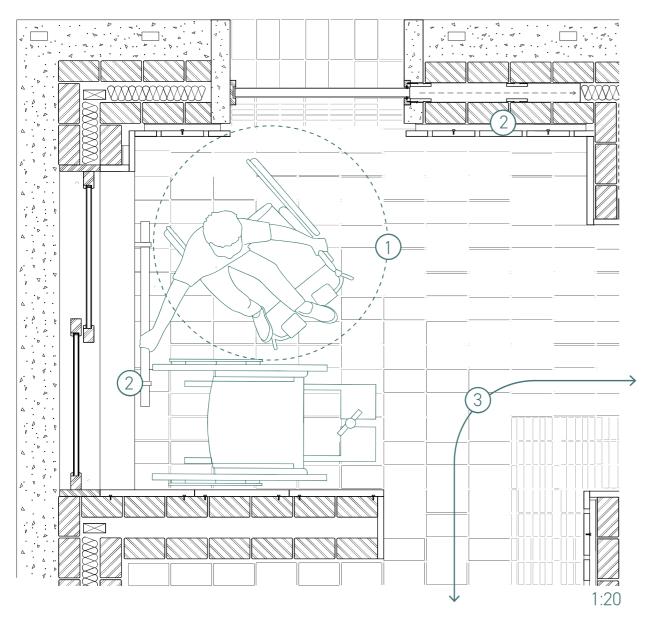






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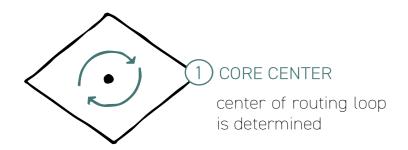




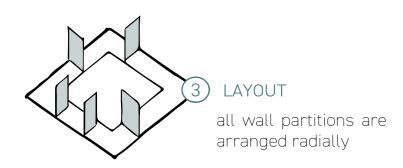


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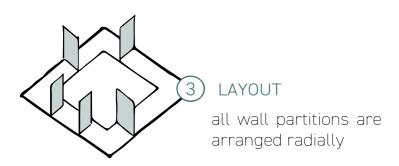


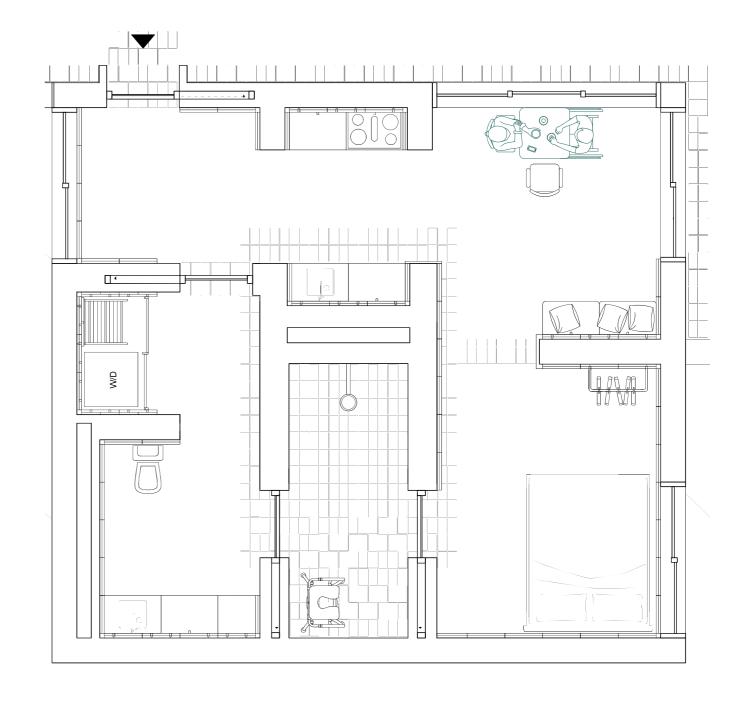




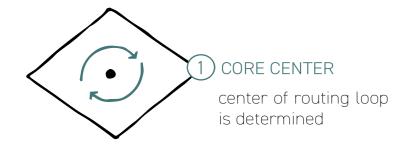




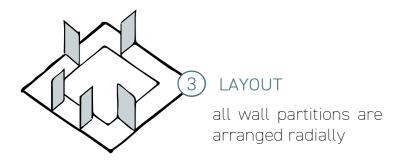


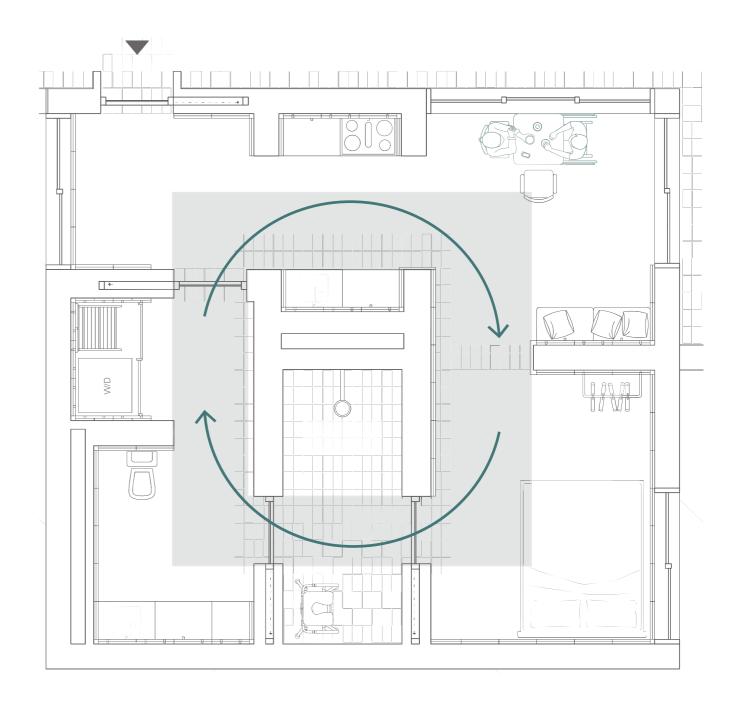




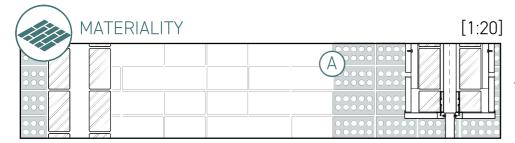




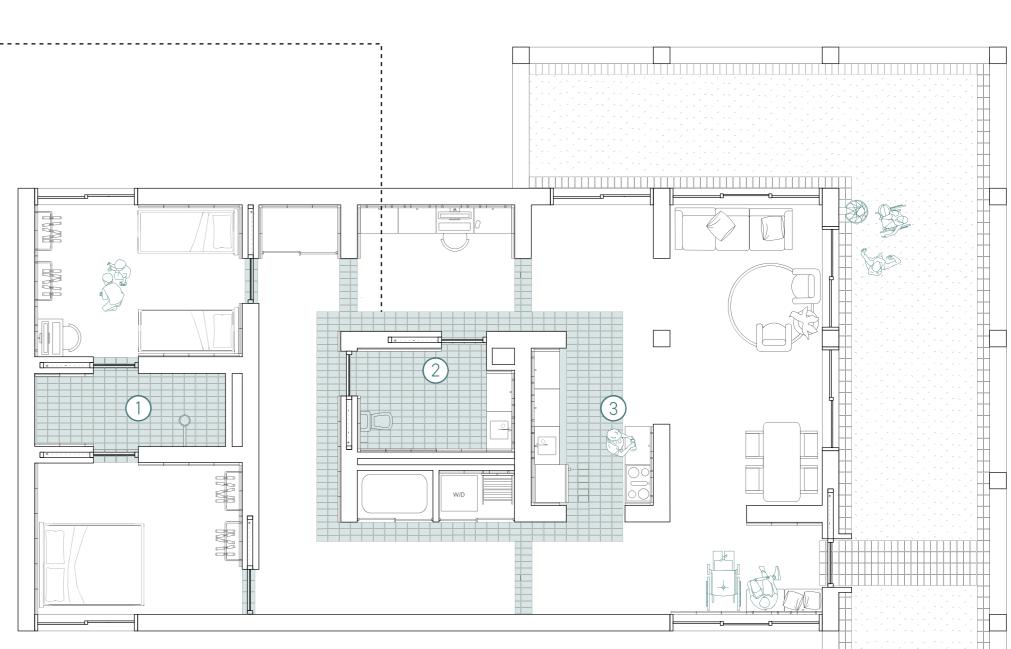




materiality: slip resistance

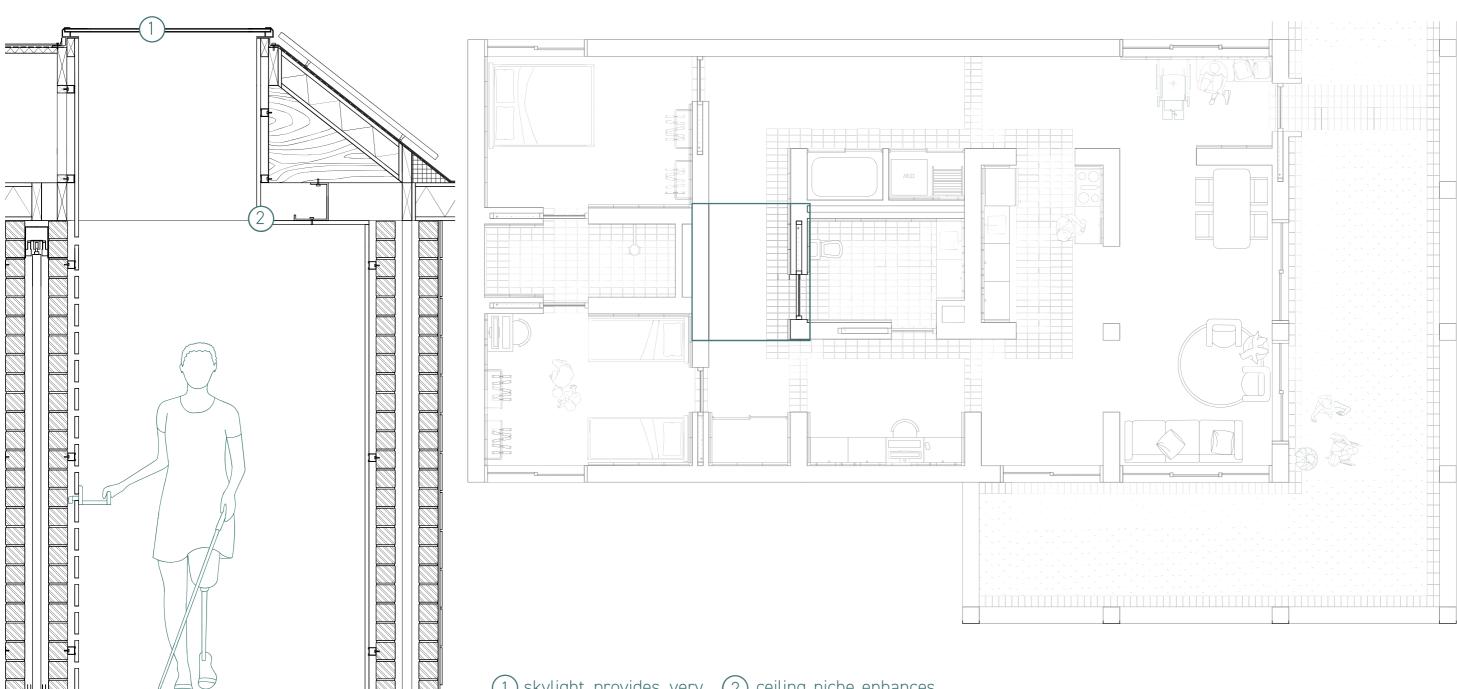


a. grout-filled perforated brick offers higher slip resistance, therefore used in "wet areas" that are prone to slippage risk



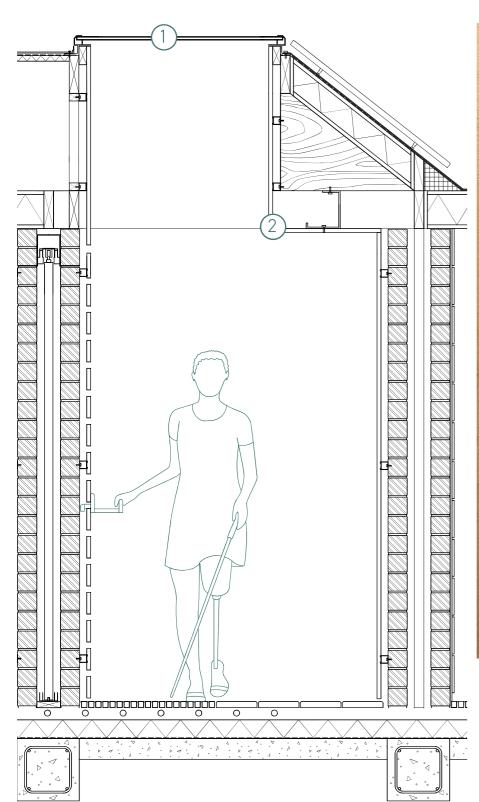
1. shower 2. bathroom 3. kitchem



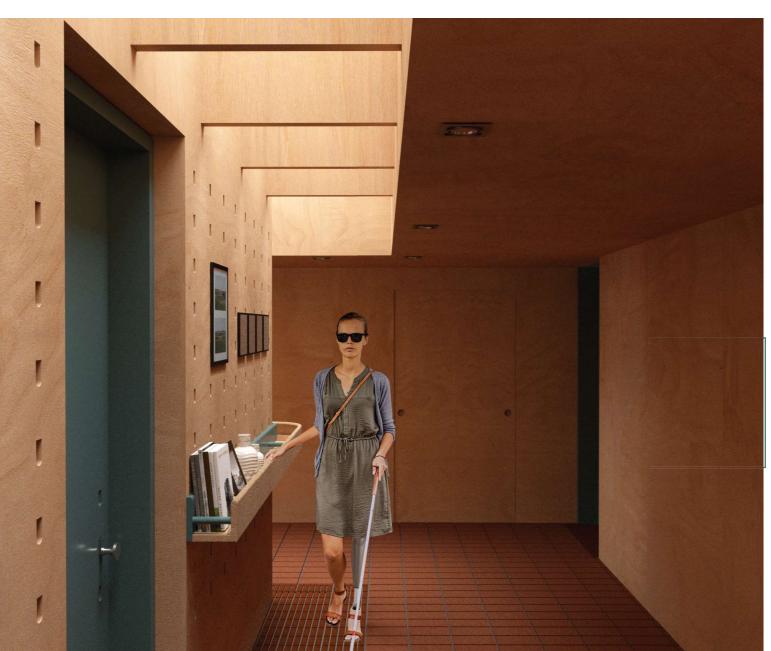


- 1 skylight provides very directional lighting that is distinguished to both blind and lower-vision residents
- 2 ceiling niche enhances this lighting contrast to ease distinguishing of each side of the hall

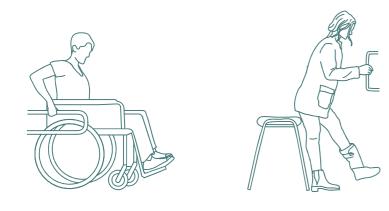




- 1) skylight provides very (2) ceiling niche enhances directional lighting that is distinguished to both blind and lower-vision residents
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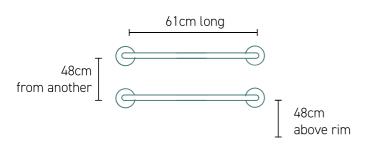




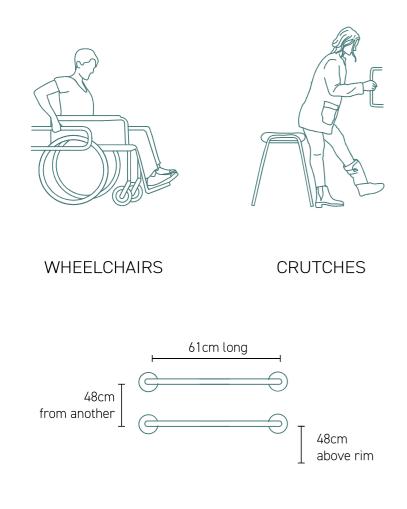


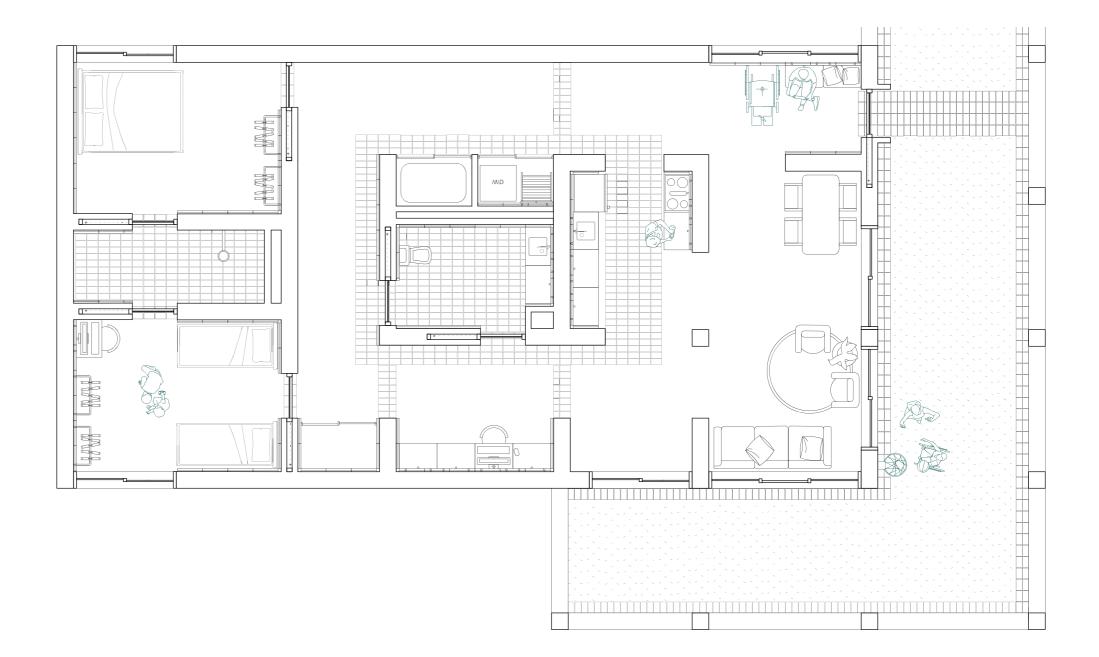
WHEELCHAIRS

CRUTCHES

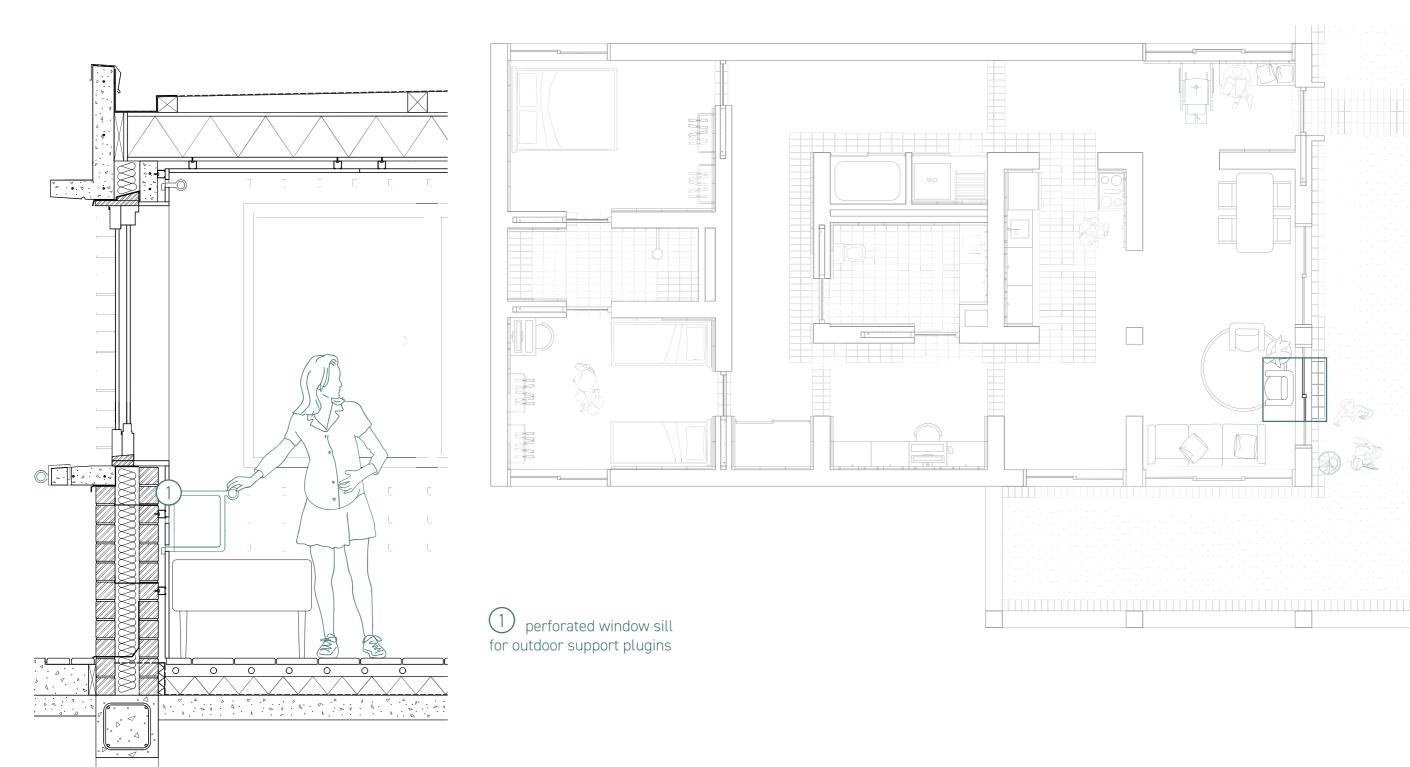




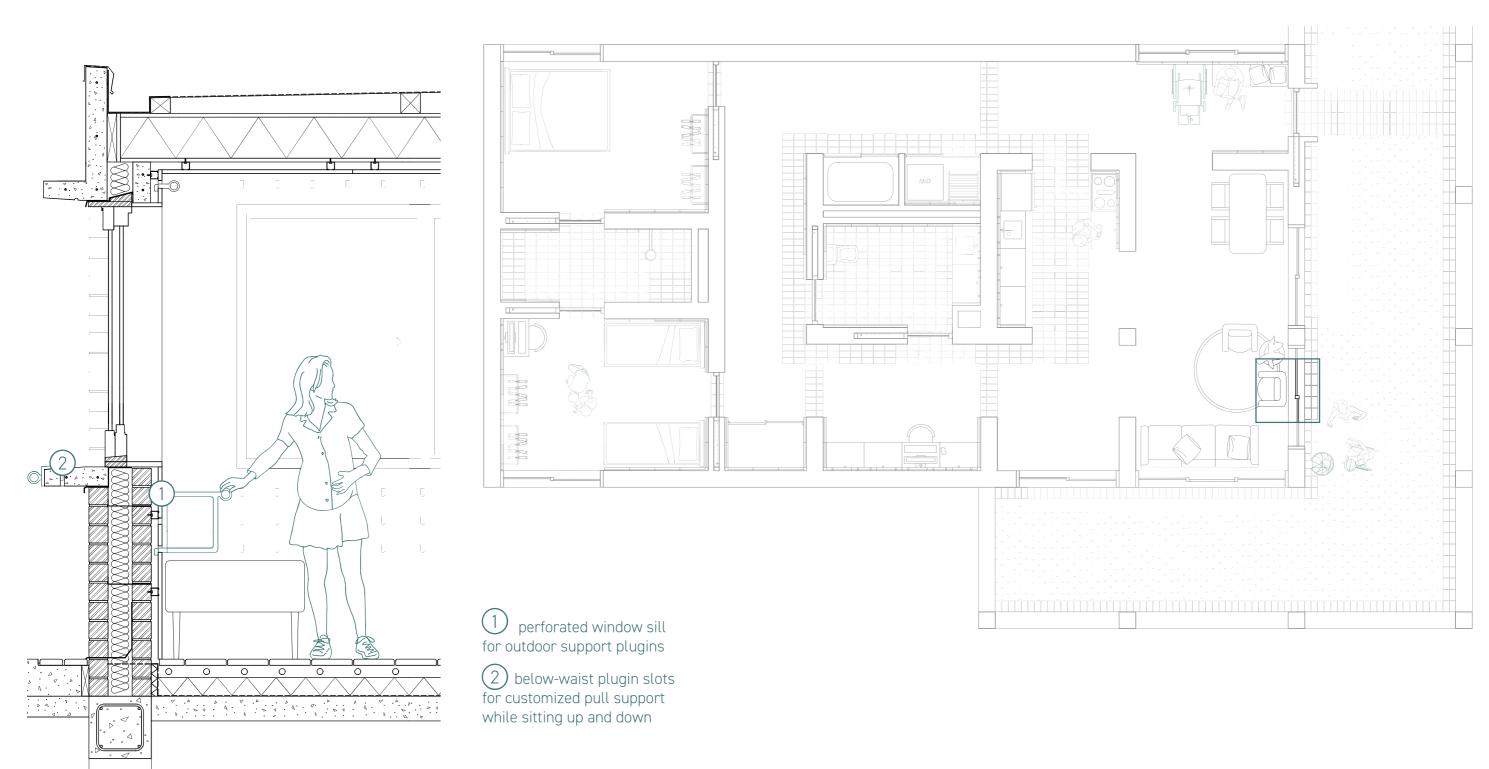






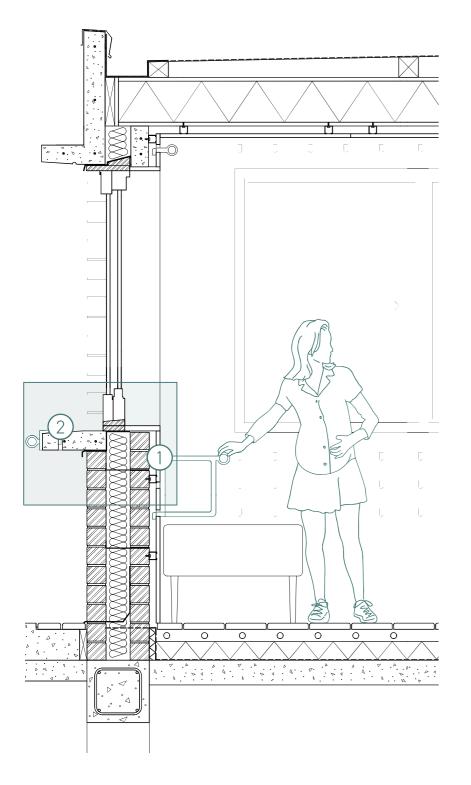


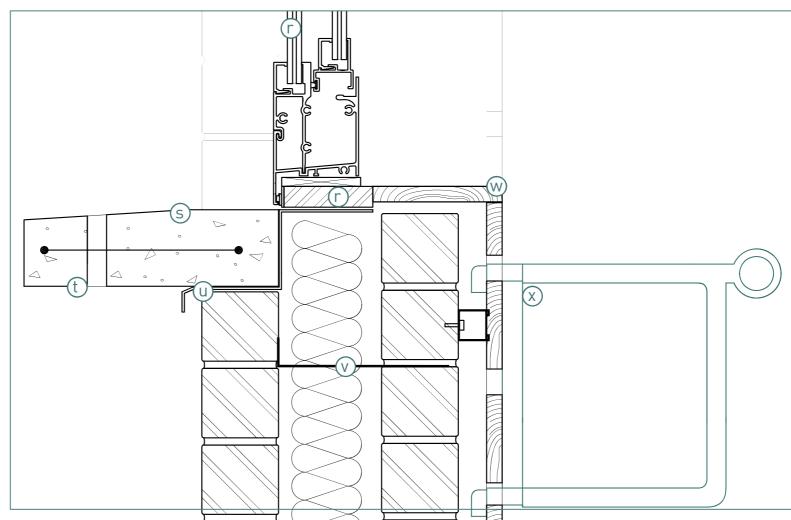




movement





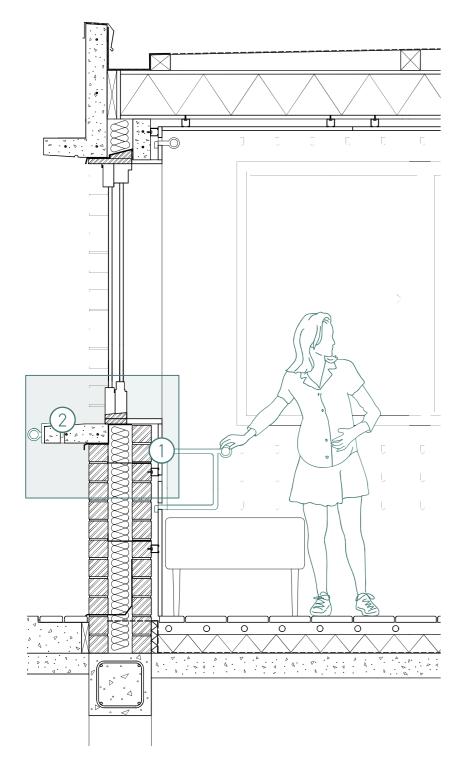


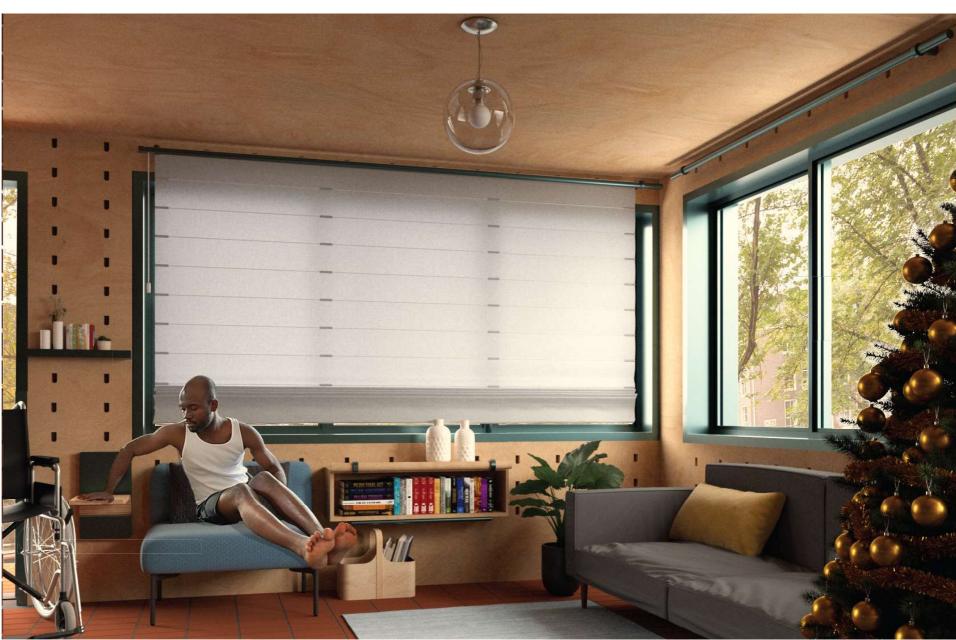
1 perforated window sill for outdoor support plugins

2 below-waist plugin slots for customized pull support while sitting up and down

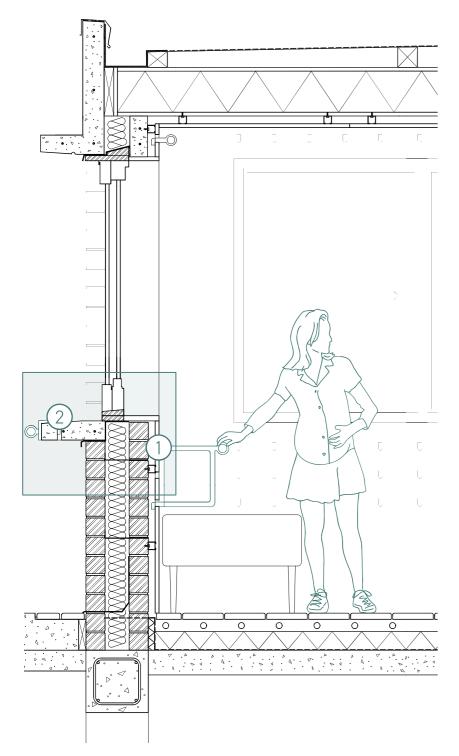
- a. insulated glass
- b. reinforced concrete sill
- c. outdoor plug-in channel
- d. window flashing
- e. wall tie
- f. wooden interior finish
- g. balance support plugin

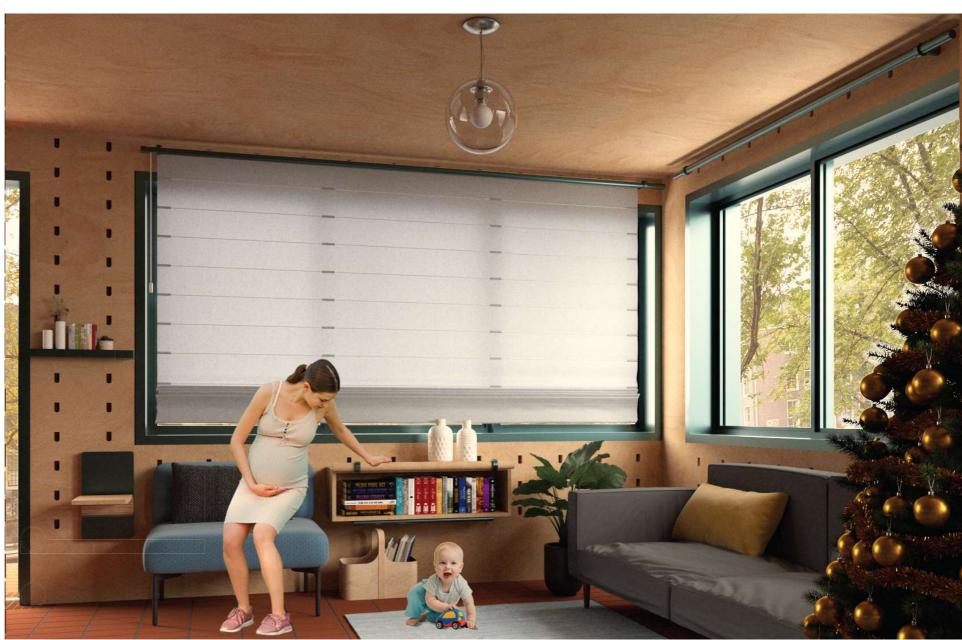






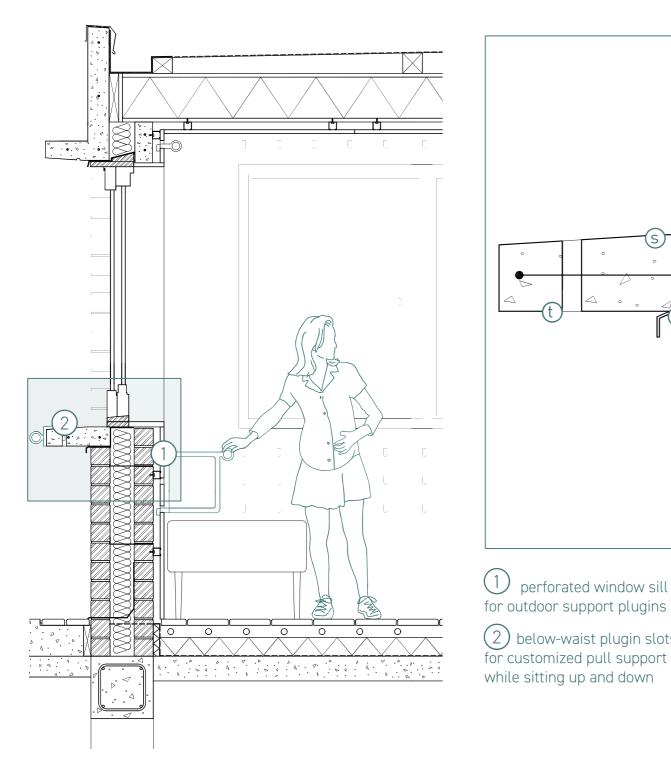


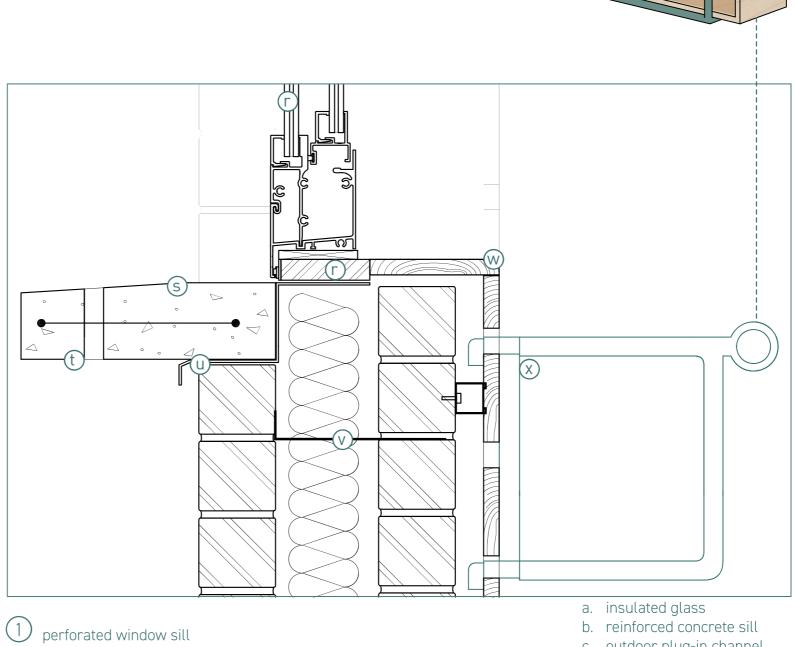




movement







2 below-waist plugin slots

while sitting up and down

c. outdoor plug-in channel

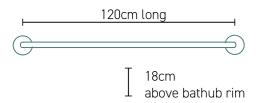
f. wooden interior finish

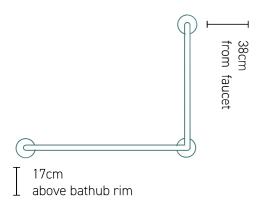
g. balance support plugin

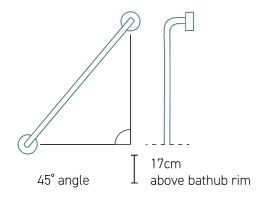
d. window flashing

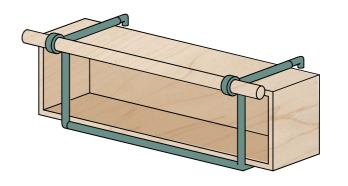
e. wall tie

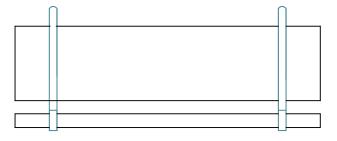


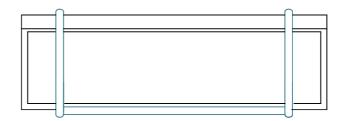


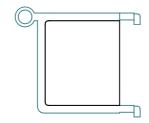




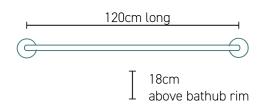


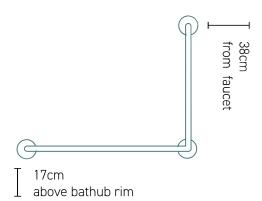


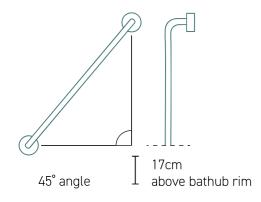




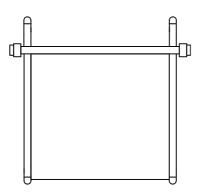


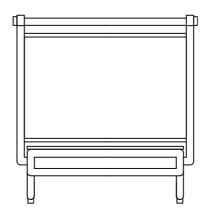


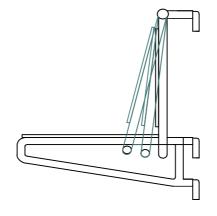


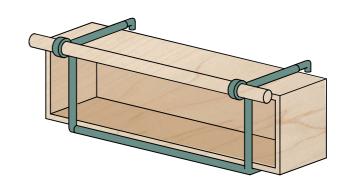


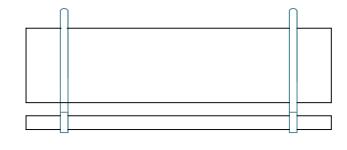


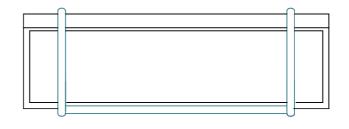


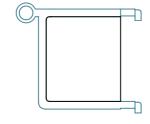




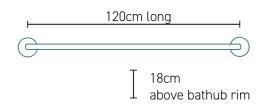


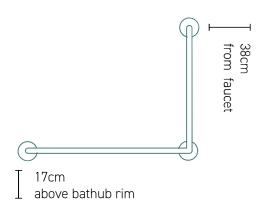


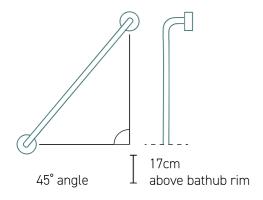






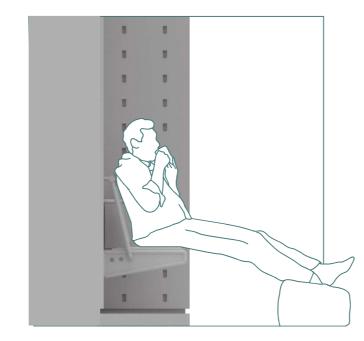


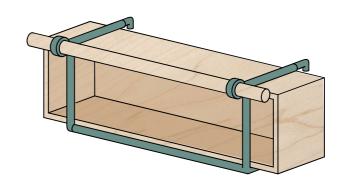


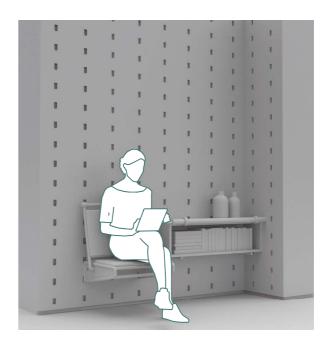


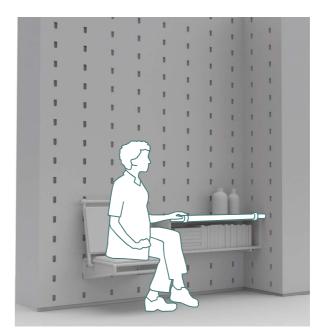


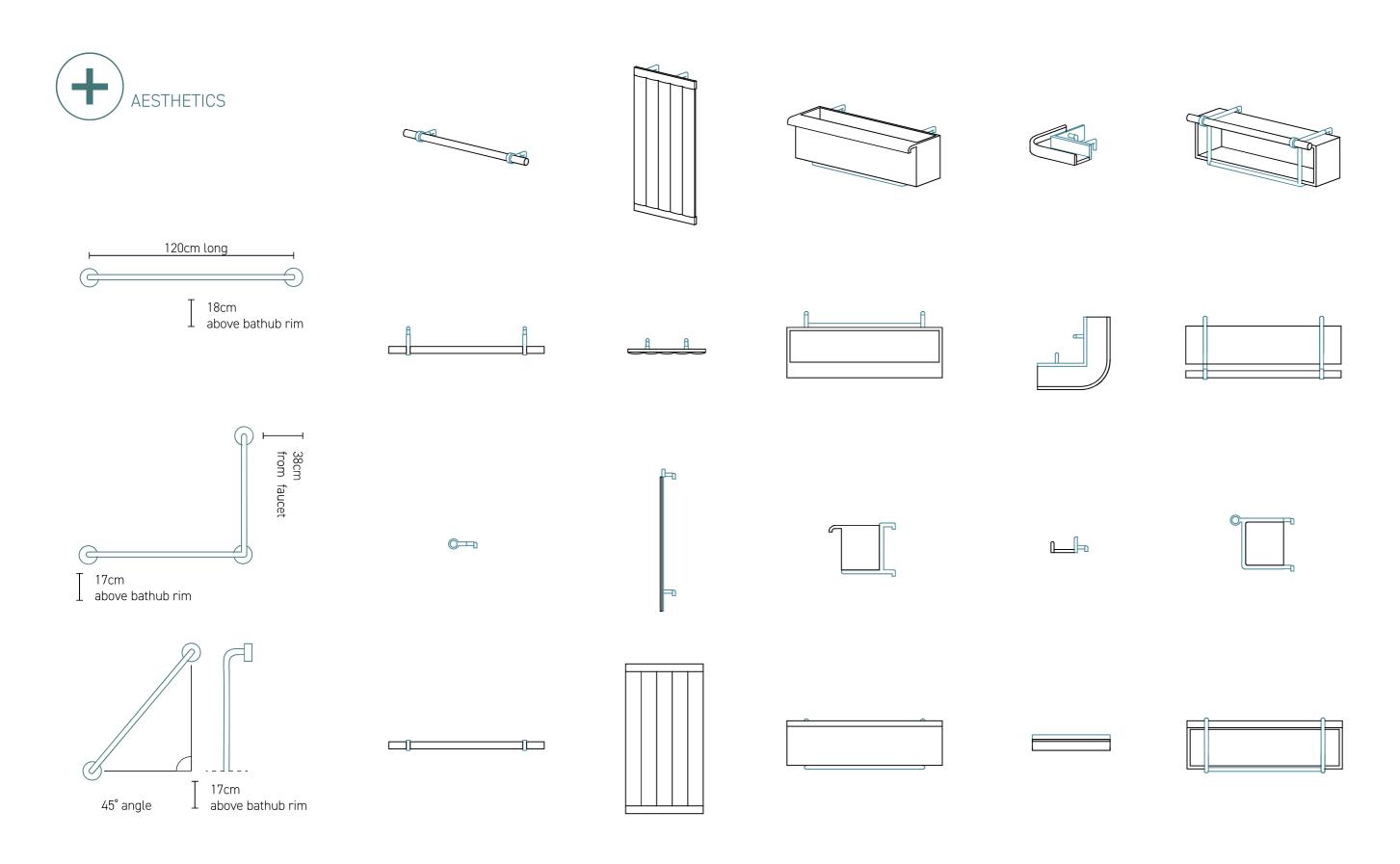


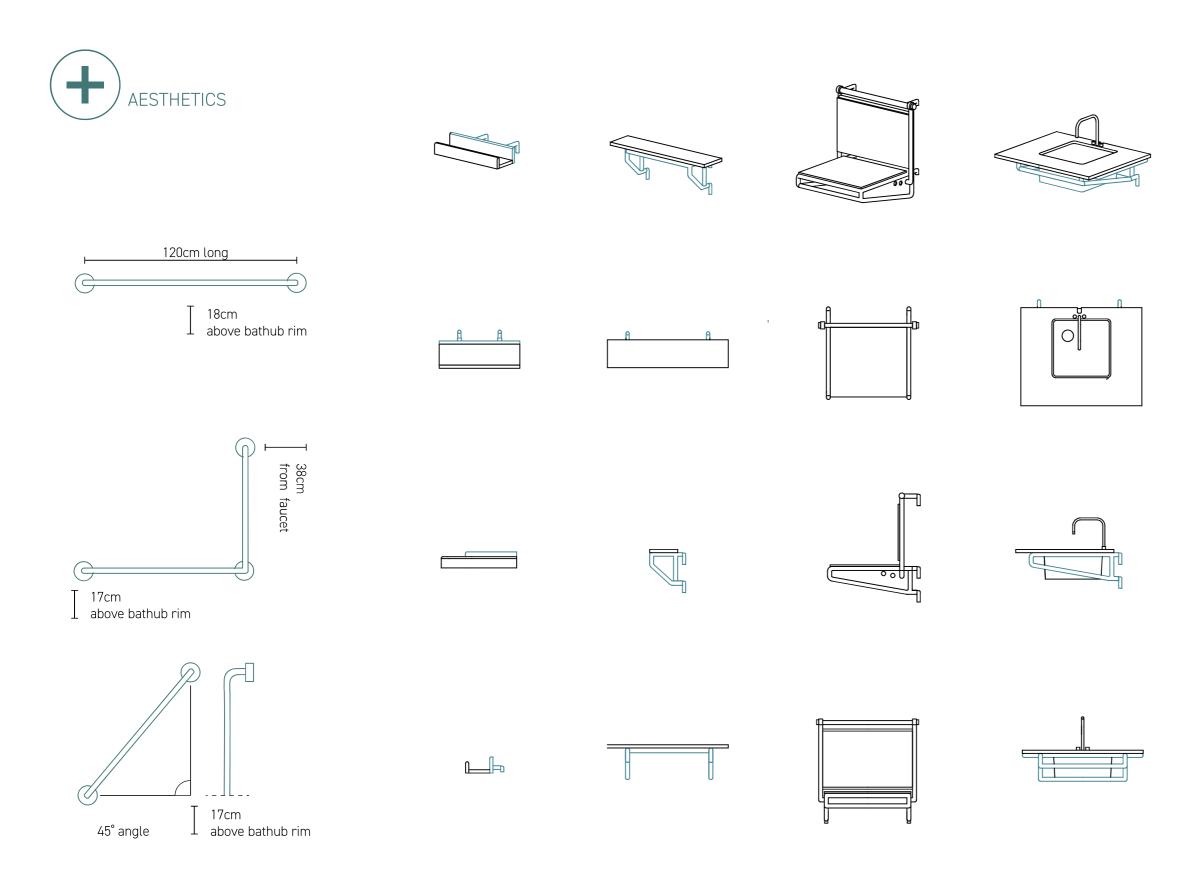








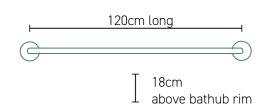




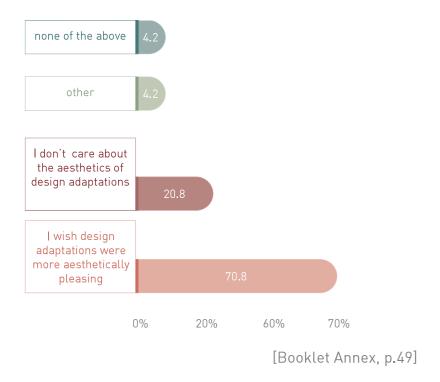
RESEARCH RESPONSE refinement
AESTHETICS AESTHETICS
120cm long I 18cm above bathub rim
When it comes to the aesthetics of adaptable design solutions, what is your preference?
none of the above 4.2
other 4.2
I don't care about the aesthetics of design adaptations 20.8
I wish design adaptations were more aesthetically pleasing 70.8
0% 20% 60% 70%
[Booklet Annex, p.49]

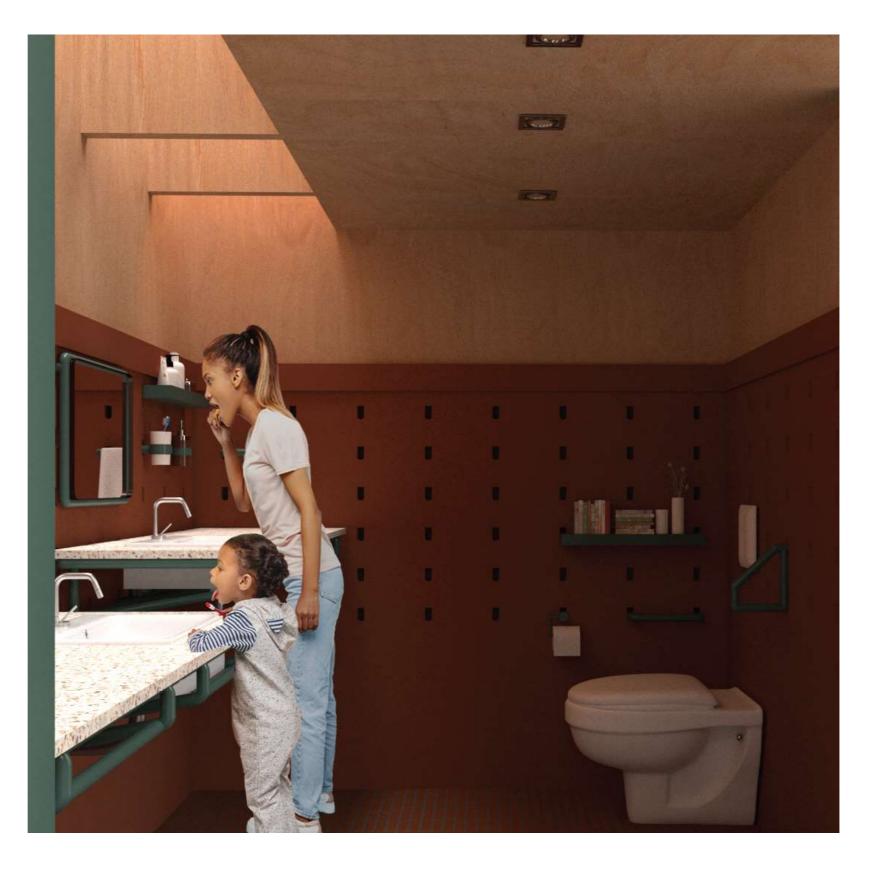
refinement



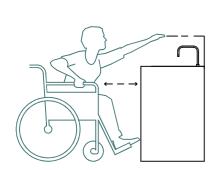


When it comes to the aesthetics of adaptable design solutions, what is your preference?

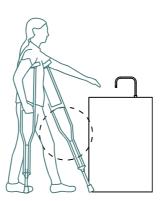




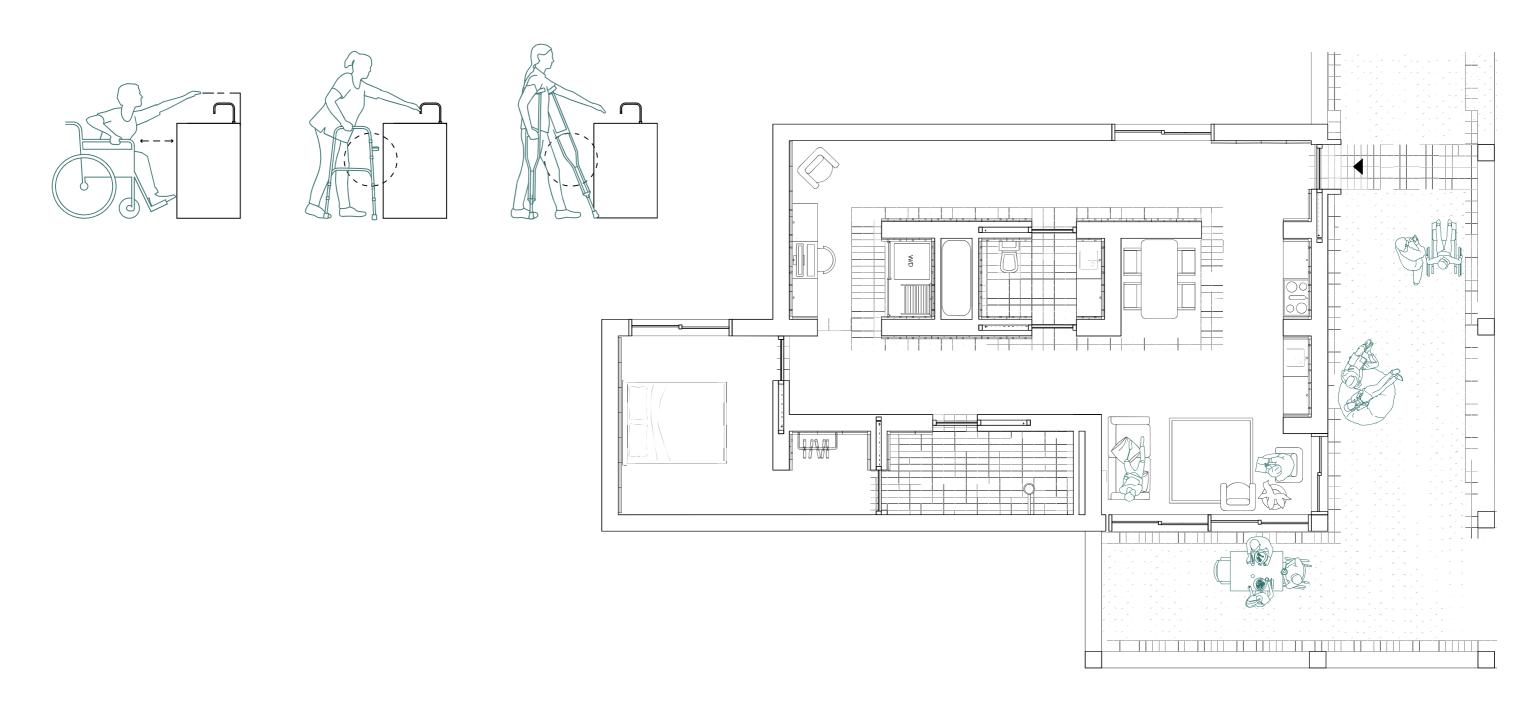




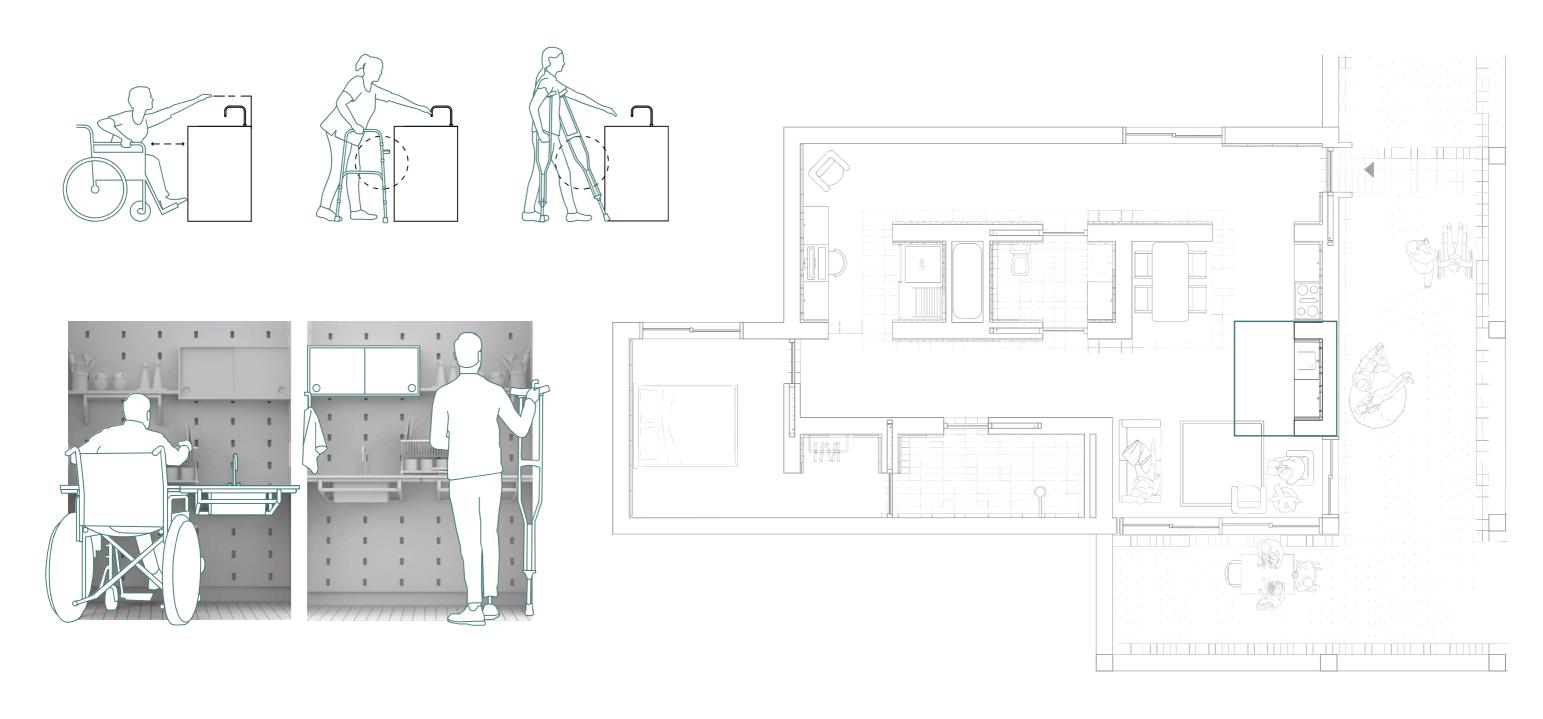




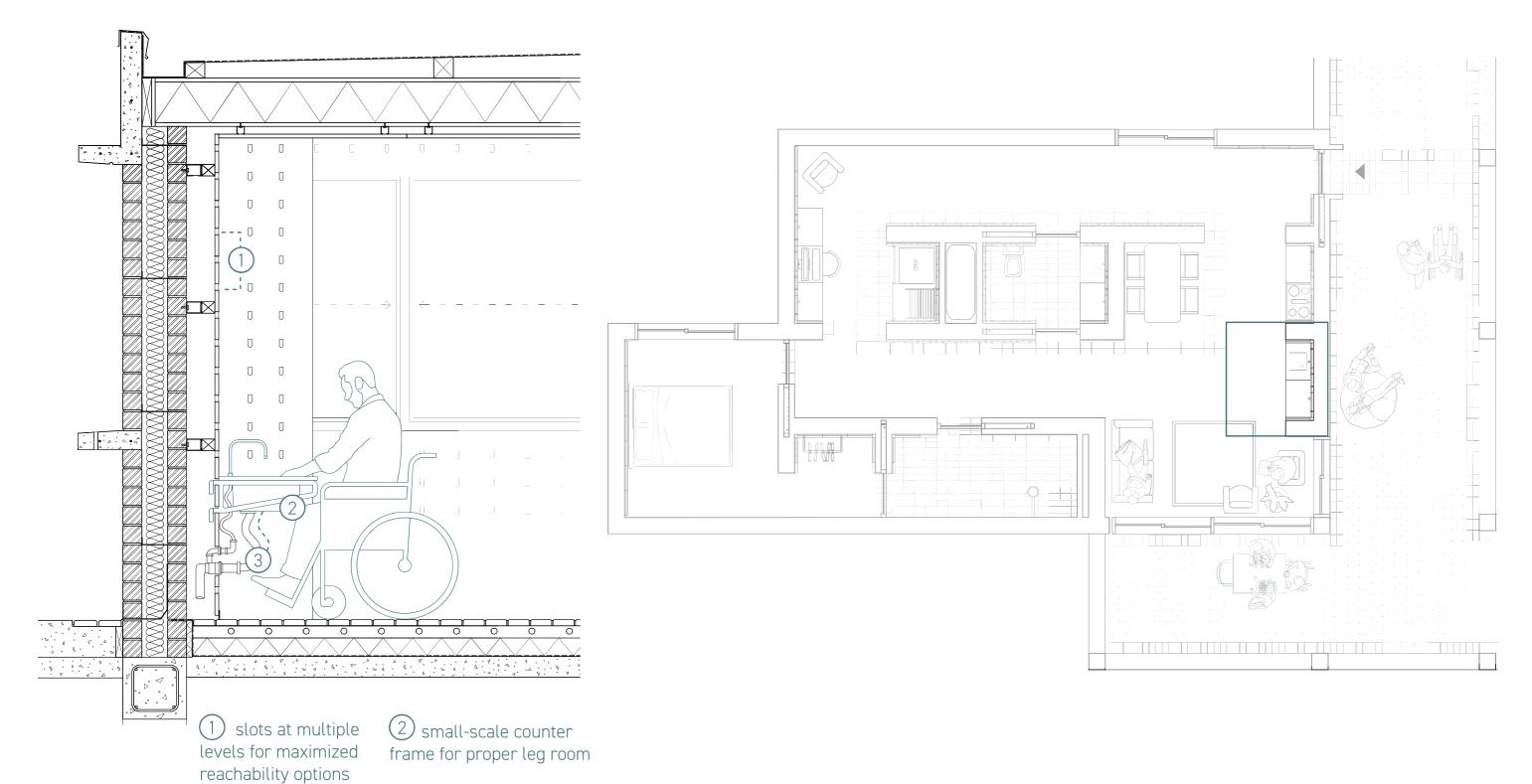




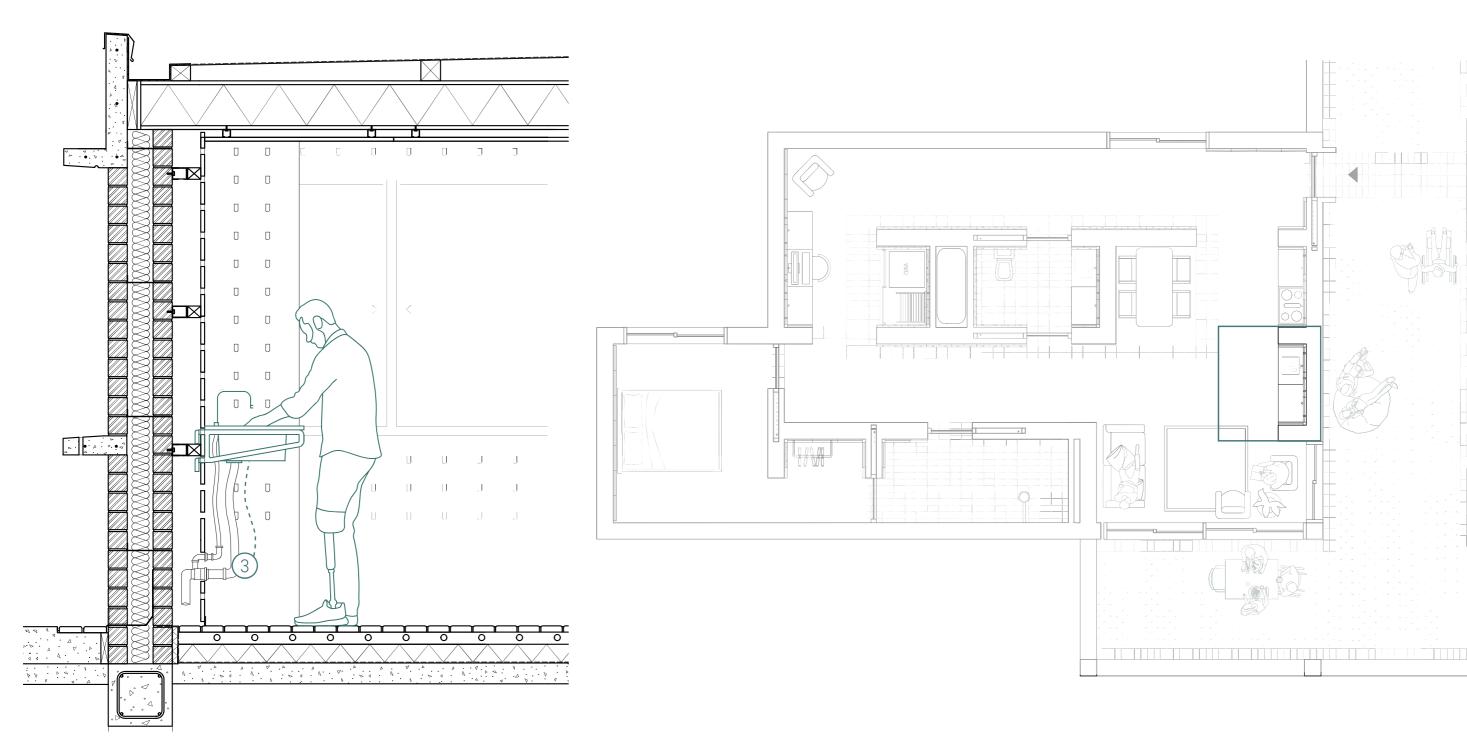






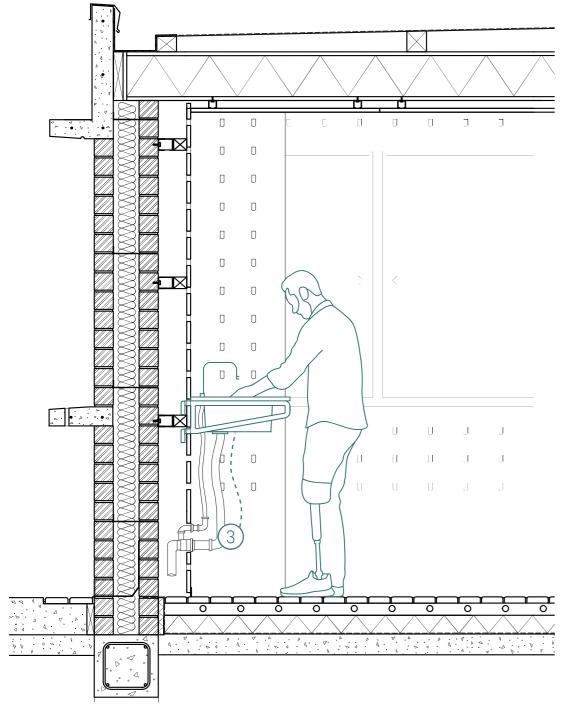






movement

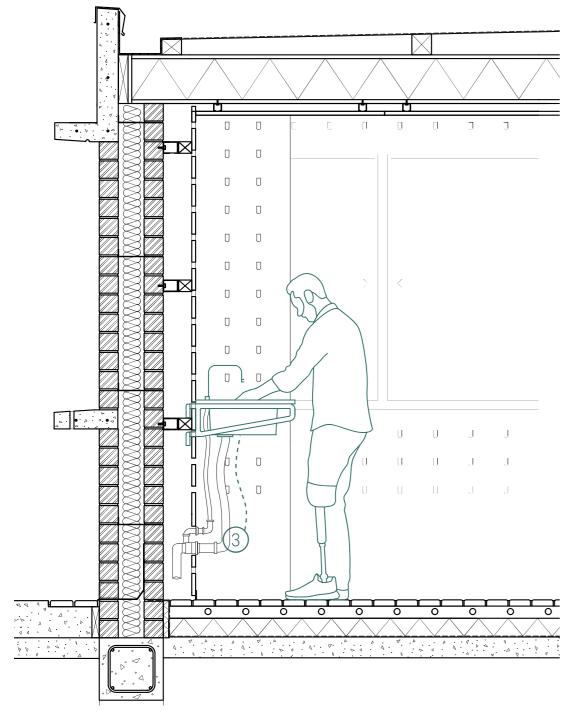






movement

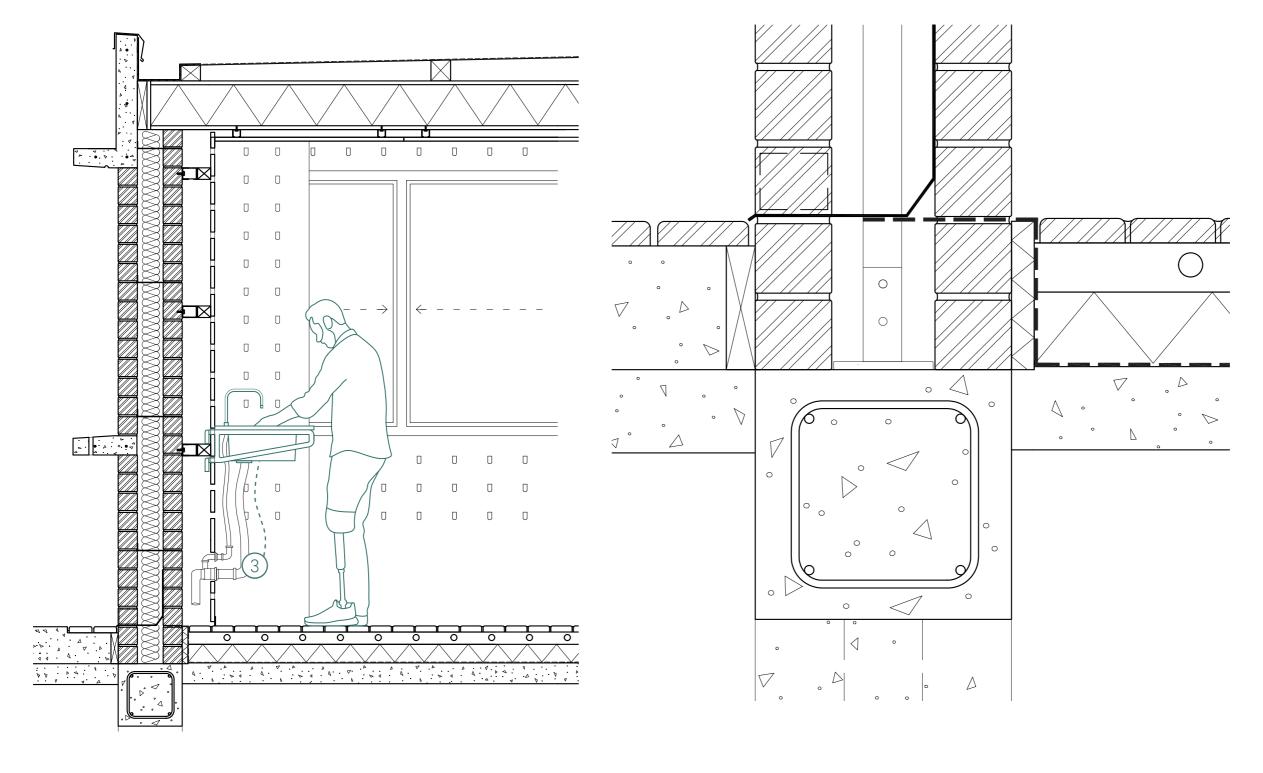


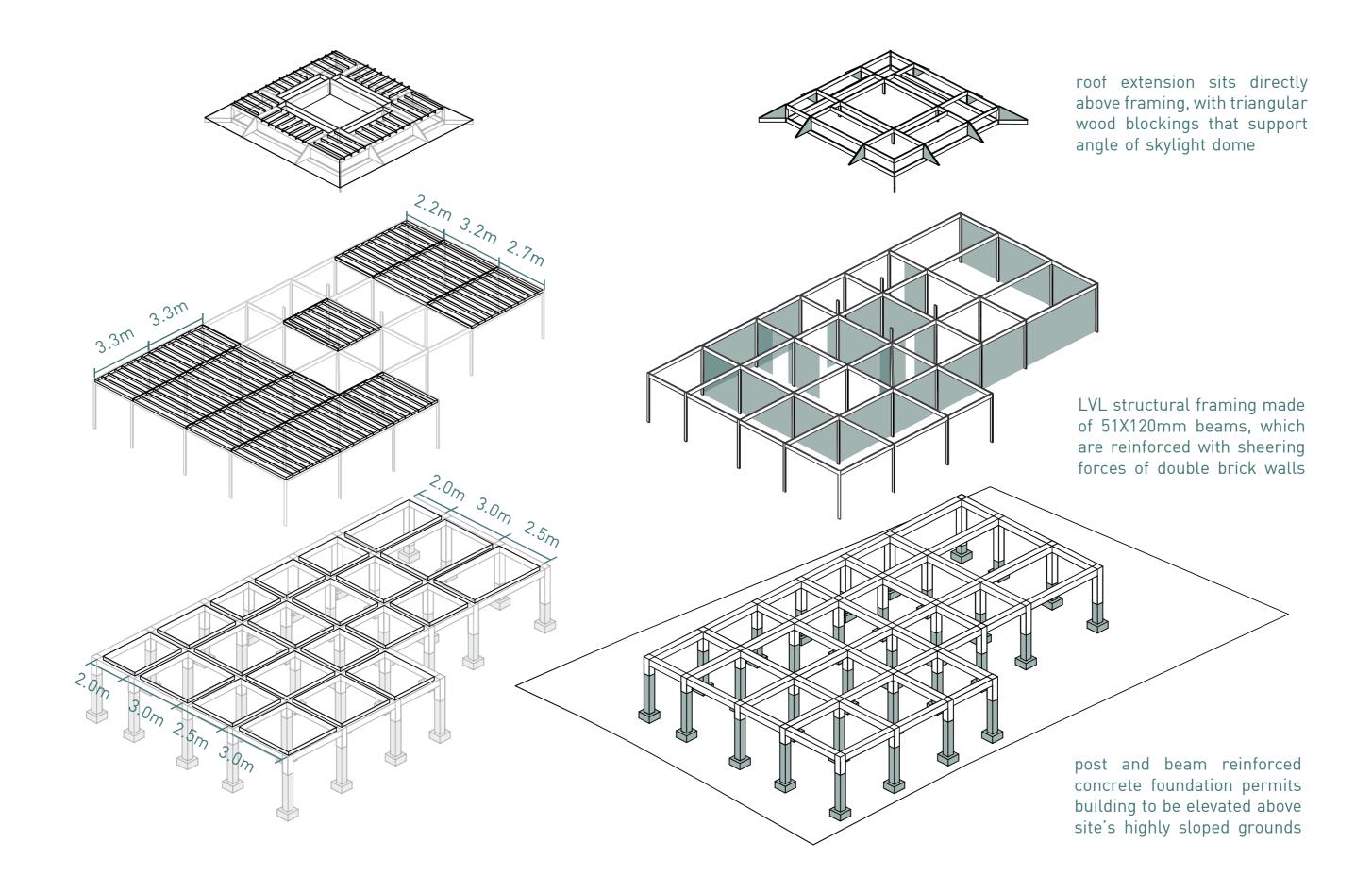




movement

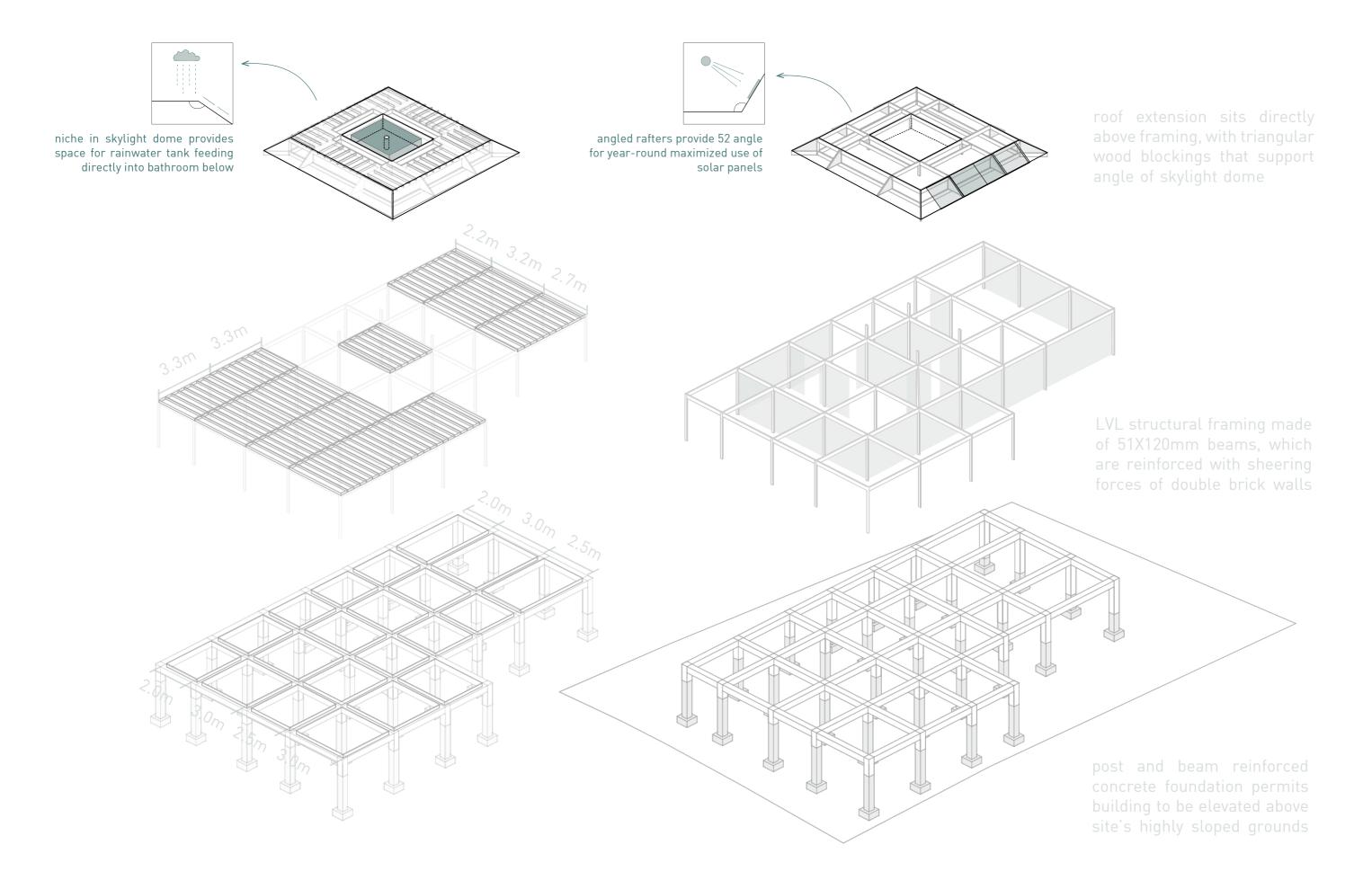


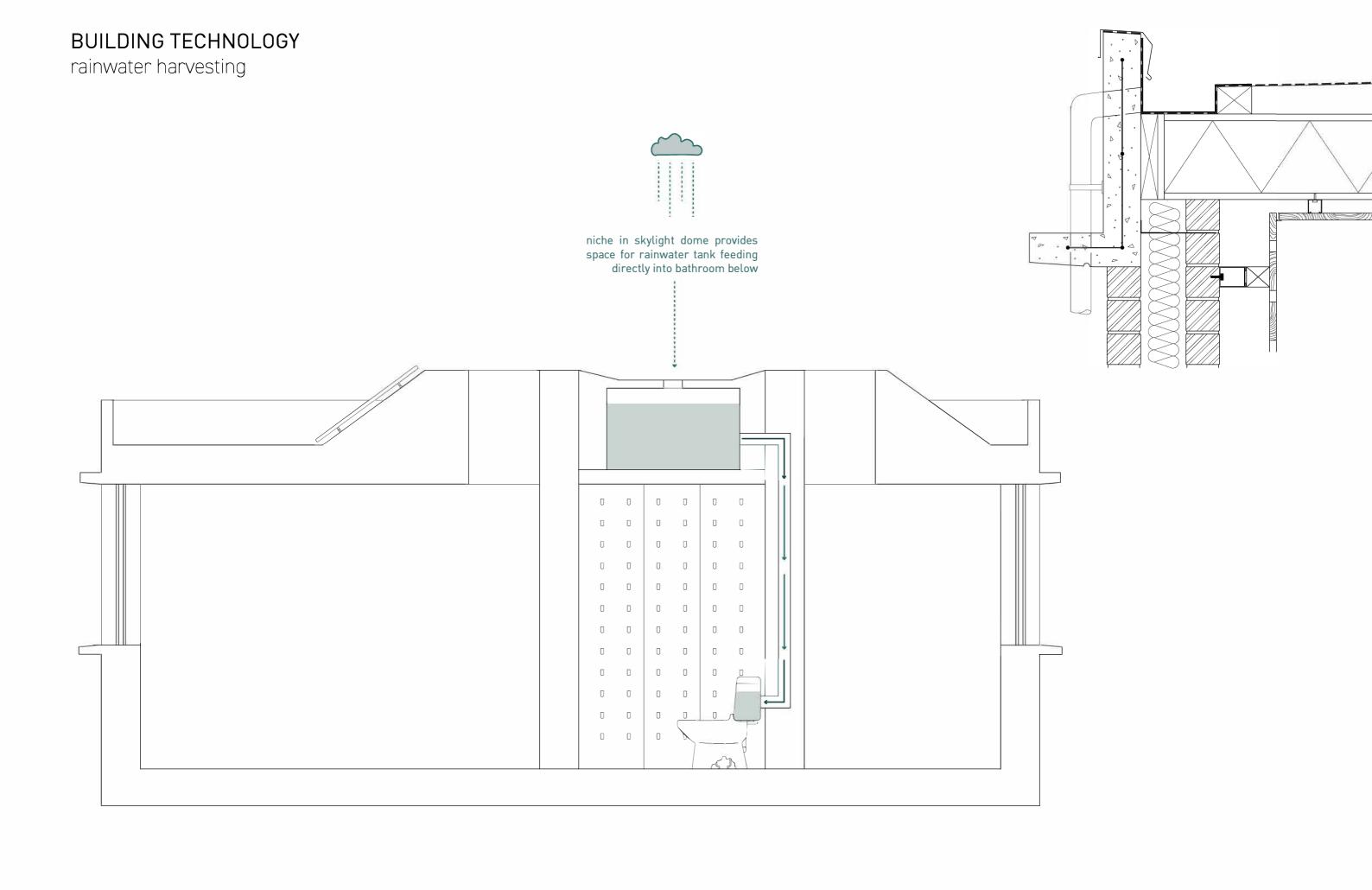




BUILDING TECHNOLOGY

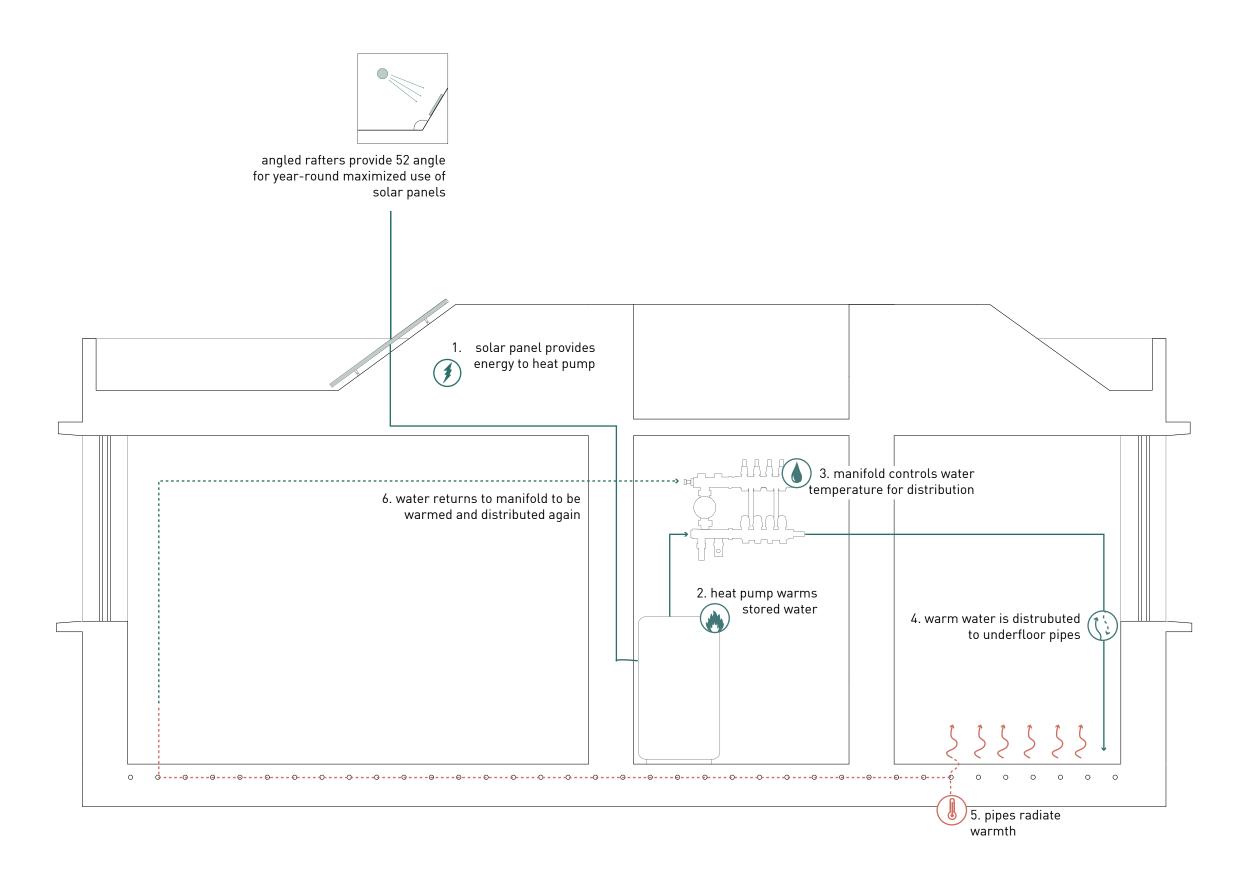
roof harvesting

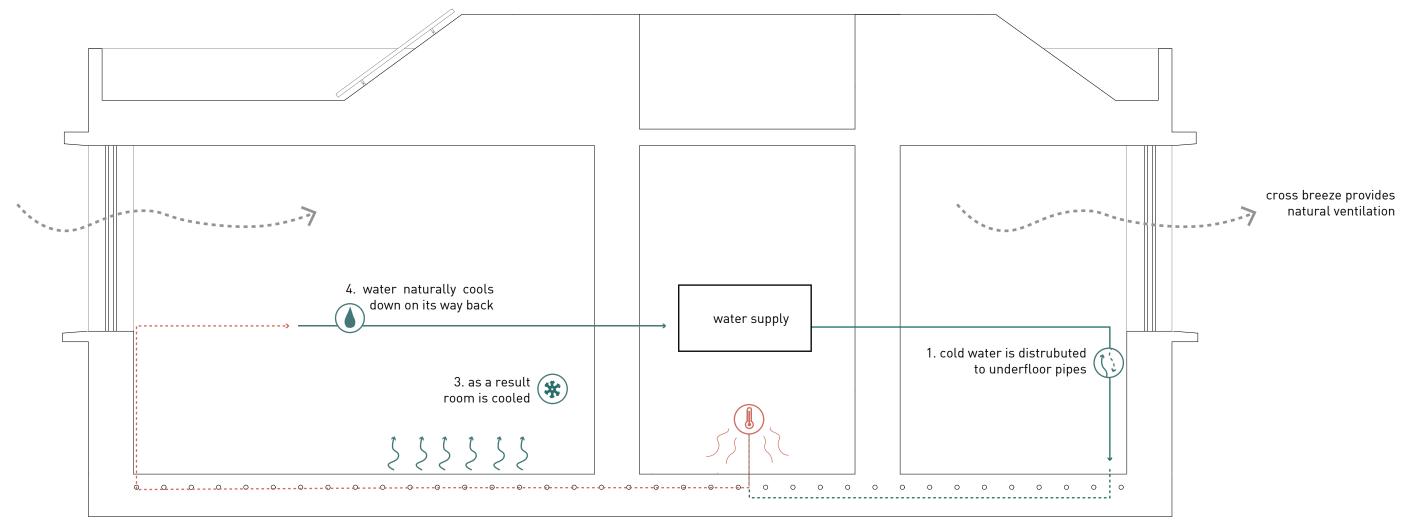




BUILDING TECHNOLOGY

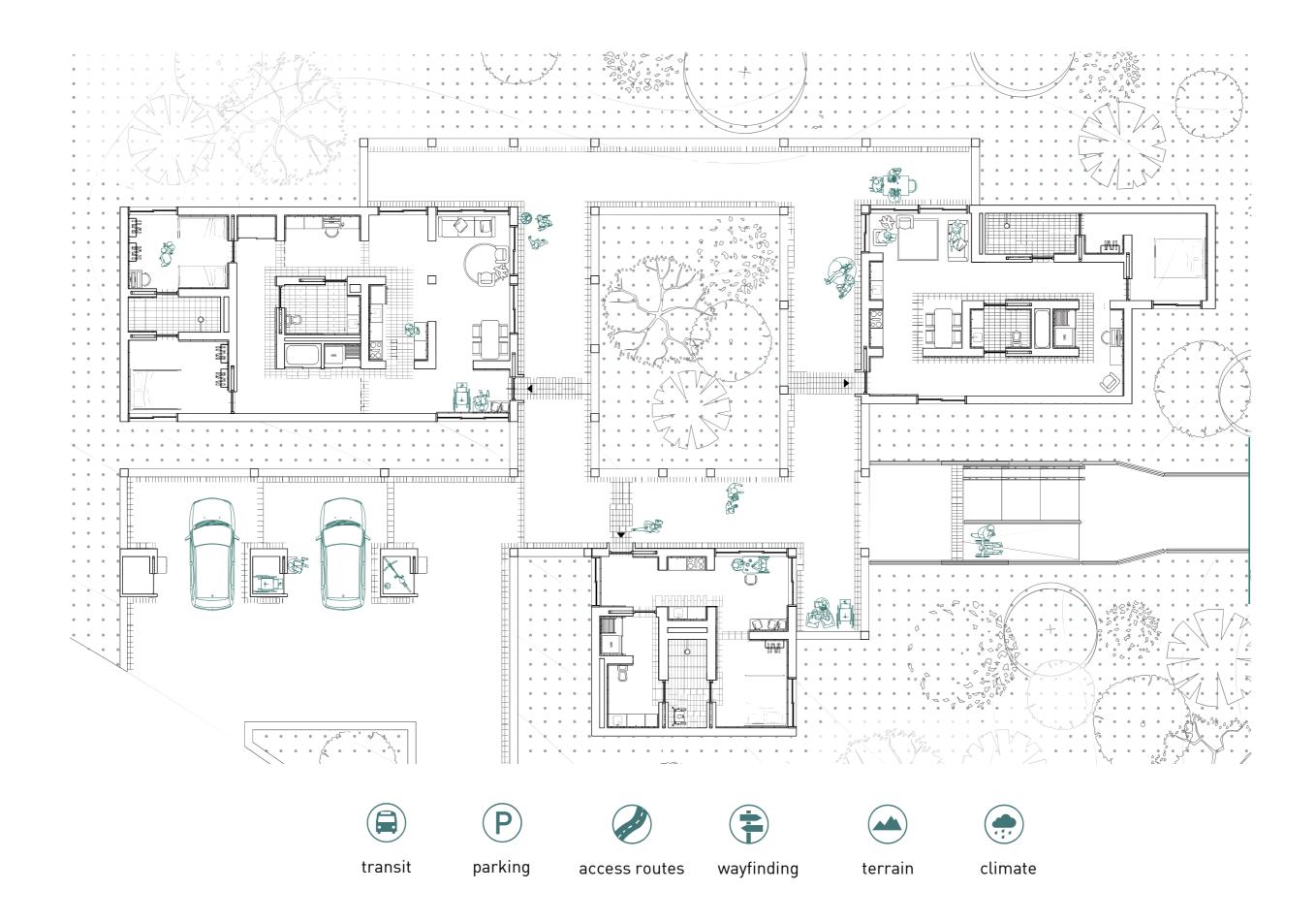
climate control: winter

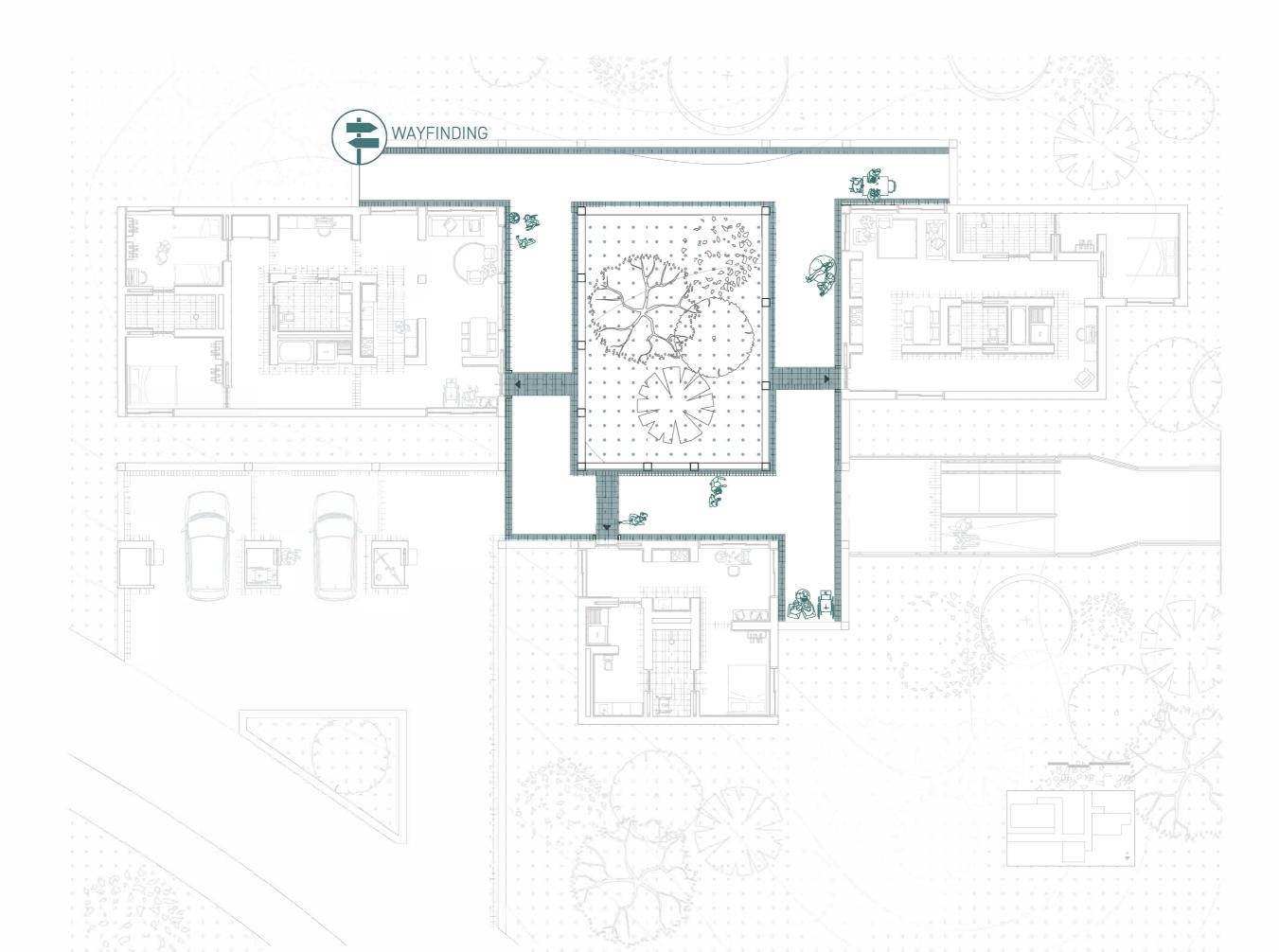




2. room's heat is absorbed by cold water in pipes

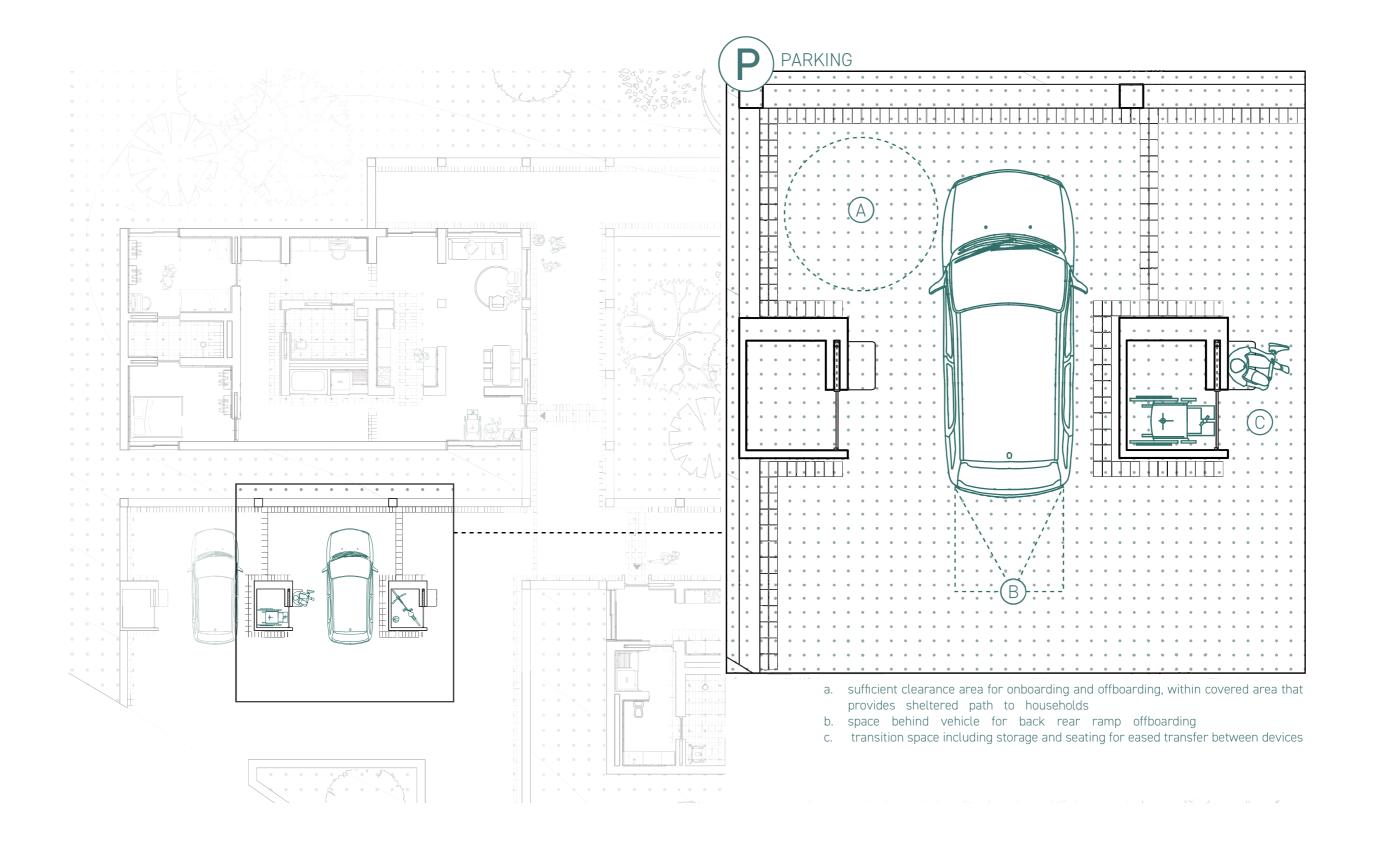






CLUSTER SAMPLE

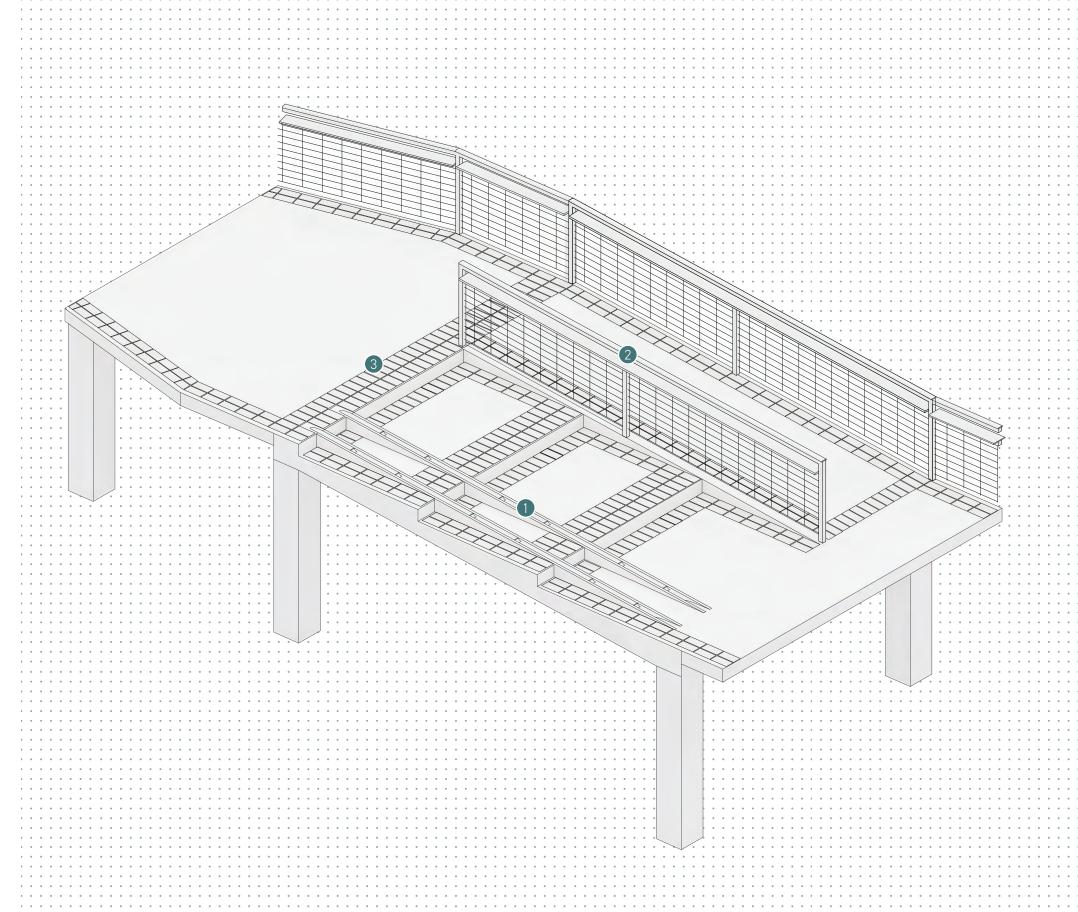
groundplan [1:150]



research response



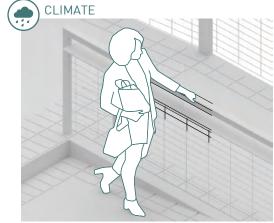
[1] tracks enable the use of wheeled devices on stairs with backstoppers that give traction to minimize the effort of pushing device



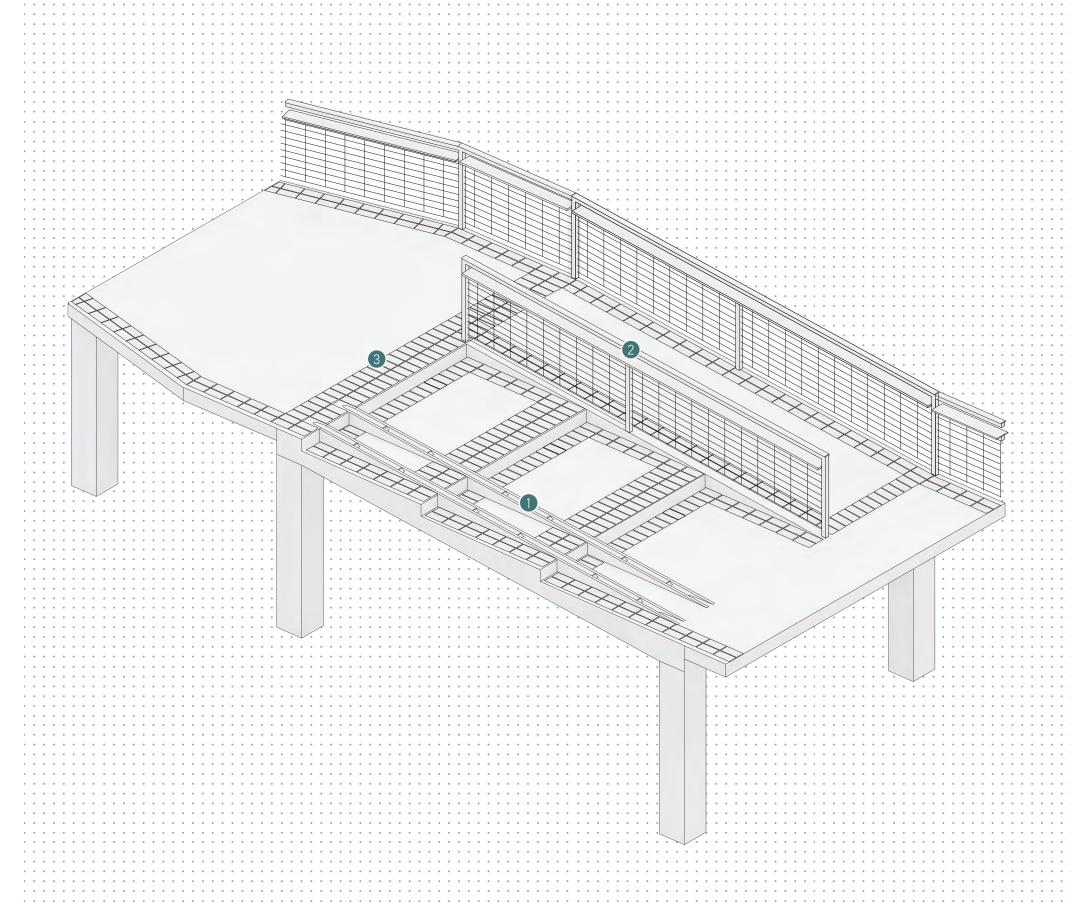
research response



[1] tracks enable the use of wheeled devices on stairs with backstoppers that give traction to minimize the effort of pushing device



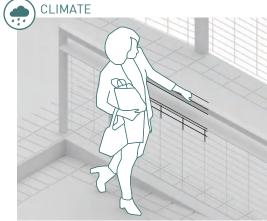
[2] rails are built at double heights to meet the needs of wider audience and made of wood for tactile comfort in colder seasons



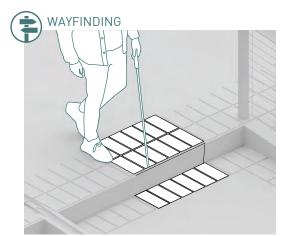
research response



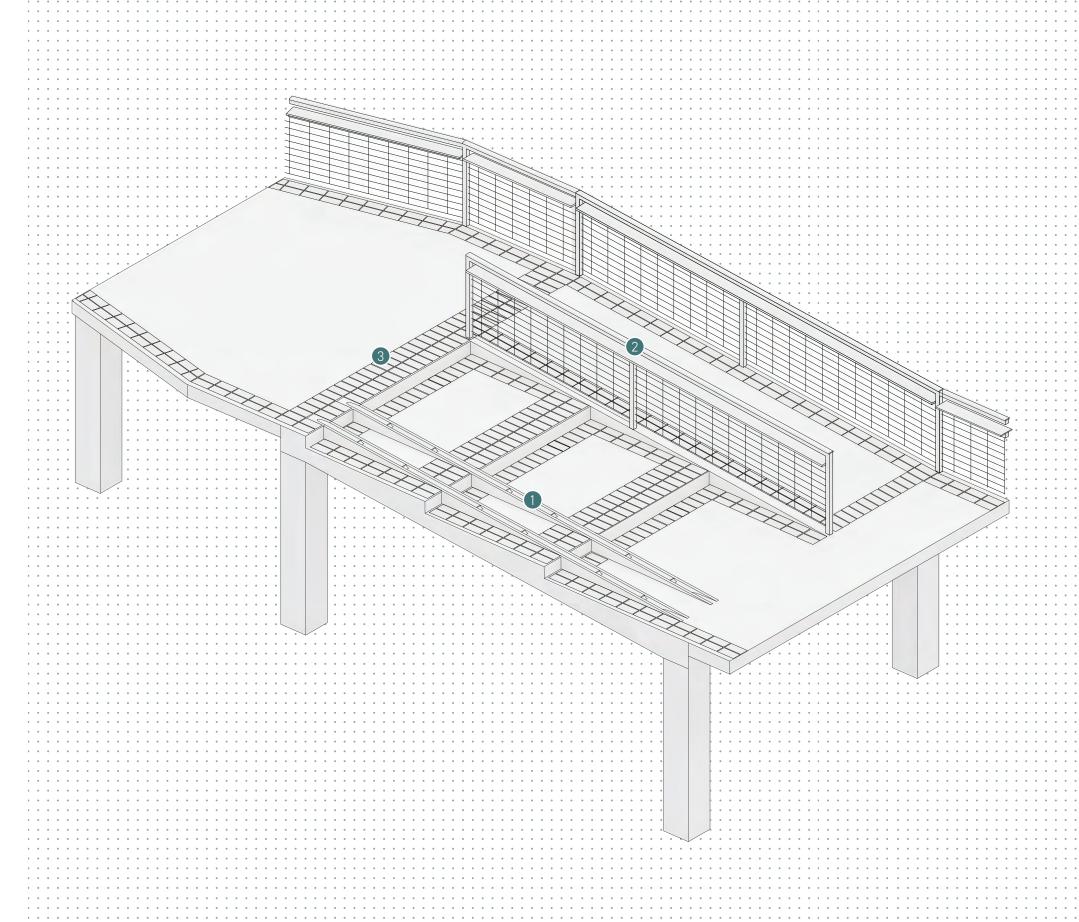
[1] tracks enable the use of wheeled devices on stairs with backstoppers that give traction to minimize the effort of pushing device



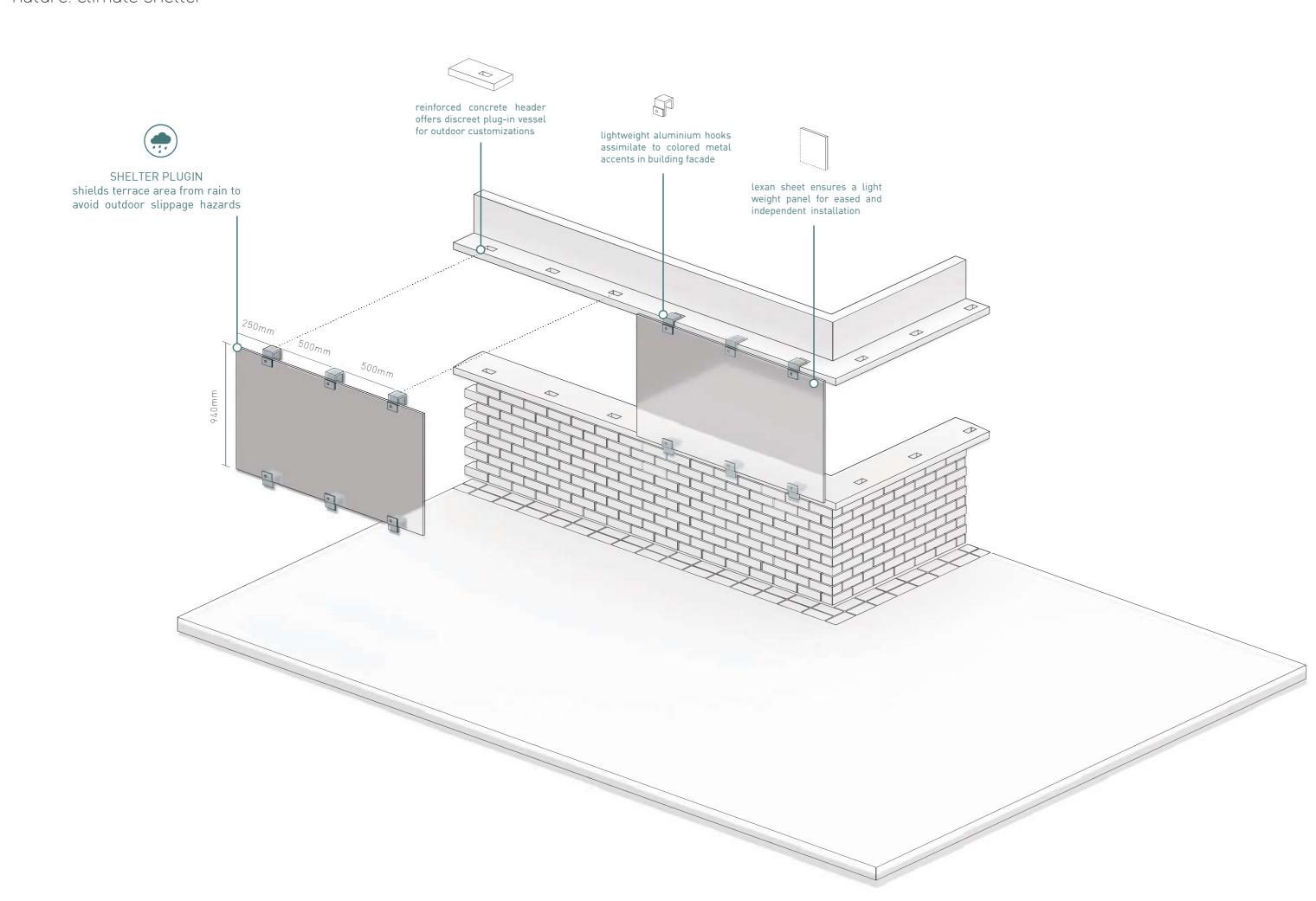
[2] rails are built at double heights to meet the needs of wider audience and made of wood for tactile comfort in colder seasons



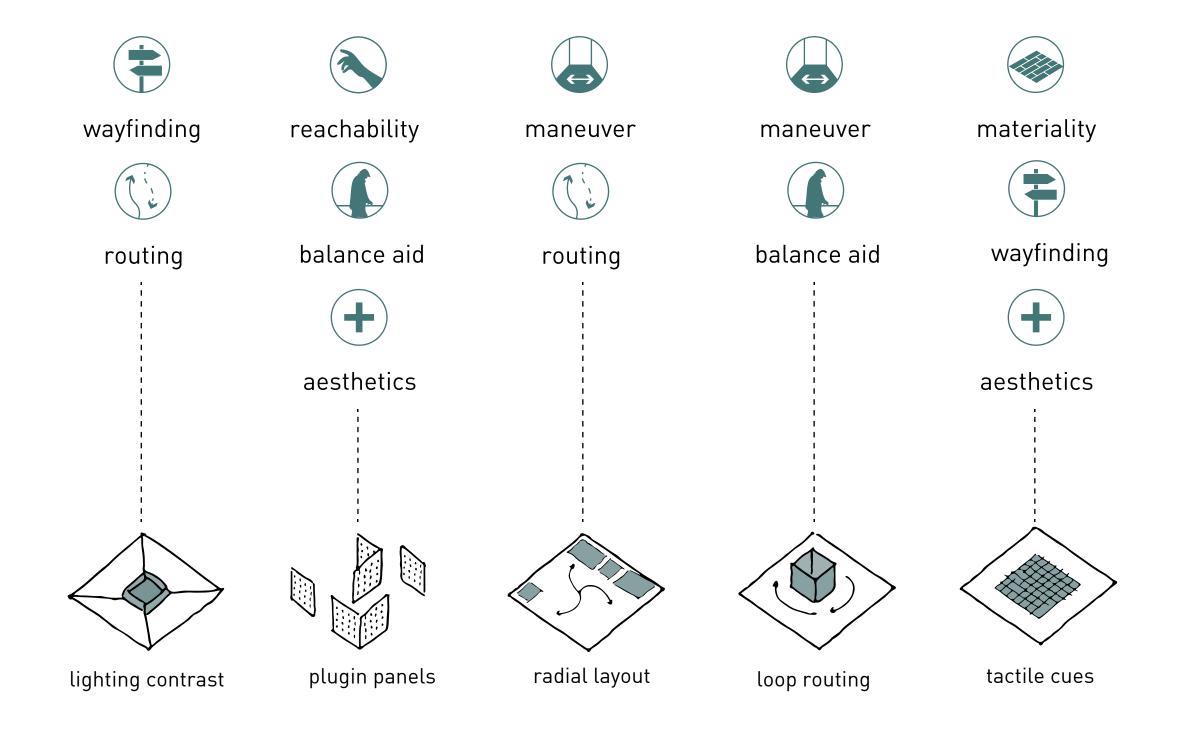
[3] color and tactile contrast make steps more easily distiguished for users with limited vision or using a white cane



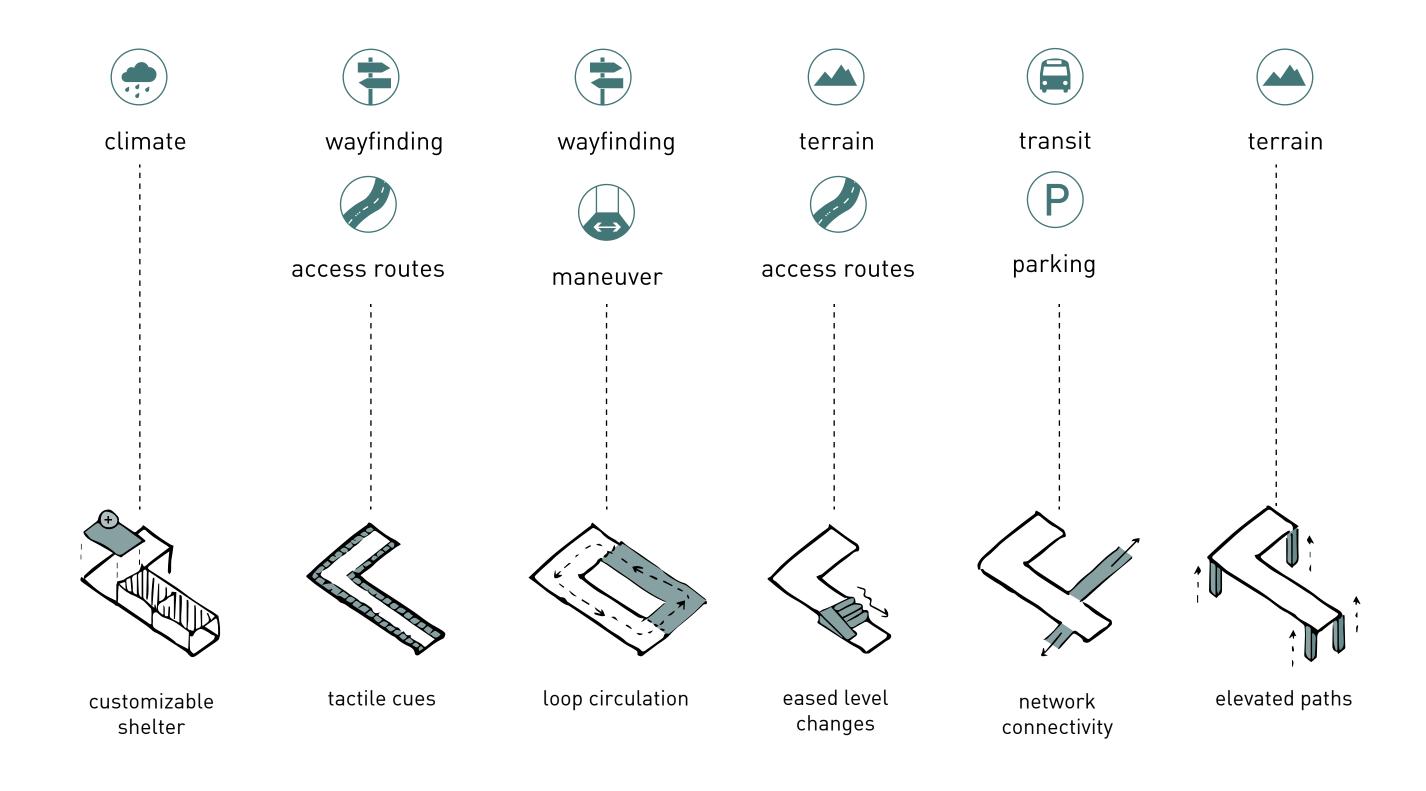
nature: climate shelter



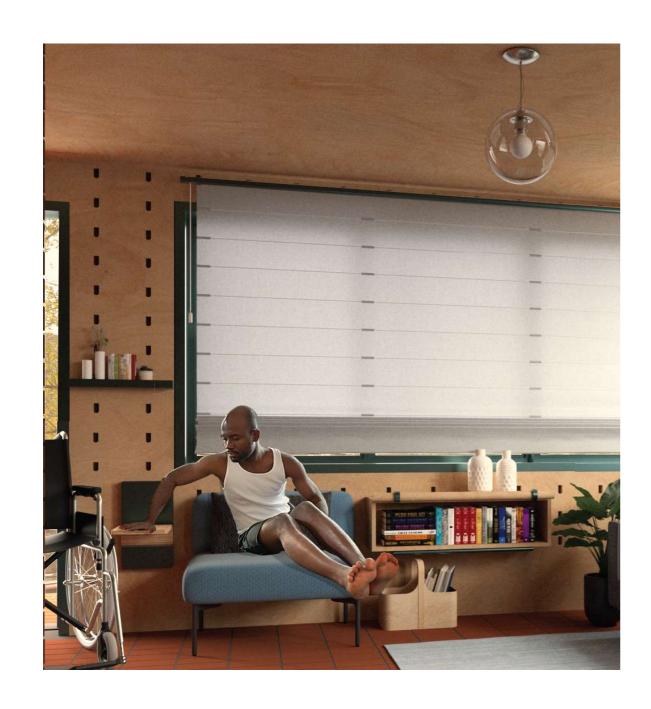
building scale



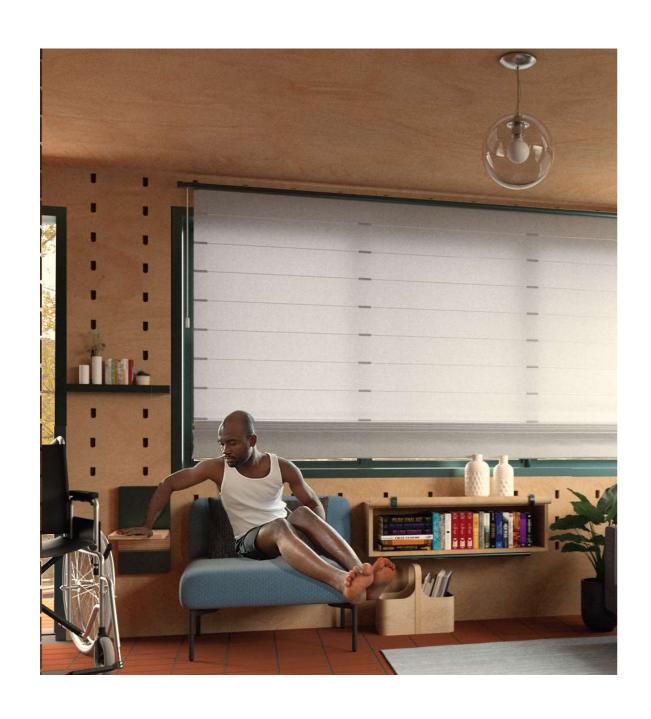
urban scale









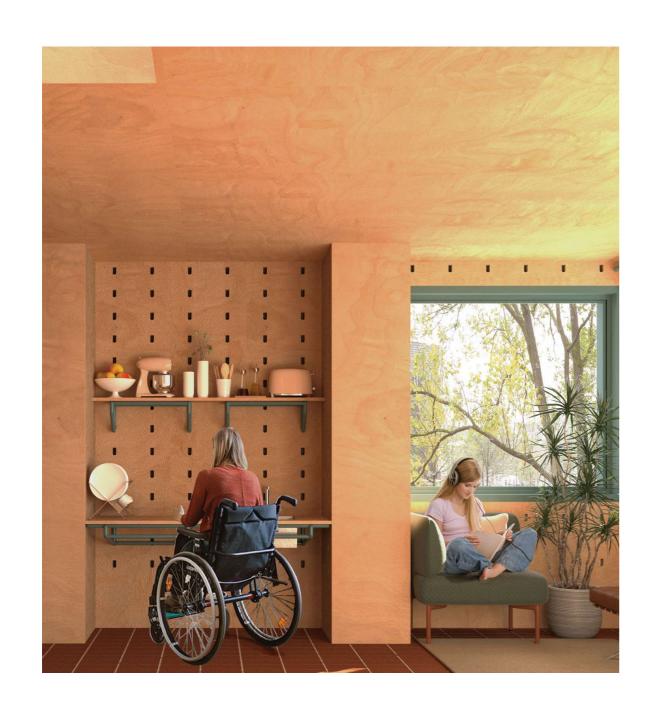


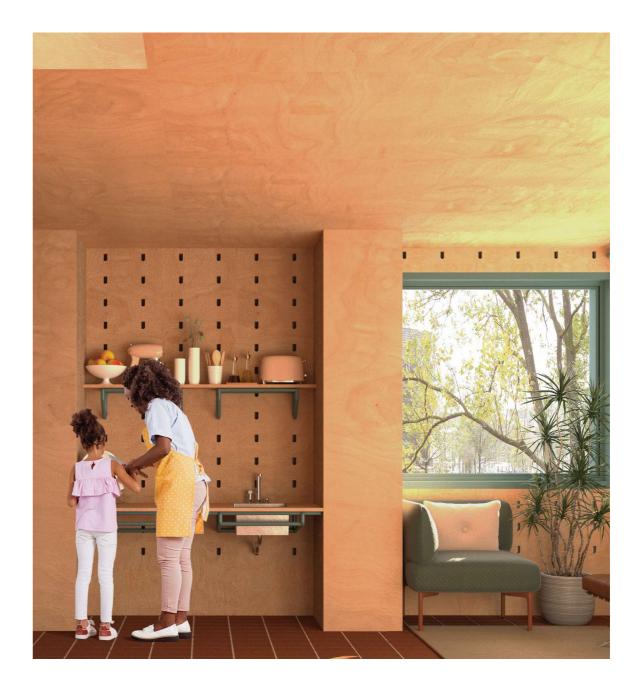




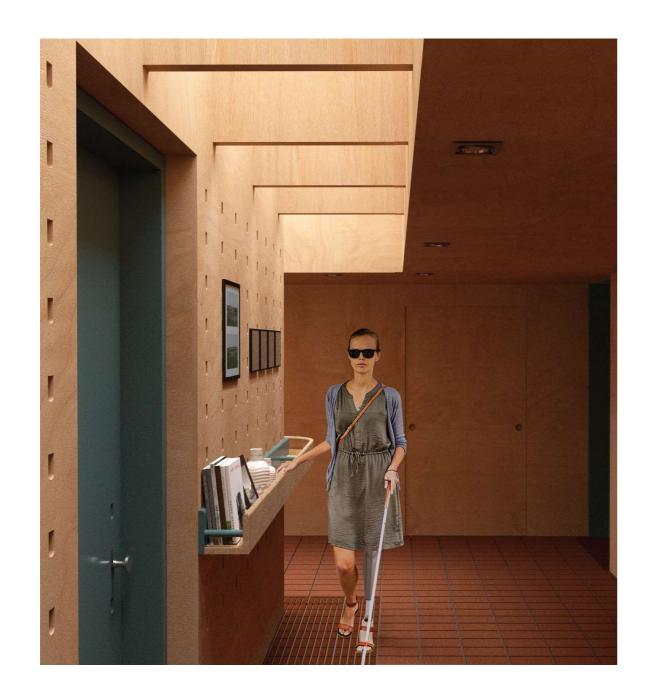




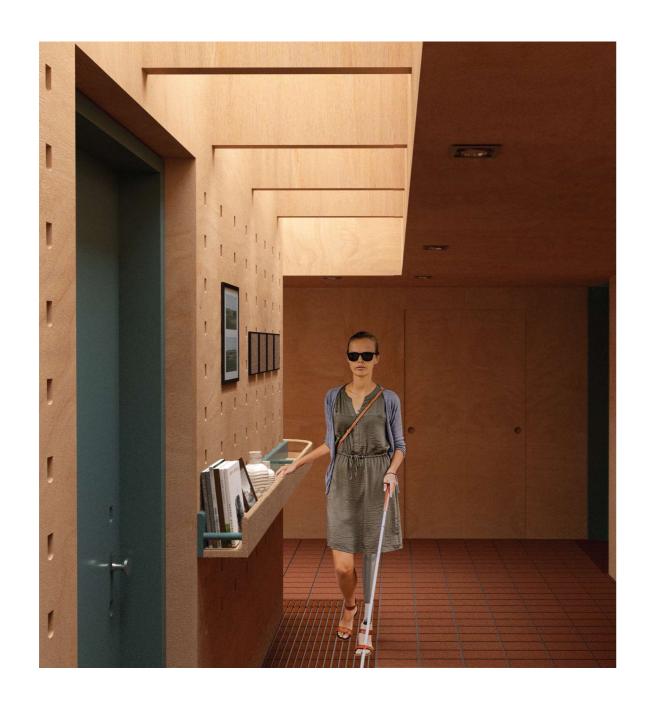


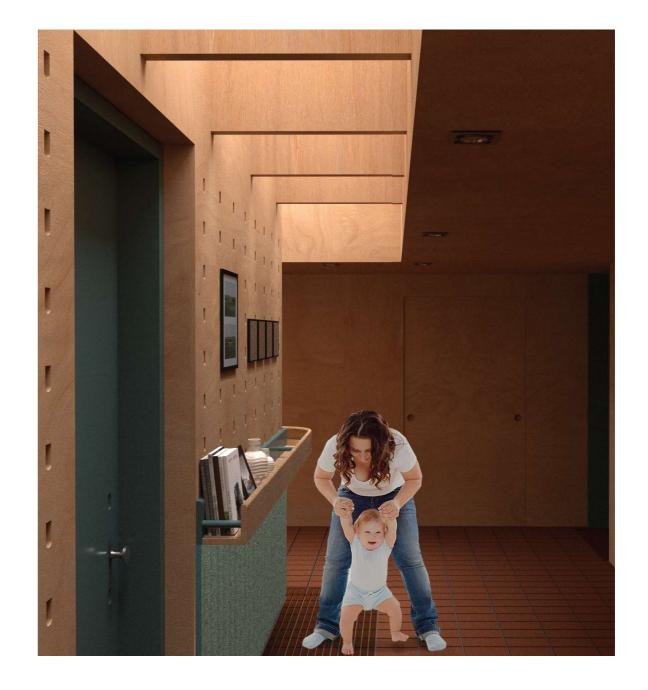












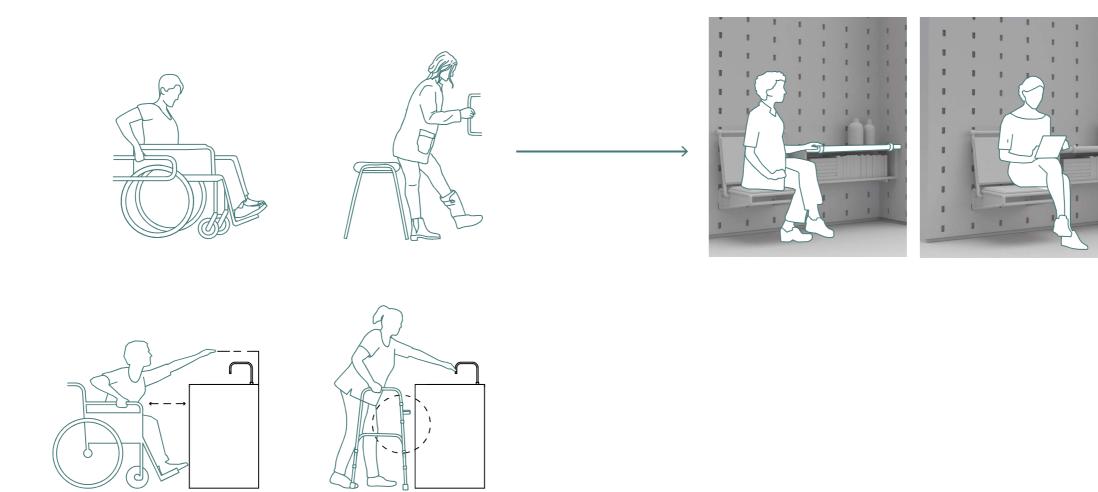
OUTCOME conclusion

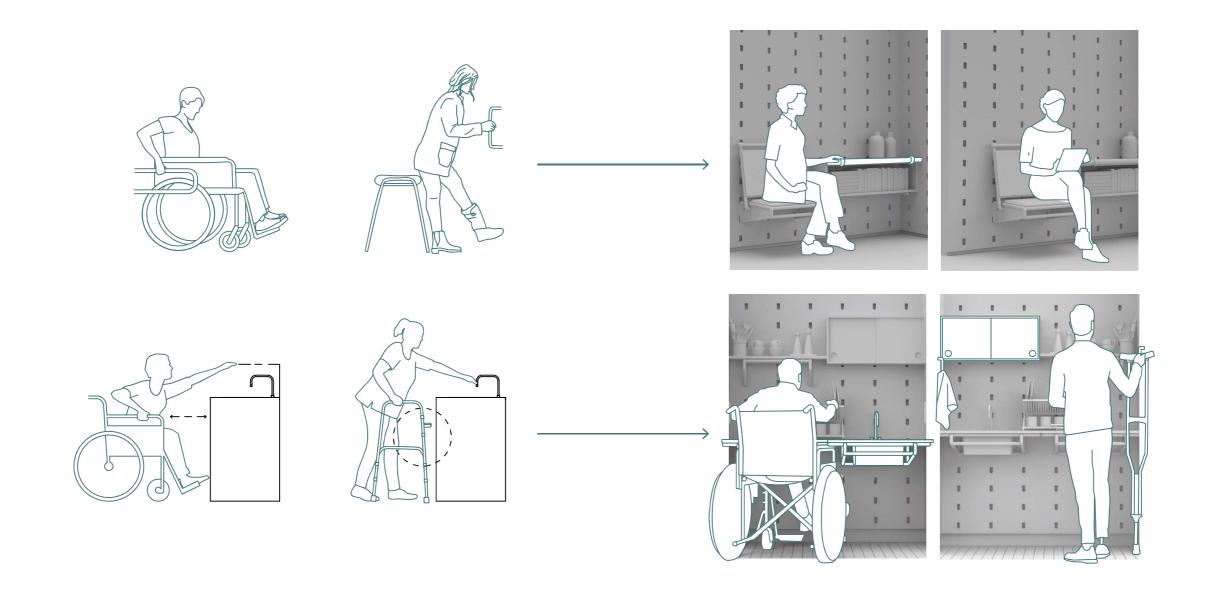


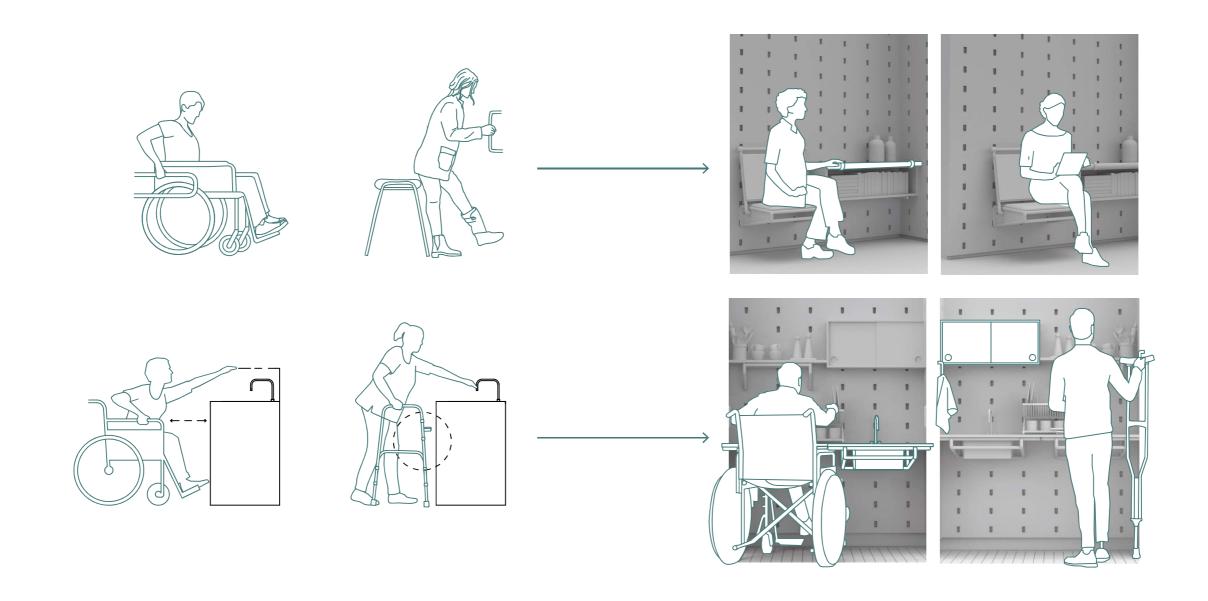


conclusion

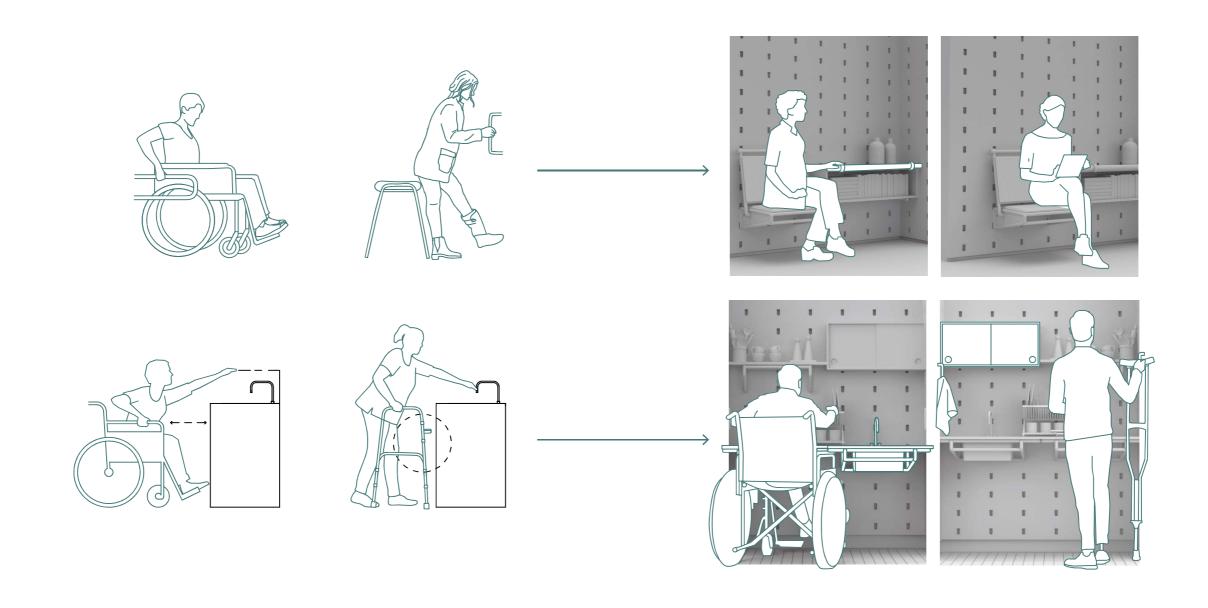








DISABLING BY DESIGN



DISABLING BY DESIGN

ENABLING BY DESIGN