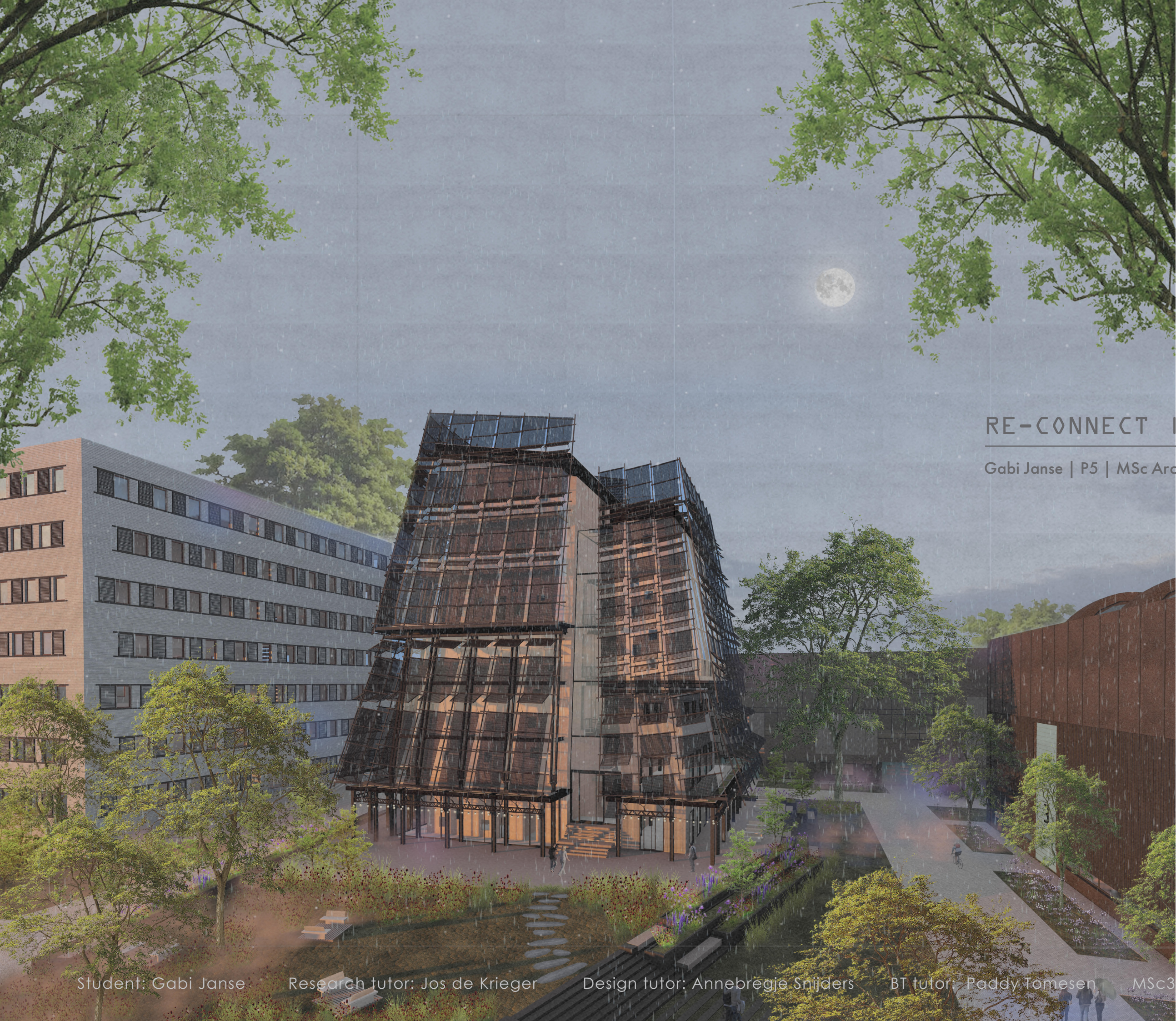


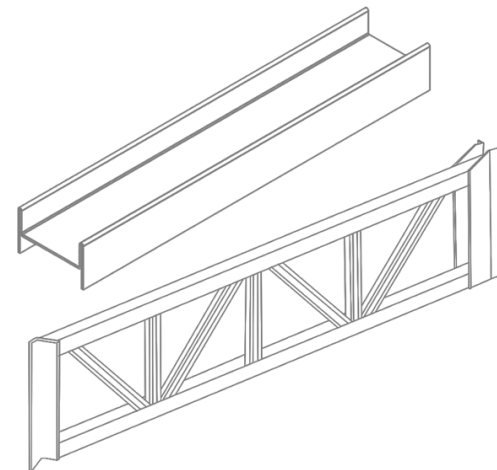


RE-CONNECT | AE STUDIO

Gabi Janse | P5 | MSc Architecture

P5 PRESENTATION

Sustainable campus building for social interaction
made of reused steel elements from surrounding
outdated buildings



P5 Research Question

“

How can **reclaimed steel elements** from TU Delft's outdated campus buildings **be assessed for component reuse?**

”

P5 Research



Gele Scheikunde (GS)



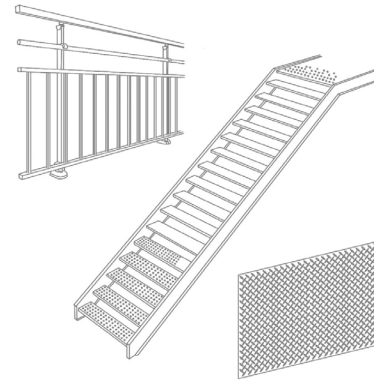
Technische Natuurkunde (TN)



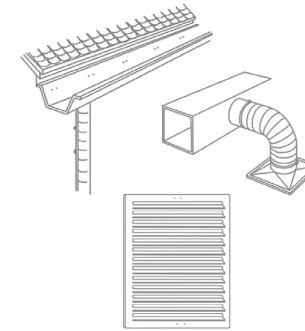
Elektrotechniek, Wiskunde en Informatica (EWI)

P5 Research

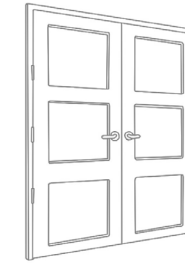
Staircases and railings



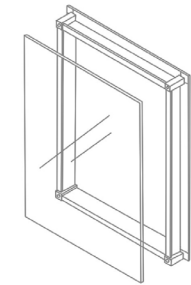
Services



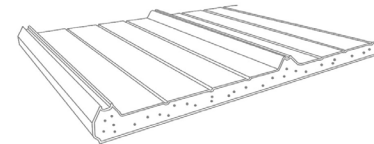
Doors



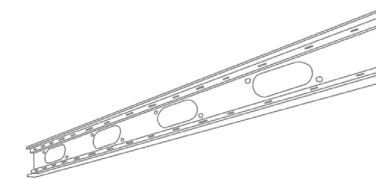
Windowframes



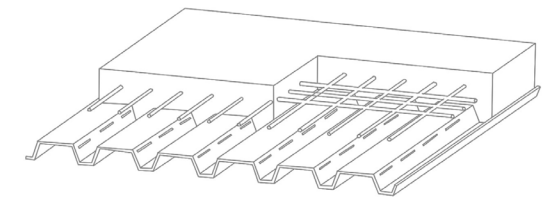
Composite sandwich panel



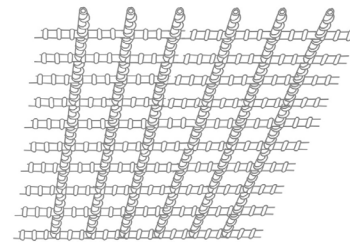
Light gauge steel



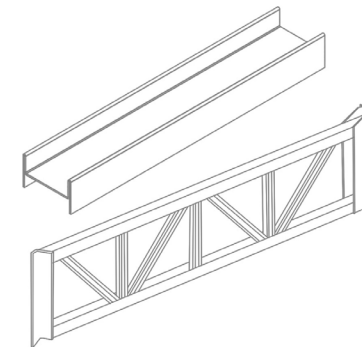
Composite floor decking system



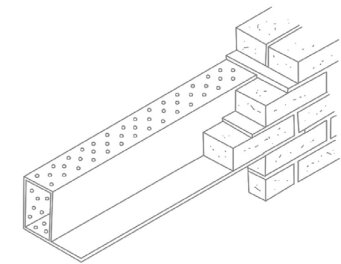
Reinforcement bars



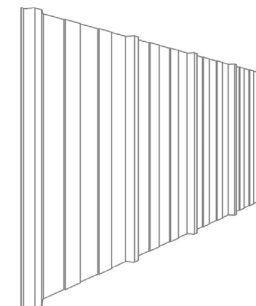
Heavy structural steel



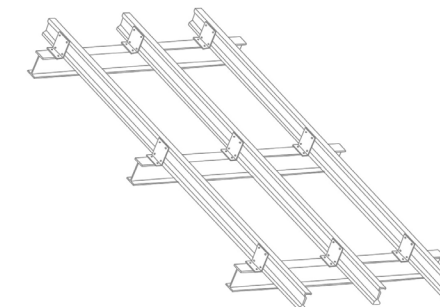
Lintels



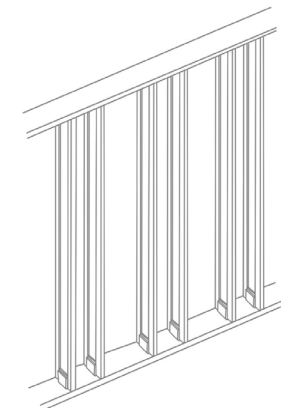
Profiled cladding or decking



Structural framework



Metal stud wall



P5 Research

Main themes

Environment

Costs

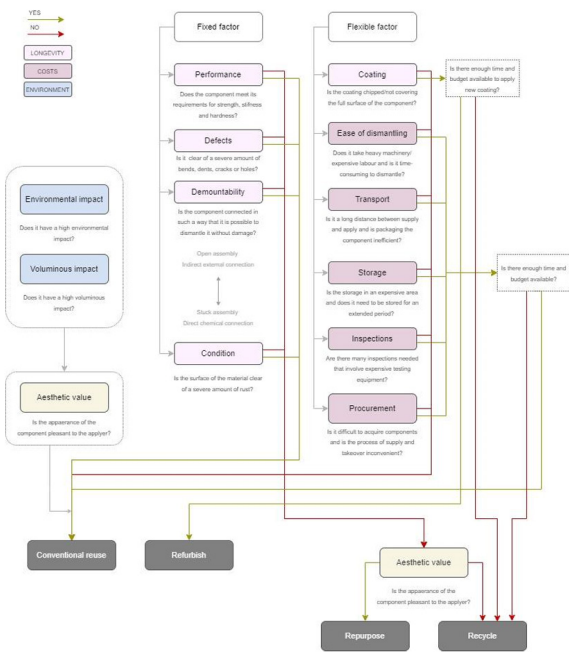
Longevity

Value Assesment

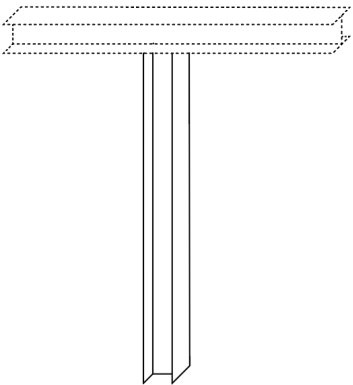
Value assessment steel product groups EWI	Environment		Costs					Longevity					
	Volumetric impact	Environ-mental impact	Procure-ment	Inspec-tions	Ease of dismant-ling	Storage	Transport	Demount-ability	Perform-ance	Condition	Defects	Coating	Aesthetical value
Heavy Structural Steel	✓	1	✓	✗	✗	✓	✓	✗	X	✓	X	1	✓
Structural framework	✓	1	✓	✗	1	✓	✓	✓	X	✓	X	1	1
Lintels	/	/	/	/	/	/	/	/	/	/	/	/	/
Reinforcement steel bars	✓	1	✓	✗	✗	✓	✓	✗	X	1	X	/	/
Composite floor decking system	/	/	/	/	/	/	/	/	/	/	/	/	/
Light Gauge Steel	✗	✓	✓	1	1	✓	✓	✓	X	✓	X	✓	✓
Profiled cladding or decking	1	1	✓	1	✓	✓	✓	✓	X	1	X	1	1
Metal Studs walls or ceiling	✗	✓	✓	1	✗	✓	✓	✗	X	/	X	✓	/
Composite sandwich panels	1	1	✓	✓	✓	✓	✓	✓	X	✓	X	✓	✓
Doorframes	1	✓	✓	✓	✓	✓	✓	✓	X	✓	X	1	1
Windowframes	✓	✓	✓	✓	✗	✓	✓	✗	X	1	X	1	1
Staircases and railings	1	1	✓	✗	1	✓	✓	✓	X	1	X	1	1
Services	1	✓	✓	1	1	✓	✓	1	X	1	X	/	✗

+

Decision chart



Reuse



Repurpose



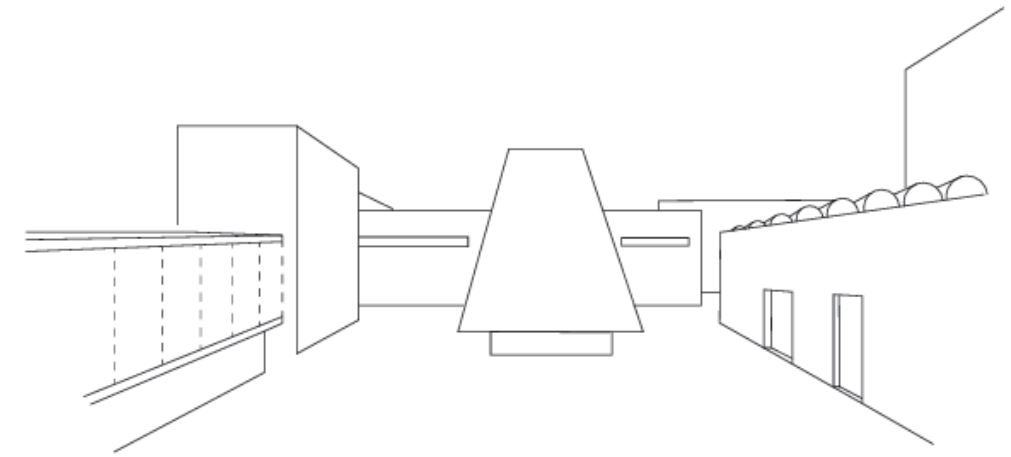
P5 Design Question

“ How can reclaimed steel components from
unsustainable, outdated TU Delft campus buildings
**be implemented in the architectural design of
a new circular campus building?** ”

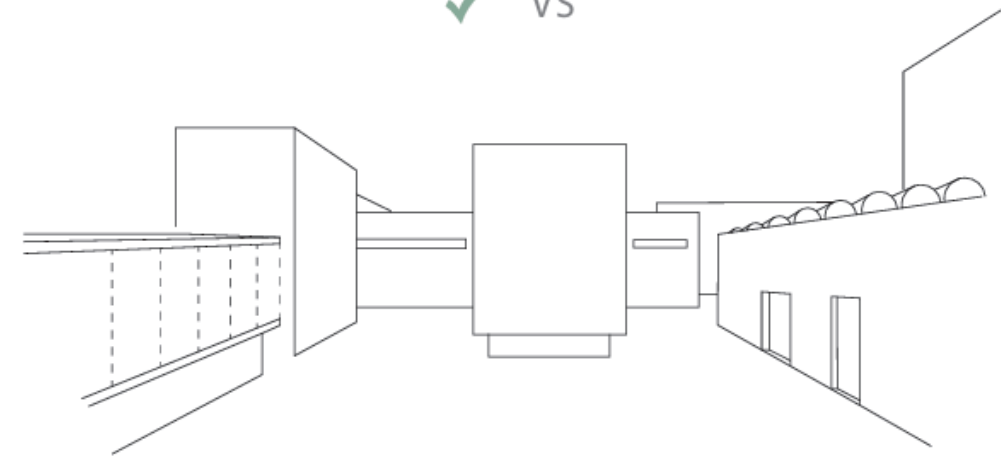
P5 Site



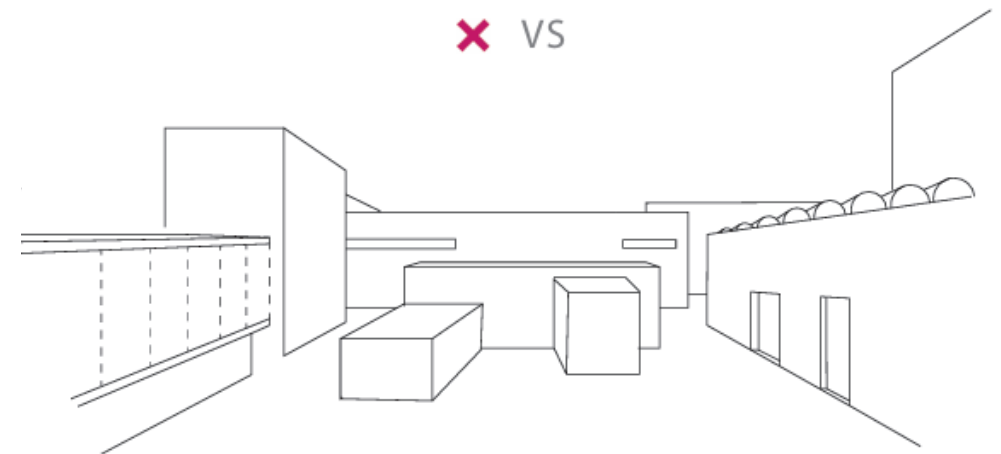
P5 Site



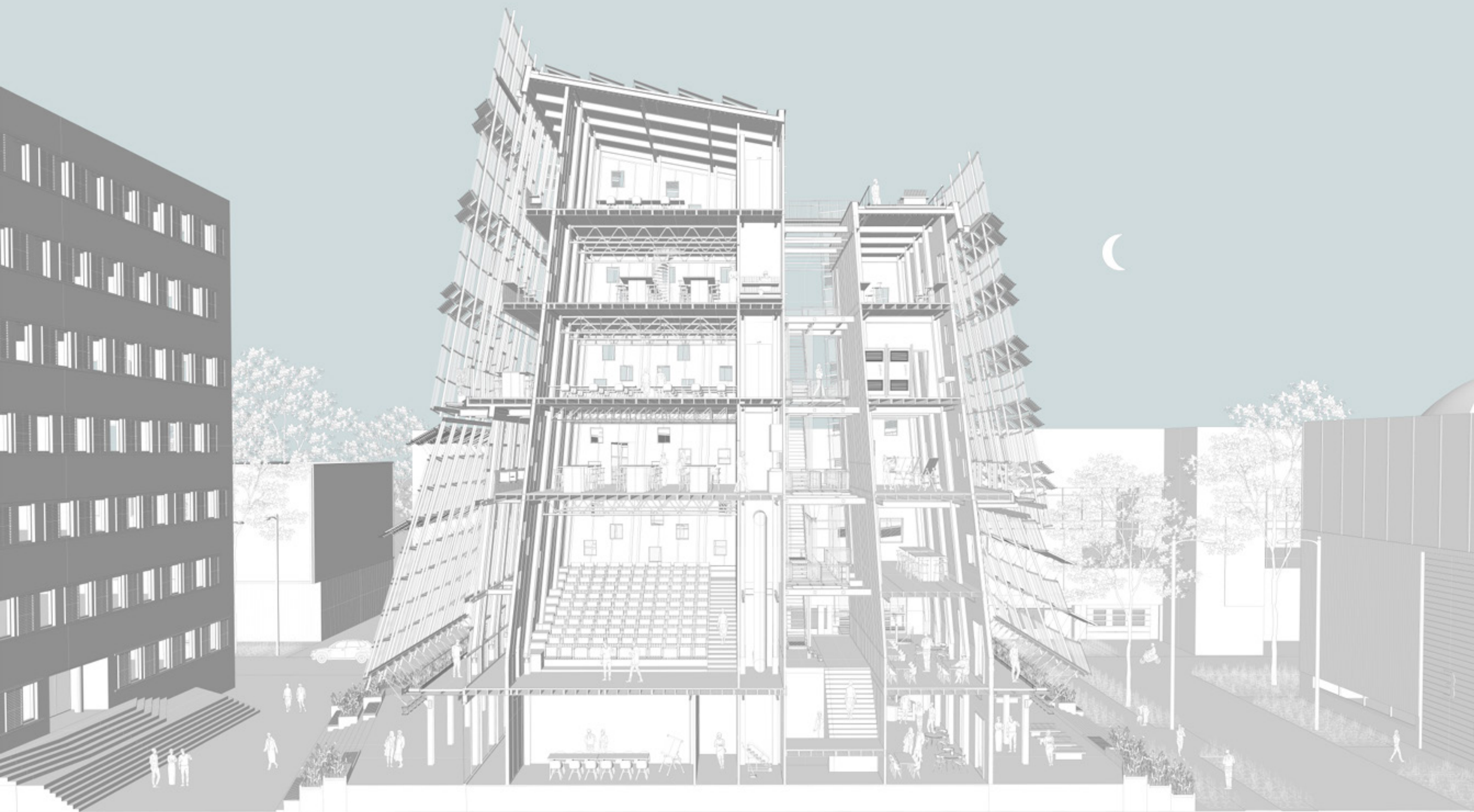
✓ VS



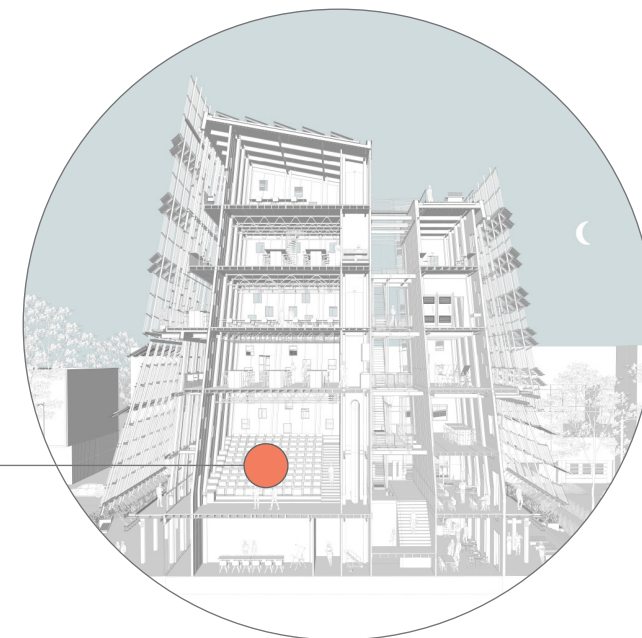
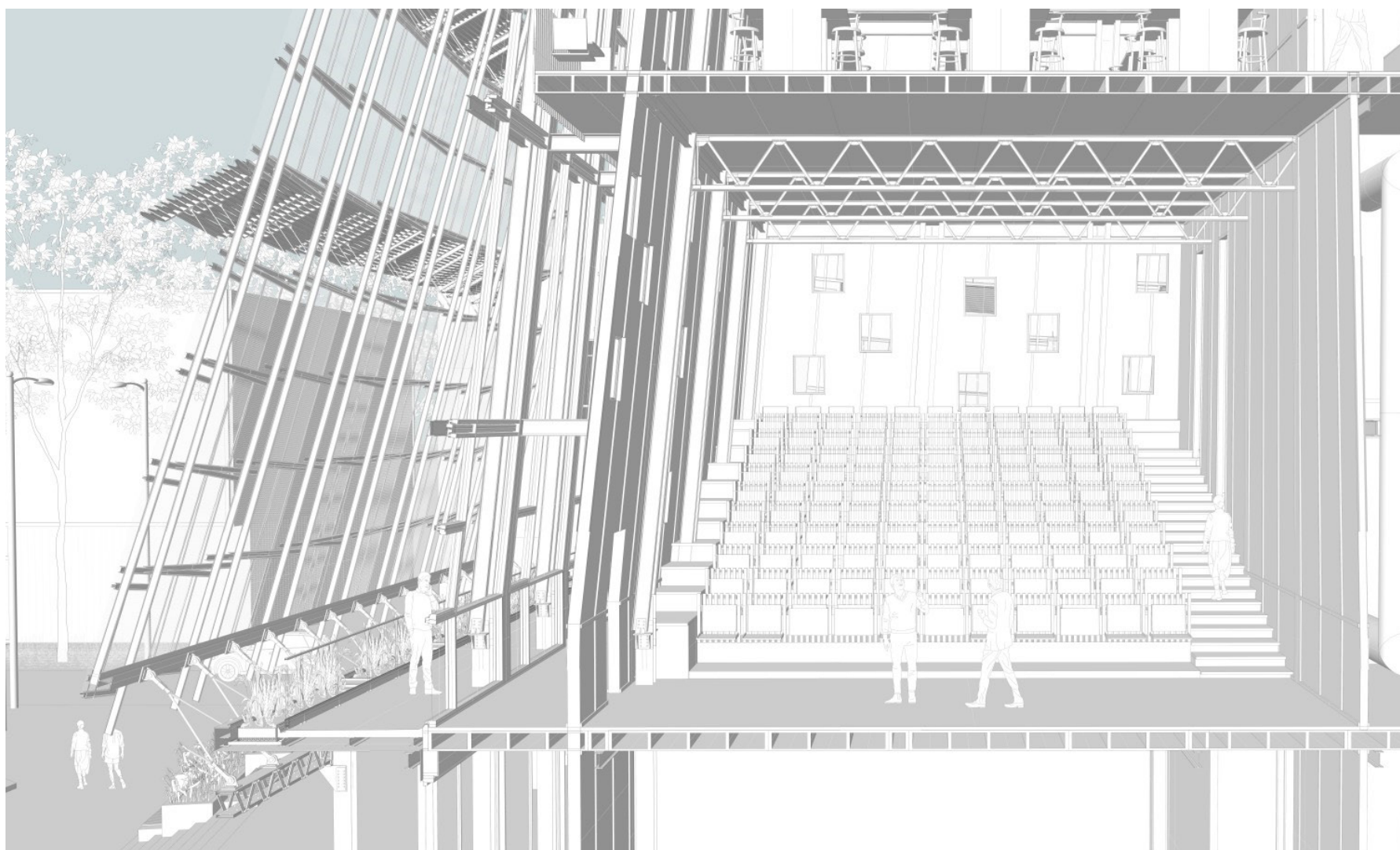
✗ VS



P5 Program



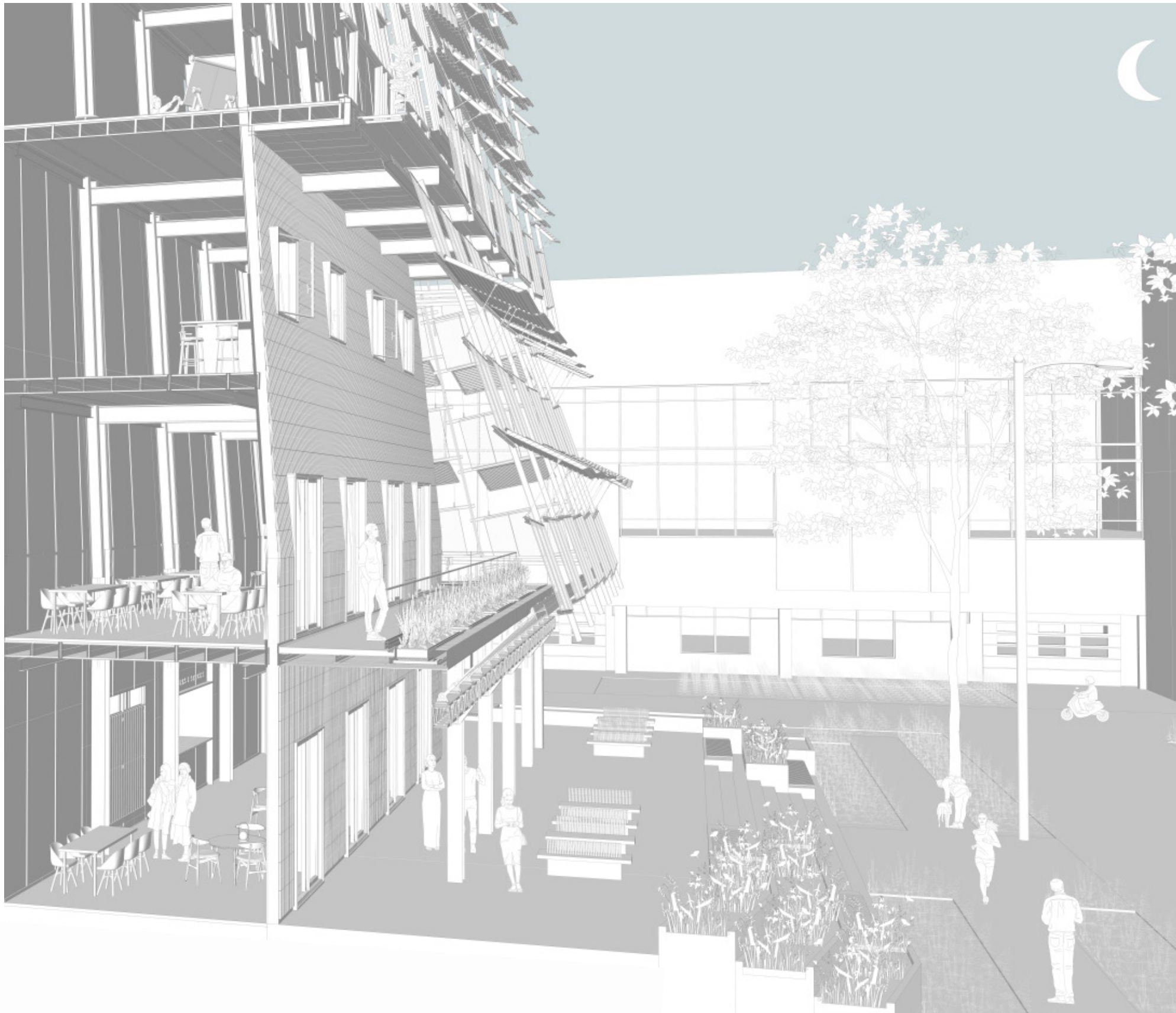
P5 Program



P5 Program



P5 Program



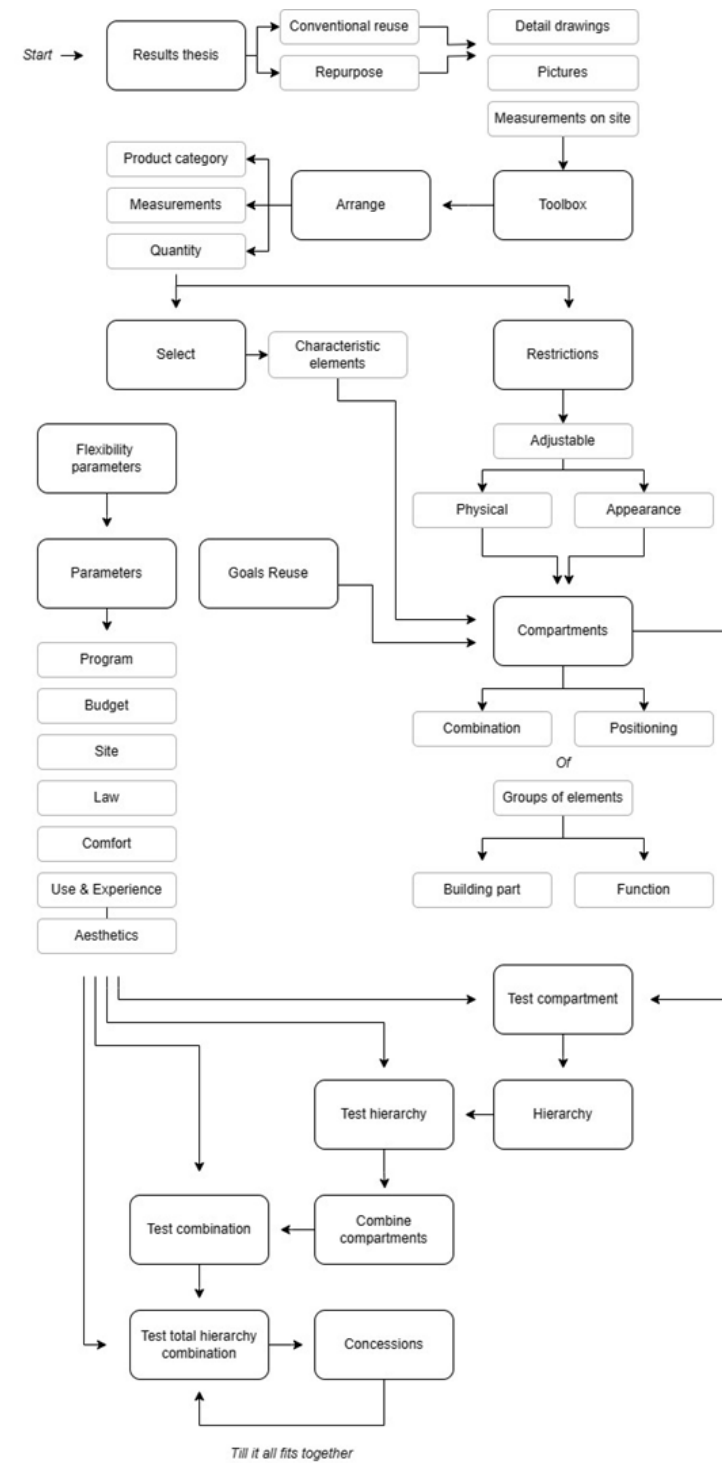
P5 Goals

The building distinguishes itself from other campus structures; it conveys that this is a space for relaxation

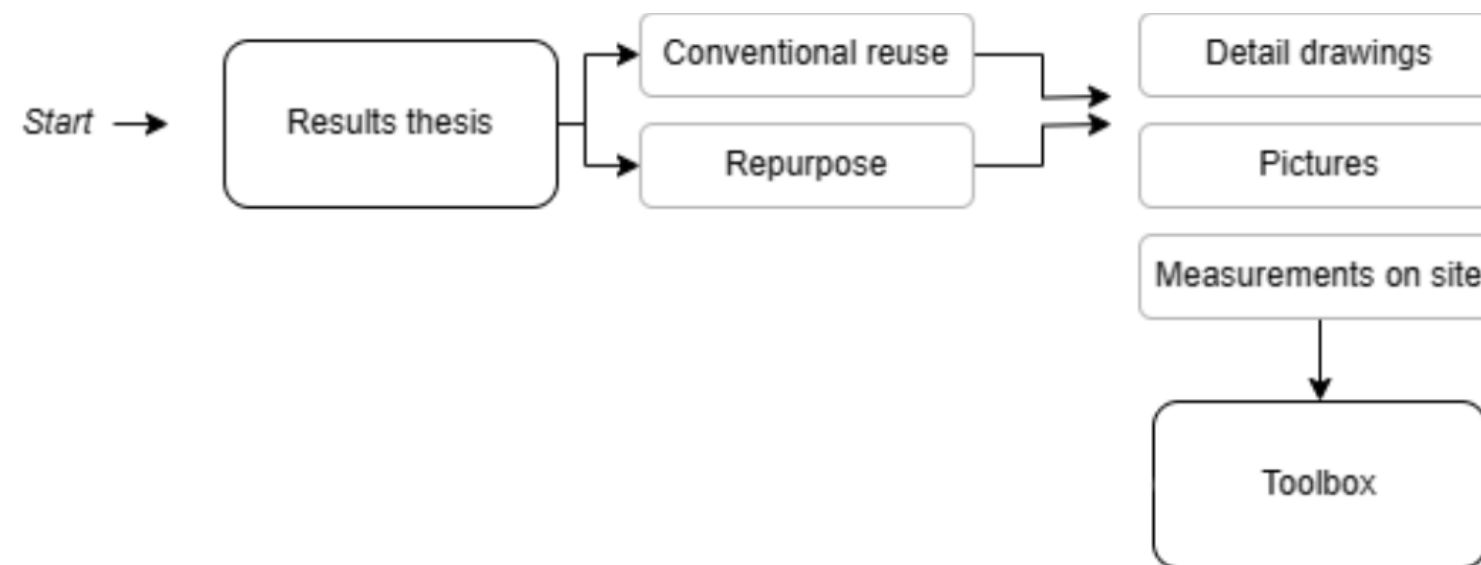
The building has an expressive appearance and showcases reuse

In addition to the reused elements, the goal is to incorporate as many sustainable elements as possible

P5 Design process

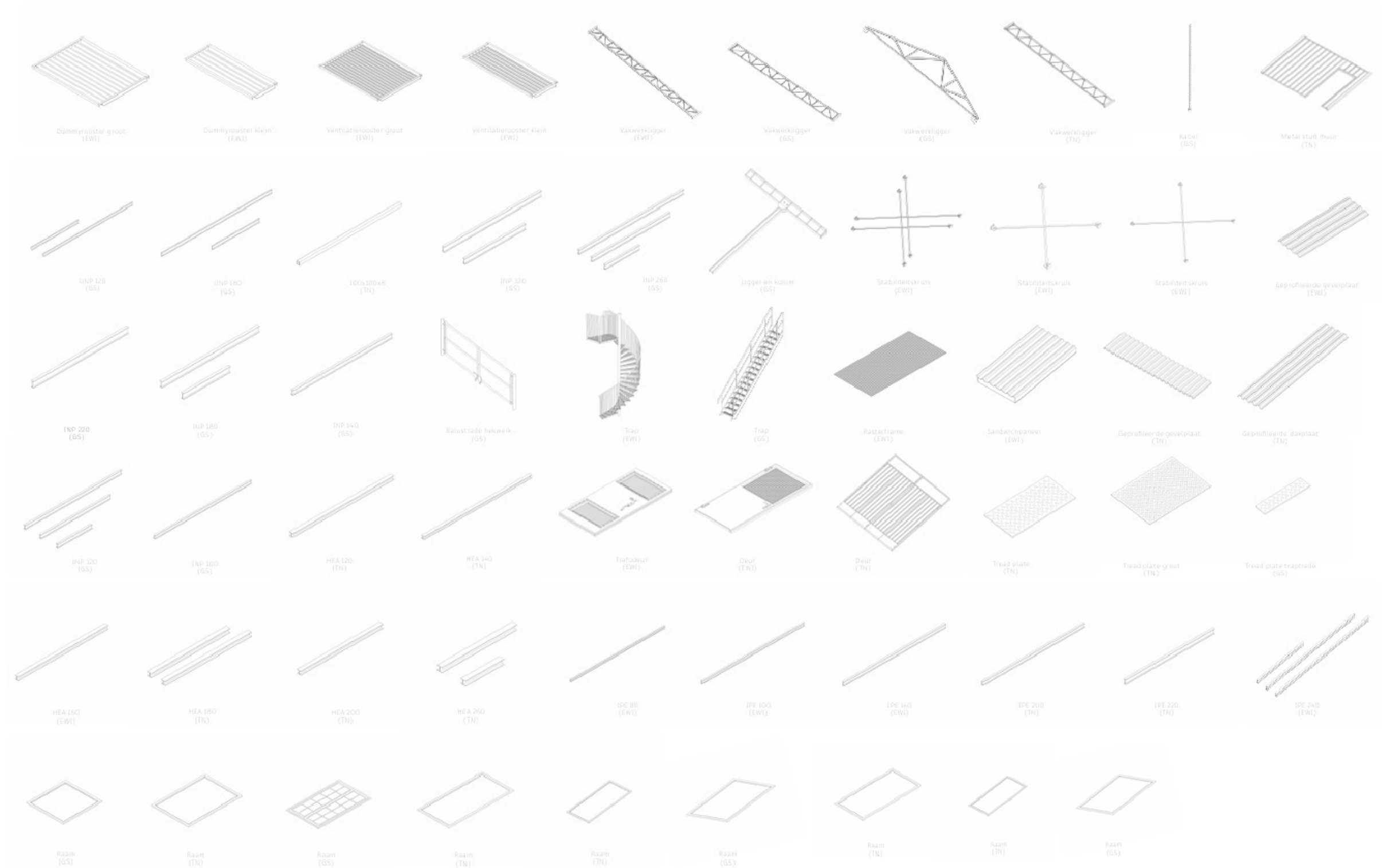


P5 Design process

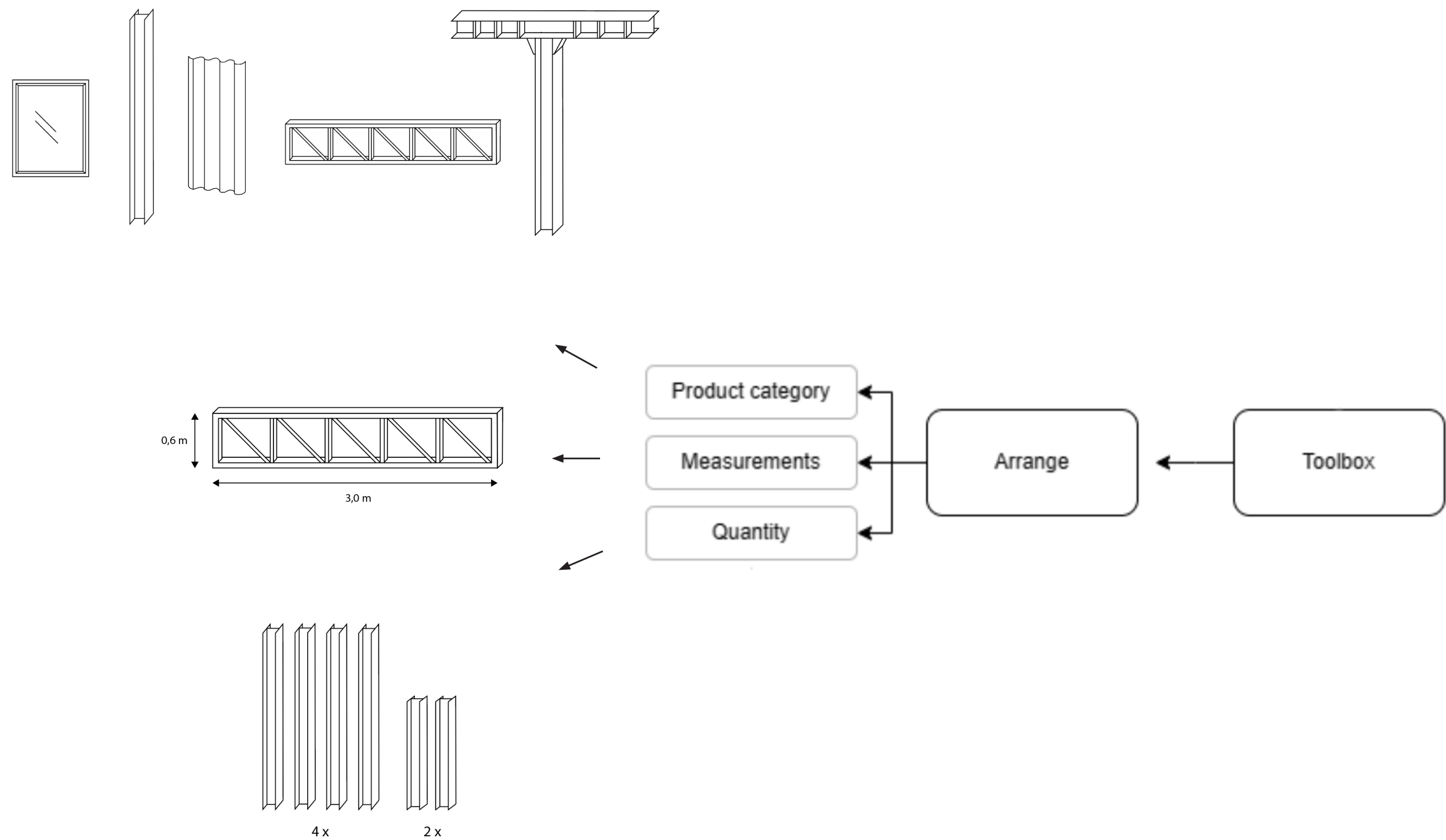


P5 Design process

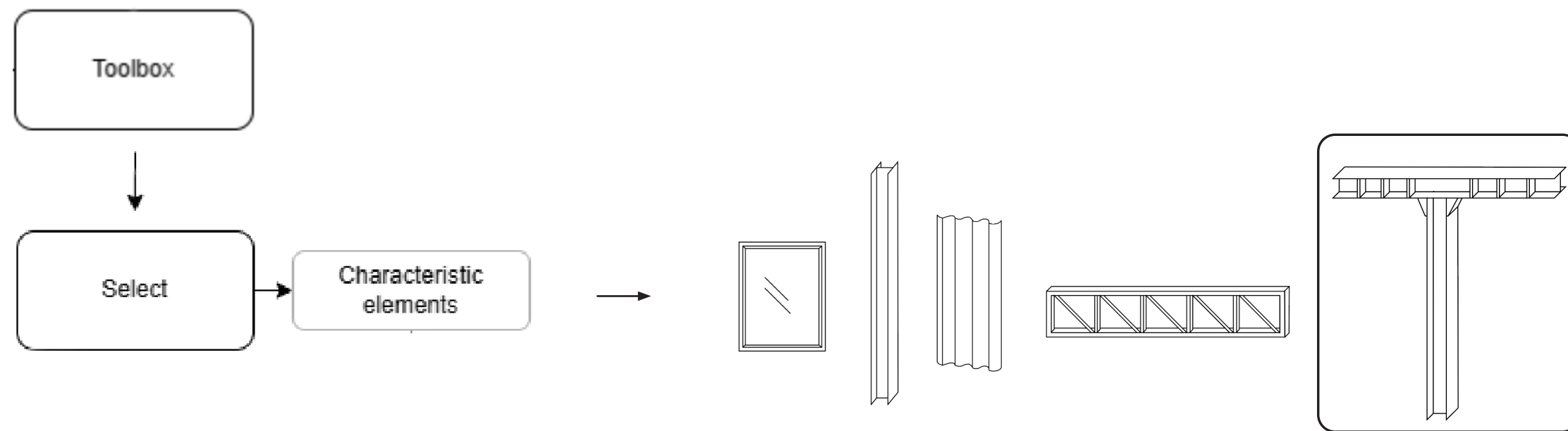
Toolbox



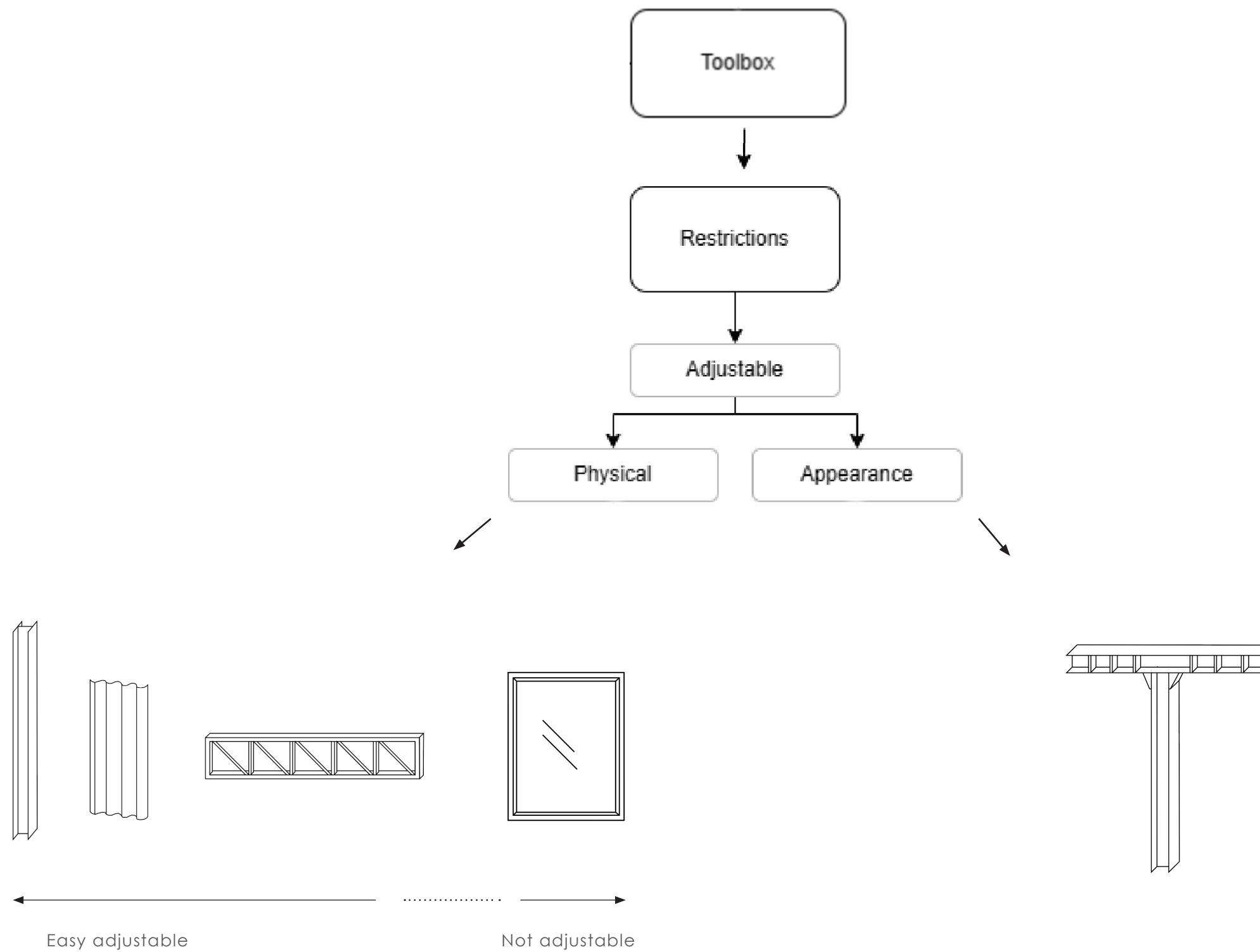
P5 Design process



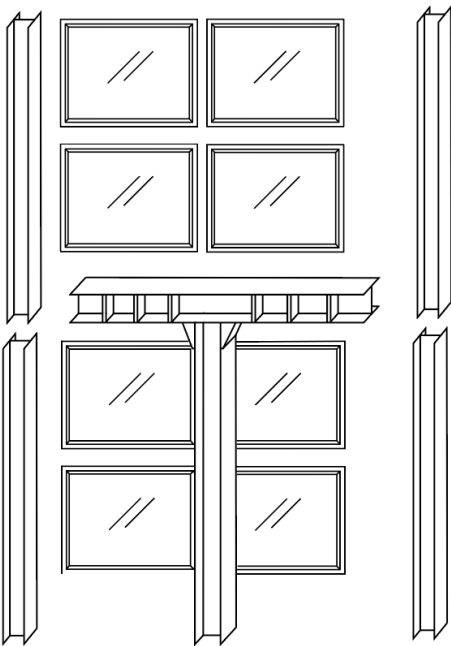
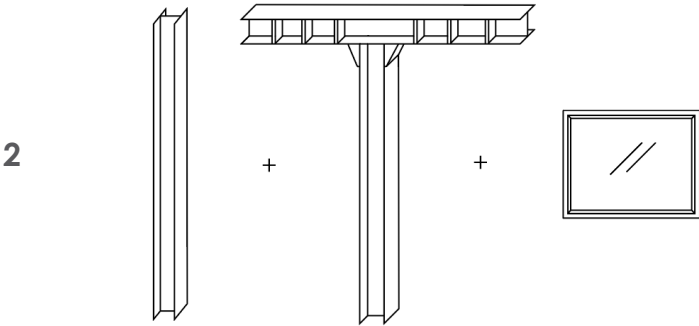
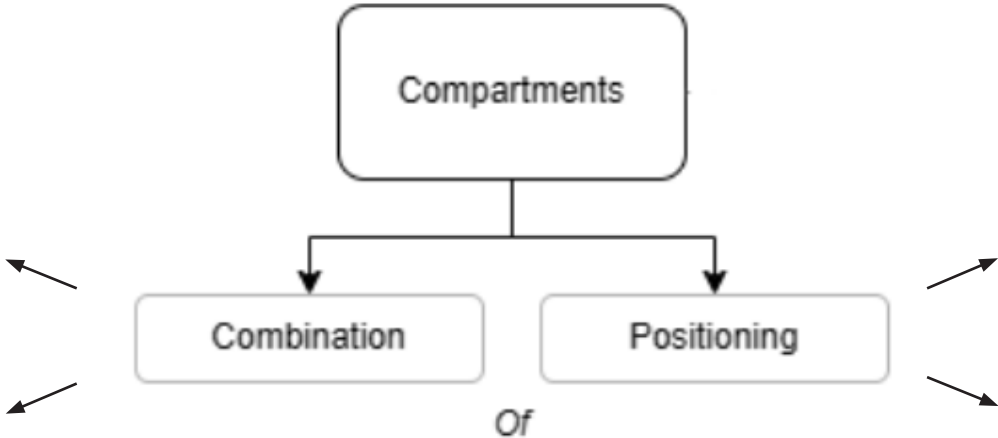
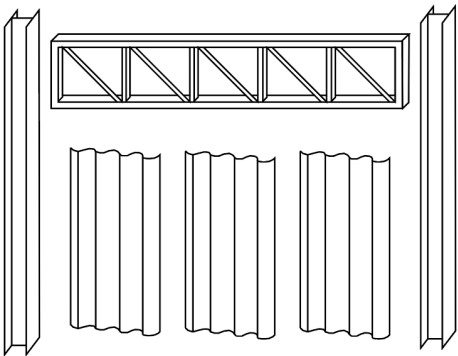
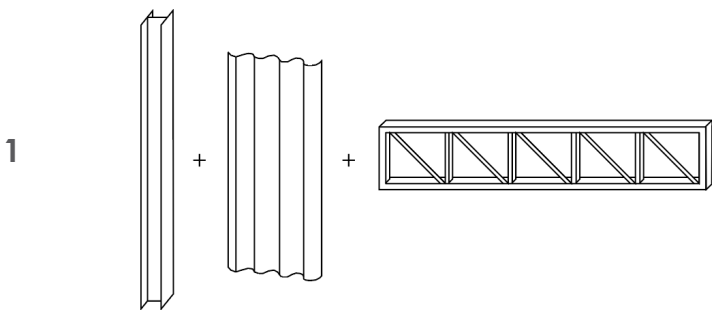
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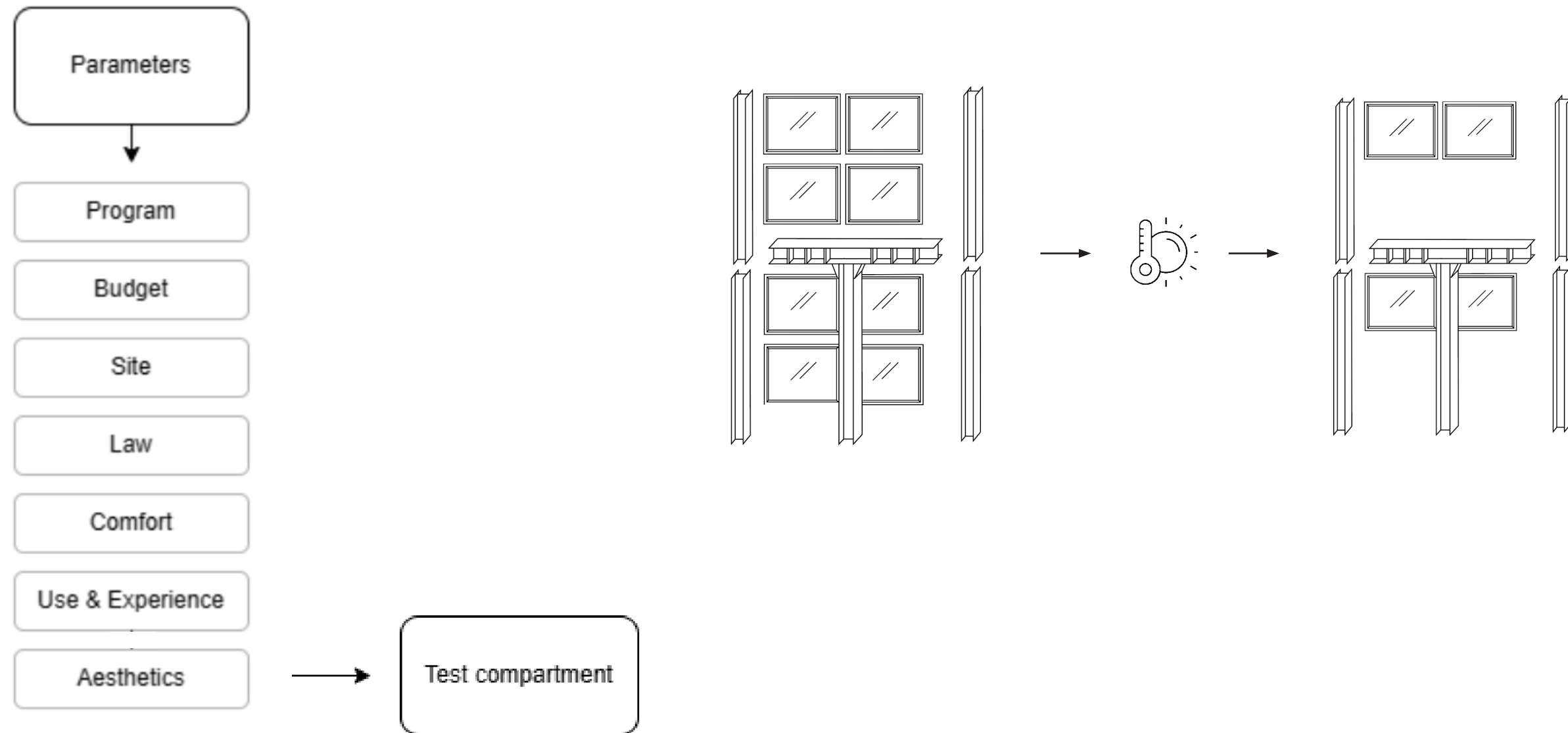
P5 Design process



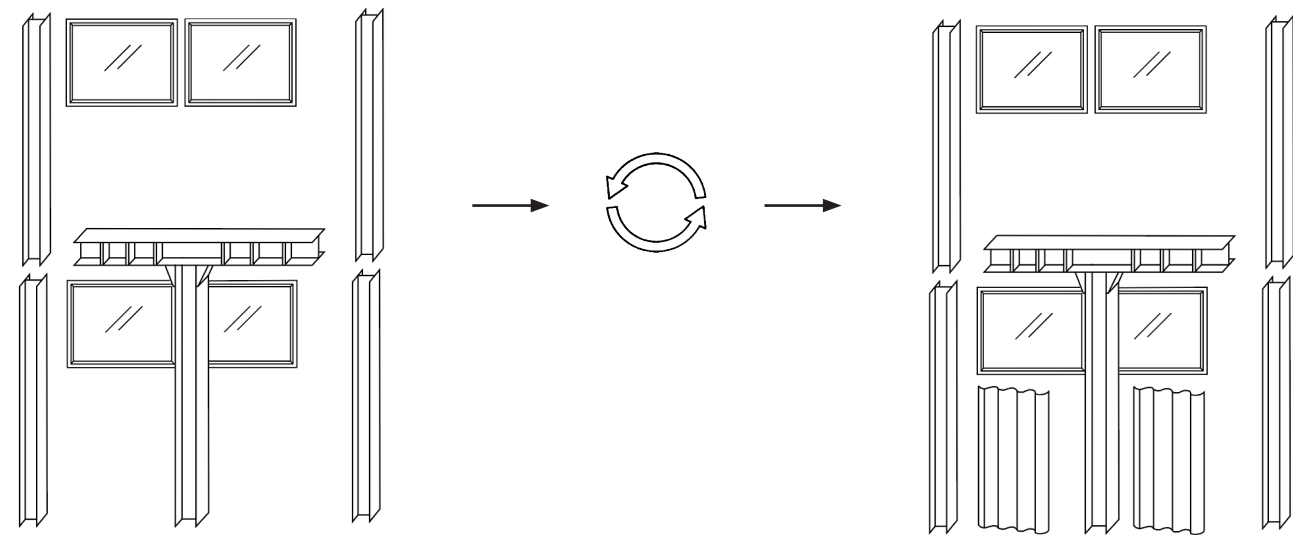
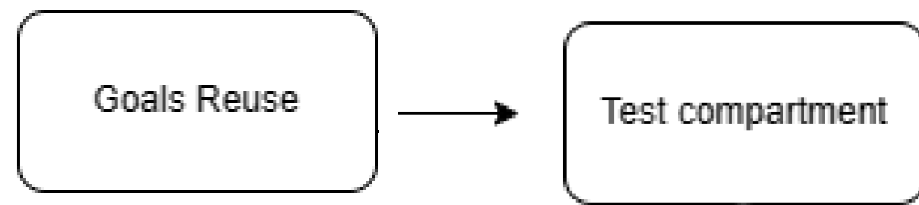
P5 Design process



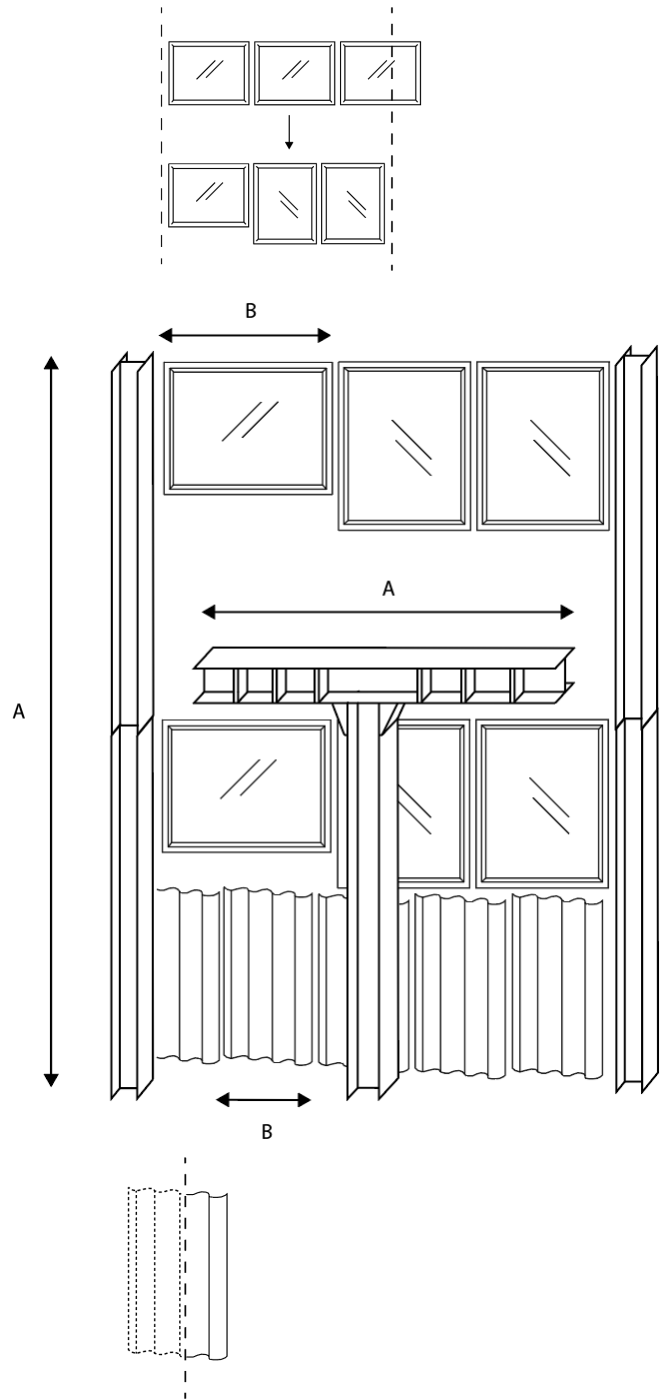
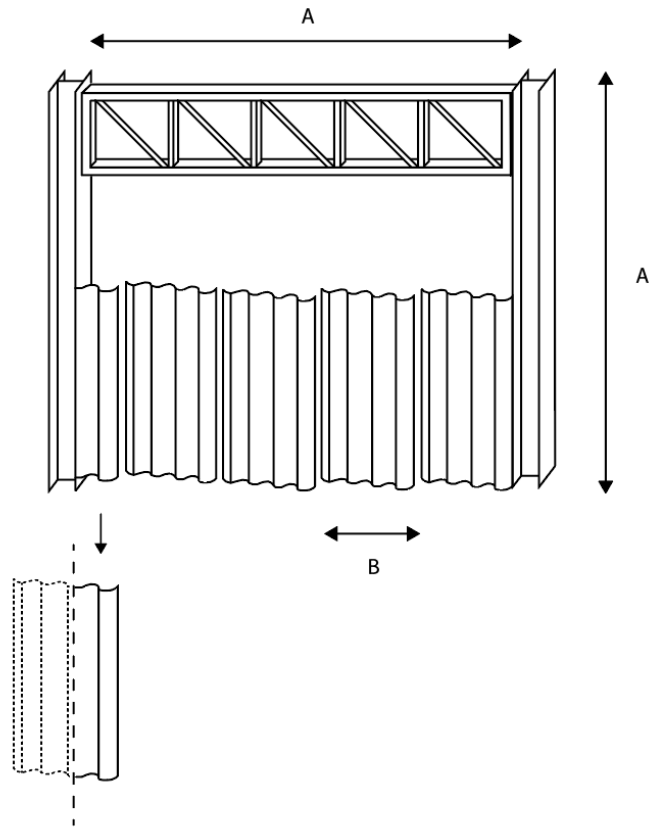
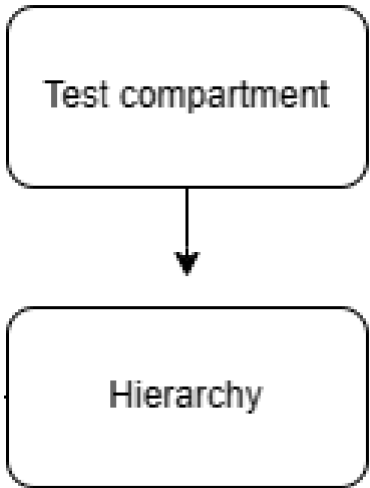
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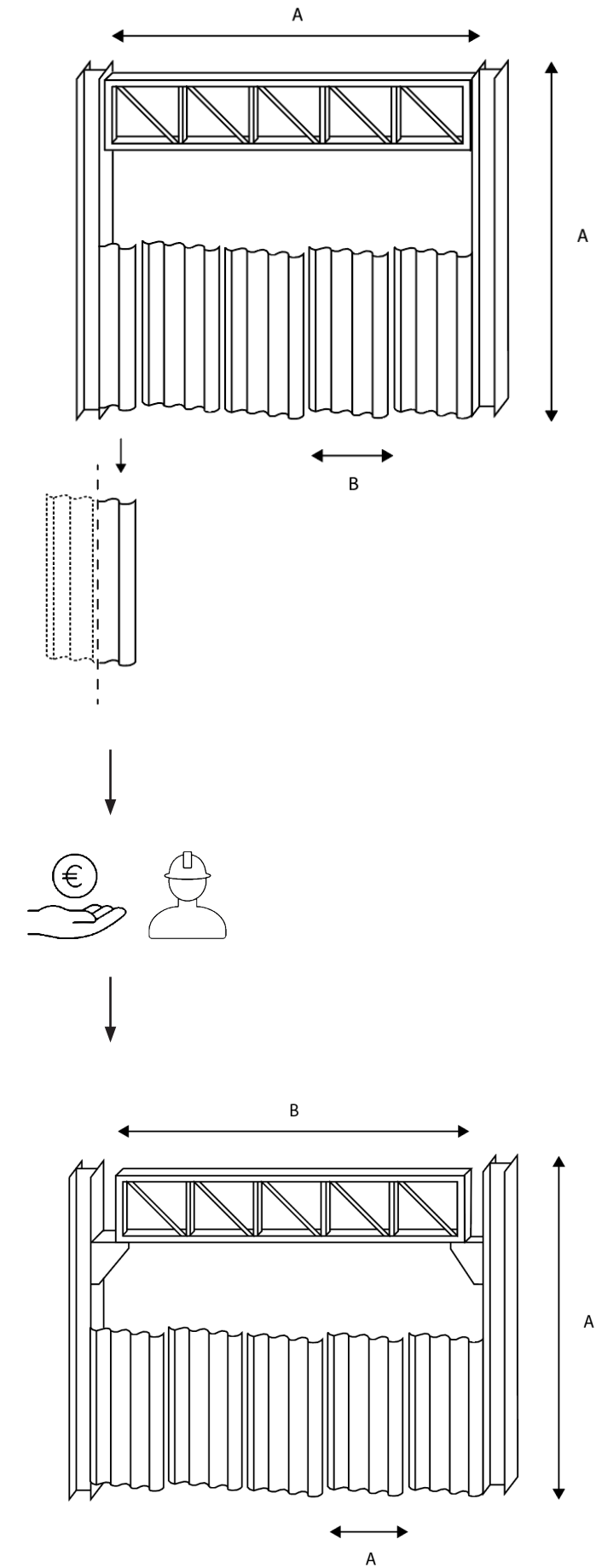
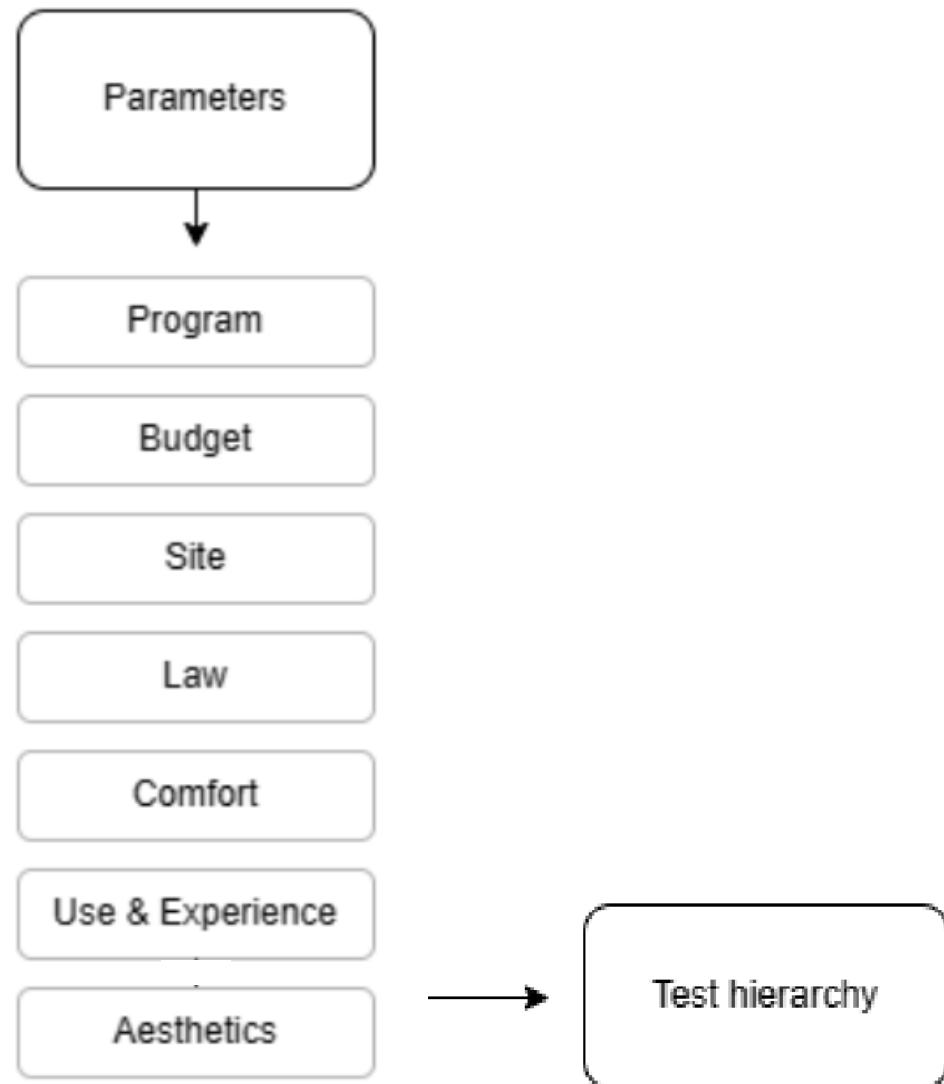
P5 Design process



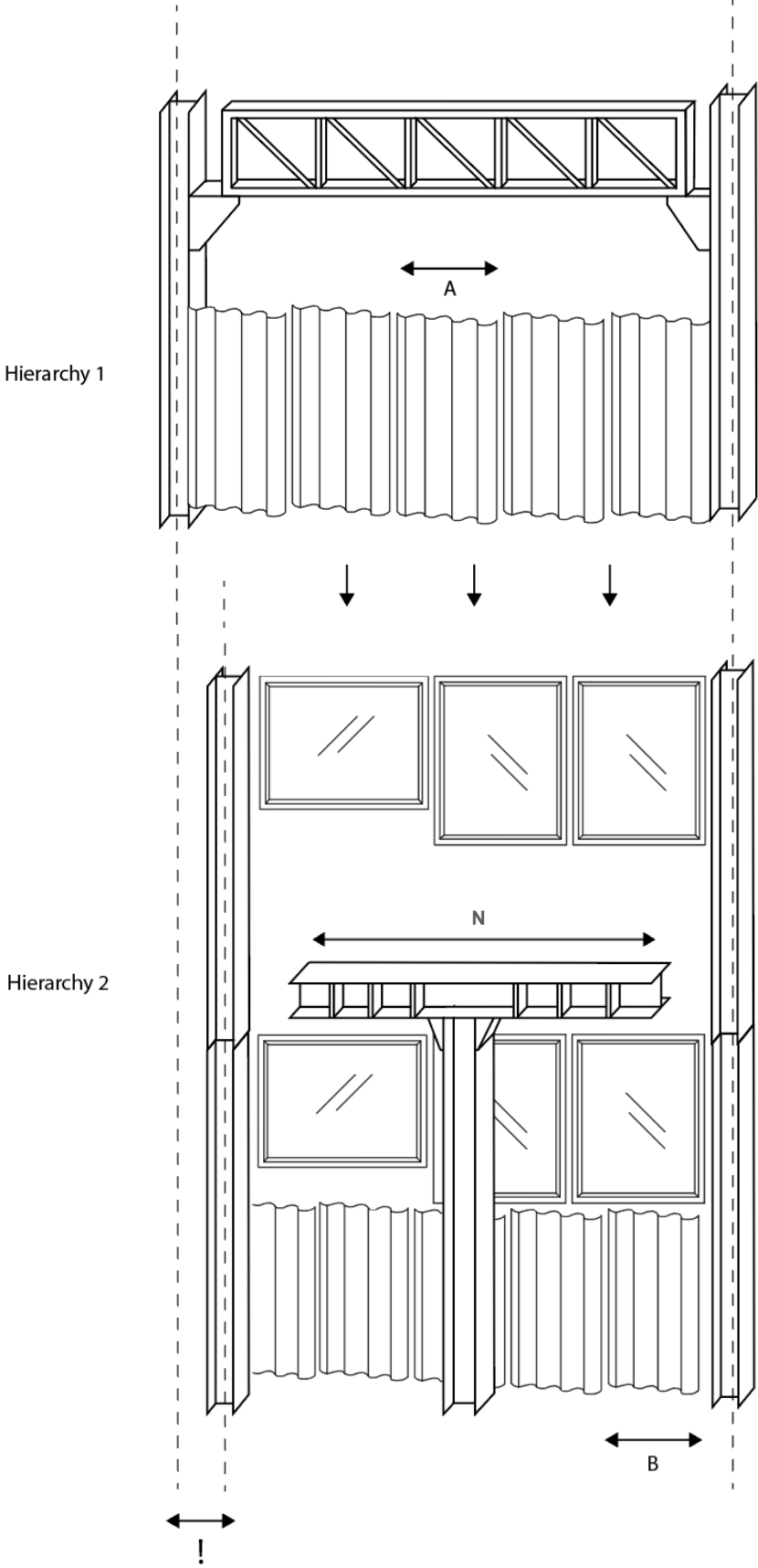
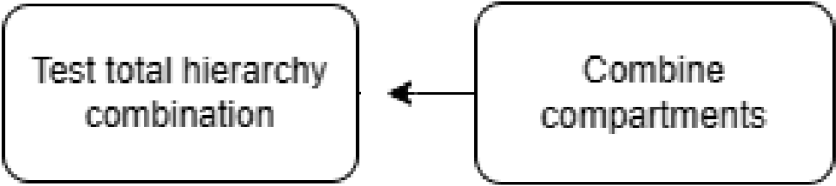
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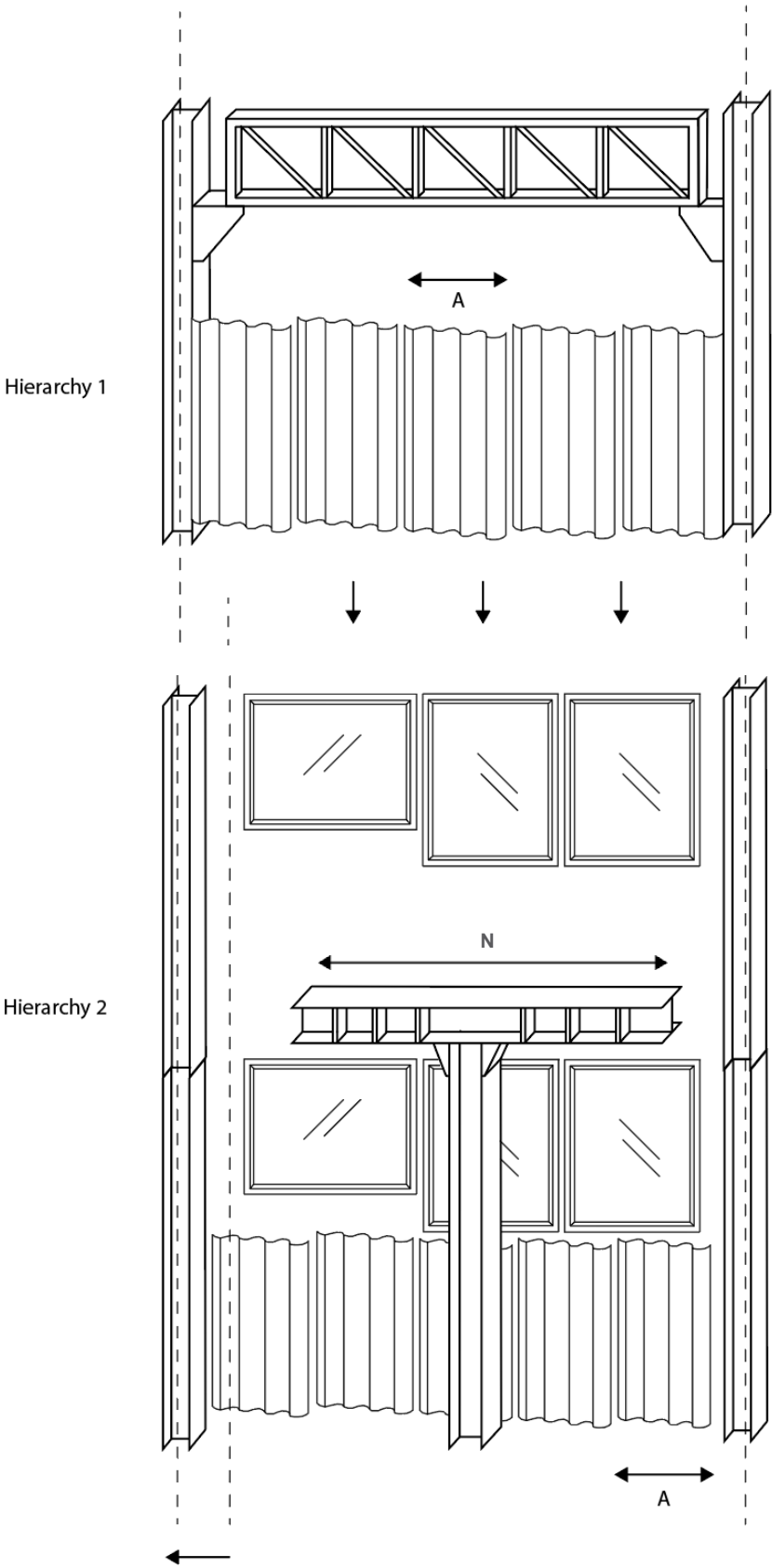
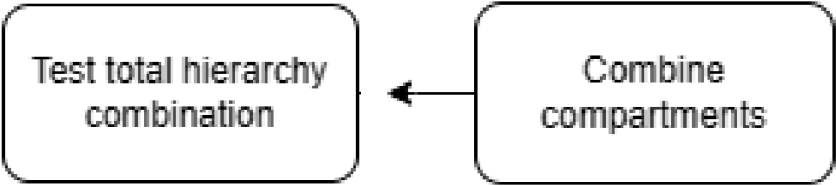
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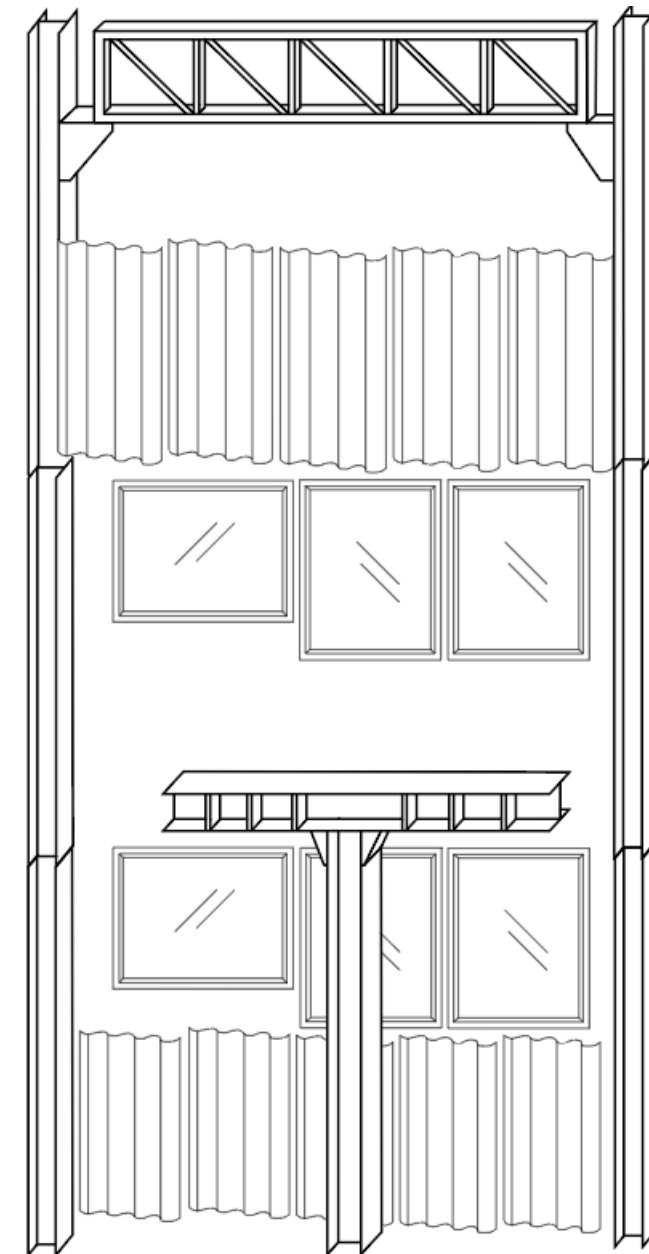
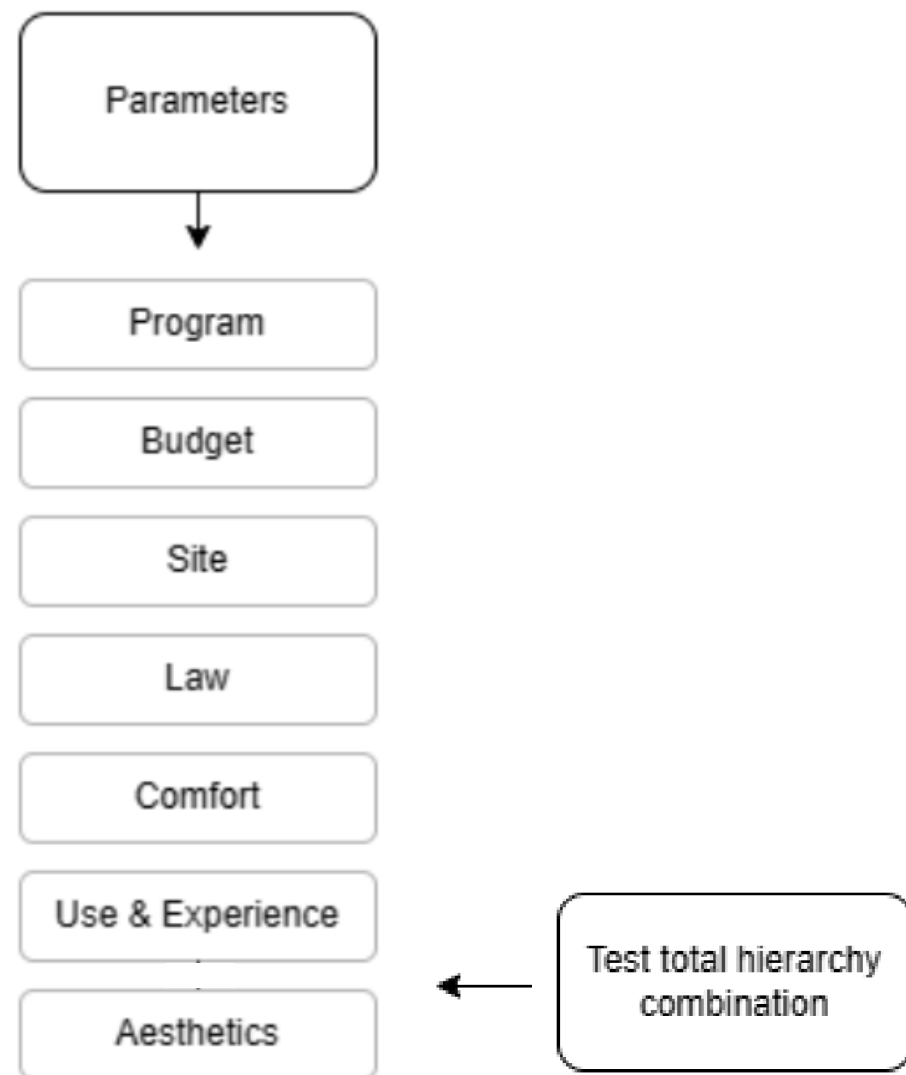
P5 Design process



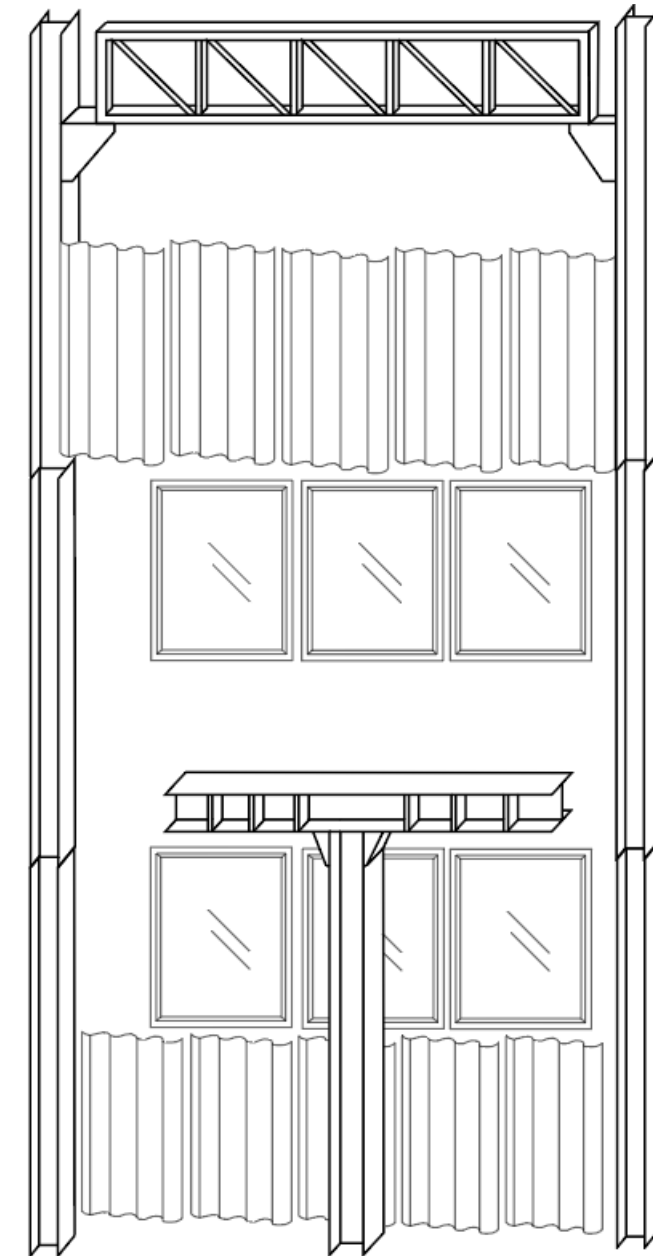
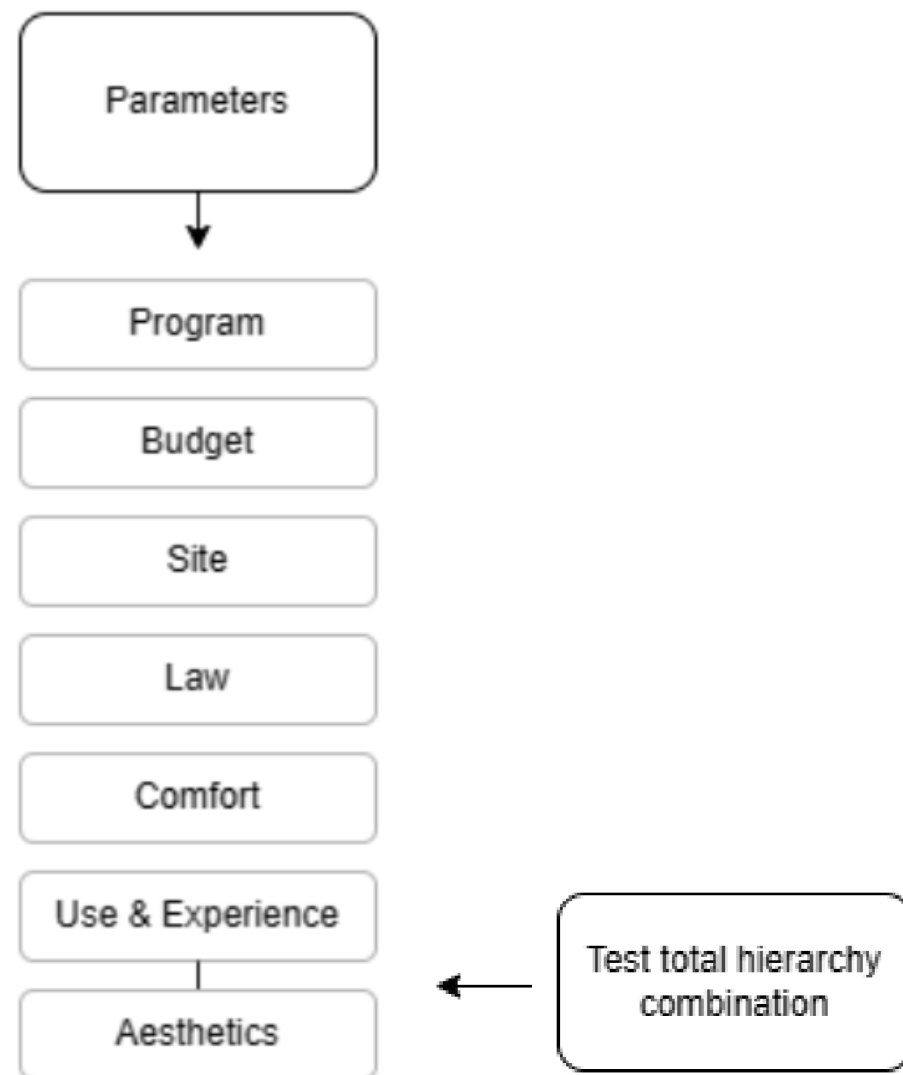
P5 Design process



P5 Design process



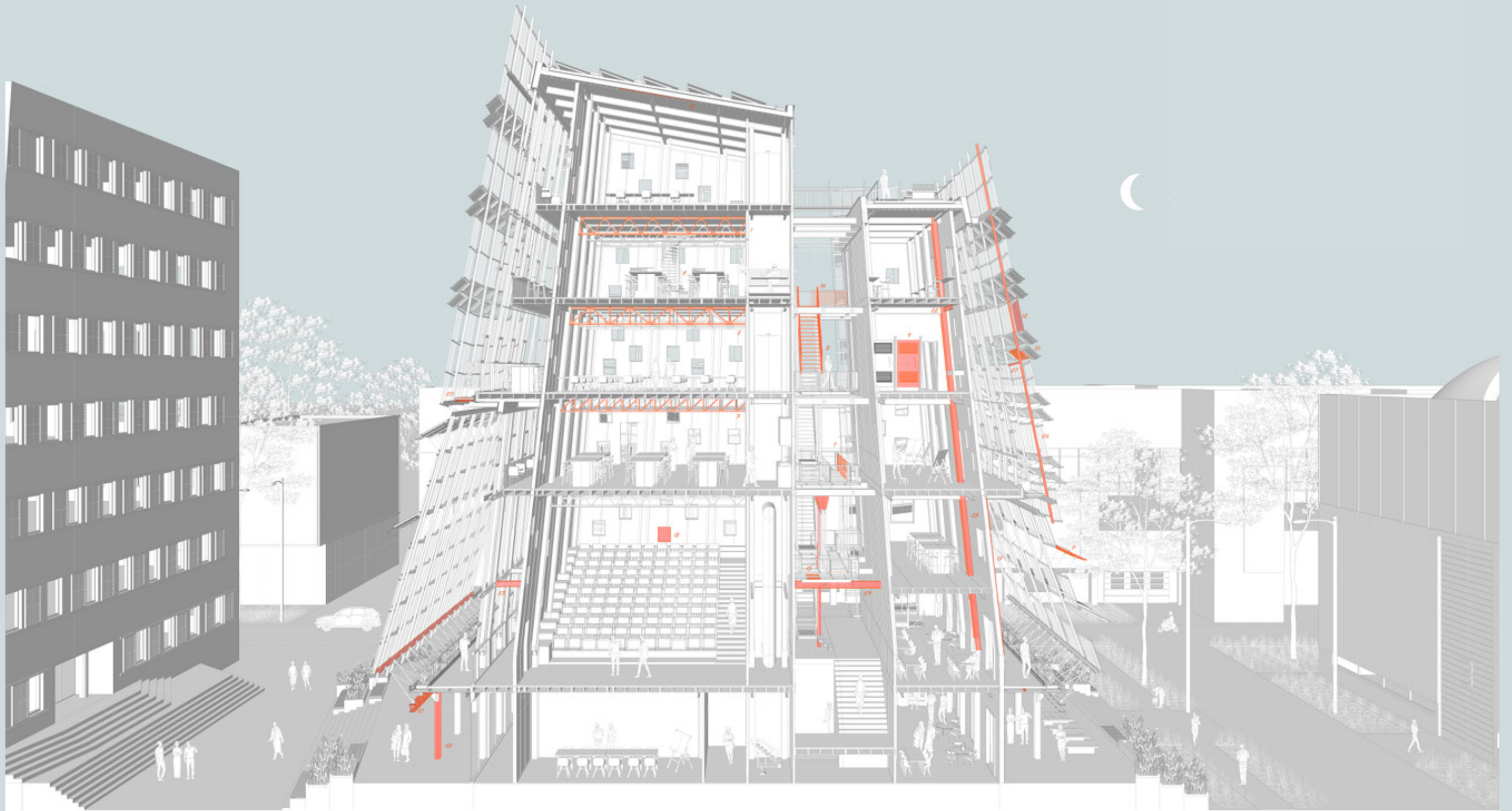
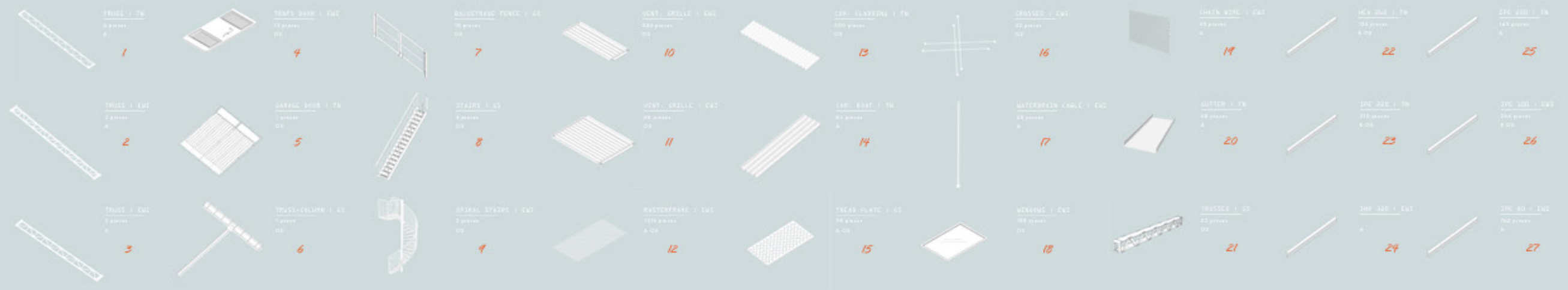
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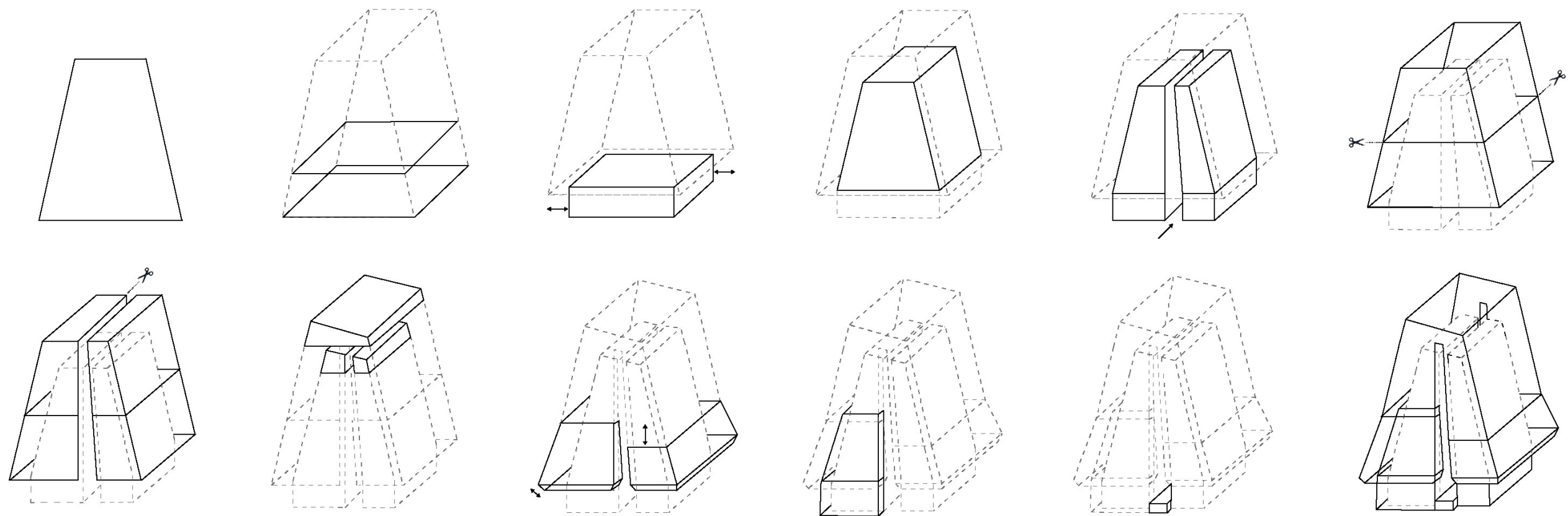
P5 Material passport

INNER WALLS	76% CLT + 24% reused steel windows
FLOORS	Kerto Ripa hollow core slab
BALCONIES	Prefab concrete (reusable)
CONSTRUCTION	80 % Reused steel elements
OUTER FACADE	92 % Reused steel elements
INNER FACADE	HR ++ Glass
CIRCULATION AREA	72 % Reused steel elements

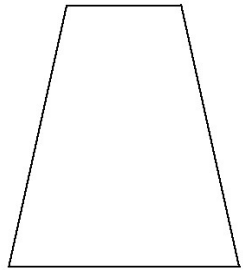
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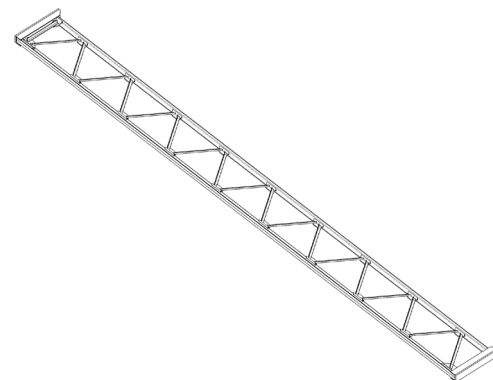
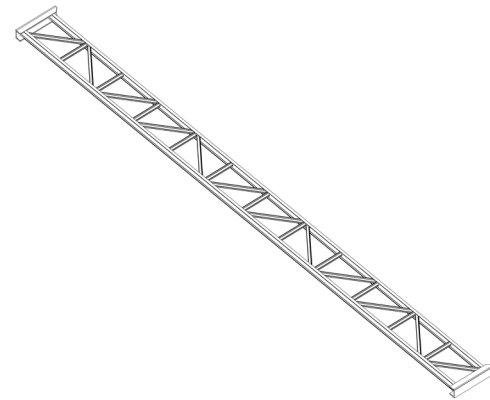
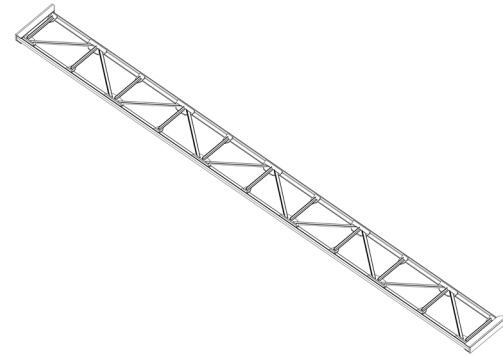
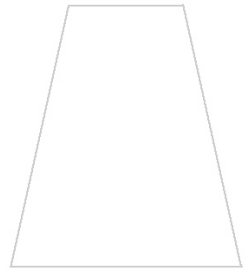
P5 Thoughts behind the shape of the building



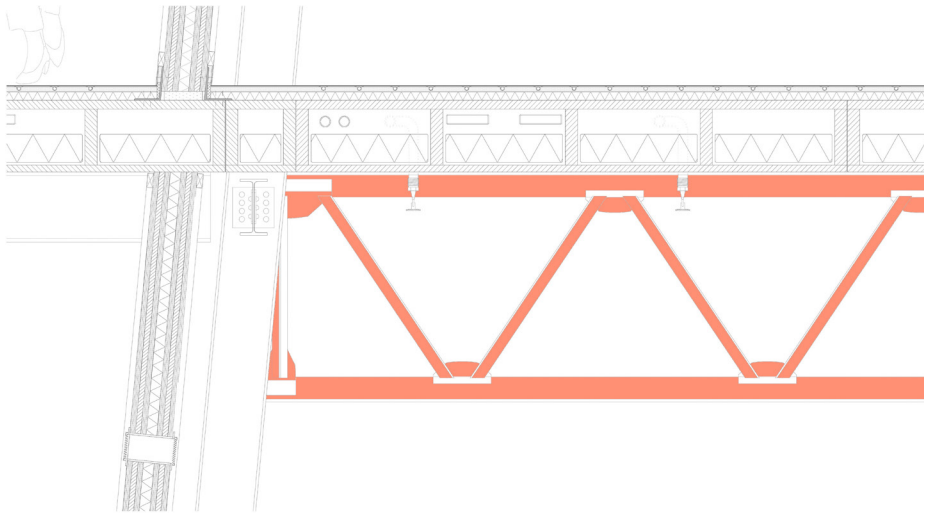
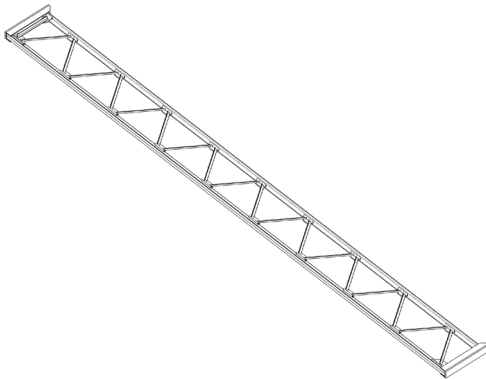
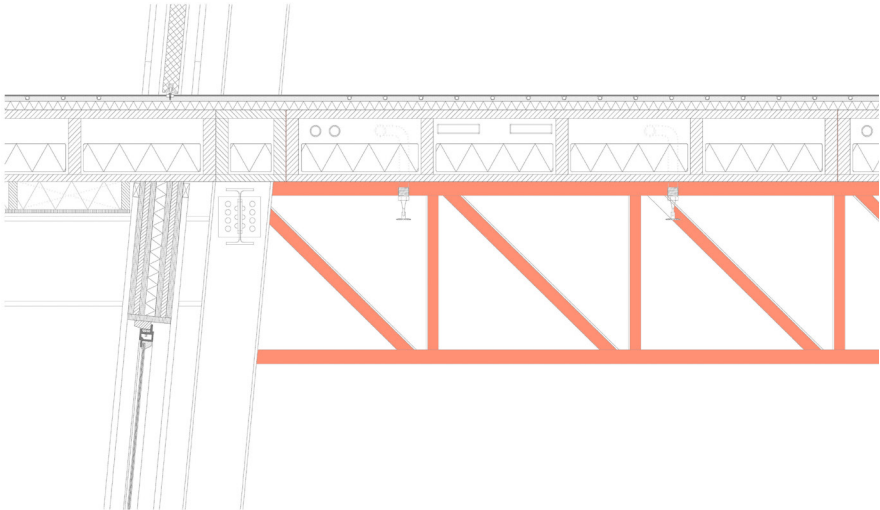
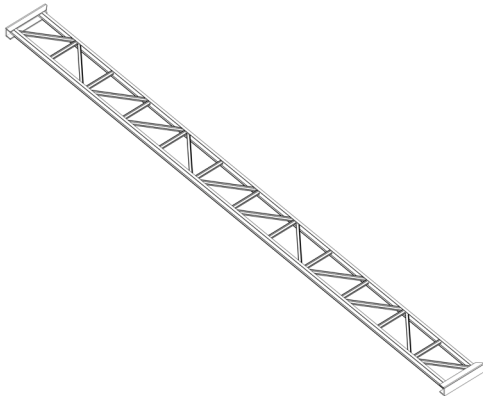
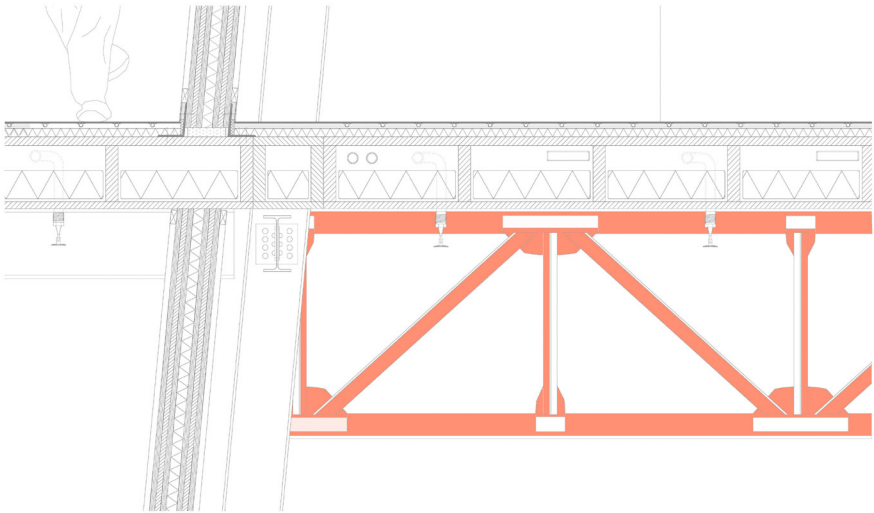
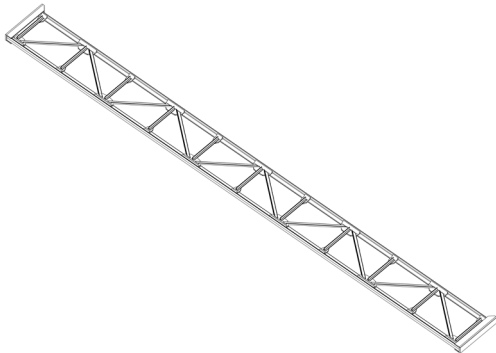
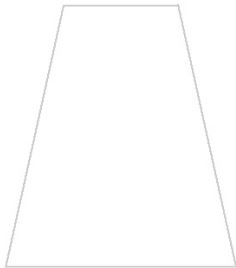
P5 Shape



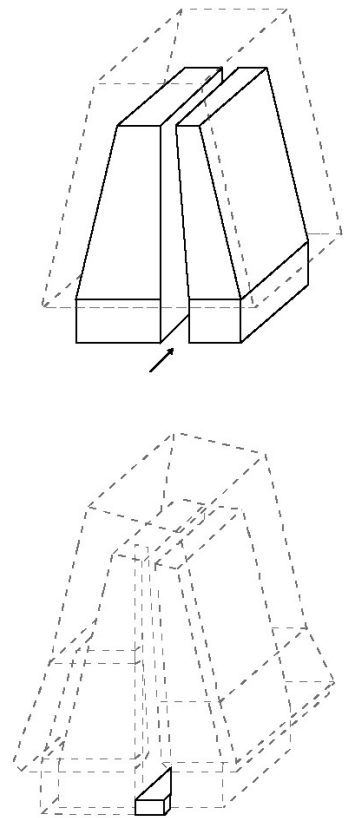
P5 Shape



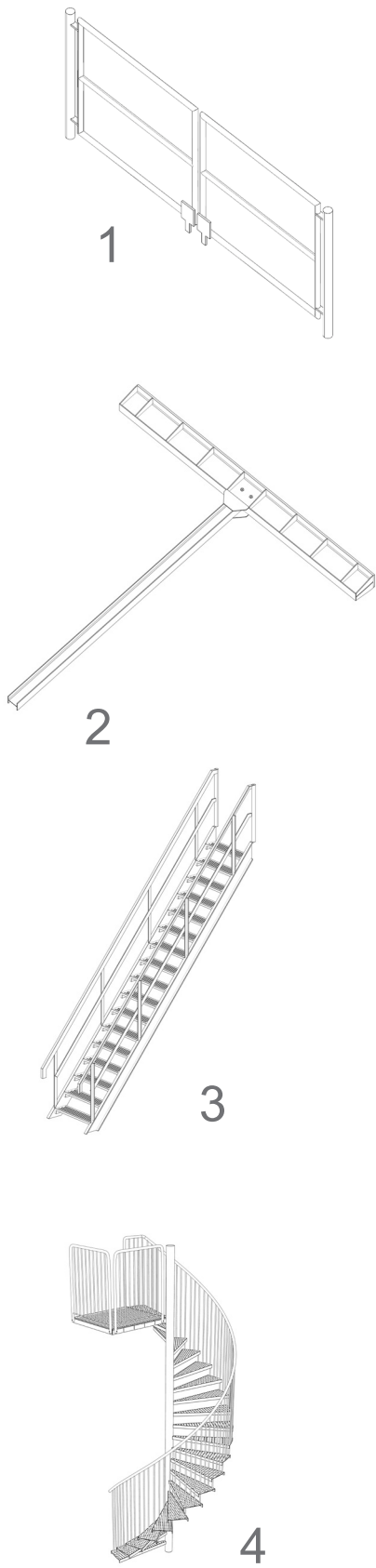
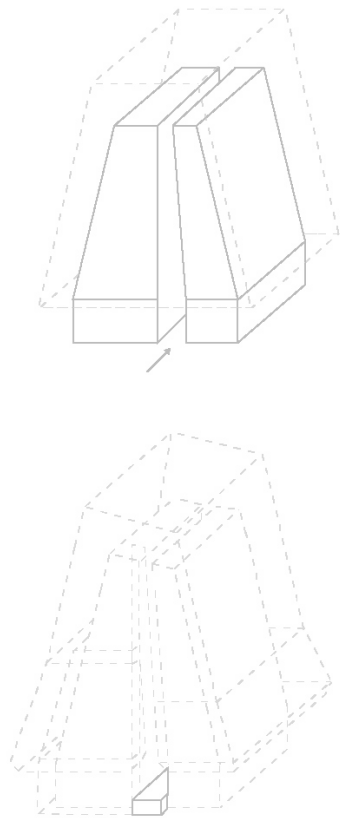
P5 Shape



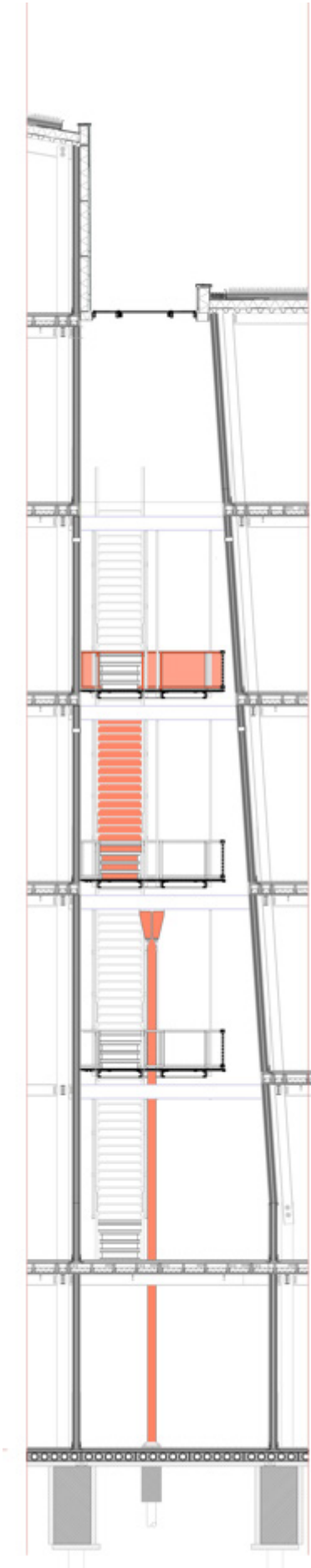
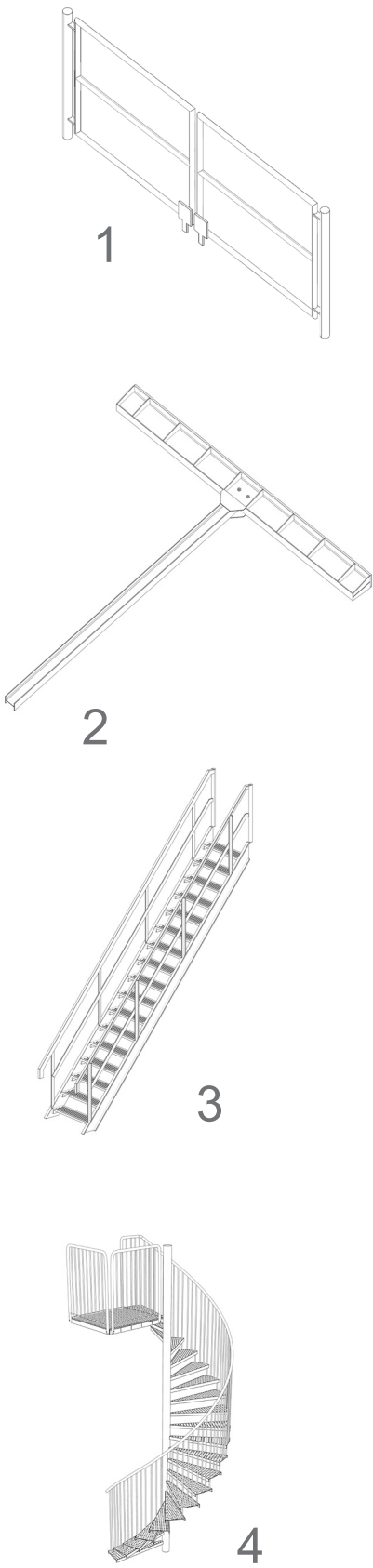
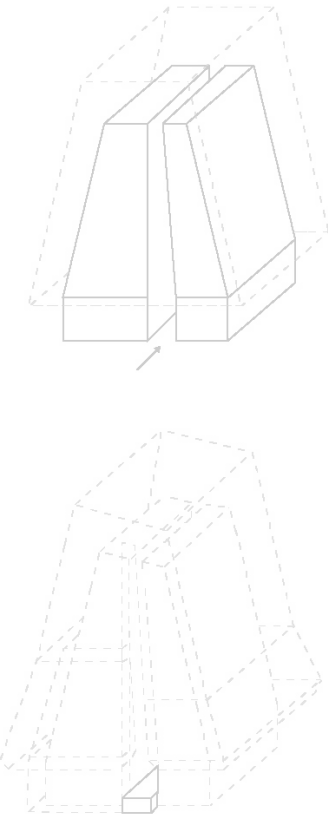
P5 Entrance



P5 Entrance



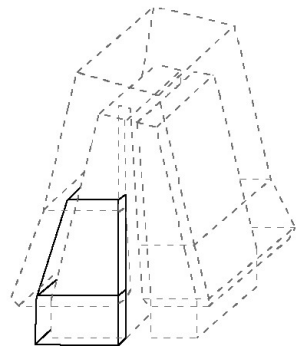
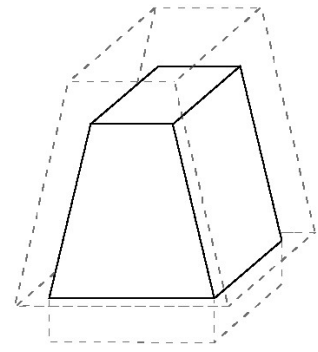
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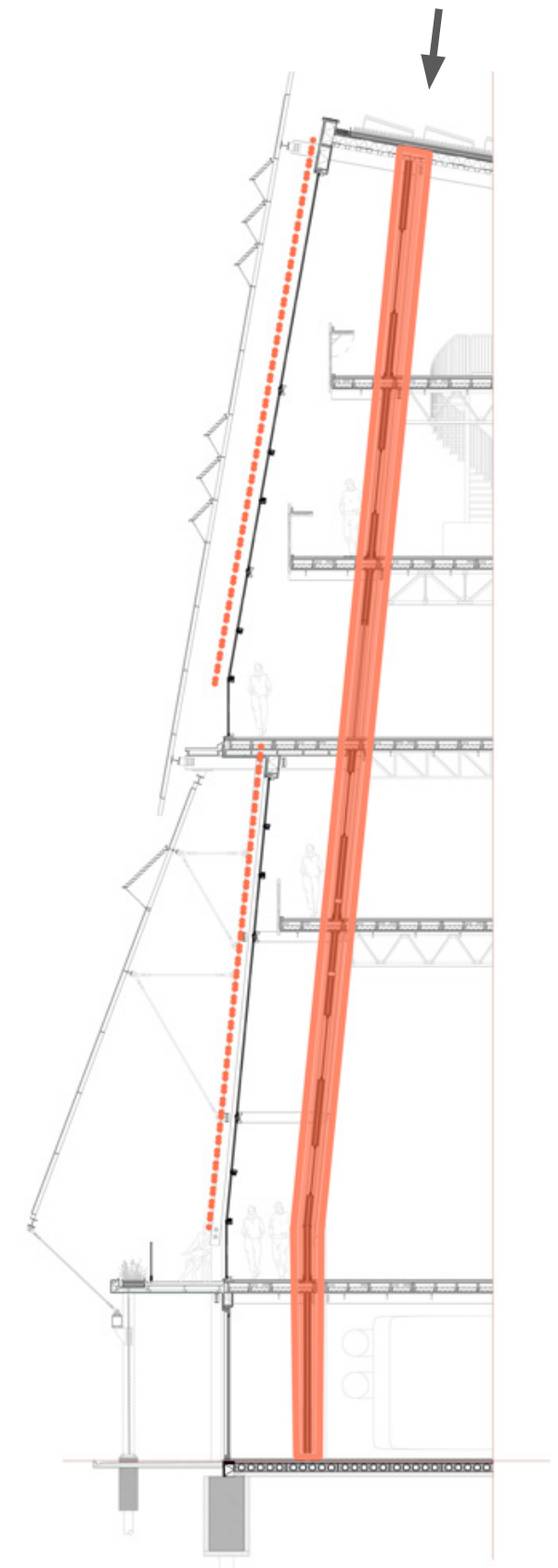
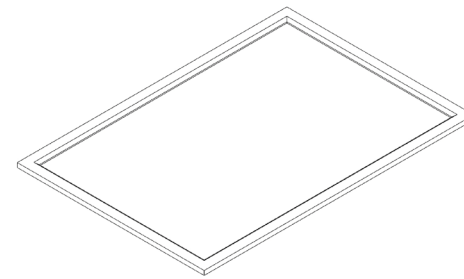
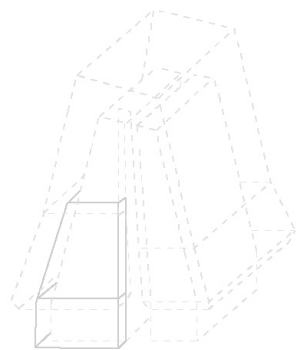
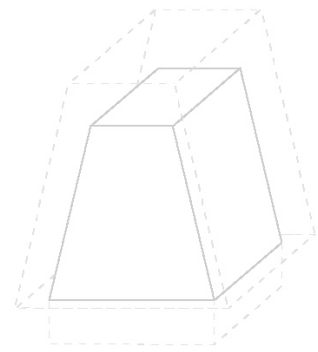
P5 Entrance



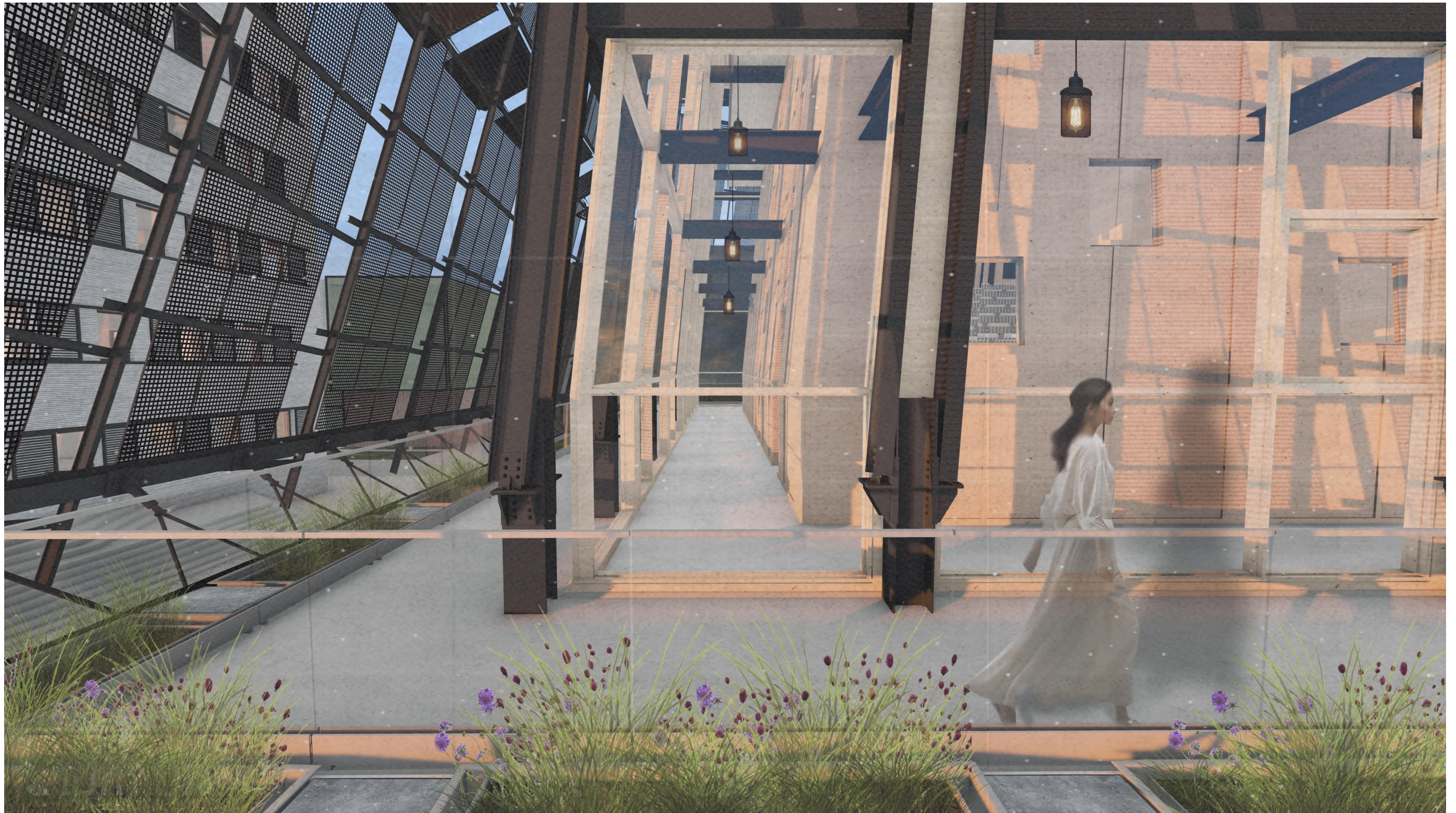
P5 Inner core



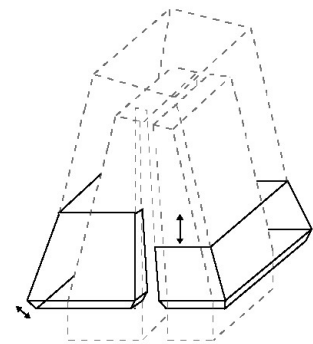
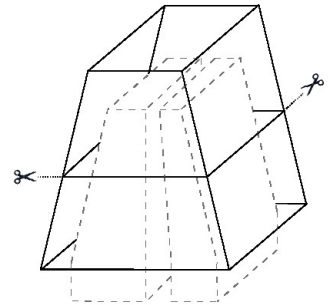
P5 Inner core



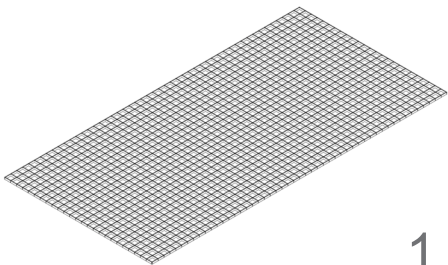
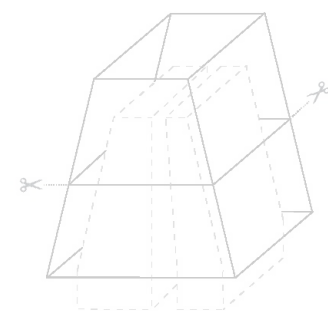
P5 Inner core



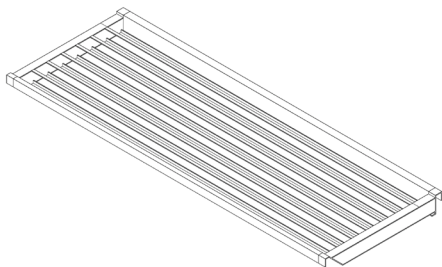
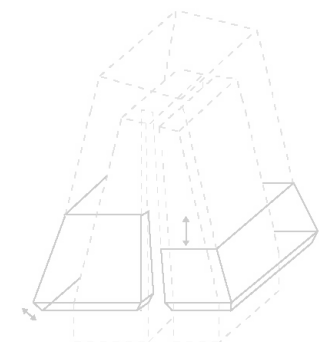
P5 Facade



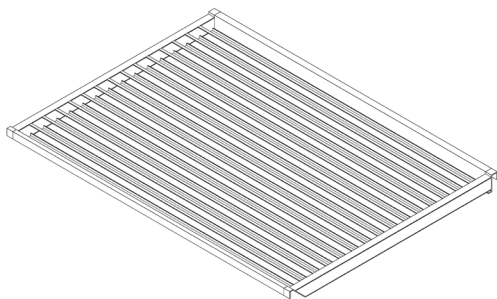
P5 Facade



1

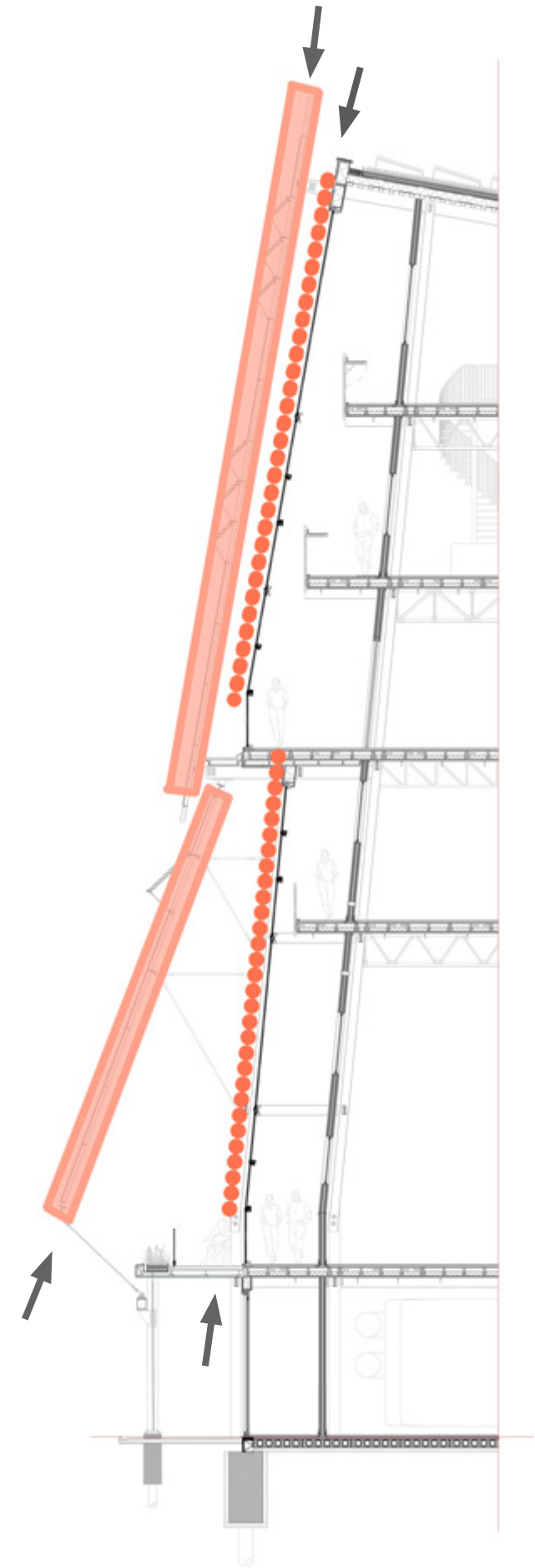
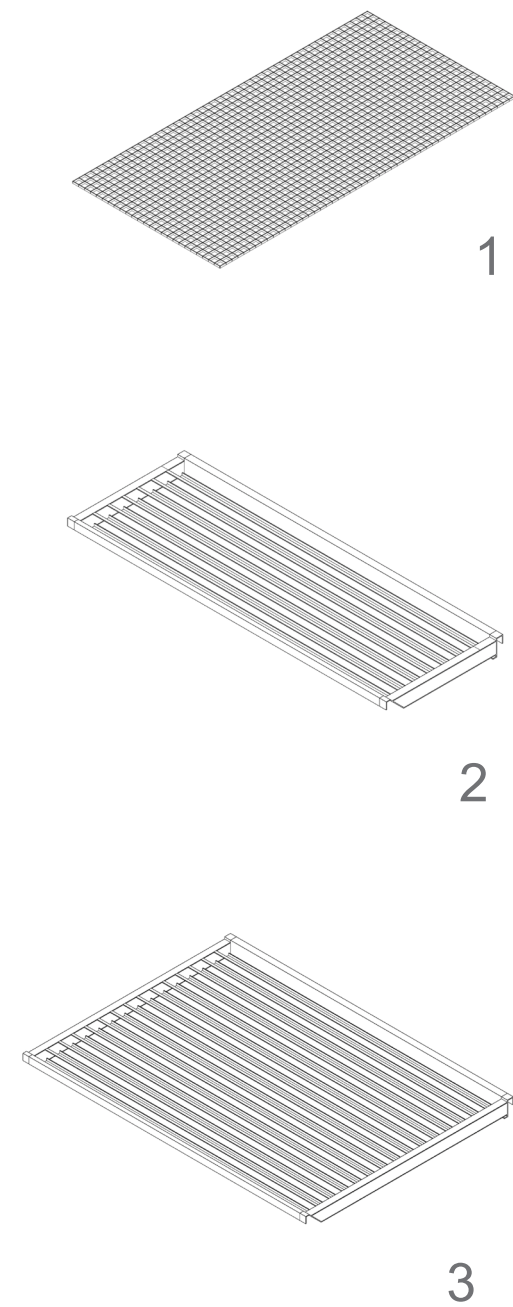


2



3

P5 Facade



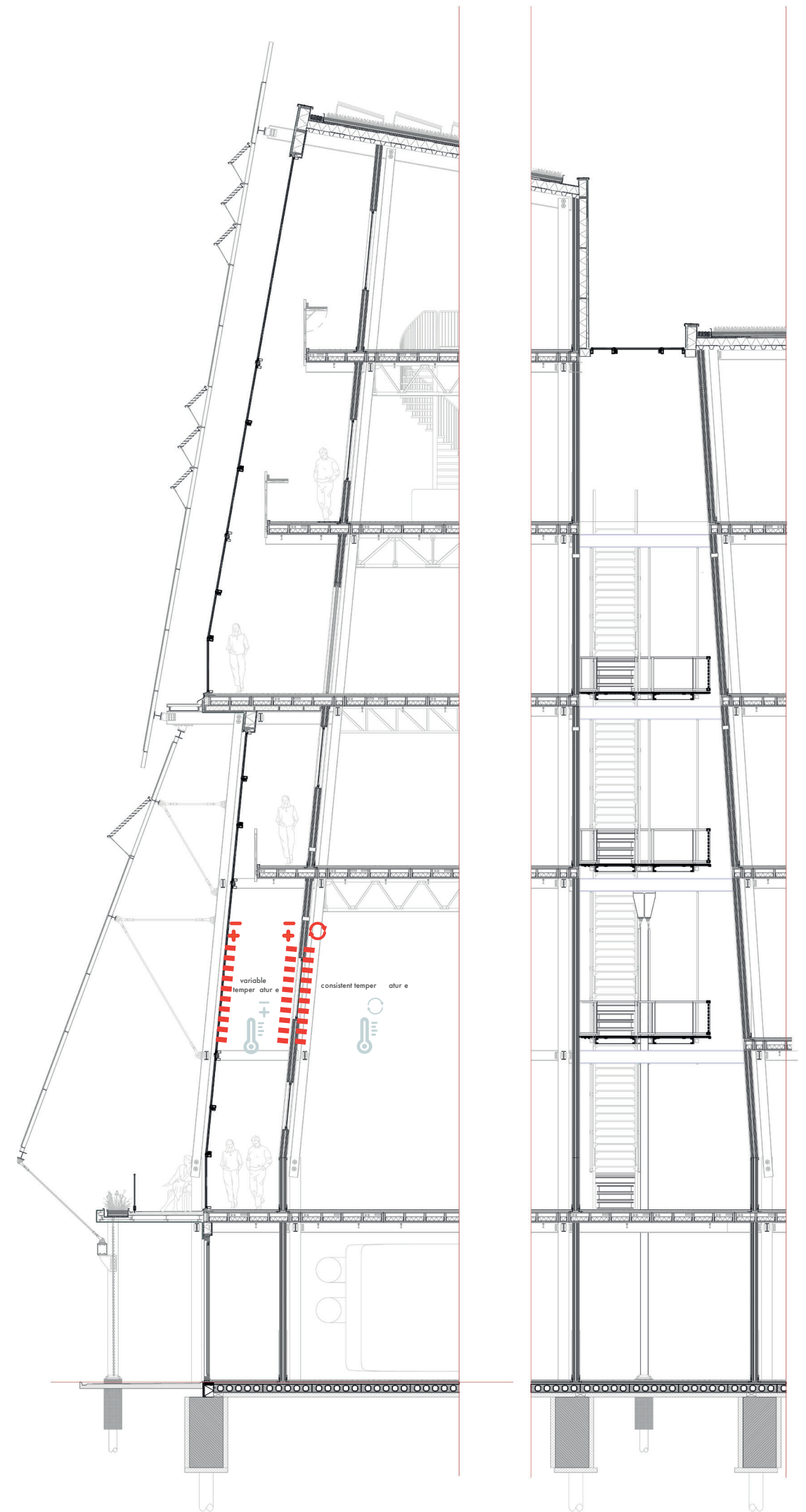
P5 Facade



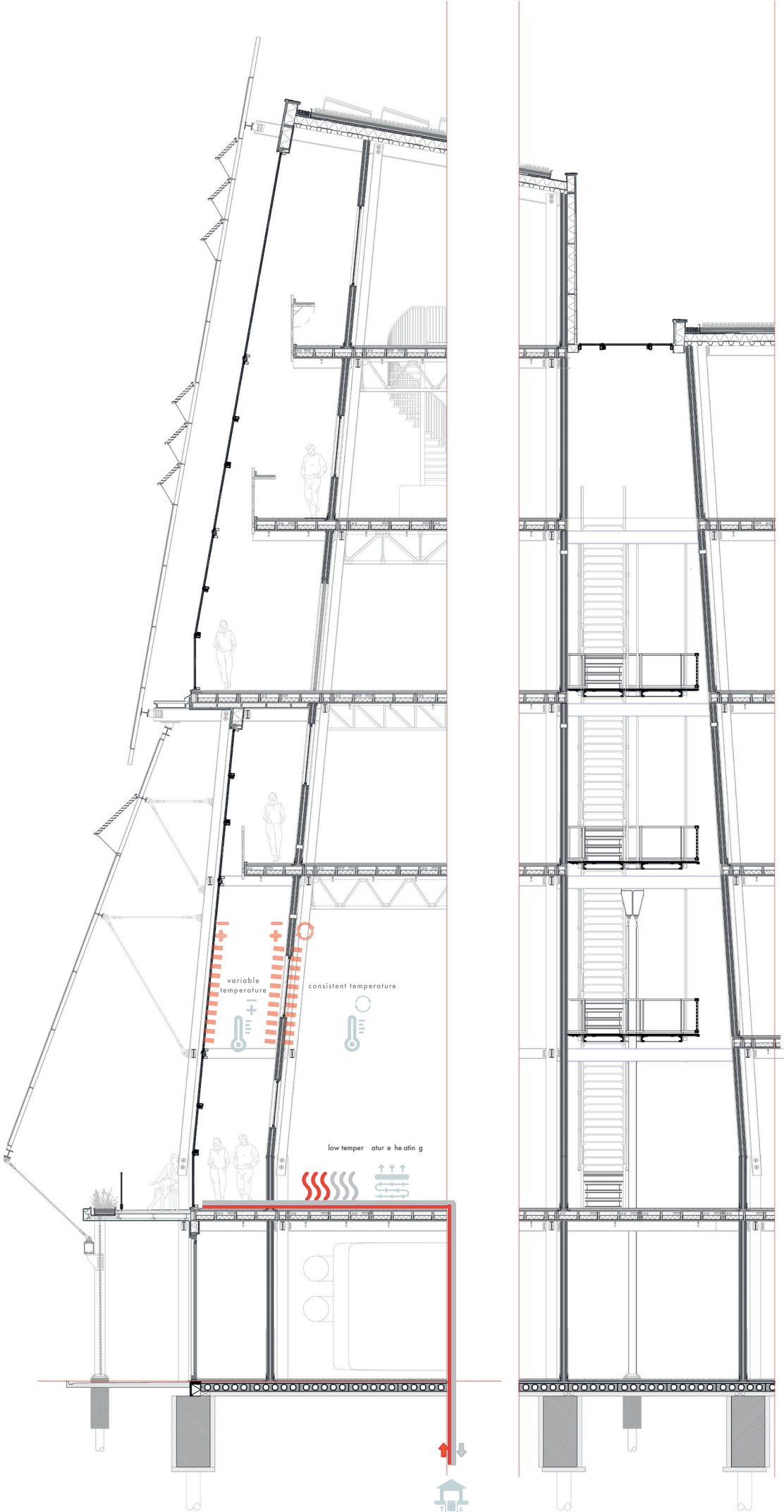
P4 Main hierarchy



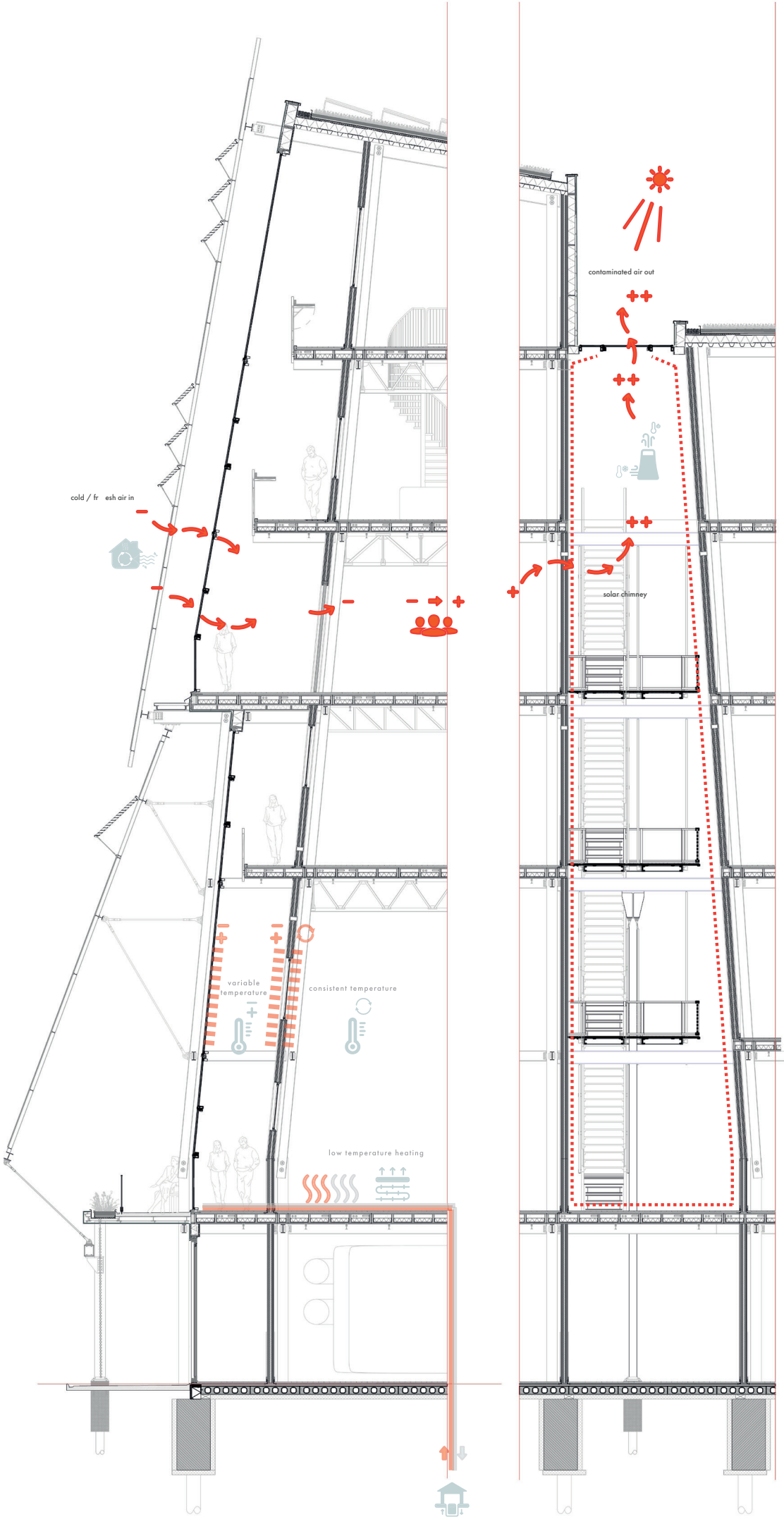
P5 Climate



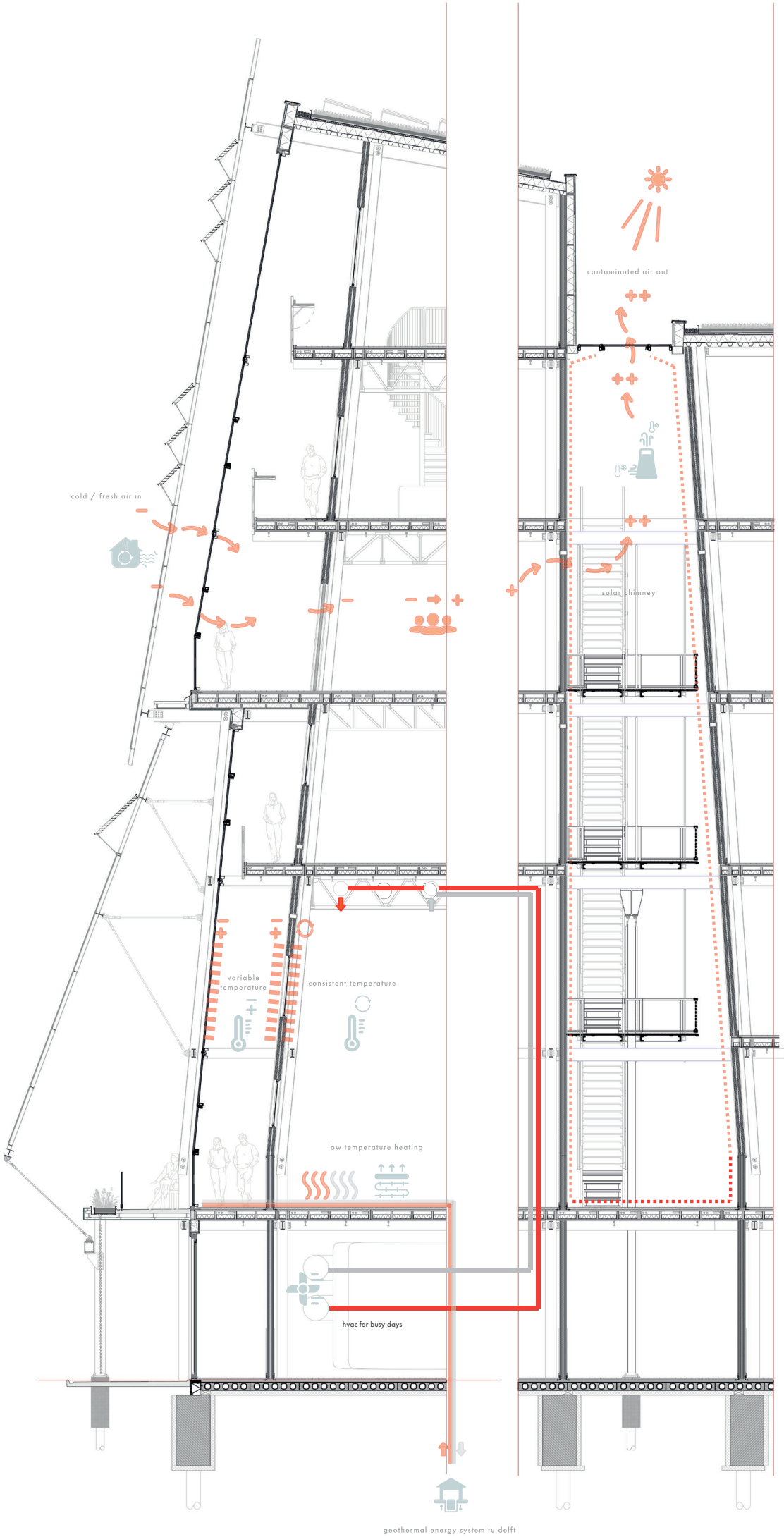
P5 Climate



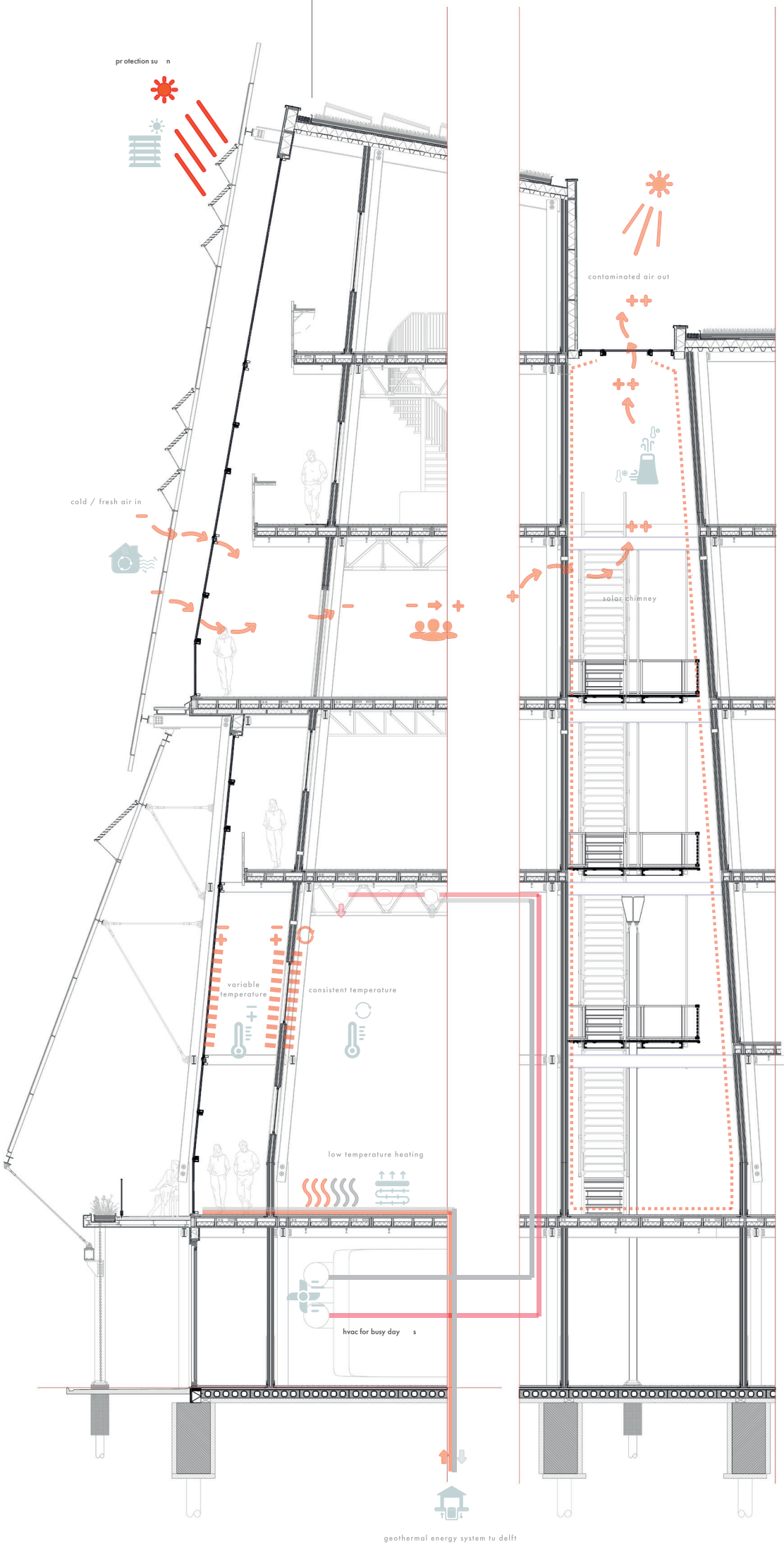
P5 Climate



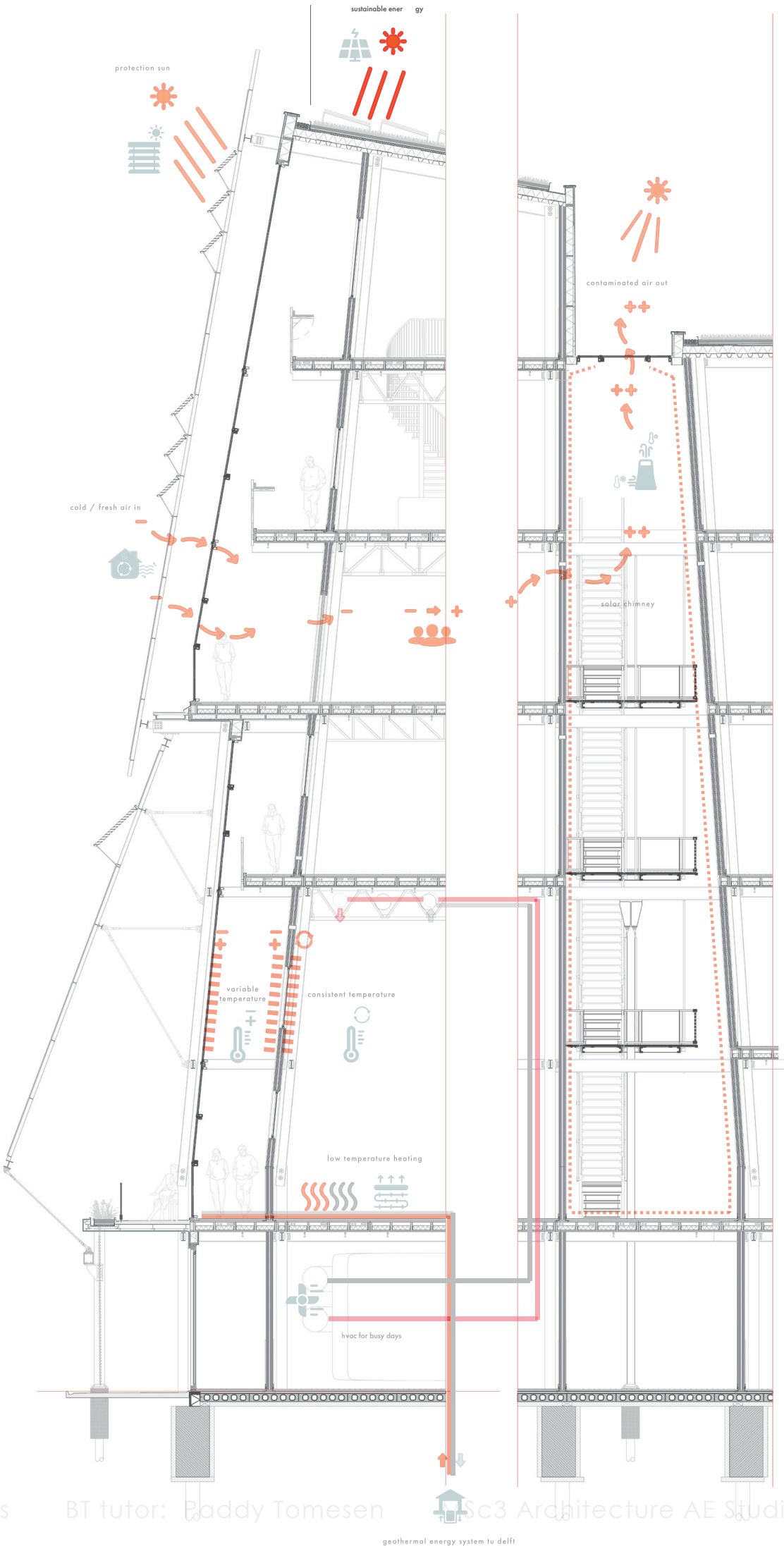
P5 Climate



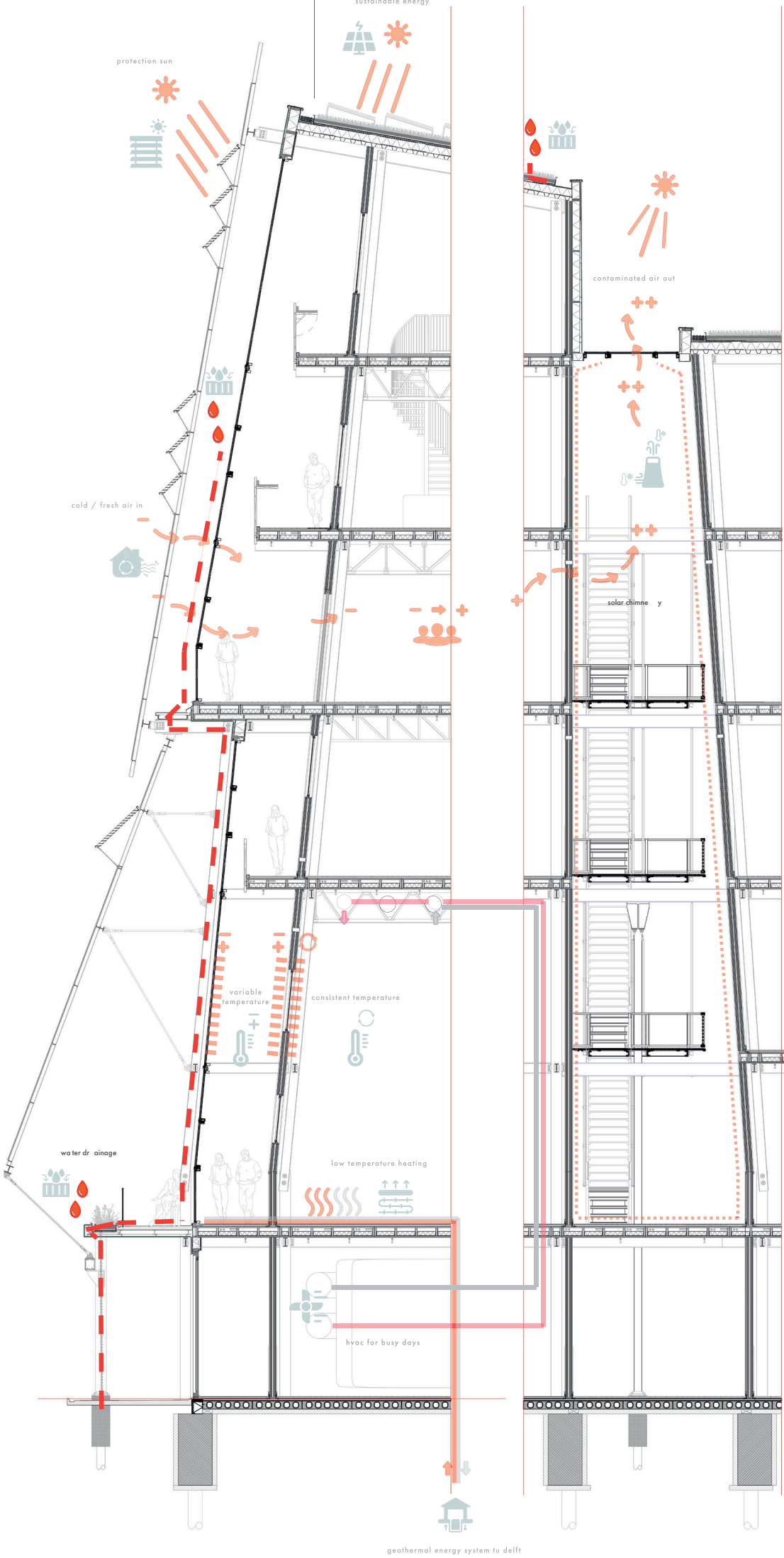
P5 Climate



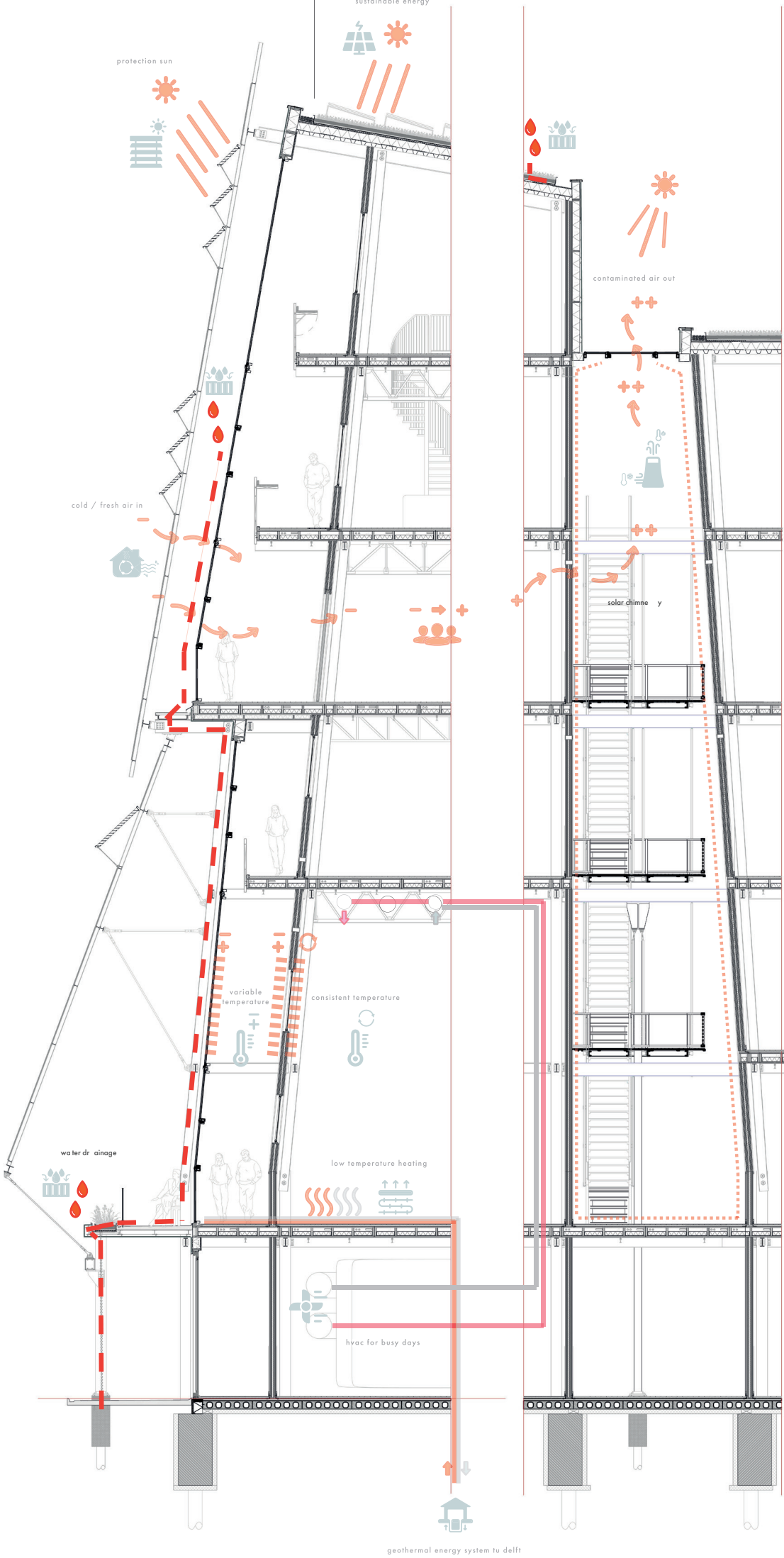
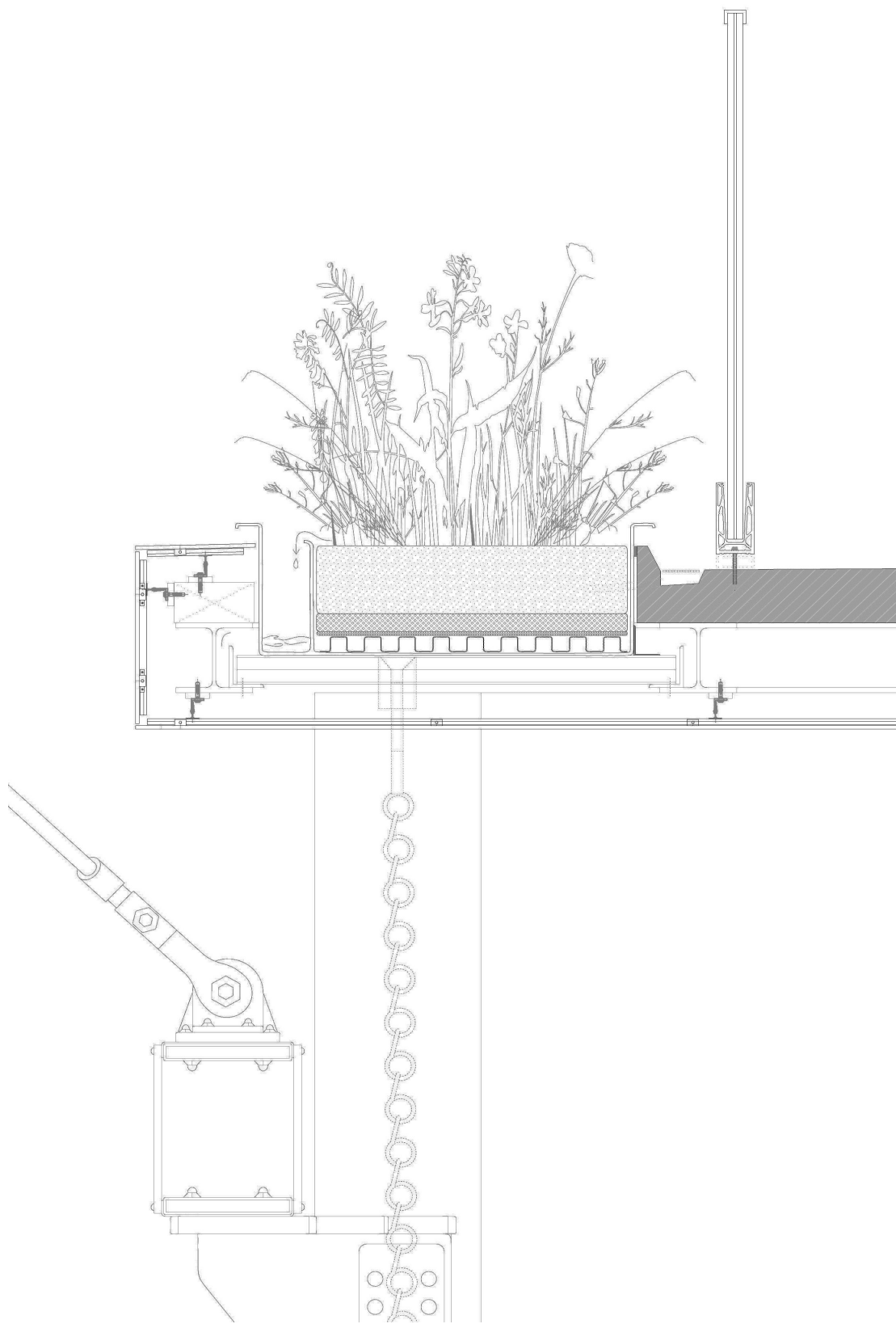
P5 Climate



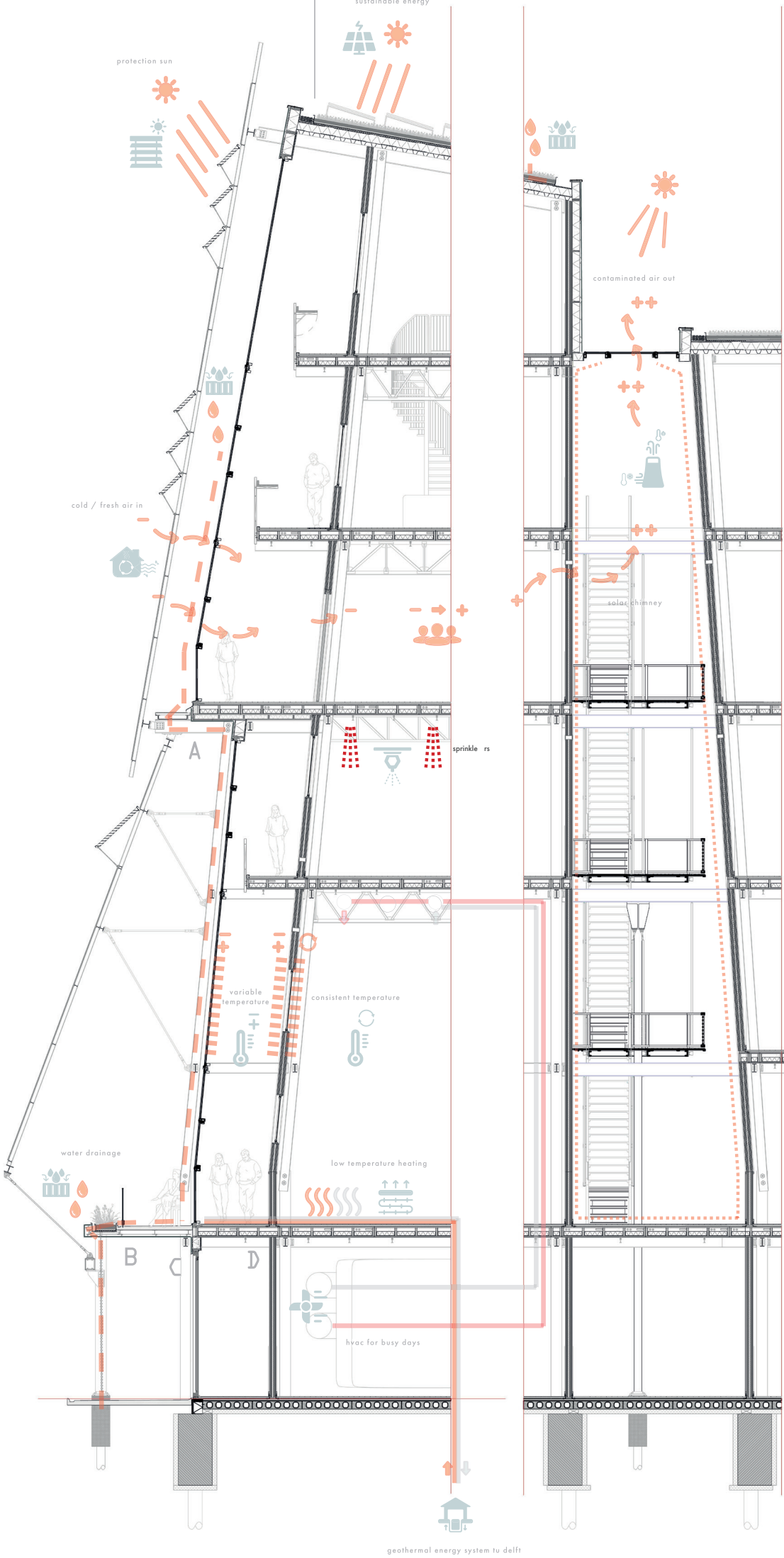
P5 Climate



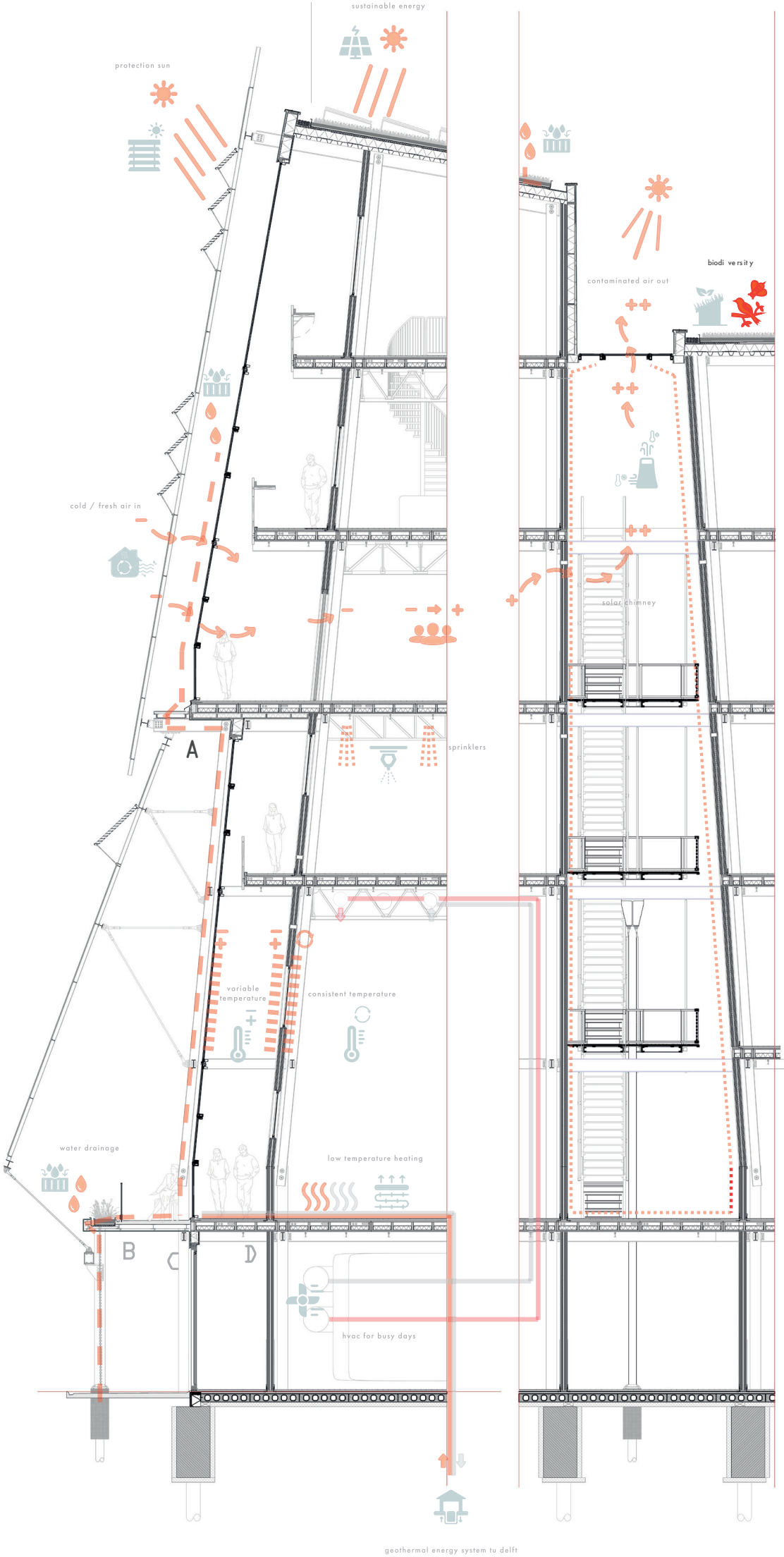
P5 Climate



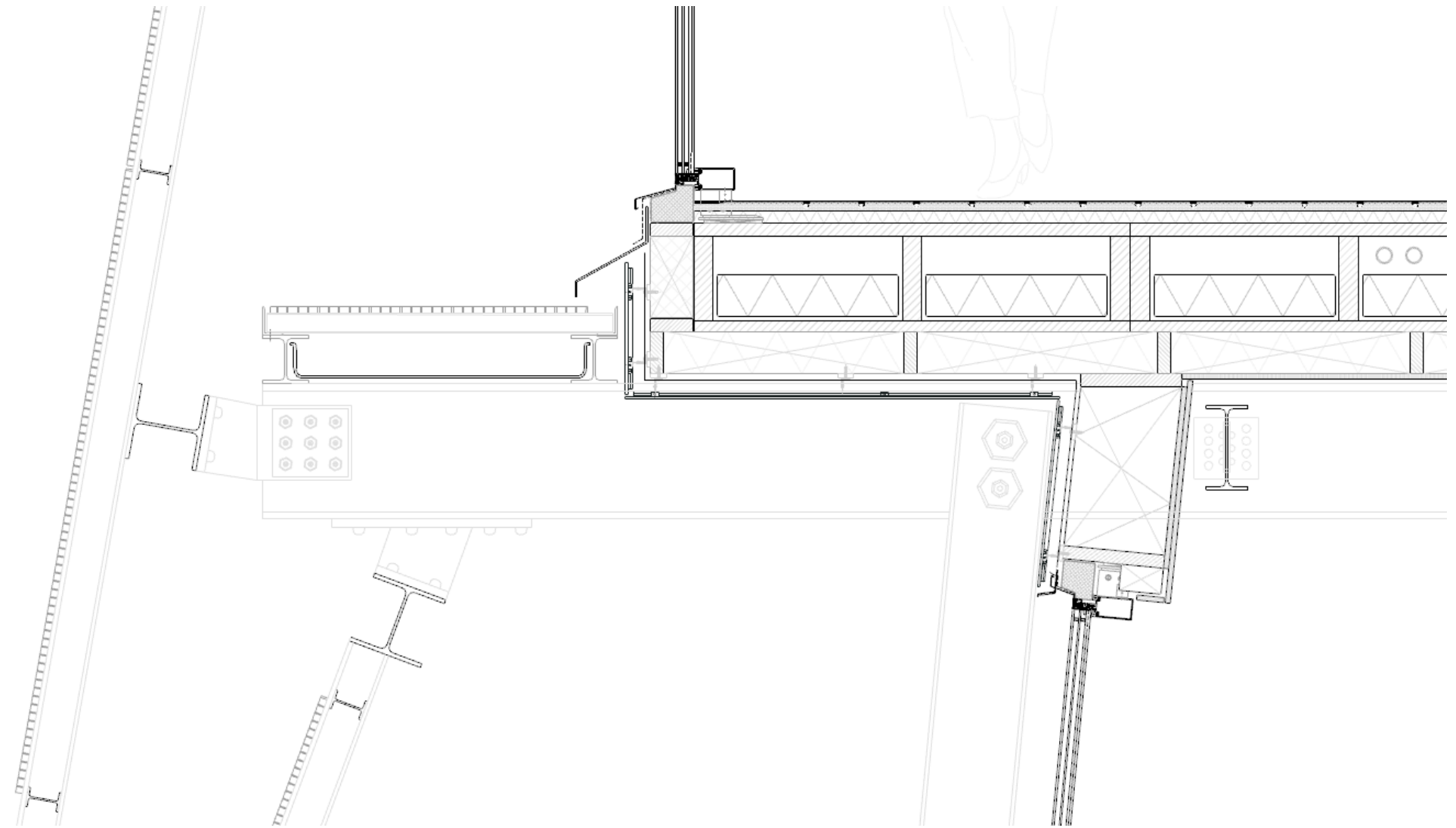
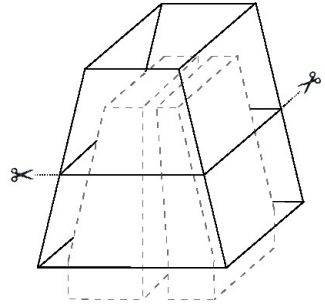
P5 Climate



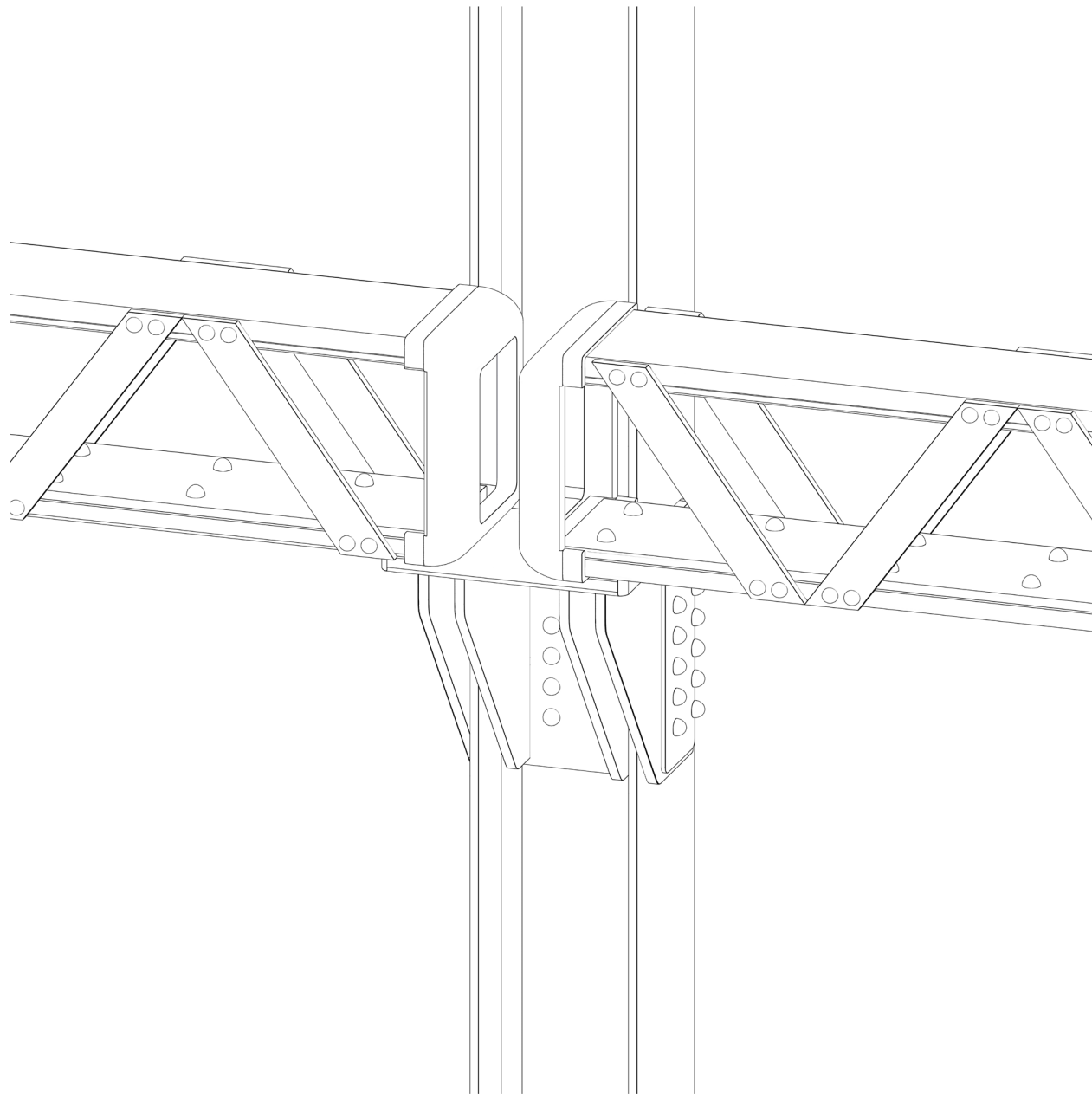
P5 Climate



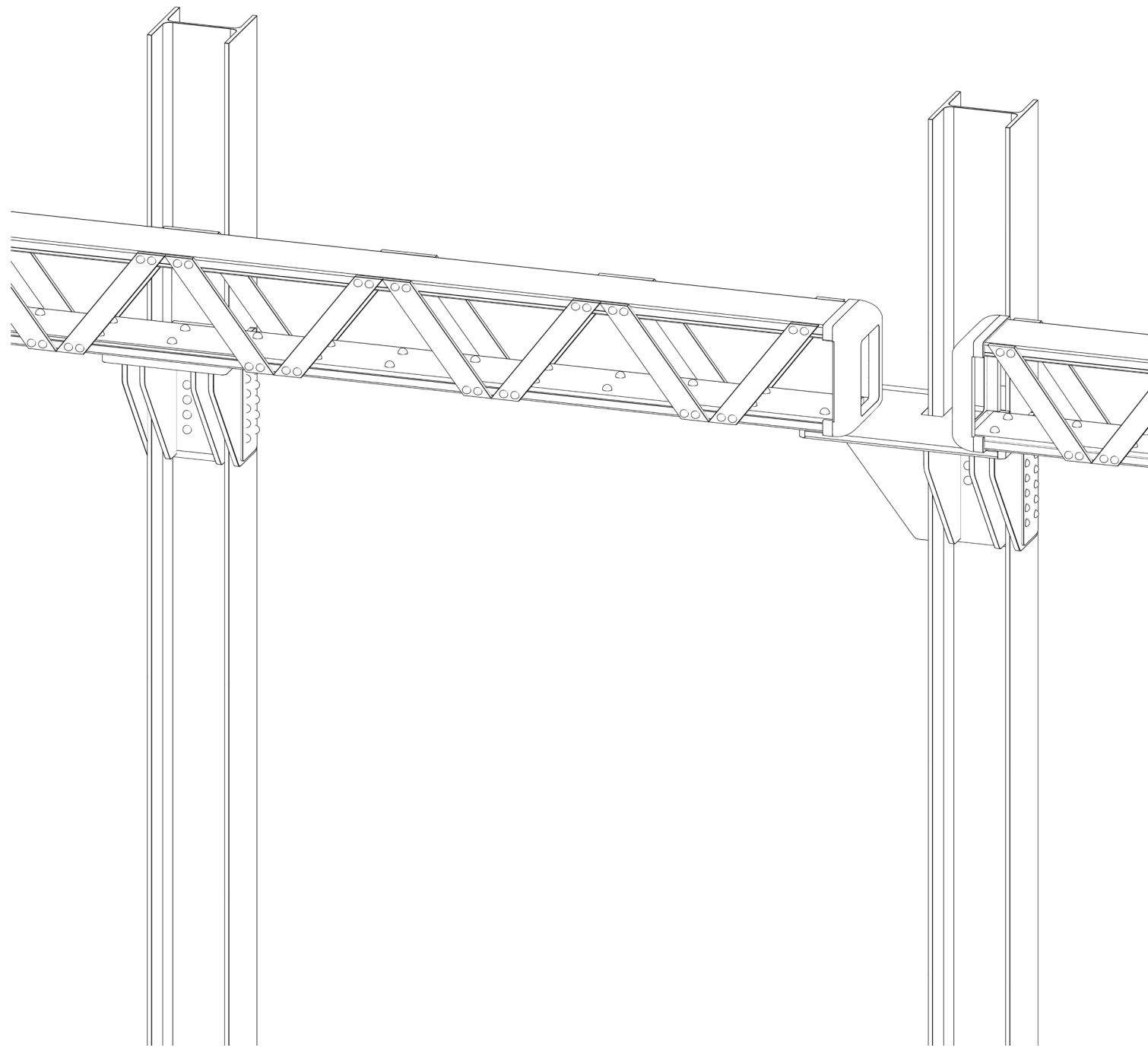
P5 Reused steel connections



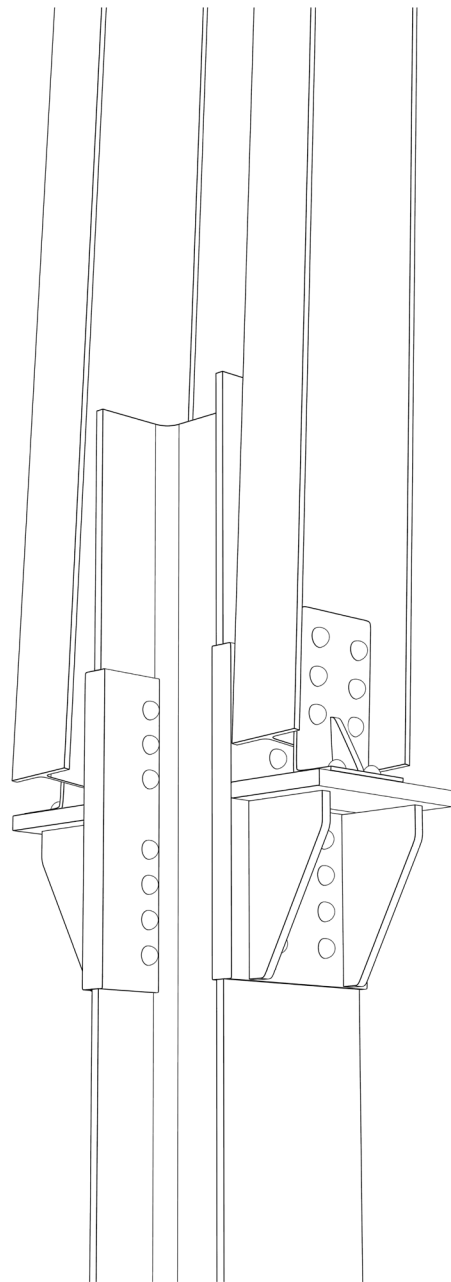
P4 Reused steel connections



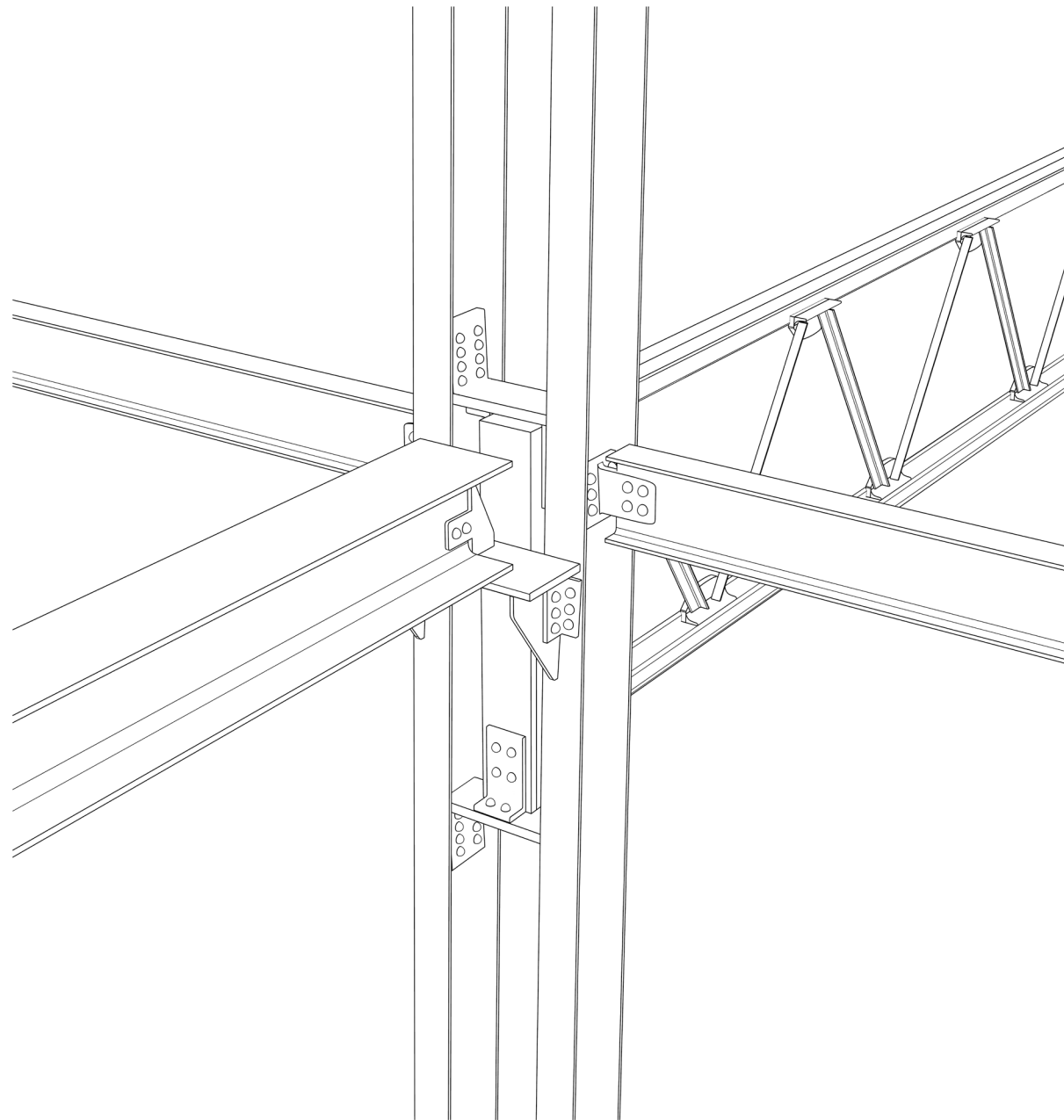
P5 Reused steel connections



P5 Reused steel connections



P5 Reused steel connections



P5 Questions