



Possible future role of architects and developers in reuse

Graduation of
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Research/design questions and goals

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Design

Questions



Research/design questions and goals

An architectural rendering of a modern urban environment. On the left, a multi-story building with large windows and a glass facade is visible. In the foreground, a paved area features a set of stairs leading up to a small courtyard with a car. A person is walking a dog on a leash. To the right, a road with two cars is shown, and further back, a group of people is playing a sport on a grassy field. The scene is set under a bright sky with scattered clouds.

Fascination



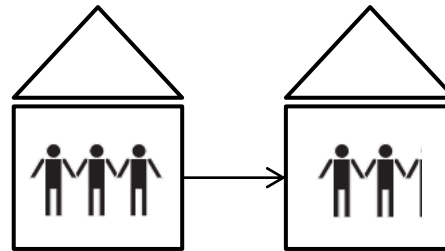
Economic crisis



Migration to the city



Vacancy



3,0 (1975)

2,2 (2012)

Smaller households



Degraded houses and neighbourhoods

Research questions and goals

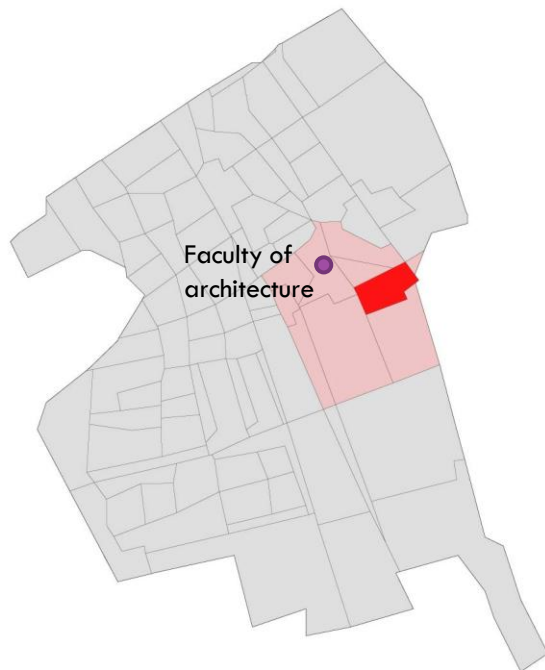


Considering the changing building industry, what is the sum of co-operation between real estate developers and reuse architects in the initial phase in the building process in a reuse project?

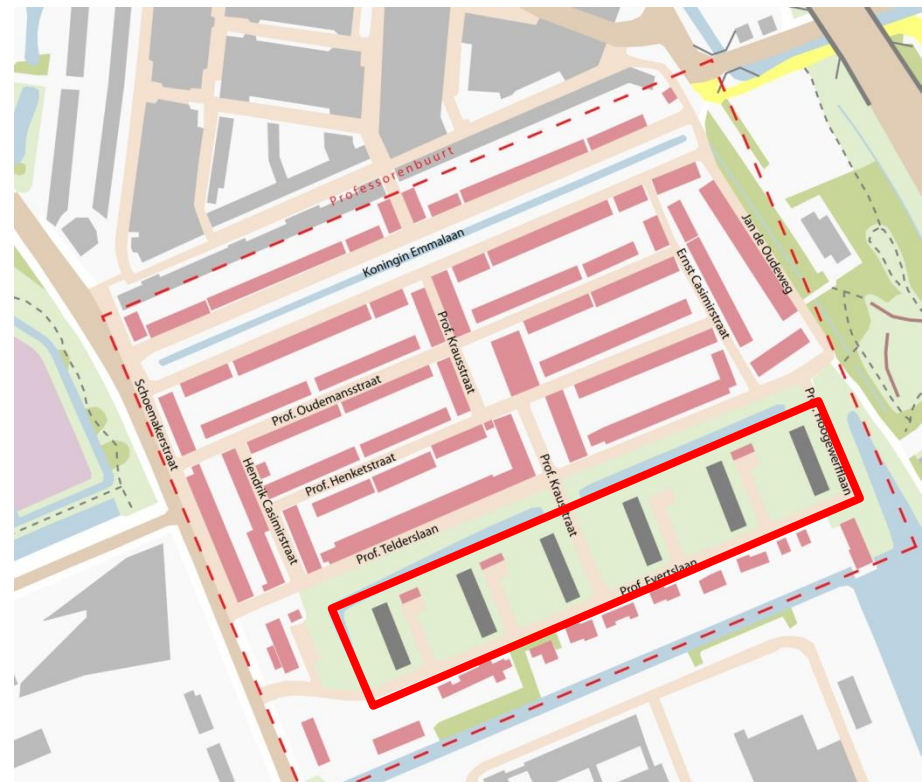
- *How can the building industry network be described in terms of processes and actors? How does the hypothesis fit in this network?*
- *What is the current relationship between architects and developers? What is about to change?*
- *What are the design approaches of a developer and a reuse architect?*

Research questions and goals

- Research goal: test hypothesis
- Design goal: redesign post war housing flat



- District: Wippolder
- Neighbourhood: Professorenbuurt



Location and building



(1) Inner courtyard with playground



(2) Inner courtyard with grass and benches, garage boxes at the end of the access street



(3) Waterfront on the north side of the area

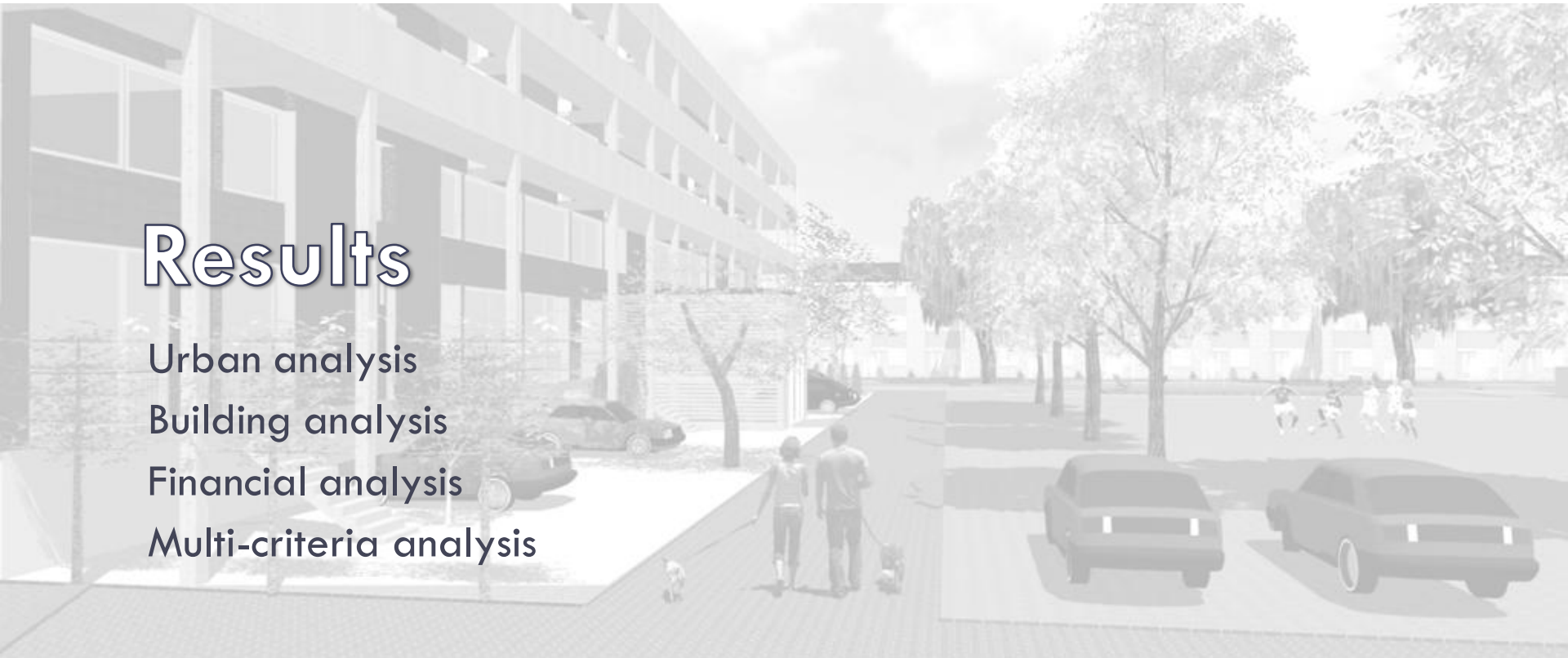
Results

Urban analysis

Building analysis

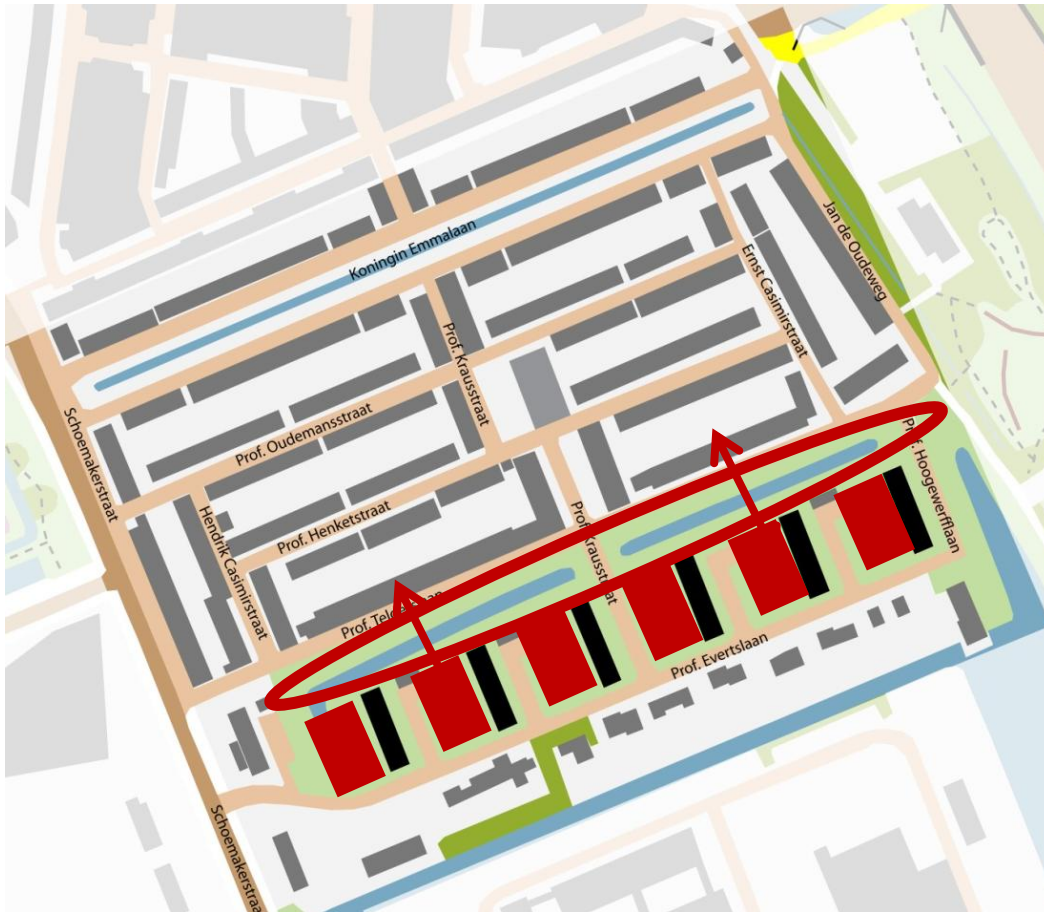
Financial analysis

Multi-criteria analysis



Urban analysis

Conclusions



- Presence/use of water
- Undefined space
- Contact with prof. Telderslaan
- Target group

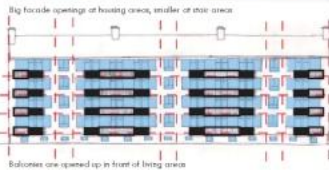
Building analysis

Strong and weak points



Facades

Analysis and changes



Strong

- Sufficient light entrance housing
- Sleep area faces north-east
- Living area faces south-west
- Readable facade

Weak

- Dark staircase
- Glass facades can cause cold draft in winter and overheating in summer
- Attic (still) does not meet light entrance standards
- Repetitive elements make the

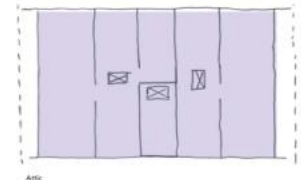
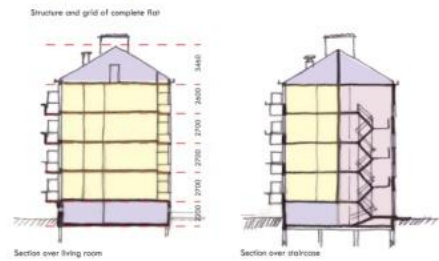
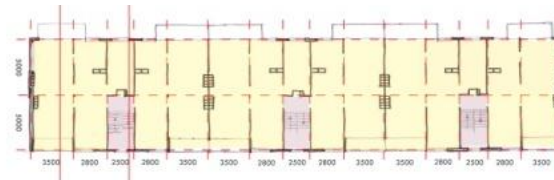
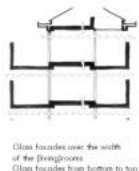


Effects

- Steel load bearing elements make the facade more heavy.
- Balconies are less defined
- Minimum effect for roof lights
- Replacement of the window frames changes the expression of the facade

Adaptations since

- Steel load bearing structure for balconies
- Balconies are completely open
- Plating of front facade are painted blue
- Windows in roof for light entrance
- Replacement of windows and window frames



Strong

- Appartments of appr. 70 m²
- Repetitive elements on a grid
- Flexibility

Weak

- No elevator
- Semi-underground basement
- Relatively low ceilings
- Attic generally no safe access and stairs take up all space in the hall

Adaptations since

- Attic is used for living
- Some have replaced the stairs to the attic



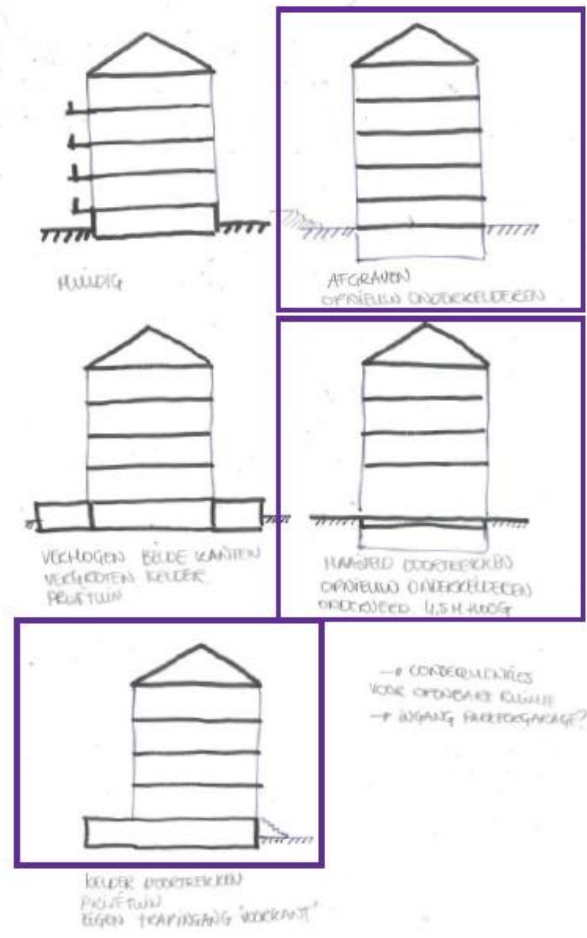
Building analysis

Conclusions

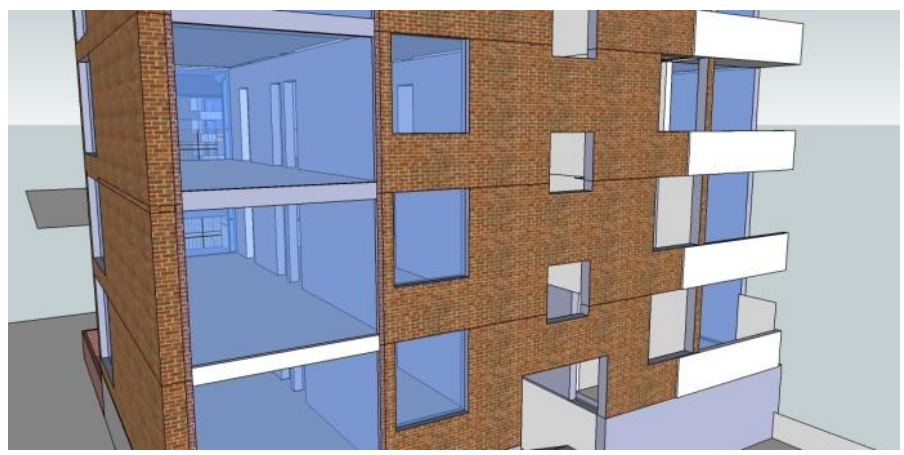
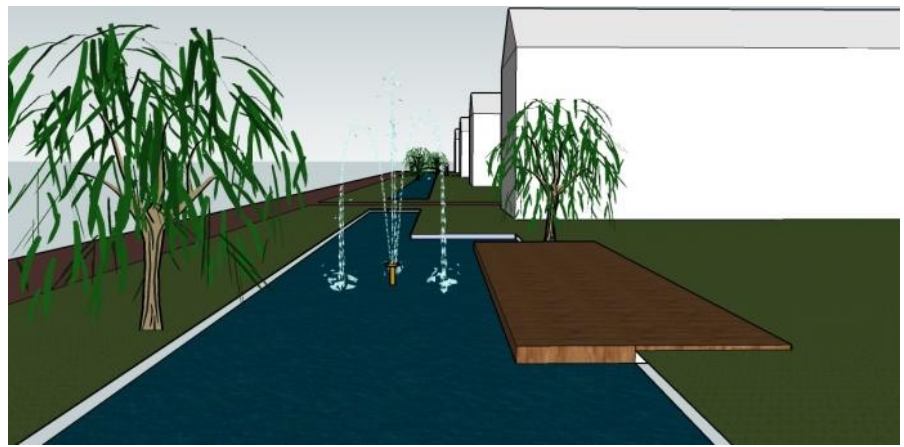
- **Minimal interventions:**
 - heating
 - ventilation
 - insulation (also sound insulation)
- **Maximize**
 - Light entrance
 - (use of) Space

Building analysis

Inventory of possible solutions

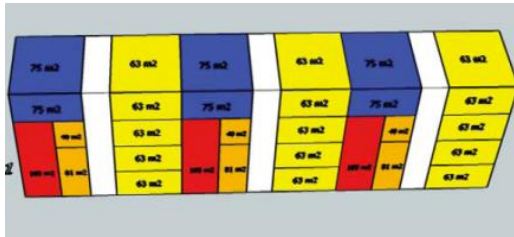
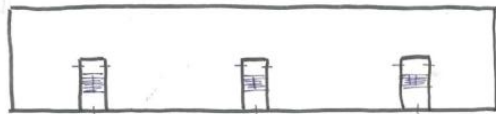


→ CONDENSERIES
 VOOR OPBETREKKE RIJSTUW
 → WISSELING FASETOEGANG?

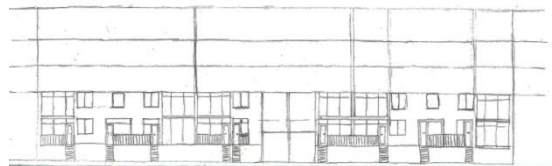
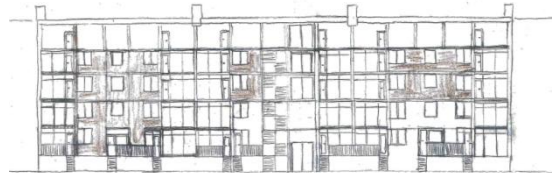
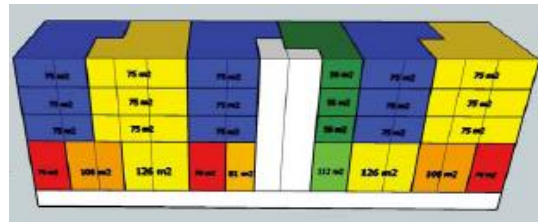
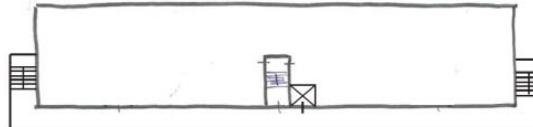


Designing three scenarios

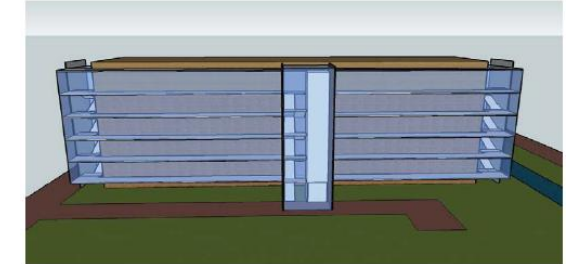
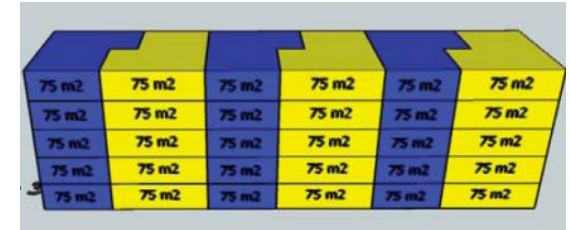
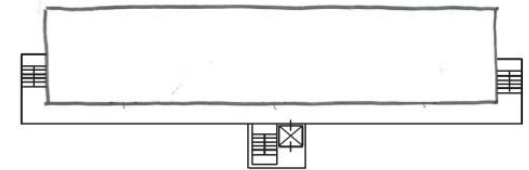
Scenario 1



Scenario 2



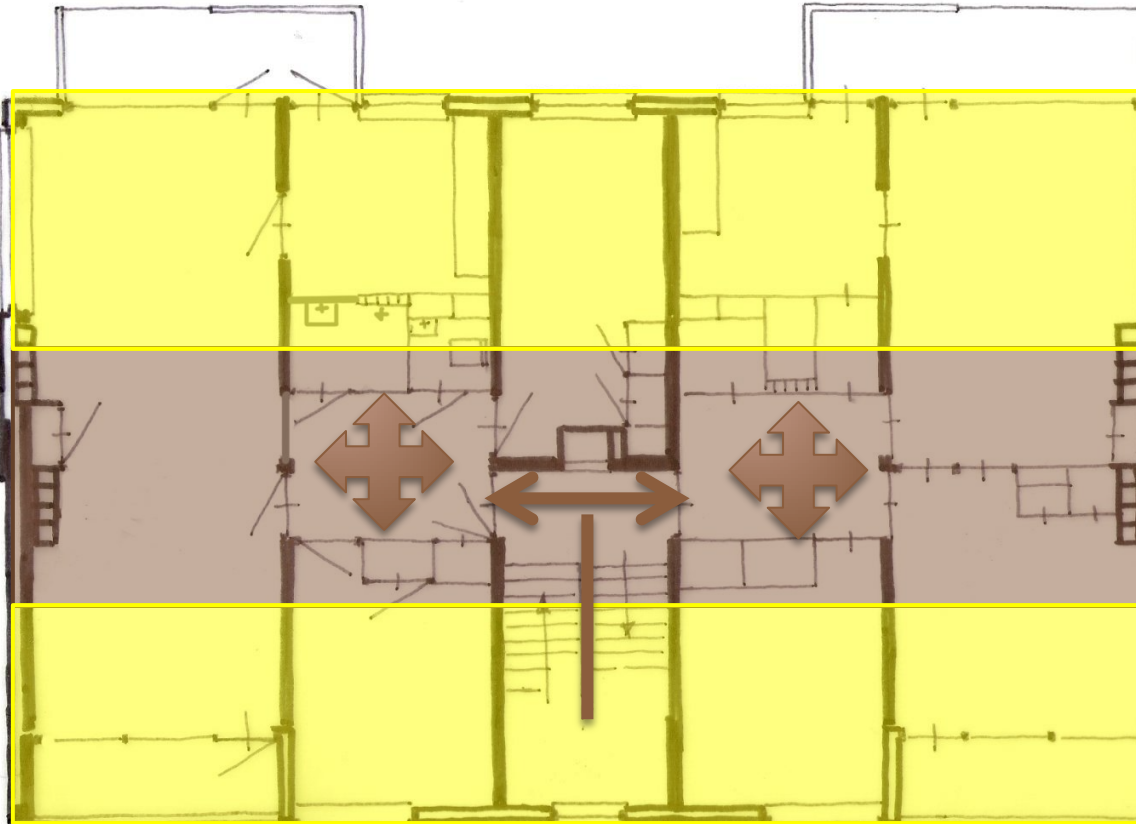
Scenario 3



Building analysis

Conclusions and valuation

- Zoning



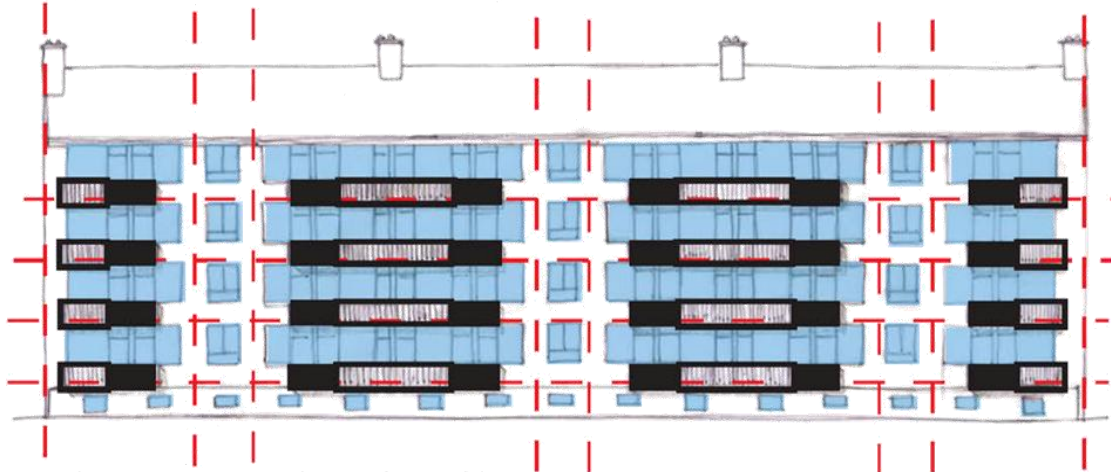
Building analysis

Conclusions and valuation

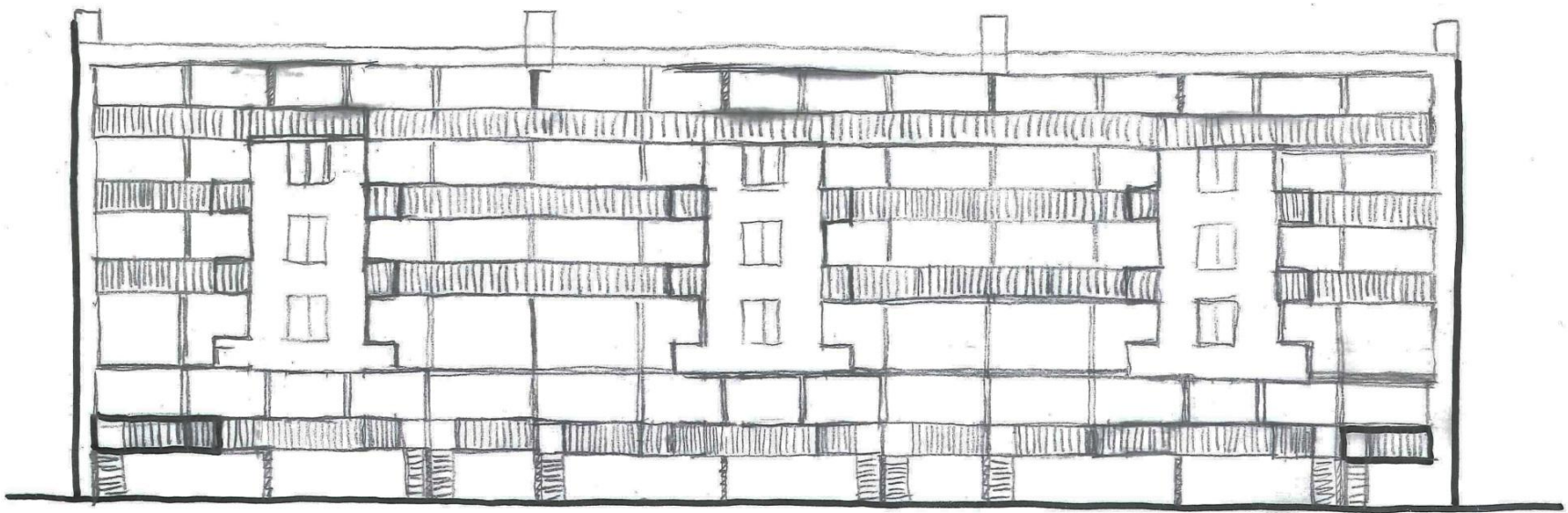
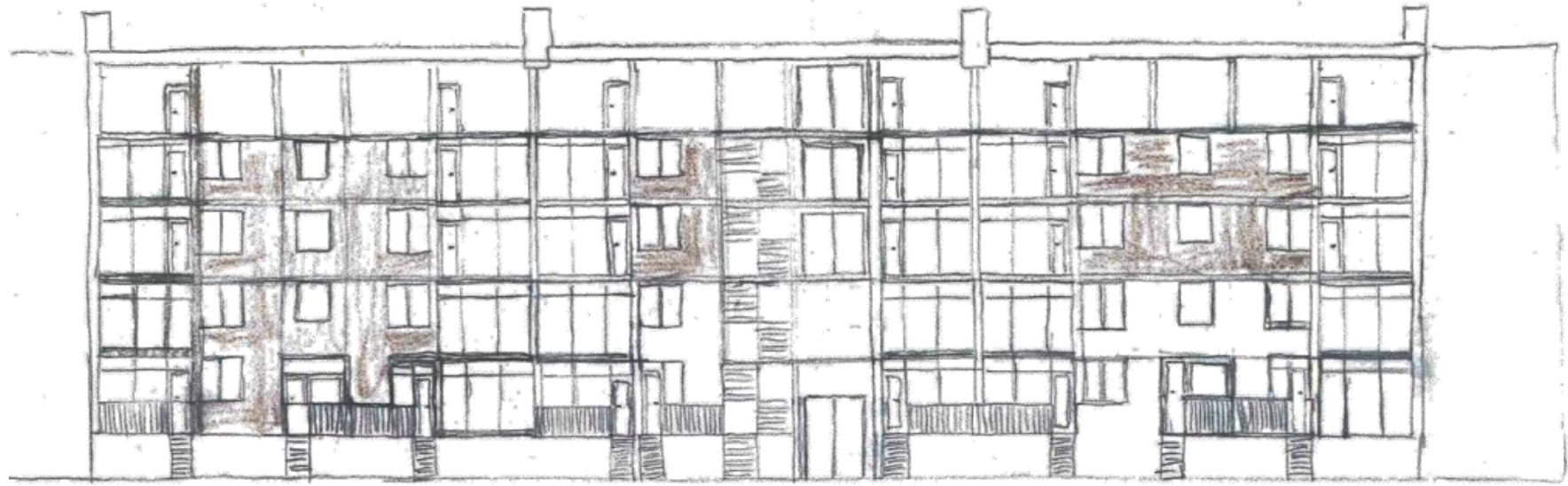
- Clear, readable facades



Big facade openings at housing areas, smaller at stair areas

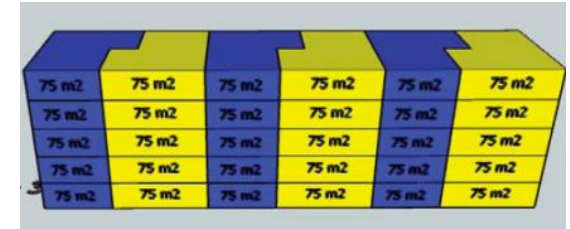
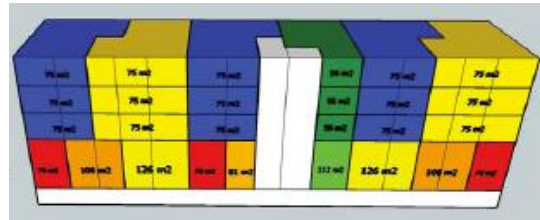
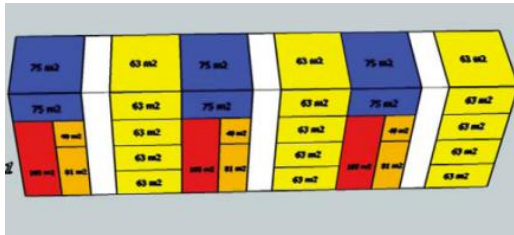


Balconies are opened up in front of living areas



Financial analysis

Answer the big question: worth the investment?



Winket method → direct building costs → feasibility

Is renovation worth the investment?

Financial analysis

Gross Initial Yield (bruto aanvangstrendement)

GIY based on max. €681,- Social sector		GIY based on average €900,- Private sector	
Building new 2	3,9%	Building new 3	5,6%
Building new 3	4,2%	Building new 2	5,7%
Renovation 2	4,8%	Renovation 3	6,9%
Building new 1	5,0%	Renovation 2	7,0%
Renovation 3	5,2%	Building new 1	8,3%
Renovation 1	6,8%	Renovation 1	11,2%

Financial analysis

Conclusion

- Scenario 1 most profitable
- All renovation scenarios are more profitable than building new
- The costs are in elevator and walkways, not level of reorganisation (sc1 vs. Sc2 and sc3)
- Scenario 2 and 3 cost the same, different appearance, different level of restructuring



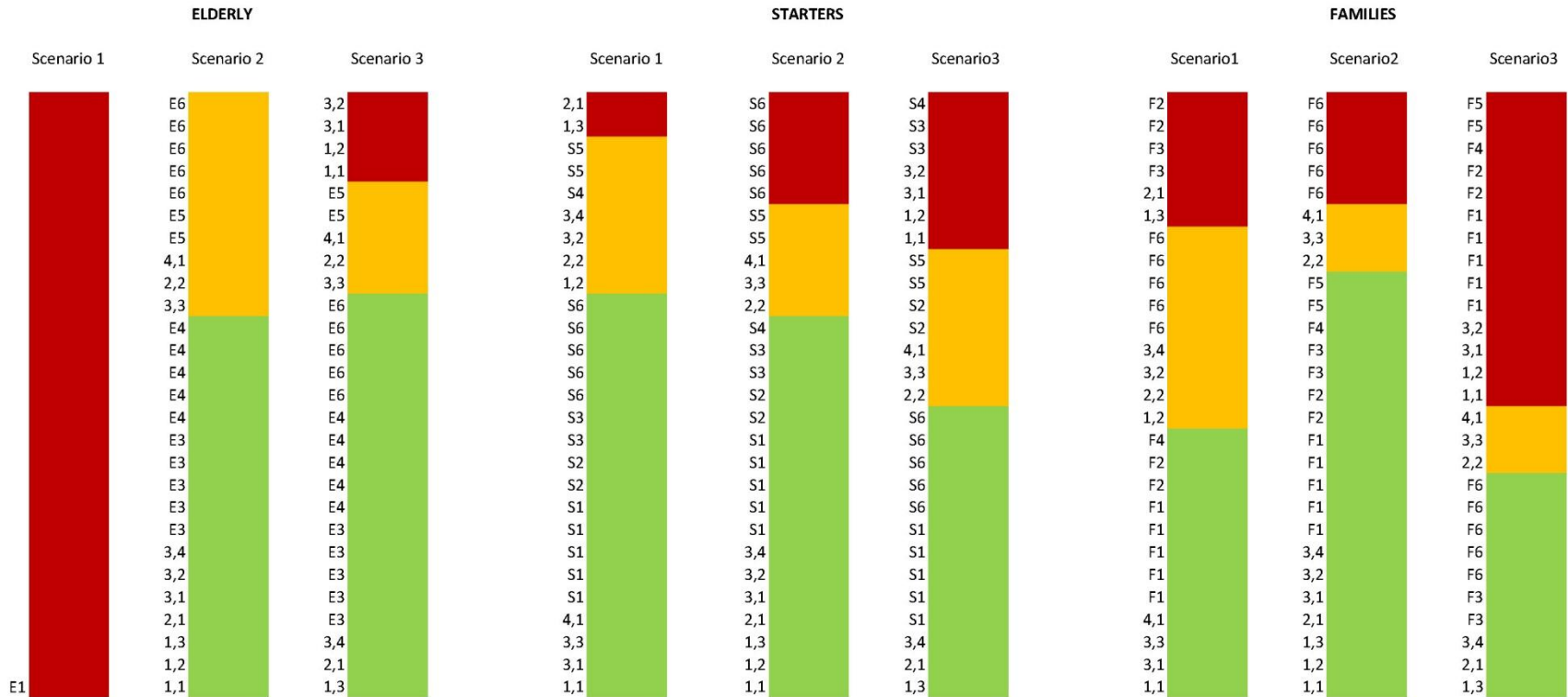
Multi-criteria analysis

- Quality criteria
- Functional criteria
- Financial criteria
- Target group specific criteria
- Sustainability

ASPECT	CRITERIA	SCENARIO 1	SCENARIO 2	SCENARIO 3
Representation				
1,1	personal identification	+	+	-
1,2	entrance	o	+	-
1,3	elevator	-	+	+
Building physics				
2,1	Heat insulation	-	+	+
2,2	Soundproofing	o	o	o
Housing quality				
3,1	Private garden	+	+	-
3,2	private entrance	o	+	-
3,3	lay-out of apartments	+	o	o
3,4	spatial quality of rooms	o	+	+

Target group specific		weight			
Elderly					
E1	Elevator	go/no	no	go	go
E2	Barrier-free	go/no	no	go	go
E3	Spacious floor plan	5		+	+
E4	2 bedrooms	5		+	+
E5	parking (& visitors)	2		o	o
E6	Affordable by ideal type (expl. 1.5/1.5)	5		o	+
	total	17			
Starters					
S1	2 bedrooms	5	+	+	+
S2	spacious living room	2	+	+	o
S3	garden	2	+	+	-
S4	own entry	1	o	+	-
S5	parking	2	o	o	o
S6	Affordable by ideal type (expl. 1.5/1.5)	5	+	-	+
	total	17			
Families					
F1	min 3 bedrooms	5	+	+	-
F2	garden	2	+	+	-
F3	spacious bathroom	2	-	+	+
F4	own entry	1	+	+	-
F5	private parking spot	2	-	+	-
F6	Affordable by ideal type (expl. 1.5/1.5)	5	o	-	+
	total	17			

Multi criteria analysis



Conclusion: scenario 2 fits best for all

Answering research questions

Sub questions

Design approaches: architecture and development

- Different focus; can be complementary indeed
- Tool for 'normal' buildings is missing



vs.



Answering research questions

Main question

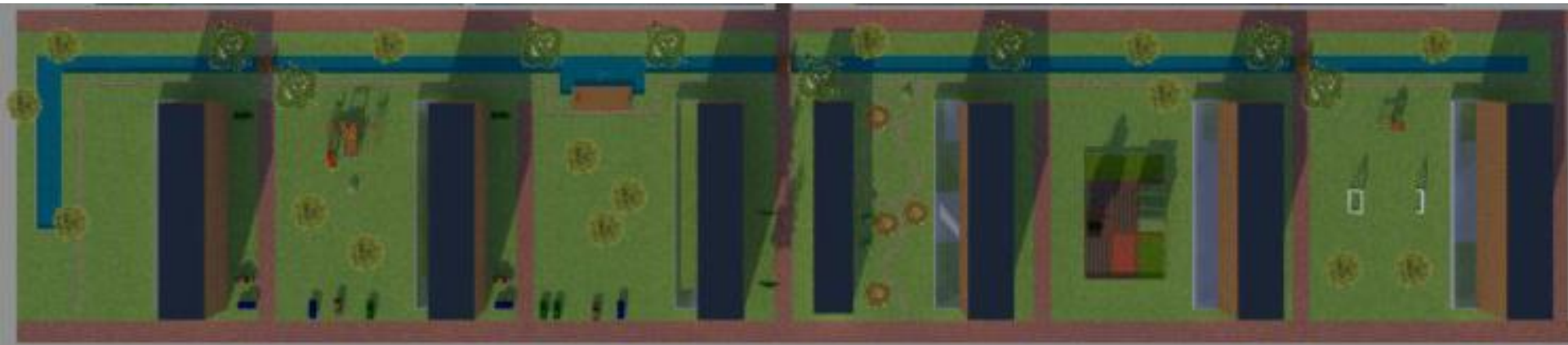
Is there a sum?

- Architectural quality and costs
- Depreciated \neq demolishing \rightarrow still profitable
- Scenarios that are cheaper than building anew, with GIY of over 6%

Design



Design

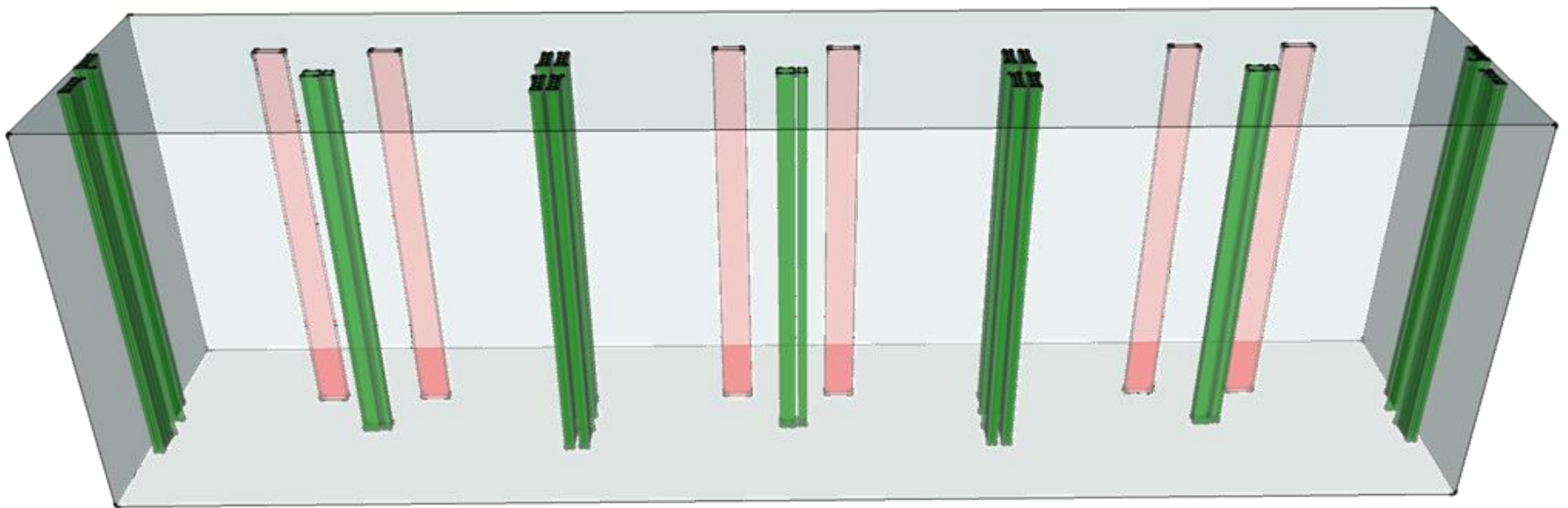






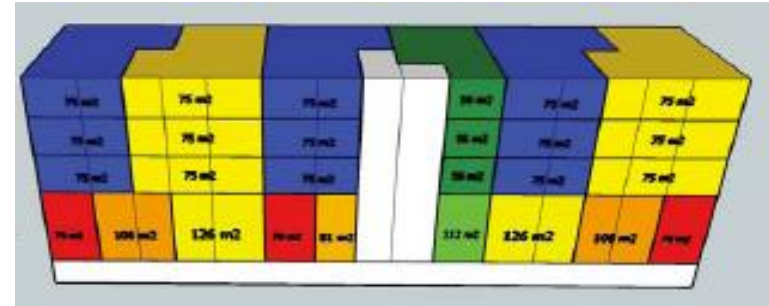
Design – general solutions

- Using existing ducts and vents as new shafts
- Combining floor heating with sound insulation
- Collective low temperature heating



Design

Taking into account conclusions:
internal reconstruction



Design

example: ground floor house



Design

Taking into account conclusions: clarity of the facades

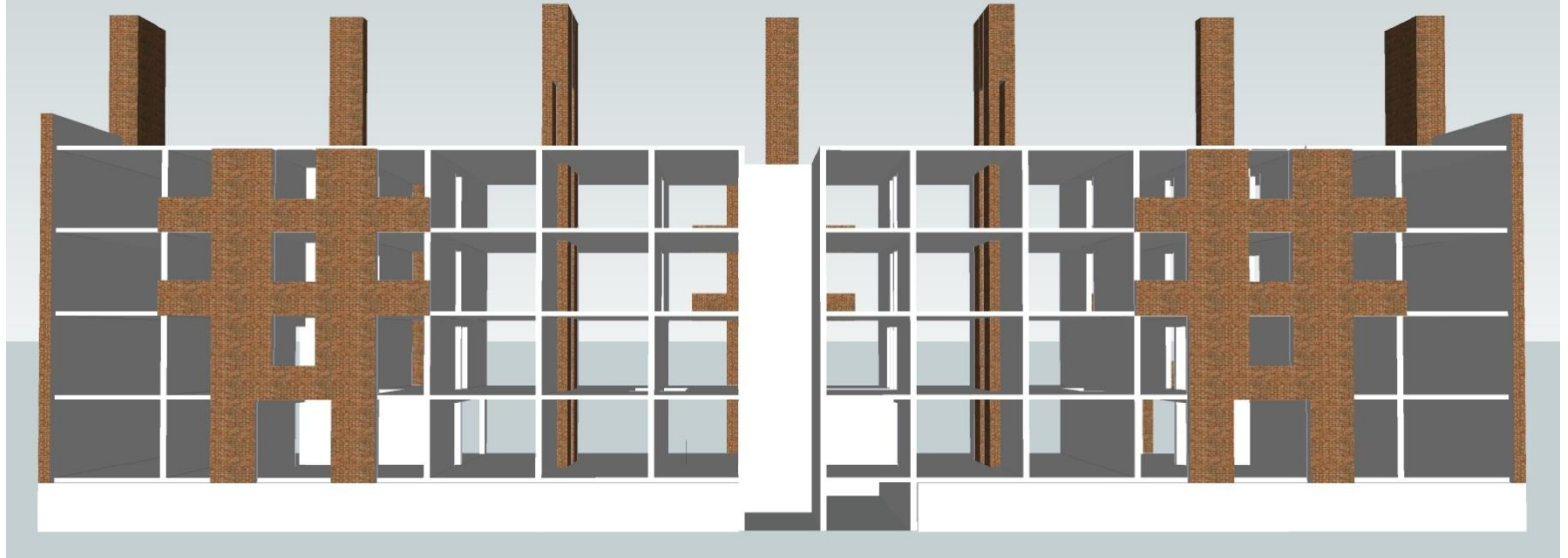


Materials and details

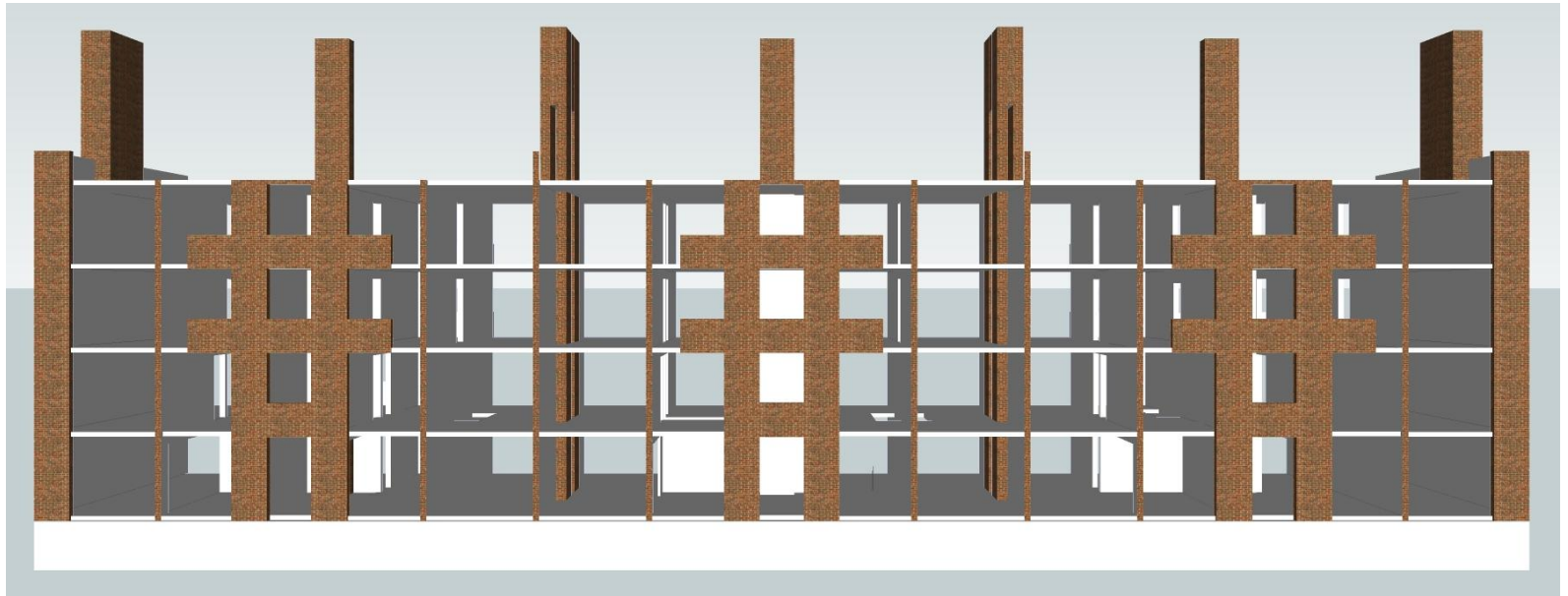
Taking into account costs and ease of building



Front facade



Back facade



Front facade



Back facade



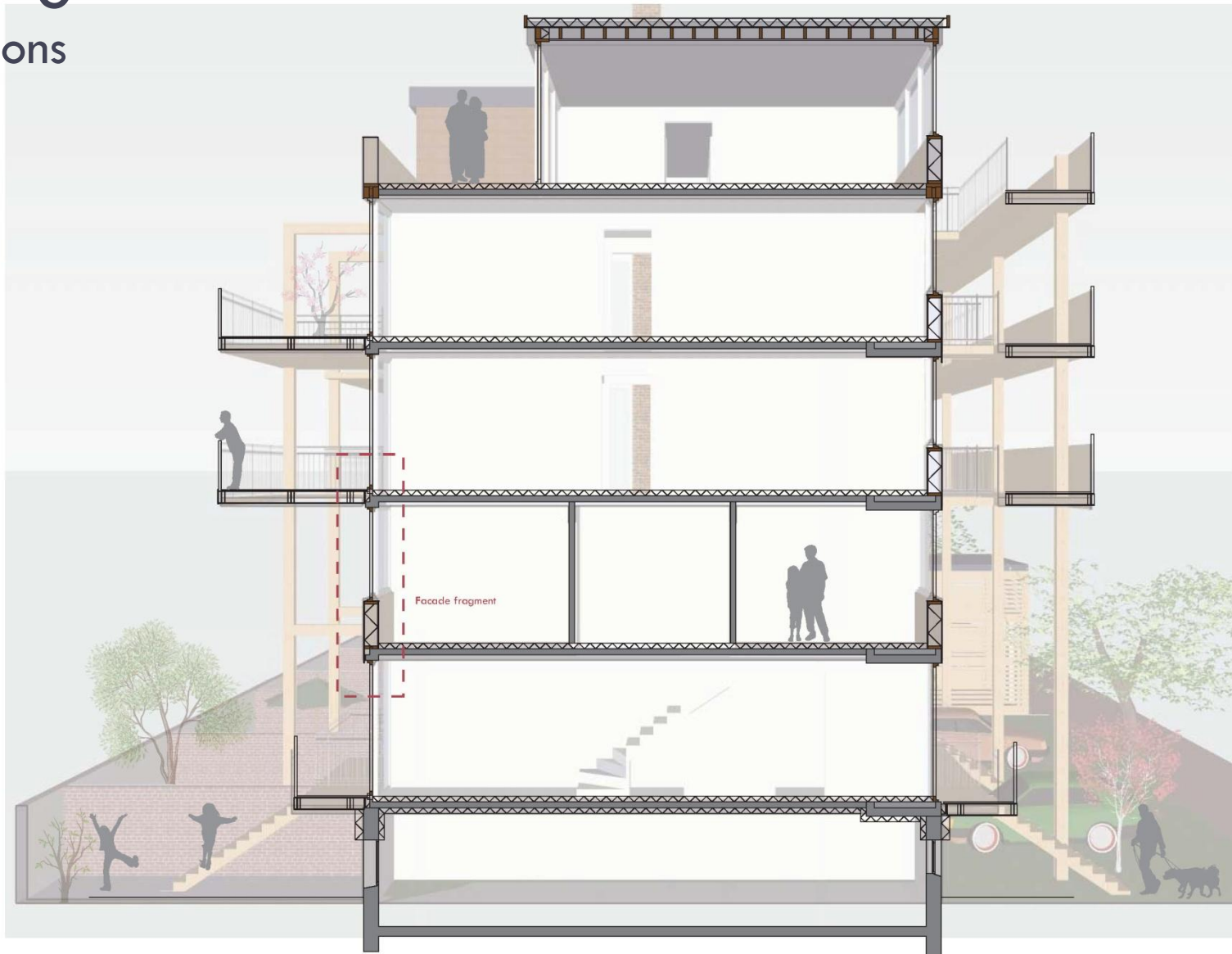
Front facade



Back facade

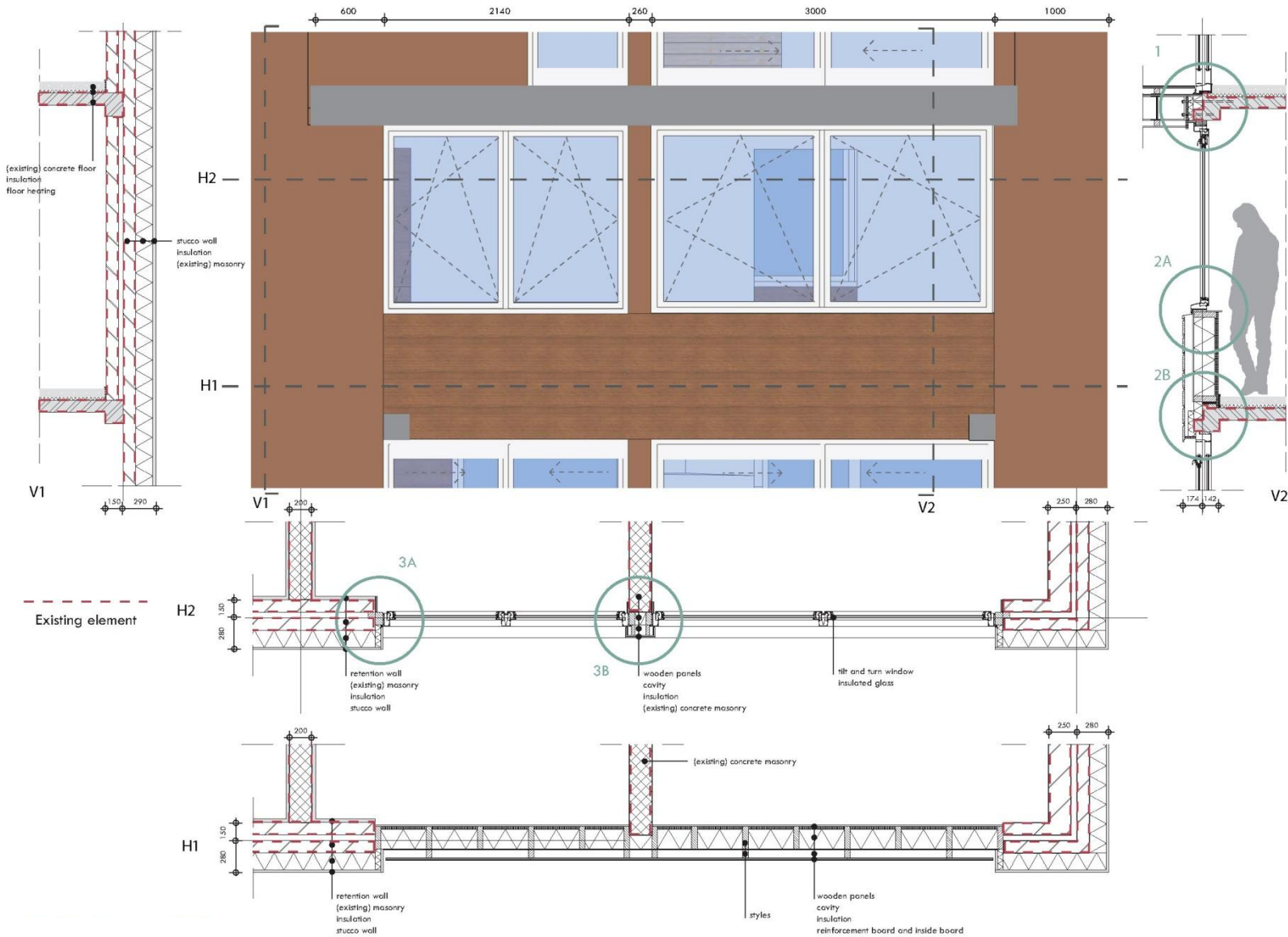


Design Sections

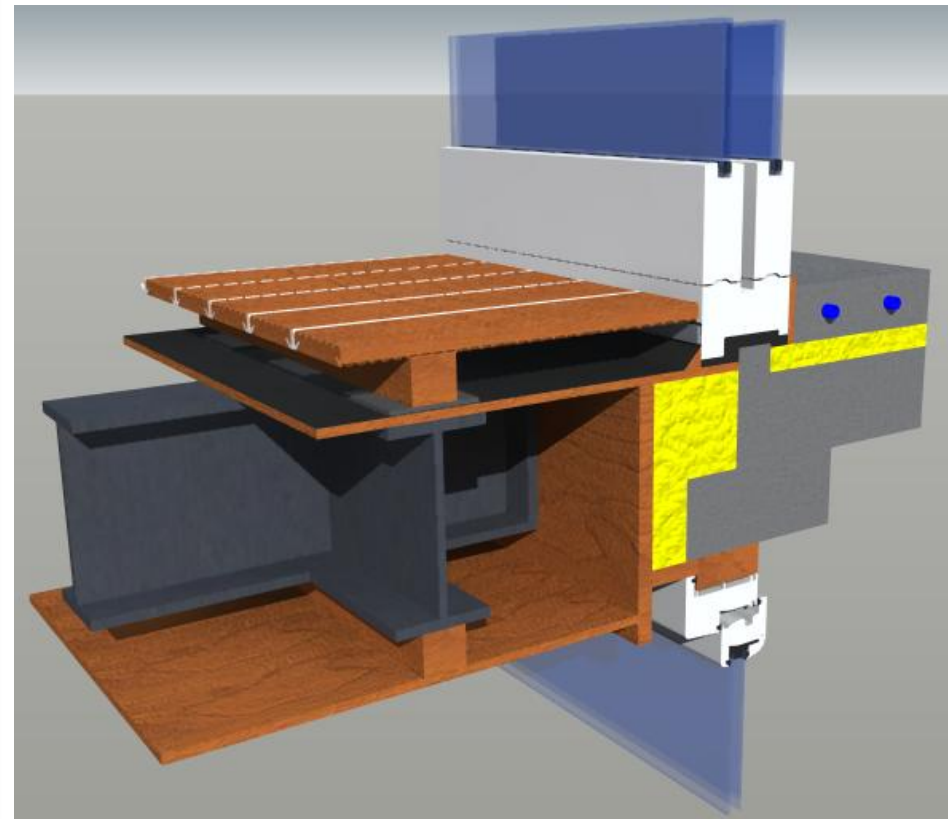
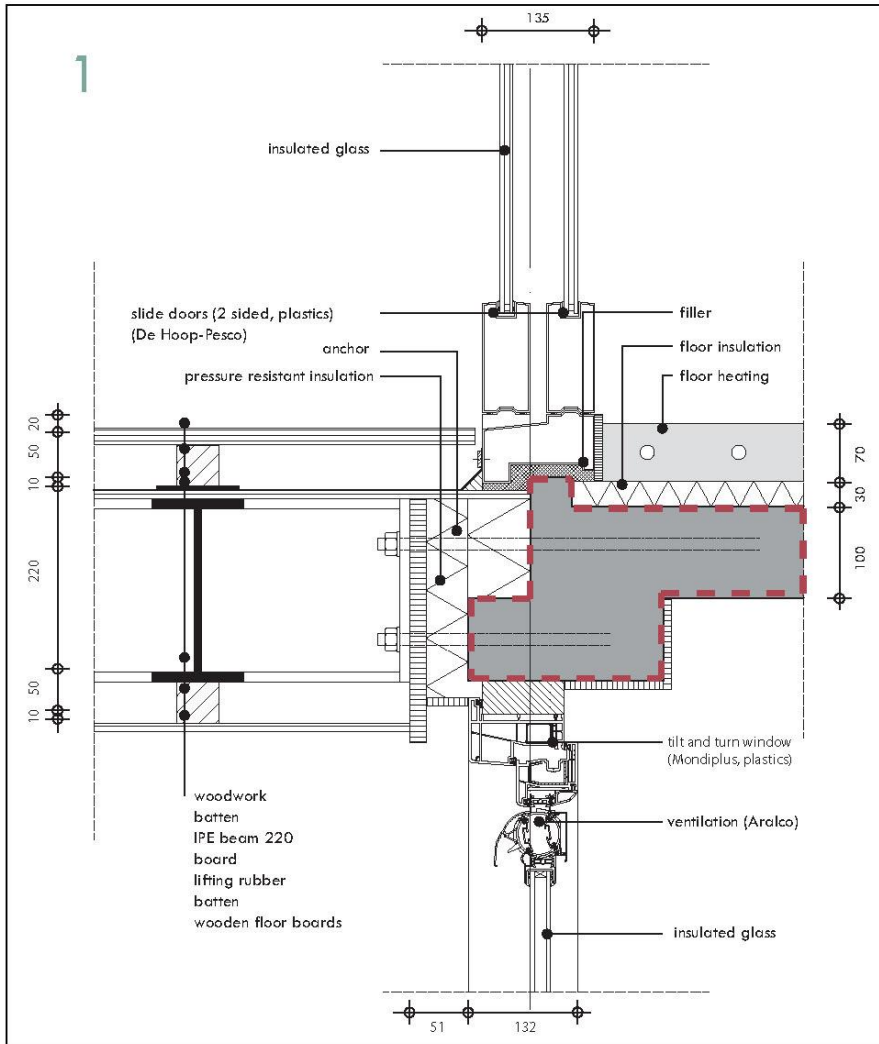


Section AA'

Details



Details



Details

