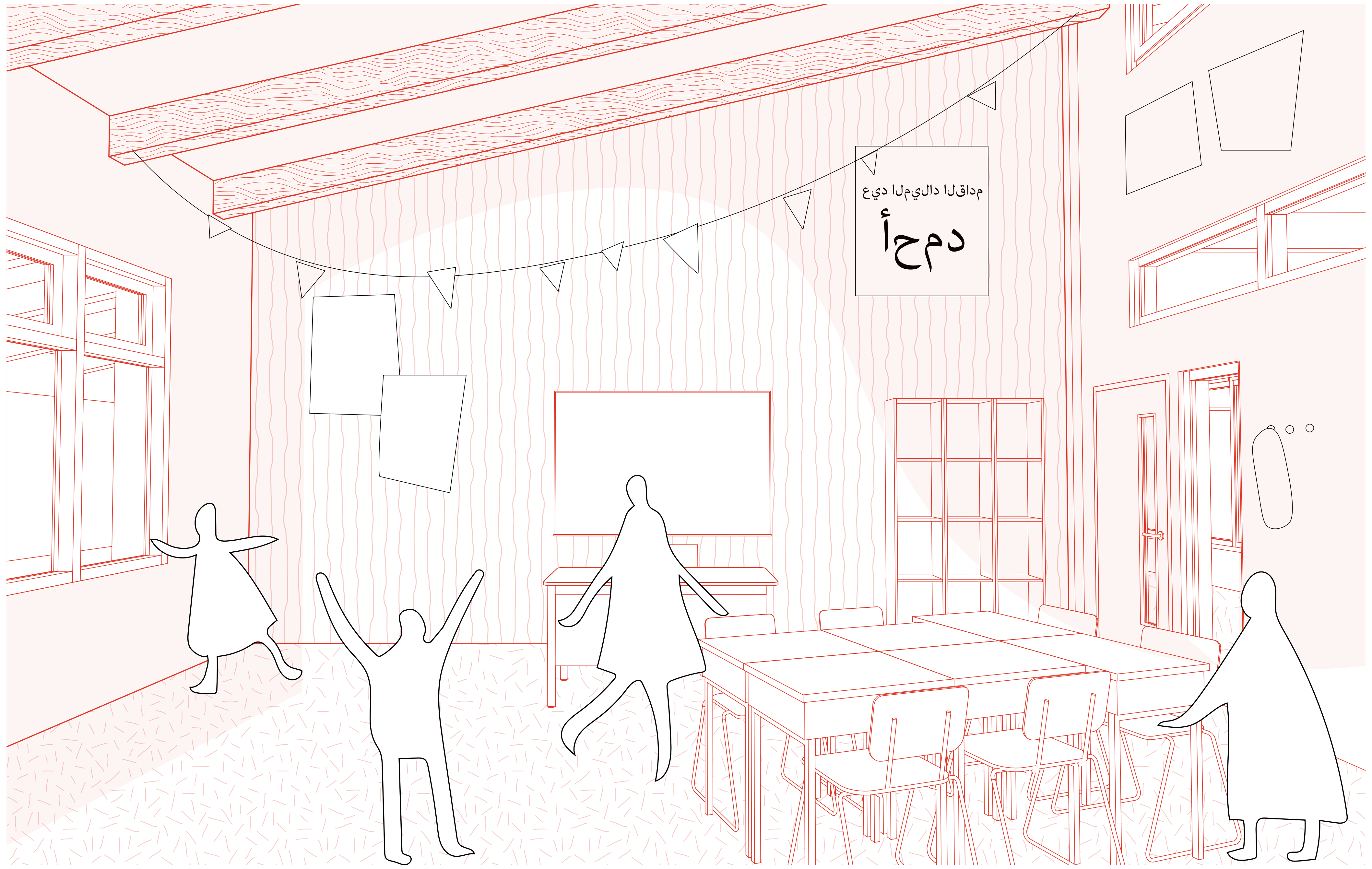
A future of hope.

Understanding how a primary school in post-conflict Homs can be designed to support both children's educational progress and psychological well-being in a context-aware and resource efficient manner.



David Knol

EXTREME Architecture Graduation Studio

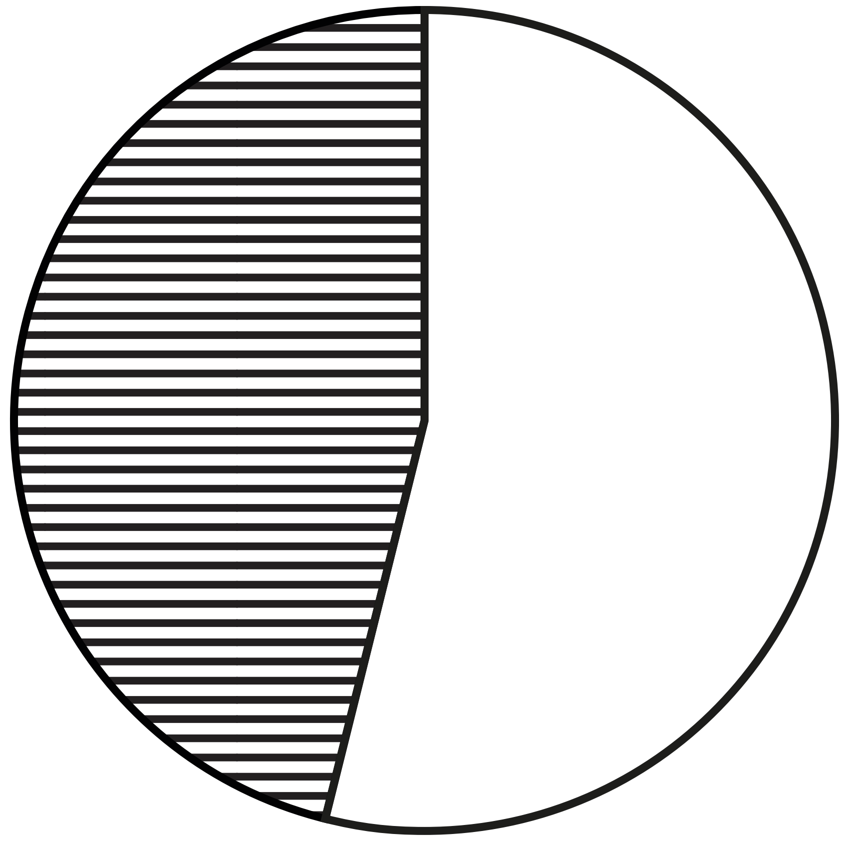
A3 presentation

5th of June 2026

Chapter 1. *Introduction*

Since 2011, Syria has been dealing with a destructive civil war and its aftermath

As a following of the conflict,
over 12 million Syrians have been forcibly displaced



That’s almost 50% of Syria’s complete population - on the run for safety

Furthermore - 2.6 million Syrian children are currently not able to go to school

7 out of 10 Syrian children are experiencing forms of trauma - such as PTSD, depression or anxiety

What can architecture do?

What can I, *as architect*, do?

Chapter 2. *Results*

Part 1 - Research

Chapter 1.
Background information

Educational and psychological background of Syrian kids.

Chapter 2.
Literature study

How can architecture influence learning progress and psychological well-being?

Chapter 3.
Policy study

How do exisiting policy frameworks approach schooling in post-conflict settings?

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Chapter 4.
Design input table
Conclusion

What architectural elements should be included in the design?

Design parameter	Design implication	Source(s)
Light	Providing enough natural light significantly influences children's performances, especially in reading and science scores. Large windows have also shown to be associated with better learning performances.	Barrett et al (2015); Heschong et al (2002)

Chapter 4.
Design input table
Conclusion

What architectural elements should be included in the design?

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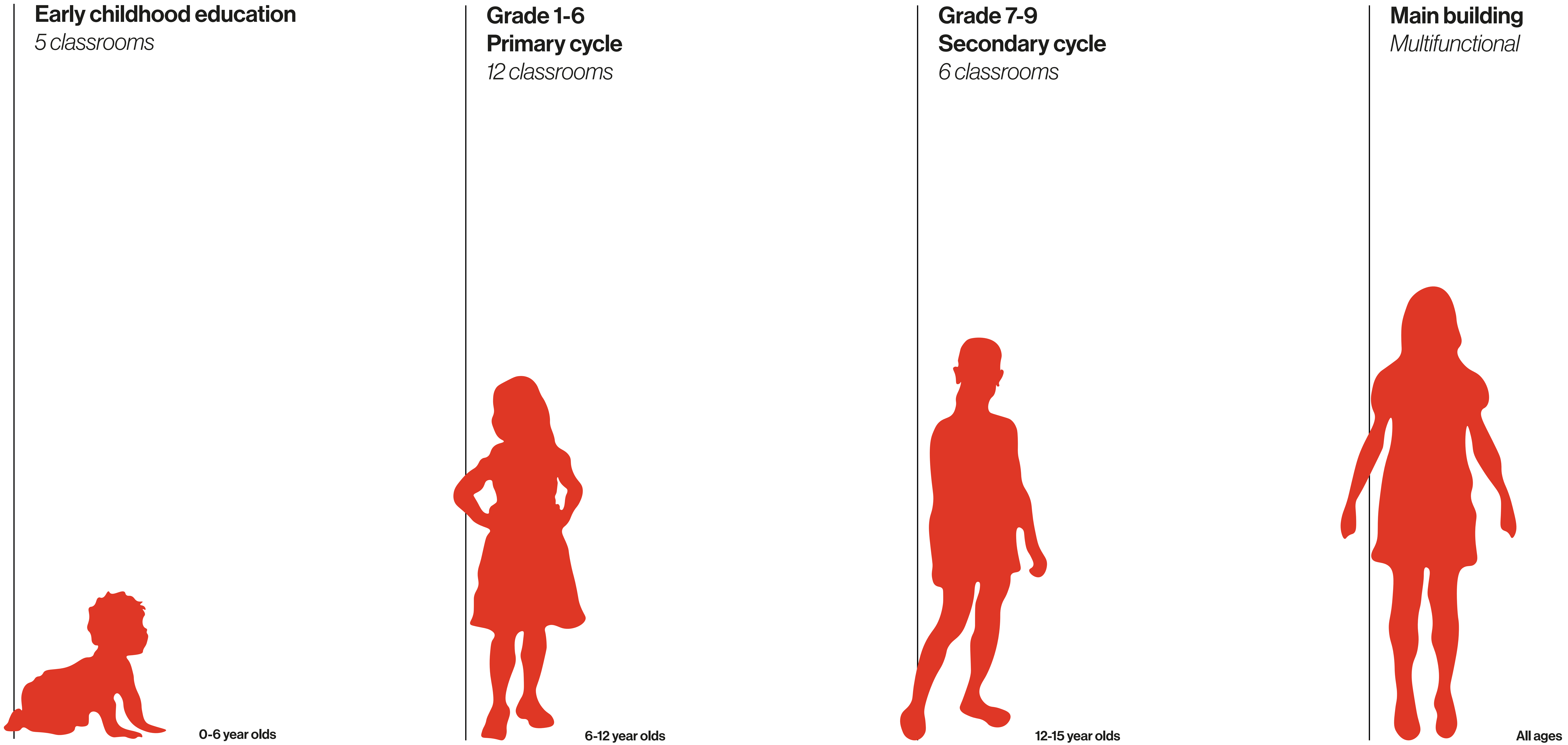
Part 2 - Context

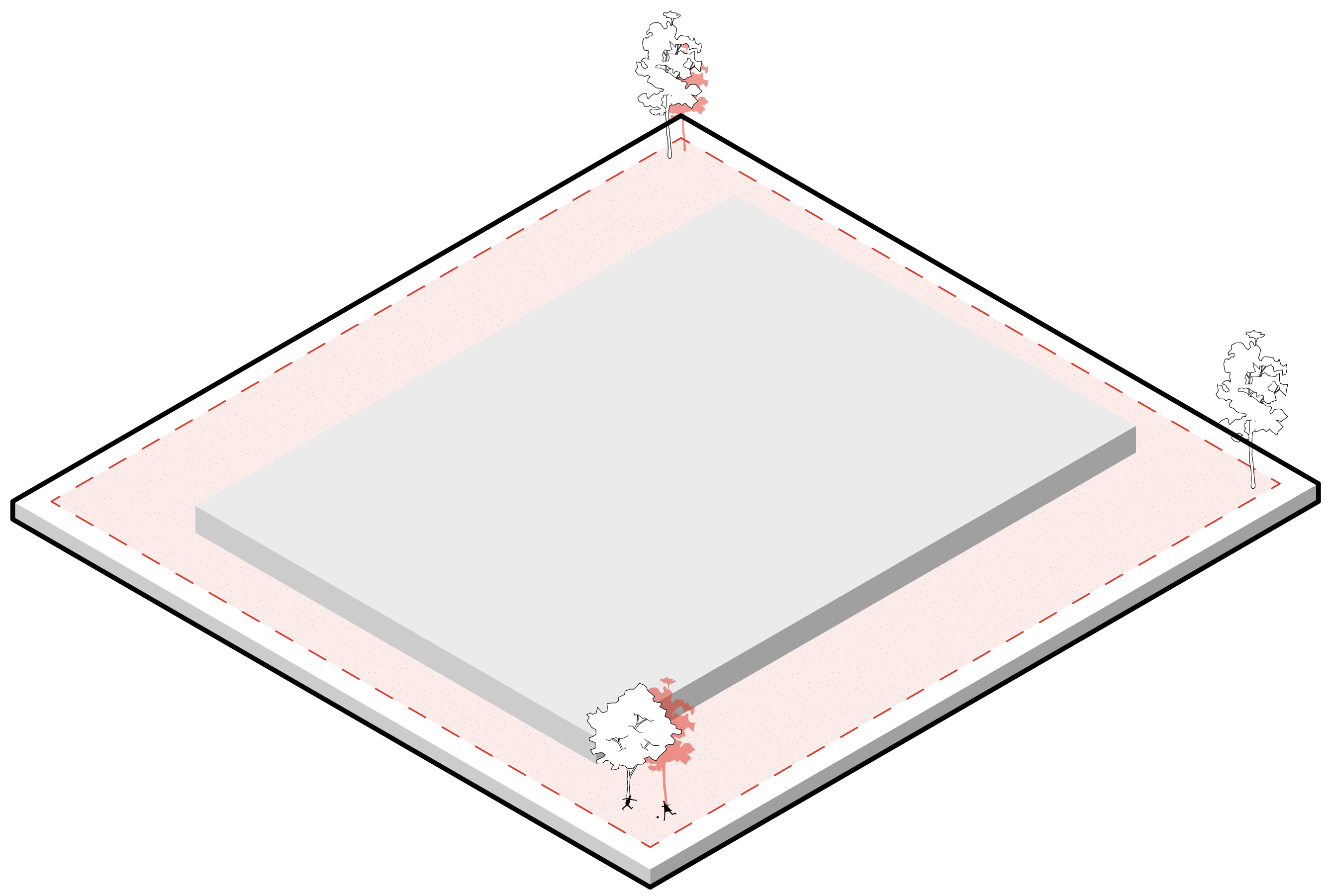
Homs, Syria

Population 2026	800.000
Population 2011	1.100.000
District	Homs
Altitude	501m

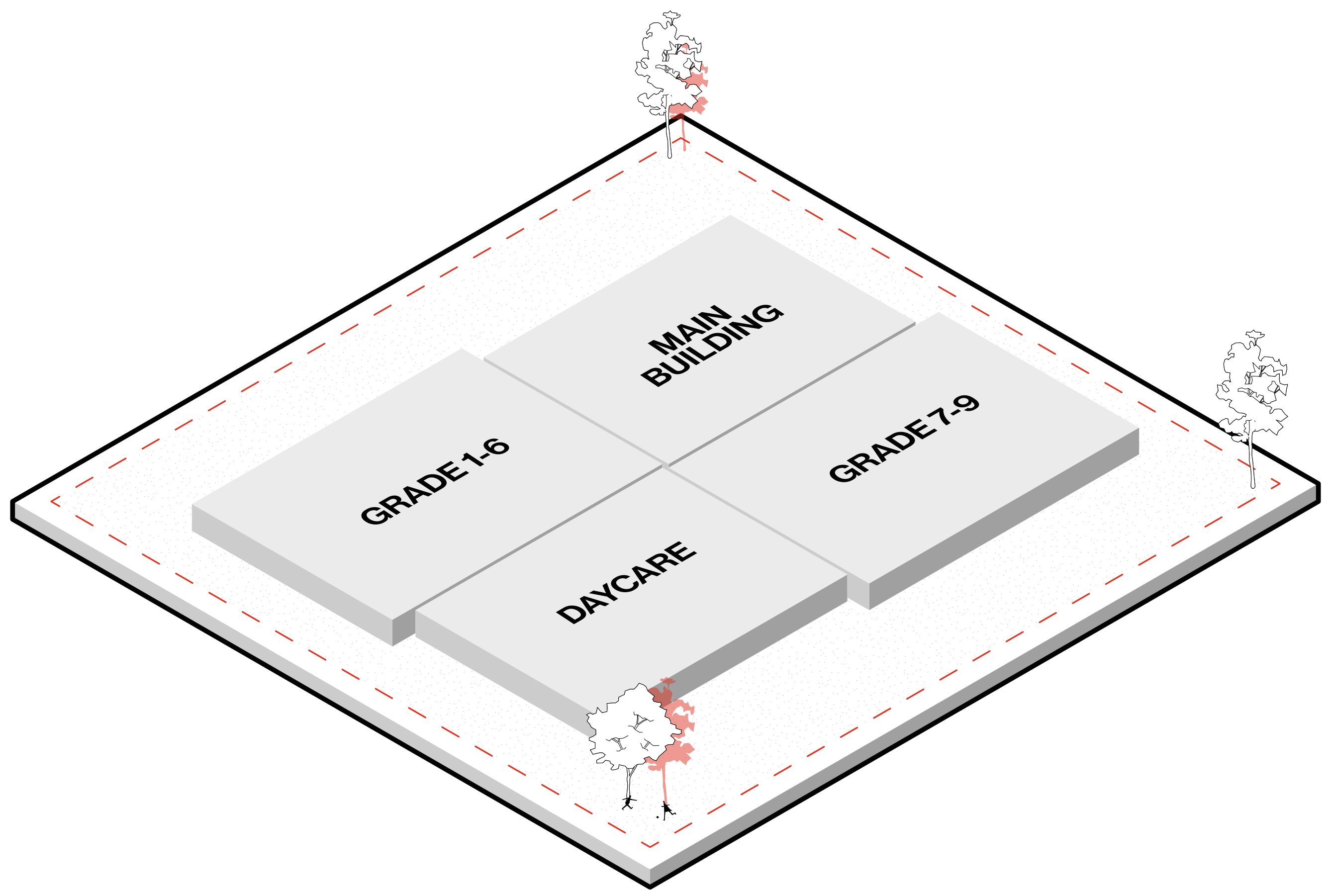
Al-Wa'er, Homs, Syria

Part 2 - Concept

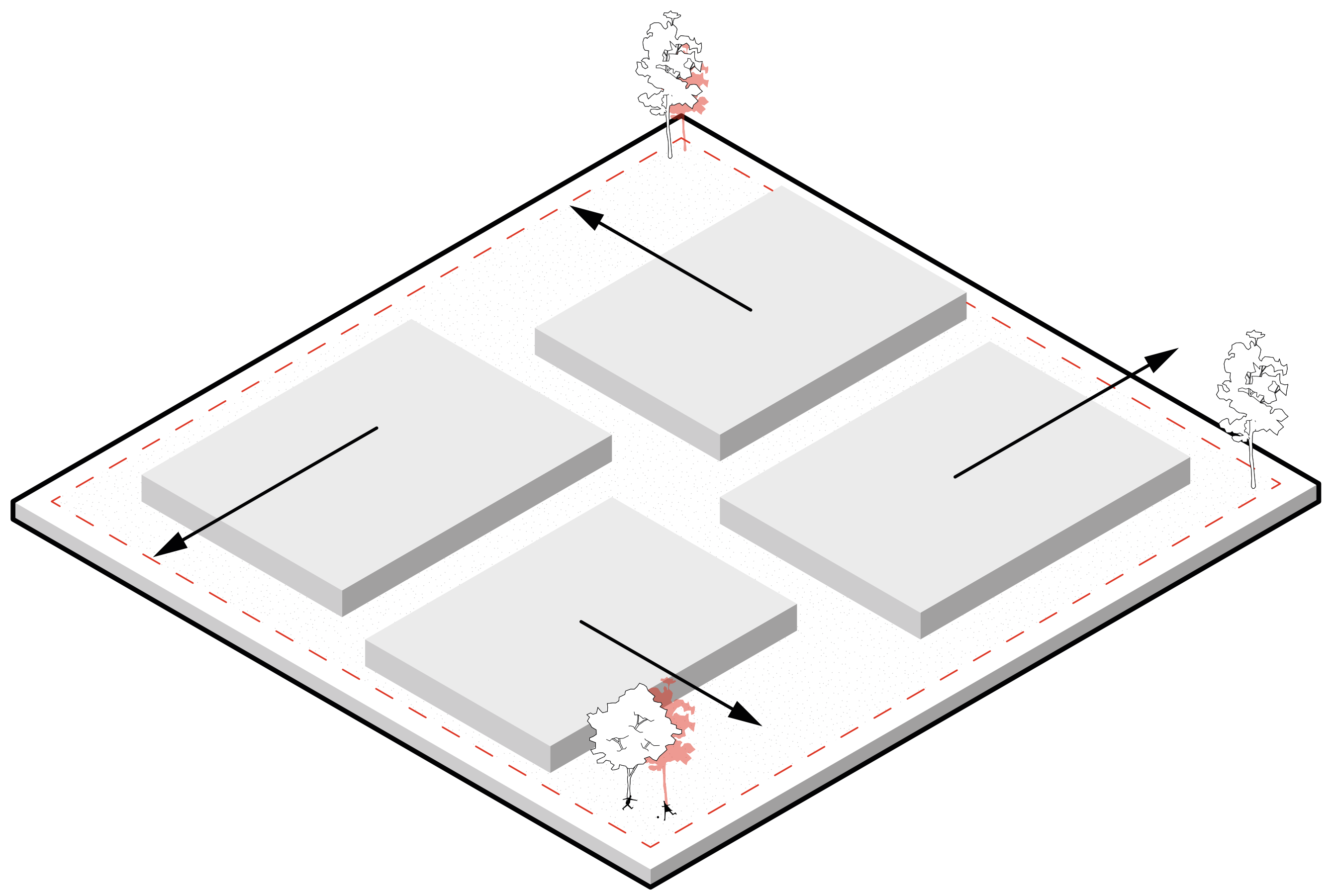

Early childhood education
5 classrooms
0-6 year olds
Grade 1-6
Primary cycle
12 classrooms
6-12 year olds
Grade 7-9
Secondary cycle
6 classrooms
12-15 year olds
Main building
Multifunctional
All ages



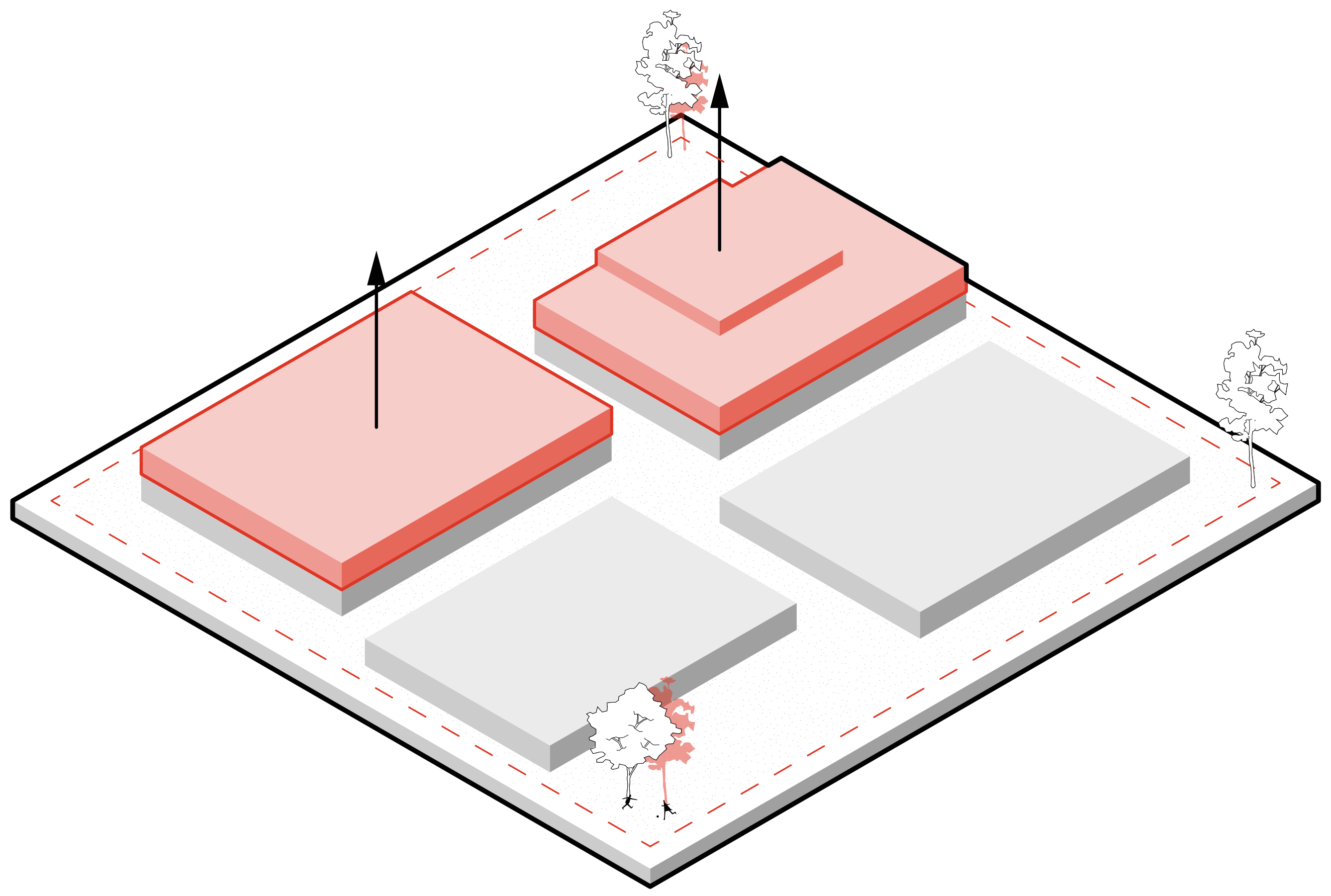
Step 1
Site and volume.



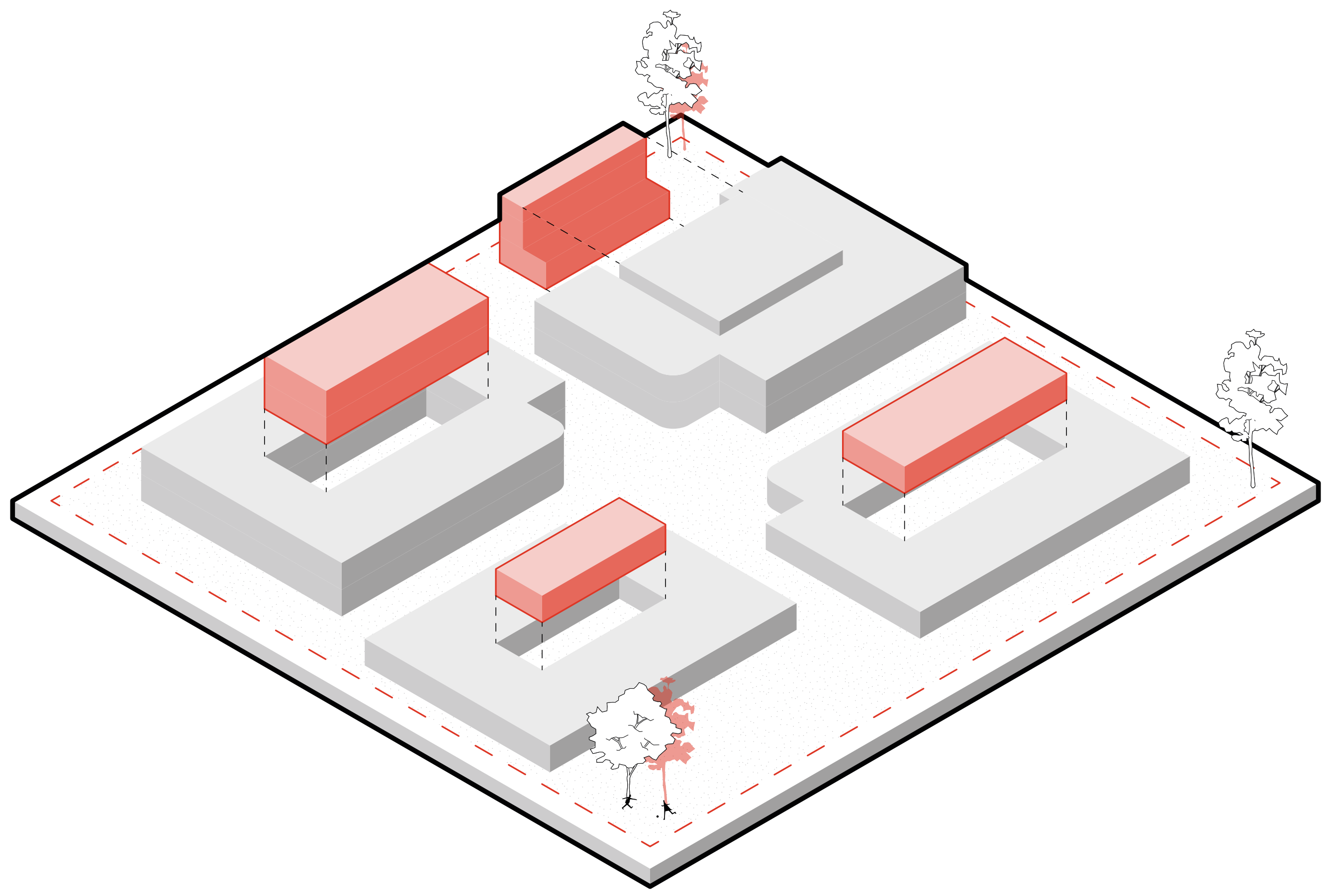
Step 2
Seperation of the volume according to concept.



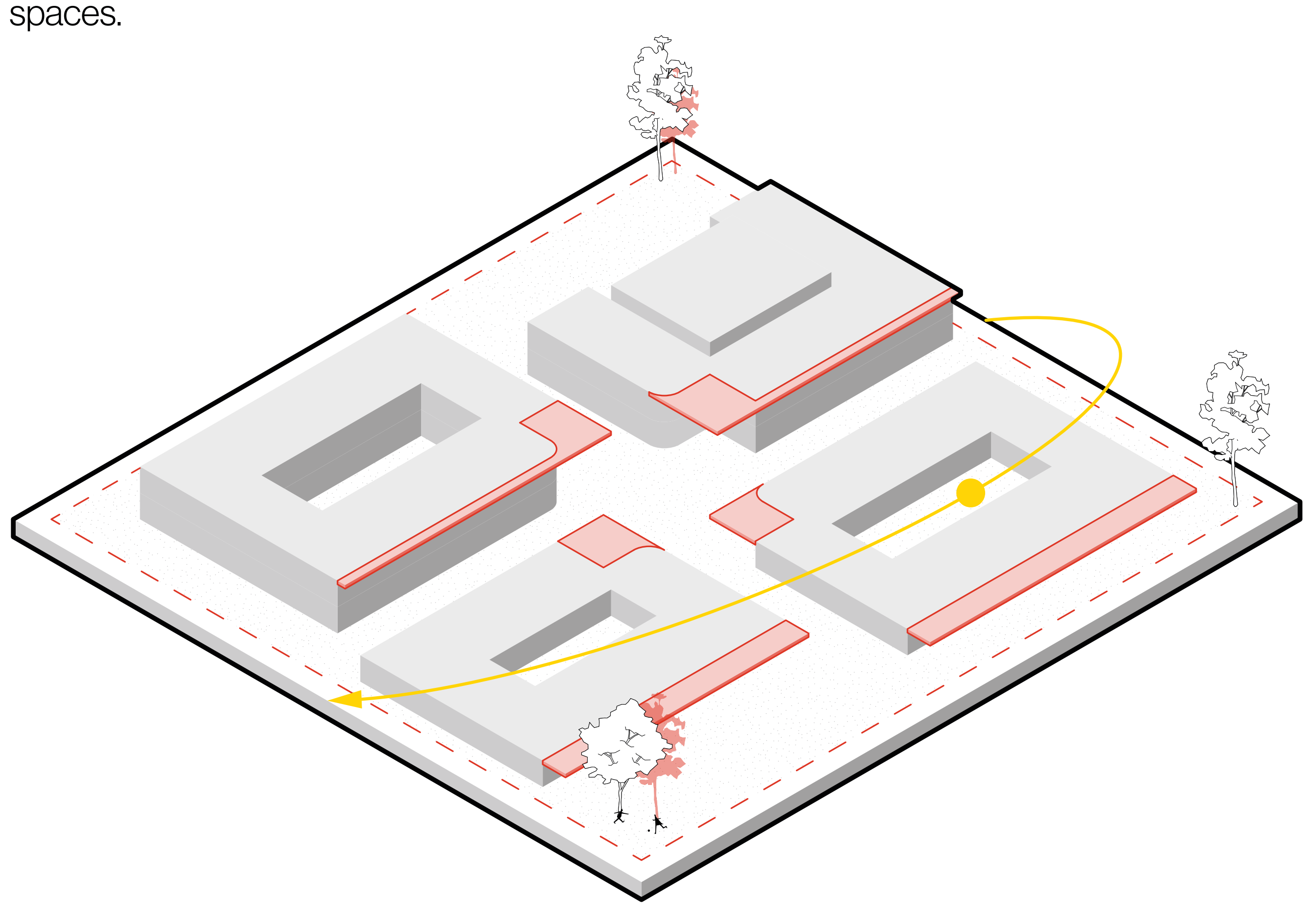
Step 3
Volumes are shifted in order to create outdoor spaces.



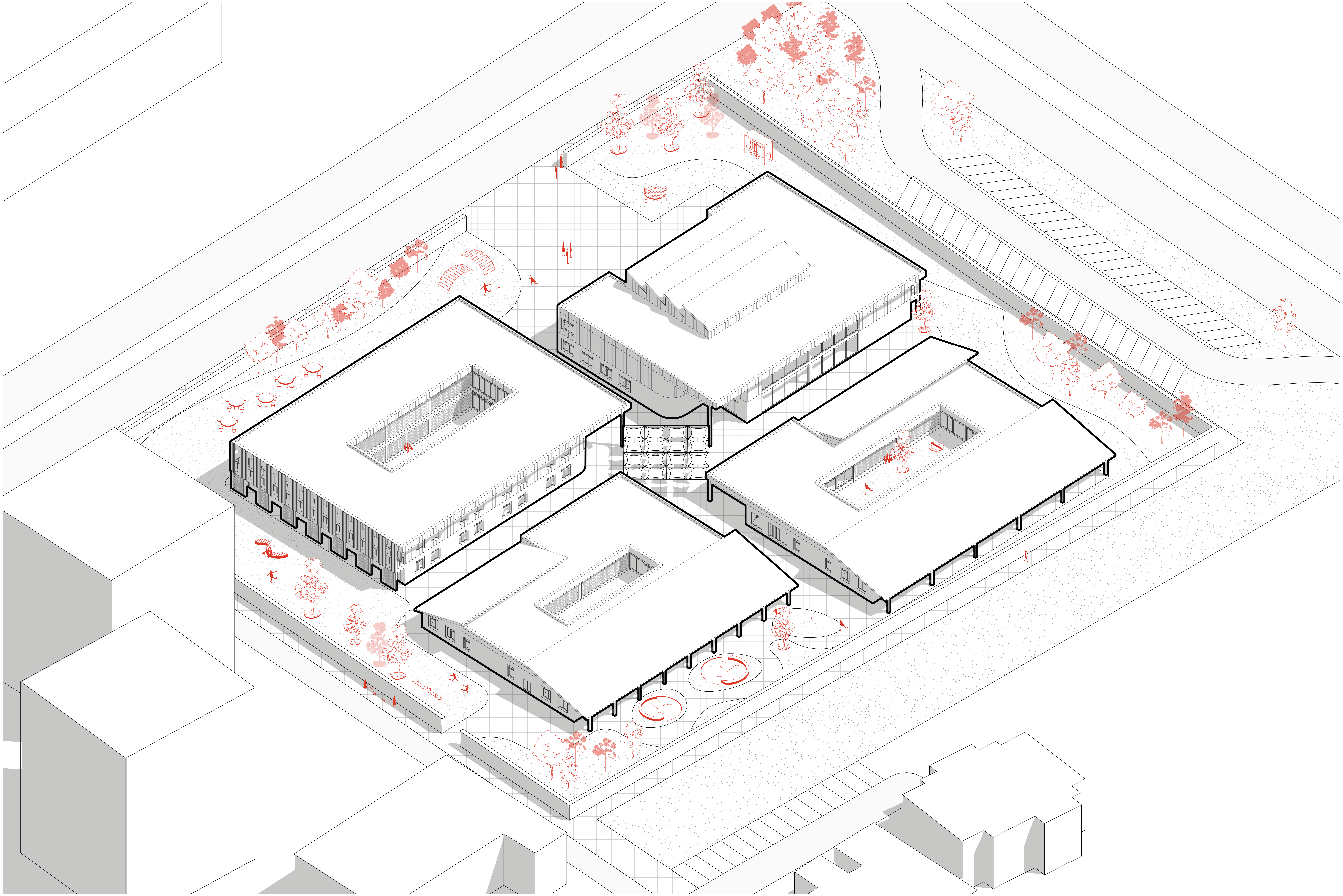
Step 4
Volumes are added on top in order to fit the program.



Step 5
Building parts are removed in order to create (court)yards.



Step 6
Climate protections and thresholds are added.



Step 7
The final building.

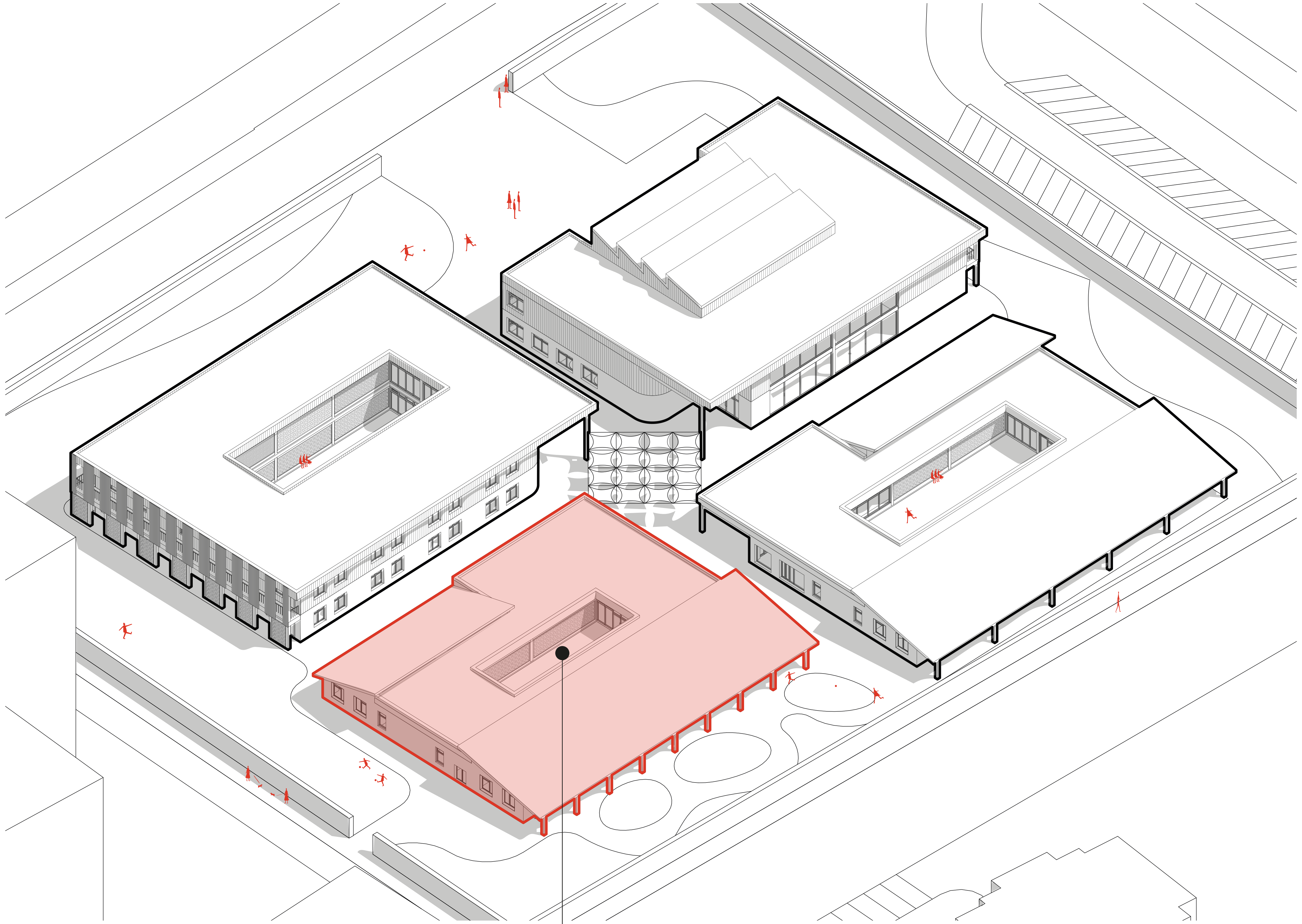
Part 3 - Design

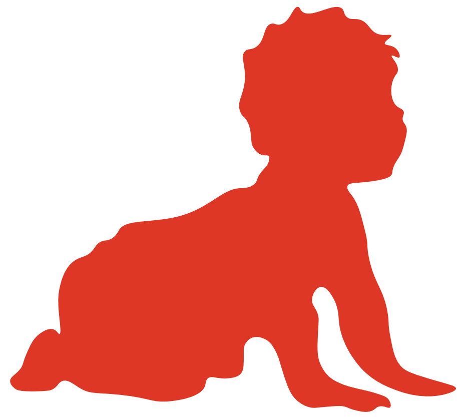
Early childhood education
Classroom principles
Sustainability

Grade 1-6
Classroom principles
Building fragments and sustainability

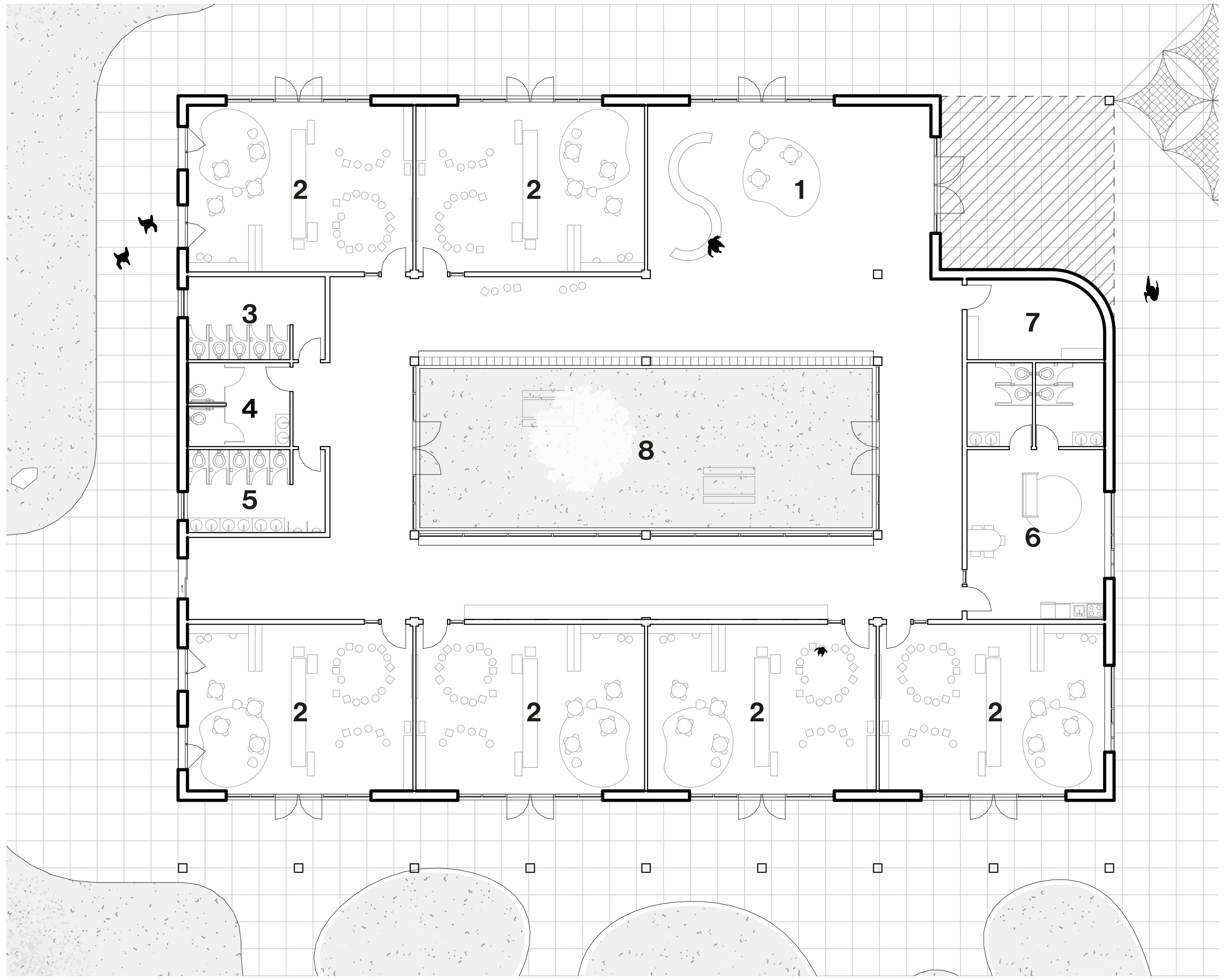
Grade 7-9
Classroom principles
Construction & flexibility

Main building



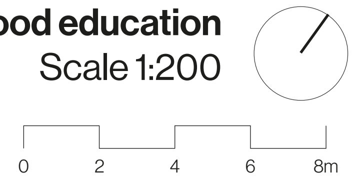


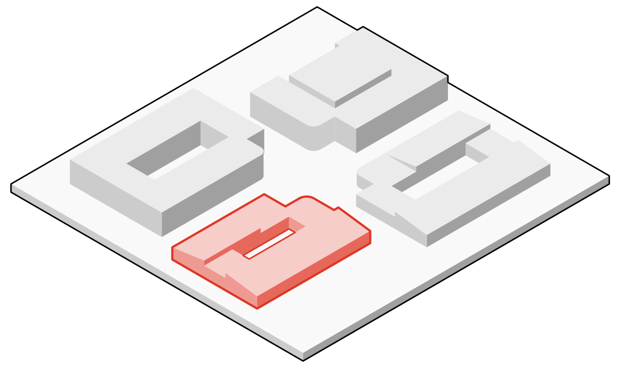
Early childhood education
0-6 years old



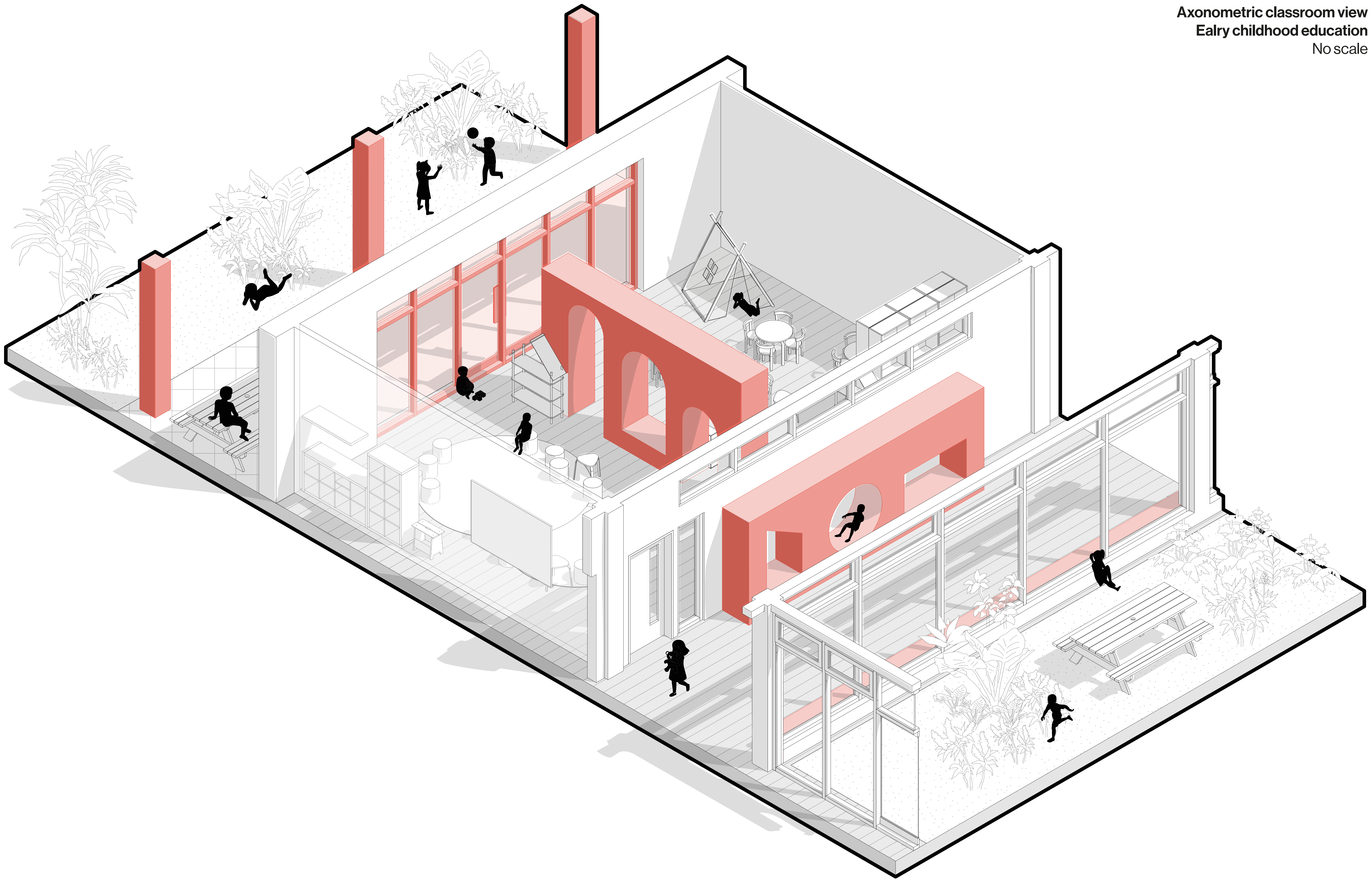
1. Entrance hall
2. Classrooms
3. Toilets boys
4. Large toilets with changing space
5. Toilets girls
6. Staff's room
7. Storage
8. Courtyard

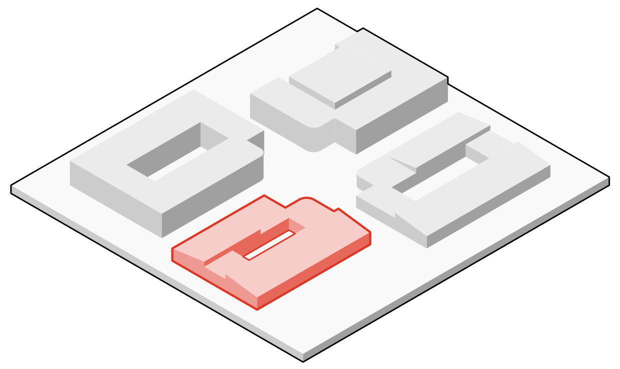
Ground floor plan early childhood education
Scale 1:200





Axonometric classroom view
Ealry childhood education
No scale

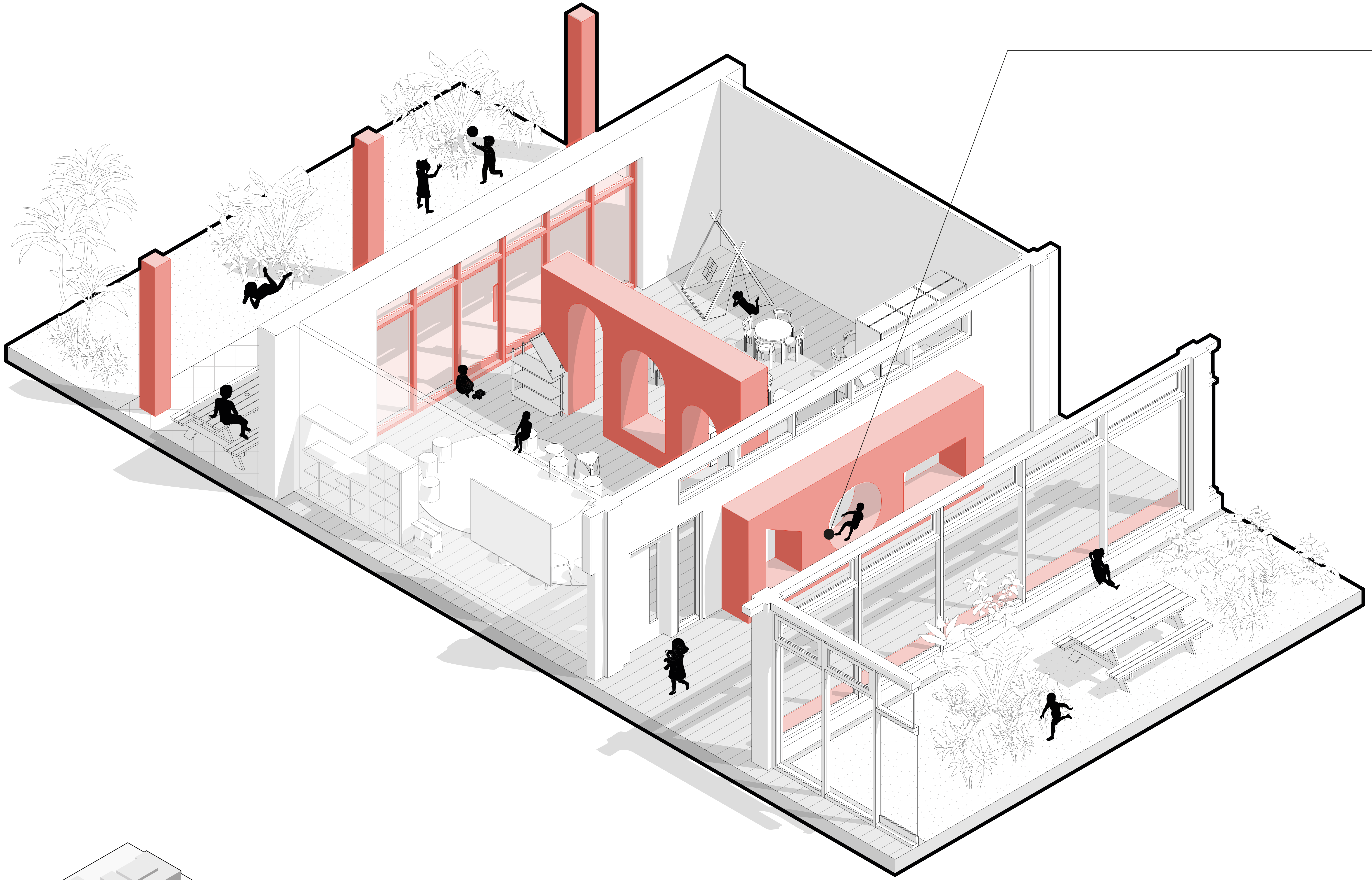


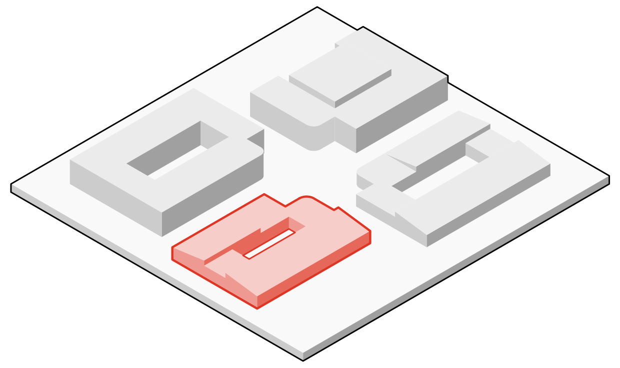


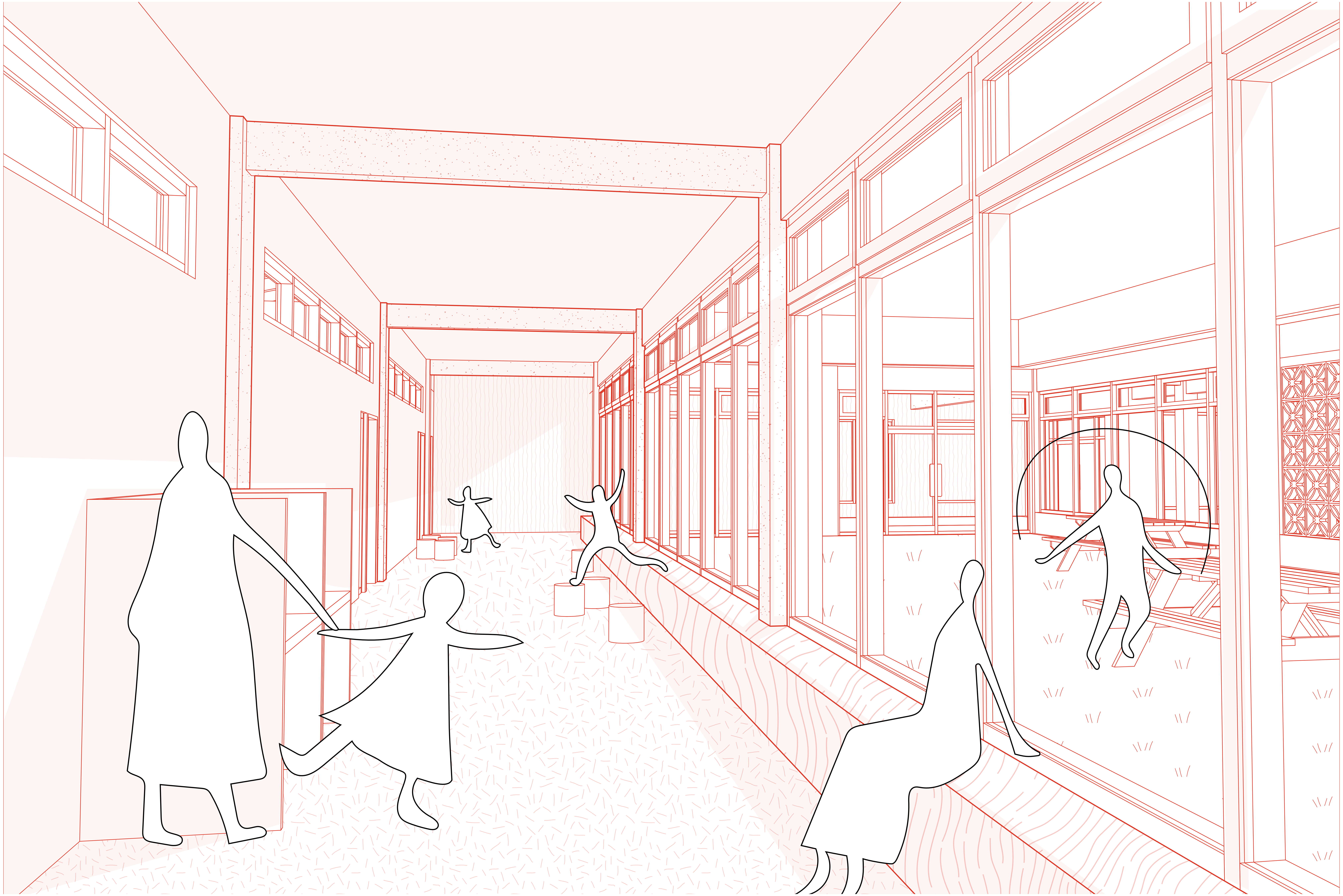
DESIGN INPUT THEME

Colour, Light, Green

Wide corridors are designed so that they can be used as a place for interaction and learning. Brighter accents can be used within furniture elements.

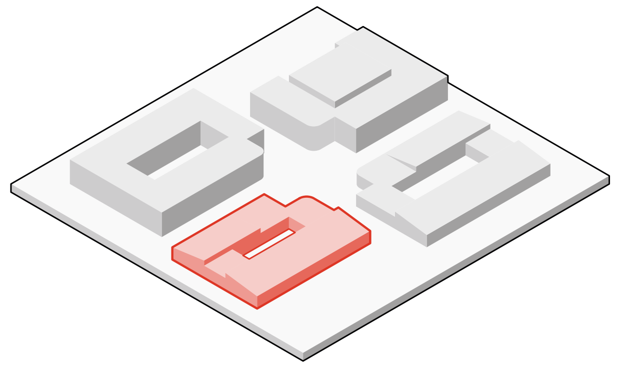






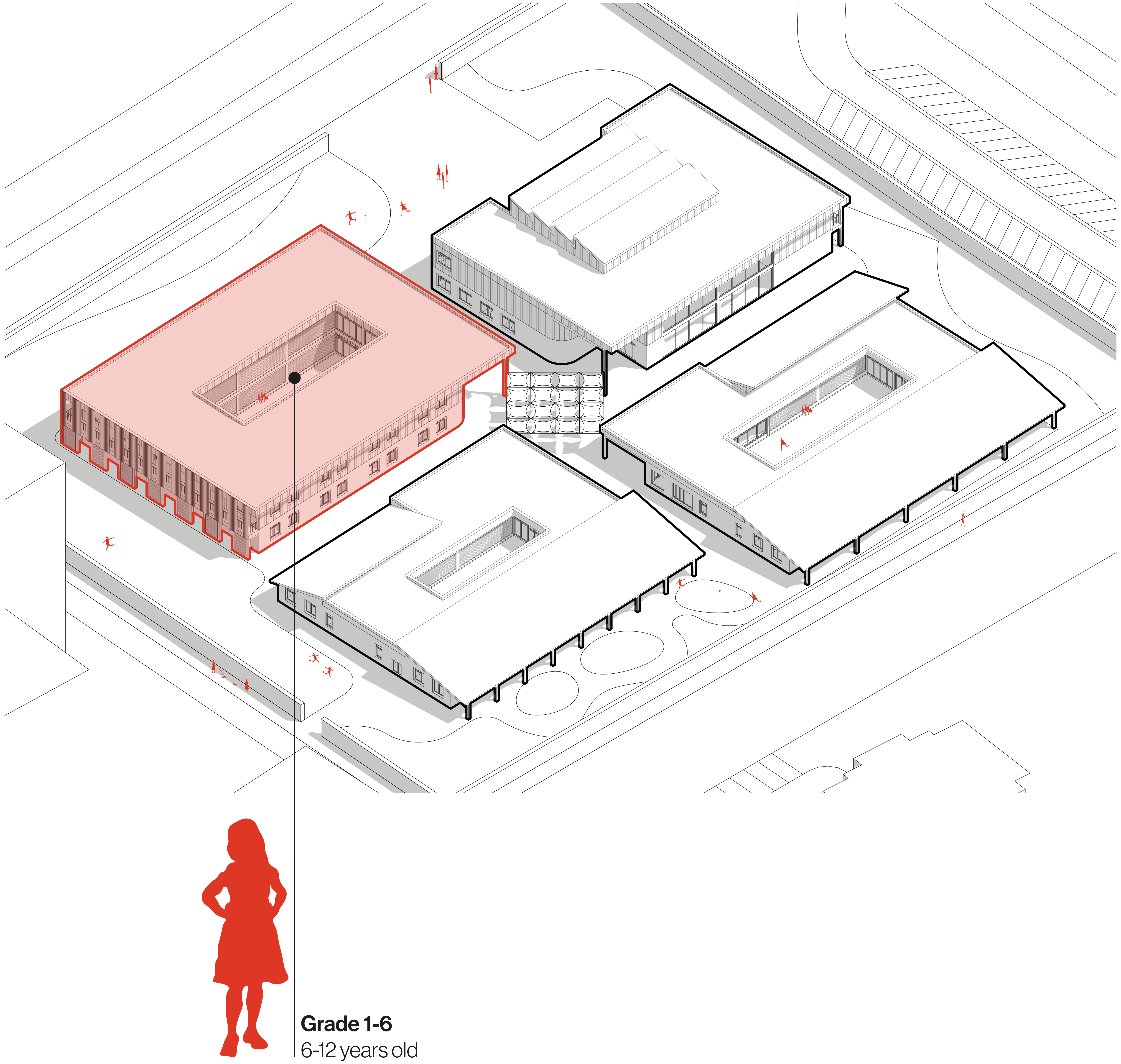
Sustainability - Early childhood education

Perspective section AA'
Scaled

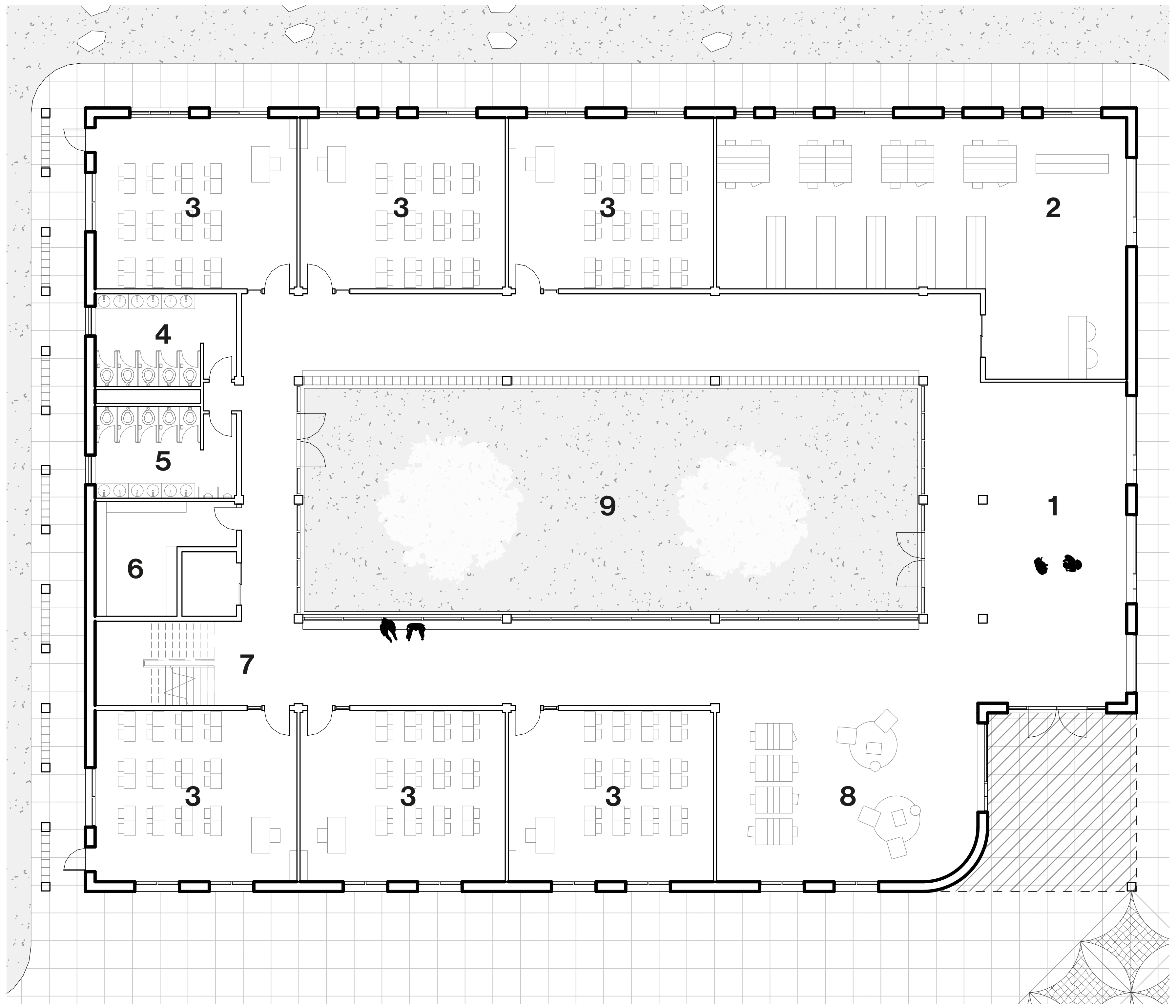


Natural ventilation throughout classrooms and building. Variating opening heights optimize profit from convection flows

Perspective section AA'
Scaled



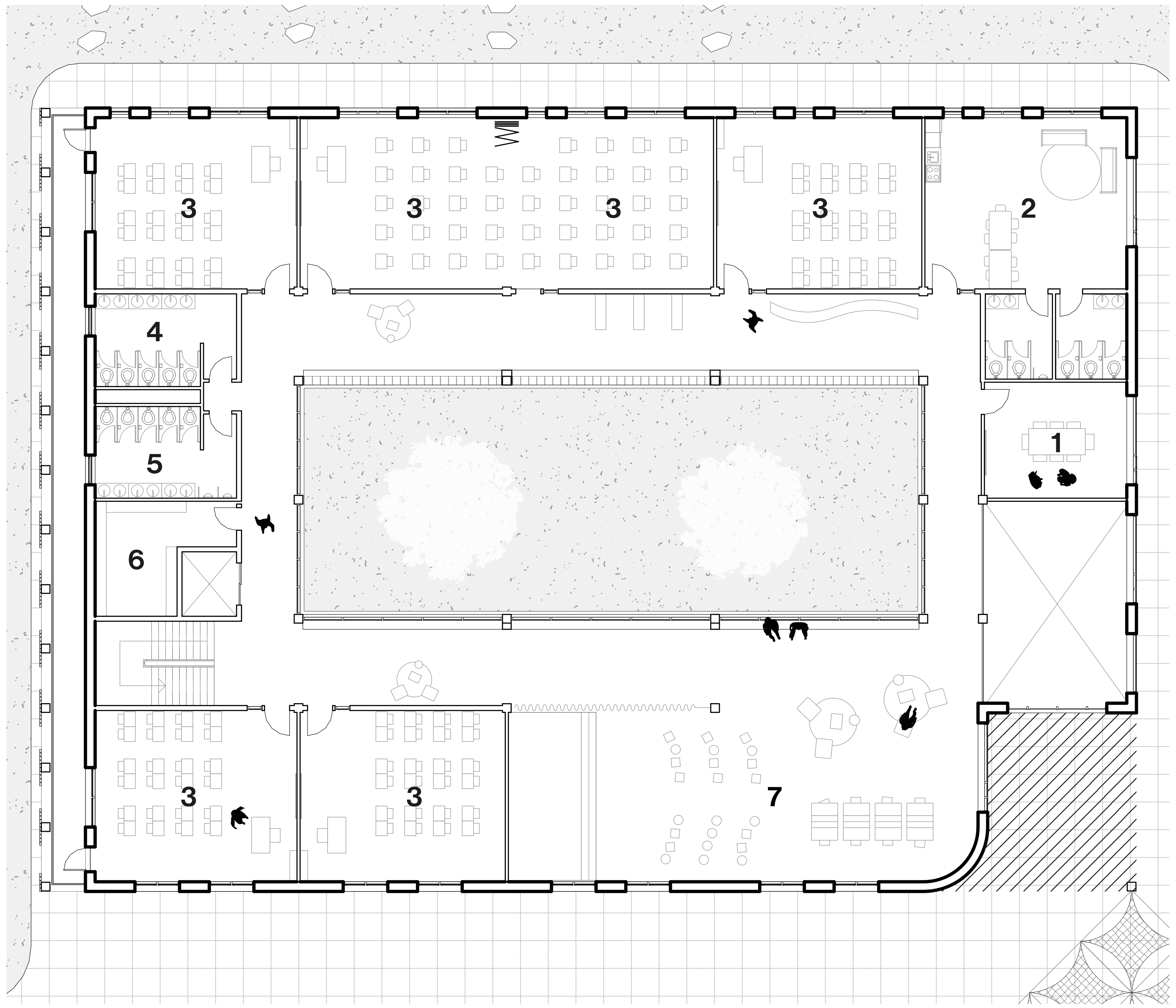
Grade 1-6
6-12 years old



1. Entrance hall
2. Library
3. Classrooms
4. Toilets boys
5. Toilets girls
6. Storage
7. Staircase and elevator
8. Learning square
9. Courtyard

Ground floor plan grade 1-6
Scale 1:200

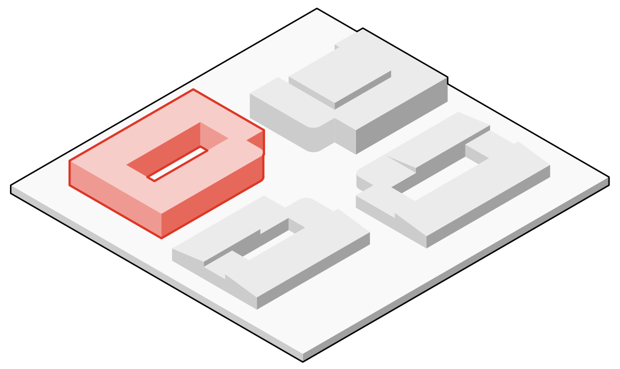
0 2 4 6 8m



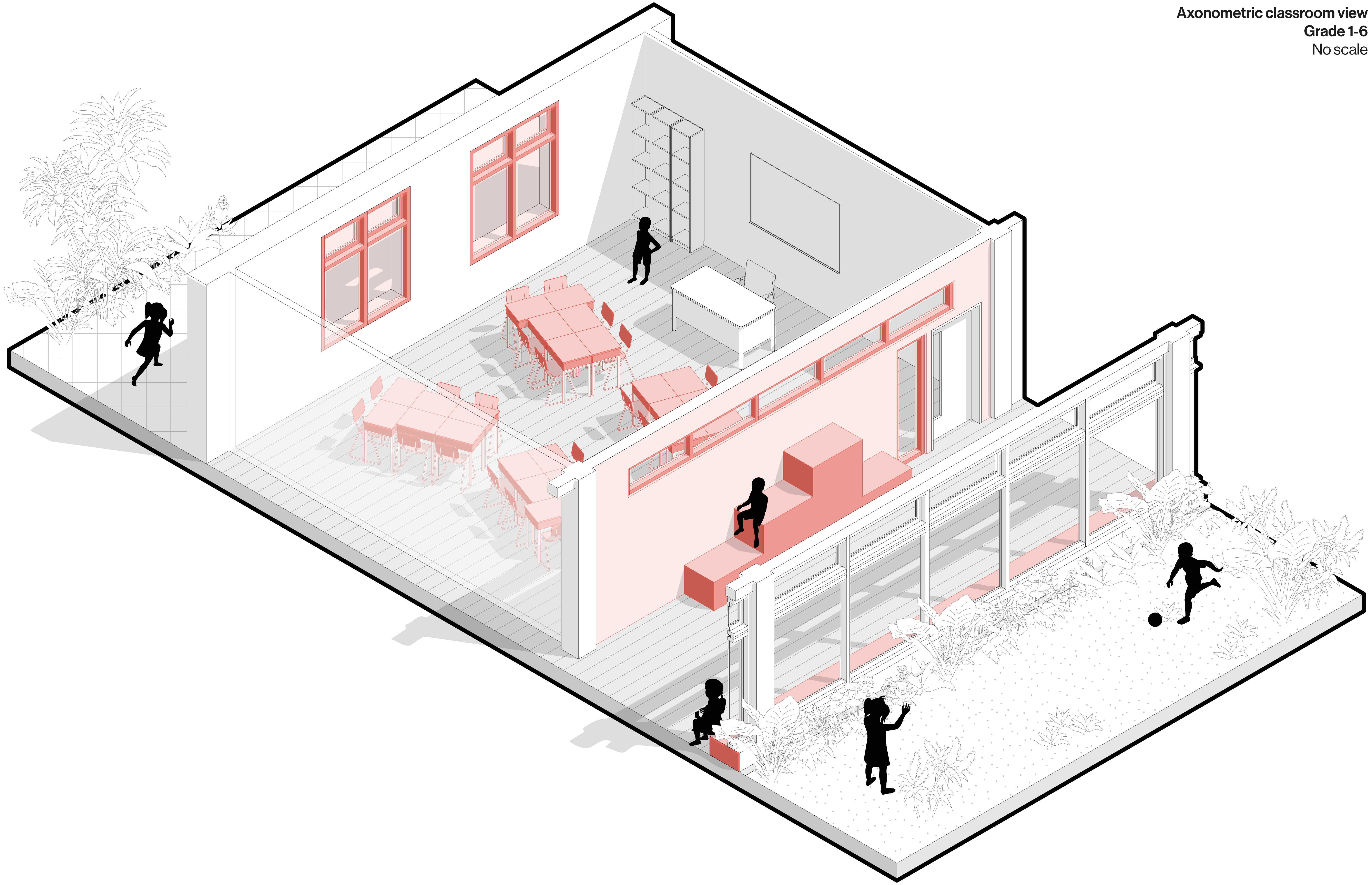
1. Office/meeting room
2. Staff's room
3. Classroom
4. Toilet boys
5. Toilet girls
6. Storage
7. Multifunctional learning square

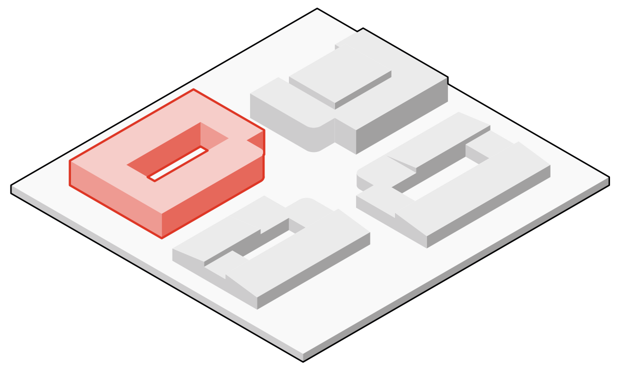
First floor plan grade 1-6
Scale 1:200

0 2 4 6 8m



Axonometric classroom view
Grade 1-6
No scale

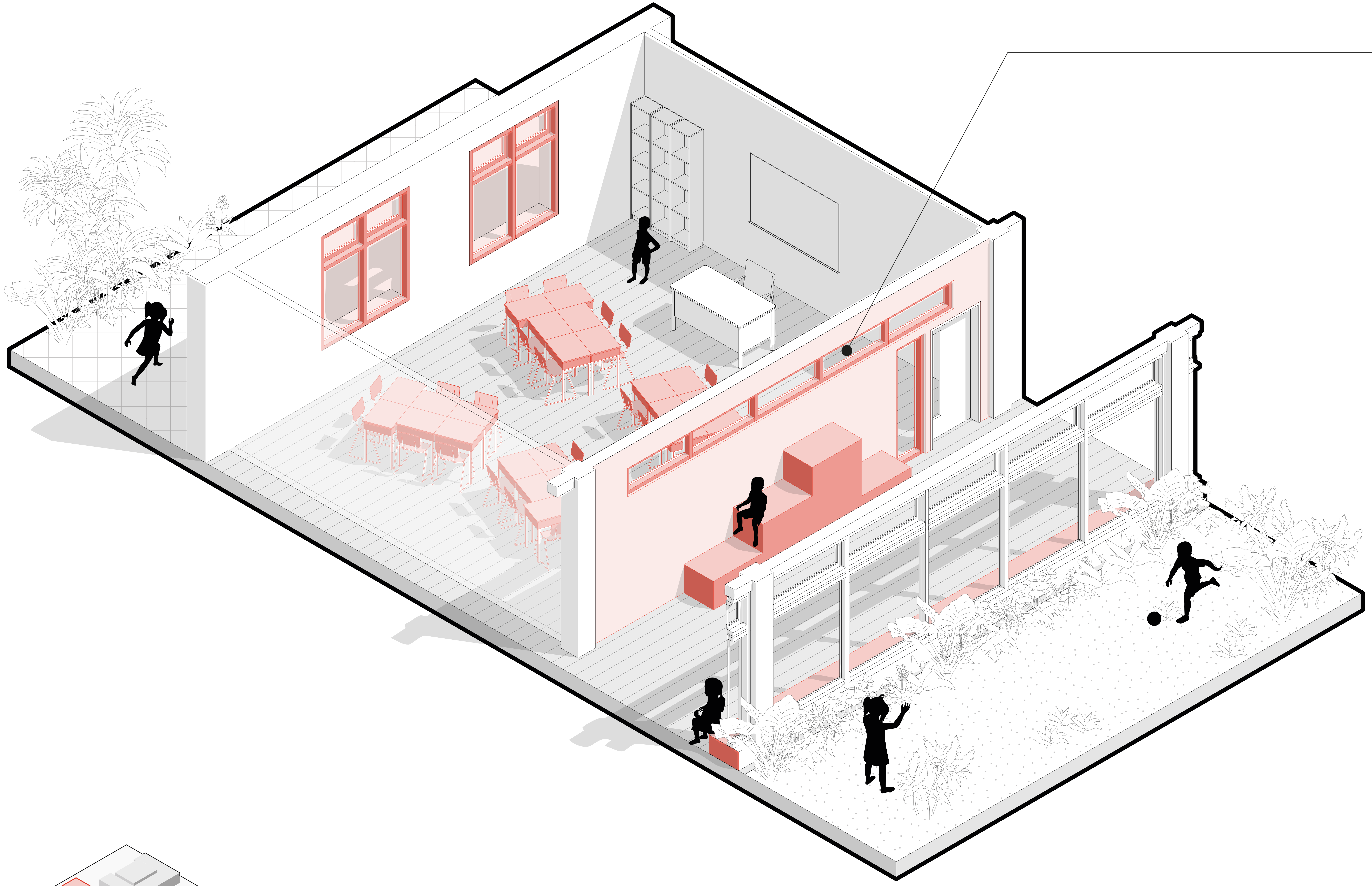


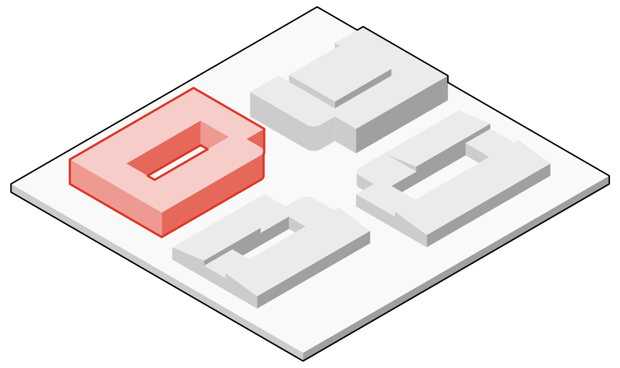


DESIGN INPUT THEME

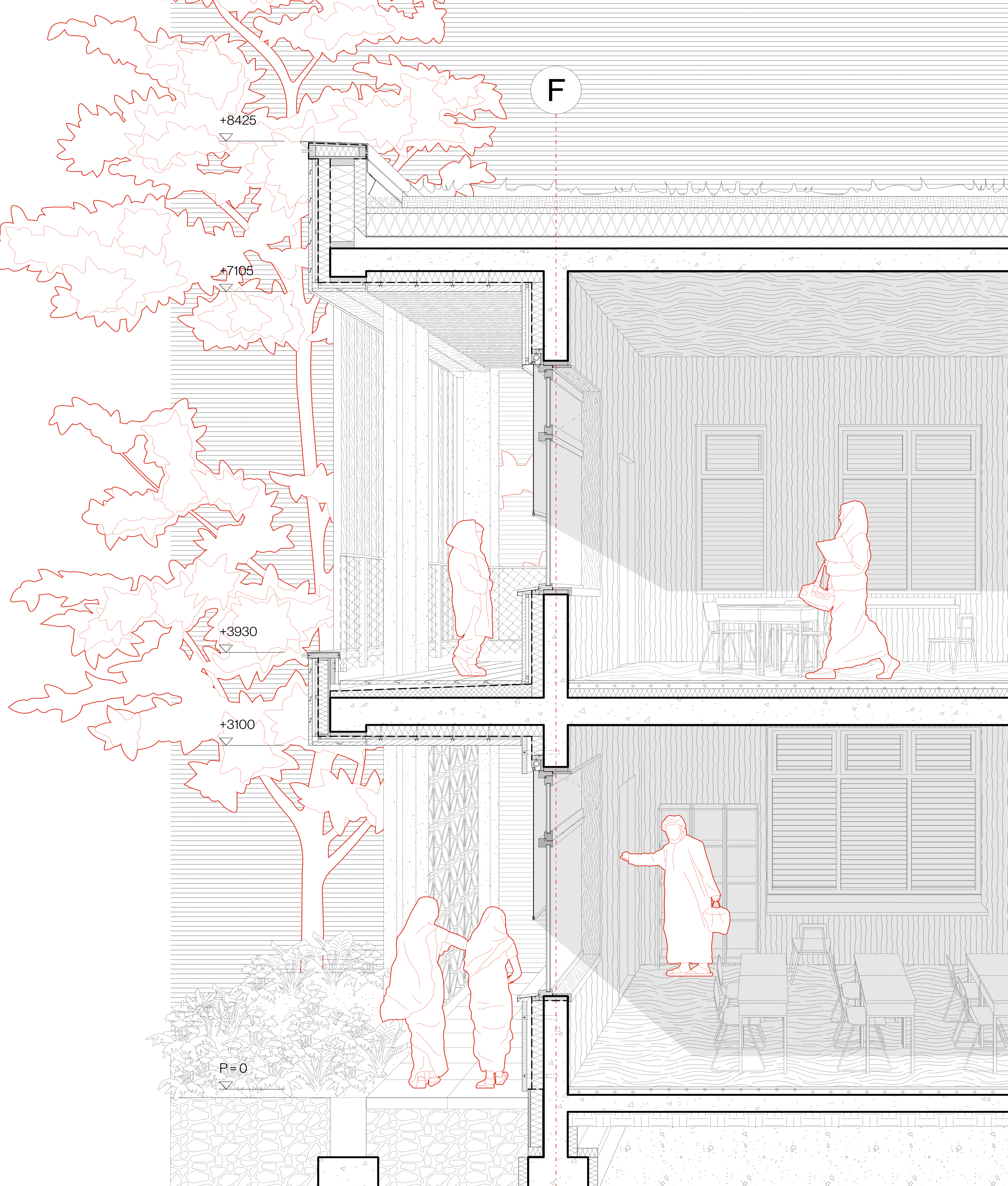
Light, Ventilation

More daylight enters the classroom from the corridor area. At the same time, these windows allow for natural ventilation.





Materiality - Grade 1-6



1 Roof detail

Drought resistant vegitation	-
Growing medium	*100mm*
Filter fabric	-
Water retention + drainage layer	*50mm*
Root barrier	-
XPS Insulation	*200mm*
Drainage mat	*8mm*
Cement screed (sloped)	*100mm*
In-situ concrete roof	*200mm*
Plaster finish	*20mm*

2 Wooden facade detail

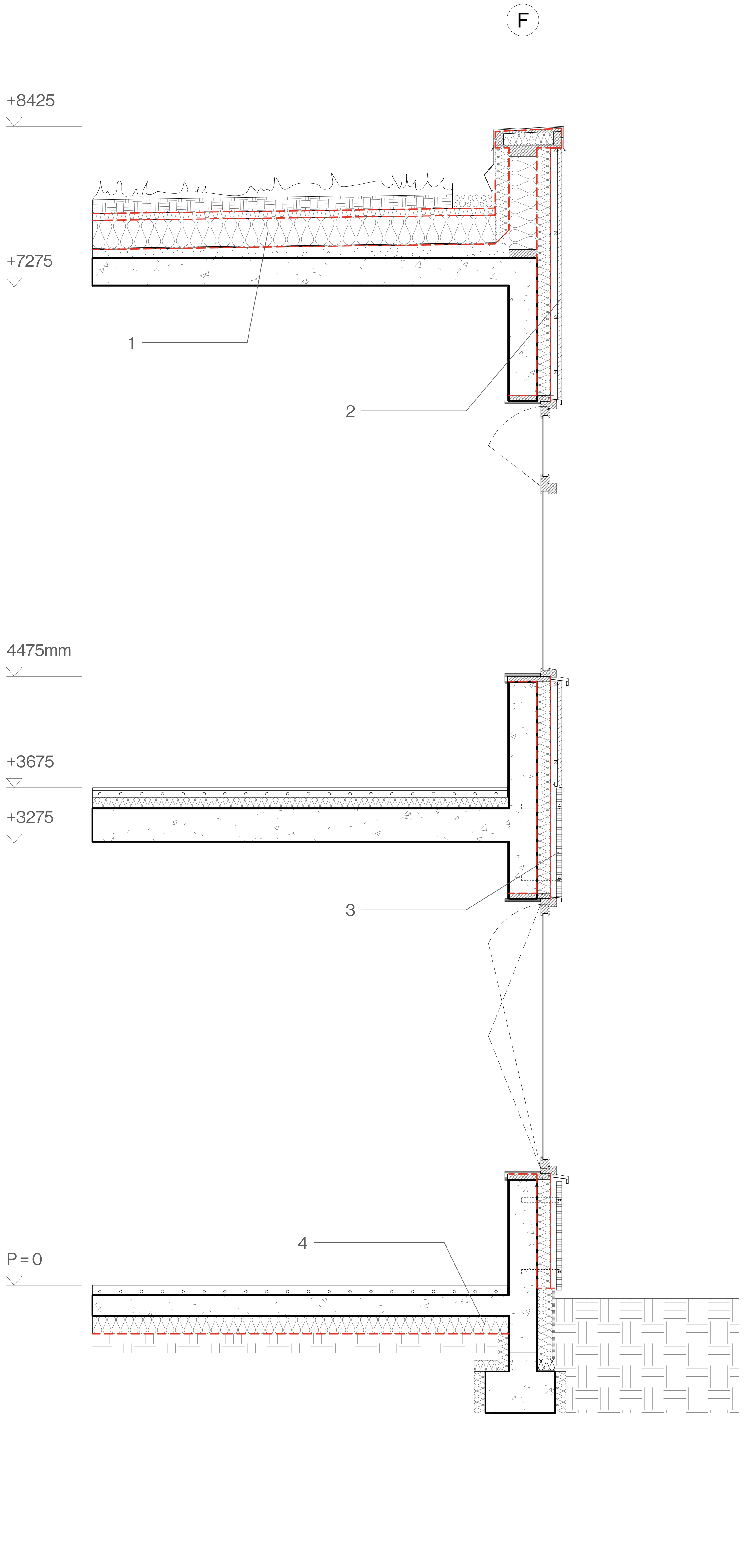
Wooden facade cladding	*30mm*
Facade carrying wooden framing	*2x25mm*
EPS insulation	*100mm*
In-situ concrete wall	*200mm*
Plaster finish	*20mm*

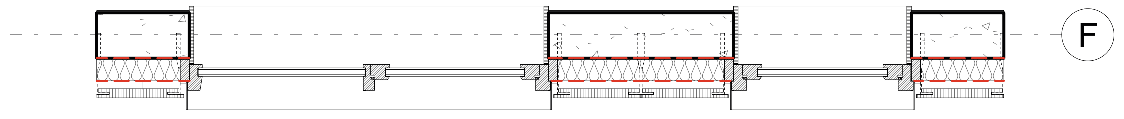
3 Limestone facade detail

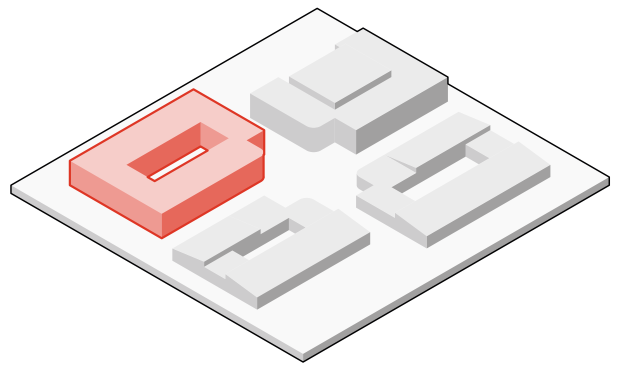
Limestone facade panels	*40mm*
Ventilated cavity	*40mm*
Breather membrane	-
EPS insulation	*100mm*
Vapour barrier	-
In-situ concrete wall	*200mm*
Plaster finish	*20mm*

4 Foundation detail

Linoleum flooring	*20mm*
Sand cement screed	*50mm*
In-situ concrete floor	*150mm*
EPS insulation	*130mm*
Vapour barrier	-
Sand layer	-

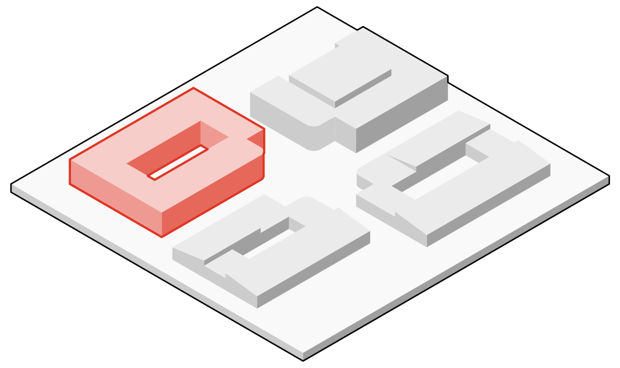


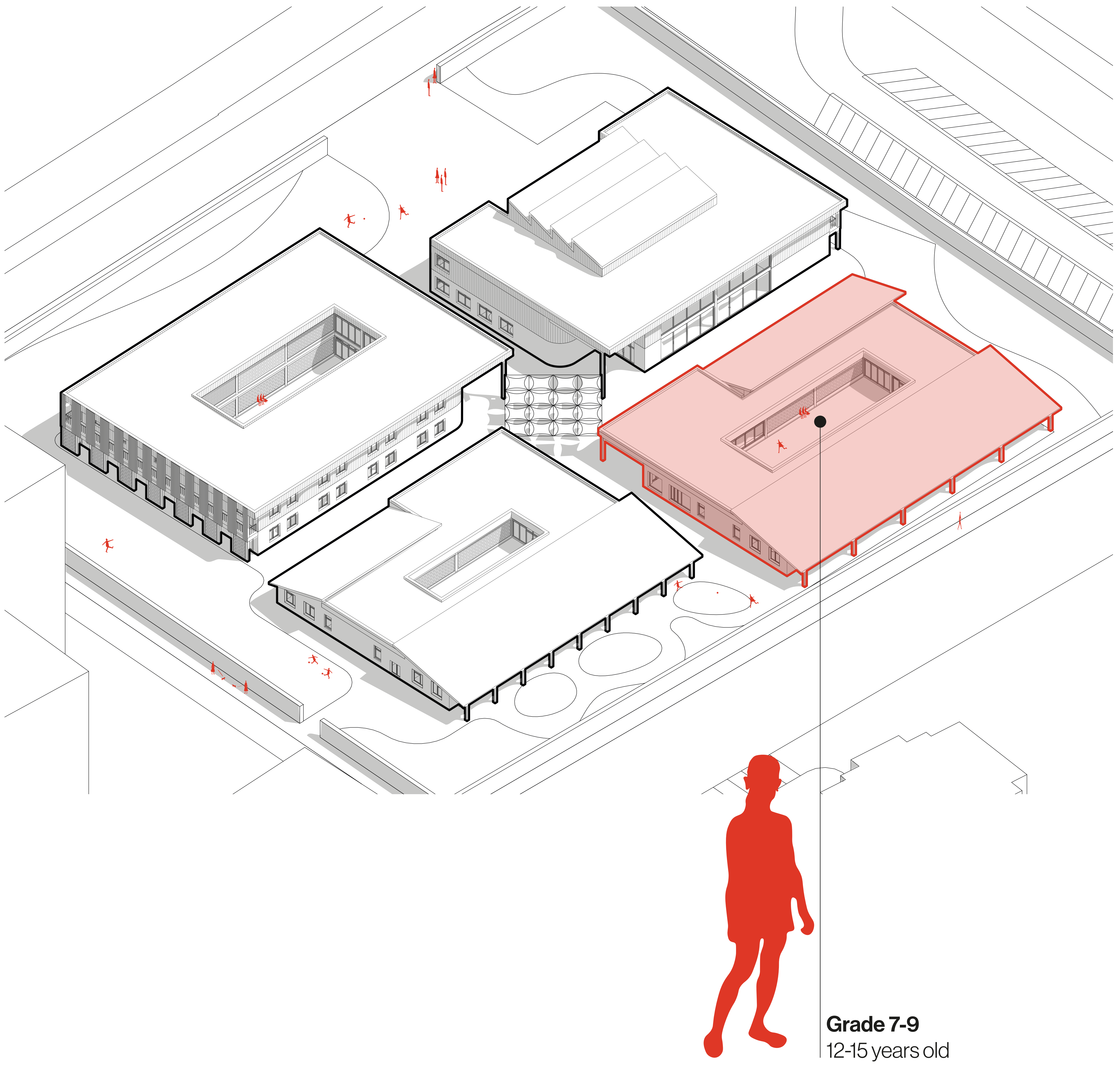


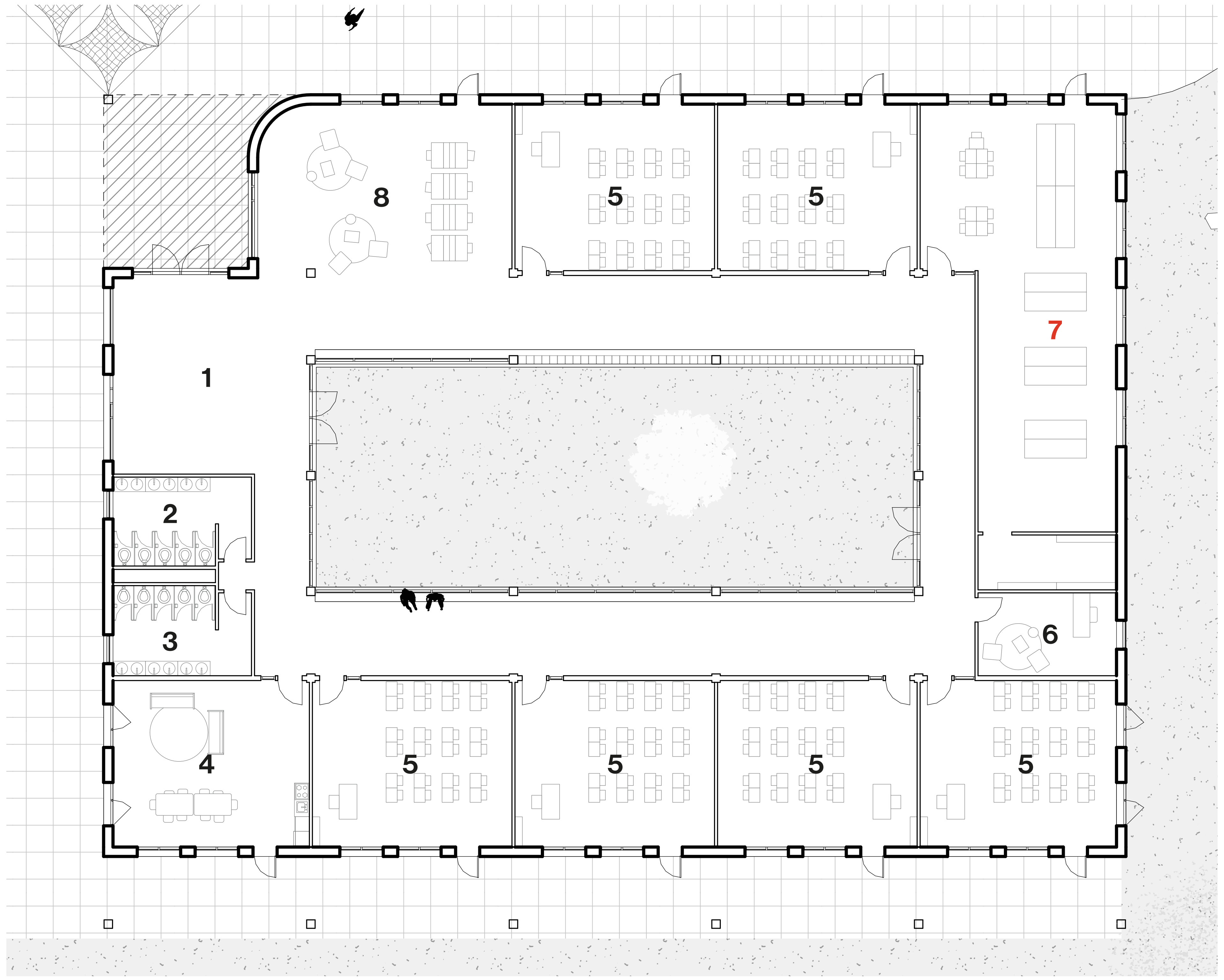


Warm natural wooden facade elements, vertical elements to create depth and character.

Local limestone with natural texture. Calm facade.

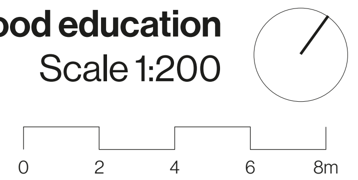


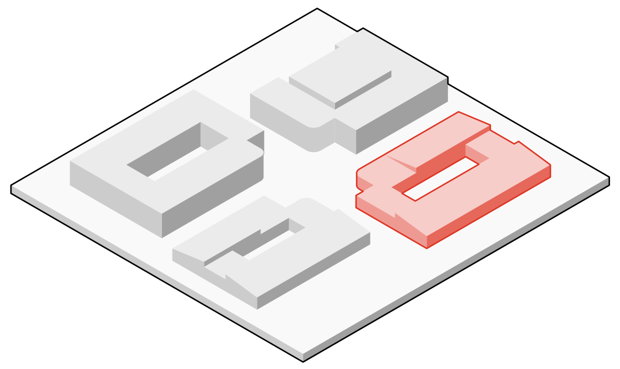

Grade 7-9
12-15 years old

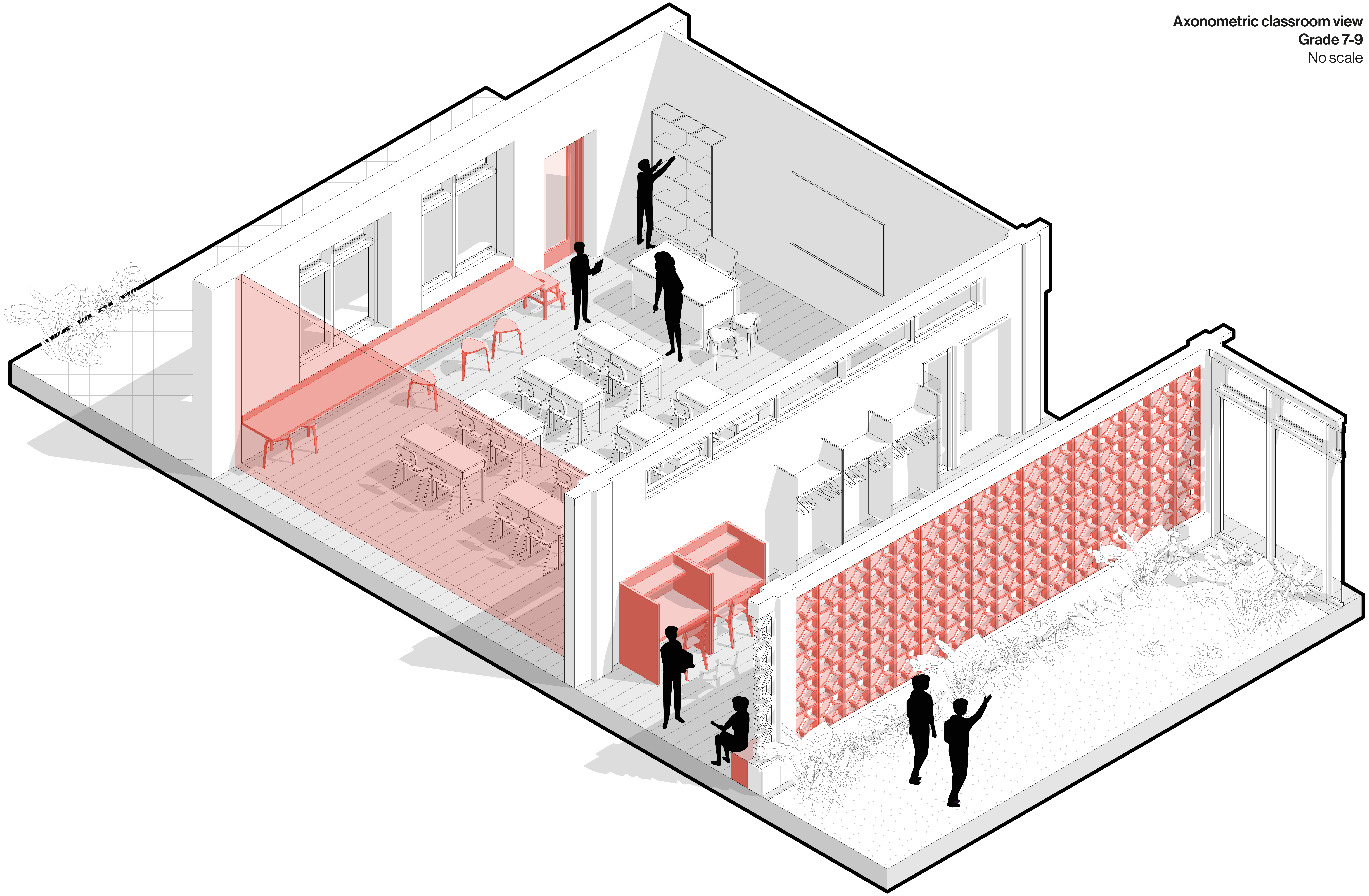


1. Entrance hall
2. Toilet boys
3. Toilets girls
4. Staff's room
5. Classroom
6. Office
7. Labaratory
8. Learning square

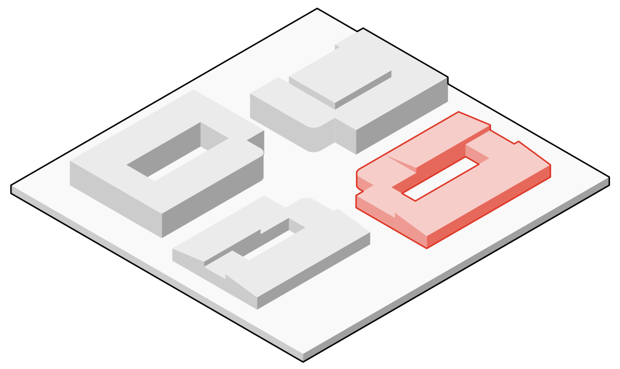
Ground floor plan early childhood education
Scale 1:200



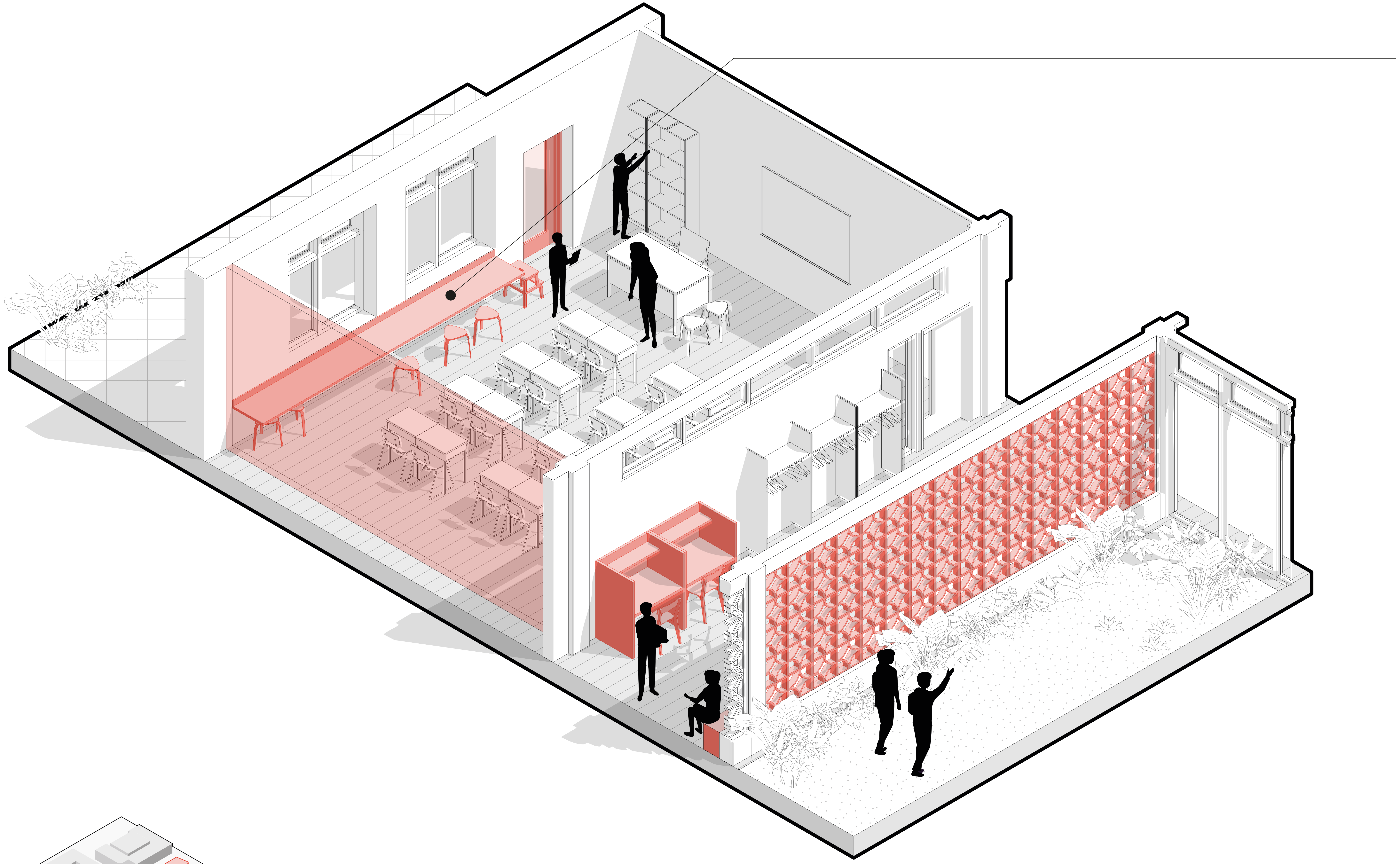




Axonometric classroom view
Grade 7-9
No scale

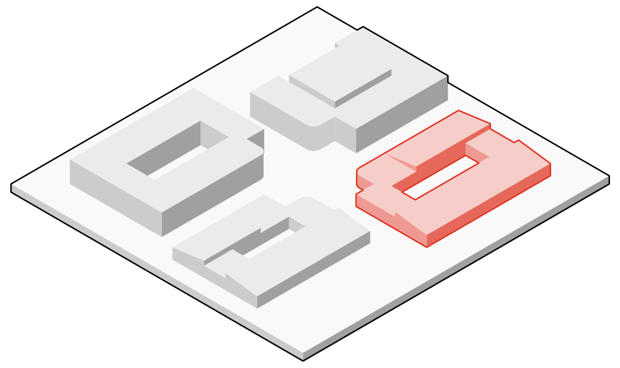


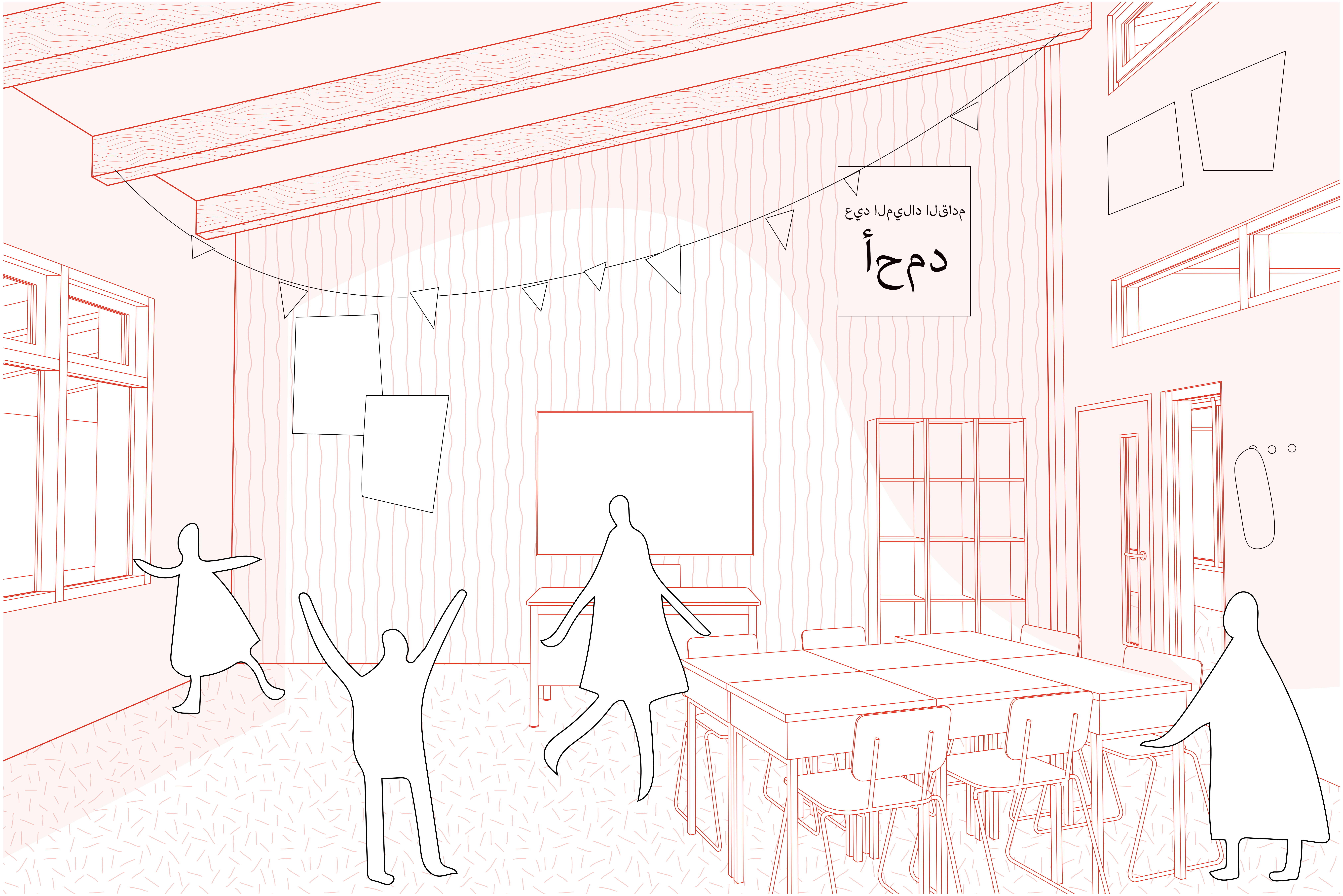
DESIGN INPUT THEME



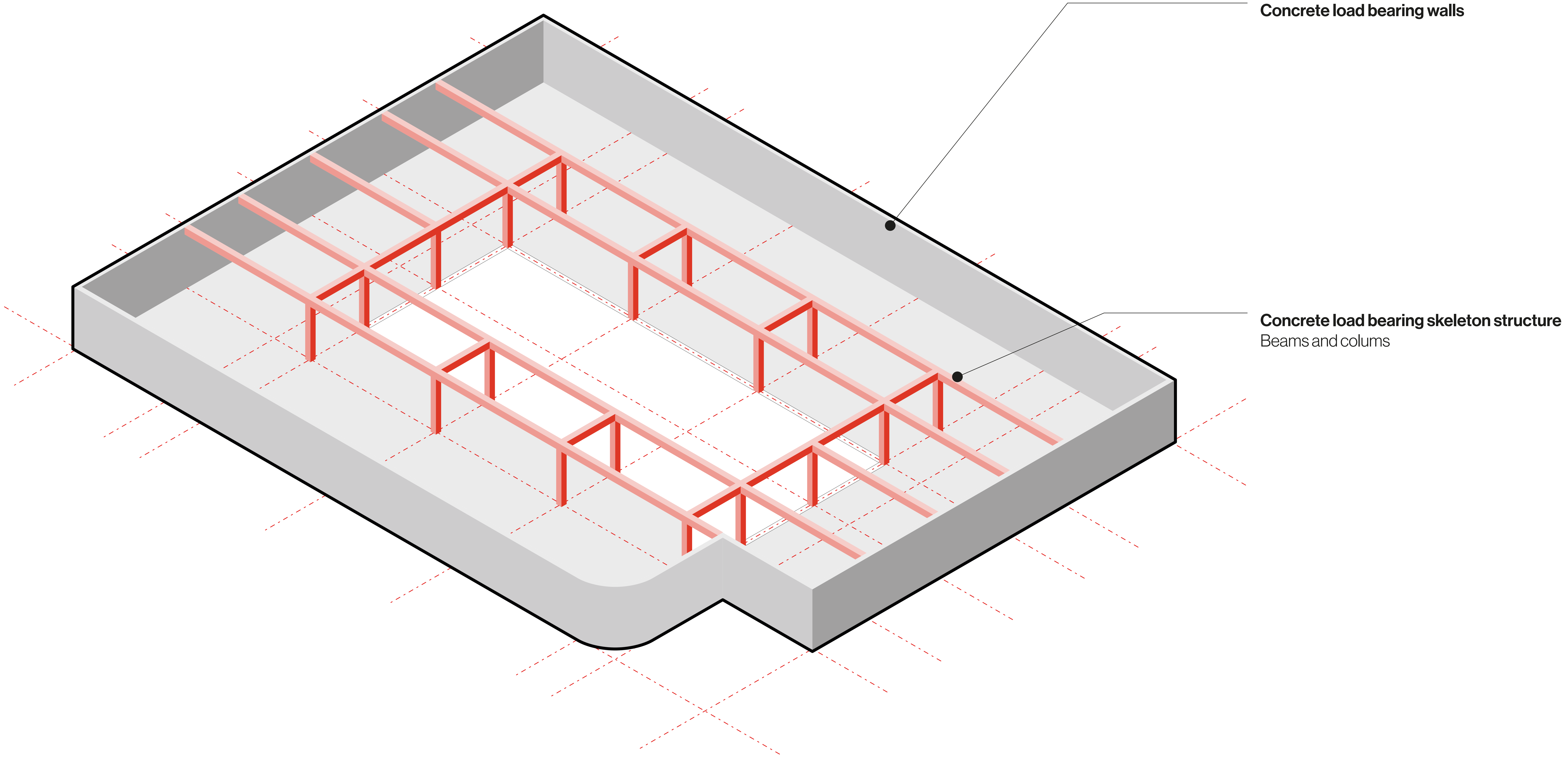
Green

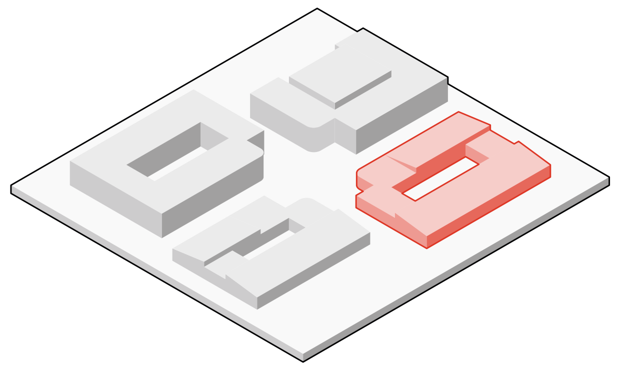
Window sill spaces can be (partially) used as learning spaces. Children can study with a view on the green outdoor area's.

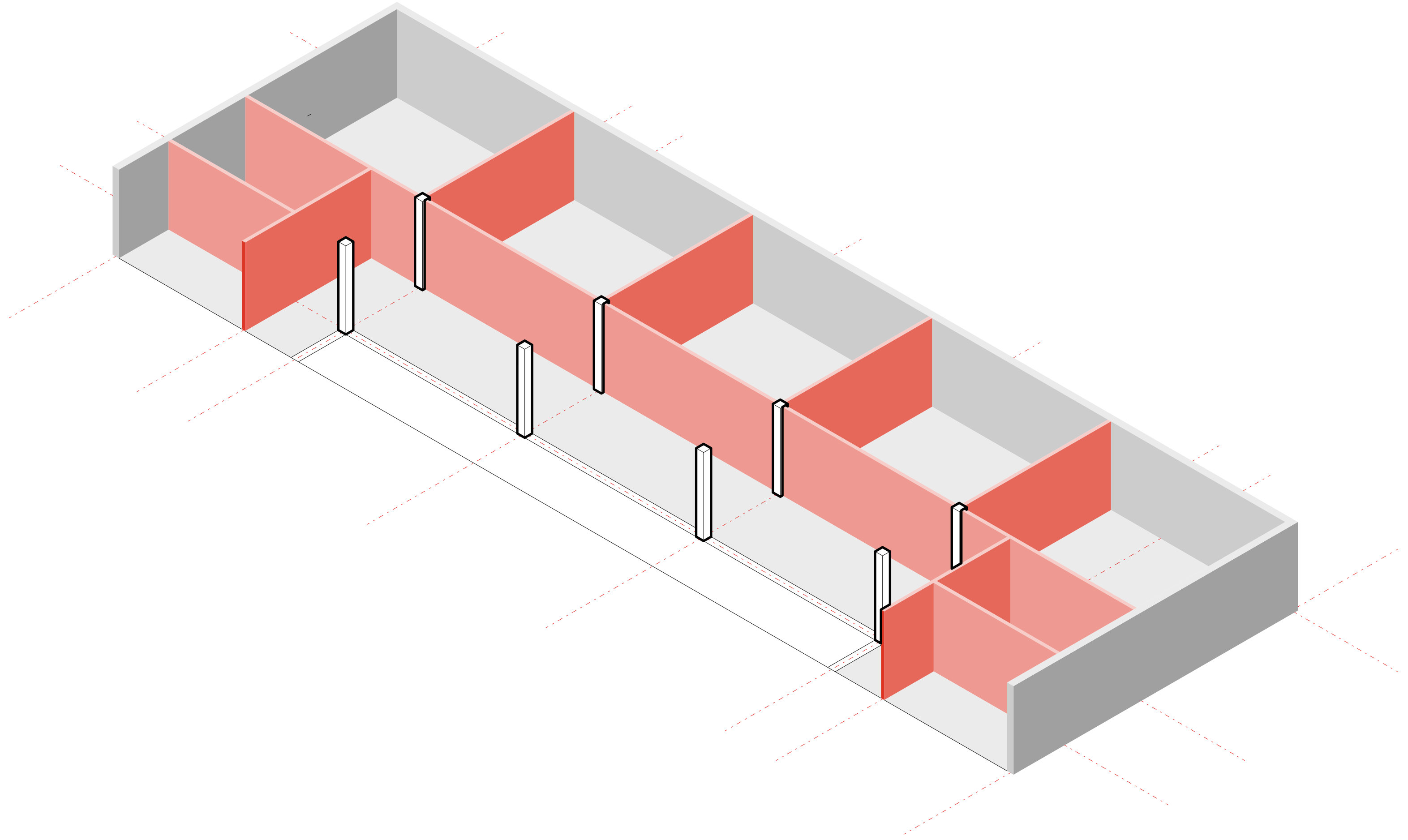


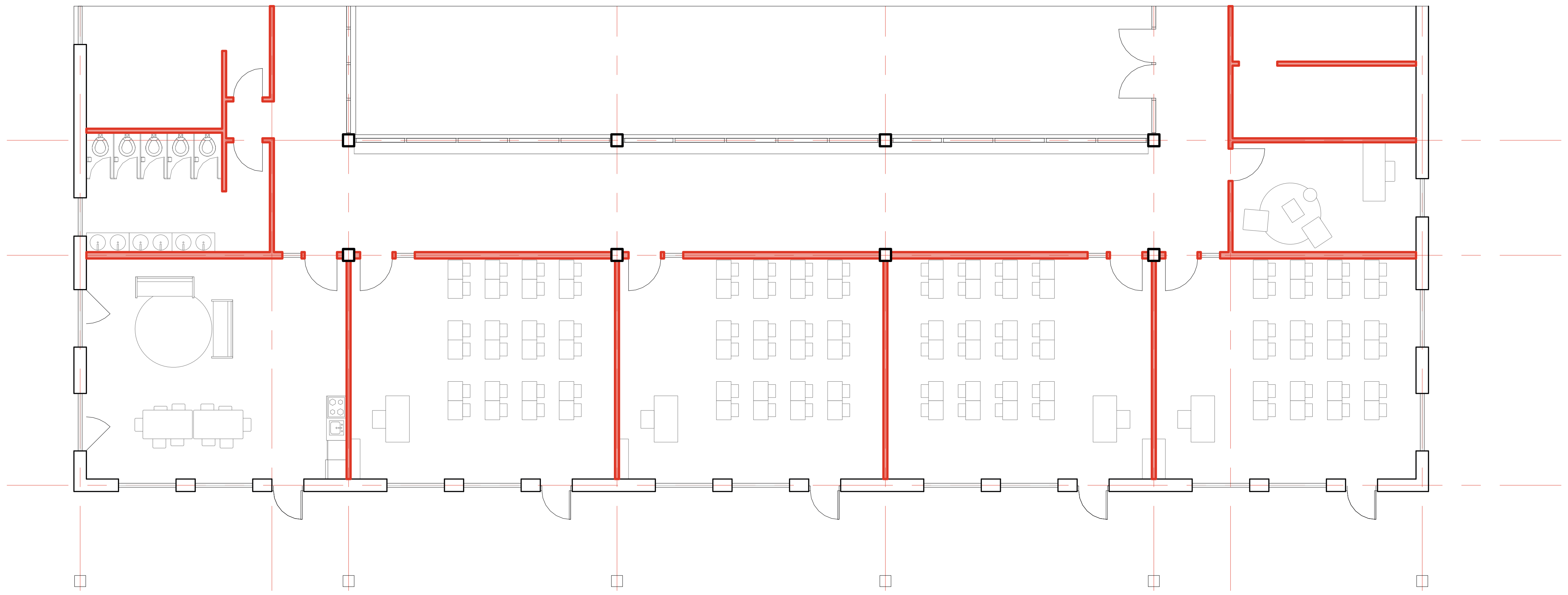

عيد الميلاد القادم
أحمد

Construction & flexibility - Grade 7-9

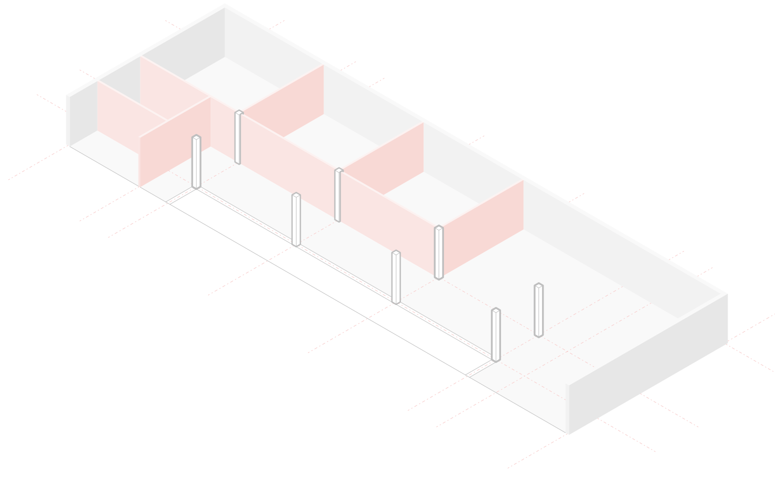

Concrete load bearing walls
Concrete load bearing skeleton structure
Beams and colums

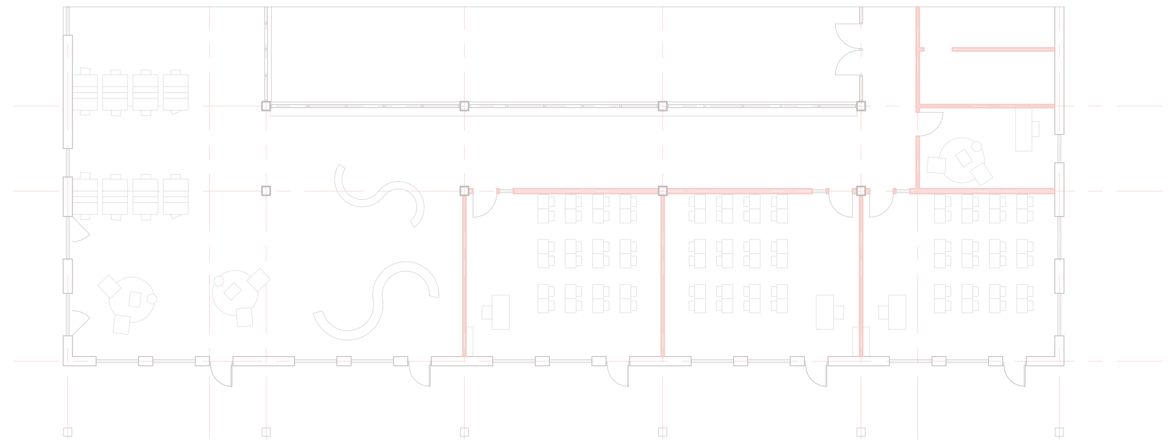


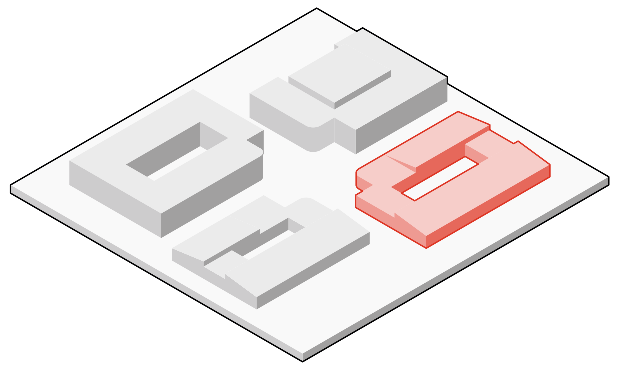


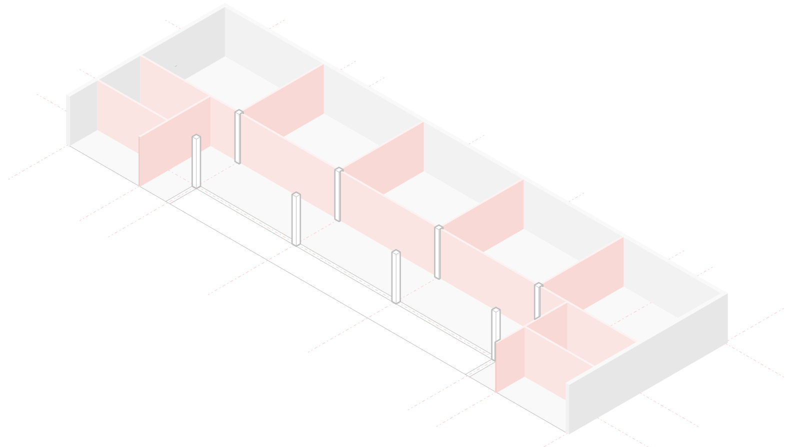


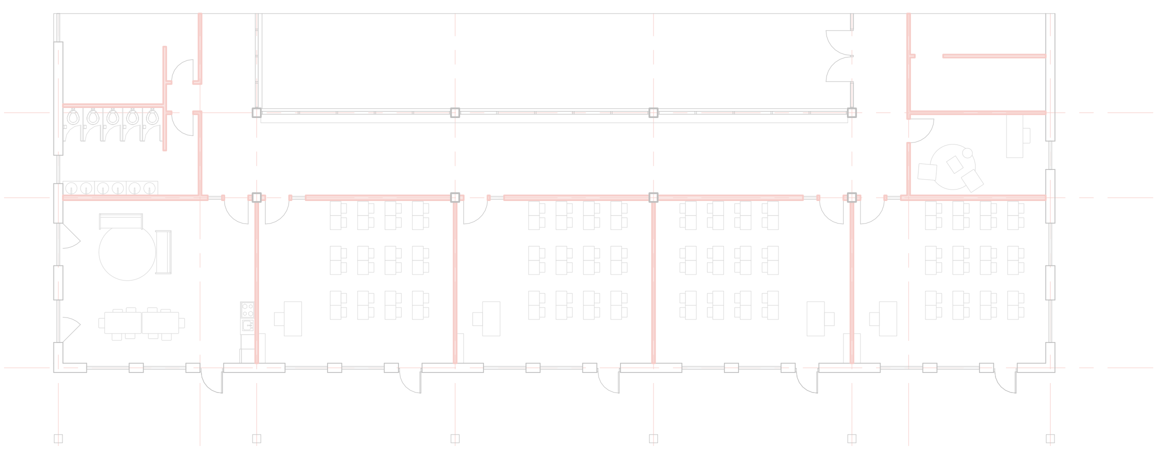
Current program
Staff's room and four standard classroom

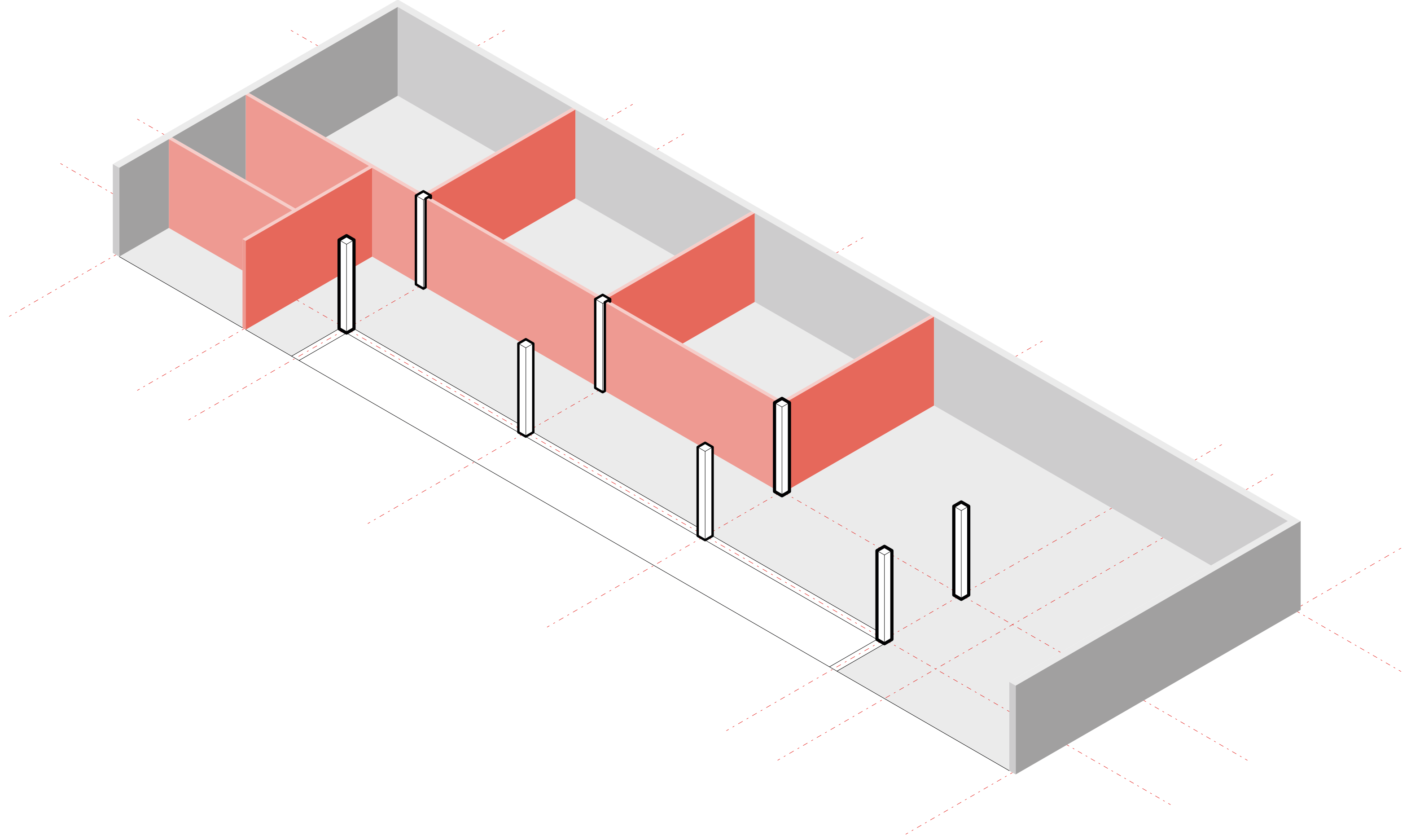


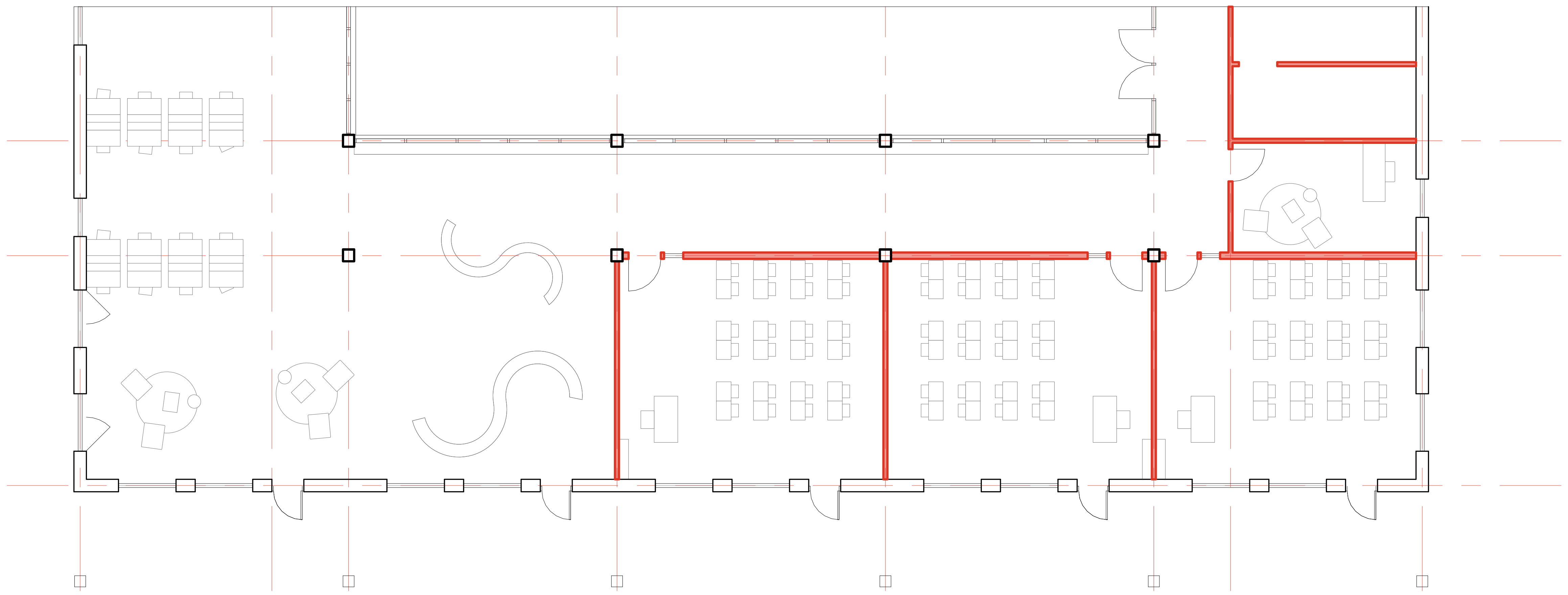




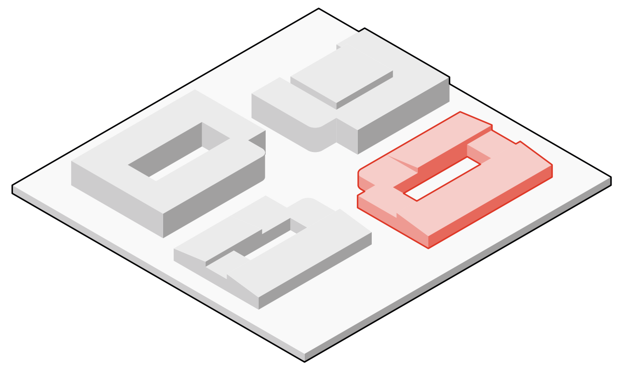


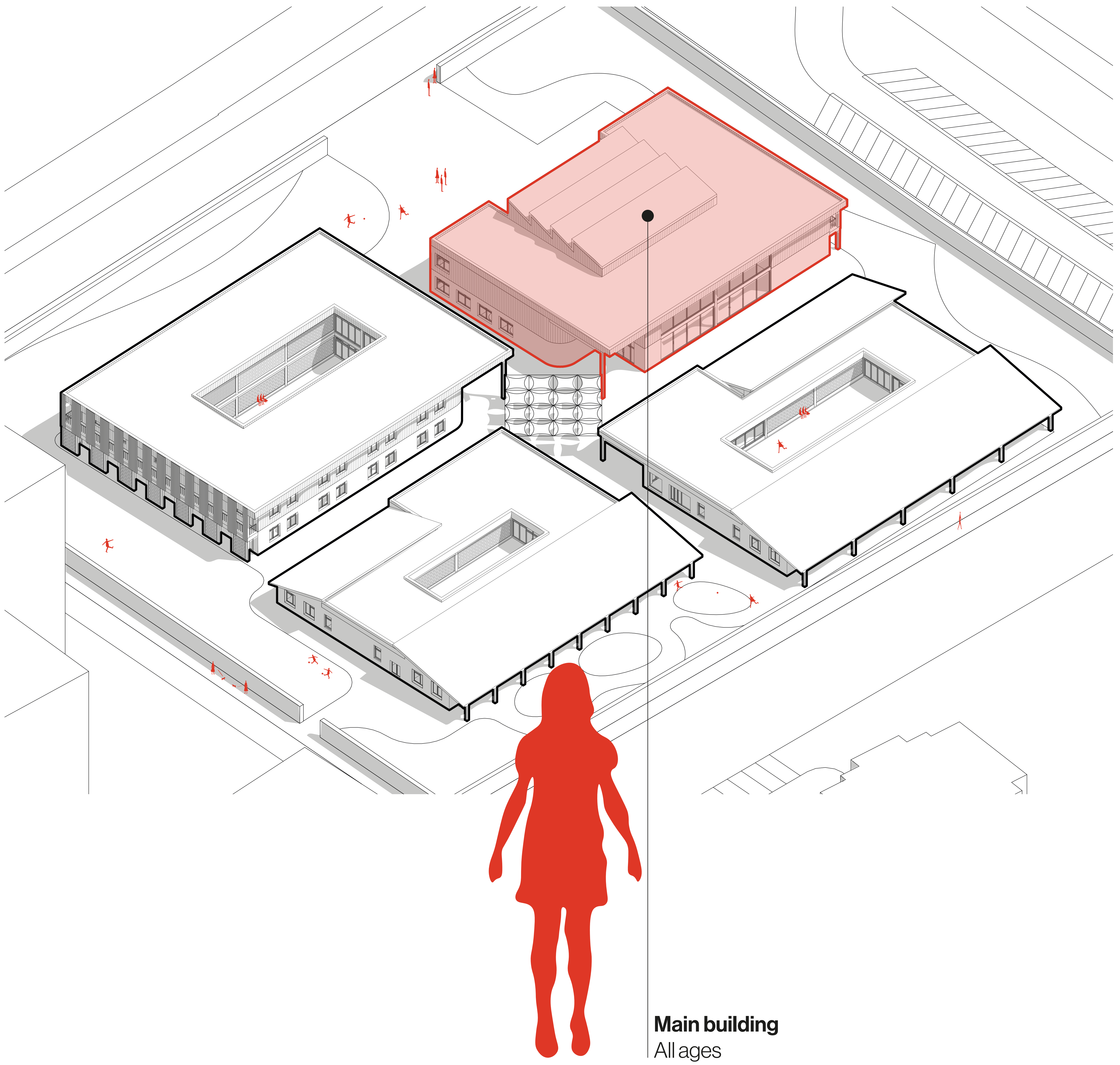


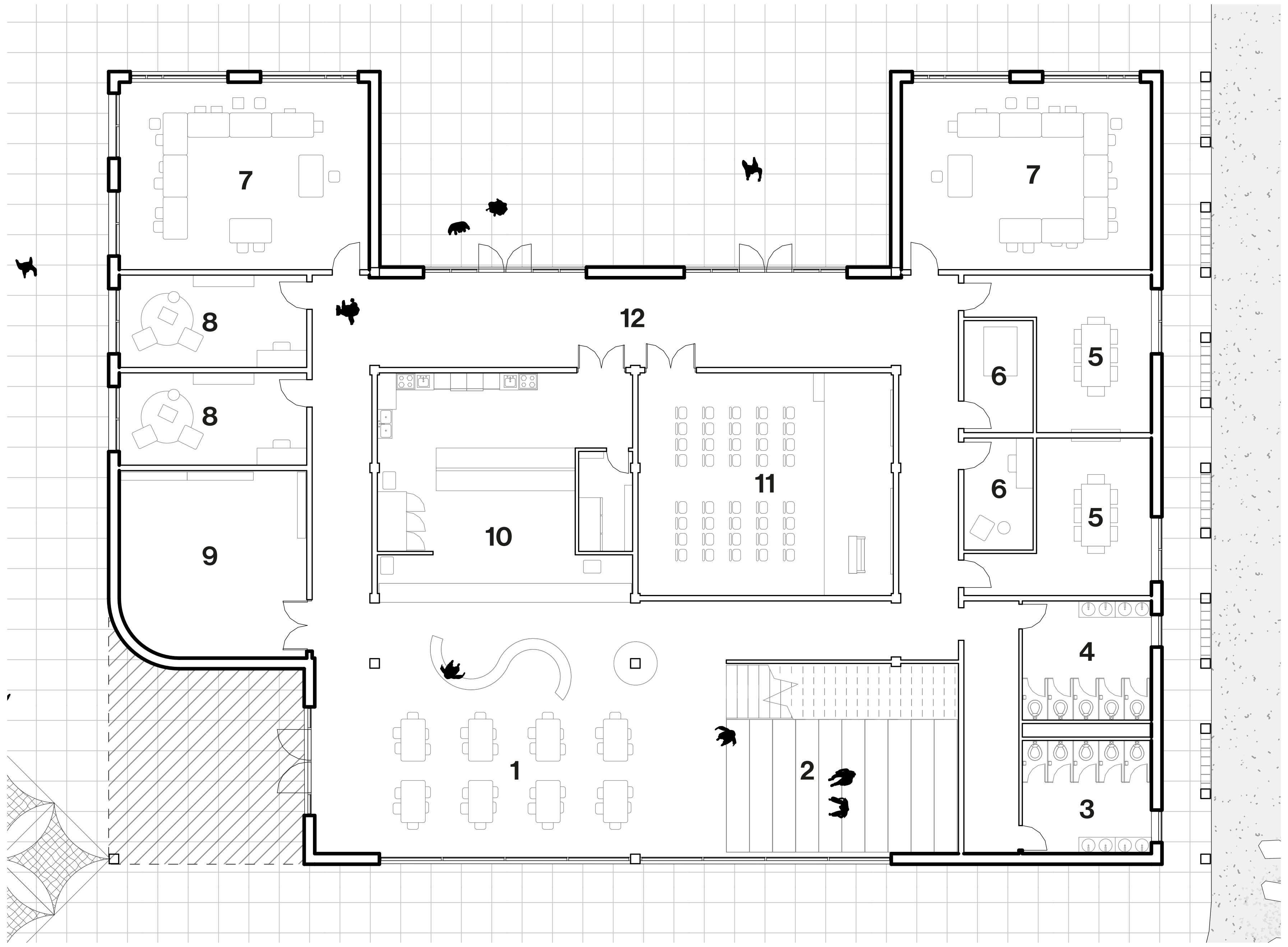




Alternative program
Three standard classrooms. On the left, walls are left out in order to create a multifunctional learning square.



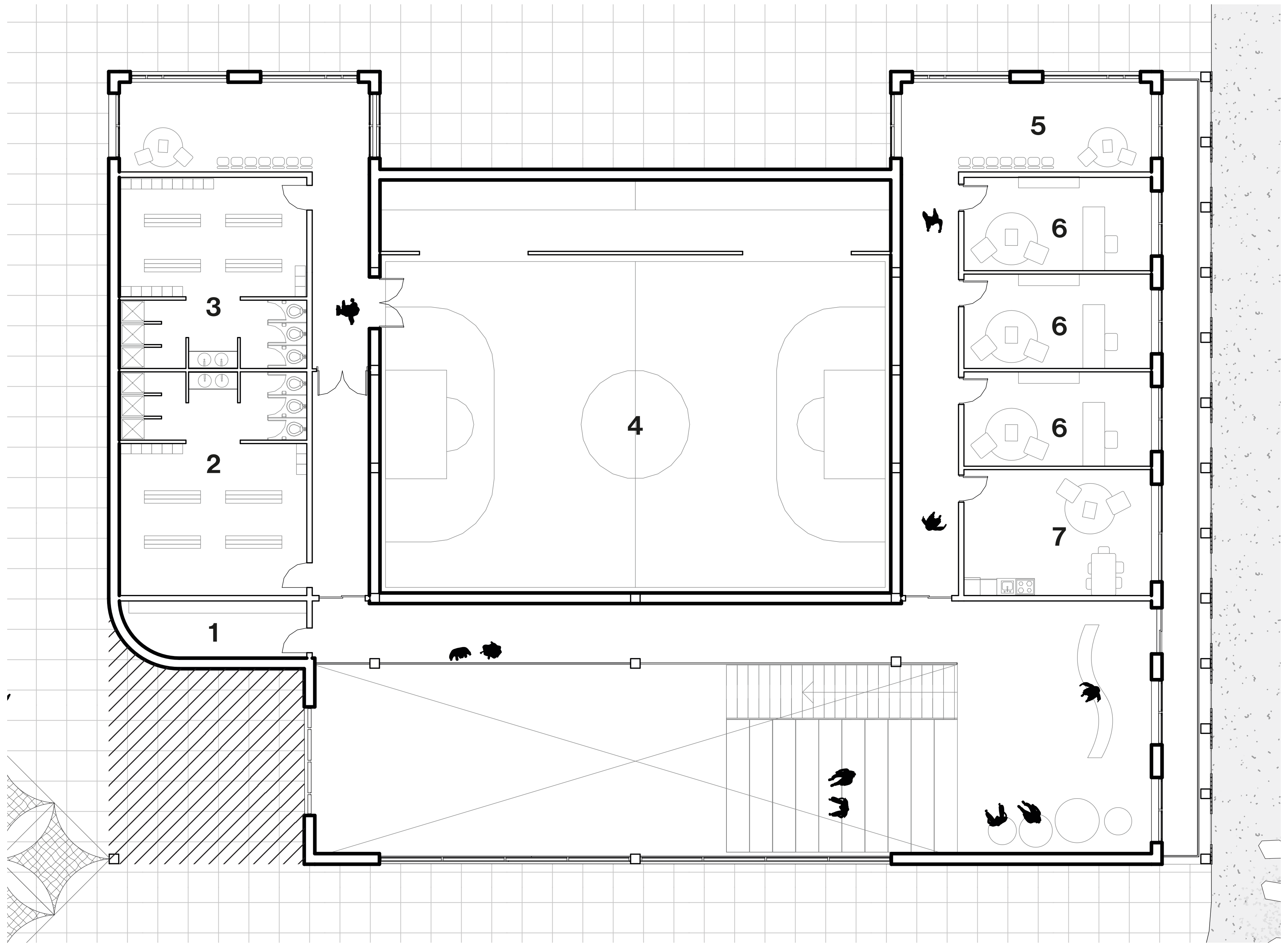

Main building
All ages



1. Canteen
2. Interactive staircase
3. Toilet boys
4. Toilet girls
5. Small meeting room
6. Multifaith room
7. Large meeting room
8. Office
9. Storage room
10. Multi-use kitchen
11. Theather room
12. Entrance hall

Ground floor plan main building
Scale 1:200

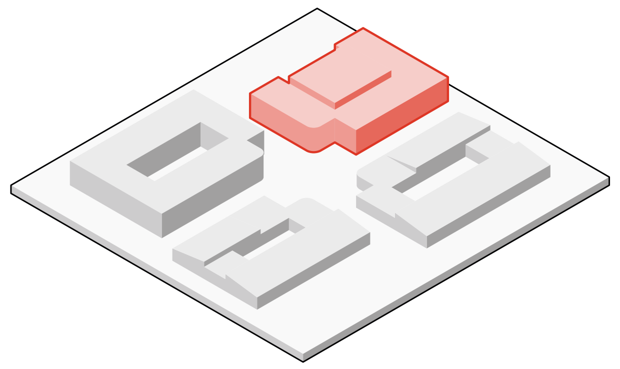
0 2 4 6 8m

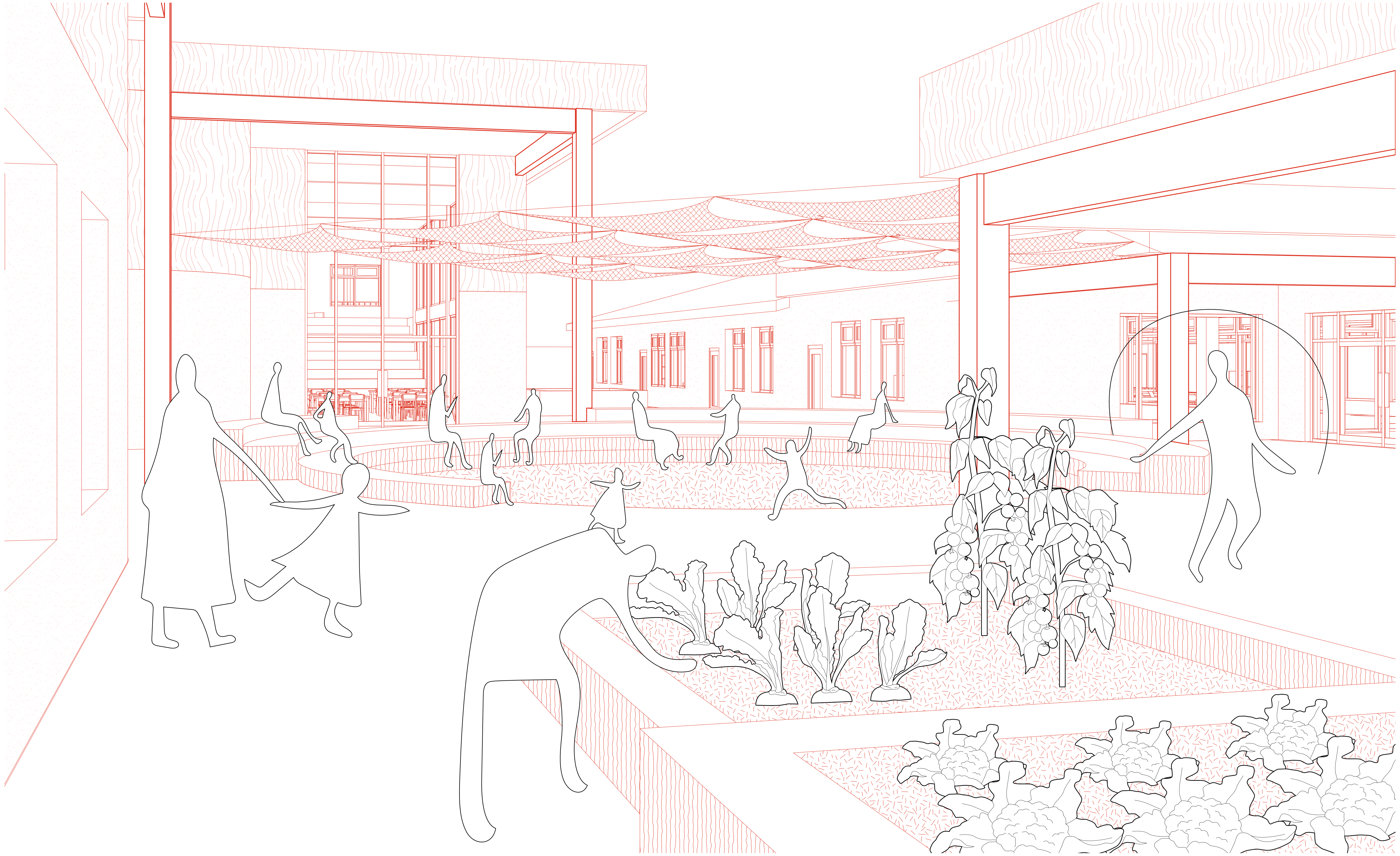


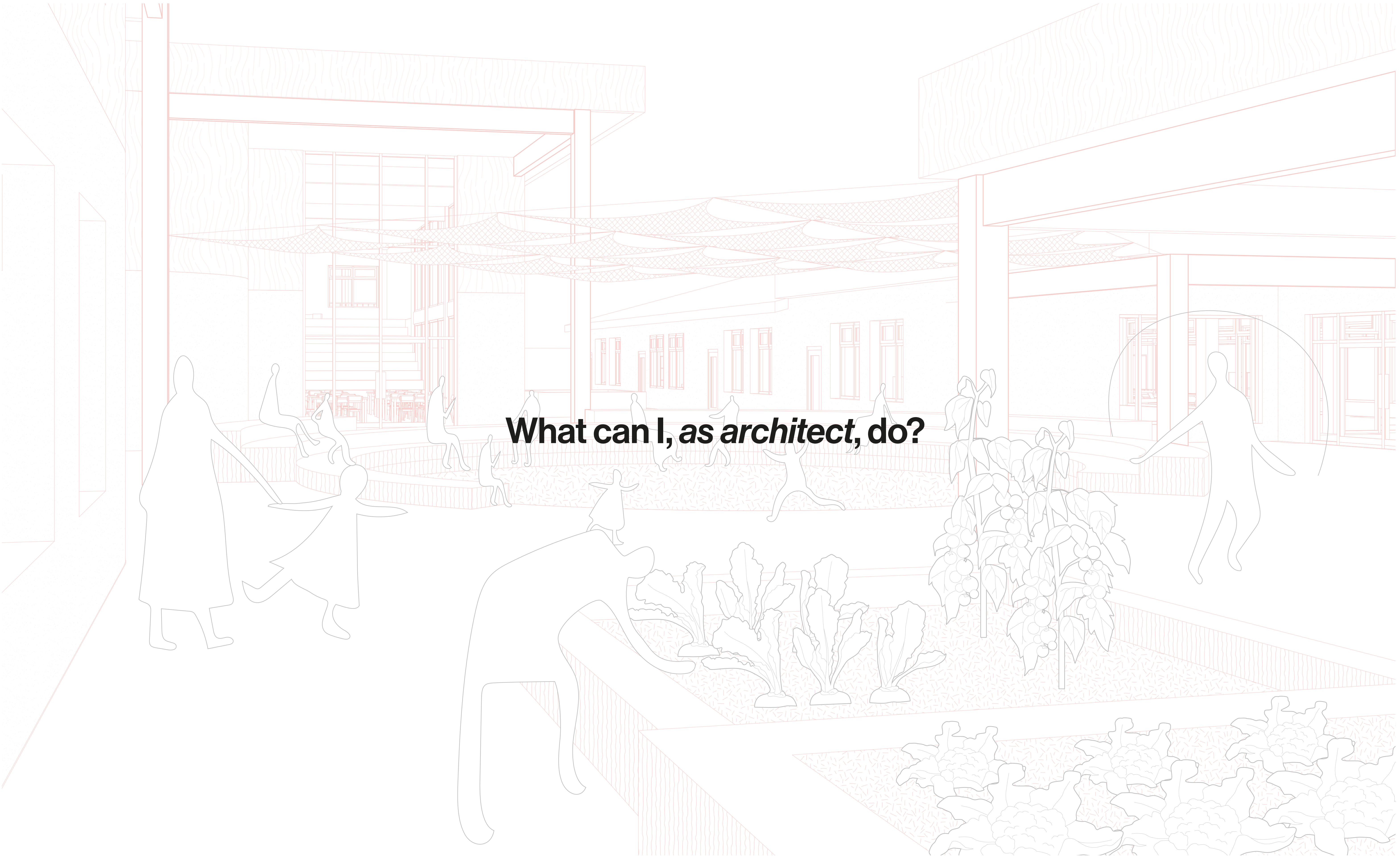
1. Storage
2. Changing room girls
3. Changing room boys
4. Gym and storage
5. Multifunctional area
6. Flexible office
7. Flexibile room

First floor plan main building
Scale 1:200

0 2 4 6 8m







What can I, *as architect*, do?