

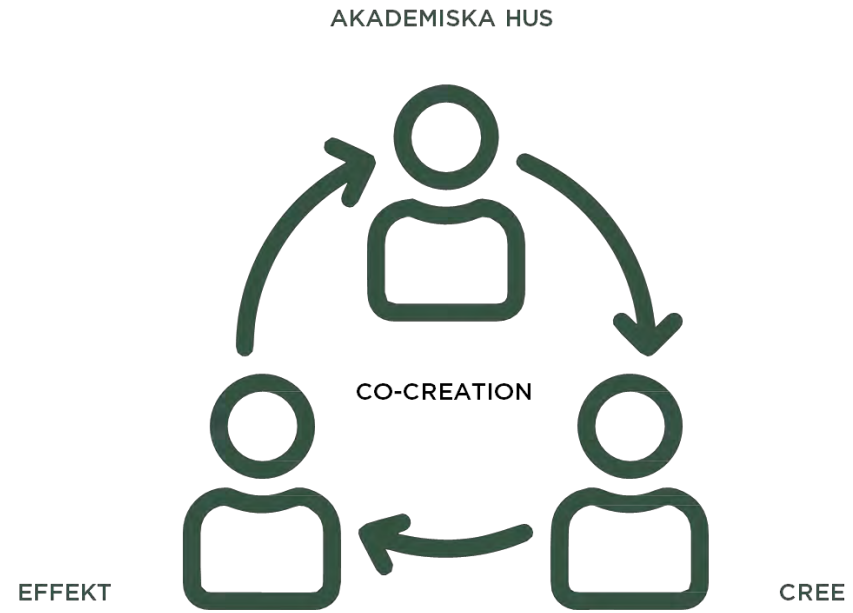
# Framework for Adaptive Student Housing In the Nordics



Biome

EFFEKT

CFE  
BUILDINGS



## **Collaboration**

Partner Roles and Responsibilities

**Challenge**



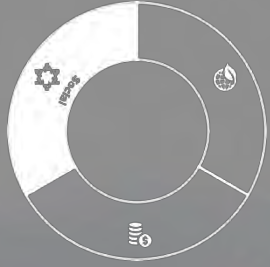
# Planetära gränser

Vi har överskridit sju av de nio **planetära gränserna**, med en stor sannolikhet att vi överskrider dem alla.

Sverige endast är **3,4 % cirkulärt**. Det betyder att mer än **96 % av de resurser** som konsumeras kommer från jungfruliga källor. *(snitt i EU 8-9%)*

Stockholm Resilience Center: The Planetary Boundaries (2025).  
<https://www.stockholmresilience.se/en/our-research/planetary-boundaries/>

- [Accelerating Circular Economy](https://www.stockholmresilience.se/en/our-research/planetary-boundaries/)  
[ce.org/research/planetary-boundaries.html](https://www.stockholmresilience.se/en/our-research/planetary-boundaries/)



# Ensamhet & psykisk ohälsa

29 % av studenter rapporterar att de upplever **psykisk ohälsa**.

Bland 16-29 åringarna svarar **var fjärde person** att de besväras av **ensamhet eller isolering**.

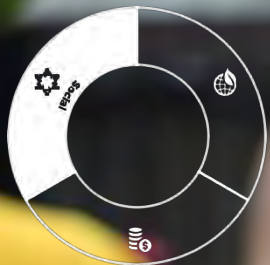
Sverige rapporterar världens **”olyckligaste”** unga i relation till 60+ generationen.



# Över- och underutnyttjande existerar samtidigt

För närvarande står ca **18 %** av Europas bostäder tomma, och många fler är underutnyttjade. Med **höga boendekostnader** som effekt.

OECD visar att **trångboddheten i Sverige är 16,4 %**, högst i Norden - Yta och rätt bostäder finns inte där behoven är som störst.



# Förändrad demografi

**Vi blir äldre och äldre. Samtidigt fortsätter barnafödandet att minska i Sverige, 2024 var barnafödandet det lägsta på 22 år.**

**Antalet studenter på universitets- och högskolenivå har minskat, i år var nedgången över 7 000 personer jämfört med hösten 2024.**

[Antal födda barn per kvinna i Sverige har nått lägst nivå](#) lägsta på 22 år

Antalet studenter på universitets- och högskolenivå har minskat, särskilt bland svenska nybörjare, med en nedgång på mer än 7 000 personer eller drygt två procent jämfört med hösten 2024. [Fler behöriga sökande men färre antagna till höstens högskoleutbildningar - Universitets- och högskolerådet UHR](#)

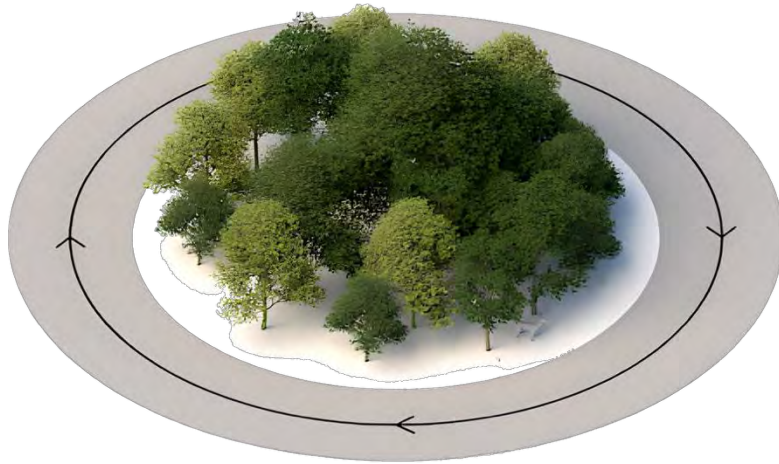
# Challenge

We face a **triple tension** between housing **affordability**, student **well-being**, and our **planetary boundaries**  
— all within an **uncertain demographic future**.

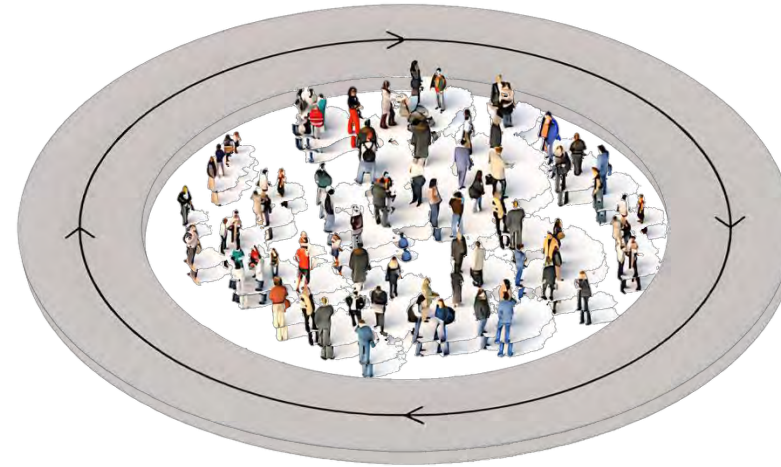
# Approach

How can we design living environments for students that are affordable and livable today — yet adaptable, circular, and resilient for tomorrow?

**Planetary**

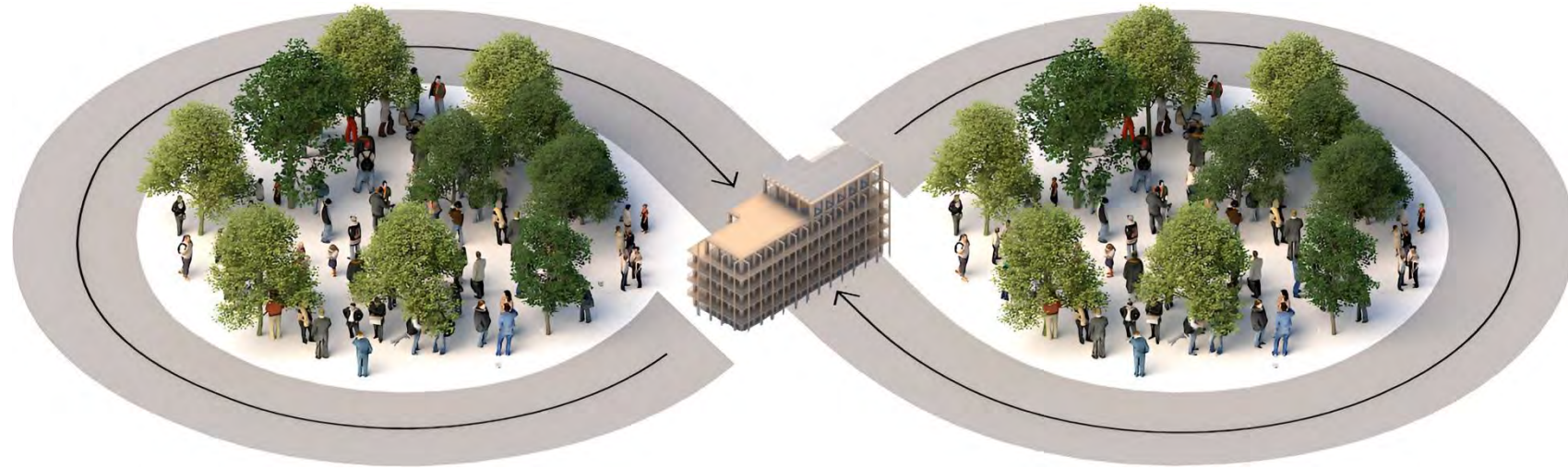


**Social & just**



**From silo-thinking..**

**Planetary, Social & just**



**... to holistic thinking**

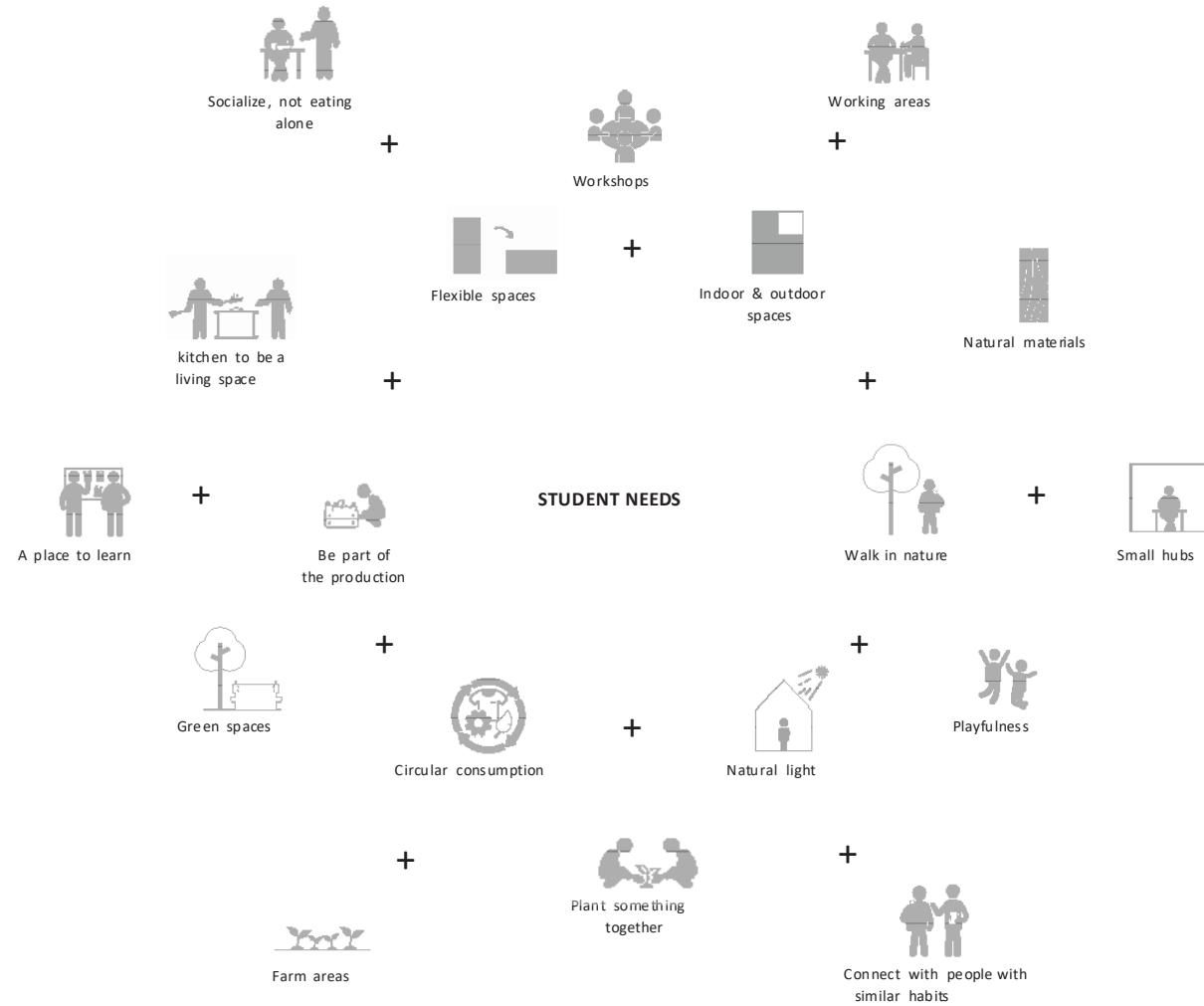


*AH Research identifying the student's needs, behavioral change, and design solutions*

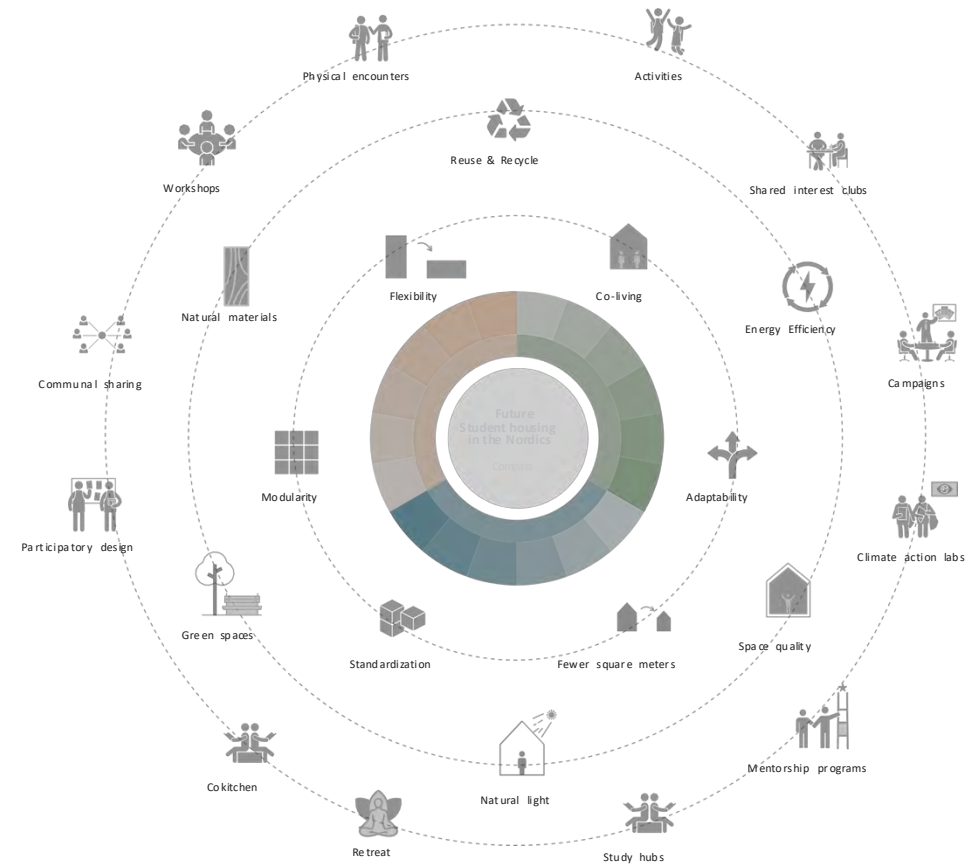
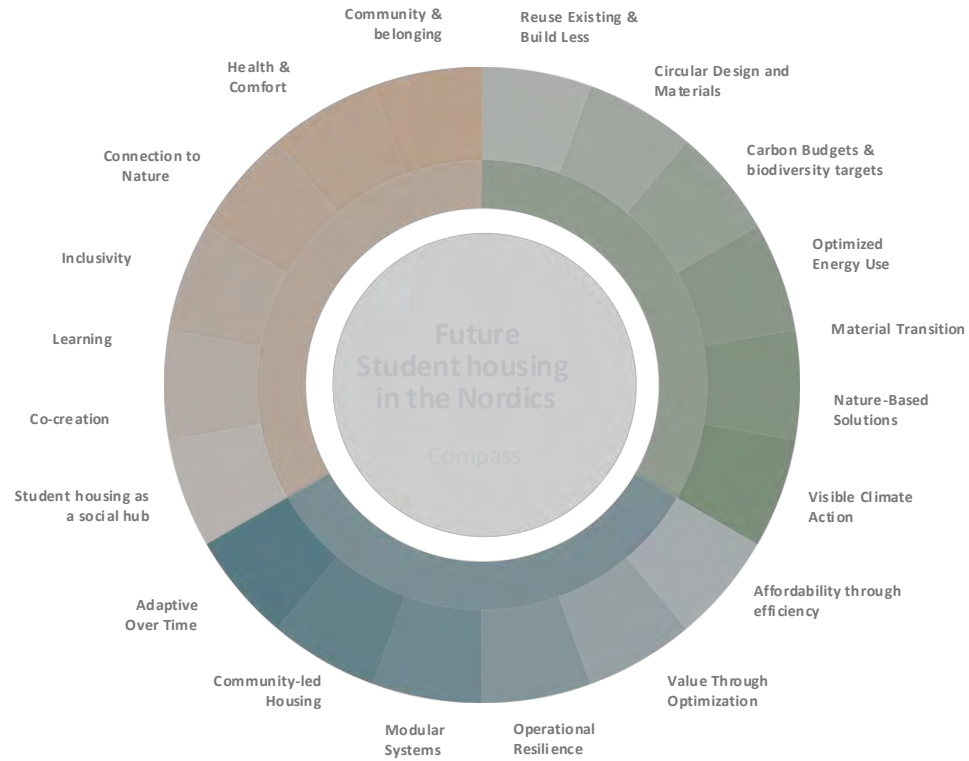
*Research and projects showcasing how to develop healthy homes within planetary boundaries*

*A collective vision to guide decision-making, design, and policy in the development of student housing in the Nordics.*

## Approach



## Student Needs

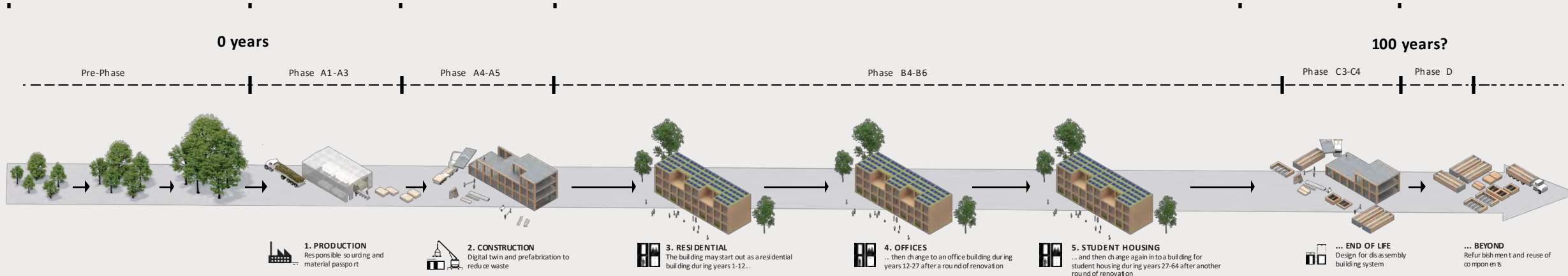
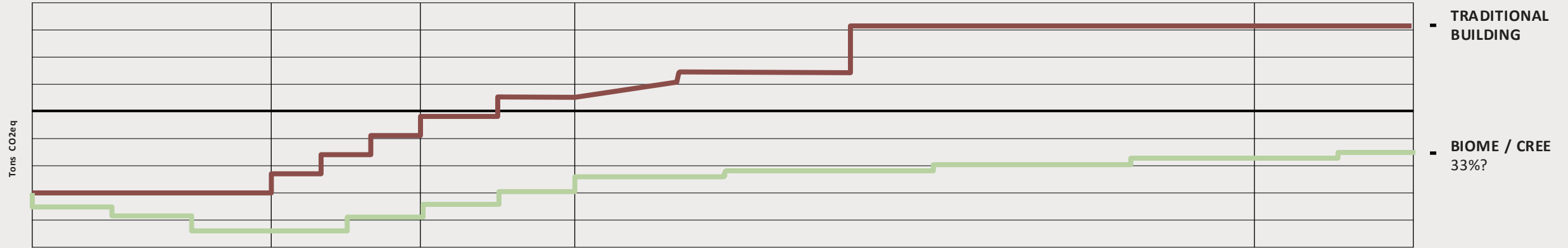


## The Compass as a strategic design tool

The Compass not only becomes the vision for future student housing, but also a tool that inspires and identifies design solutions

# ...Designed for transformation

Cree's 'open floor plan system' makes Biomes designs adaptable for transformation, repurposing, and reuse. Its built-in design flexibility allows the building to easily shift between different functions, increasing building's lifespan.



**1. PRODUCTION**  
Responsible sourcing and material passport

**2. CONSTRUCTION**  
Digital twin and prefabrication to reduce waste

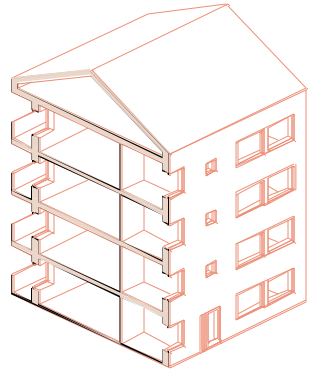
**3. RESIDENTIAL**  
The building may start out as a residential building during years 1-12...

**4. OFFICES**  
... then change to an office building during years 12-27 after a round of renovation

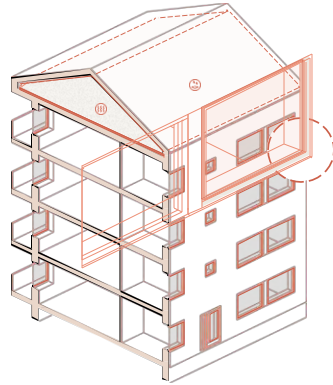
**5. STUDENT HOUSING**  
... and then change again in to a building for student housing during years 27-64 after another round of renovation

**... END OF LIFE**  
Design for disassembly building system

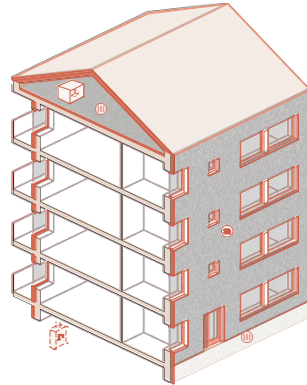
**... BEYOND**  
Refurbishment and reuse of components



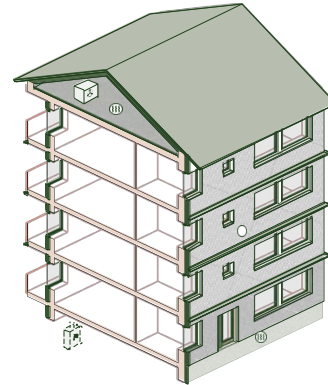
*Baseline*



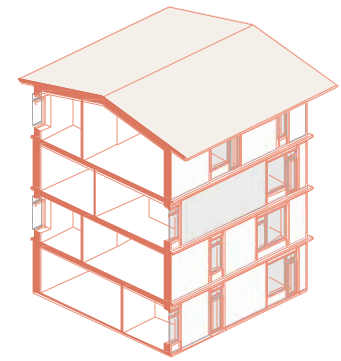
*Light Renovation*



*Deep Renovation*



*The Deep, Biogenic  
Renovation*



*Demolition and New  
Construction*

## Transformation scenarios

Transformation of buildings will vary from project to project and can be done in a number of ways - From light renovation of interior to a deep total renovation of the whole building

# Case Study

## Transformation in Uppsala



## The Site

The case study site is located in the academic heart of Uppsala, surrounded by education facilities. Likewise, the site is surrounded by green areas, is well connected to public transport and less than 1 km from the city centre.



Plot area: 4090 m<sup>2</sup>  
Footprint: 888 m<sup>2</sup>  
Total area: 2420 m<sup>2</sup>  
Built in year 1956 & 1975  
Parking spots: 42

## The Plot

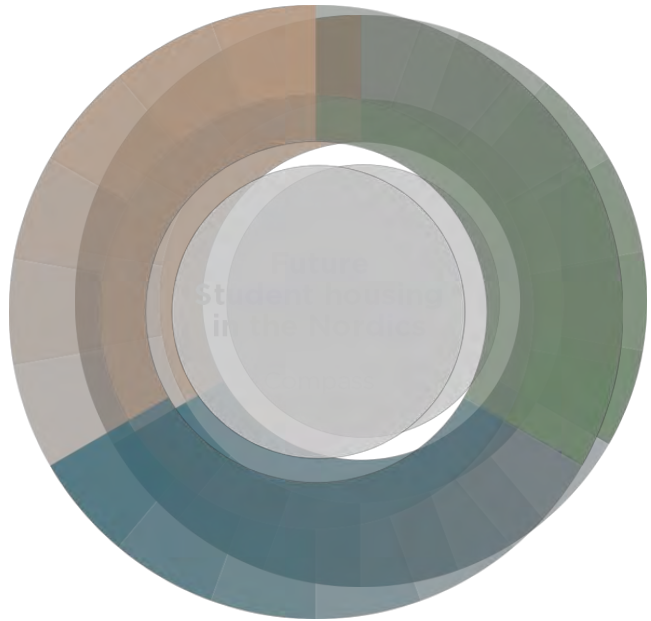
The building sits on a plot with a few green lawns and a large south-facing parking area.  
The buildings are built in two steps in 1956 and 1975 respectively.



## The Building

The building of this case study is a typical office building with rendered brick facades and a central circulation area that connects the older building from 1956 to the later addition in 1975.





Green and recreational outdoor spaces



Flexible and adaptable apartment units



Reuse and recycling of structure, components and materials



Diverse social spaces for big and small groups



Natural light and healthy natural materials



Coliving - smaller private rooms allow for larger shared facilities



Shares interest clubs and study hubs



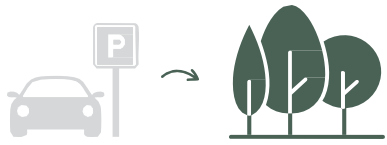
Modular and standardized interior



Meaningful physical encounters and community creation

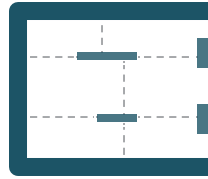
## Design Strategies

The case study is based on a number of strategies and ambitions directly relating to the ambitions of the compass.



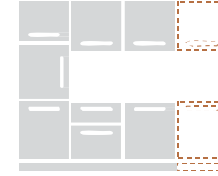
### From Parking to Park

The southfacing parking areas to become a recreational area.



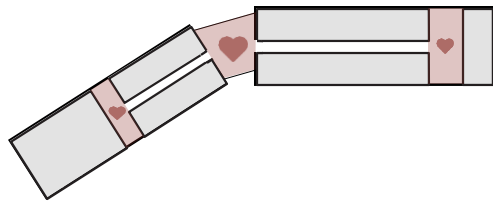
### Preserve as much as possible

As much of the structure, walls, door openings etc. are preserved as possible



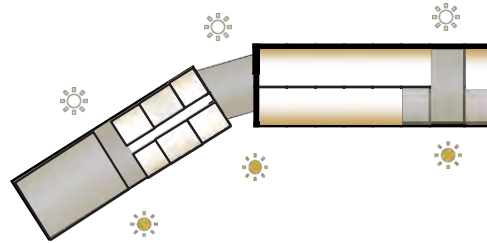
### Modular and scalable interior

modular and scalable kitchens, bathrooms storage and wall systems for future adabtability



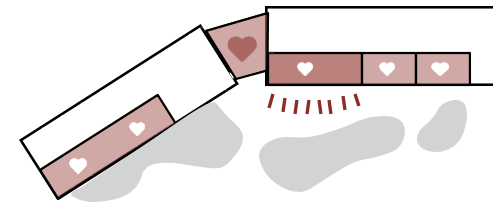
### Social Hearts of the building

Large centrally located main common area + smaller common areas spread out to support smaller groups



### Good lighting conditions

No deep apartments - especially towards north.  
Common areas with light from both facades.

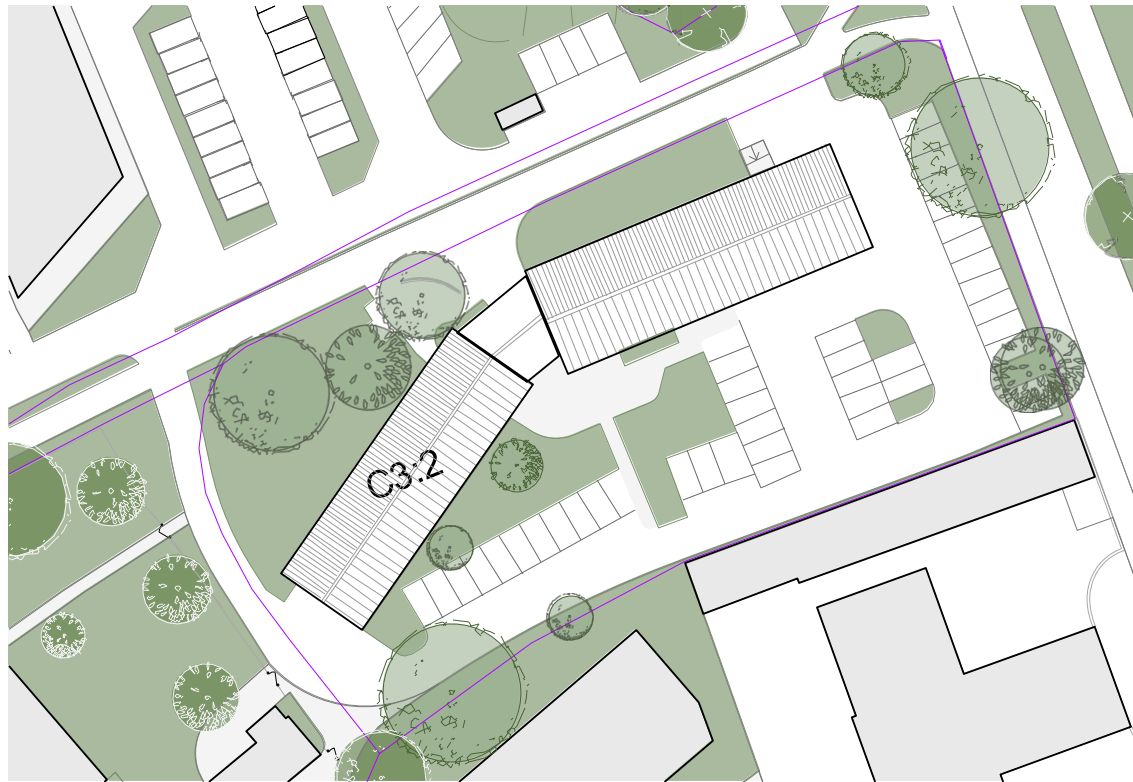


### Common functions in groundfloor

Groundfloor supports common functions and social areas like event sapce, laundry, workshop etc.

## Design Principles

The strategies are converted to directly applicable design principles for the transformation project



## From Parking to Park

At the site scale, the area is transformed from a parking lot into a recreational courtyard for residents, providing pleasant green spaces for relaxation and gathering, as well as improved connectivity.

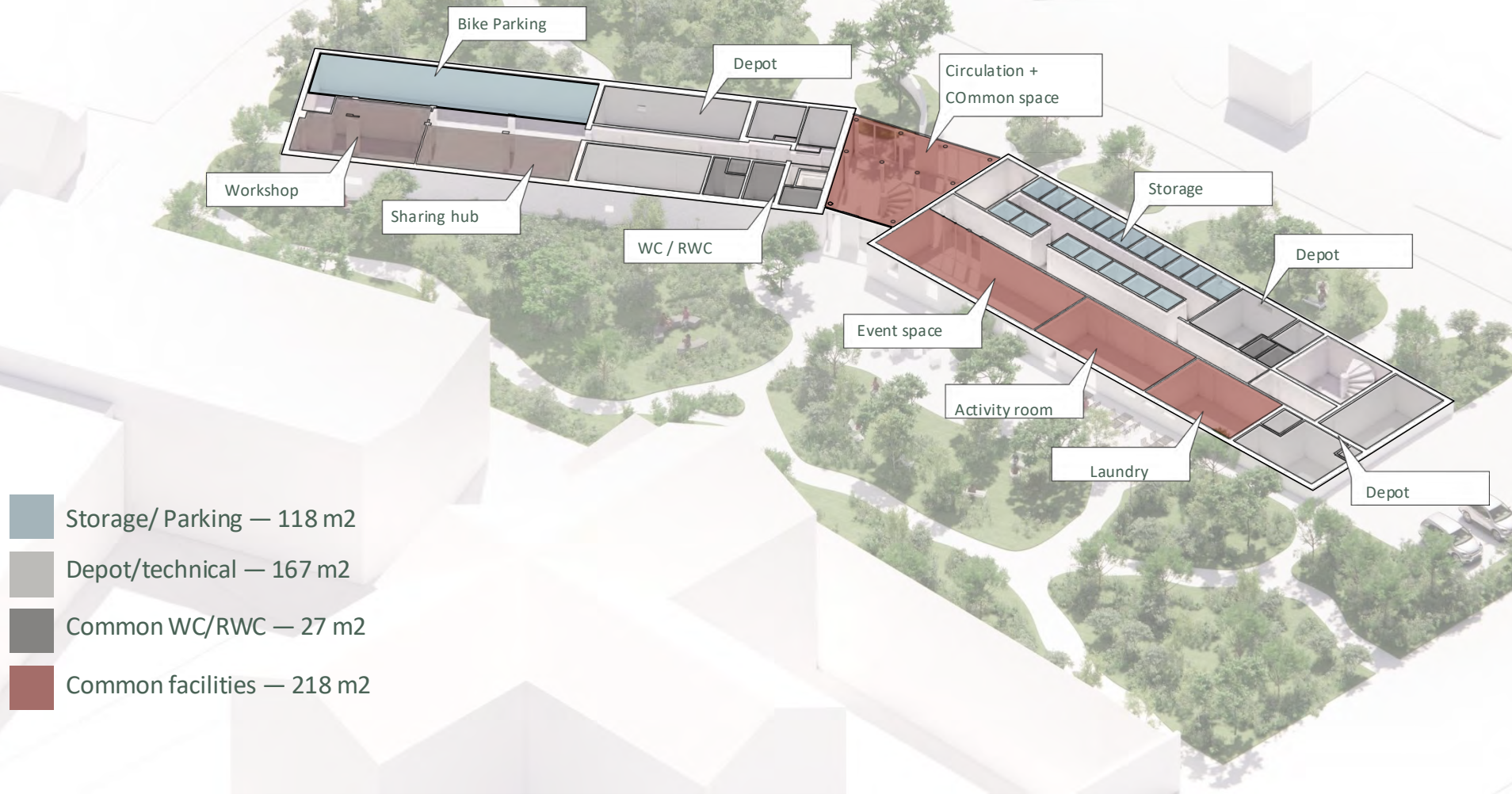


**Building:**

BRA 1st + 2nd Floor Area: BRA	1.614 m <sup>2</sup>
GF/Basement area: BRA Total	806 m <sup>2</sup>
Area:	2.420 m <sup>2</sup>

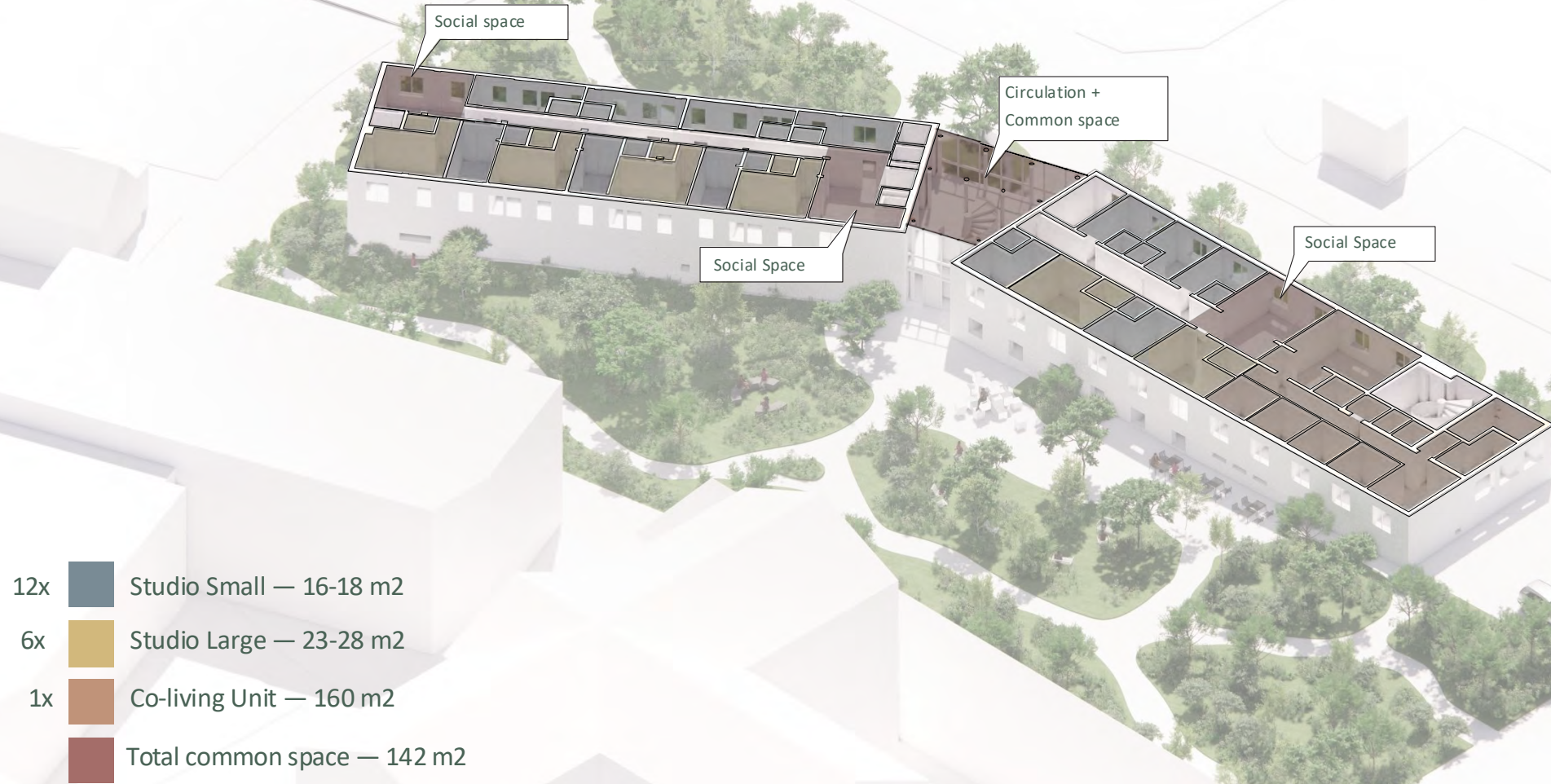
## From Office to Residential

The proposed Student housing building consists of basement/groundfloor and two floors with apartments.



- Storage/ Parking — 118 m<sup>2</sup>
- Depot/technical — 167 m<sup>2</sup>
- Common WC/RWC — 27 m<sup>2</sup>
- Common facilities — 218 m<sup>2</sup>

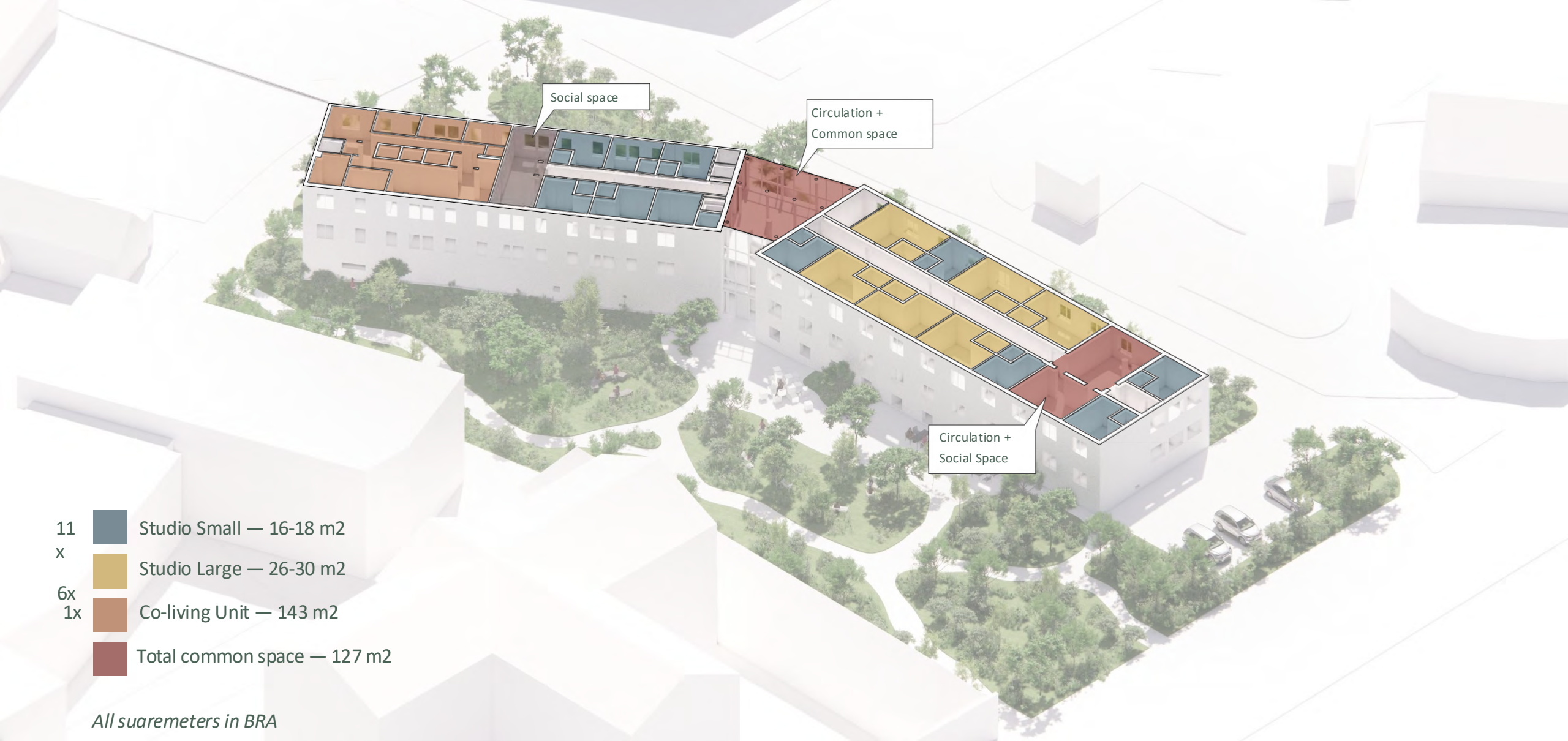
**Ground Floor**  
Proposed Layout for GF/Basement



*All suareimeters in BRA*

## Upper floors - Version 01

Proposed Layout for residential units in the two upper floors



11  
x  
6x  
1x



Studio Small — 16-18 m2  
Studio Large — 26-30 m2  
Co-living Unit — 143 m2  
Total common space — 127 m2

All suaremeters in BRA

## Upper floors - Version 02

Proposed Layout for residential units in the two upper floors

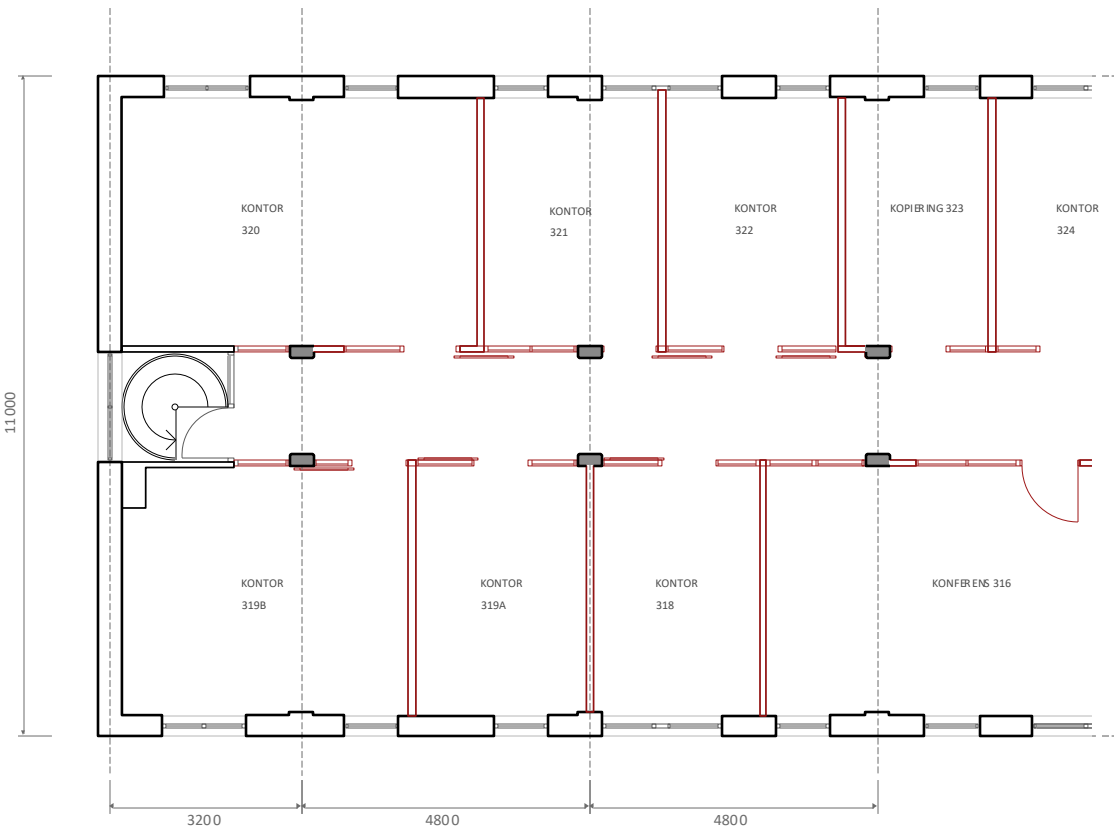


<b>Upper Floors:</b>	
BOA only apartment	1.024 m <sup>2</sup>
BOA incl. common spaces	1.294 m <sup>2</sup>
Amount of tenants:	48-58
BOA per tenant (if 58) Only apartment area	17.6 m <sup>2</sup>
BOA per tenant (if 58) incl. common spaces	22.3 m <sup>2</sup>

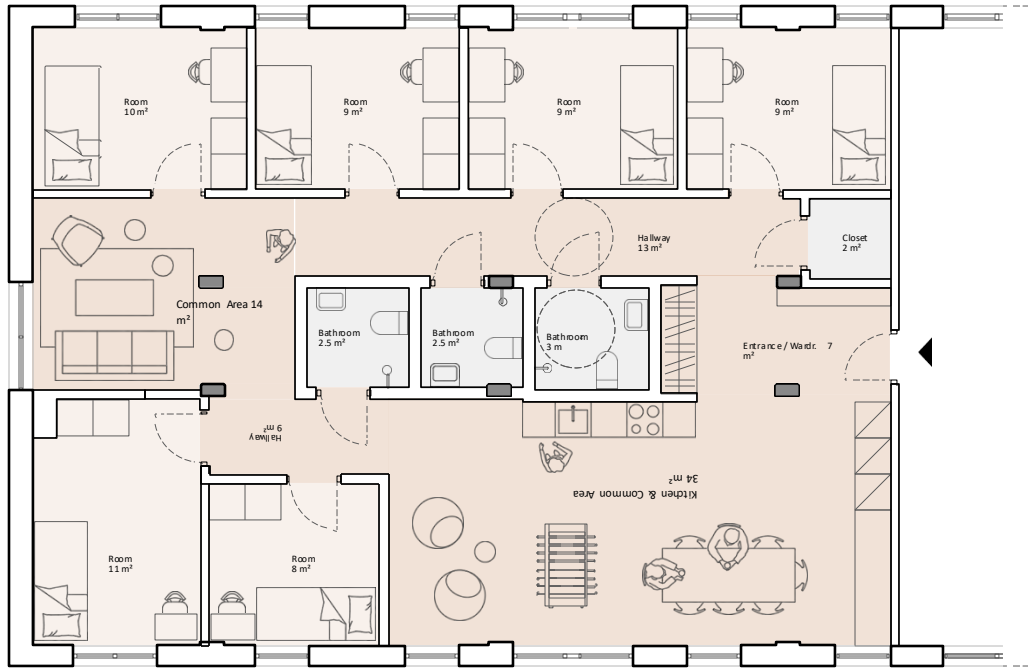
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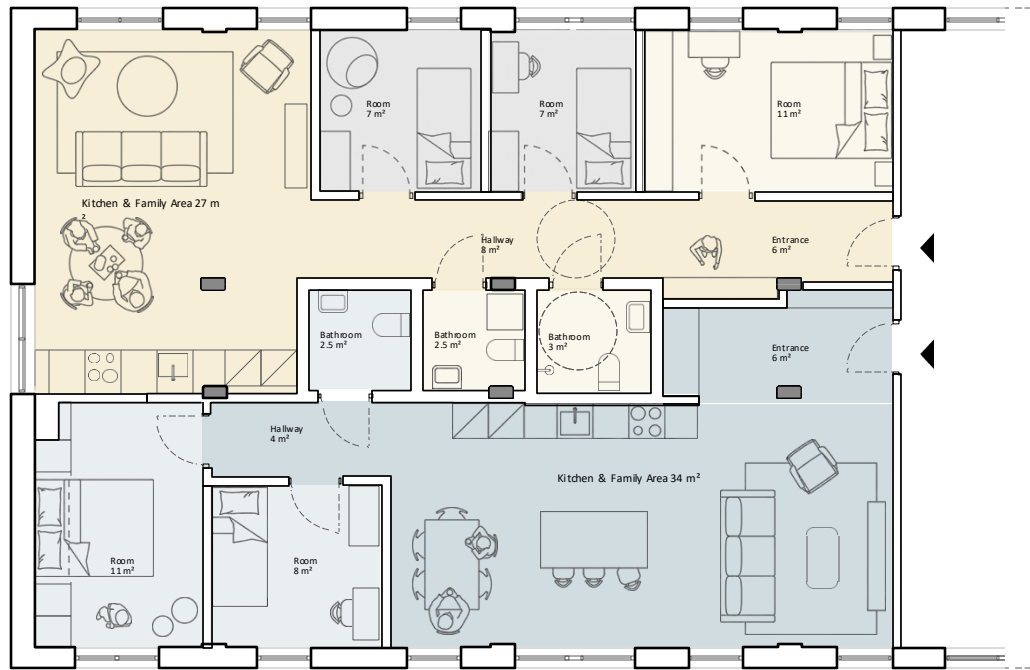
# **Future Adaptability** Scenarios



**Scenario 00**  
Existing Plan Layout - Office Space

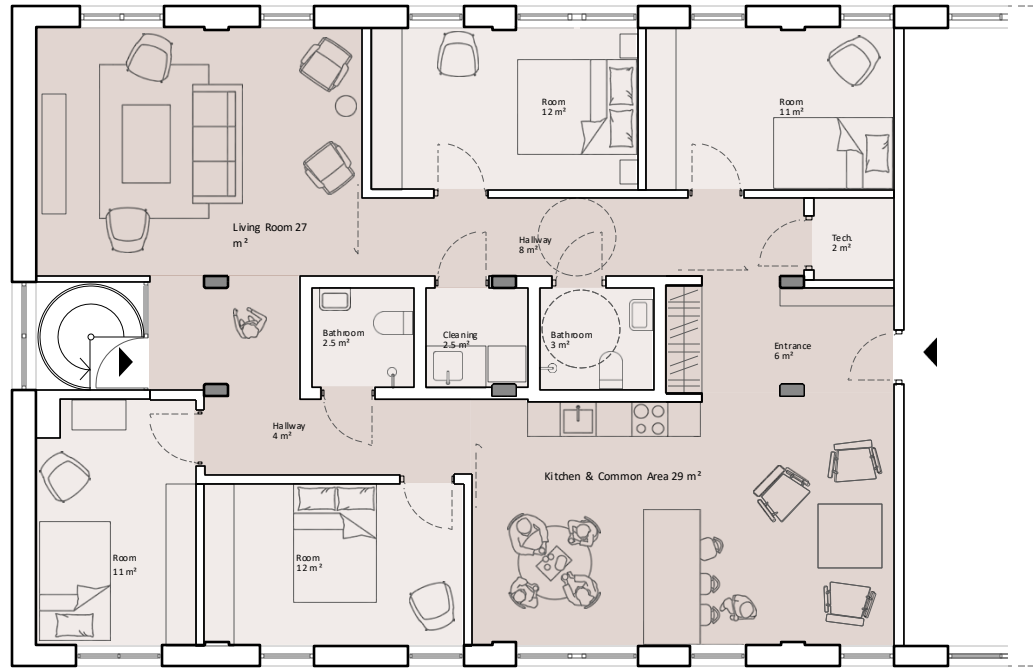


**Scenario 01**  
Student Co-living Unit

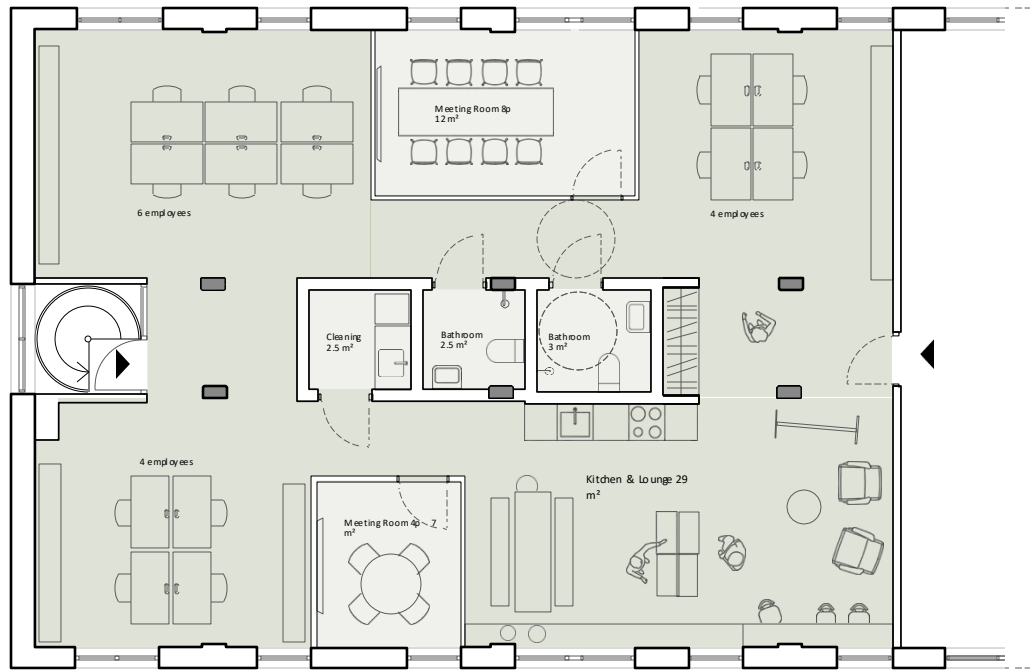


## Scenario 02

Two individual Family House units



**Scenario 03**  
Elderly Co-living Unit



**Scenario 04**  
Flexible Office Space

# The Approach

Om vi behöver bygga **nya bostäder**

- Hur kan vi göra det på ett sätt som är effektivt och flexibelt som bygger på cirkulära principer?

**CREE Buildings** nätverkspartners levererar projekt med lokalt anpassade produkter, baserade på ett **globalt industriellt och hållbart byggrecept.**

Hotell



Studentbostäder



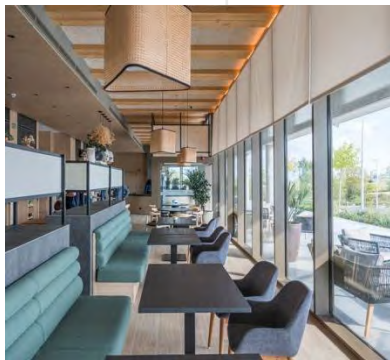
Bostäder



Utbildning

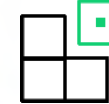


Kontor





Prefabricerat trä-  
hybridsystem med hög  
resurseffektivitet



Integrerade  
byggkomponenter



Flexibelt inre och  
yttre utförande

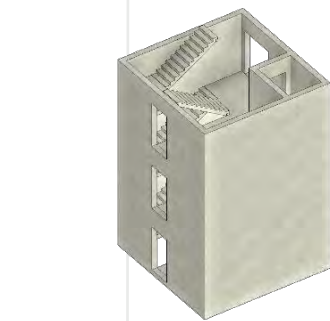
CREE

Studentbostäder

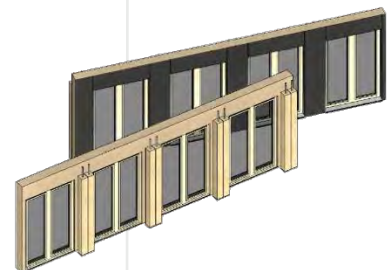


# Prefabricerat trä- hybridsystem

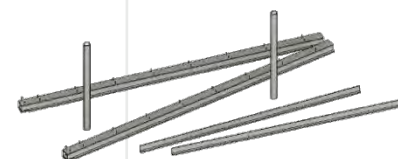
## 4 grund- komponenter



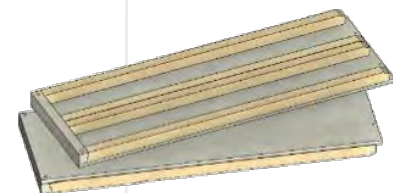
**1** Byggnadskärna  
med hiss- och  
trappschakt



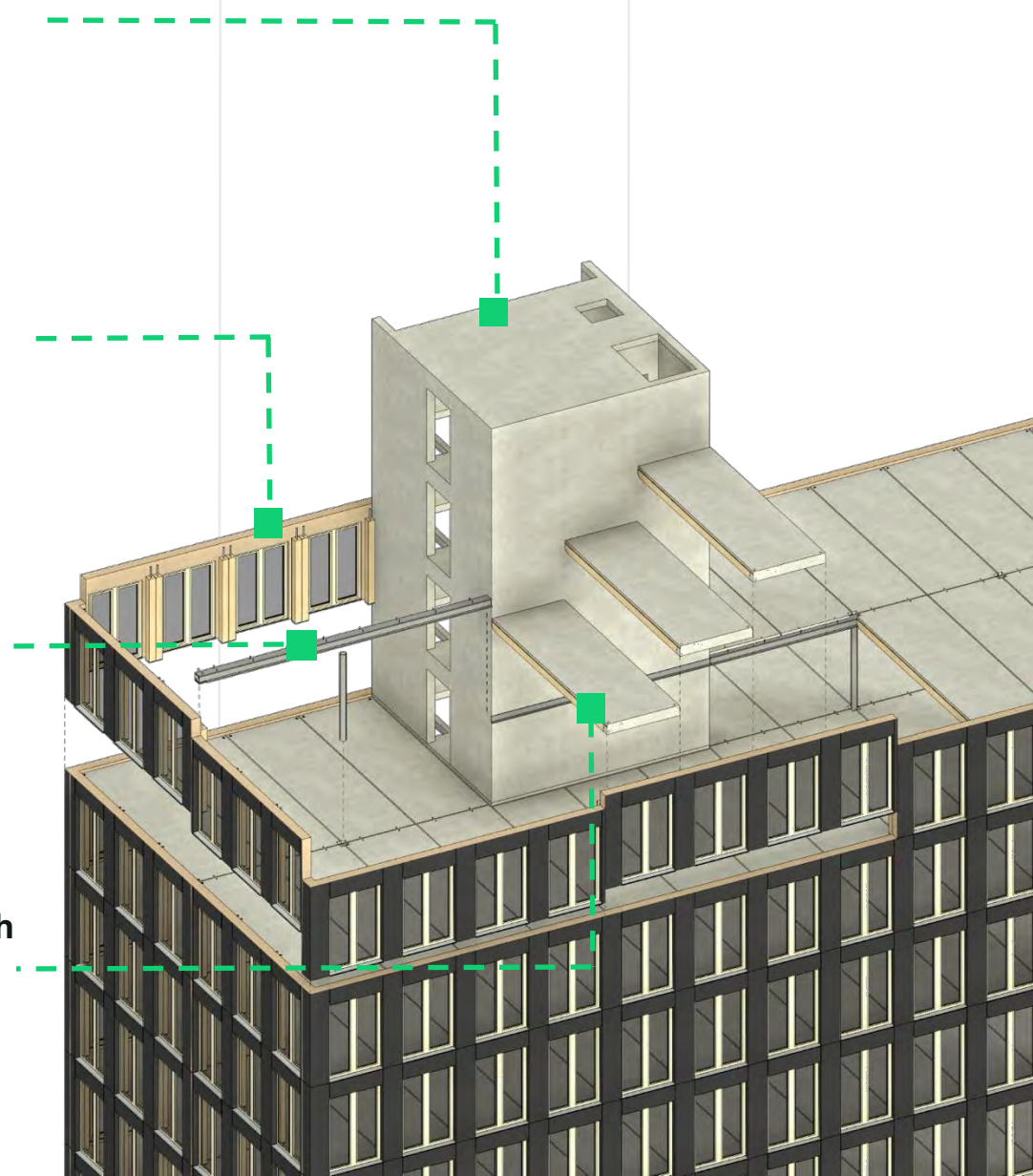
**2** Prefabricerade  
väggar med  
limträpelare

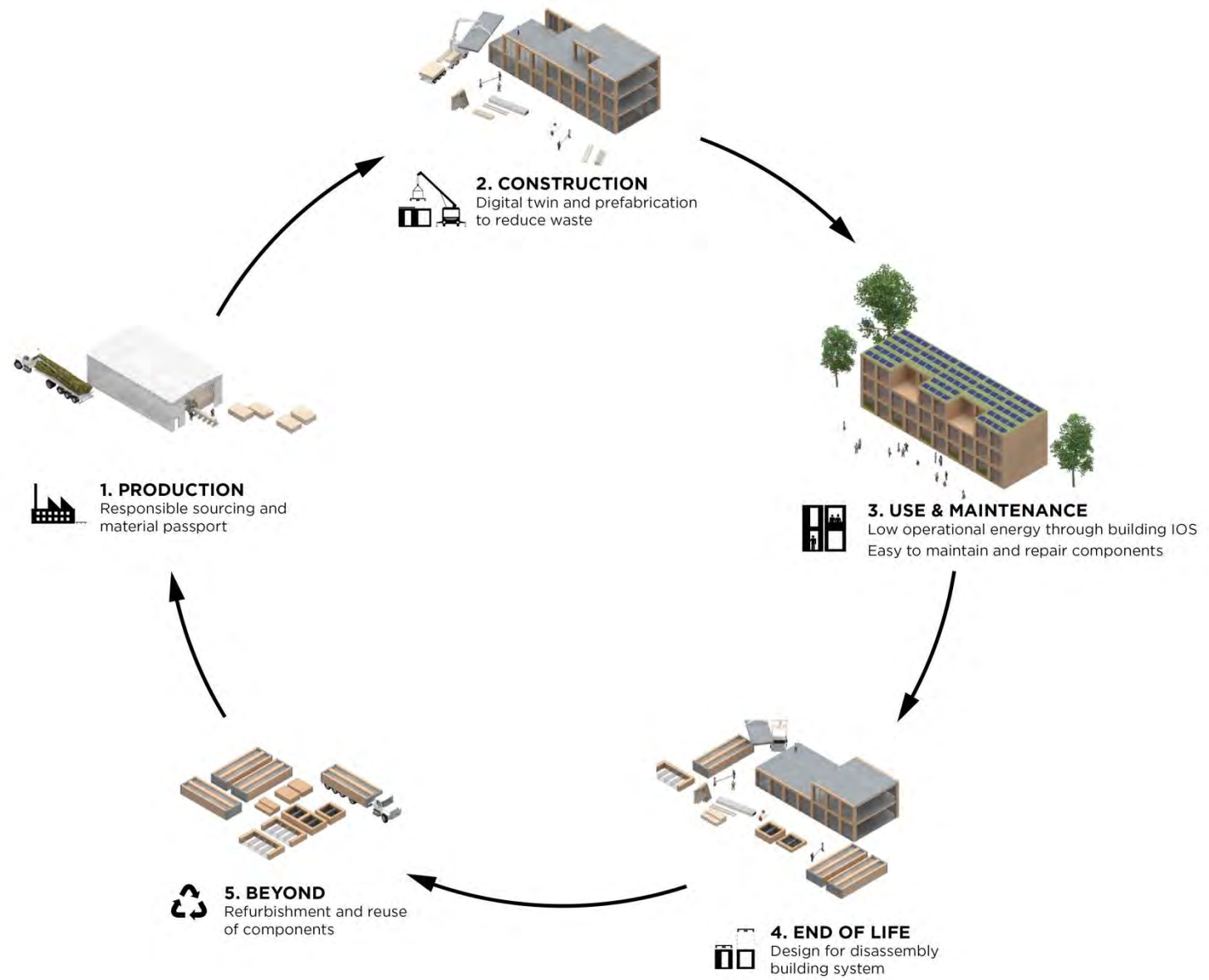


**3** Mellanbalkar  
och pelare



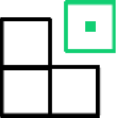
**4** Prefabricerat  
sammverkans-  
bjälklag i trä och  
betong





# Cirkulärt & Resurseffektivt Byggsystem

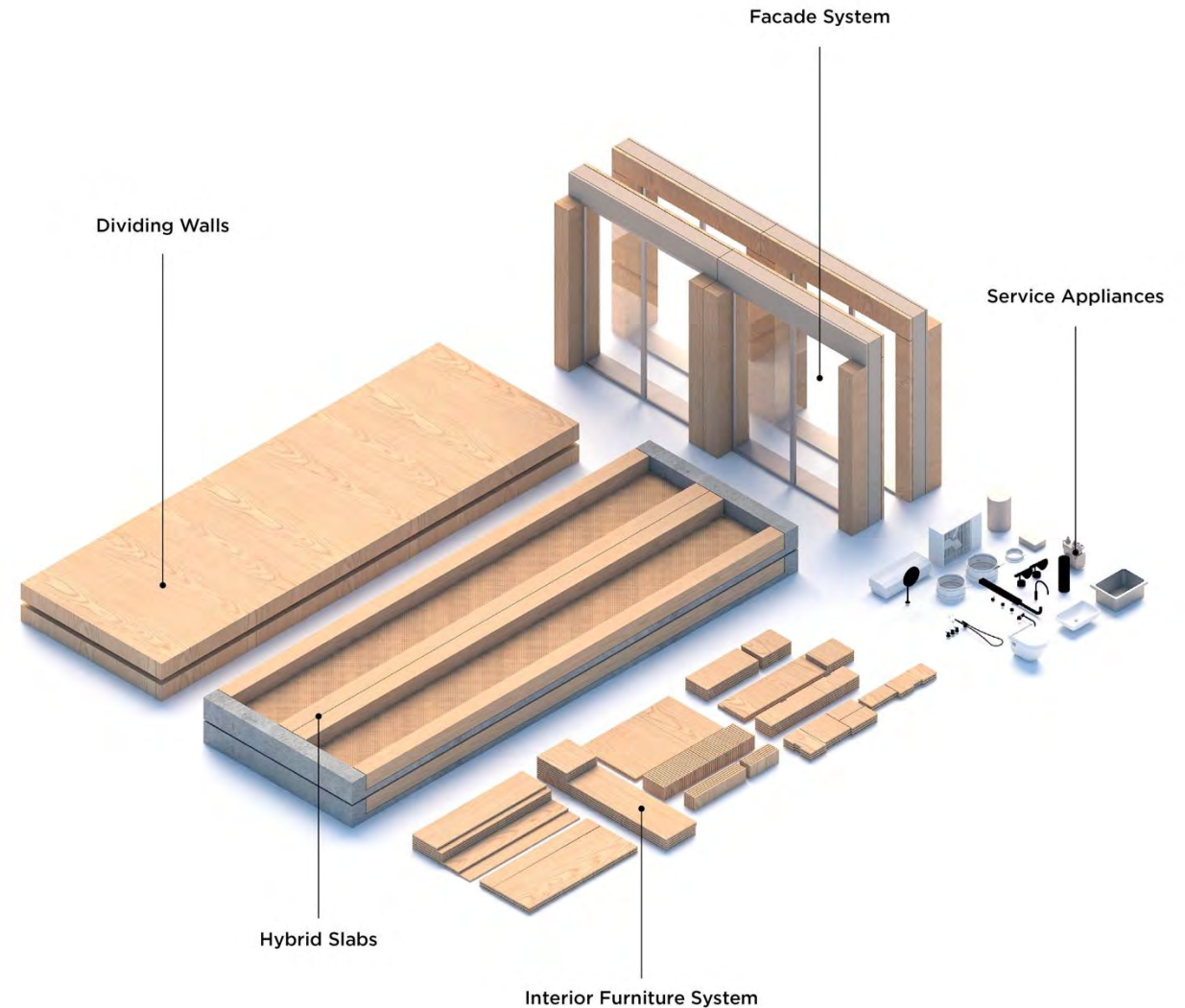




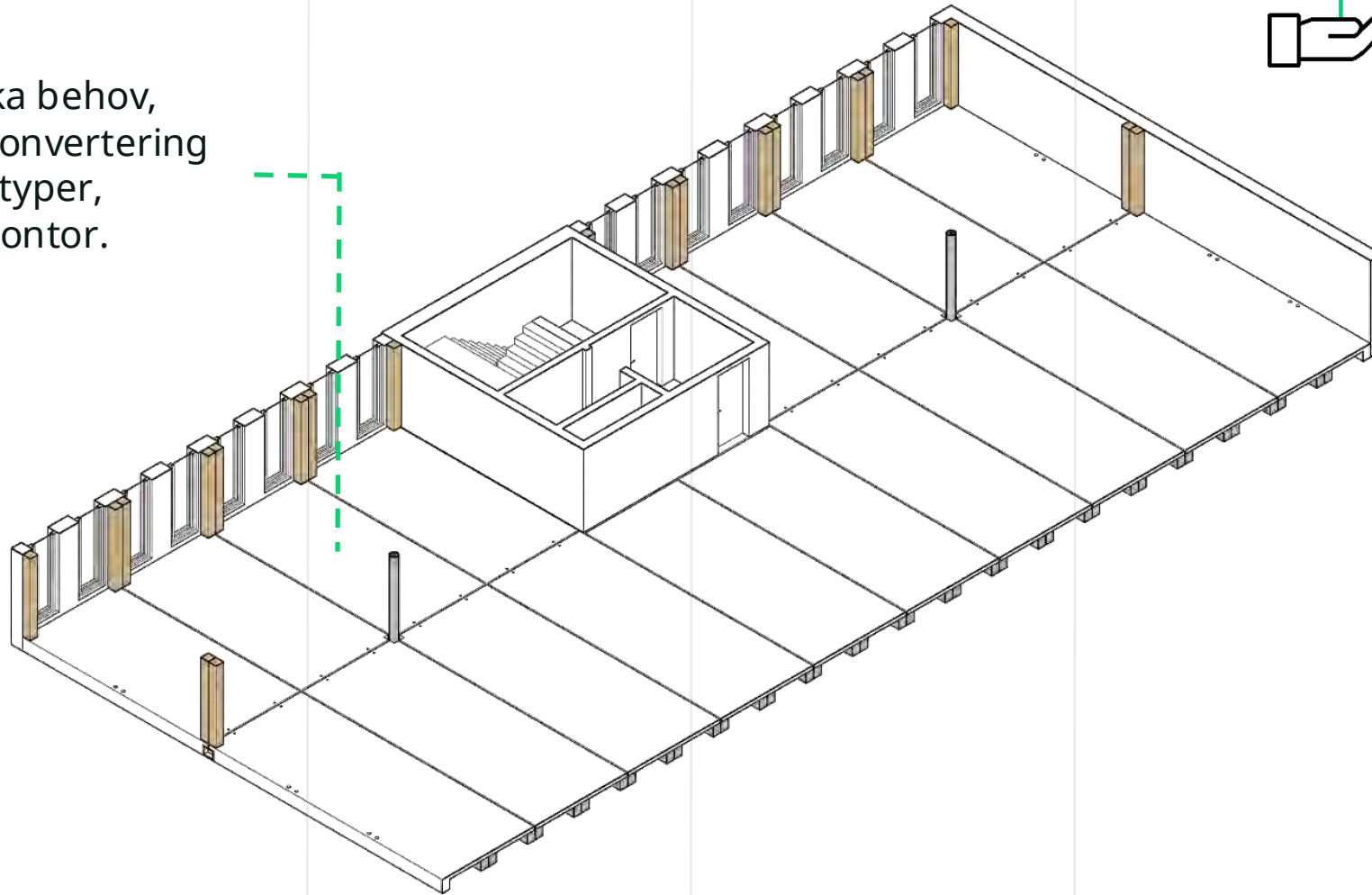
Integrerade byggkomponenter  
med fokus på hållbarhet,  
cirkularitet och effektivitet.



# Integrerade byggkomponenter

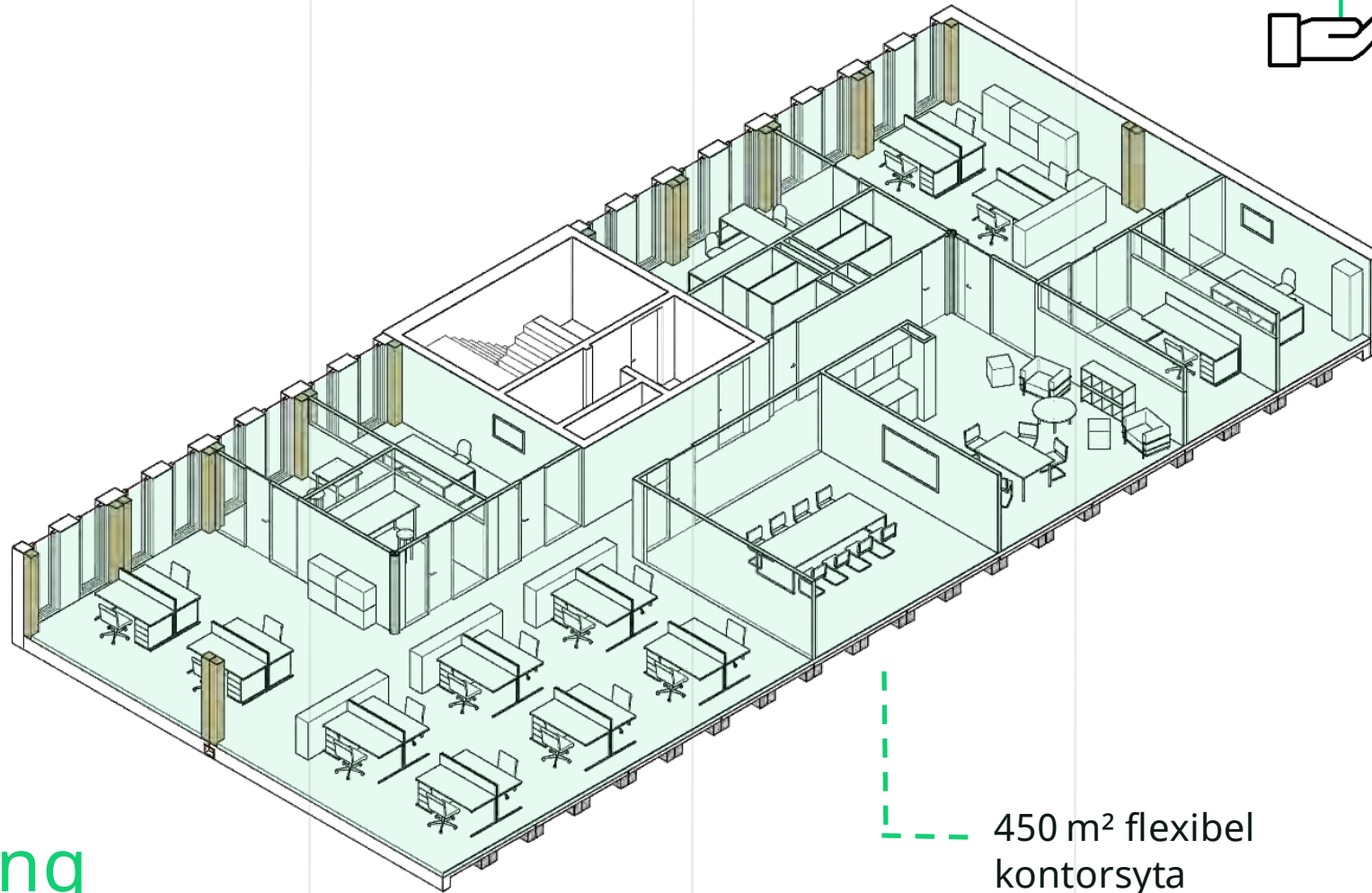


Flexibla ytor för olika behov,  
med möjlighet till konvertering  
till andra fastighetstyper,  
såsom hotell eller kontor.



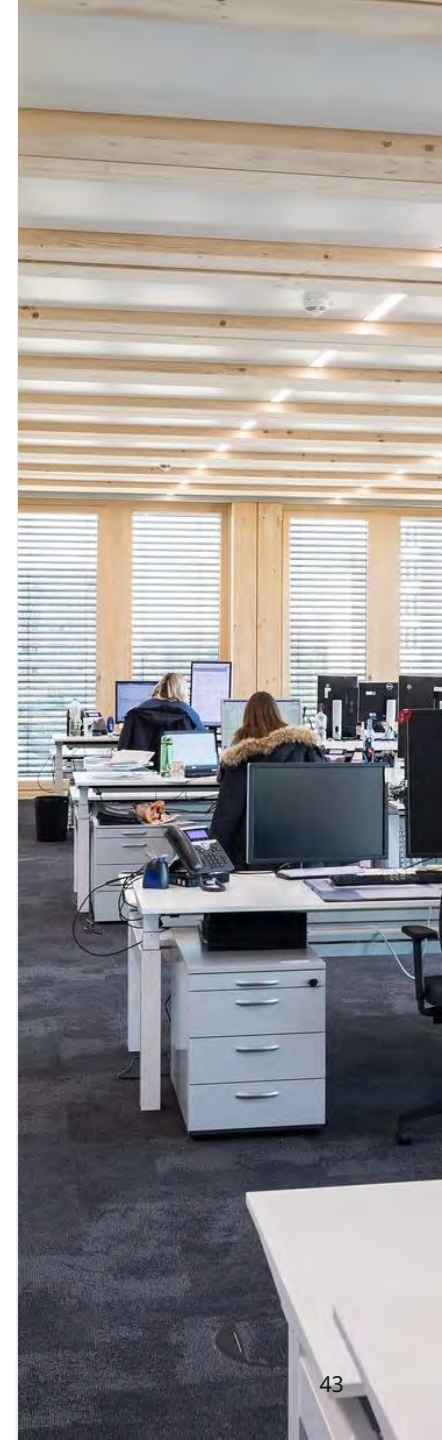
## Flexibel Planlösning

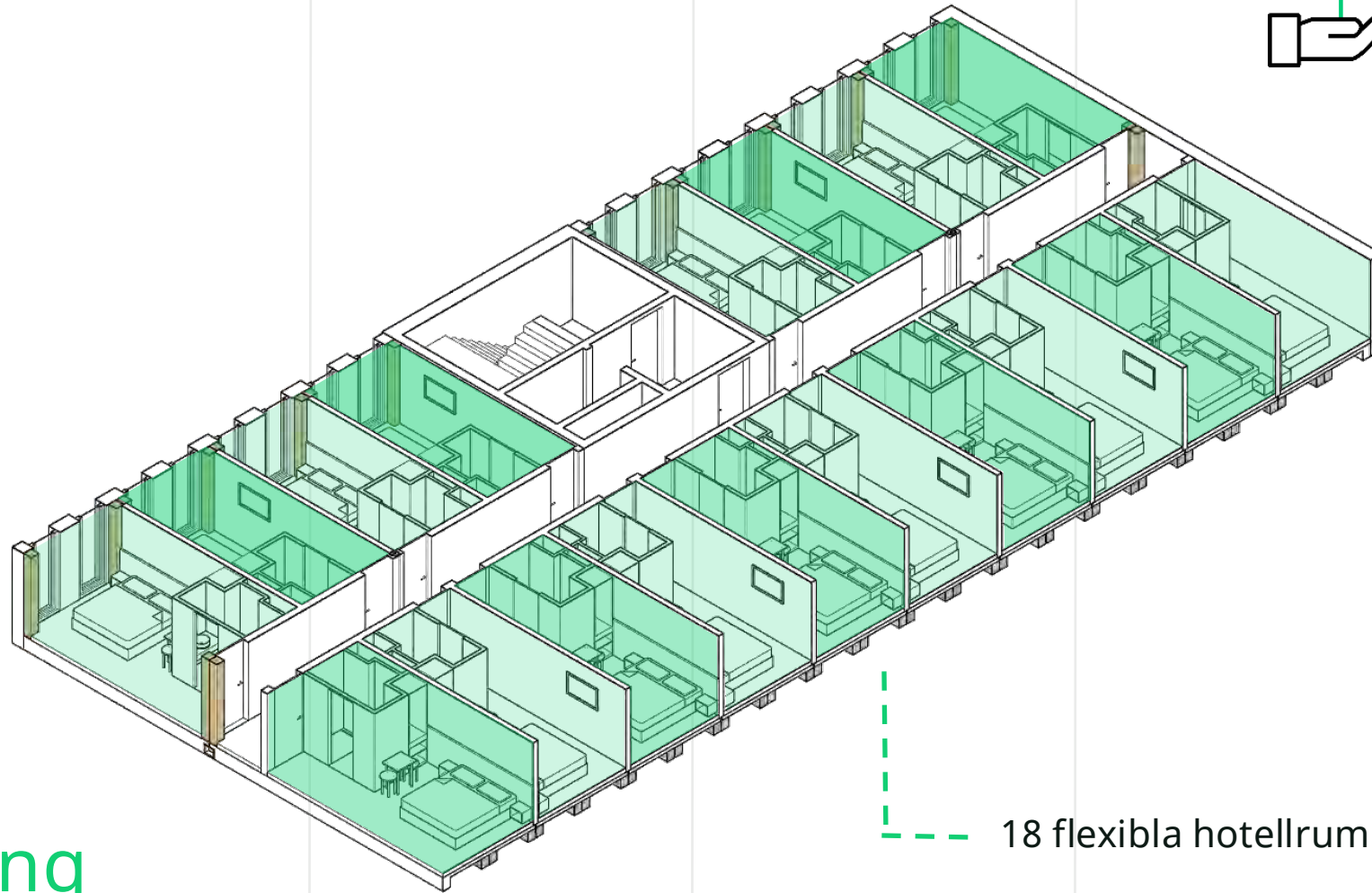




450 m<sup>2</sup> flexibel  
kontorsyta

# Konvertering Kontor



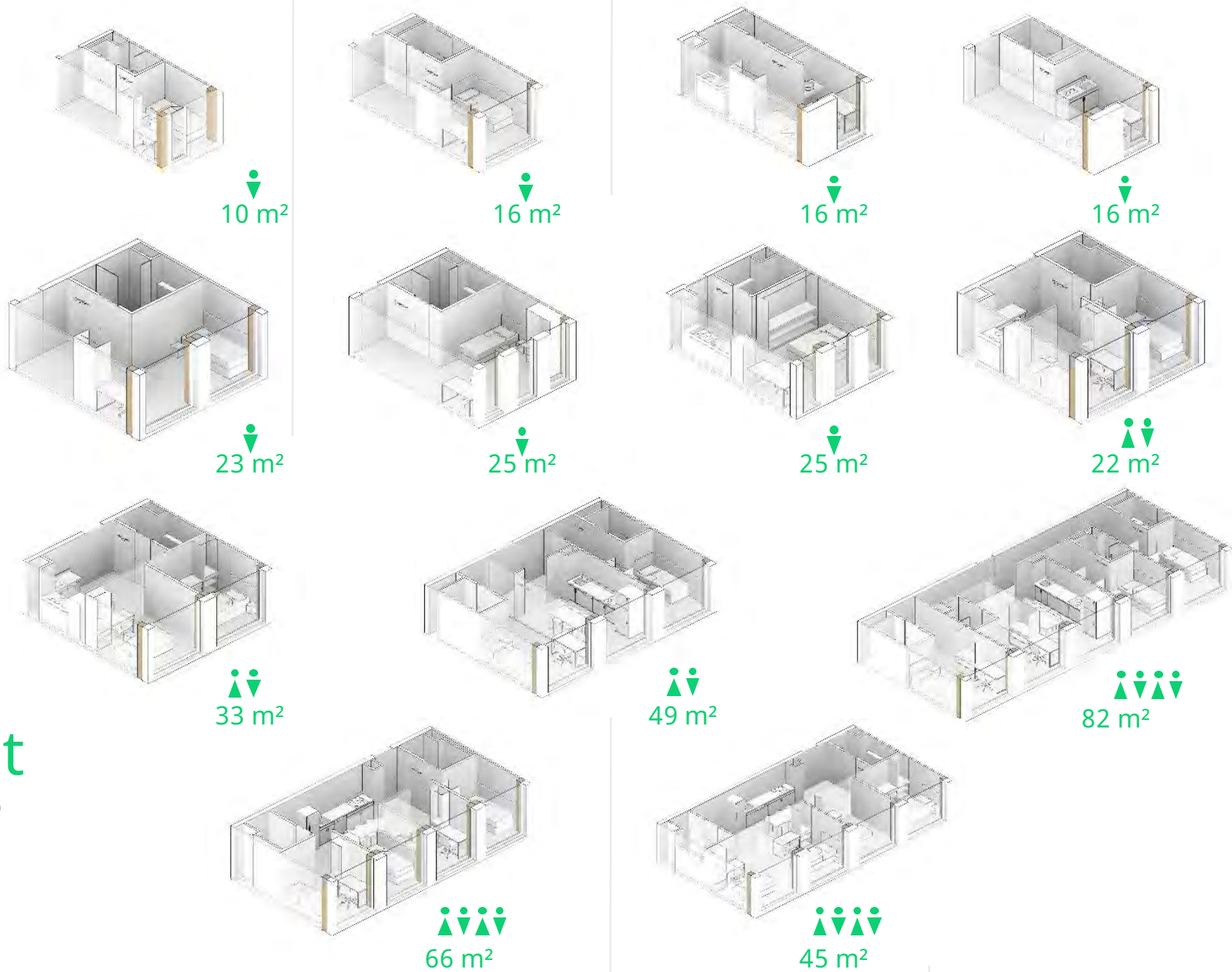


18 flexibla hotellrum

# Konvertering Hotell



# Flexibilitet STUDENT







DAG

[creebuildings.com](https://creebuildings.com)



## Next step

Är att utveckla en metod, "**ett recept**" kring framtidens kravställning med återbruk och cirkularitet i fokus.



# Framework for Adaptive Student Housing In the Nordics



Biome

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BUILDINGS

