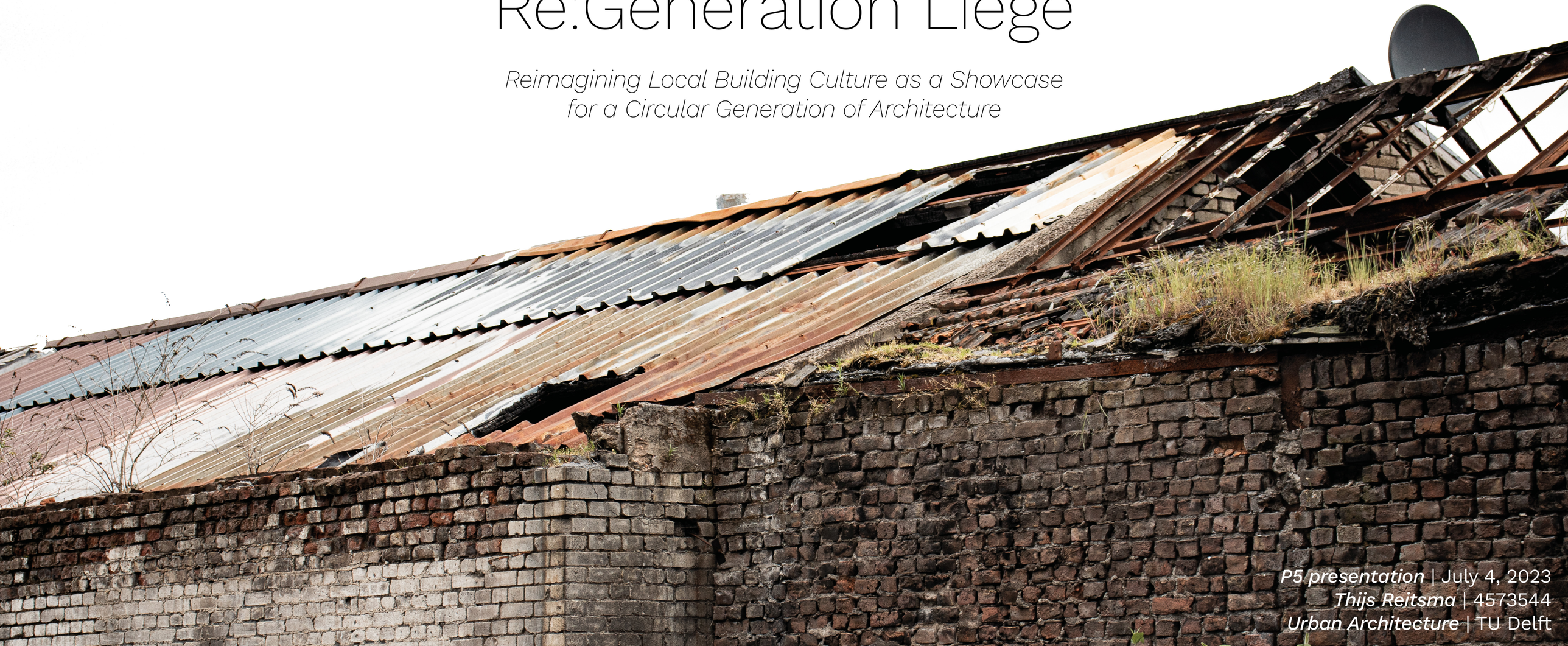
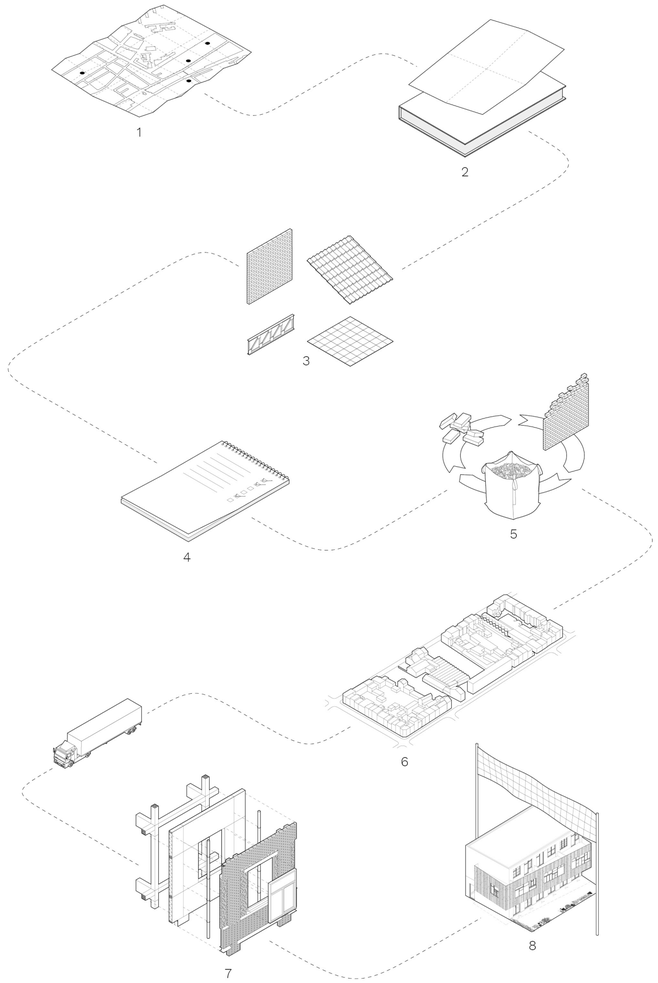
Re:Generation Liège

Reimagining Local Building Culture as a Showcase for a Circular Generation of Architecture



P5 presentation | July 4, 2023
Thijs Reitsma | 4573544
Urban Architecture | TU Delft



1. EXPLORATION
2. DEFINITION
3. INVENTORY
4. ASSESSMENT
5. PROCESS
6. IMPLEMENTATION
7. ASSEMBLY
8. CONCLUSION

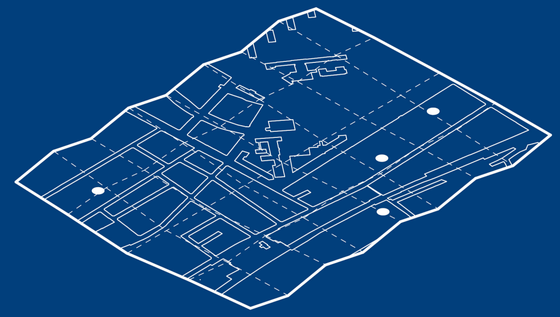
exploration
/ˌɛksplə'reɪʃn/

noun

1. the action of exploring an unfamiliar area.

2. thorough examination of a subject.

(Oxford English Dictionary)



EXPLORATION

P5 presentation | *July 4, 2023*
Thijs Reitsma | *4573544*
Urban Architecture | *TU Delft*

EXPLORATION | INDUSTRIAL ACTIVITY



EXPLORATION | INDUSTRIAL ACTIVITY



EXPLORATION | INDUSTRIAL ACTIVITY

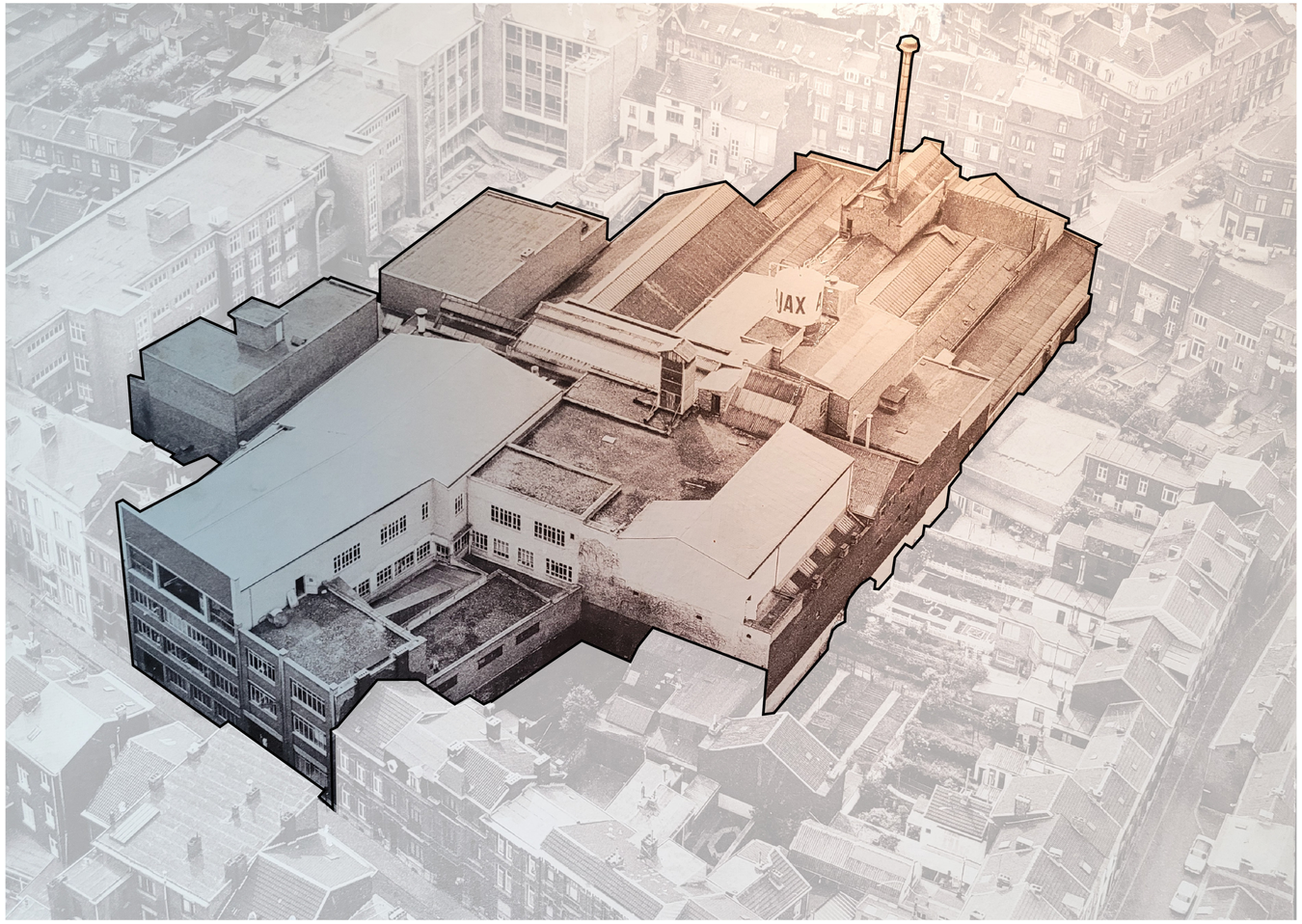


image courtesy of Maison de la Métallurgie et de l'Industrie de Liège

EXPLORATION | INDUSTRIAL ACTIVITY



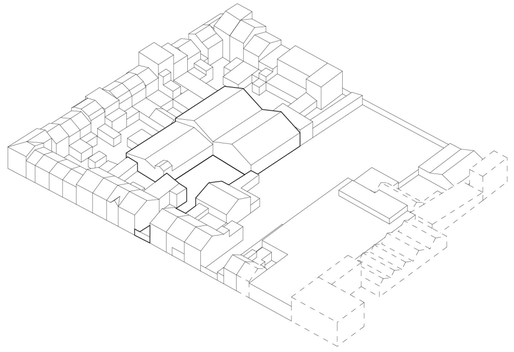
EXPLORATION | INDUSTRIAL ACTIVITY

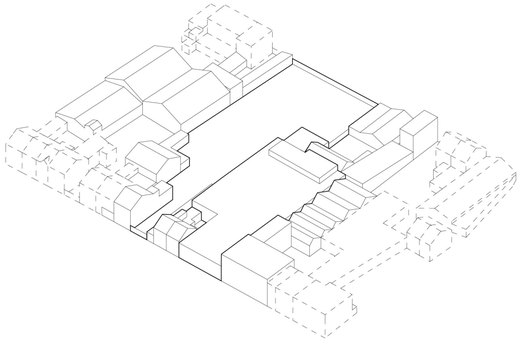


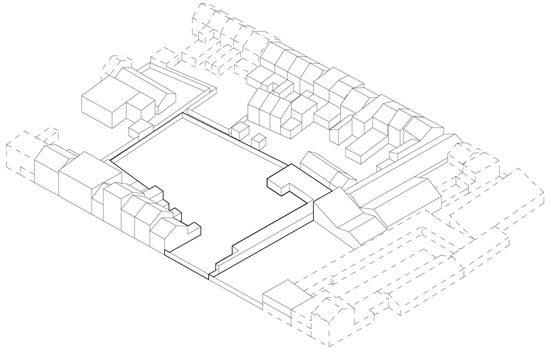
EXPLORATION INDUSTRIAL ACTIVITY

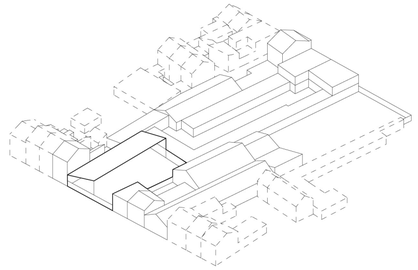


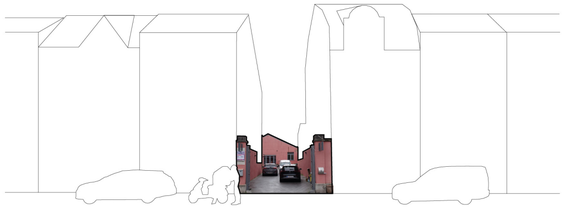
EXPLORATION | INDUSTRIAL ACTIVITY

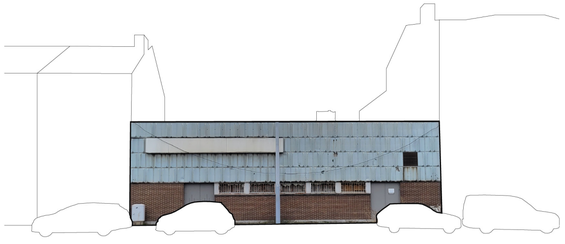




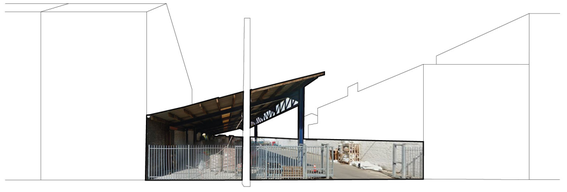












adapted from Teun van Dillen, Mining & Making



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Urban Architecture | *TU Delft*

EXPLORATION | PERMEABILITY & APPROPRIATION



EXPLORATION | PERMEABILITY & APPROPRIATION



EXPLORATION | PERMEABILITY & APPROPRIATION



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Urban Architecture | *TU Delft*

EXPLORATION | PERMEABILITY & APPROPRIATION



EXPLORATION | PERMEABILITY & APPROPRIATION



EXPLORATION | PERMEABILITY & APPROPRIATION



EXPLORATION | DECAYED SITES/BUILDINGS



EXPLORATION | DECAYED SITES/BUILDINGS



EXPLORATION | DECAYED SITES/BUILDINGS





EXPLORATION | GENTRIFYING ARCHITECTURE



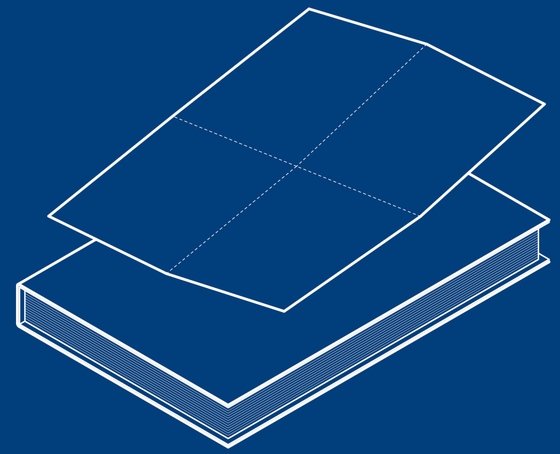
definition
/ˌdɛfɪˈnɪʃn/

noun

1. a statement of the exact meaning of a word, especially in a dictionary.

2. the degree of distinctness in outline of an object, image, or sound.

(Oxford English Dictionary)



DEFINITION

P5 presentation | *July 4, 2023*
Thijs Reitsma | *4573544*
Urban Architecture | *TU Delft*

DEFINITION | PROJECT GOAL

*reclaim **physical & cultural potential** of vacant sites and buildings*

*create **culturally fitting & sustainable architecture***

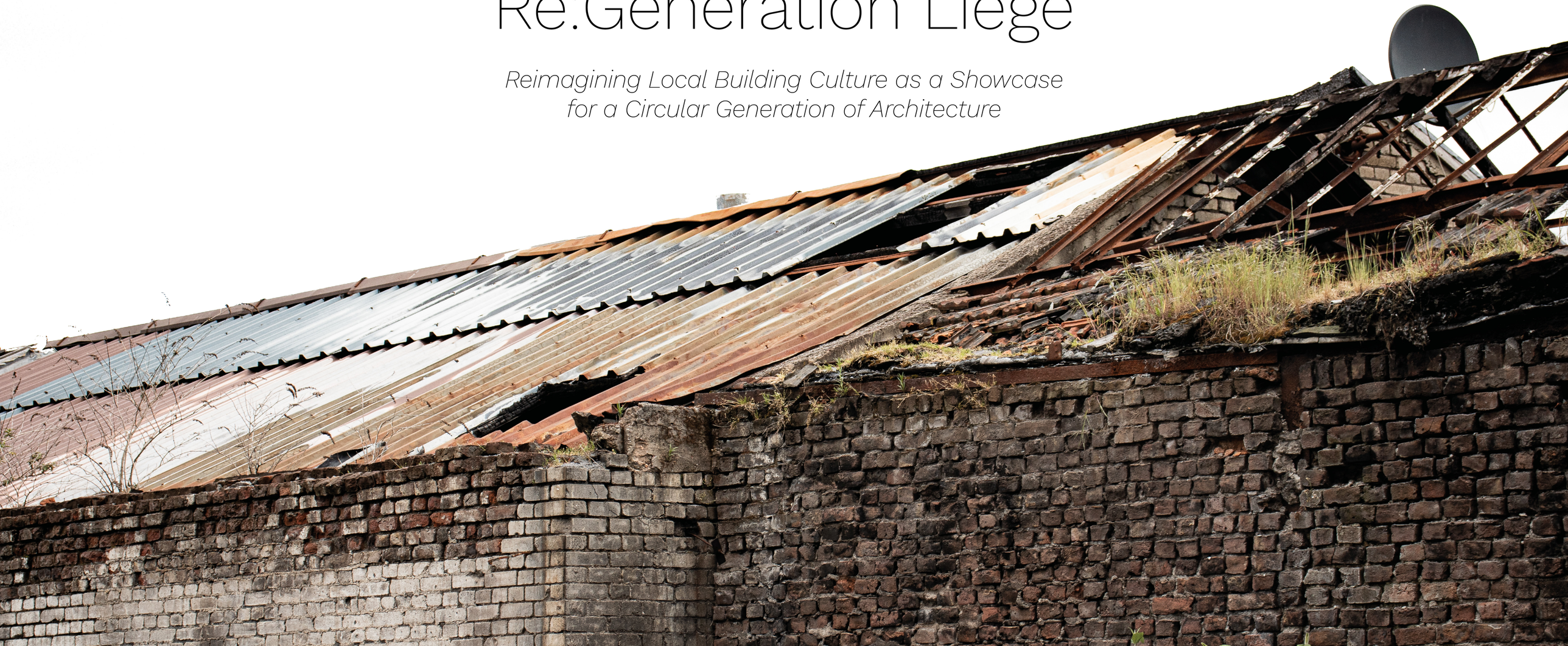
*introduce a **visible & accessible ‘industrial’ program***

*provide **space for appropriation & nature***



Re:Generation Liège

Reimagining Local Building Culture as a Showcase for a Circular Generation of Architecture



DEFINITION | PROJECT GOAL



program *(people, facilities & knowledge)*



building & site *(adaptive reuse)*



materials *(component reuse)*

inventory
/ˈɪnv(ə)nt(ə)ri/

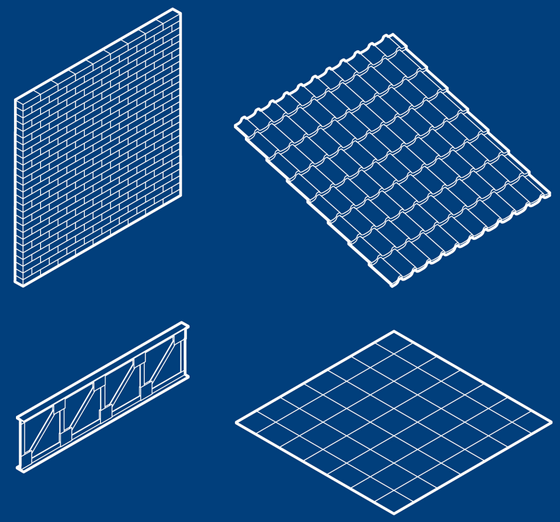
noun

a complete list of items such as property, goods in stock, or the contents of a building.

verb

make a complete list of.

(Oxford English Dictionary)



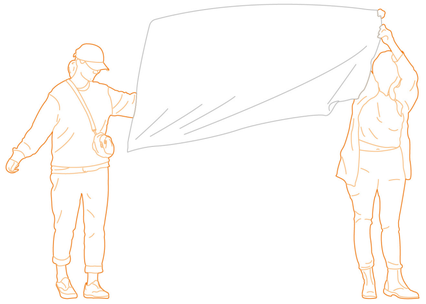
INVENTORY

P5 presentation | *July 4, 2023*
Thijs Reitsma | *4573544*
Urban Architecture | *TU Delft*

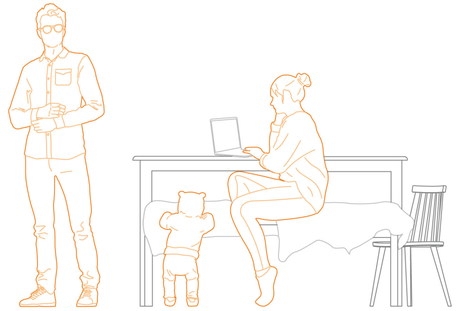
INVENTORY | TARGET GROUPS



creative entrepreneurs



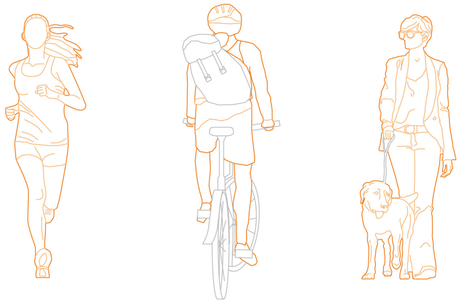
workshop users



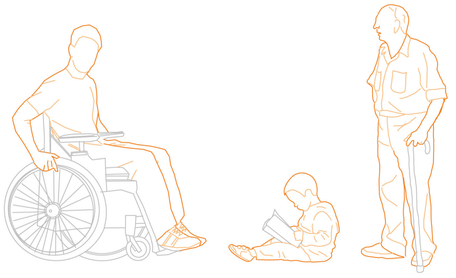
residents



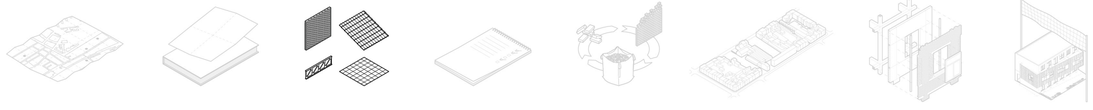
outdoor space users



passersby



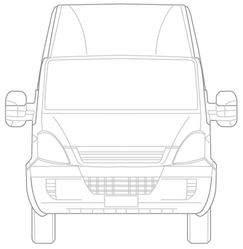
extra care



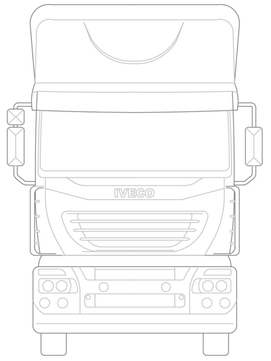
INVENTORY | ASSOCIATED VEHICLES



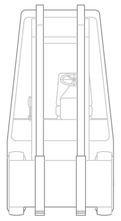
cars



vans



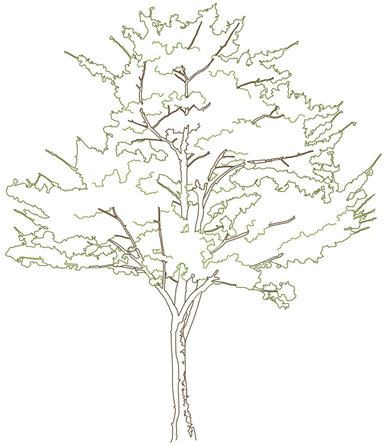
trucks



forklifts



INVENTORY | TYPES OF VEGETATION



trees



hedges, bushes & schrubs



climbing plants



crops

INVENTORY | MATERIALS



INVENTORY | MATERIALS





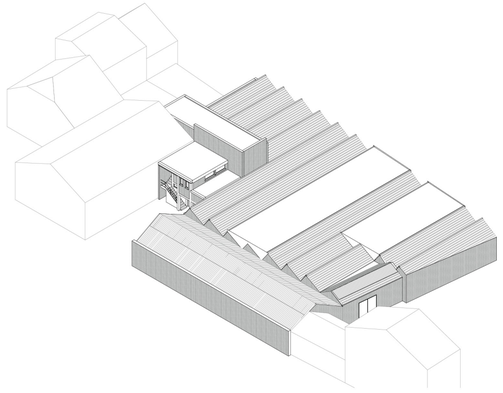
Djamo Mastenbroek

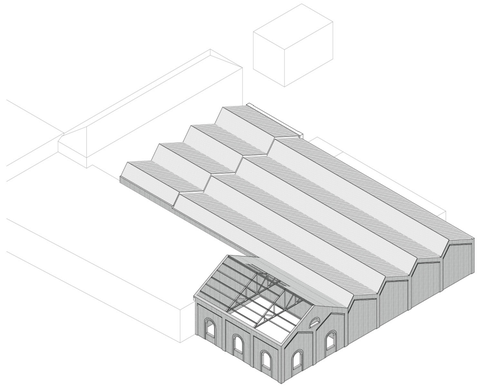


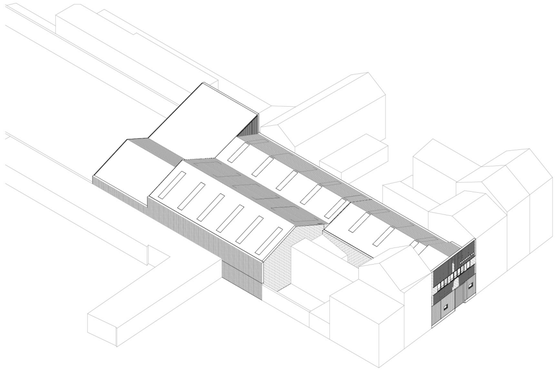


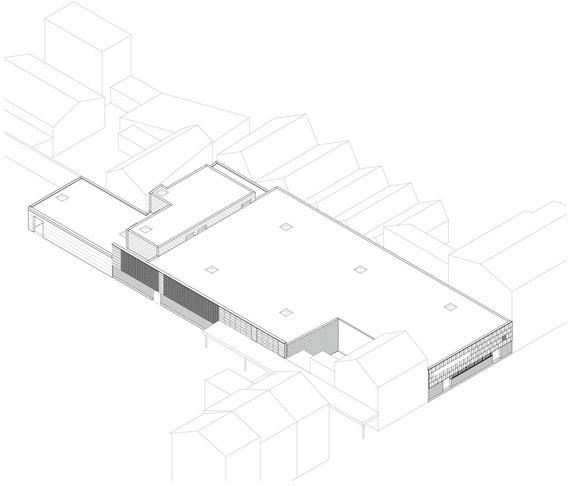
Djamo Mastenbroek

INVENTORY | MATERIALS

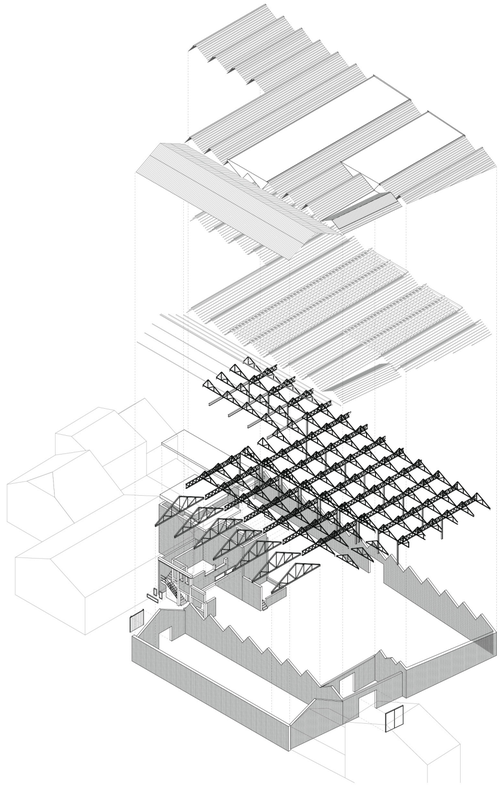


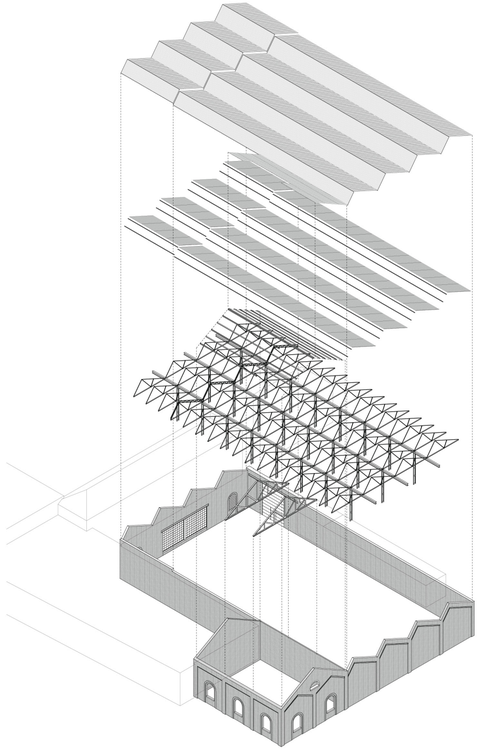


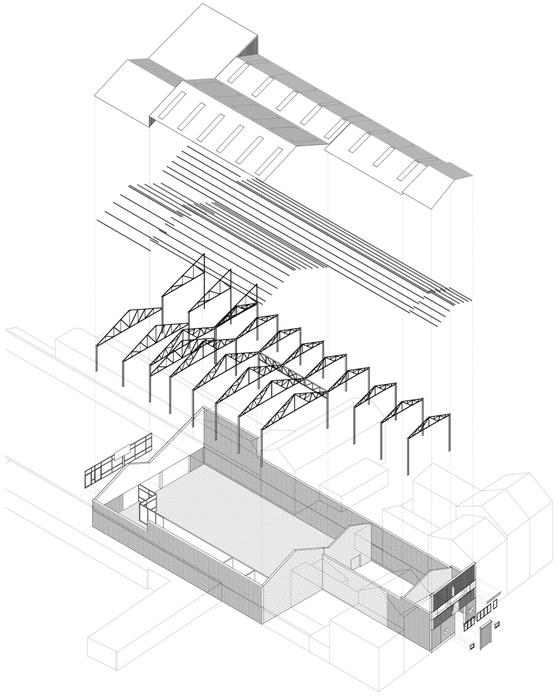


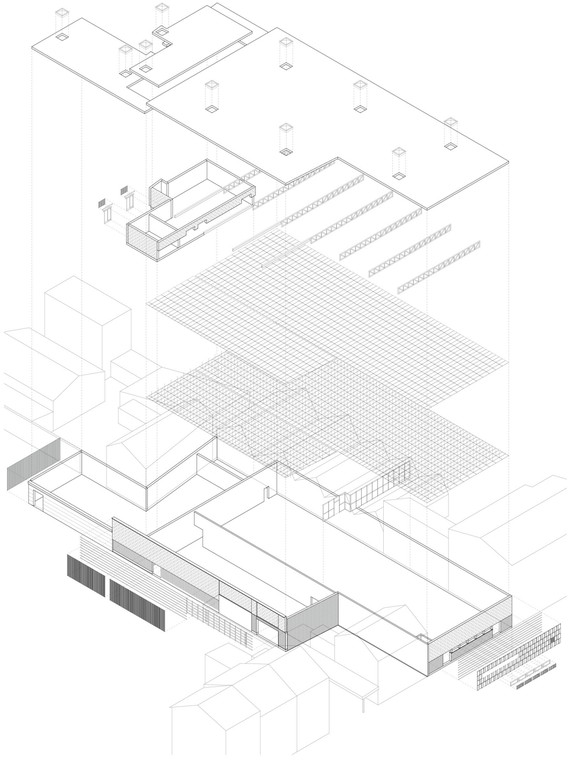


INVENTORY | MATERIALS



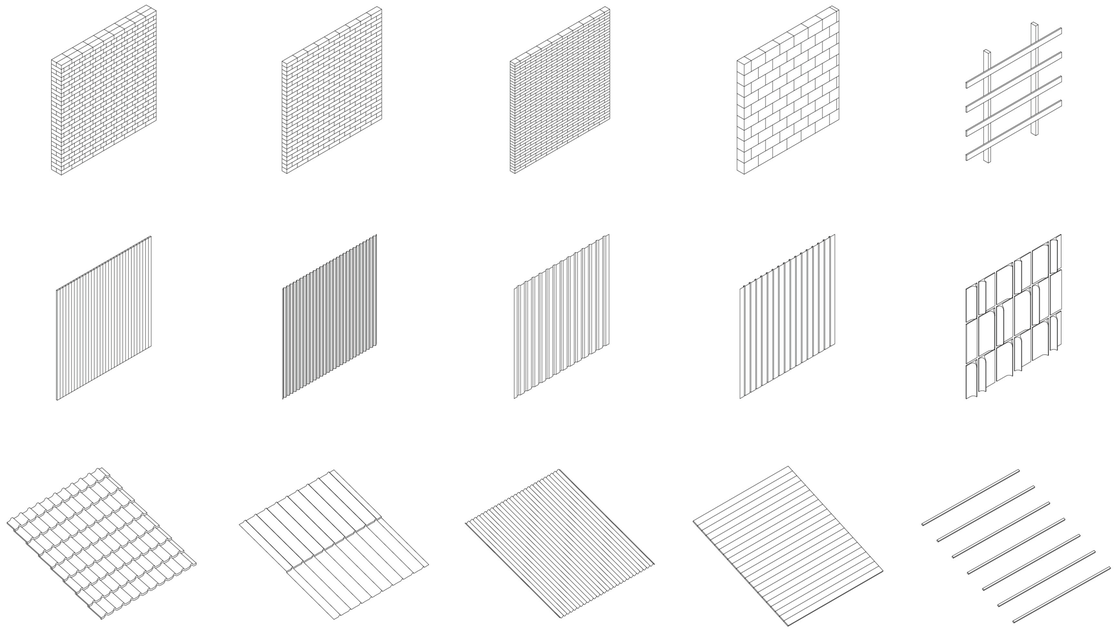






INVENTORY | MATERIALS

skin
exterior surfaces

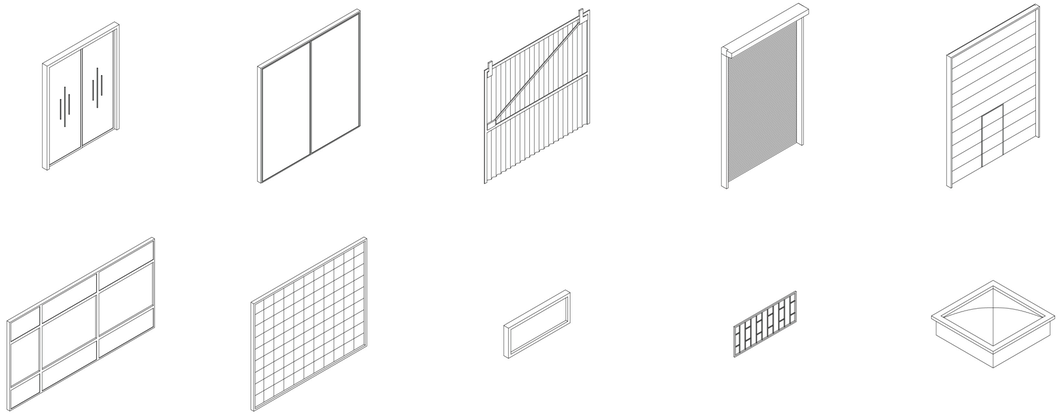






INVENTORY | MATERIALS

skin
exterior surfaces



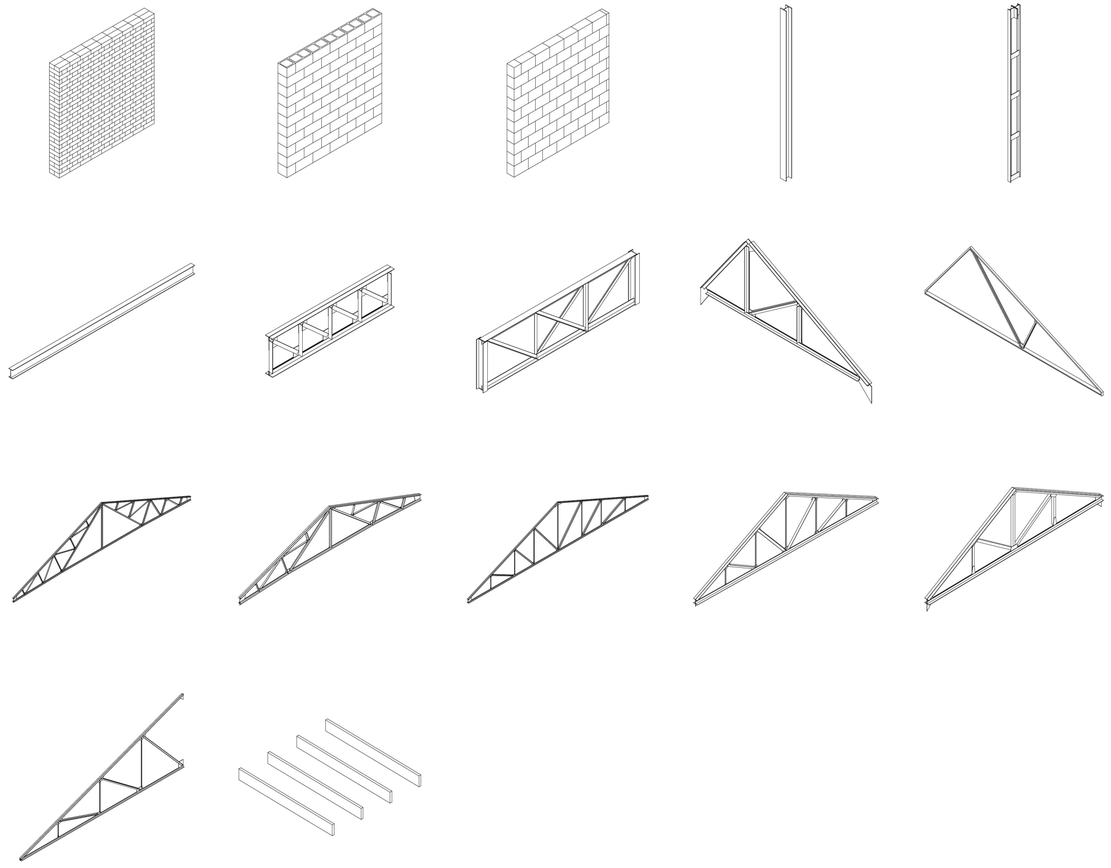




Djamo Mastenbroek

INVENTORY | MATERIALS

structure
load-bearing elements



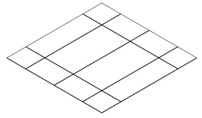


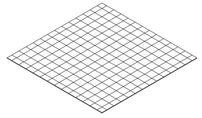
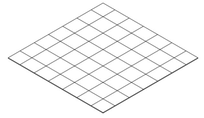
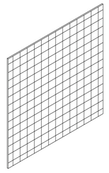
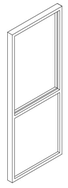


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Urban Architecture | *TU Delft*

INVENTORY | MATERIALS

space plan
interior layout

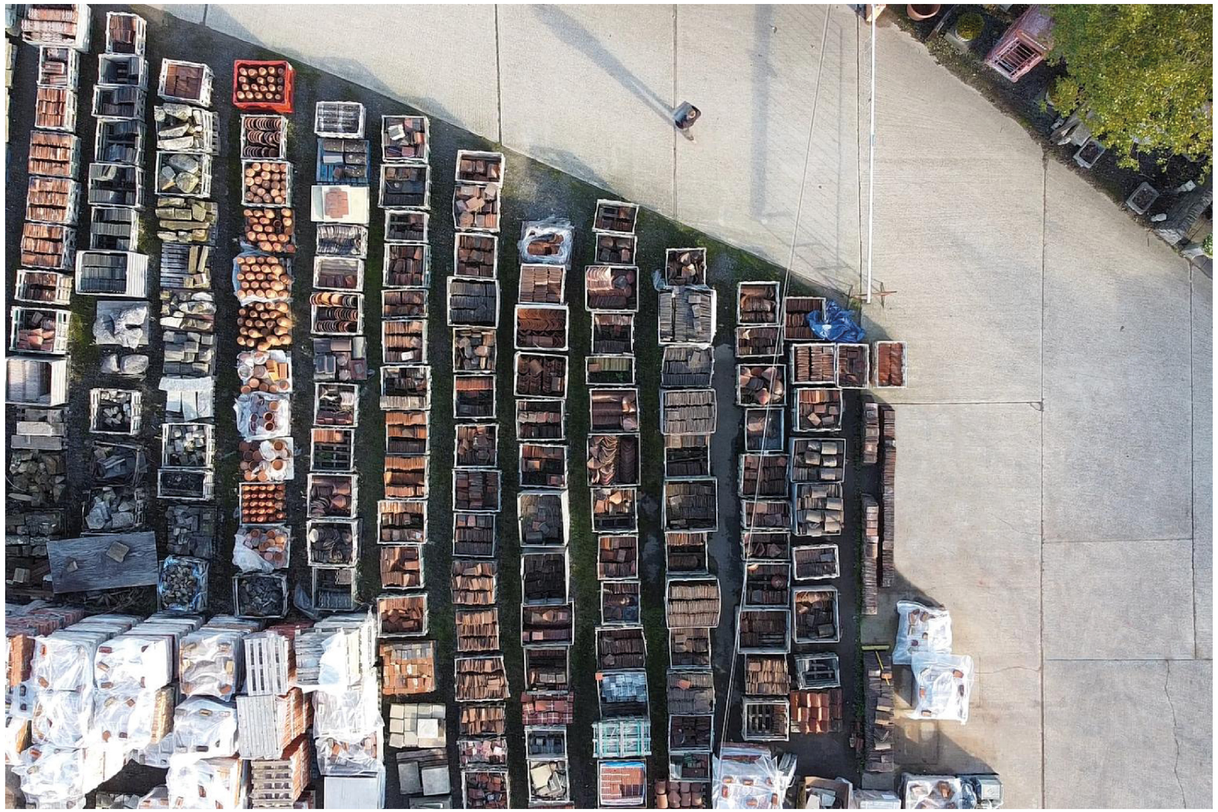






INVENTORY | MATERIALS



INVENTORY | MATERIALS

online material banks
- gebruiktebouwmaterialen.com
- oogstkaart.nl
- opalis.eu
- marktplaats.nl
- 2dehands.be



assess
/əˈsɛs/

verb

evaluate or estimate the nature, ability, or quality of.

(Oxford English Dictionary)



ASSESSMENT

P5 presentation | *July 4, 2023*
Thijs Reitsma | *4573544*
Urban Architecture | *TU Delft*

ASSESSMENT | RESIDENTIAL ARCHITYPE







ASSESSMENT | RESIDENTIAL ARCHITYPE





ASSESSMENT | INDUSTRIAL ARCHITYPE





ASSESSMENT | INDUSTRIAL ARCHITYPE







process
/ˈprəʊsɛs/

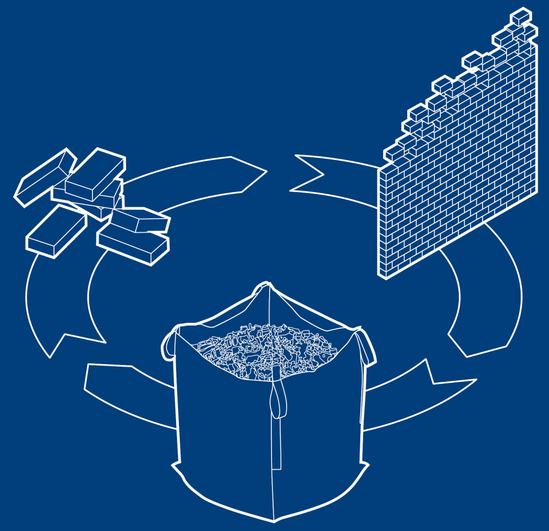
noun

a series of actions or steps taken in order to achieve a particular end.

verb

perform a series of mechanical or chemical operations on (something) in order to change or preserve it.

(Oxford English Dictionary)



PROCESS

P5 presentation | *July 4, 2023*
Thijs Reitsma | *4573544*
Urban Architecture | *TU Delft*

PROCESS | MATERIAL REGENERATION



PROCESS | MATERIAL REGENERATION



New Horizon



Opalis



FCRBE

PROCESS | MATERIAL REGENERATION



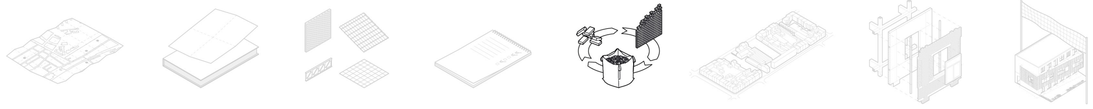
Lendager Group



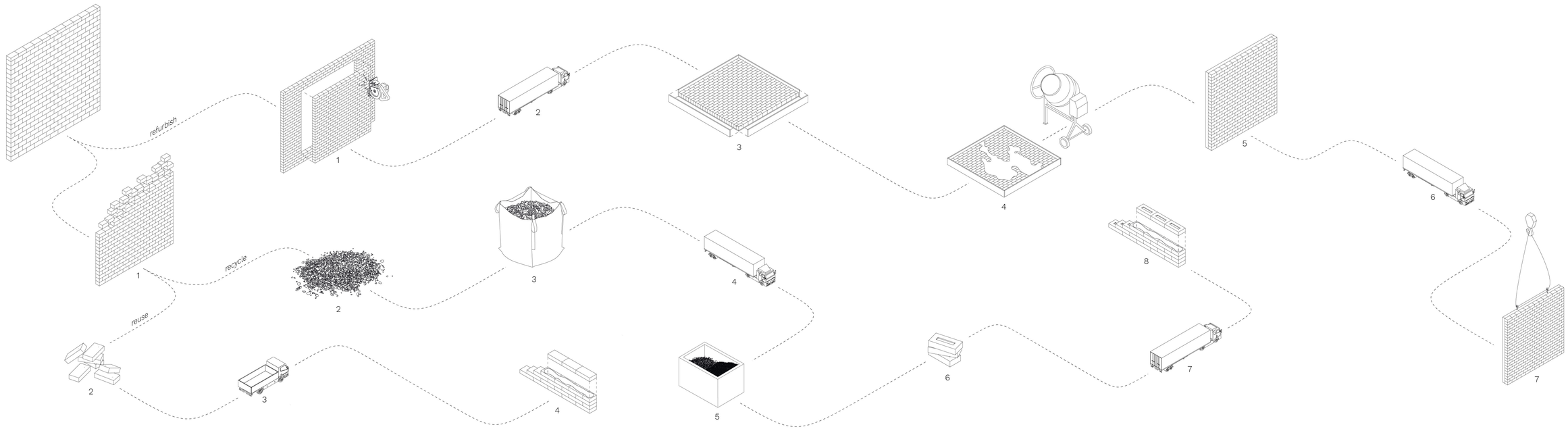
Lendager Group



World Architects

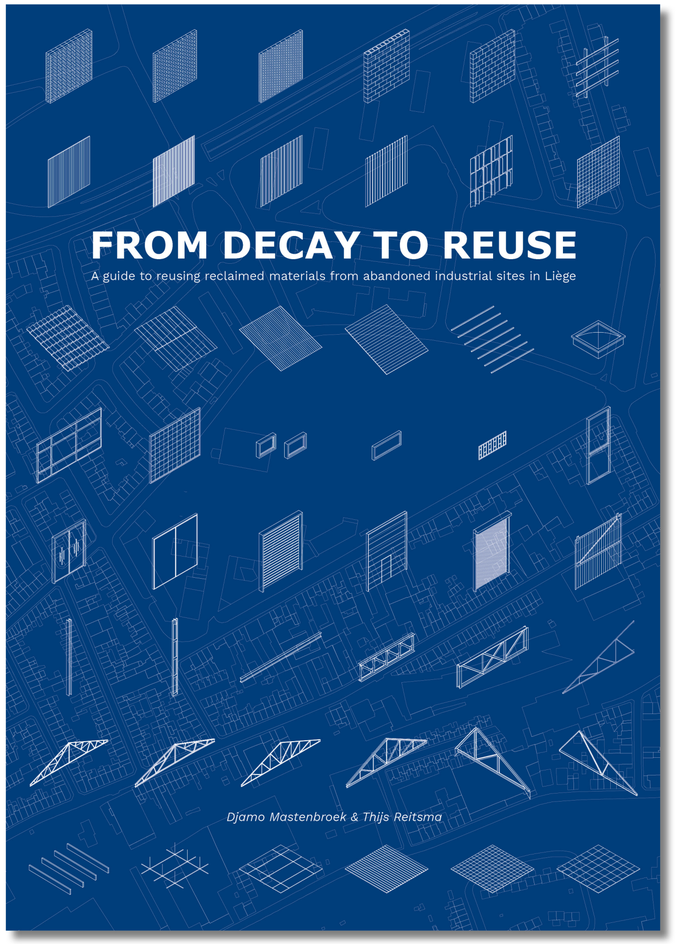


PROCESS | MATERIAL REGENERATION

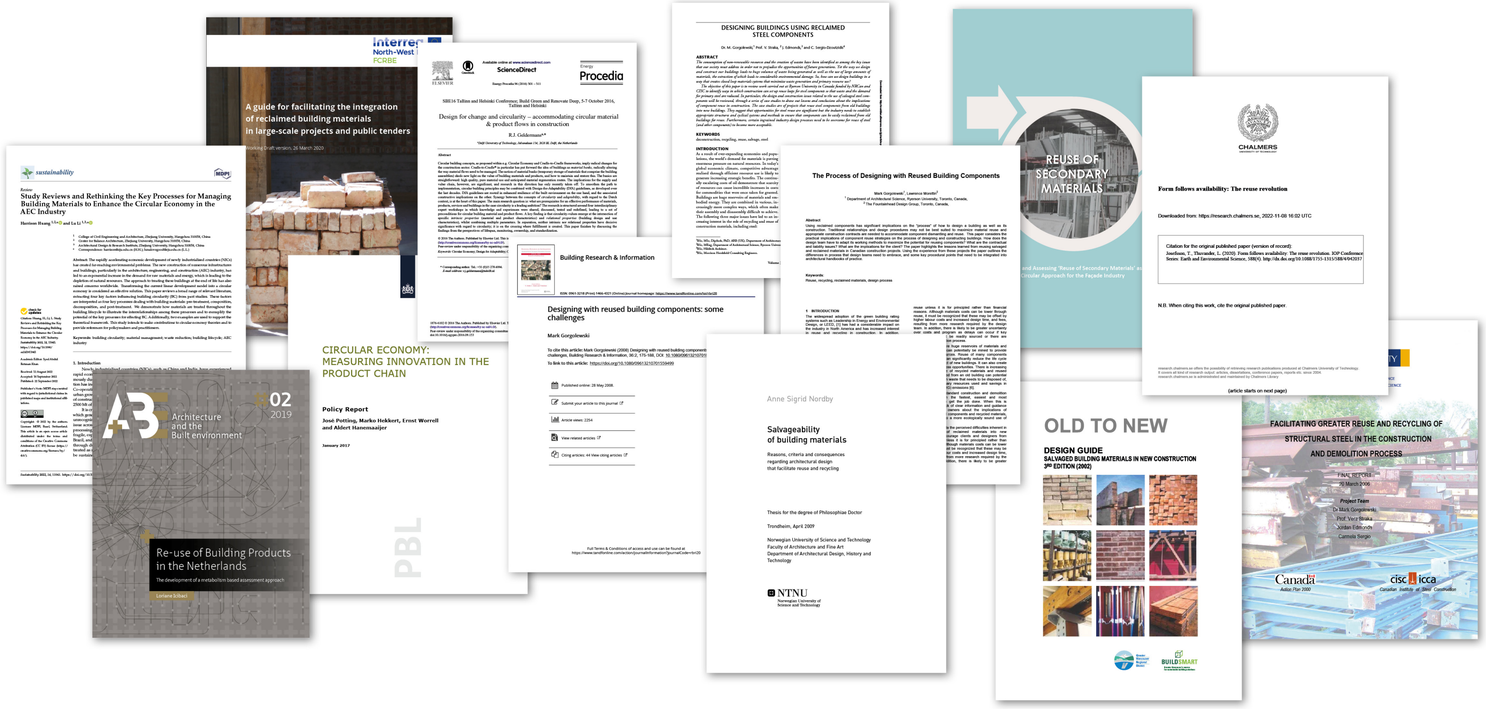


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Urban Architecture | *TU Delft*

PROCESS | MATERIAL



PROCESS | DESIGNING WITH RECLAIMED MATERIALS



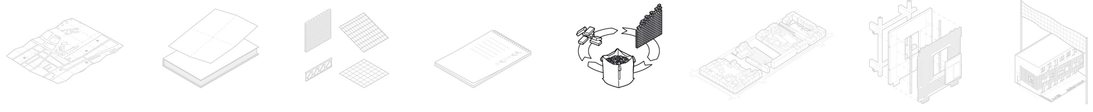
PROCESS | DESIGNING WITH RECLAIMED MATERIALS

*“In one respect, designing buildings to incorporate reclaimed products and materials is **fundamentally different** from conventional design methods.*

*In **conventional design**, the designer conceives the elements and systems of a building and then specifies the materials and components needed to achieve the desired building performance and quality. ...*

*When designing buildings to **incorporate reclaimed products and materials**, ... It becomes virtually essential for the project team to identify the source of suitable materials and products before detailed design can commence, ...”*

(Addis, 2006, p. 1)



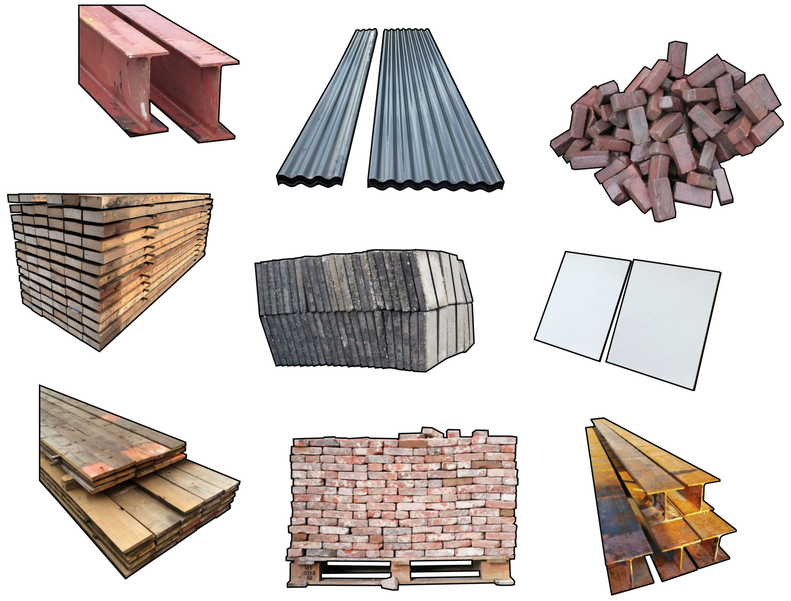
PROCESS | DESIGNING WITH RECLAIMED MATERIALS



PROCESS | DESIGNING WITH RECLAIMED MATERIALS



various dimensions
uncertain supply



universal dimensions
continuous supply

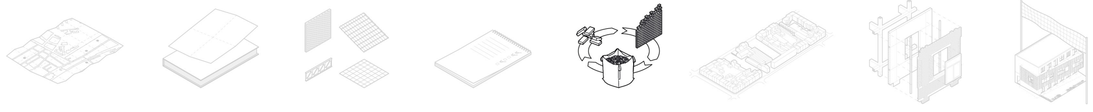
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Thijs Reitsma | *4573544*
Urban Architecture | *TU Delft*

PROCESS | DESIGNING WITH RECLAIMED MATERIALS

*How to design with an **uncertain material supply**?*

*How to design while incorporating **imperfections**?*

*What **alternative uses** can be applied while designing with reclaimed materials and elements?*

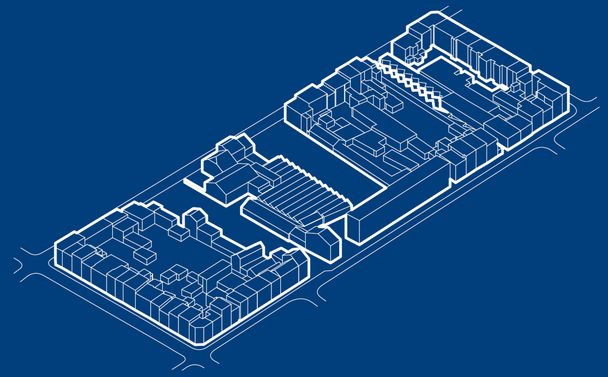


implementation
/ˌɪmplɪmɛnˈteɪʃn/

noun

the process of putting a decision or plan into effect; execution.

(Oxford English Dictionary)



IMPLEMENTATION

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IMPLEMENTATION | LOCAL PARTNERS



Marquet



Tuinmaterialen Meynen

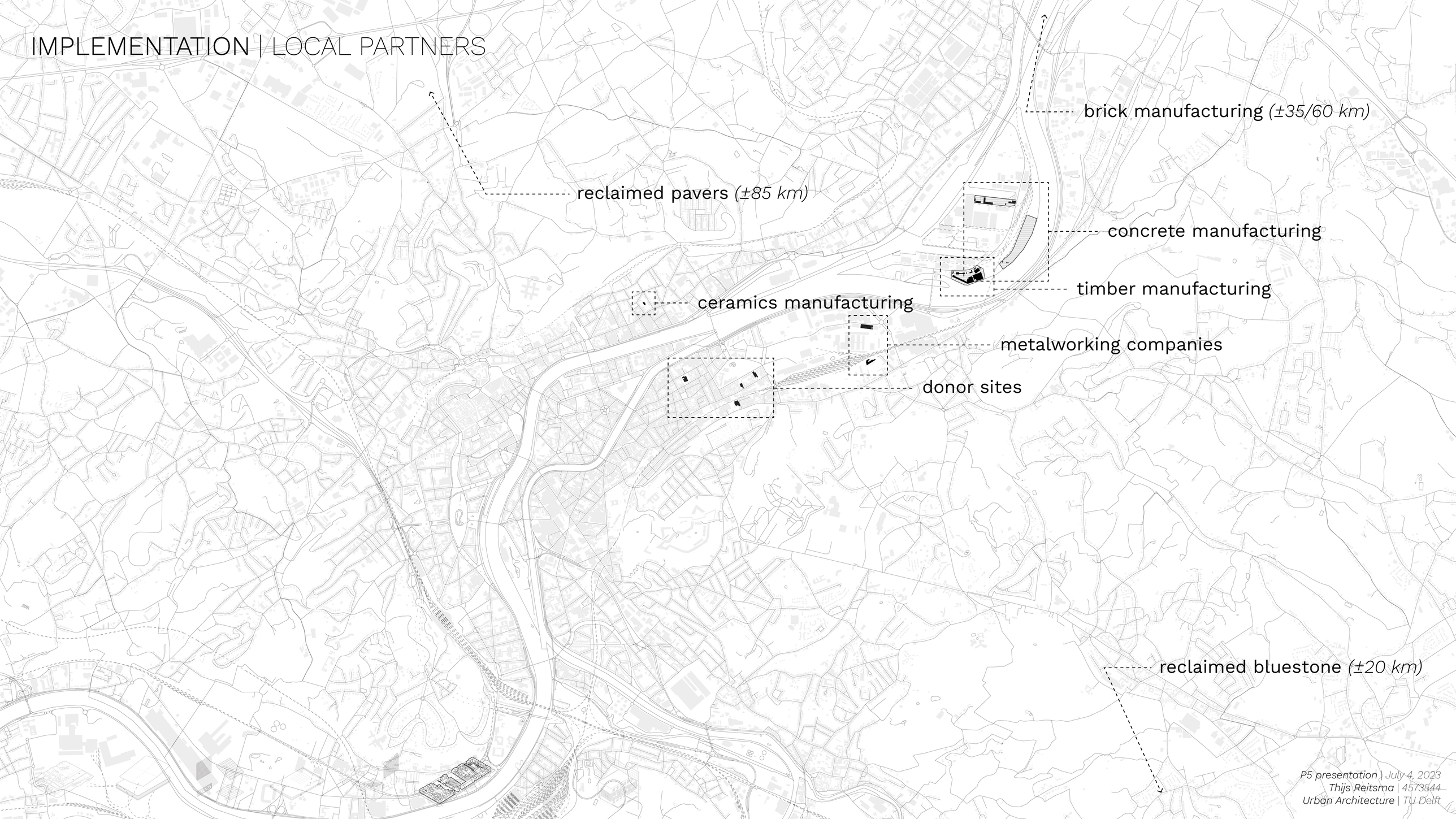


Marquet



Tuinmaterialen Meynen

IMPLEMENTATION | LOCAL PARTNERS



IMPLEMENTATION | PROJECT SITE



IMPLEMENTATION | PROJECT SITE

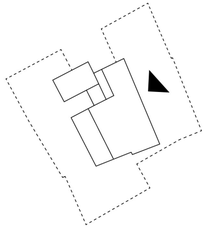


Rue Raymond Geenen

Rue de Porto

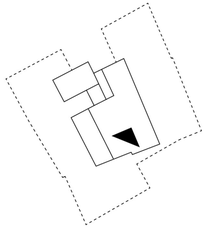
IMPLEMENTATION | PROJECT SITE





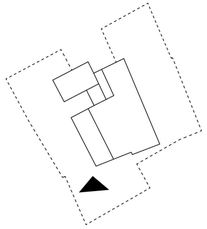
IMPLEMENTATION | PROJECT SITE





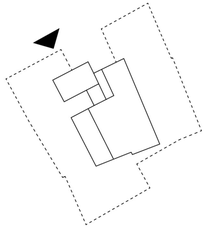
IMPLEMENTATION | PROJECT SITE





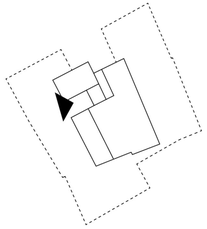
IMPLEMENTATION | PROJECT SITE





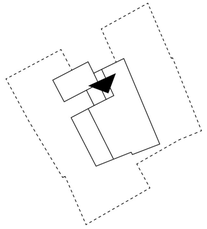
IMPLEMENTATION | PROJECT SITE





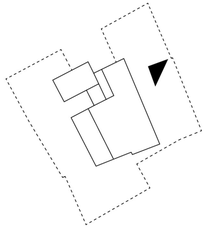
IMPLEMENTATION | PROJECT SITE





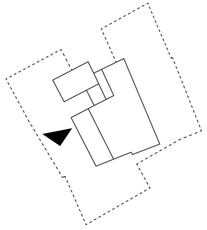
IMPLEMENTATION | PROJECT SITE





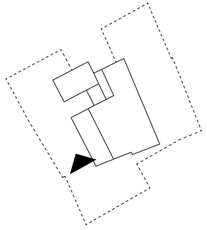
IMPLEMENTATION | PROJECT SITE





IMPLEMENTATION | PROJECT SITE





IMPLEMENTATION | DESIGN BRIEF



program *(people, facilities & knowledge)*

- introduce a public industrial program
- create a community for sharing knowledge, skills & tools
- combine working & living, social safety



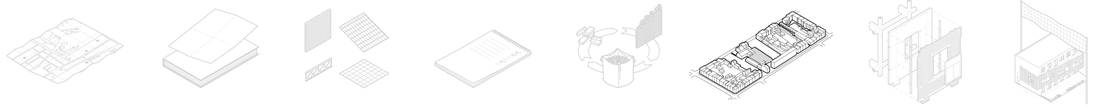
building & site *(adaptive reuse)*

- revive decayed site, while preserving character & history
- introduce nature in symbiosis with industrial program & character
- show architectural implications of designing with existing structures

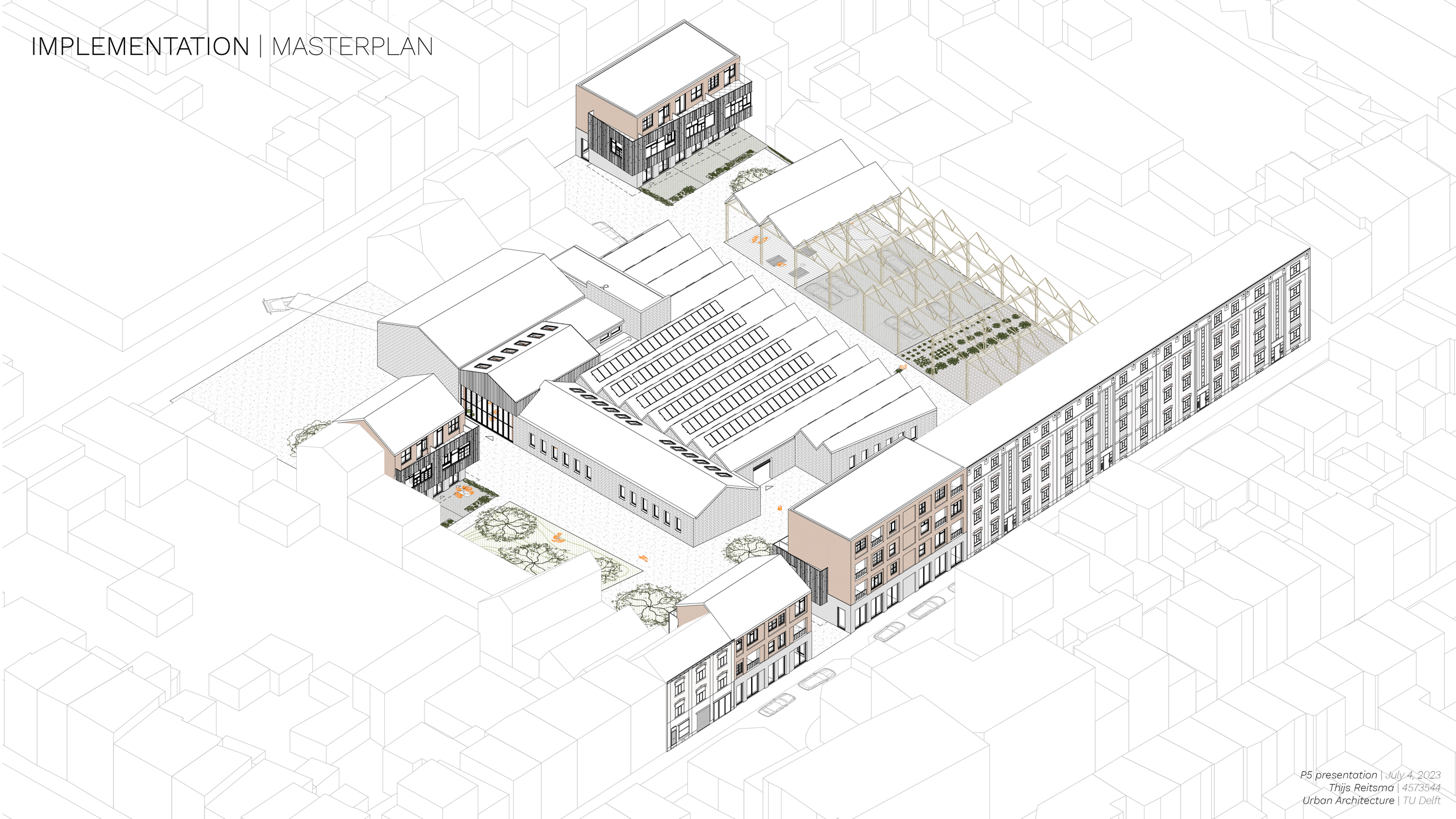


materials *(component reuse)*

- stimulate (alternative) use of reclaimed elements
- embrace various dimensions & imperfections
- show architectural implications of designing with uncertainties

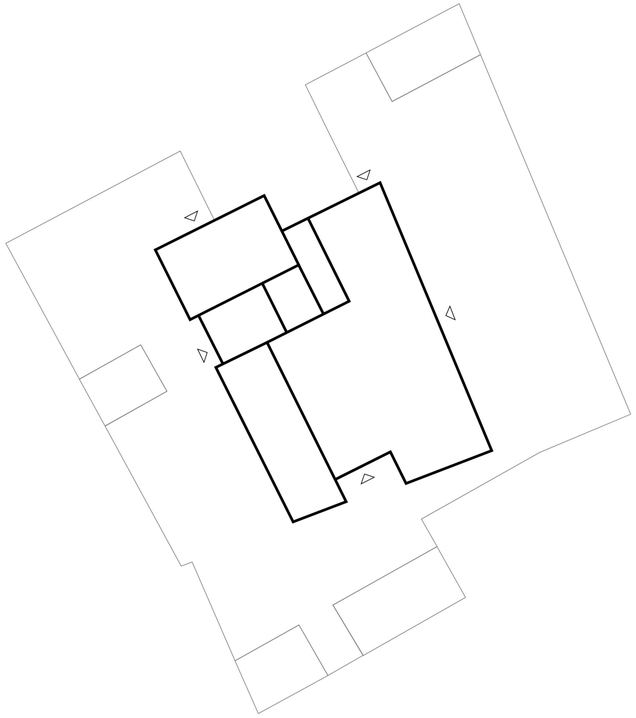


IMPLEMENTATION | MASTERPLAN

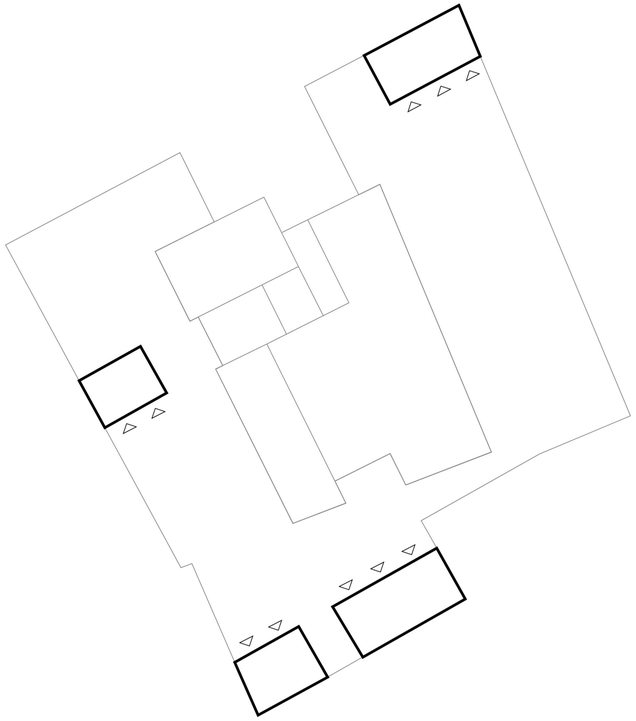


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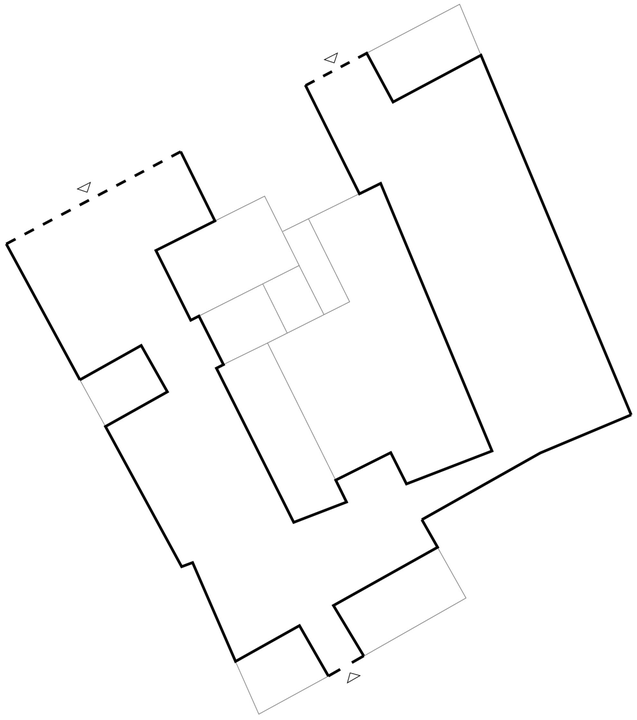
IMPLEMENTATION | AREAS OF FOCUS



central building



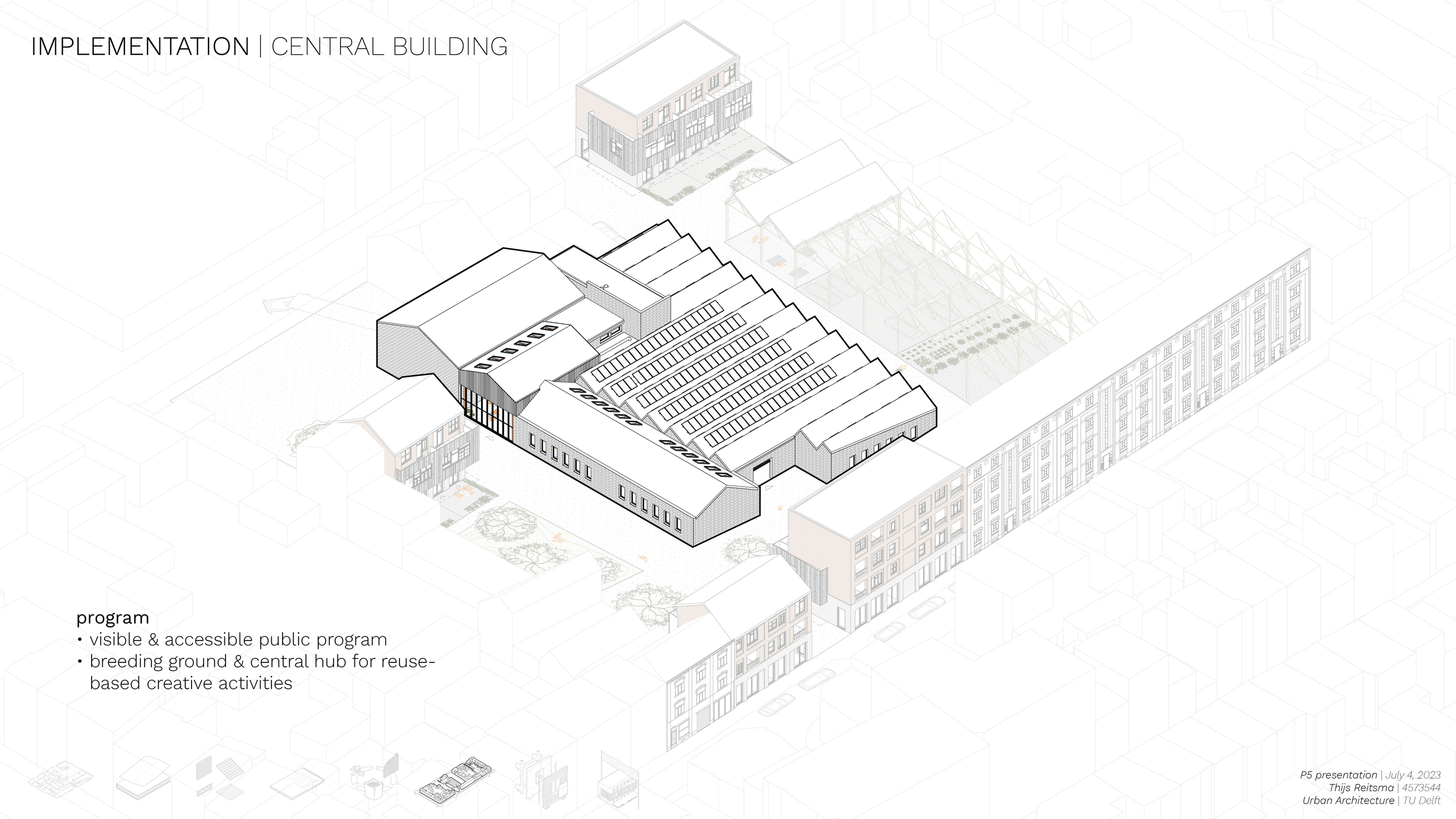
atelier dwellings



site



IMPLEMENTATION | CENTRAL BUILDING



program
- visible & accessible public program
- breeding ground & central hub for reuse-based creative activities

IMPLEMENTATION | STRATEGY

***adaptive reuse**, **component reuse** if possible*

improve usability** through **minimal intervention

*maintain **industrial character & aesthetic quality***



IMPLEMENTATION | STRATEGY

*What to **keep**?*

---

*What to **remove**?*

---

*What to **add**?*



IMPLEMENTATION | PROGRAM

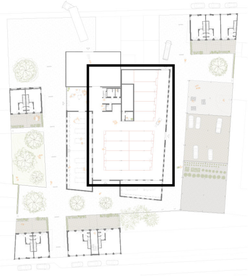


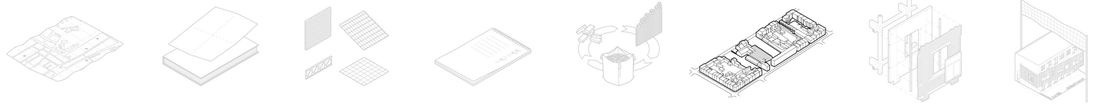
Keilewerf, Rotterdam (own picture)

IMPLEMENTATION | PROGRAM



entrepreneurs hall
- clear grid of conveniently-sized plots
- fixed layout, including exhibition space
- sufficent manouevre space





IMPLEMENTATION | PROGRAM

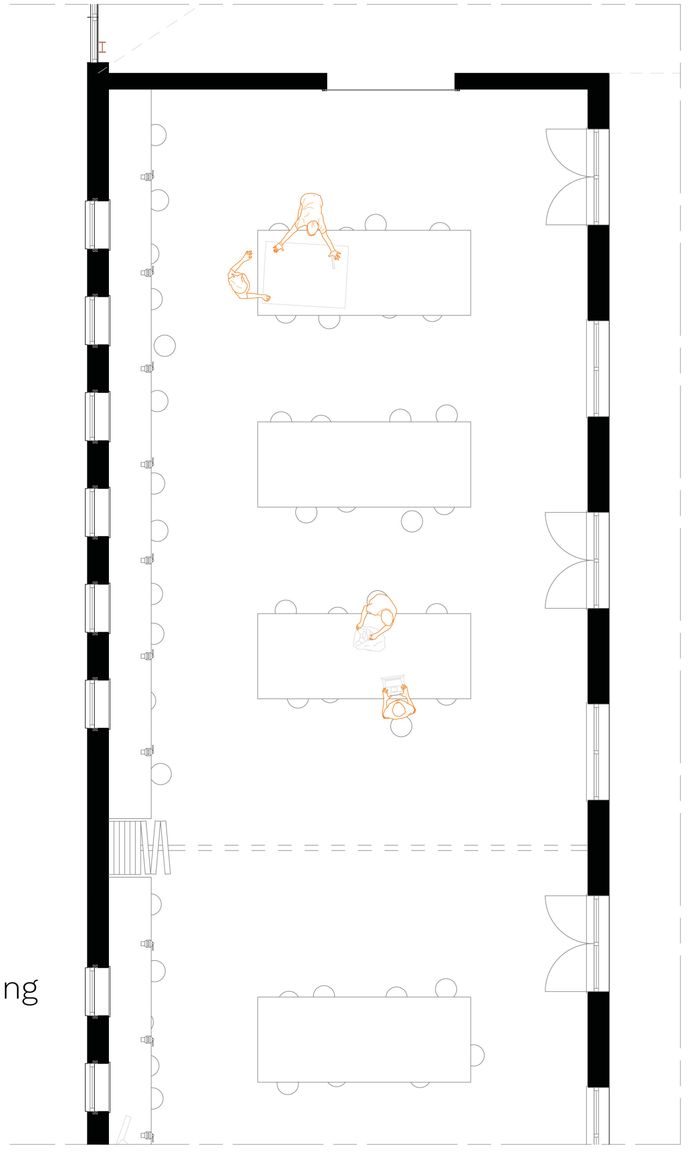


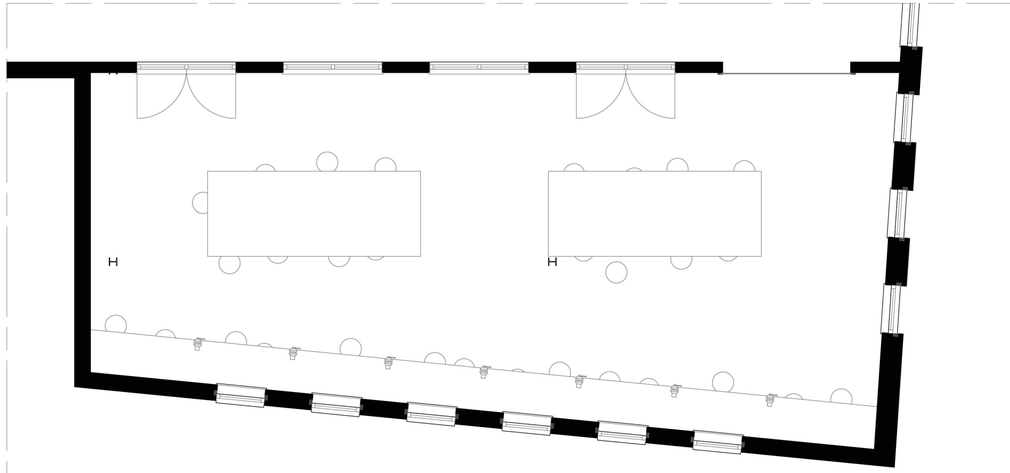
entrepreneurs hall

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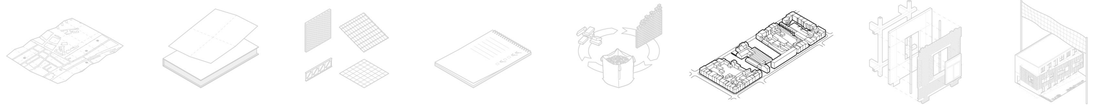
IMPLEMENTATION | PROGRAM





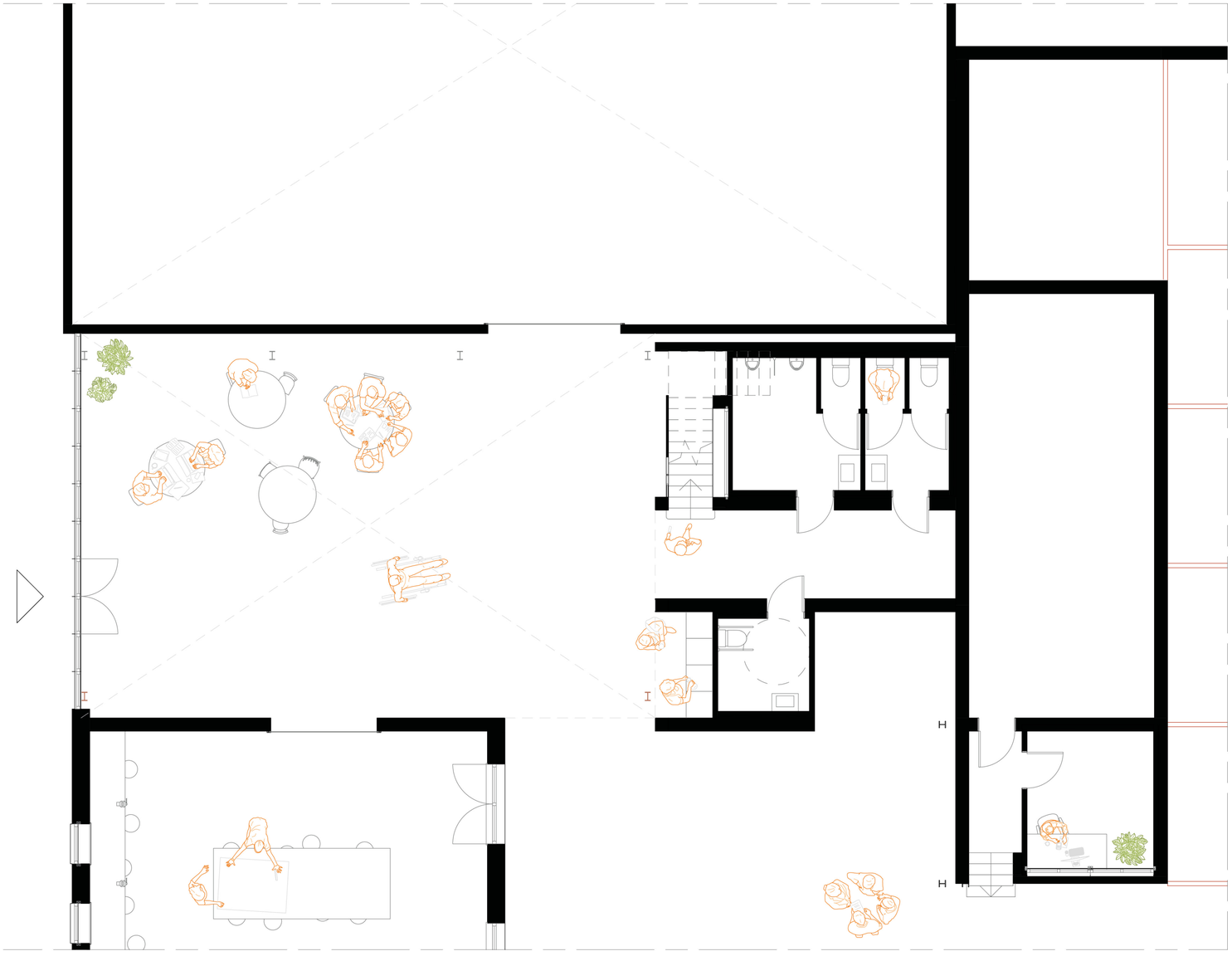
workshop spaces (3x)
- organized workshops or individual working
- surrounding entrepreneurs hall
- visibility from interior & exterior





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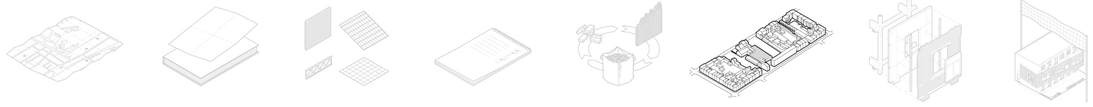
IMPLEMENTATION | PROGRAM



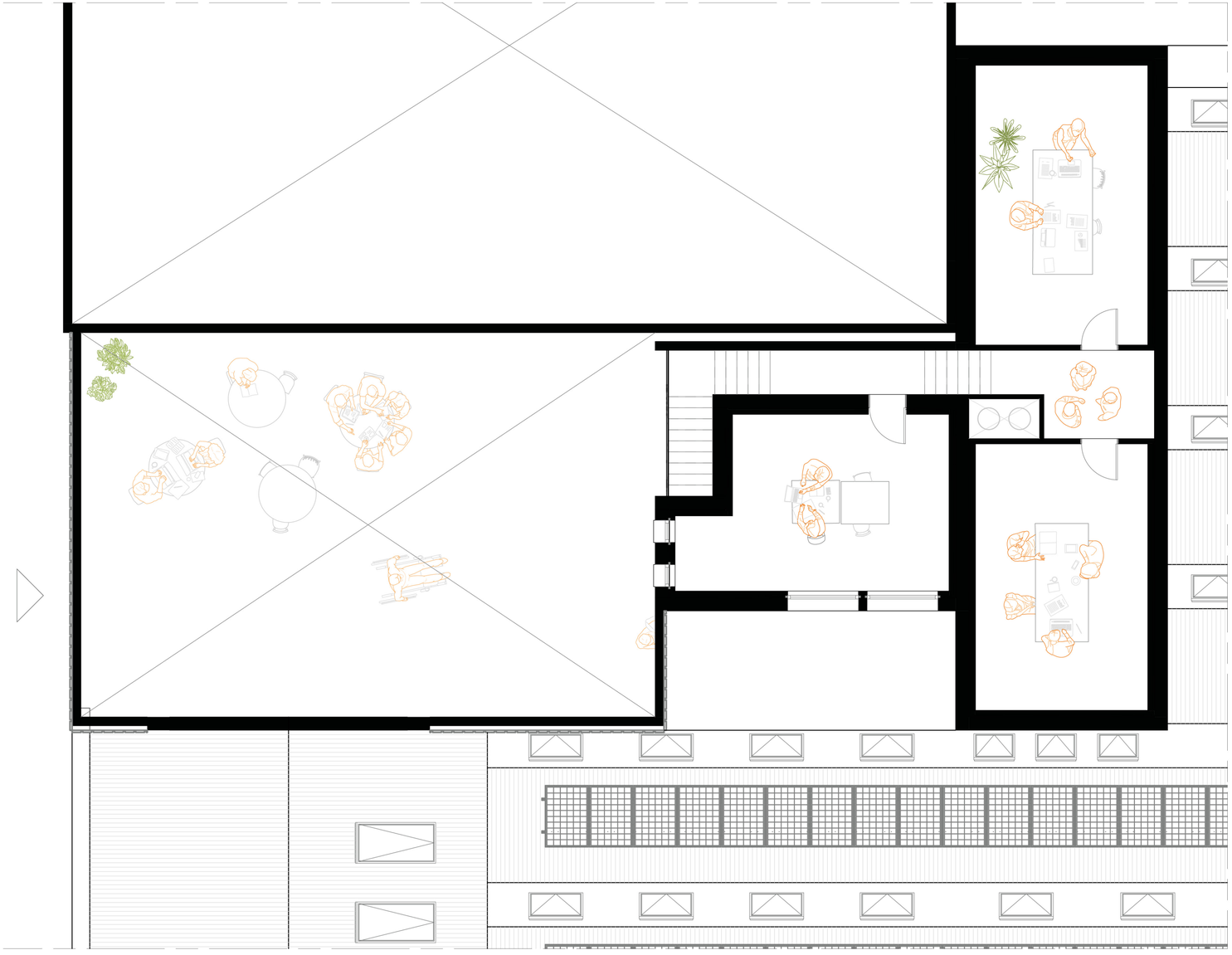
entrance hall & facilities

- canteen, toilets & meeting spaces
- enclosed by reclaimed structure
- reclaimed interior finish & furniture

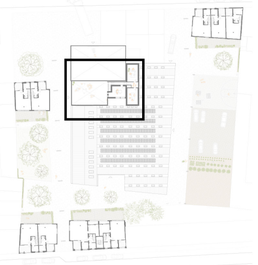


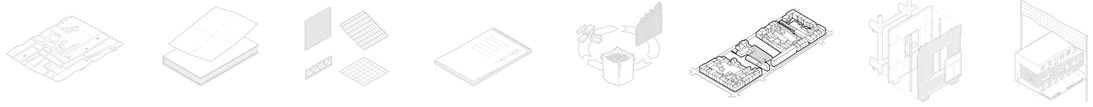


IMPLEMENTATION | PROGRAM



entrance hall & facilities
- canteen, toilets & meeting spaces
- enclosed by reclaimed structure
- reclaimed interior finish & furniture





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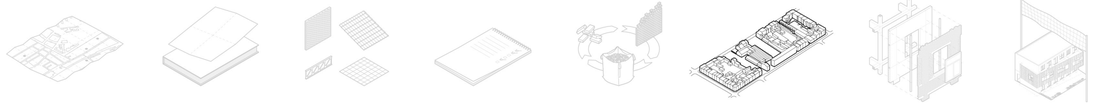
IMPLEMENTATION | PROGRAM



entrance hall & facilities

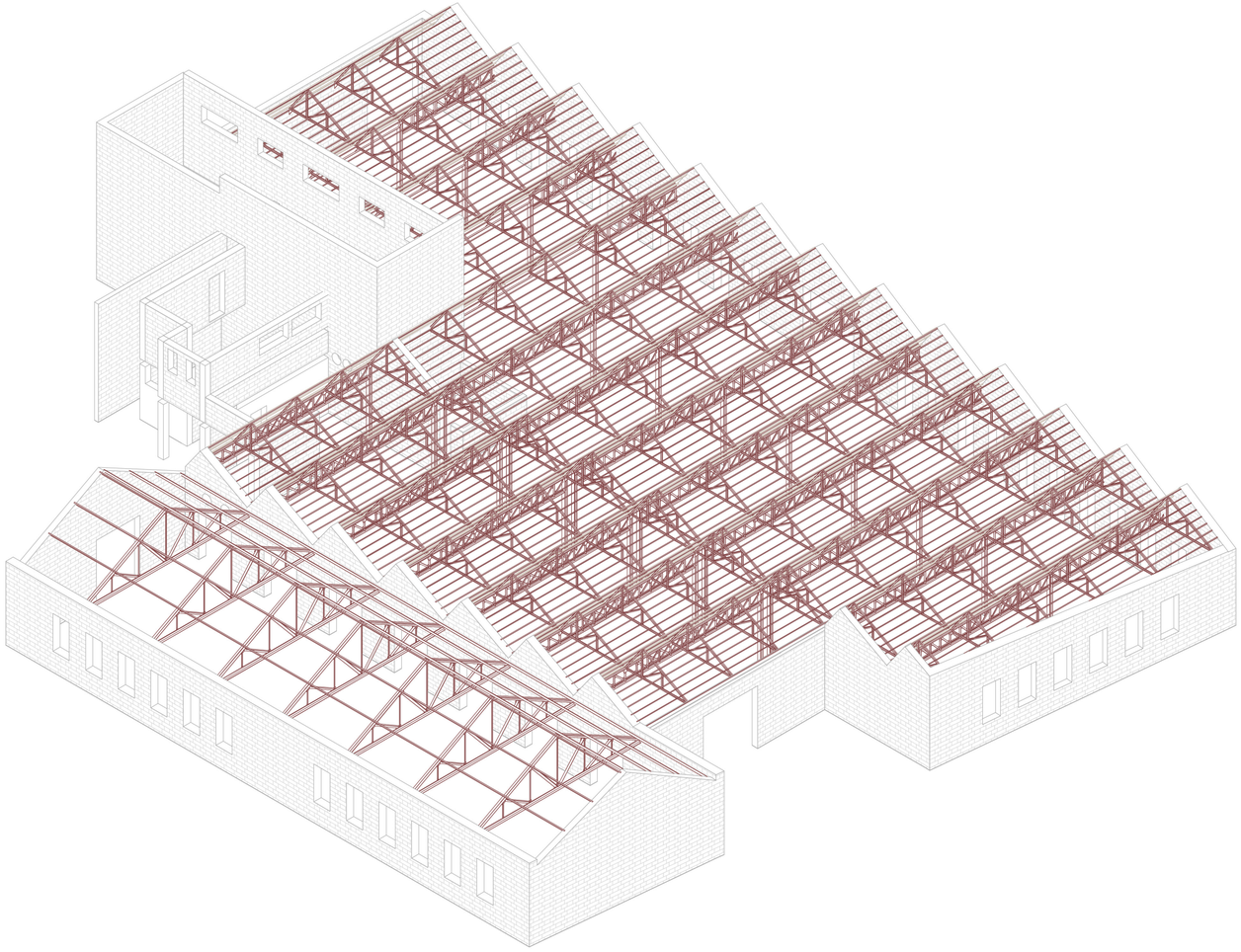
- canteen, toilets & meeting spaces
- enclosed by reclaimed structure
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IMPLEMENTATION | STRUCTURE

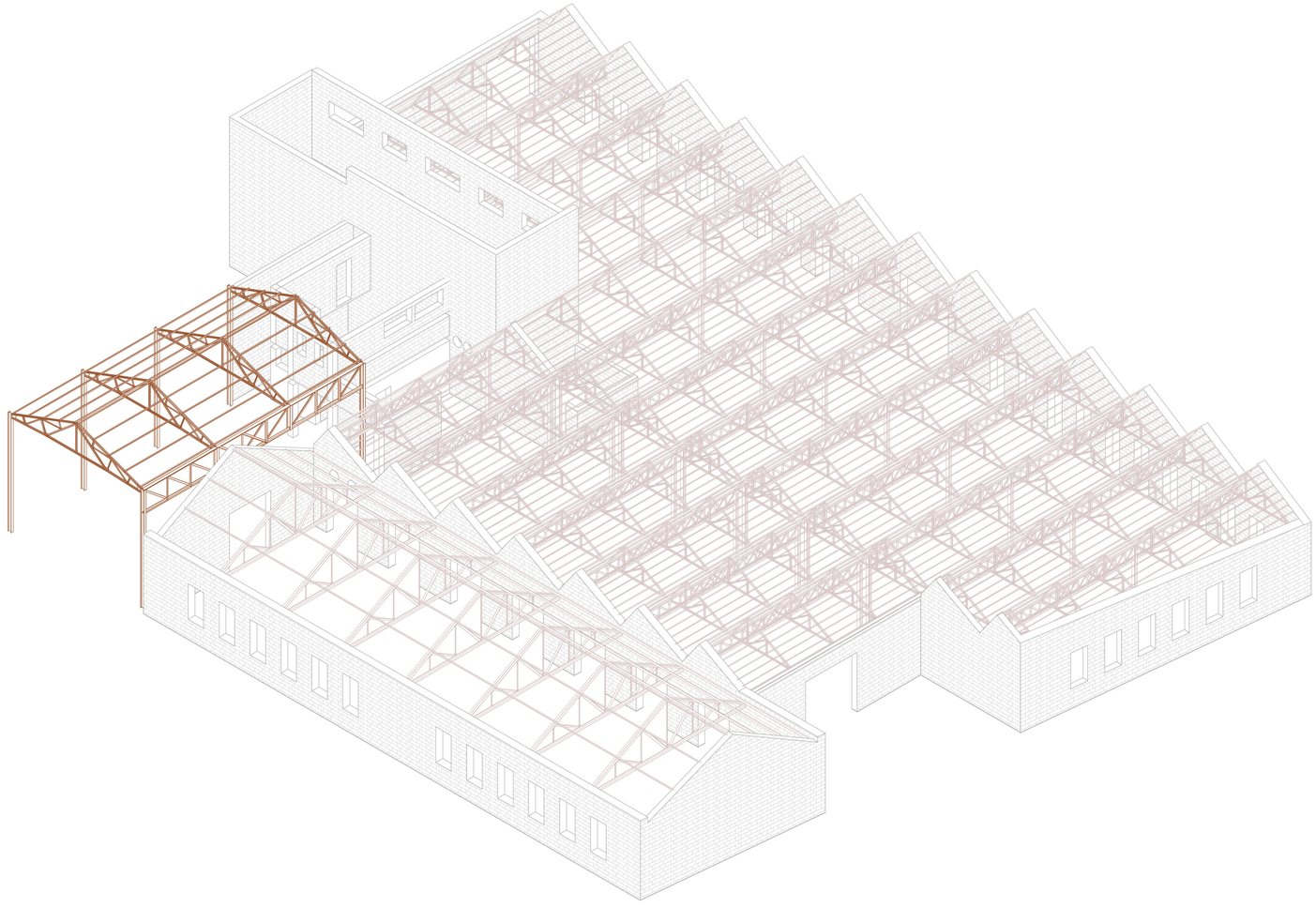




existing structure
- technical status - lower bearing capacity
- functionality - large span, open space plan
- aesthetic quality, defines building

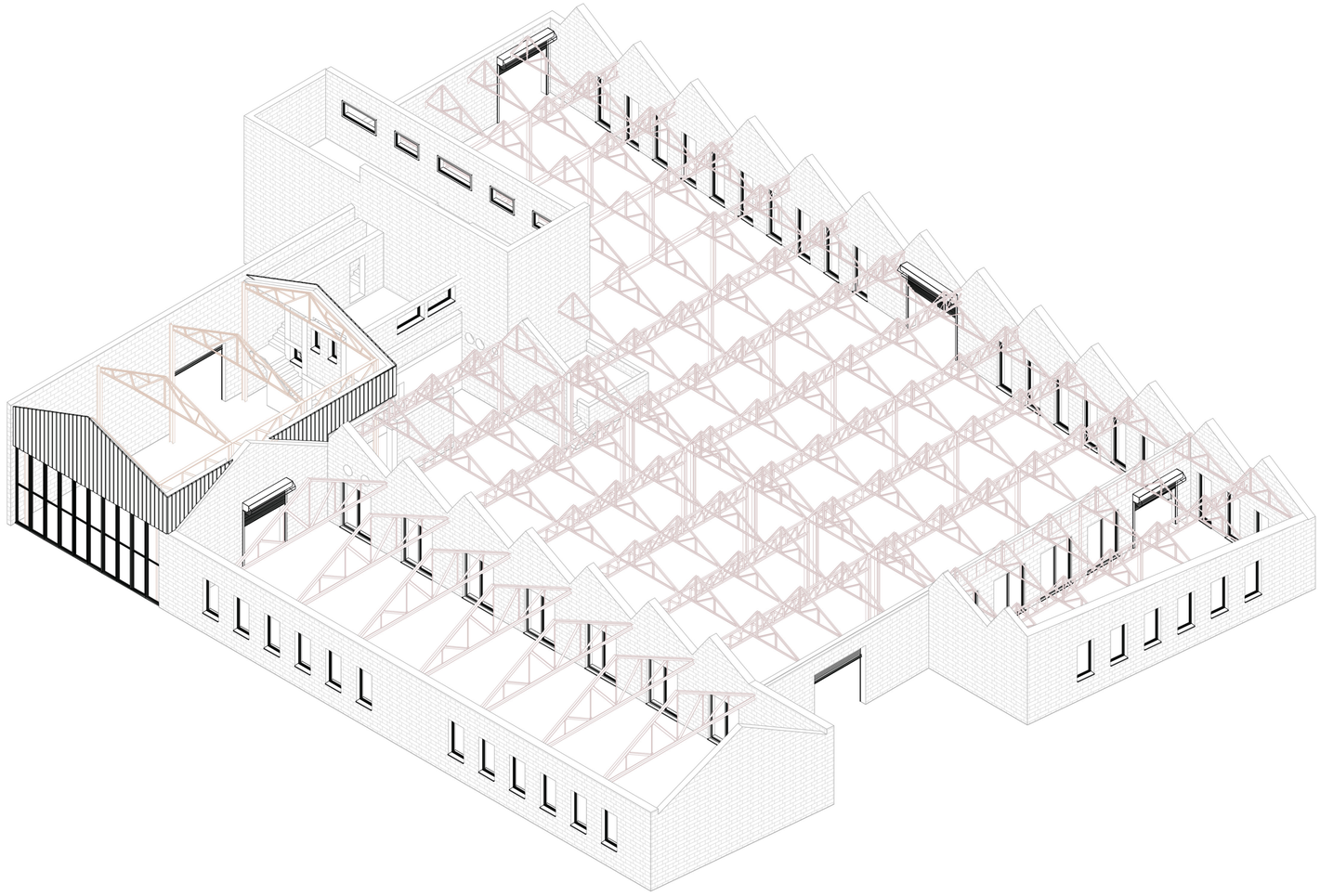
IMPLEMENTATION | STRUCTURE





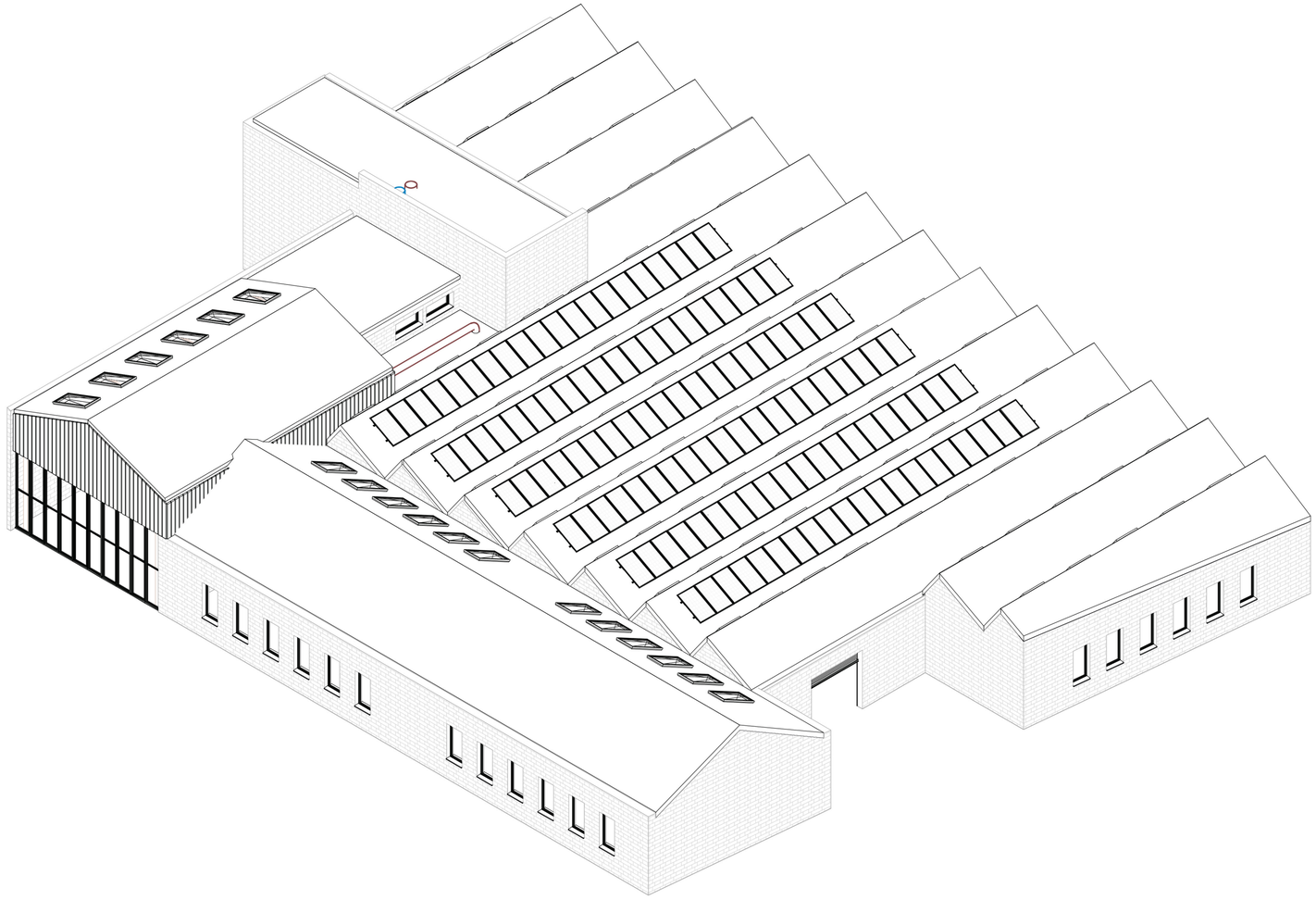
reclaimed structure
- dictates dimensions of extension
- lightweight roofing, comparable with current roof

IMPLEMENTATION | SKIN



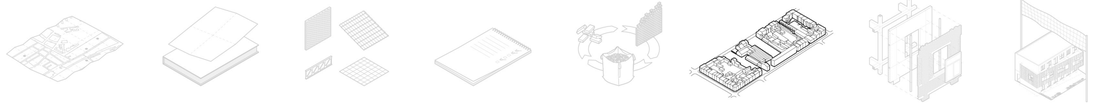
interventions
- roller doors in current facade openings
- new openings always off structural grid
- visibility vs functionality vs aesthetic consequence

IMPLEMENTATION | SKIN



interventions

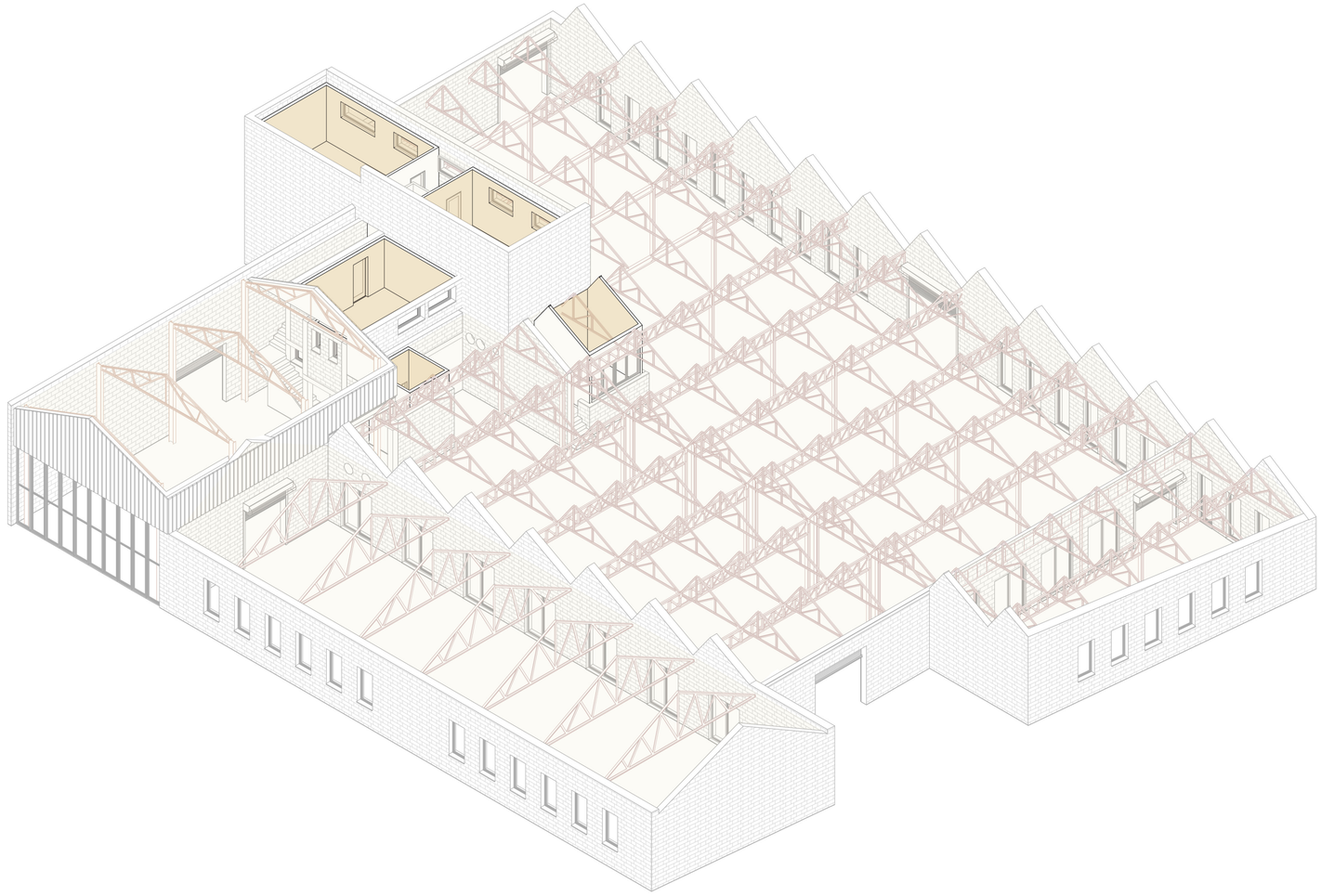
- new lightweight roof with corrugated sheet cladding
- roof lights on North & East facing areas
- ‘hidden’ designated area for PV panels, facing South



IMPLEMENTATION | CLIMATE DESIGN

fully climatized
- box-in-a-box principle
- continuous heating
  - meeting rooms & manager's office
  - toilets

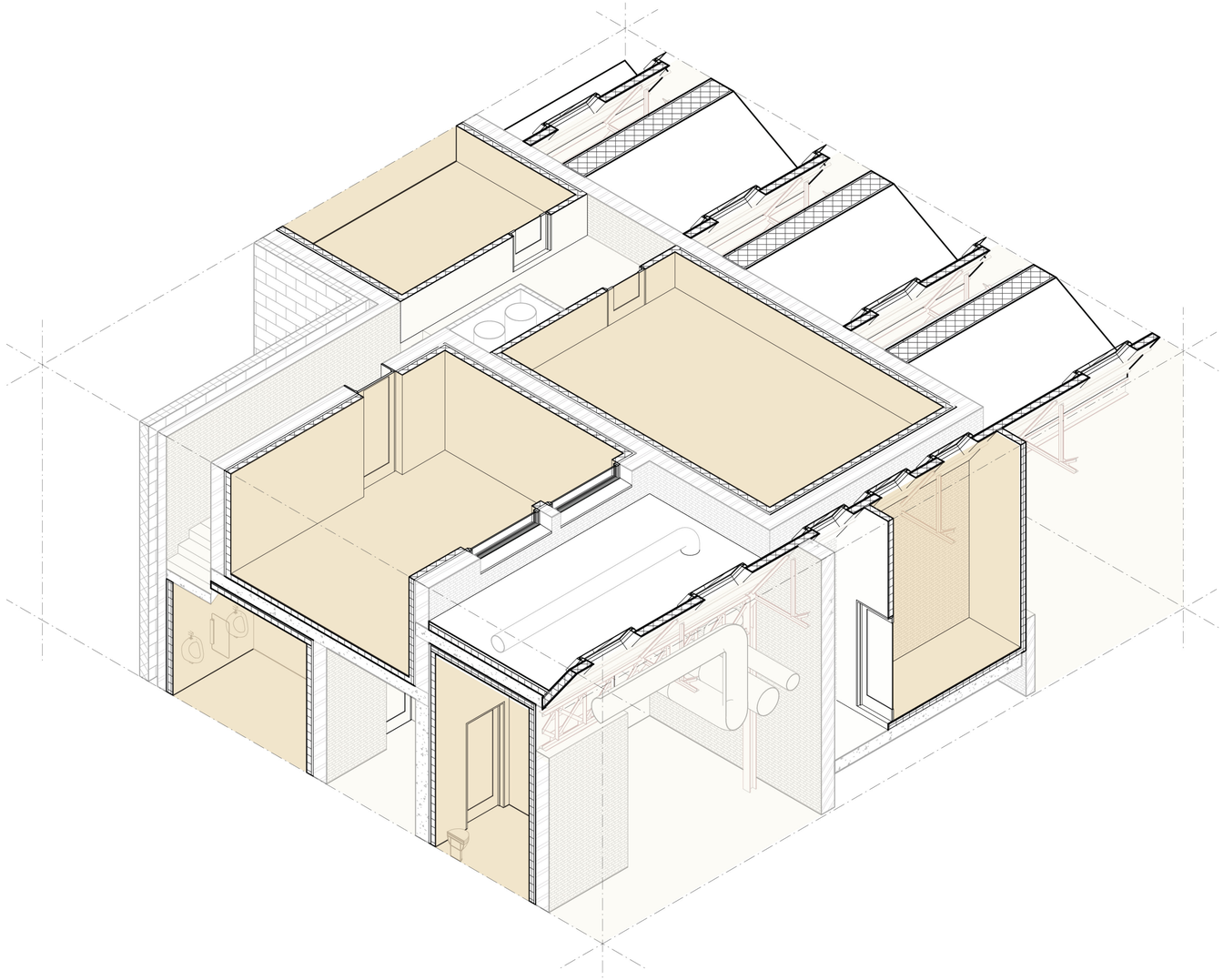
partially climatized
- insulated roof, existing walls & floor kept original
- peak heating
  - circulation space, entrance hall
  - workshop spaces
  - entrepreneurs hall



IMPLEMENTATION | CLIMATE DESIGN

fully climatized
- box-in-a-box principle
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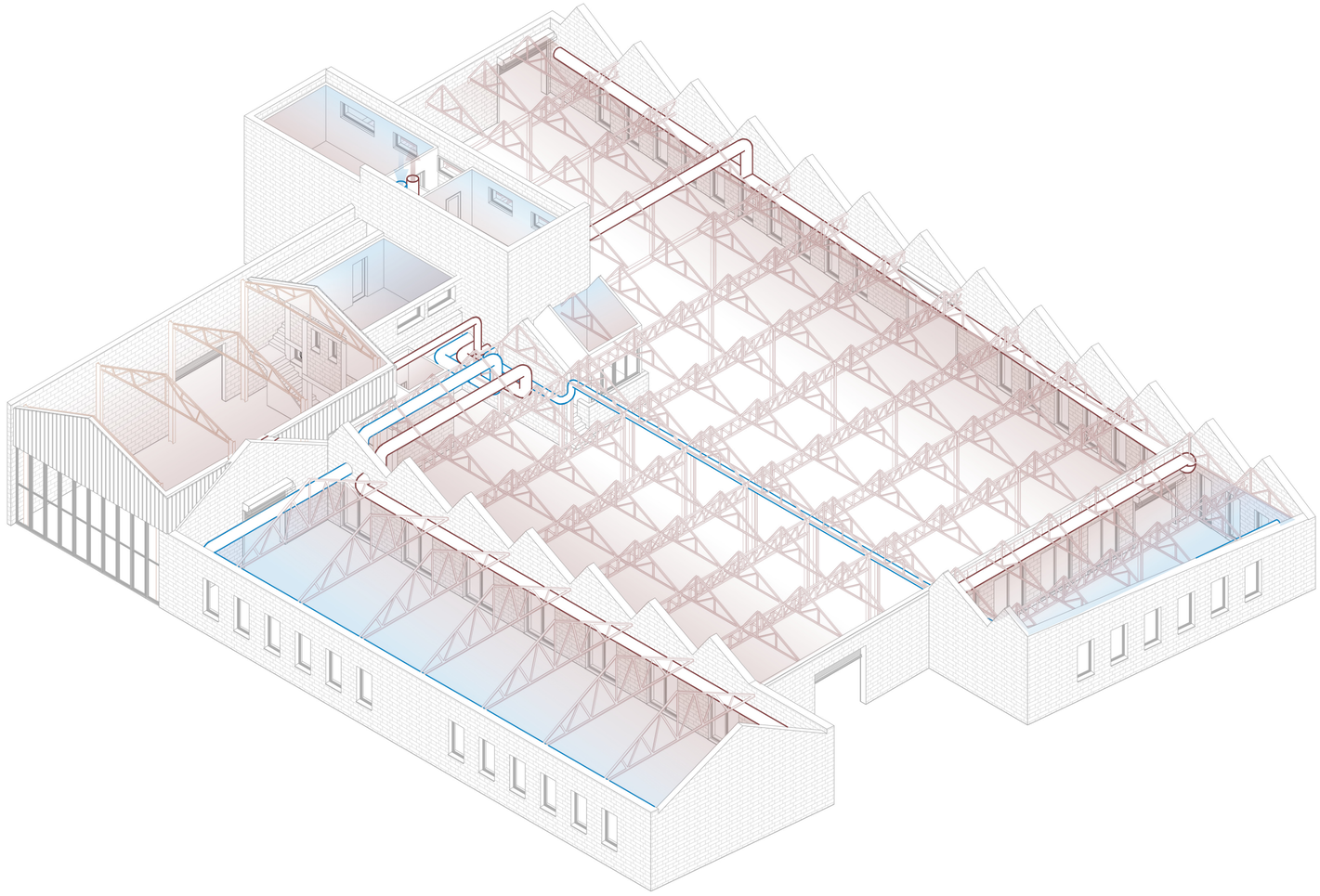
partially climatized
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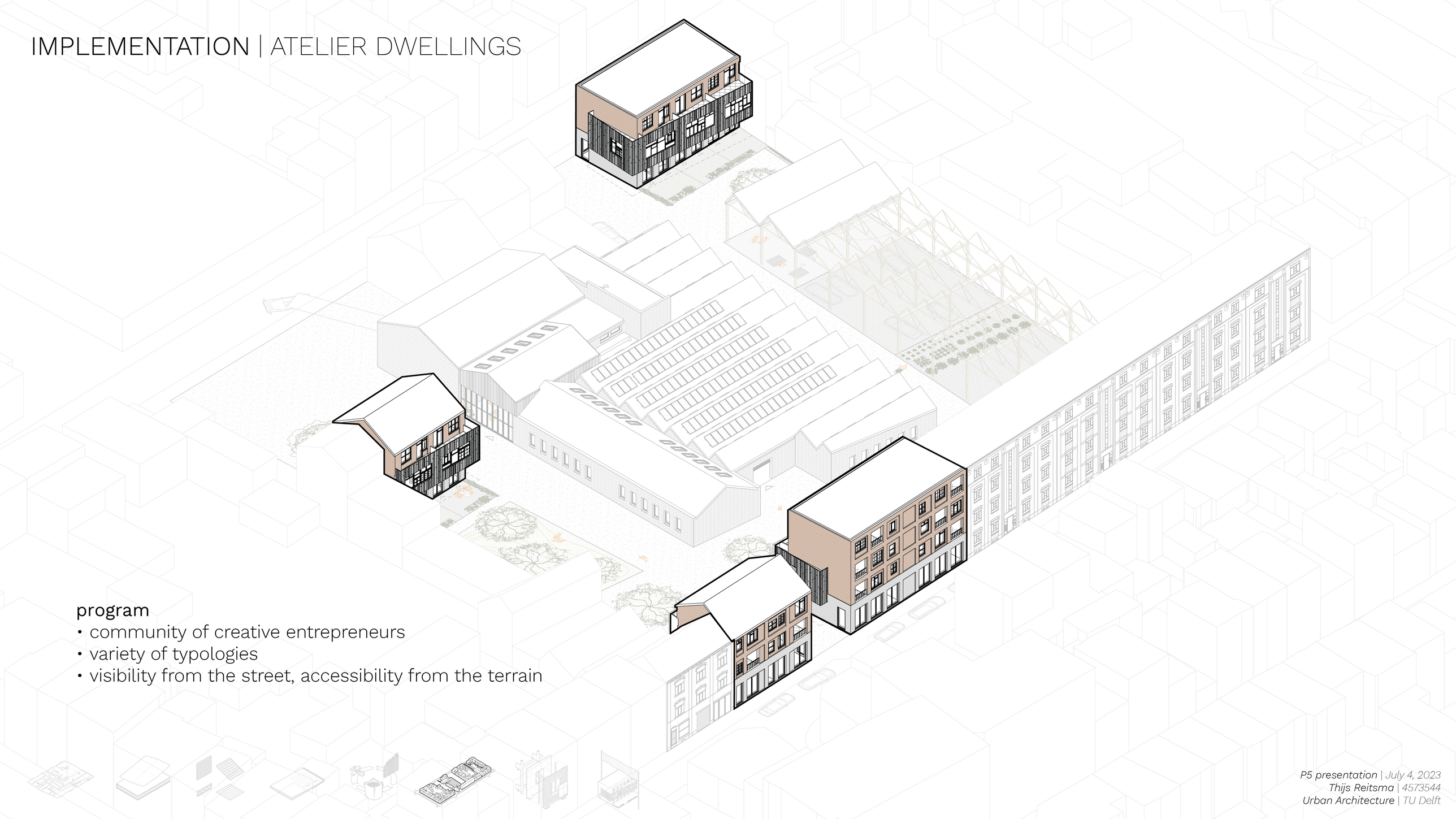
IMPLEMENTATION | CLIMATE DESIGN

ventilation type D
- mechanic air supply & exhaust
  - workshop spaces
  - entrance hall & facilities
  - meeting rooms & manager's office

ventilation type C
- automated openable roof windows
- mechanic air exhaust
  - entrepreneurs hall



IMPLEMENTATION | ATELIER DWELLINGS



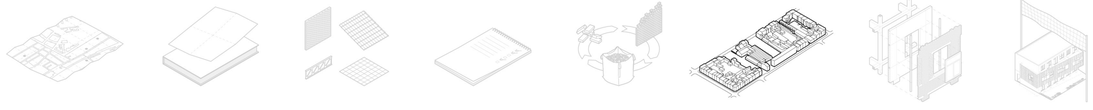
program
- community of creative entrepreneurs
- variety of typologies
- visibility from the street, accessibility from the terrain

IMPLEMENTATION | STRATEGY

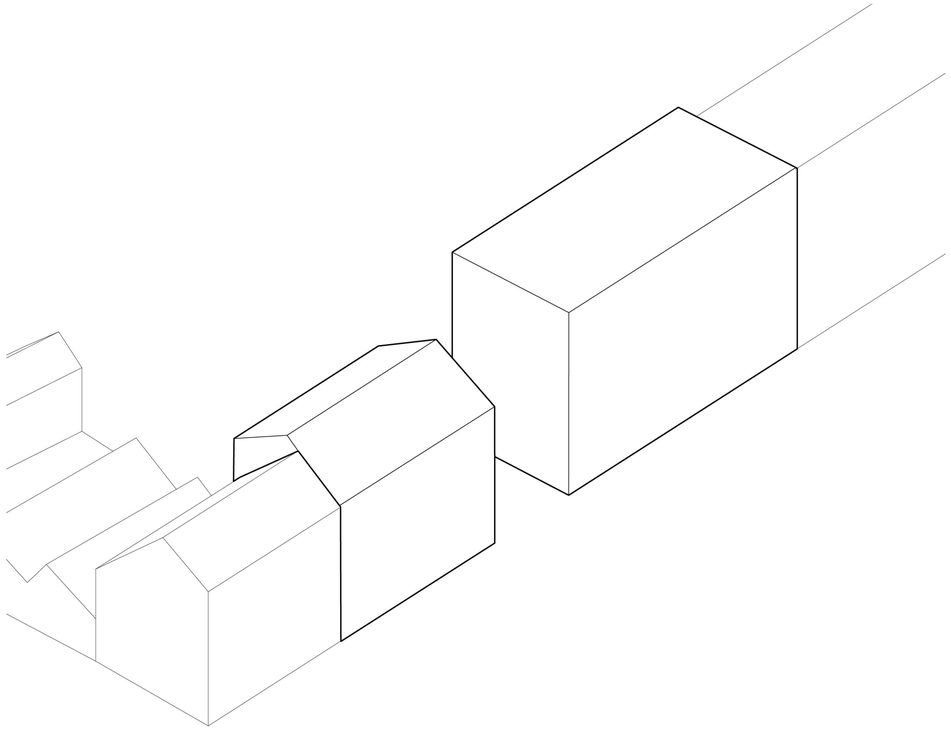
component reuse *if possible, otherwise* ***biobased***

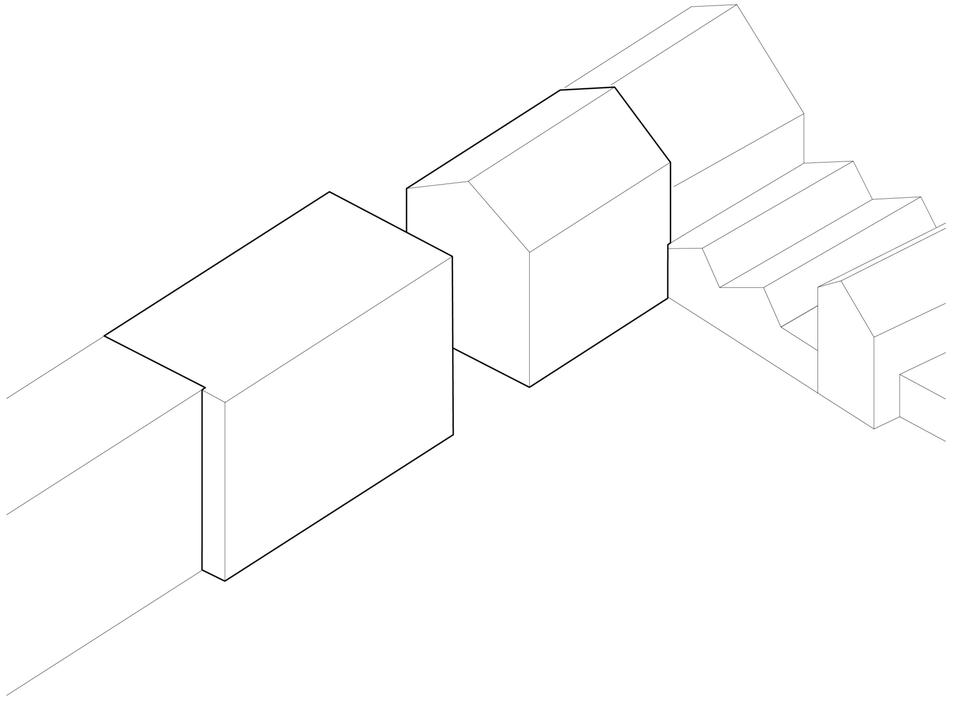
allow for ***variation & imperfections***

aternative use *of materials*

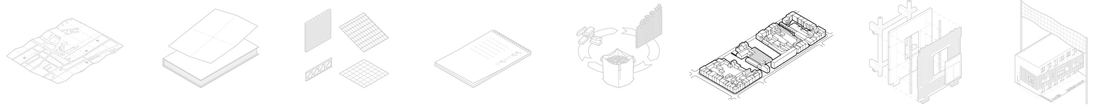


IMPLEMENTATION | VOLUME

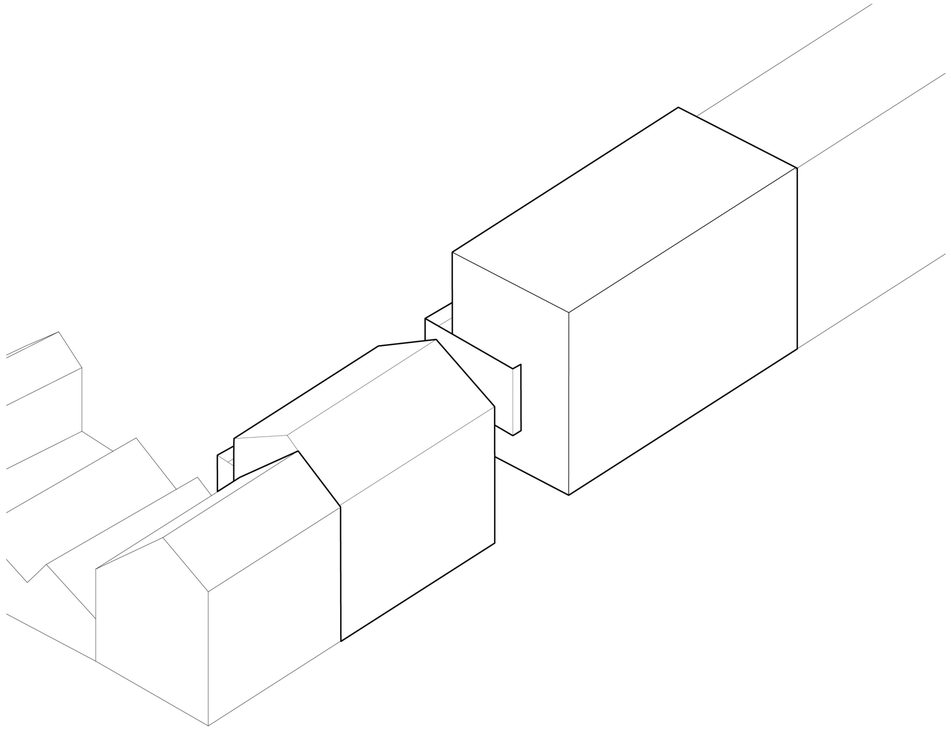


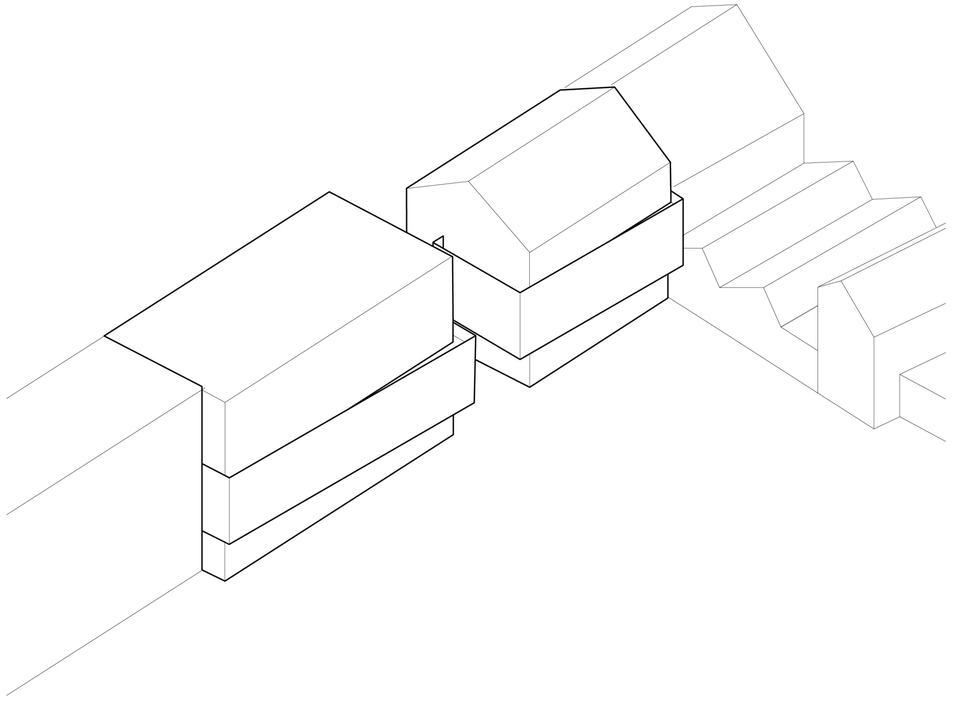


main volumes
- follow adjacent typology
- residential architype & materials



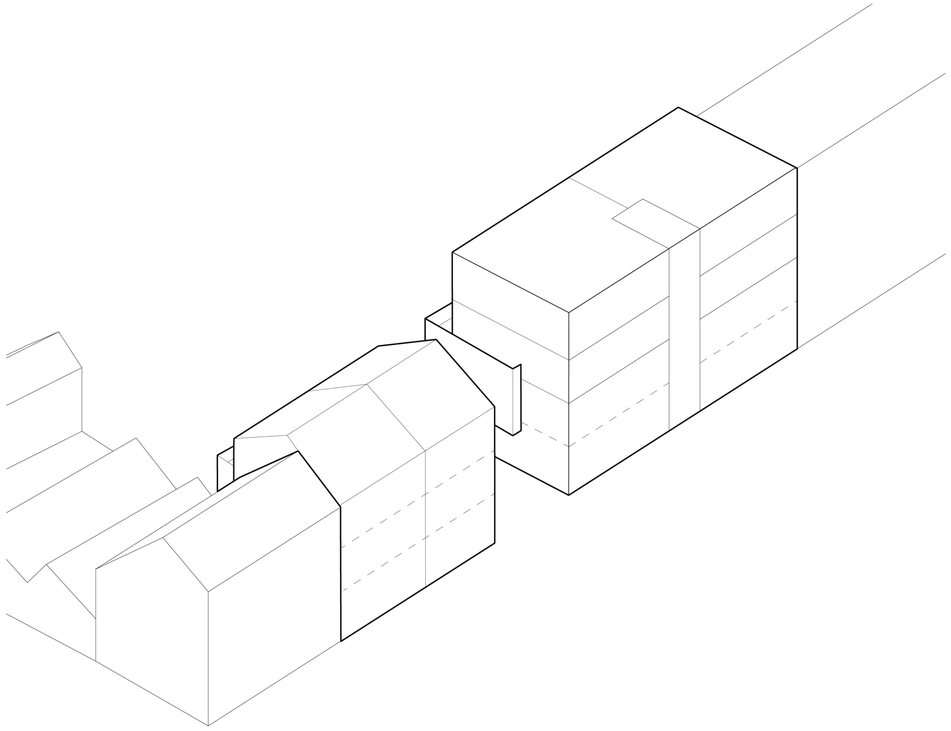
IMPLEMENTATION | VOLUME

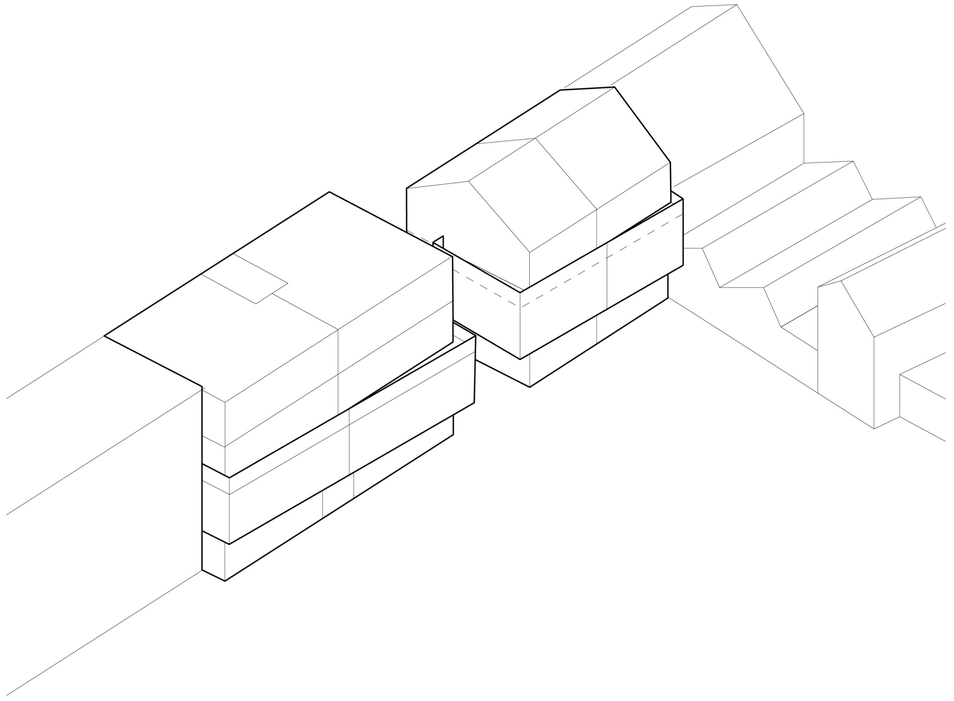




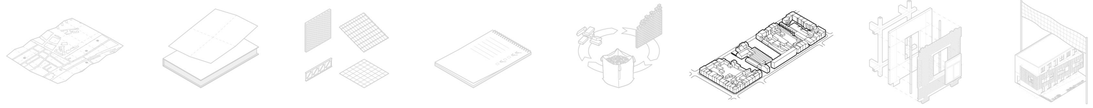
architectural extension
- activate side facade
- alternative materials

IMPLEMENTATION | TYPOLOGIES

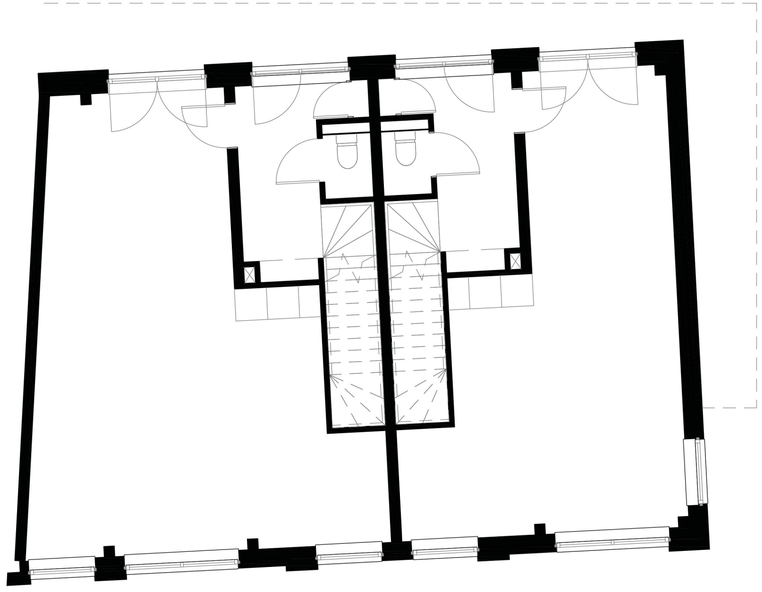


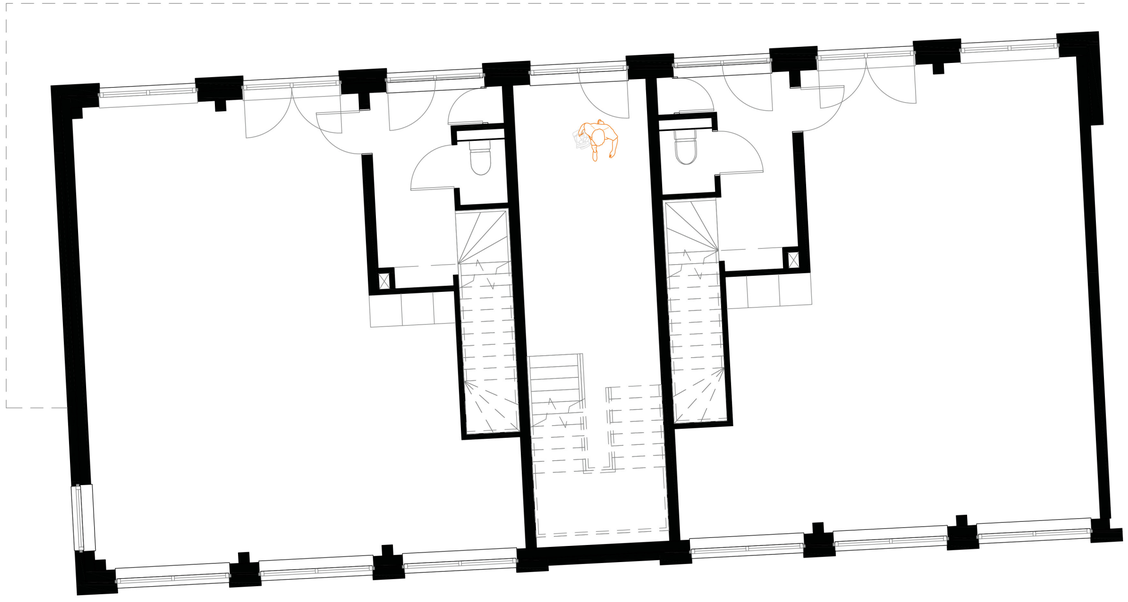


configuration of typologies
- atelier family houses
- atelier apartments
- ‘regular’ apartments



IMPLEMENTATION | TYPOLOGIES



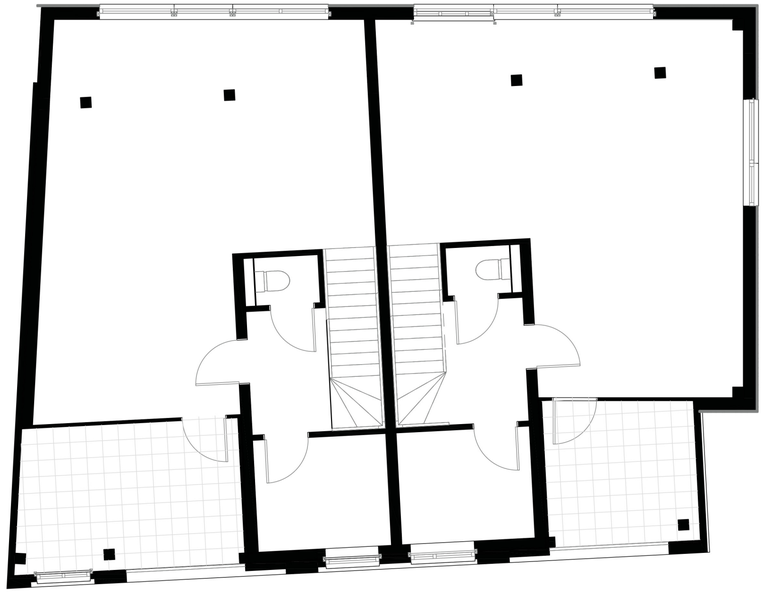


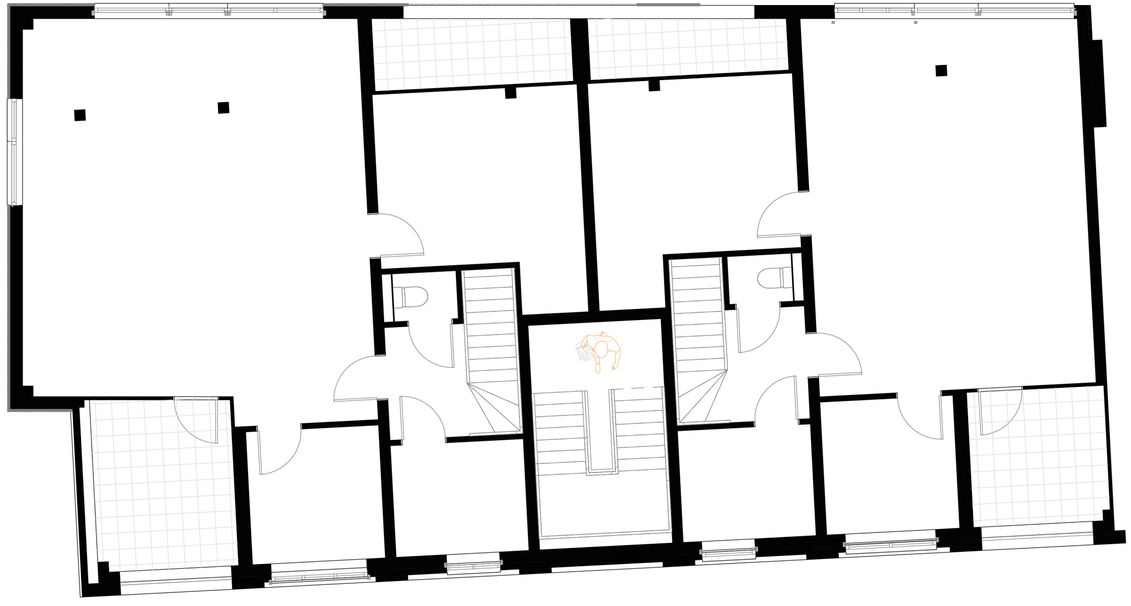


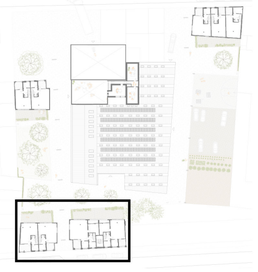


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Urban Architecture | *TU Delft*

IMPLEMENTATION | TYPOLOGIES







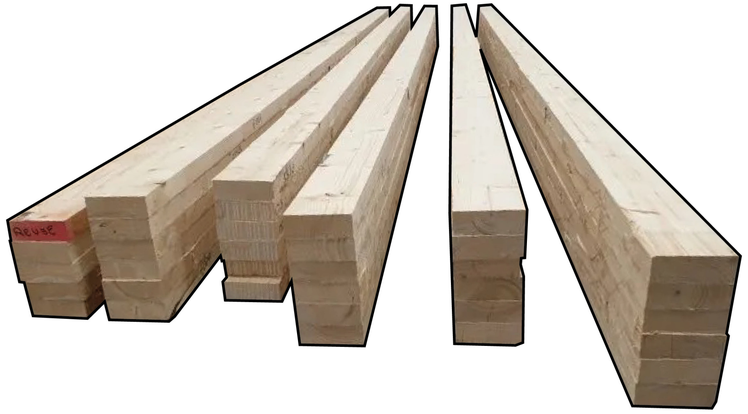
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Urban Architecture | *TU Delft*

IMPLEMENTATION | STRUCTURE



reclaimed timber framing
- limited/varied dimensions
- limited load bearing capacity

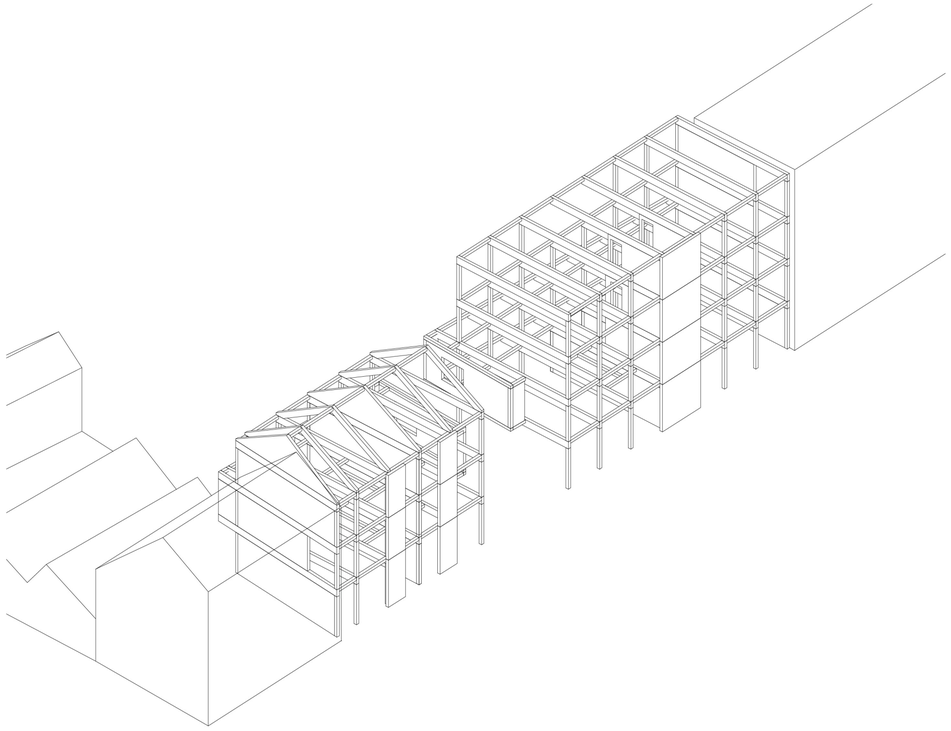
IMPLEMENTATION |

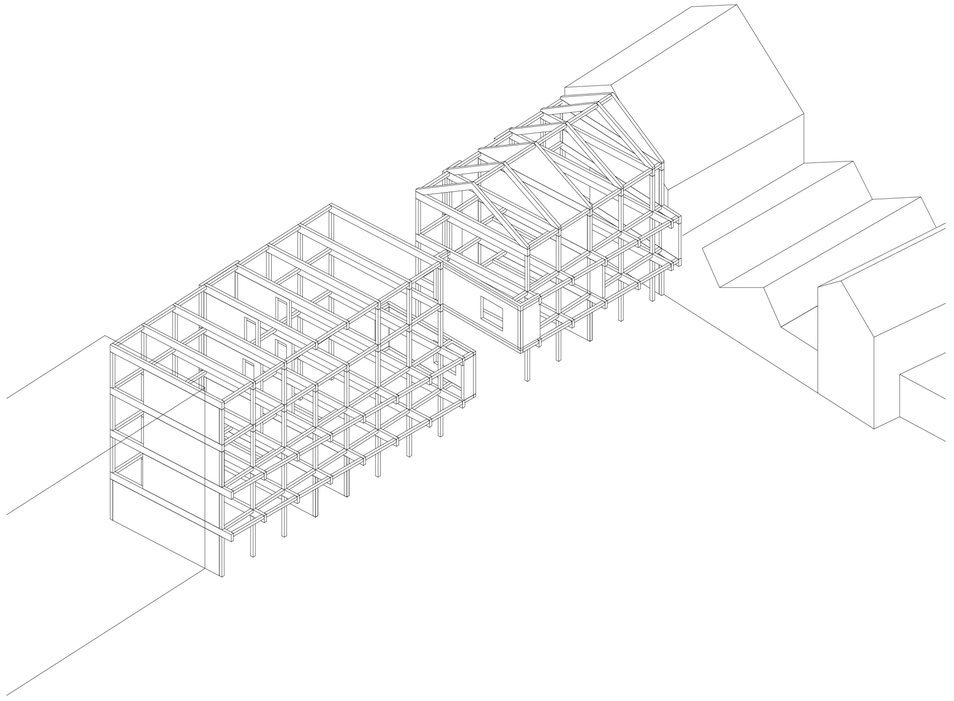


© Simple Works, Buckland Timber

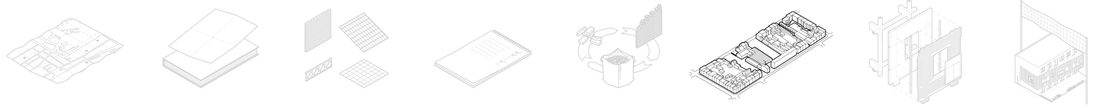
glulam made of reclaimed timber
- large spans possible
- high load bearing capacity
- still in development, issues regarding insurance, warranties or liabilities

IMPLEMENTATION | STRUCTURE

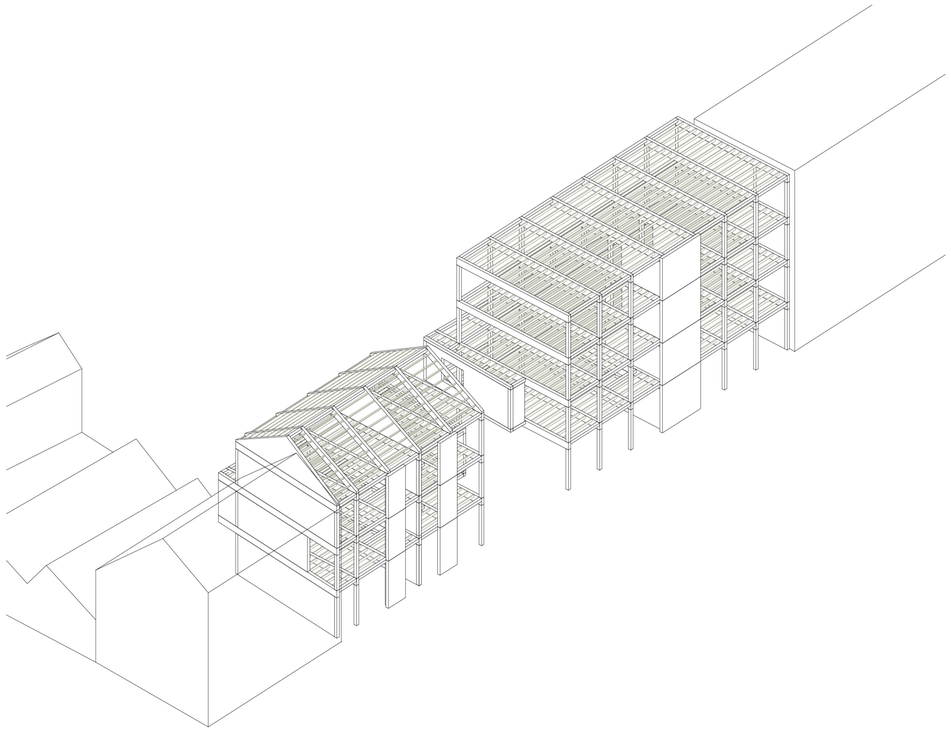


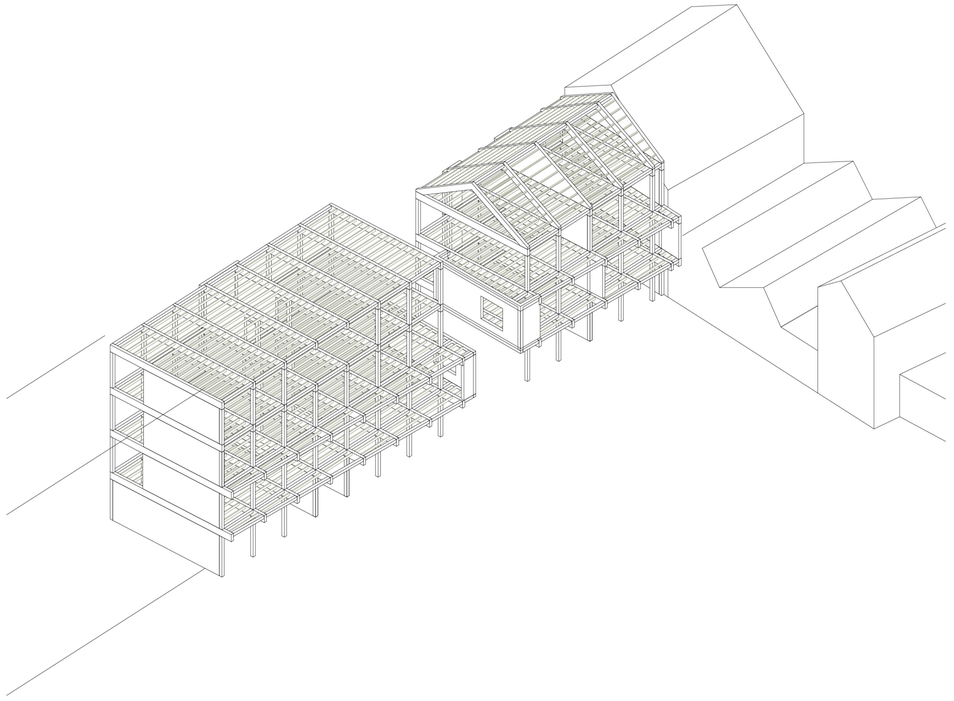


primary structural elements
- glulam framing, CLT stability elements
- large span, allowing future flexibility
- cantelevered ‘box’ structure

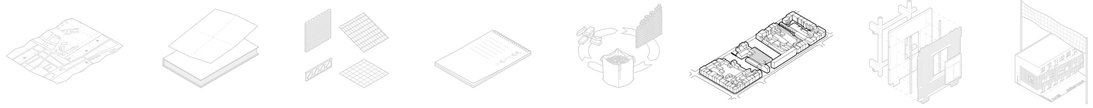


IMPLEMENTATION | STRUCTURE

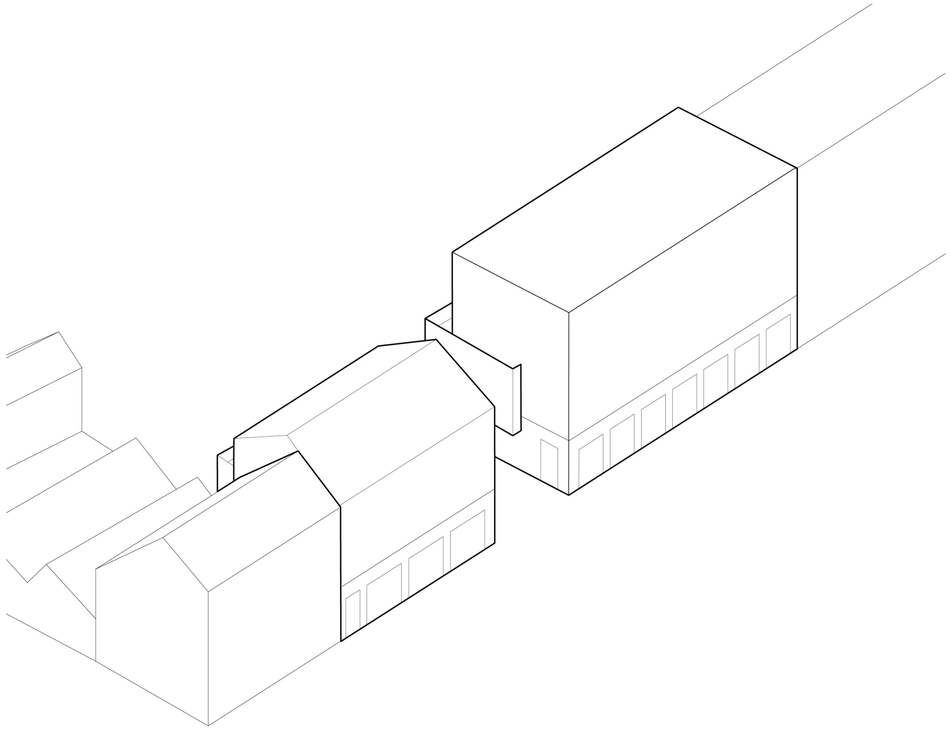


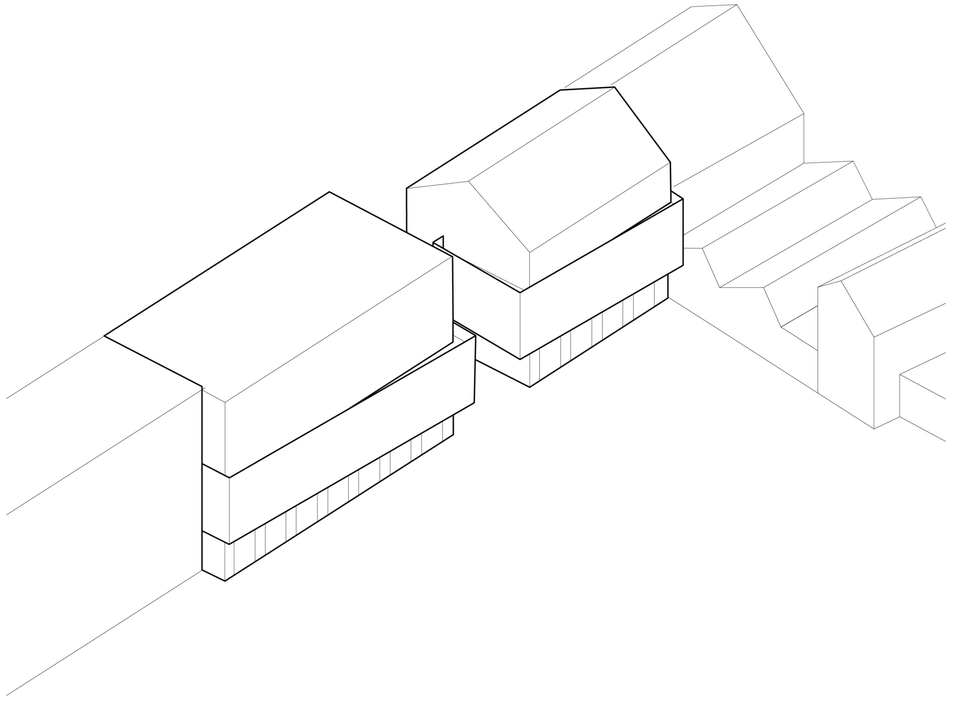


secondary structural elements
- reclaimed timber beams
- smaller span, less bearing capacity
- visible

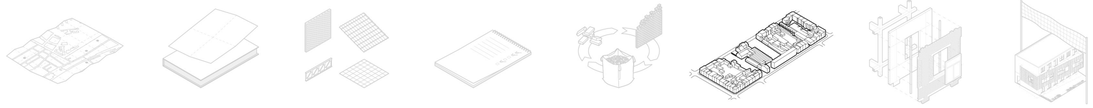


IMPLEMENTATION | FACADE COMPOSITION

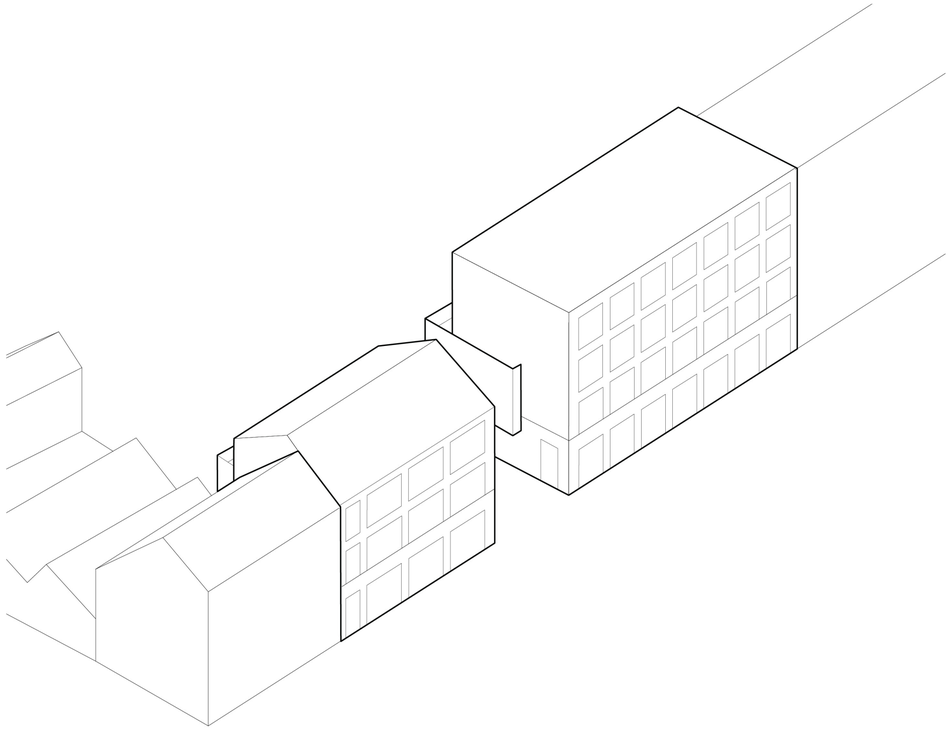


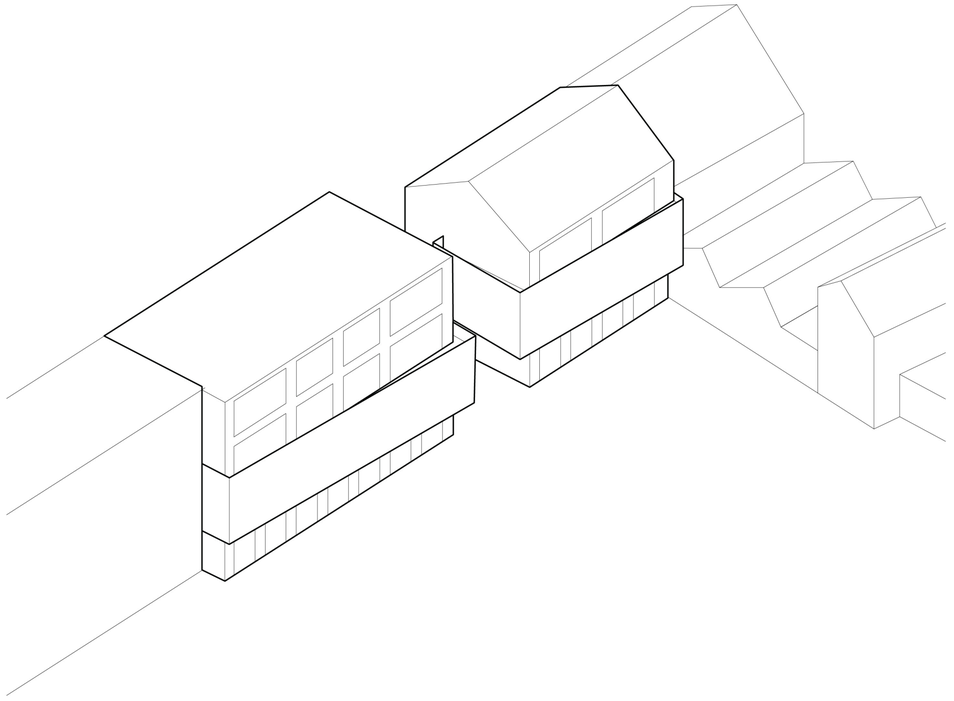


activation of the plinth
- emphasis on public function
- alternative use of reclaimed materials

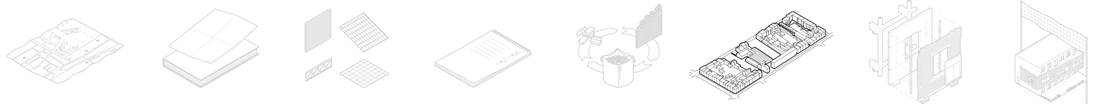


IMPLEMENTATION | FACADE COMPOSITION

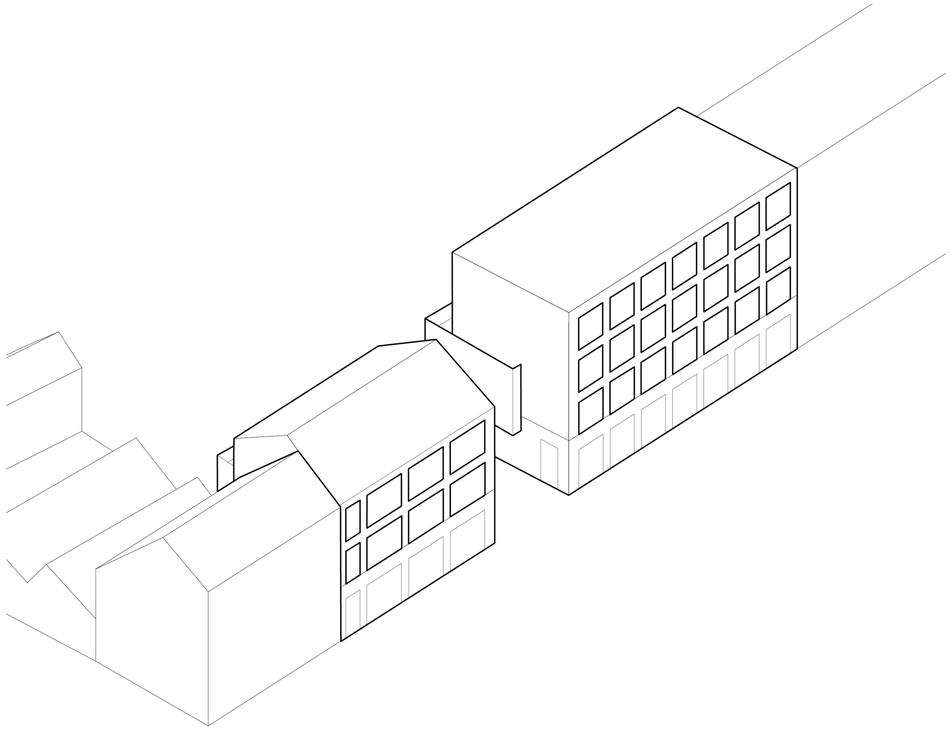


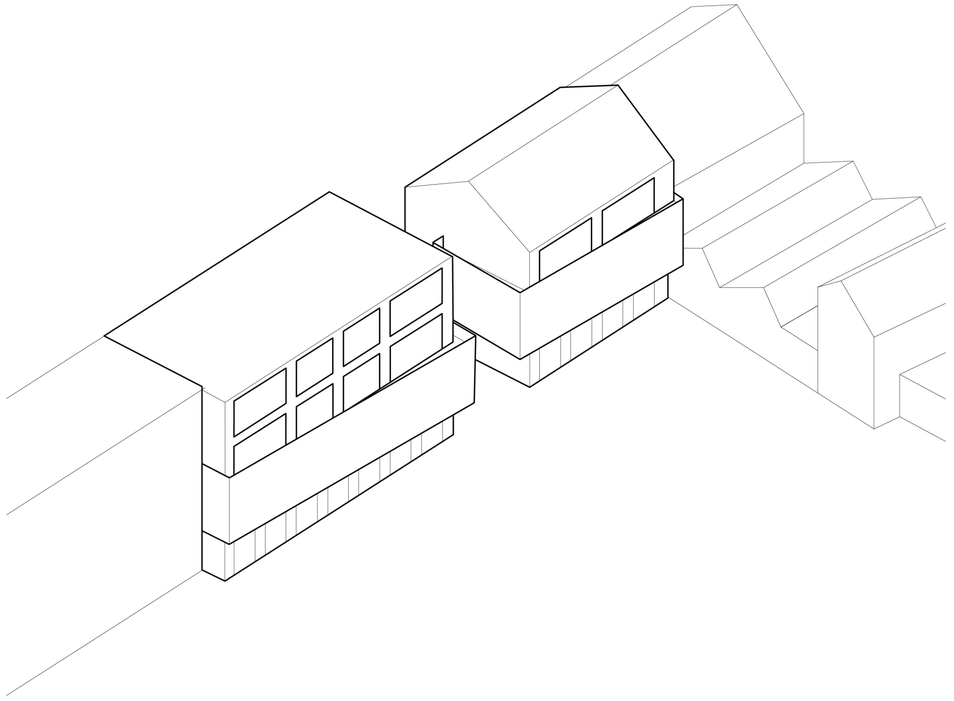


architectural framework
- elements with universal dimensions & continuous high supply
- smaller openings on street site, larger openings on ‘courtyard’ side

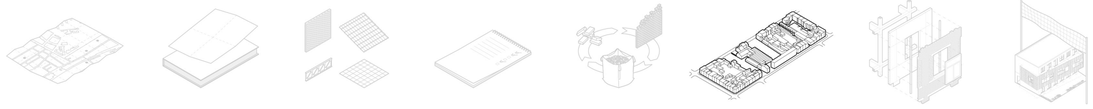


IMPLEMENTATION | FACADE COMPOSITION





infill of framework
- elements with large variation of dimensions & uncertain supply
- broken & leftover pieces
- different functions allow for large variety of elements

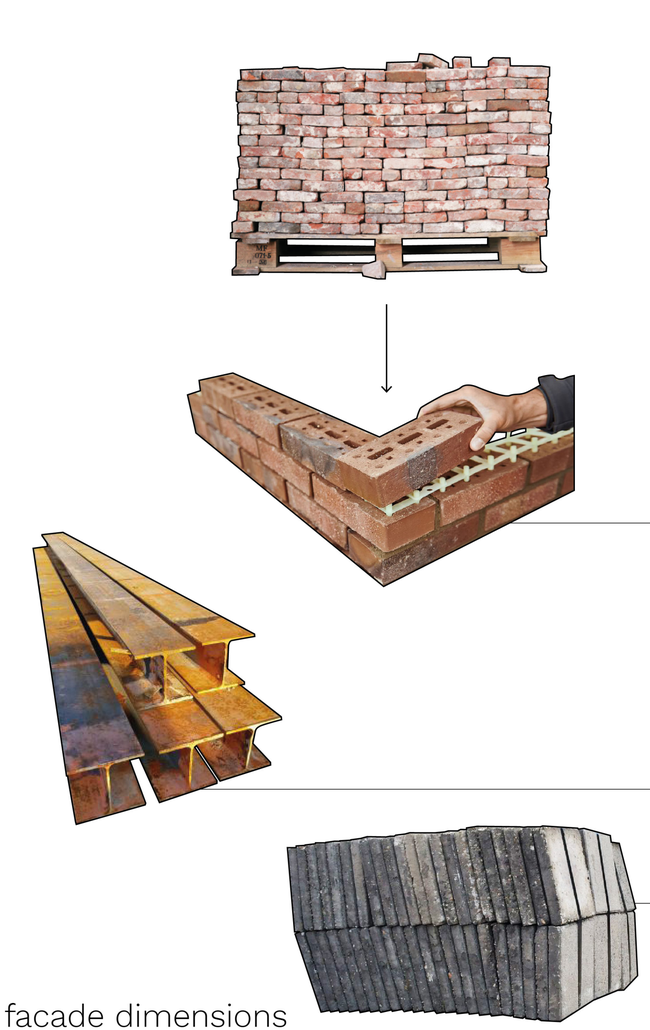


IMPLEMENTATION | FACADE COMPOSITION





IMPLEMENTATION | MATERIALS





architectural framework

- universal dimensions of materials dictate facade dimensions
- alternative use of reclaimed materials
- process materials for future reuse (Drystack)

IMPLEMENTATION | MATERIALS









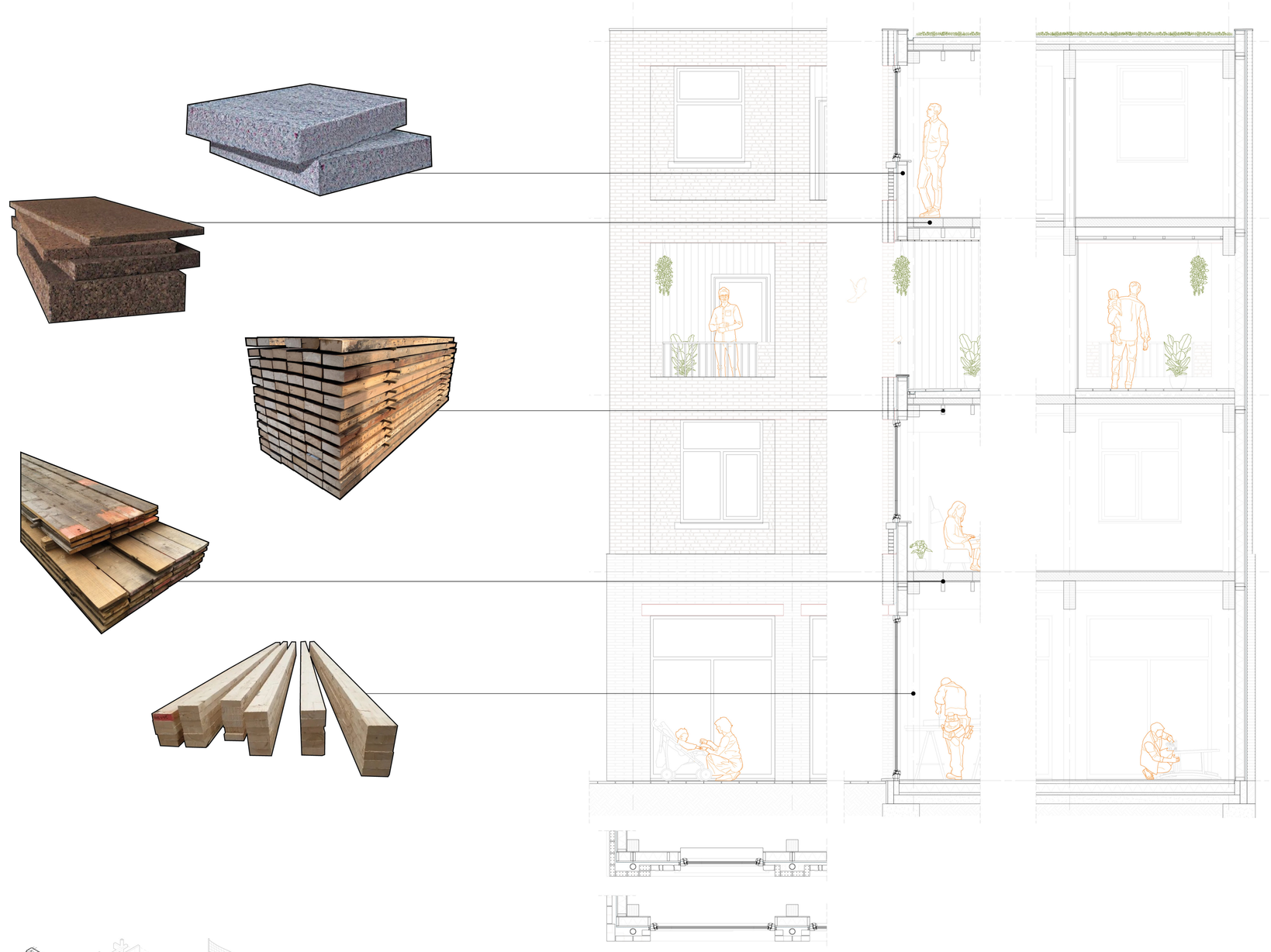




variable infill

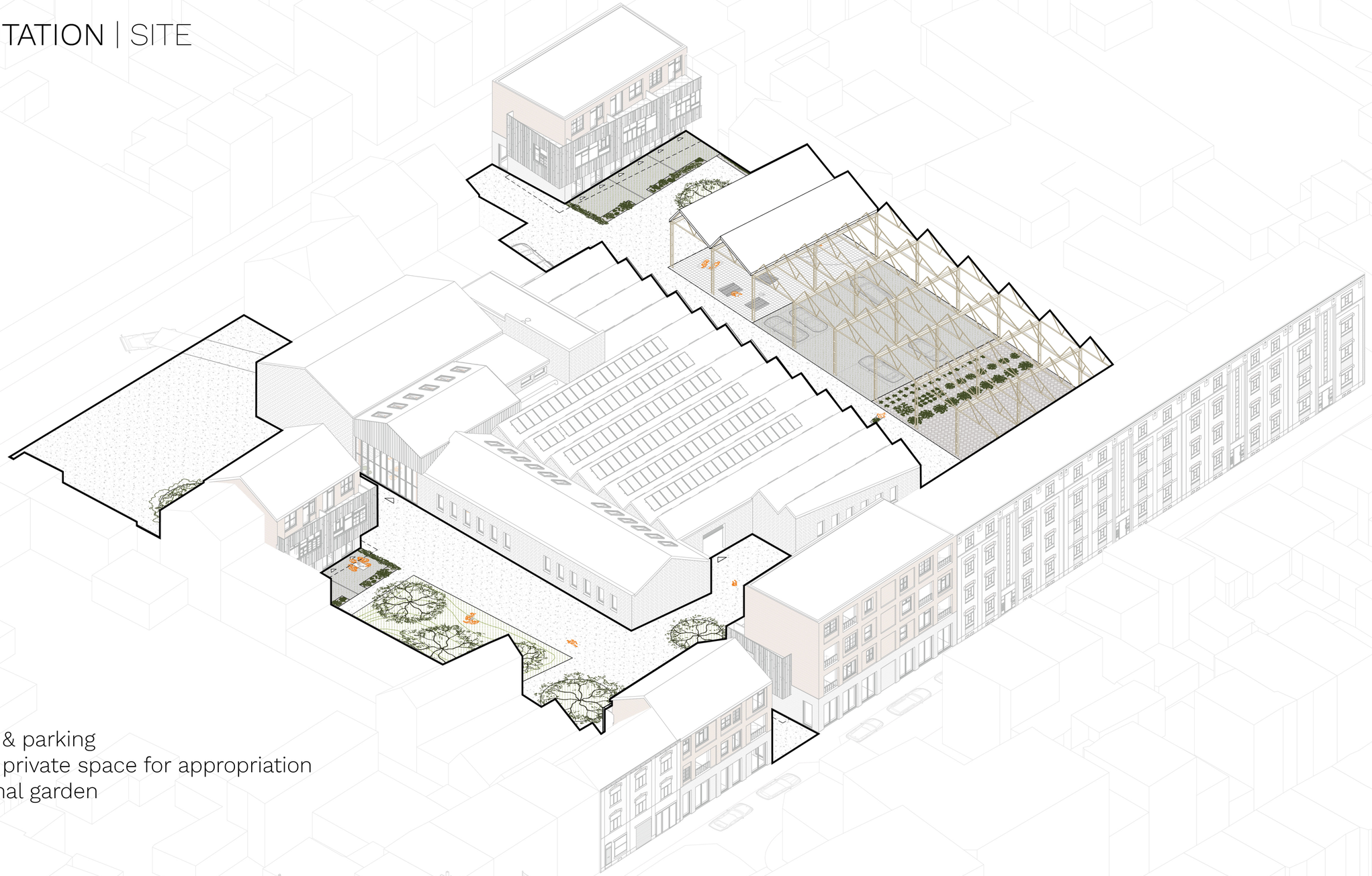
- elements with large variation of dimensions & uncertain supply
- broken & leftover pieces
- different functions allow for large variety of elements

IMPLEMENTATION | MATERIALS



structure & insulation
- reclaimed or biobased

IMPLEMENTATION | SITE



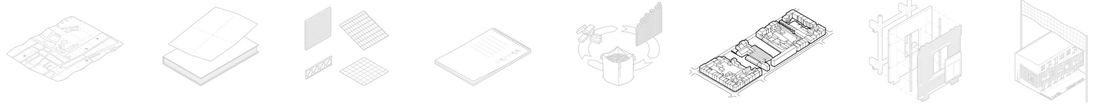
program
- logistics & parking
- public & private space for appropriation
- communal garden

IMPLEMENTATION | STRATEGIES

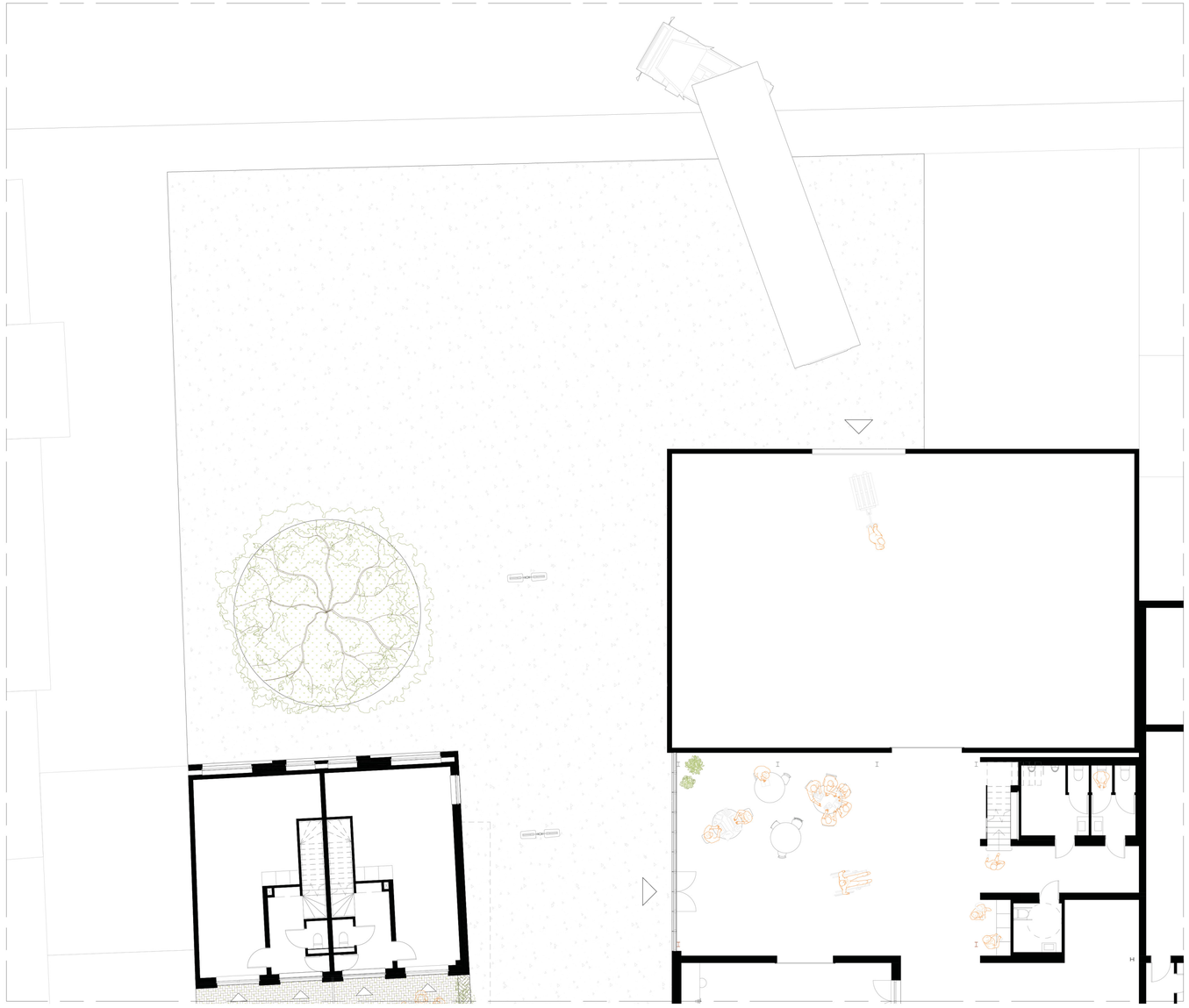
*limited **strategic interventions**, reclaimed materials or exposed soil*

***alternative use** of structural elements*

***greenery** for separation of program, productive landscape & climate design*



IMPLEMENTATION | PROGRAM





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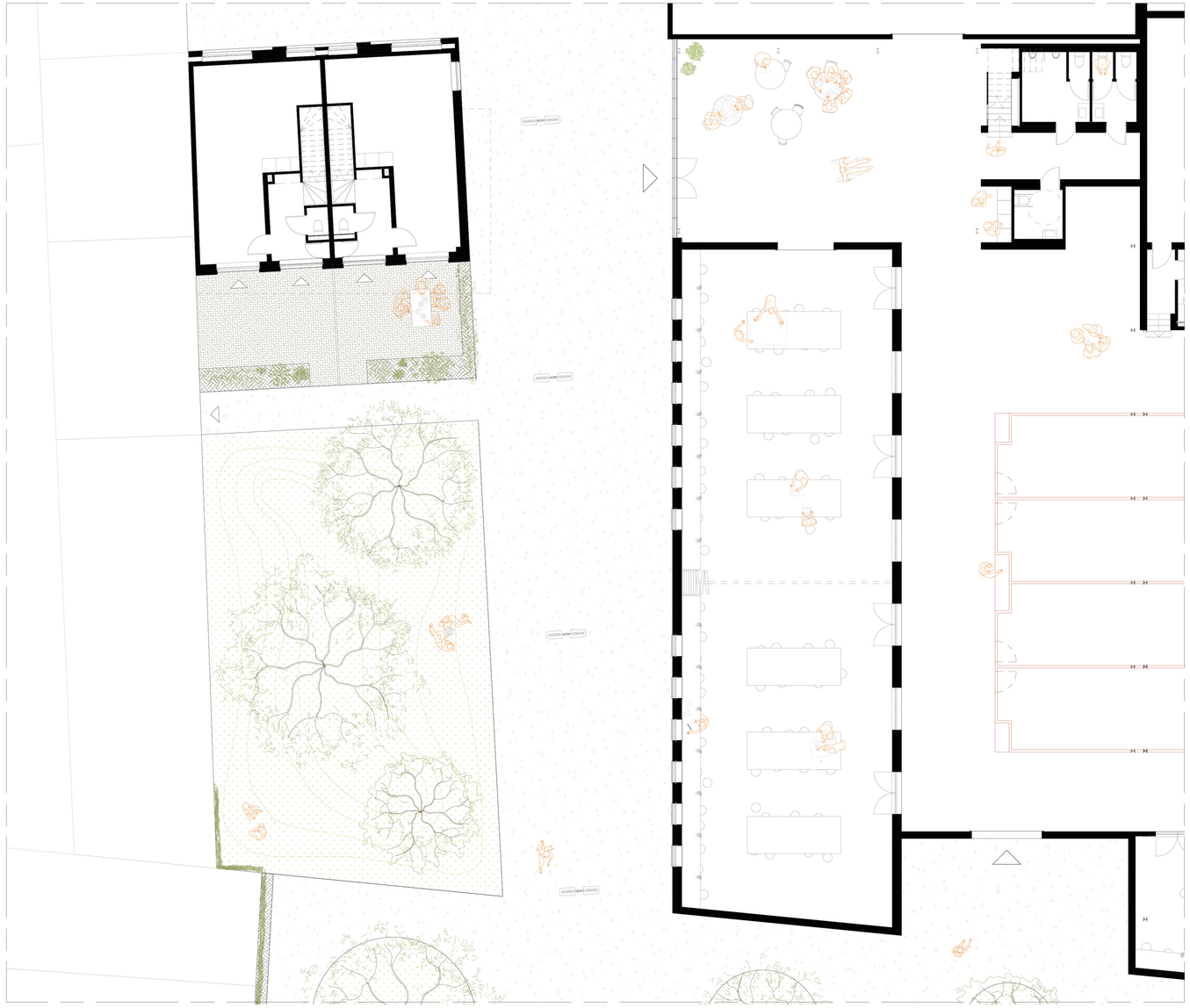
IMPLEMENTATION | PROGRAM





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IMPLEMENTATION | PROGRAM





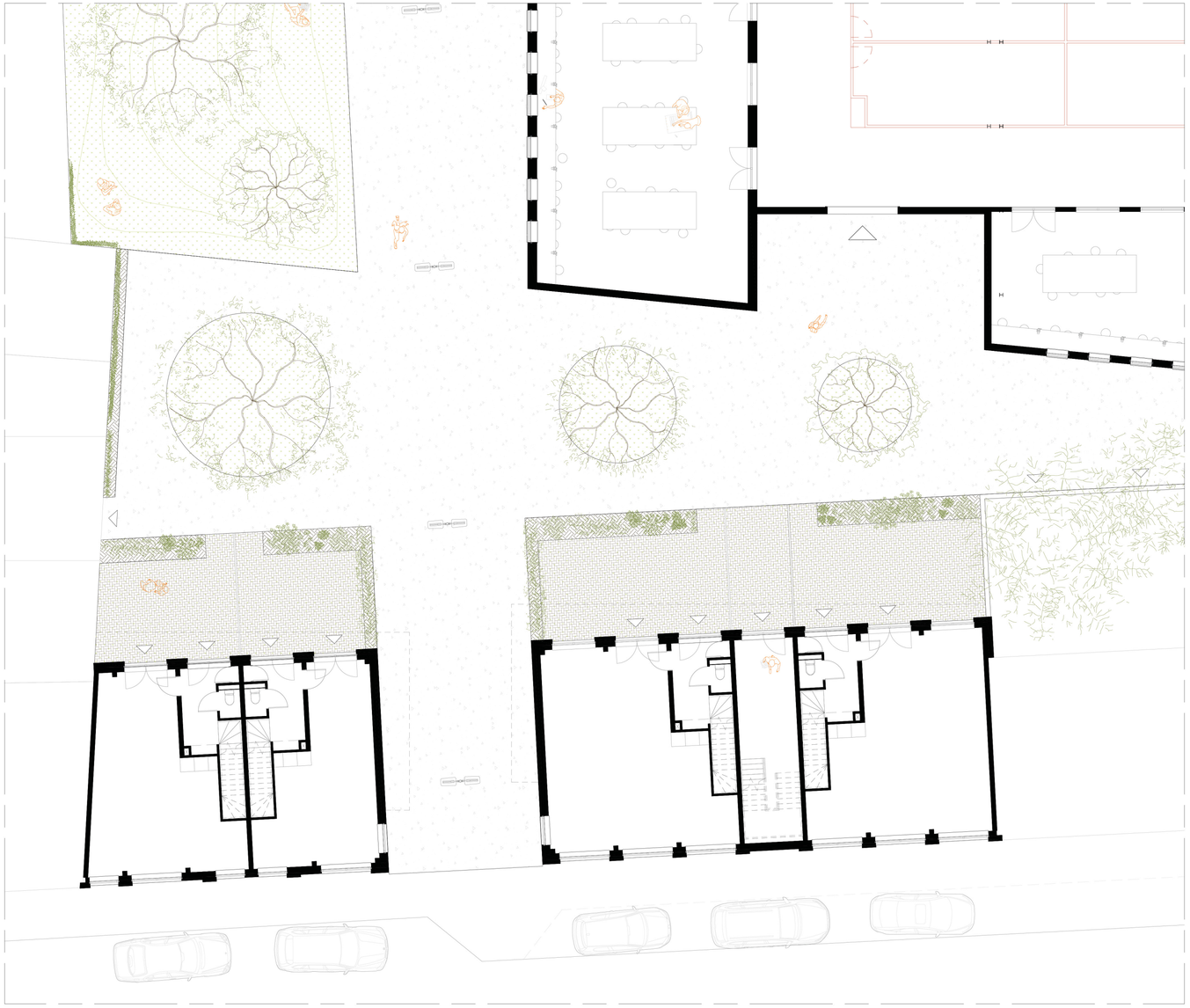
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IMPLEMENTATION | PROGRAM



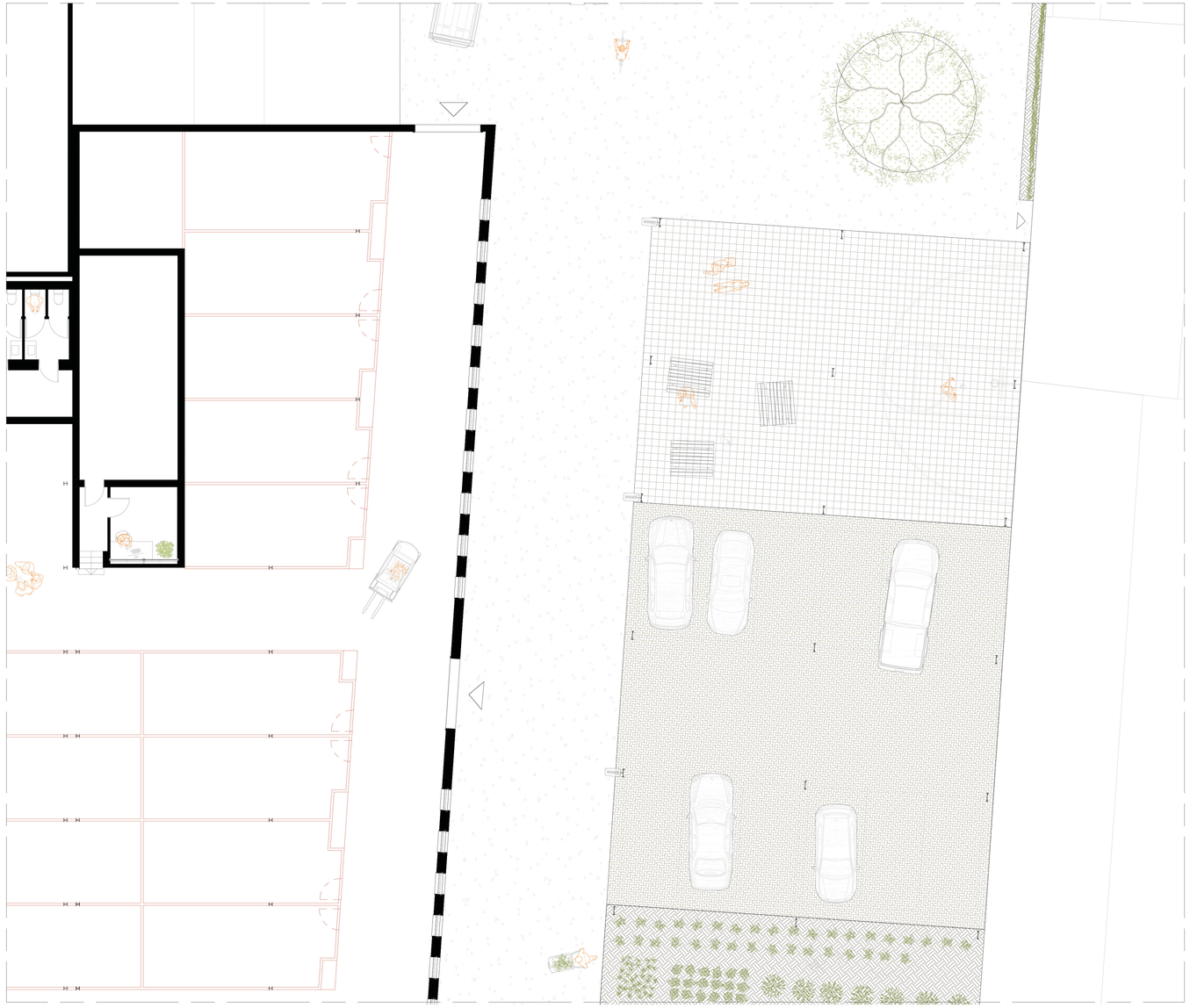


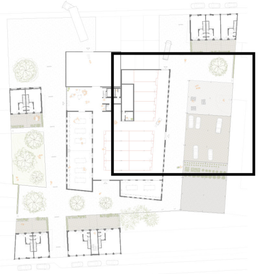
IMPLEMENTATION | PROGRAM





IMPLEMENTATION | PROGRAM





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IMPLEMENTATION | PROGRAM





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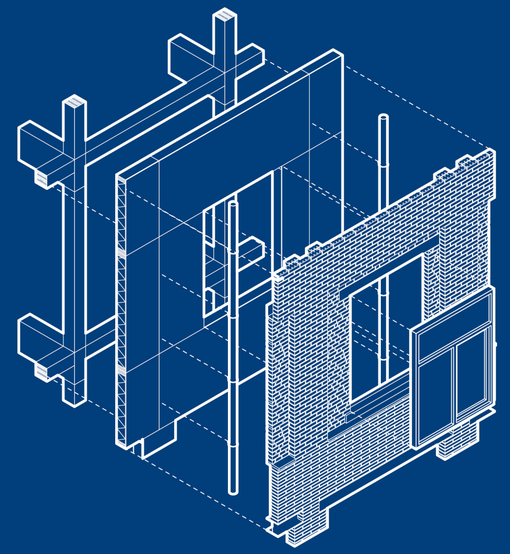
assemble
/əˈsɛmbl/

verb

1. (of people) gather together in one place for a common purpose.

2. fit together the separate component parts of (a machine or other object).

(Oxford English Dictionary)



ASSEMBLY

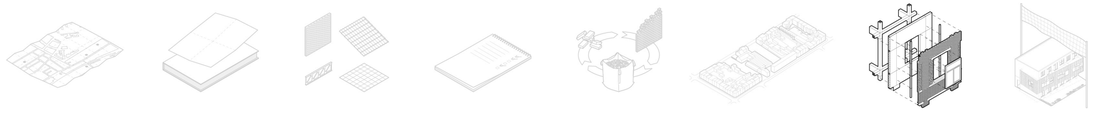
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ASSEMBLY | CONSTRUCTION PROCESS

*"The building's **form, aesthetics, and details** are directly influenced by the materials available at the time. Thus, the architect must freely move between the steps for **continuous refinement and adaptation**, especially during the construction process.*

*This requires the architect to remain involved in the construction administration phase, finalizing details based on materials available and unexpected problems that may arise, given the **inherent imperfections of used materials**."*

(Josefsson & Thuvander, 2020, p. 5)

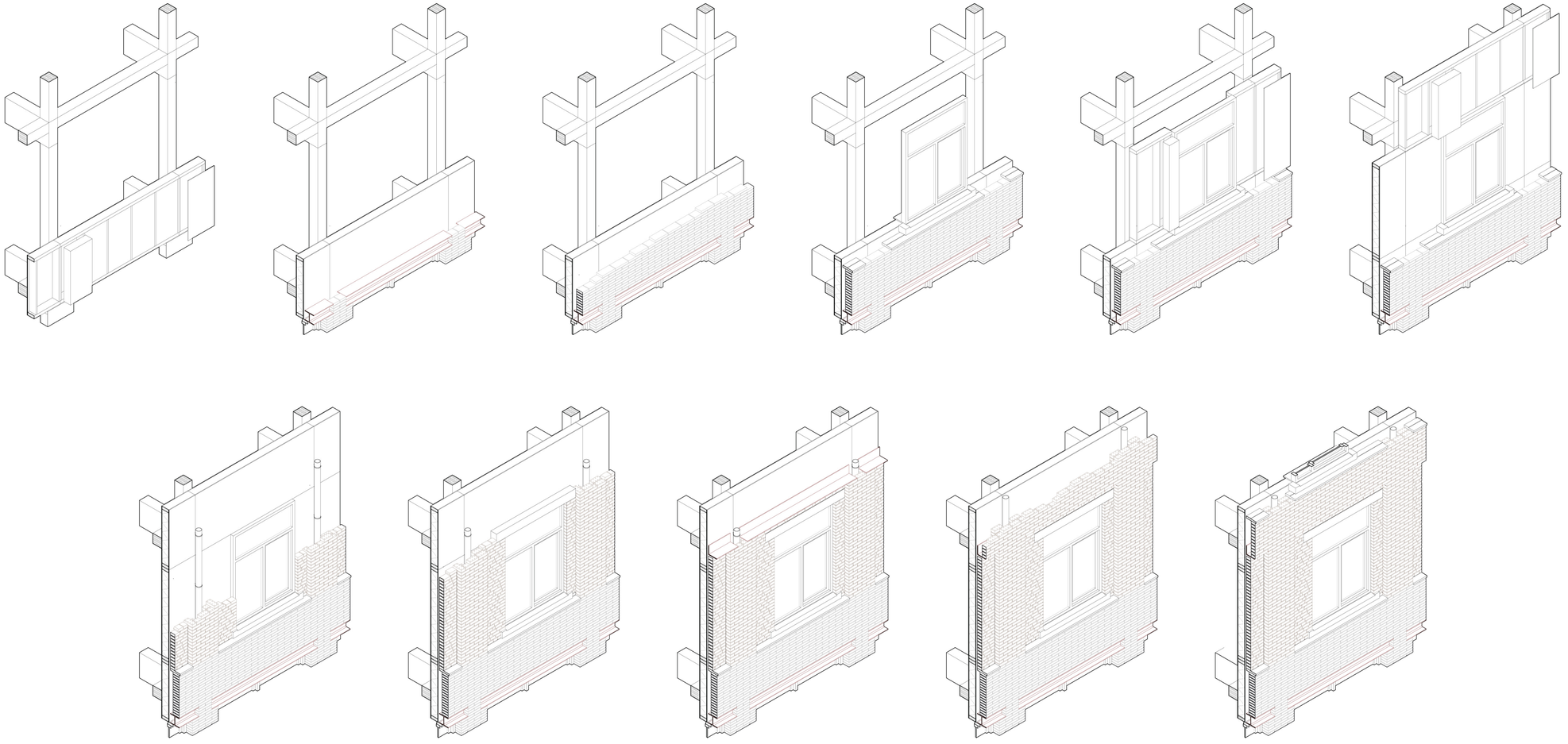


ASSEMBLY | CONSTRUCTION PROCESS

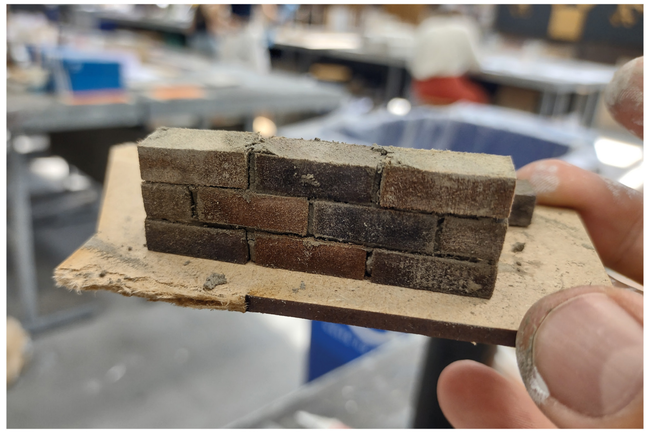


Avasara Acadamy, Case Design

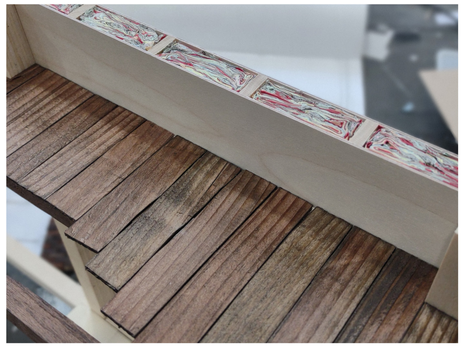
ASSEMBLY | CONSTRUCTION PROCESS



ASSEMBLY | 1:10 MODEL





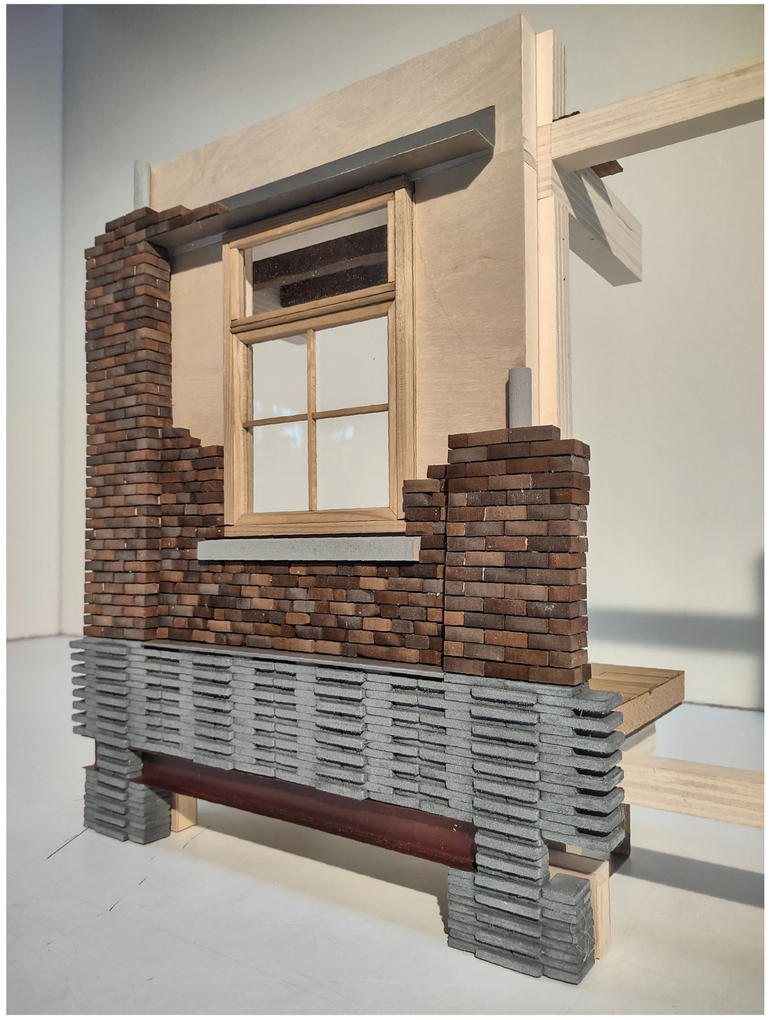








ASSEMBLY | 1:10 MODEL





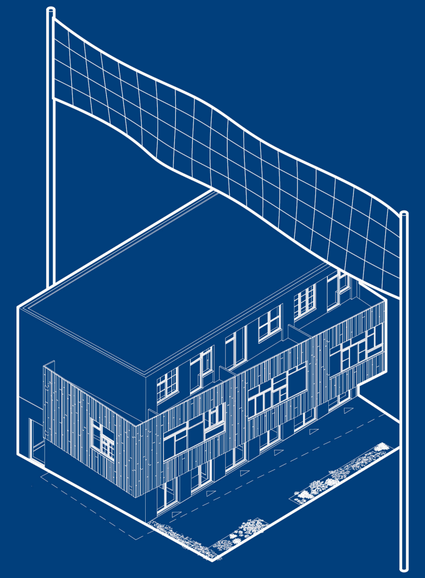
conclusion
/kənˈkluːʒn/

noun

1. the end or finish of an event, process, or text.

2. a judgement or decision reached by reasoning.

(Oxford English Dictionary)



CONCLUSION

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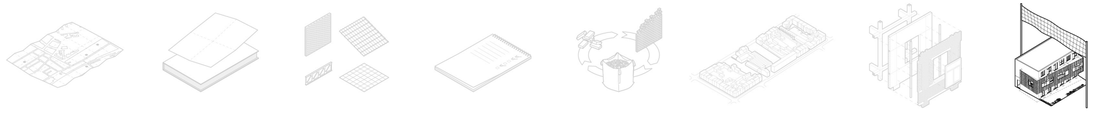
CONCLUSION | PROJECT GOALS

*reclaim **physical & cultural potential** of vacant sites and buildings*

*create **culturally fitting & sustainable architecture***

*introduce a **visible & accessible ‘industrial’ program***

*provide **space for appropriation & nature***



CONCLUSION | DESIGN BRIEF



program *(people, facilities & knowledge)*

- create a community for sharing knowledge, skills & tools
- introduce a public industrial program
- working & living, safety



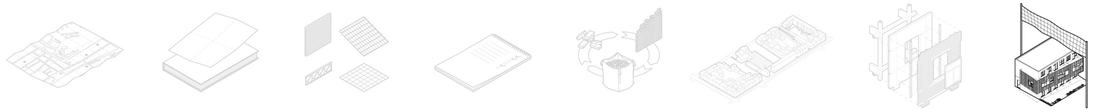
building & site *(adaptive reuse)*

- preserving character & history, while reviving site
- show architectural implications of designing with existing structures
- introduce nature to industrial site



materials *(component reuse)*

- stimulate (alternative) use of reclaimed elements
- embrace various dimensions & imperfections
- show architectural implications of designing with uncertainties

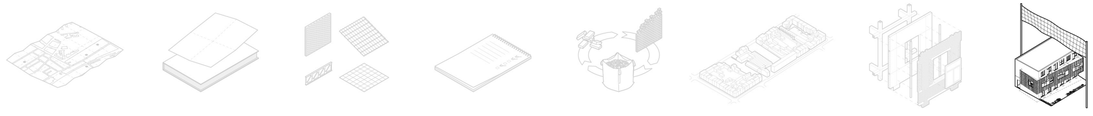


CONCLUSION CHALLENGES

very challenging to design with ***total uncertainty of material supply*** *and* ***limited access to data***

holistic approach *to reuse limits* ***focus***

many ***unexplored opportunities*** *within the field of reuse*



CONCLUSION | RESULT







Re:Generation Liège

Reimagining Local Building Culture as a Showcase for a Circular Generation of Architecture

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