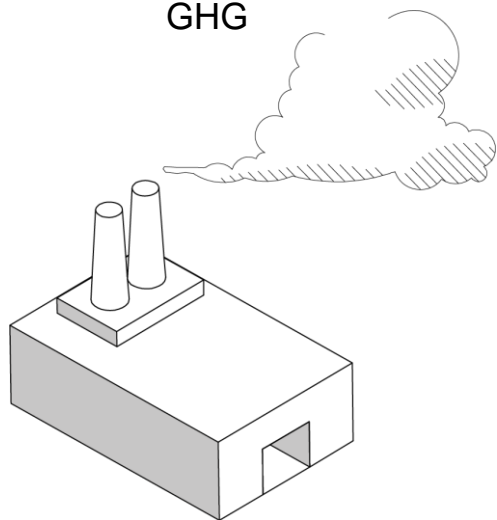




WAUGH THISTLETON

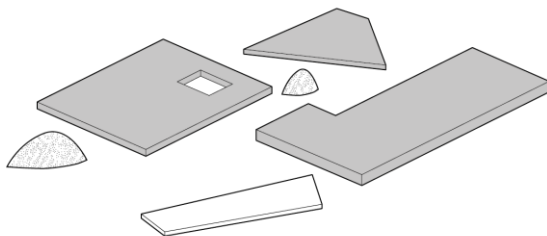
38%

GHG



40%

waste



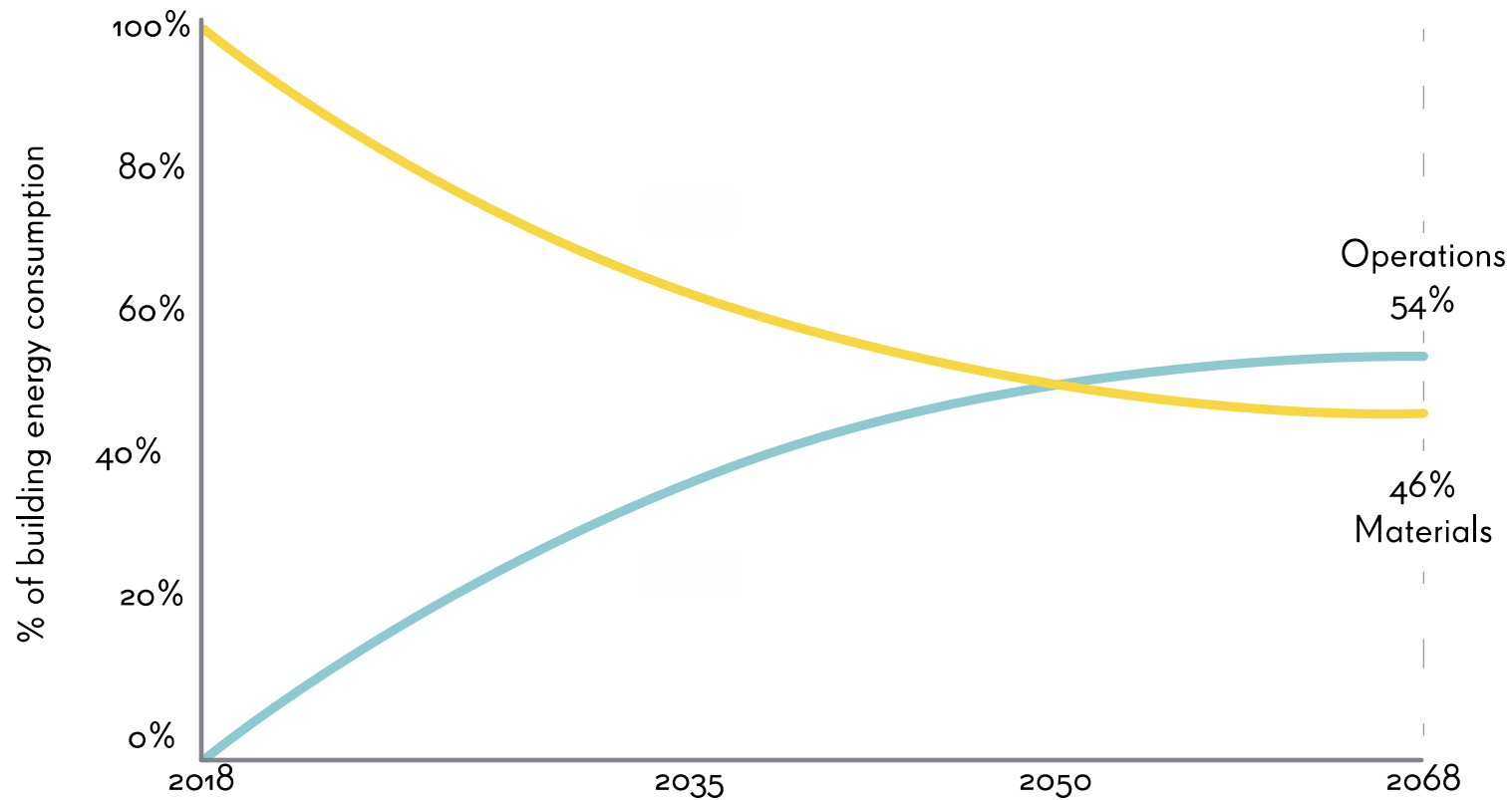
12%

water



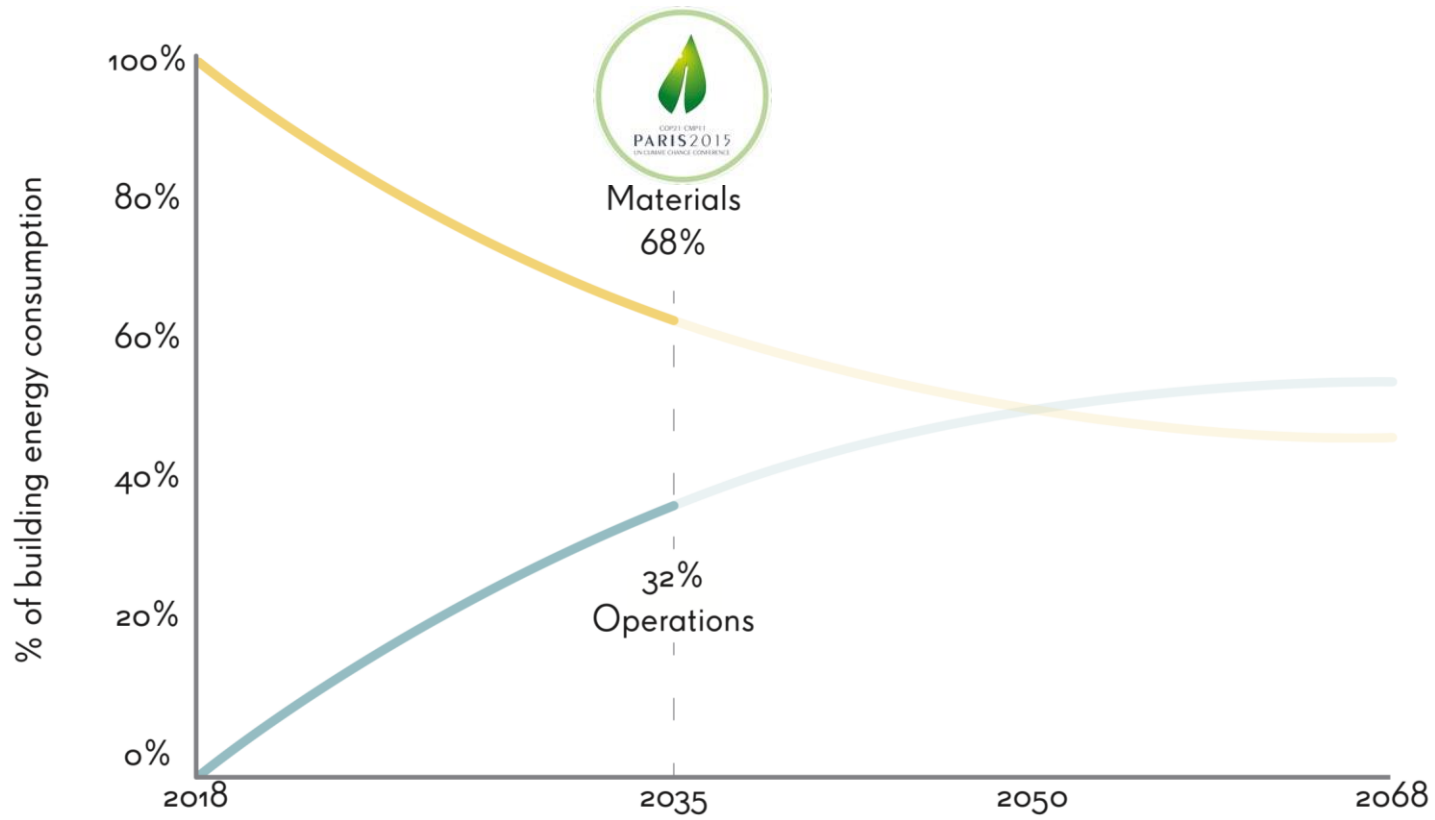
Global Impact

construction



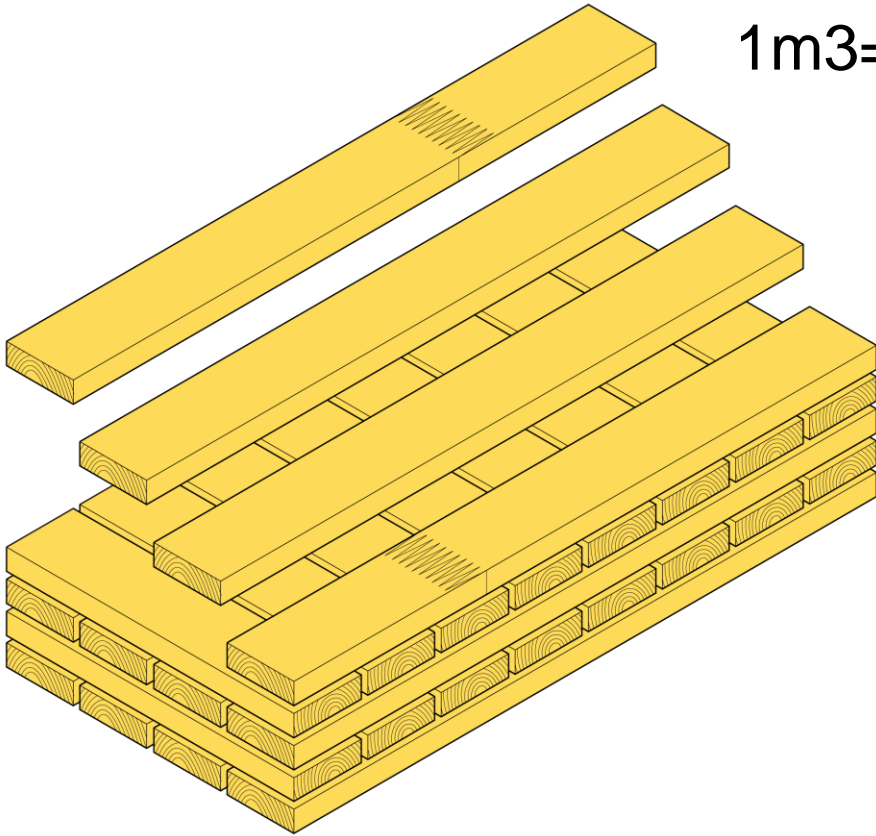
Time value of carbon

2015 - 2035



Part of the solution
2035

1m³=1t of CO₂



Cross Laminated Timber

softwood



UK's first

2003



Three storeys

45sqm

Four people

Six hours



World's first
2008





1150t of CO₂

safeguarded

27 Days

four men

No tower crane

reduced foundations



Less waste

prefabrication

Quiet

no power tools

Fewer deliveries

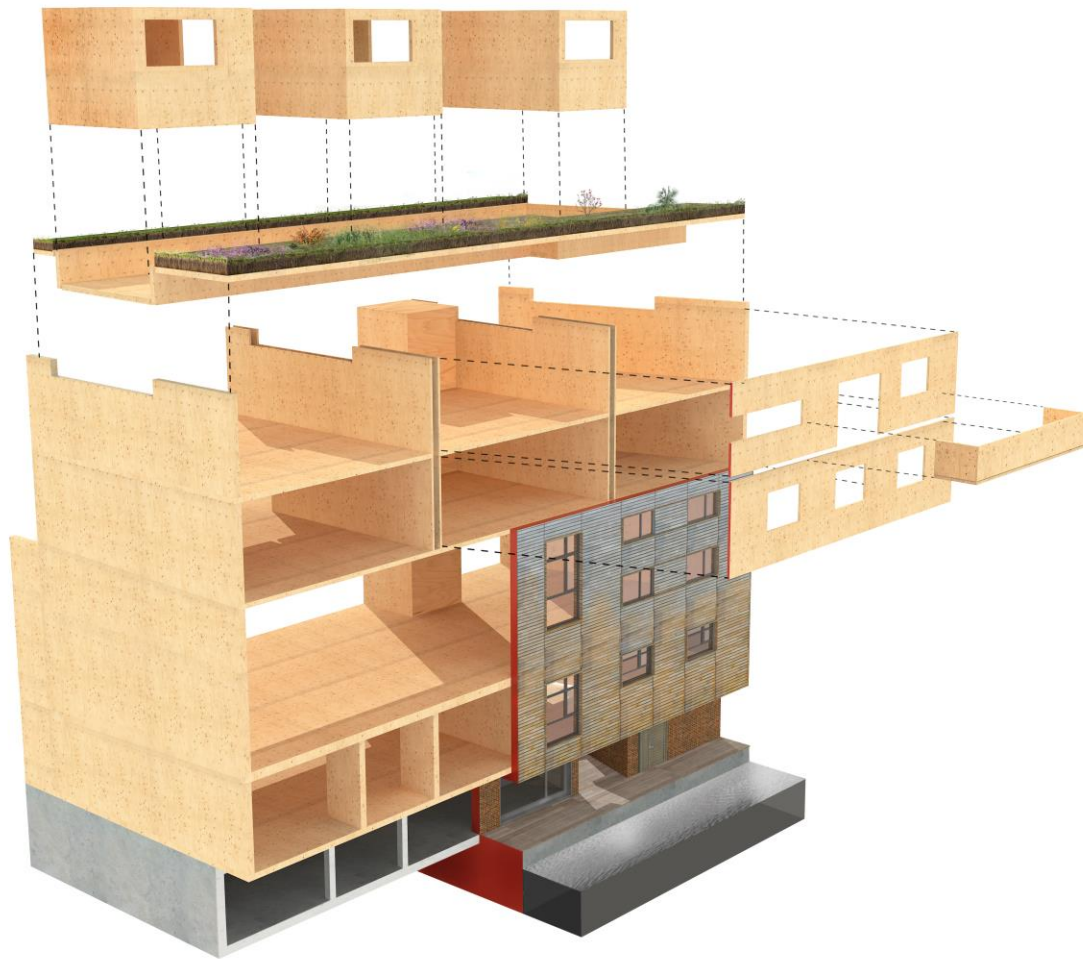
80% reduction in traffic

Light weight

weighs one fifth of concrete



Murray Grove
2008



My home
2012



Deep beams

Party walls

Truss facade

500m³ of CLT

Open plan

Double height 9.5m wide





Whitmore Road

2012



World's largest
2017





Vitsoe HQ

2017





Vitsoe

Dieter Rams 1960







Hardwood LVL

European Beech

8 month build

minimal foundation



SIX

2018







Hybrid structure

4,000sqm business

CLT slabs

CLTR core

Steel frame

bolted connections

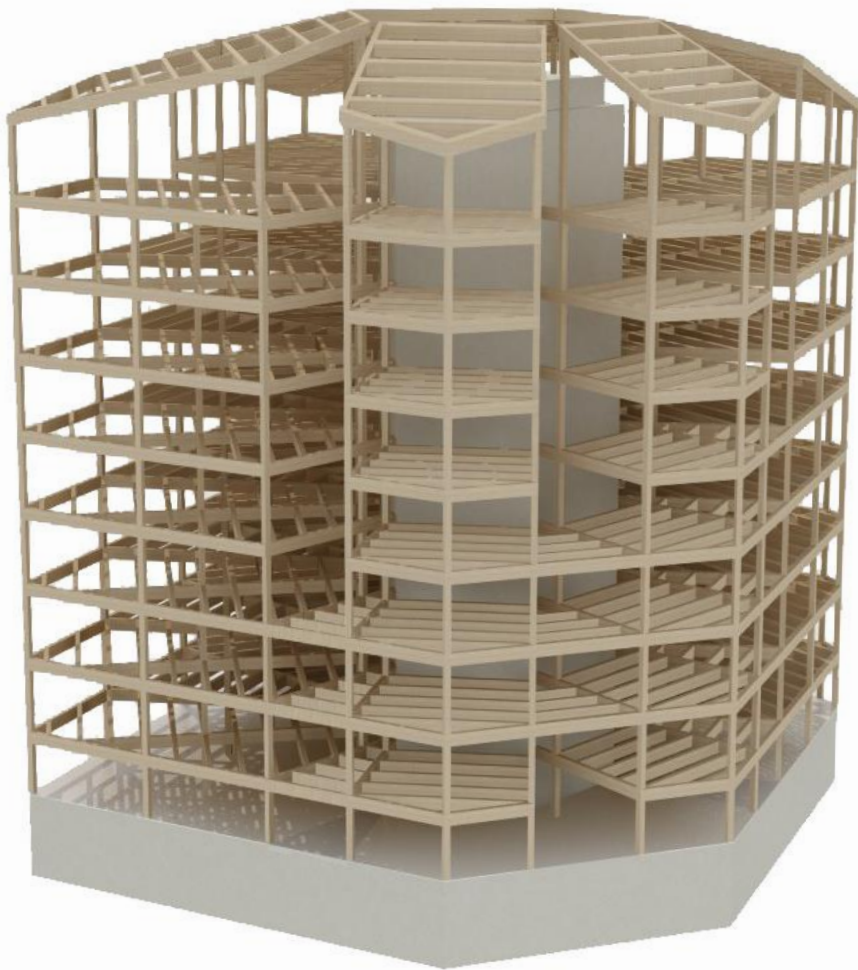
CONTINUOS
PROJECT
ALTERED
DAILY





2A

No Access to
Commercial
Vehicles
Goods entrance 50m



10,000sqm

City office building

LVL Structure

CLT floors and core

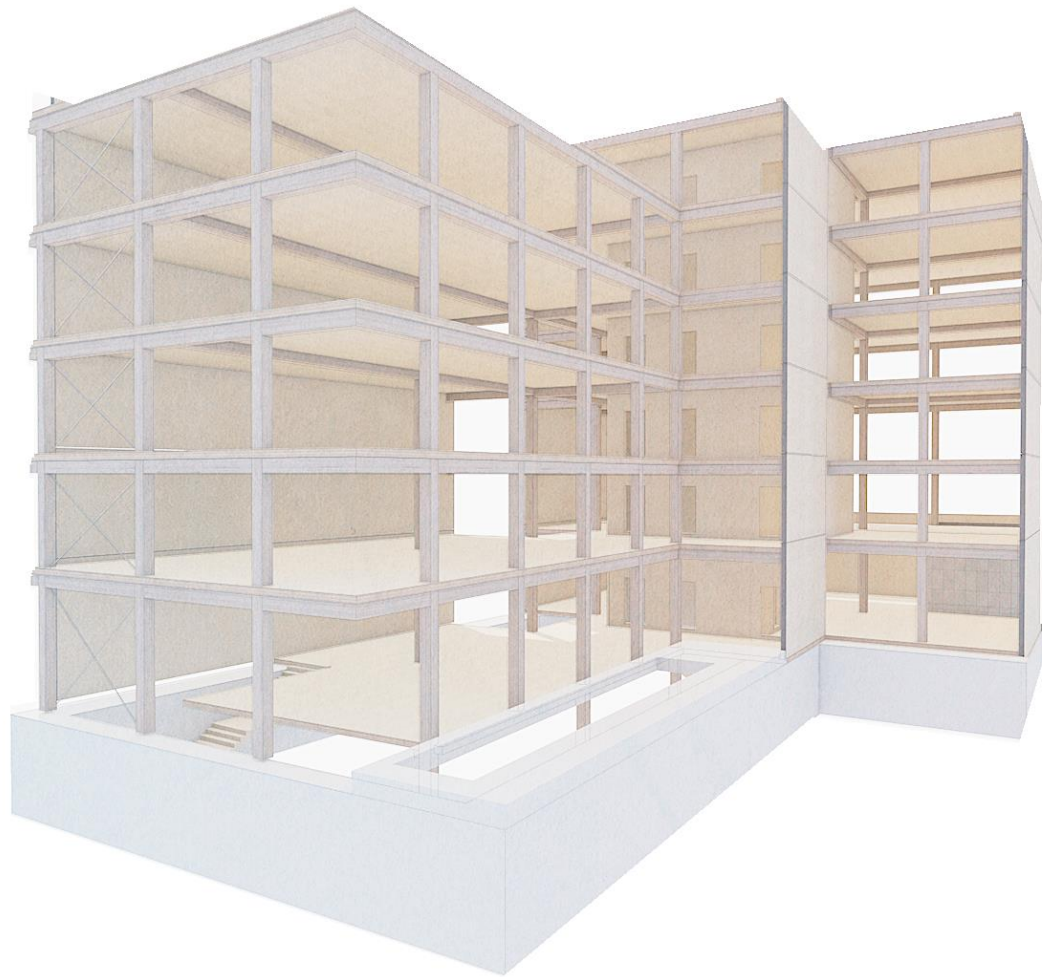
Ten Stories

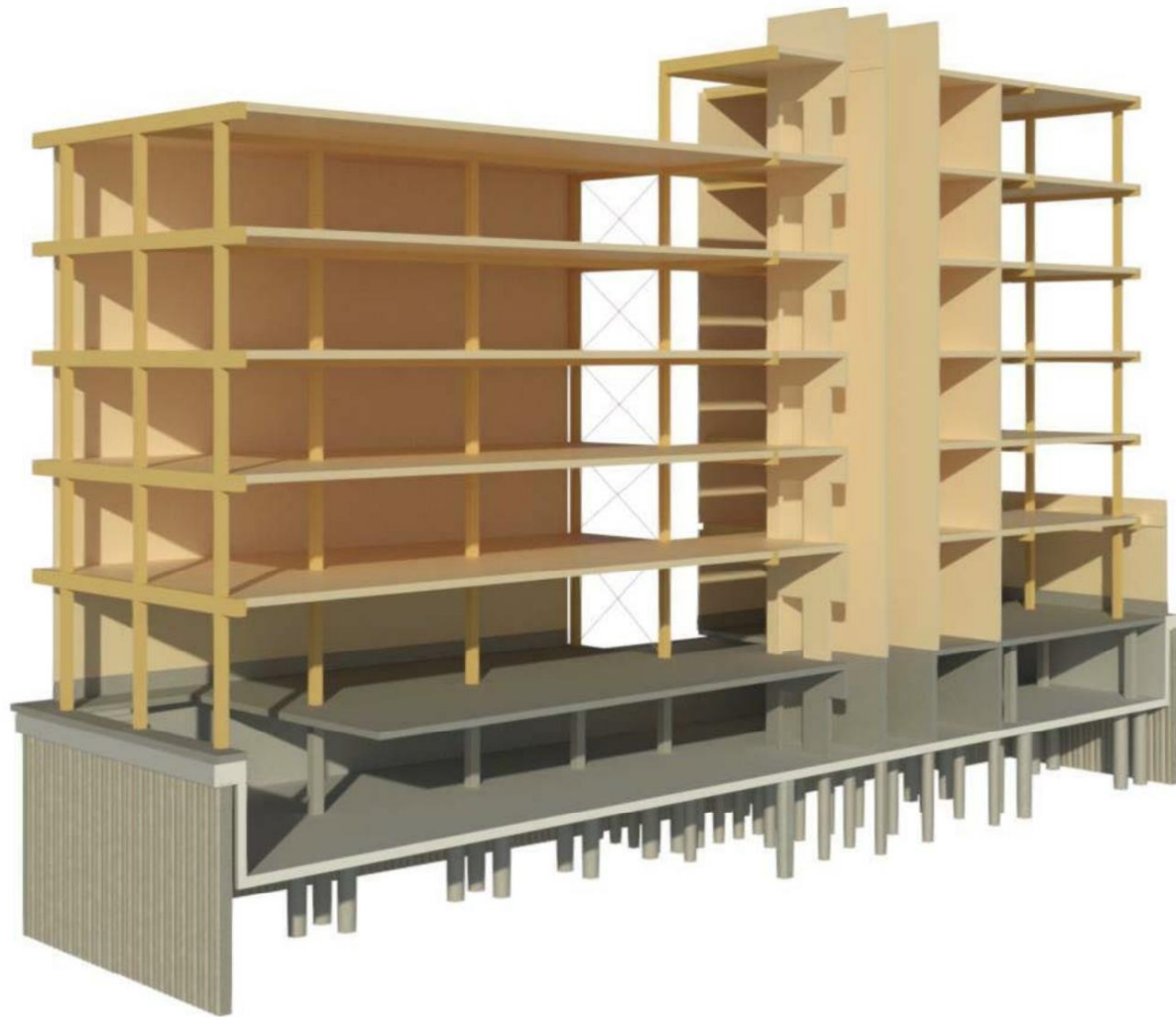
Naturally ventilated

Black and White

2018







Section
CLT, LVL, Concrete



All Timber

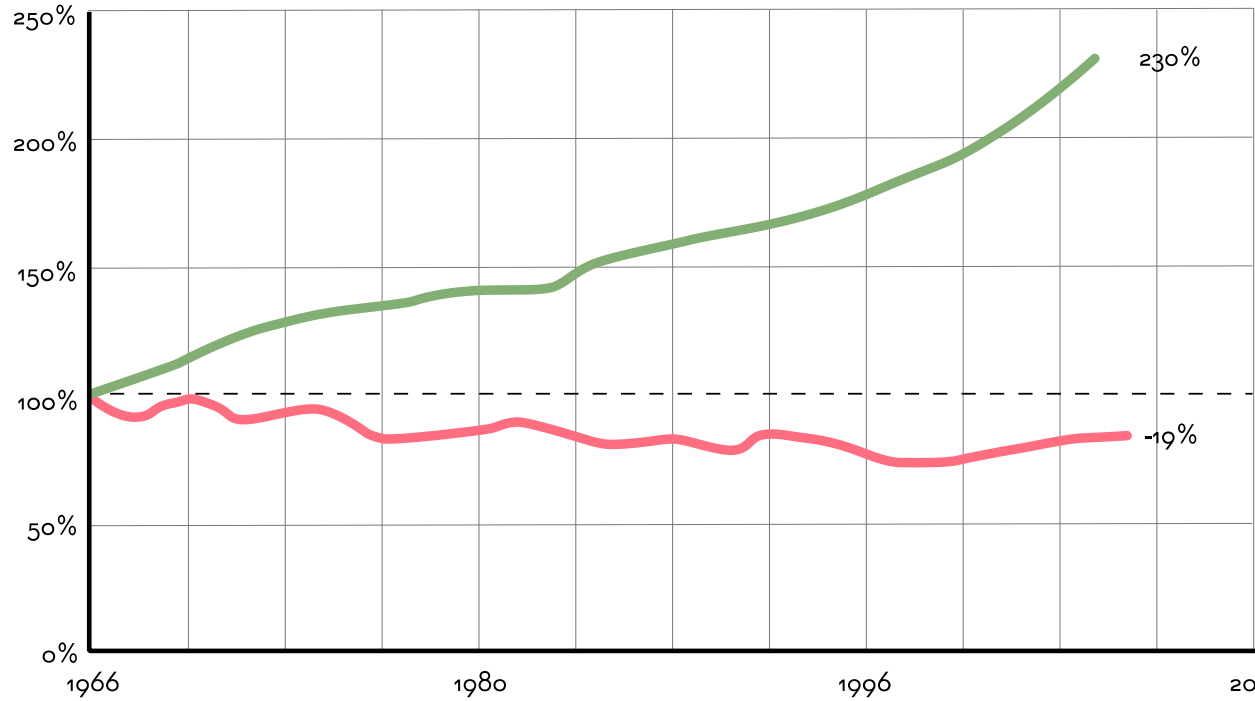
4,000sqm business

LVL structure

CLT slabs and core

Exposed structure

spliced connections



Productivity

Value added per hour worked

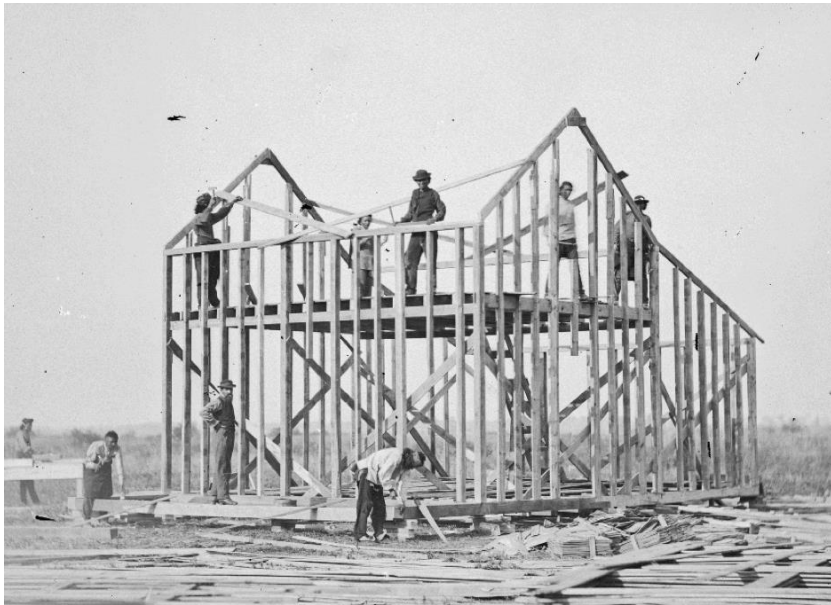


1870



Today

Manufacturing



1833



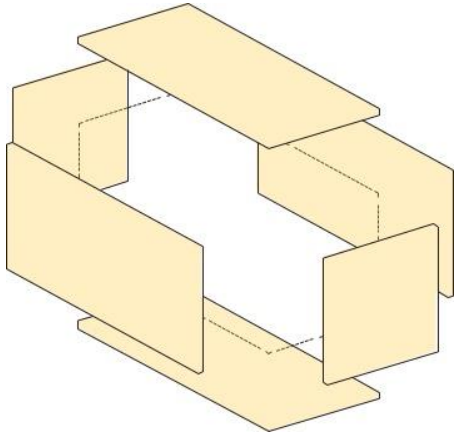
Today

Construction

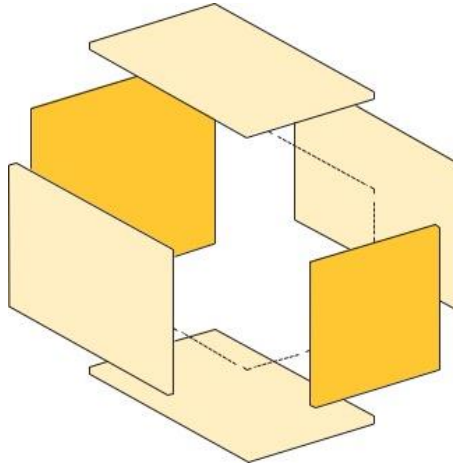


CLT modular housing factory
2017

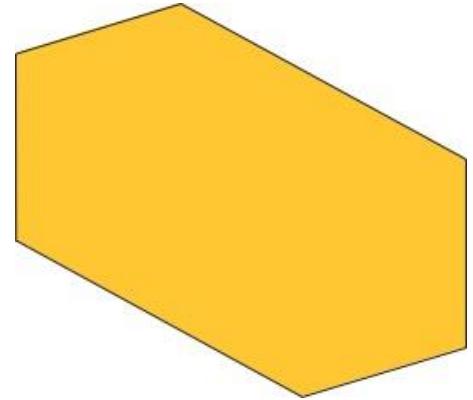
flatpack



Pods

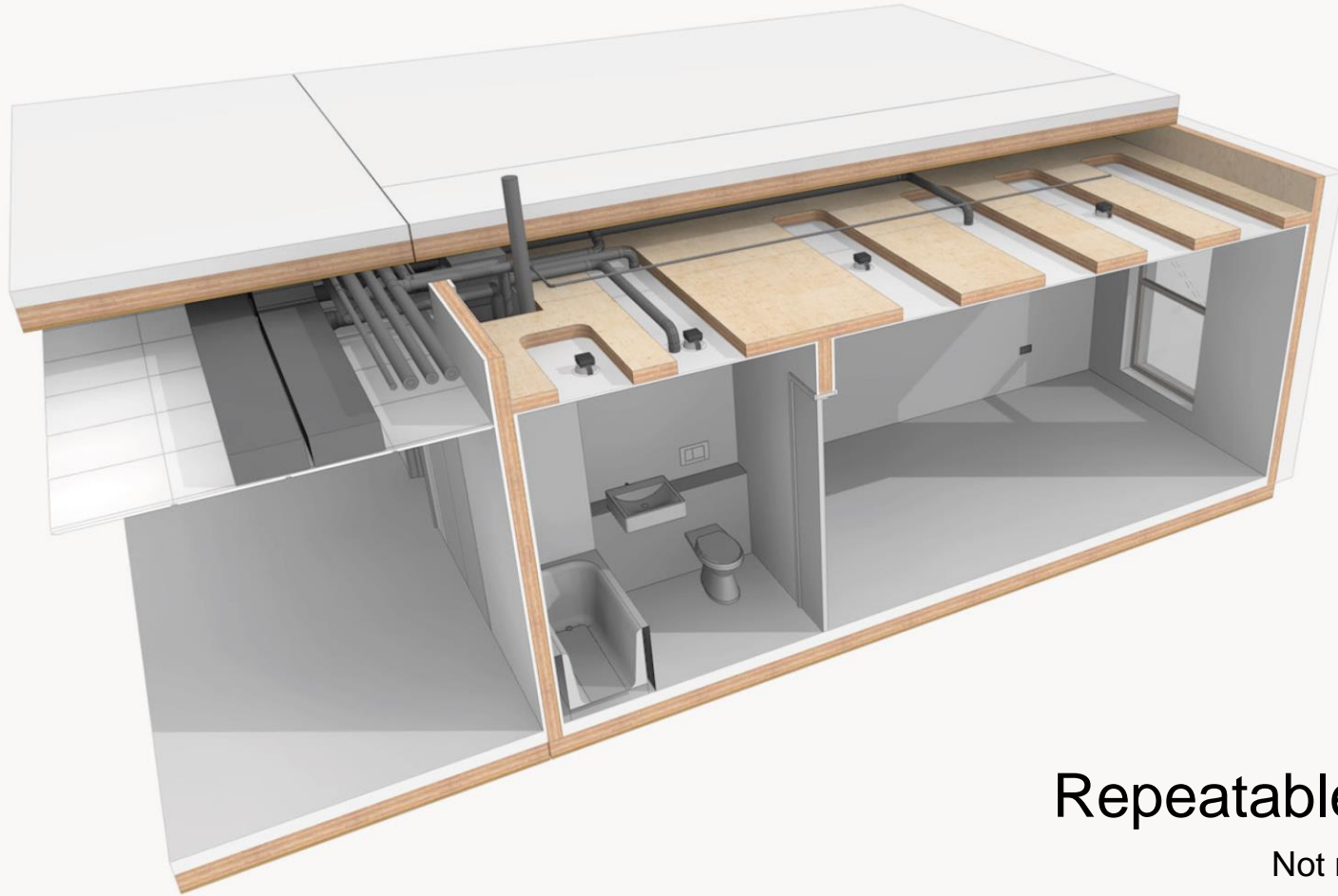


volumetric



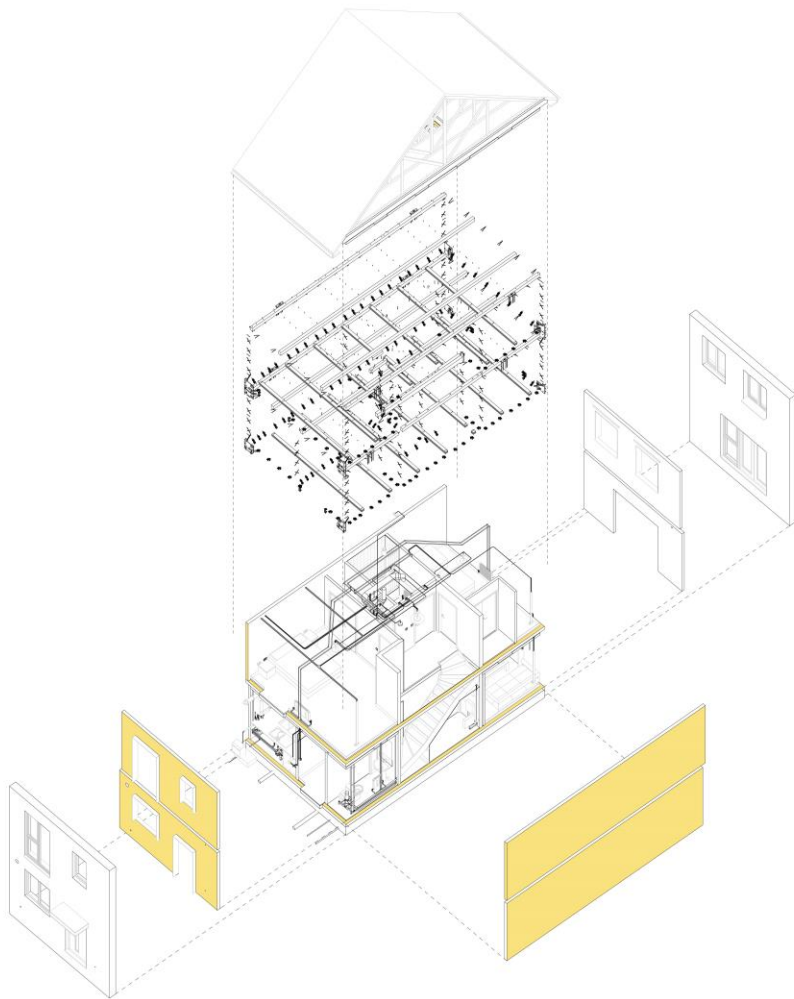
Pre-fabrication

Industrialized construction



Repeatable process

Not repeated product



Choice

Kitchen, bathroom, facade



Mitsubishi GS platform



2007 Mitsubishi Lancer



2005 Mitsubishi Outlander



2010 Mitsubishi RVR



2007 Mitsubishi Delica



2007 Dodge Caliber



2008 Dodge Avenger



2009 Dodge Journey / Fiat Freemont



2007 Jeep Compass



2007 Jeep Patriot



2007 Chrysler Sebring



2007 Chrysler Sebring



2007 Citroën C-Crosser/Peugeot 4007



2012 Citroën C4 Aircross/Peugeot 4008



2010 Proton Inspira



1

PLATFORM

14 MODELS

ACROSS 6 BRANDS

Design and construction

Design and construction are the two main phases of a project. Design is the process of creating a plan for the project, and construction is the process of building the project according to the plan.

Design is the process of creating a plan for the project. It involves defining the scope of the project, identifying the requirements, and developing a detailed plan. The design phase is critical to the success of the project, as it sets the foundation for the construction phase.

Construction is the process of building the project according to the plan. It involves the physical construction of the project, including the foundation, walls, roof, and interior finishes. The construction phase is the most visible and often the most expensive part of the project.

The design and construction phases are closely linked and often overlap. For example, the design team may need to consult with the construction team during the design phase to ensure that the plan is feasible and constructible.

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22

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29

3.1 TRANSPORTATION

Transportation is the movement of people and goods from one place to another. It is a fundamental part of our lives, and it plays a crucial role in the economy and society.

The transportation system is a complex network of modes, routes, and infrastructure. It includes roads, bridges, highways, airports, seaports, and railroads. Each mode of transportation has its own characteristics and challenges.

The transportation system is essential for the functioning of our society. It allows us to move people and goods efficiently, which is necessary for economic growth and development. It also plays a role in environmental protection and public health.

The transportation system is constantly evolving. New technologies and infrastructure are being developed to improve the efficiency and sustainability of transportation. This includes the development of high-speed rail, autonomous vehicles, and green infrastructure.

[illegible]

24

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[illegible][illegible][illegible][illegible]

First, managers will agree that the following are the most important things to do when managing an organization's change process:

1. Fully understand all of the constraints.
2. Have sufficient resources (human, financial, and technical).
3. Consider ongoing demands for resources. Different organizations will have different ongoing demands for resources.
4. Consider change management in the context of the organization's overall strategy for success. Different organizations will have different overall strategies for success.

Next, managers will agree that the following are the most important things to do when managing an organization's change process:

1. Develop a change management strategy that is consistent with the organization's overall strategy for success.
2. Develop a change management strategy that is consistent with the organization's overall strategy for success.
3. Develop a change management strategy that is consistent with the organization's overall strategy for success.
4. Develop a change management strategy that is consistent with the organization's overall strategy for success.

Finally, managers will agree that the following are the most important things to do when managing an organization's change process:

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2. Develop a change management strategy that is consistent with the organization's overall strategy for success.
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4. Develop a change management strategy that is consistent with the organization's overall strategy for success.

Figure 1. The most important things to do when managing an organization's change process.

Figure 1. The most important things to do when managing an organization's change process.

32

Figure 2. A photograph of a yellow and black toy truck with a white trailer, parked on a white surface.

33

[illegible][illegible]

Scenario	2010	2020	2030	2040	2050
Reference (REF)	✓	✓	✓	✗	✗
Highway (Hwy)	✓	✓	✓	✗	✗
Highway + Urban (Hwy + U)	✓	✓	✓	✗	✗
Highway + Urban + Forest (Hwy + U + F)	✓	✗	✗	✗	✗

Legend: ✓ = Scenario is feasible and meets all goals; ✗ = Scenario is not feasible and does not meet all goals.

Scenario summary table (Table 1):

Scenario	2010	2020	2030	2040	2050
Reference (REF)	✓	✓	✓	✗	✗
Highway (Hwy)	✓	✓	✓	✗	✗
Highway + Urban (Hwy + U)	✓	✓	✓	✗	✗
Highway + Urban + Forest (Hwy + U + F)	✓	✗	✗	✗	✗

Figure 1: Highway (Hwy) scenario. The map shows the highway network in the region, with the highway corridor highlighted in red. The map also shows the urban area (U) and the forest area (F). The highway corridor is shown as a red line, and the urban area is shown as a grey area. The forest area is shown as a green area. The map is labeled with 'Hwy', 'U', and 'F'.

Figure 2: Highway + Urban (Hwy + U) scenario. The map shows the highway network in the region, with the highway corridor highlighted in red. The map also shows the urban area (U) and the forest area (F). The highway corridor is shown as a red line, and the urban area is shown as a grey area. The forest area is shown as a green area. The map is labeled with 'Hwy', 'U', and 'F'.

Figure 3: Highway + Urban + Forest (Hwy + U + F) scenario. The map shows the highway network in the region, with the highway corridor highlighted in red. The map also shows the urban area (U) and the forest area (F). The highway corridor is shown as a red line, and the urban area is shown as a grey area. The forest area is shown as a green area. The map is labeled with 'Hwy', 'U', and 'F'.

[illegible][illegible]



Modular

65 apartments

7 Storeys

24,000sqm

151 boxes

1,600m³







Paris
68 Apartments



Stockholm

255 Apartments



Multiply
Tulipwood CLT



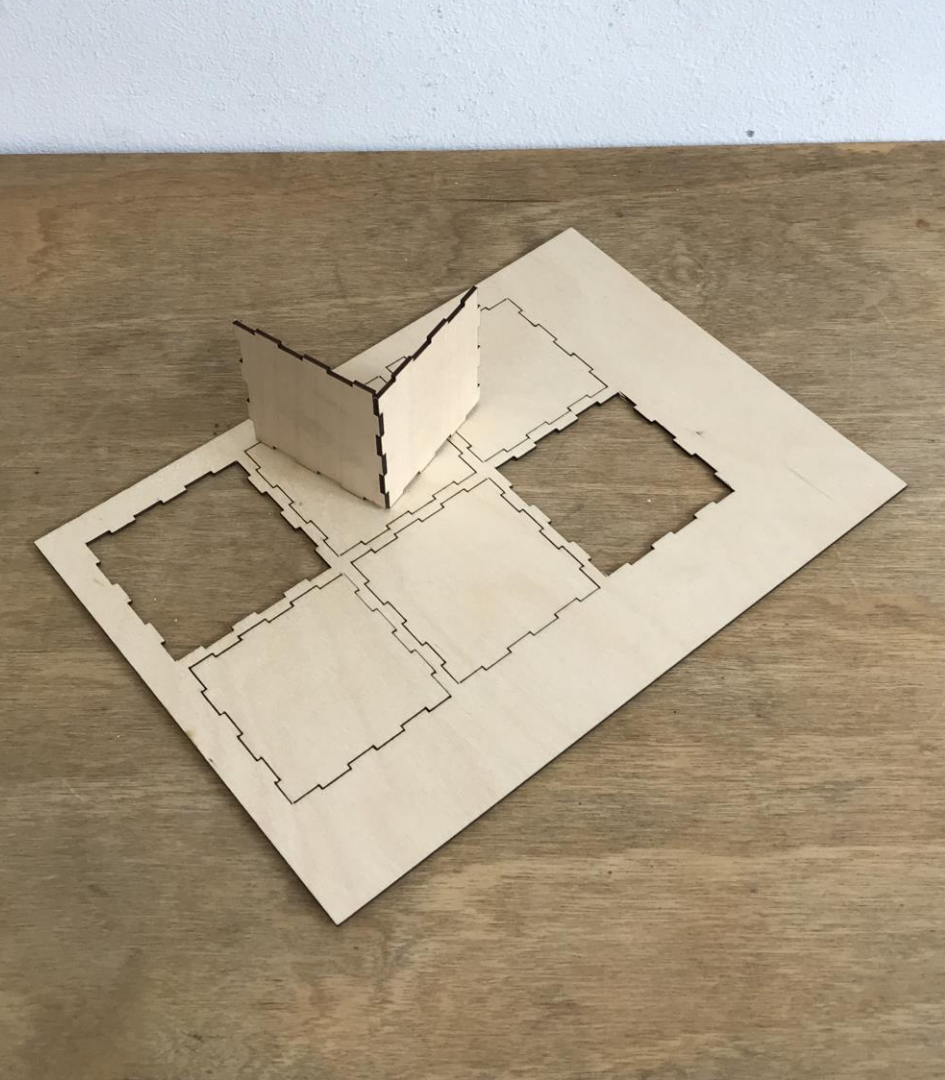
DO NOT ENTER UNDER THIS PLATFORM
UNLESS IT IS MECHANICALLY LOCKED



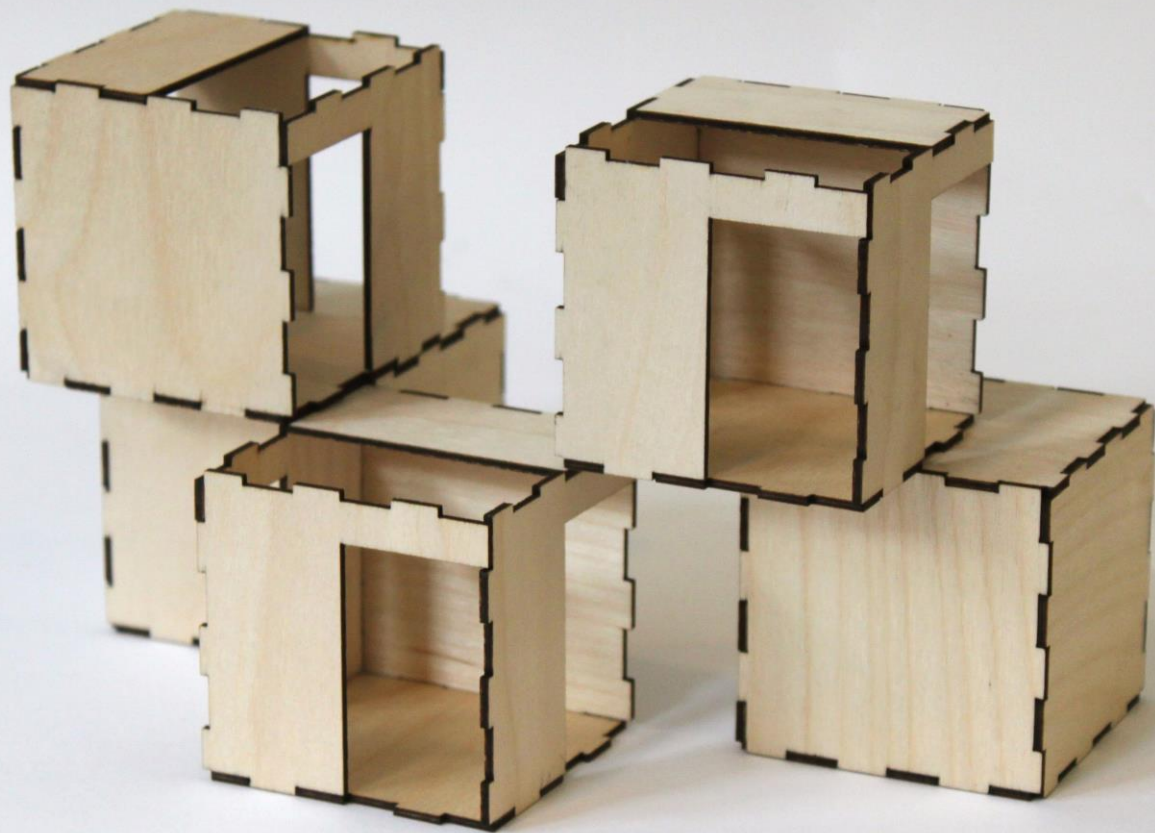
Auto-Lift UK Ltd

DANGER, DO NOT PUT HANDS OR
FEET UNDER THE PLATFORM





Multiply
V&A museum





V&A Museum

Sackler Courtyard



PALLET BAY





Install

4 days





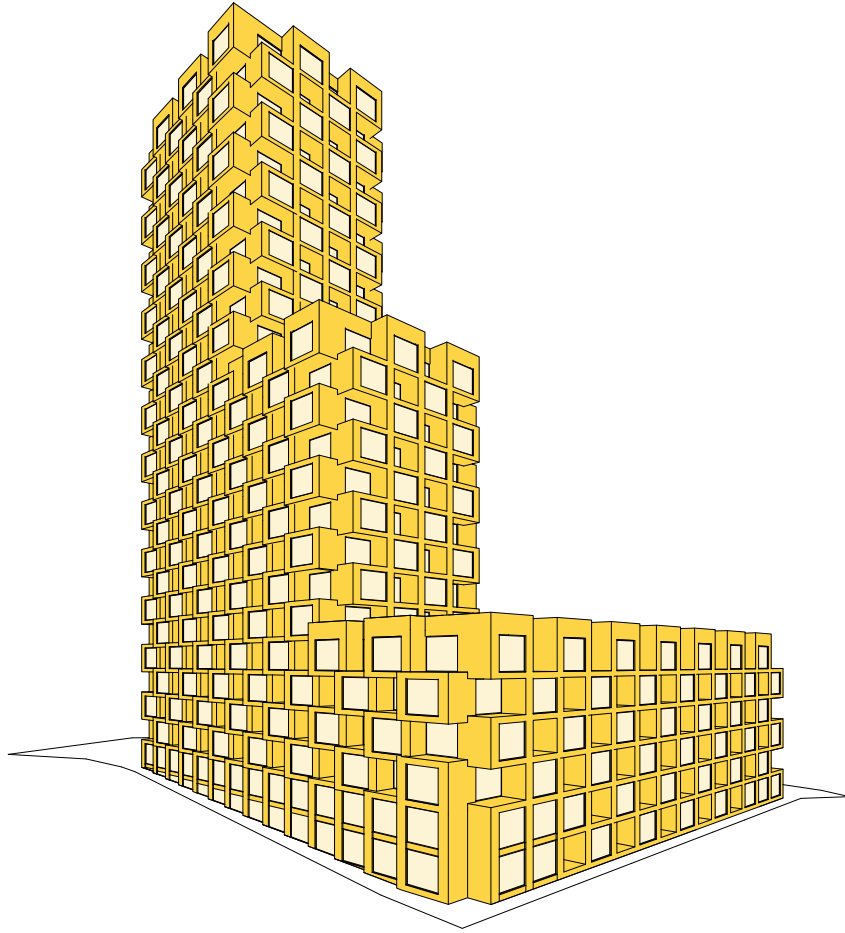






43m³ of Tulipwood

30 tonnes of CO₂



Modular tower

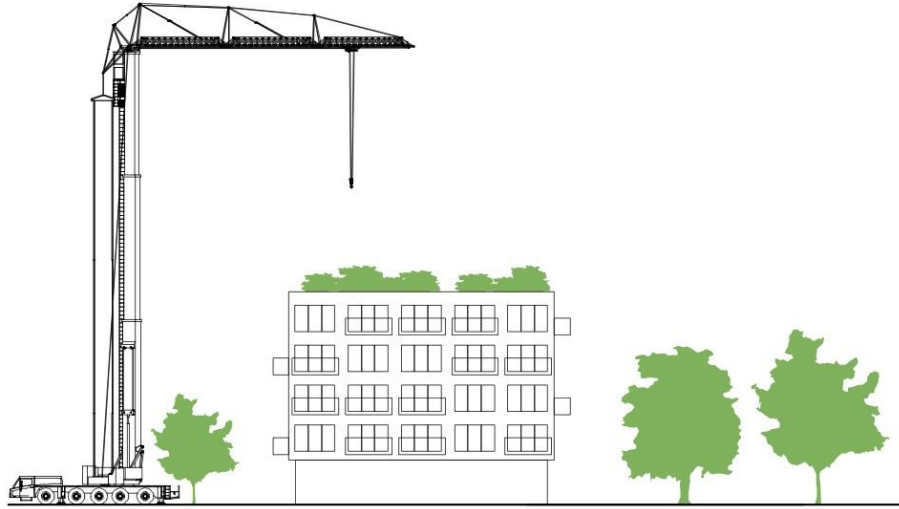
214 apartments

25 Storeys

24,000sqm

520 boxes

8,500m³



Low Carbon buildings

Replenishable material



Healthy buildings
Rural economies



Beautiful buildings

Firm, functional, and delightful



Repeatable
process
Increase productivity



A construction revolution

2018





100 PROJECTS UK CLT

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