

SARA

kulturhus

Norddeutsche Holzbautage
Wismar 2022 04 22

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white

URBAN REVILATIZATOIN





WELCOME TO WHITE

White Arkitekter is one of Scandinavia's leading architectural practices. We work with sustainable architecture, urban design, landscape architecture and interior design for current and future generations.

HAMNTORGET – SÖDRA SKANSTULL, STOCKHOLM

2020 IN SHORT

Number of employees

700

93%

of business travels are performed by train

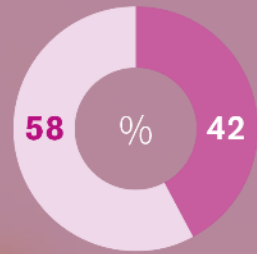
(Goal: 90%)



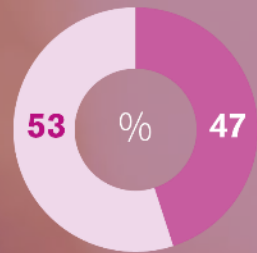
We have worked in different countries in 2020

Denmark (Greenland), DR Congo, Finland, Canada, Kenya, Latvia, Norway, Rwanda, Great Britain, Sweden, Germany and USA.

12



Ratio of women and men on the board



Ratio of women and men



74%

Lower CO2e-emissions than 2018

(Goal 2023: 30%)

0,73

tonnes of CO2e/annual employee

(1,34 CO2e/annual employee 2019)

21%

of the building projects have timber structure

(19% in 2019)

364

tonnes CO2e-emissions

(916 tonnes in 2019)

42%

of the projects have climate targets

(for materials and/or energy)

22

projects aim for carbon neutrality or better

(Equals 11% of positive answers in survey. Goal 2023: 30%)

53%

of the projects perform according to environmental certification systems

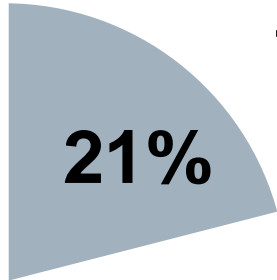
(47% in 2019)





By 2030, all our architecture is carbon neutral through design excellence.

OUR CHALLENGE



**12,8 M
tonnes
CO^{2e}**



**8,2 M
tonnes
CO^{2e}**

■ Construction and real estate





WHITE RESEARCH LAB

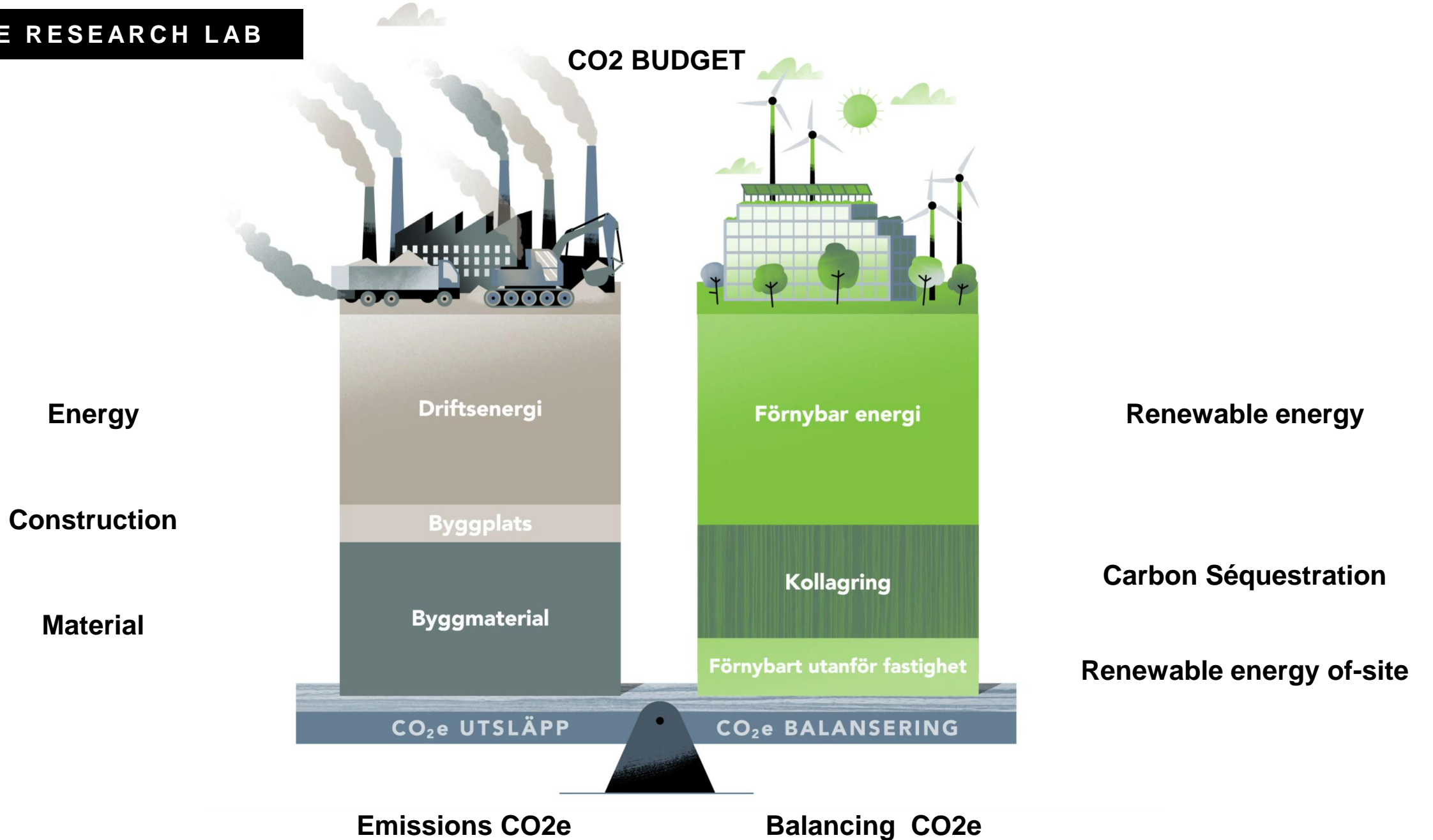
PROJECT BASED RESEARCH

FOCUS AREAS AND KNOWLEDGE SHARING

TRANSITION INTO CARBON NEUTRAL CONSTRUCTION

white

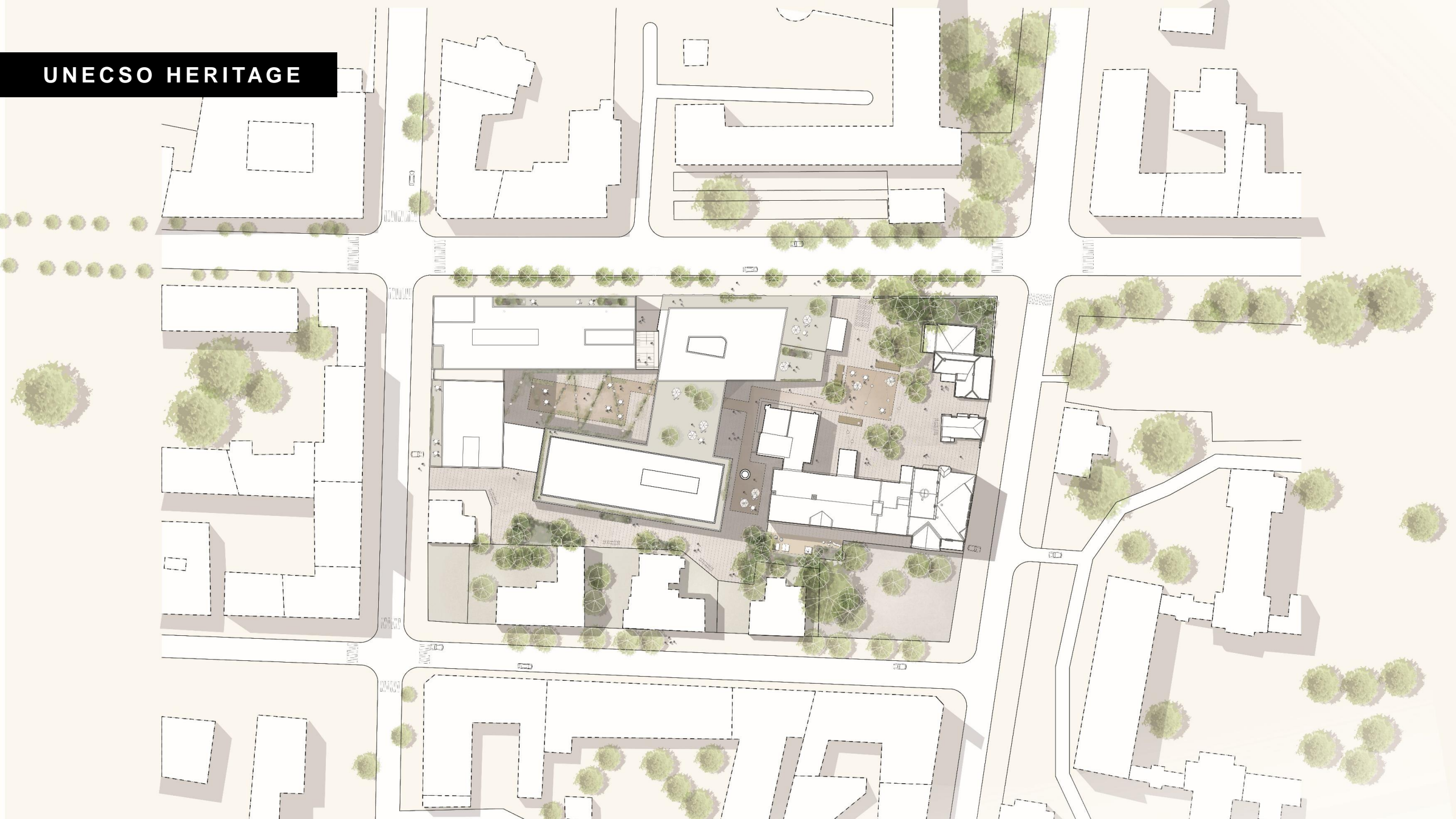
CO2 BUDGET



COMPETITIONS, CLT



UNESCO HERITAGE



TRANSFORMATION OF A BREWERY



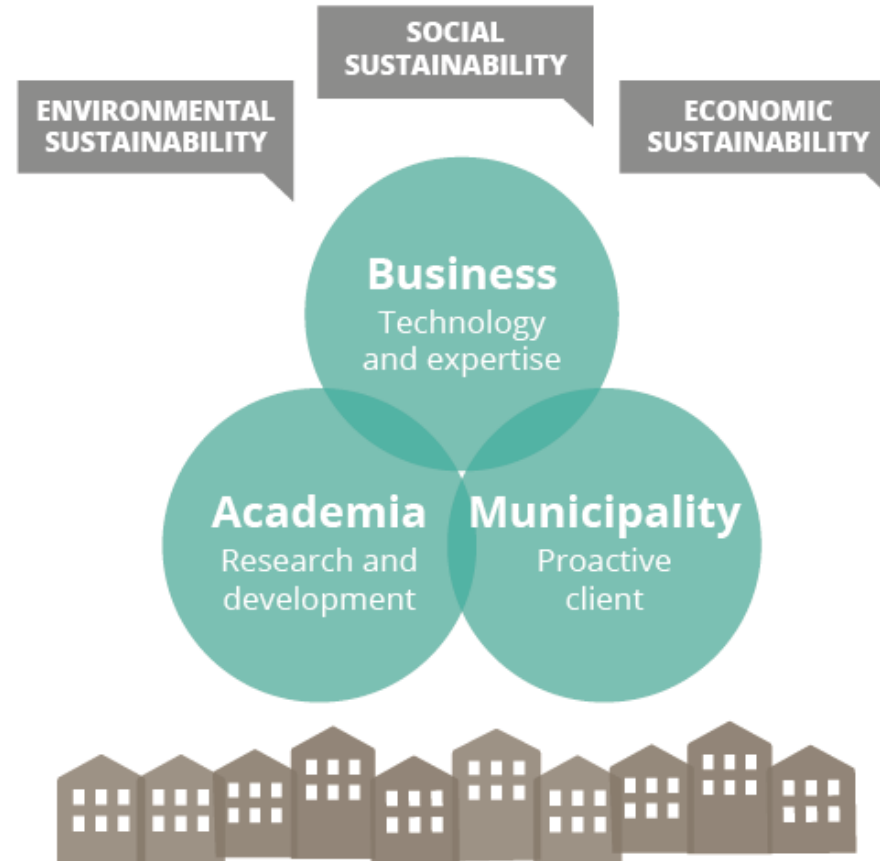
SWEDEN

70% FORESTS
76 BILLIONS OF TREES
18 MILLIONS M3 TIMBER



Kiruna Church Built 1912
34m high

white



WOOD FOR A **SUSTAINABLE SOCIETY**

SKELLEFTEÅ

- Long tradition in timber
- Timber industry / academia focusing
In timber technology
International competition

white

TIMBER HERITAGE



white

Tävlingsområdet från norr.

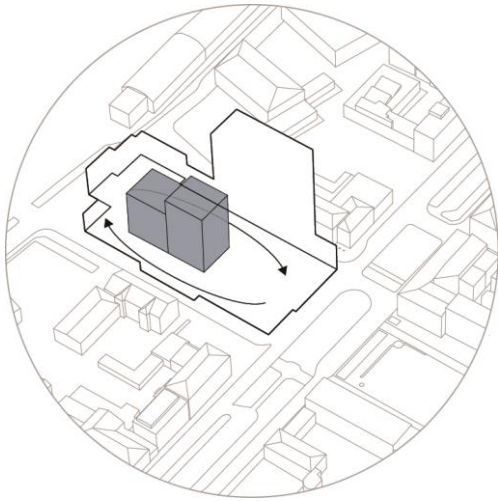
INTERNATIONAL OPEN COMPETITION

17 000 SQM CULTURAL CENTRE
13 000 SQM HOTEL/CONFERENCE

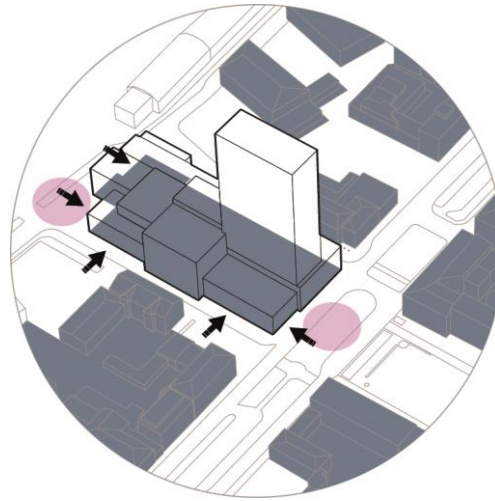


white

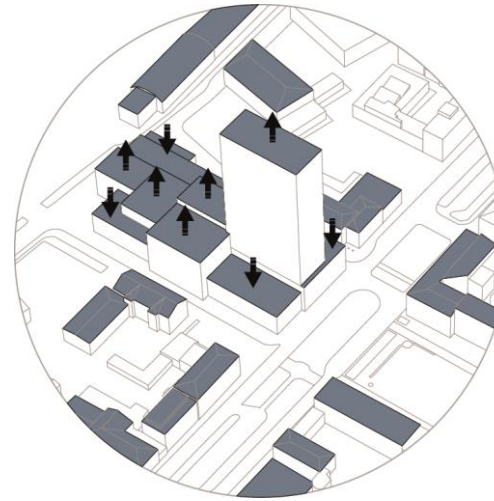
KONCEPT



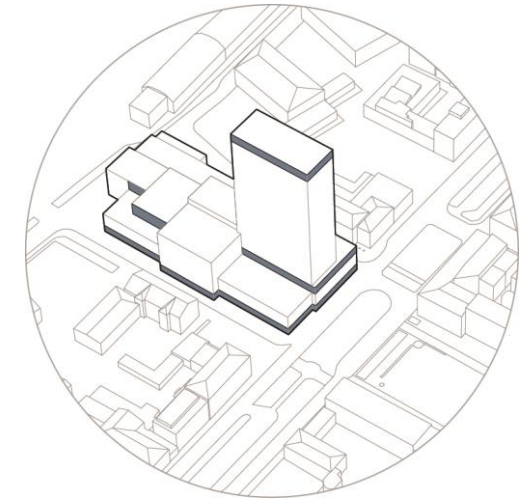
THE SCENES PLACED SIDE BY SIDE IN THE CENTER OF THE BLOCK



ENTRANCES IN ALL DIRECTIONS FACING THE STREET CREATING LIFE ON THE STREET, NO BACK SIDES



ADJUSTING THE SCALE AND HEIGHT TO ITS CONTENT / CONNECT TO THE SURROUNDING CITY SCALE



CREATING NEW PUBLIC SPACES

REINTRODUCING TIMBER IN A NEW SCALE

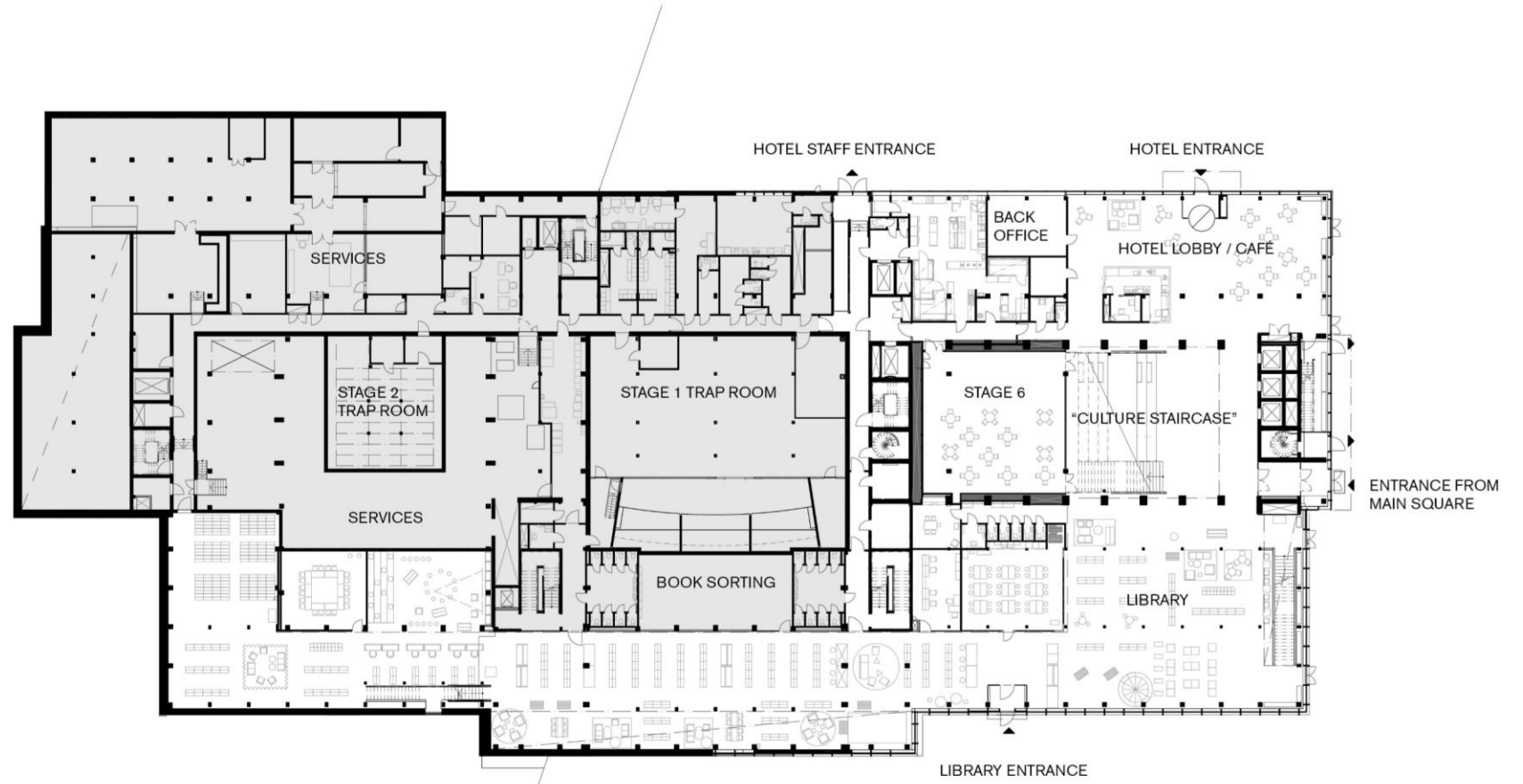
20 storey of mass timber



white

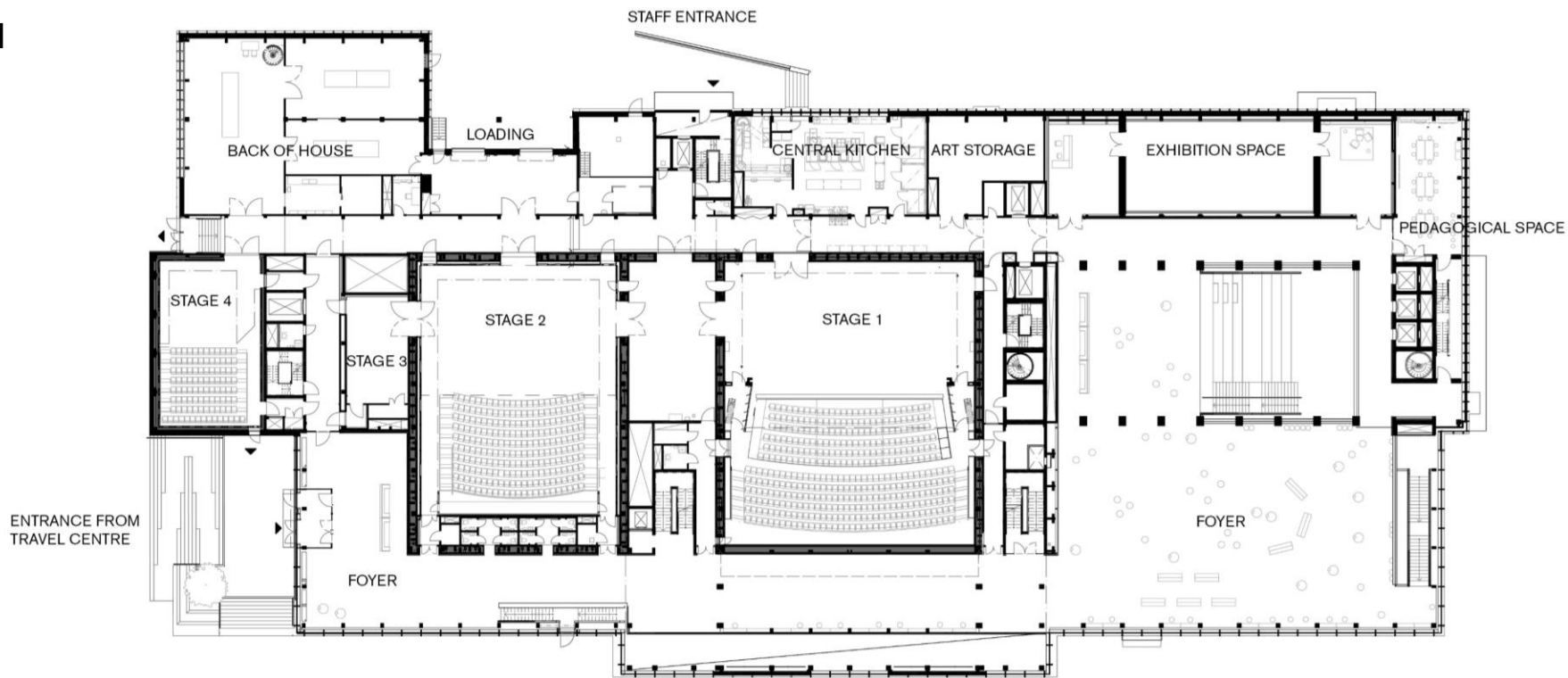
MAIN ENTRANCE LEVEL

- CITY LIBRARY
- HOTEL LOBBY
- RESTAURANT
- STAGE SIX



STAGE LEVEL

- STAGE 1-4
- BACK OF HOUSE PRODUCTION
- JOINERY/ FORGERY ETC
- OFFICES
- MUSEUM
- ART GALLERY
- FOYERS CONNETING ALL



SOCIAL STAIRCASE

Breaking down boundaries



PUBLIC SPACES

Stairs connecting the public library
To the theater foyer.

The working side by side or together



white

TIMBER HYBRID CANOPY



6 STAGES FOR PERFORMING ART

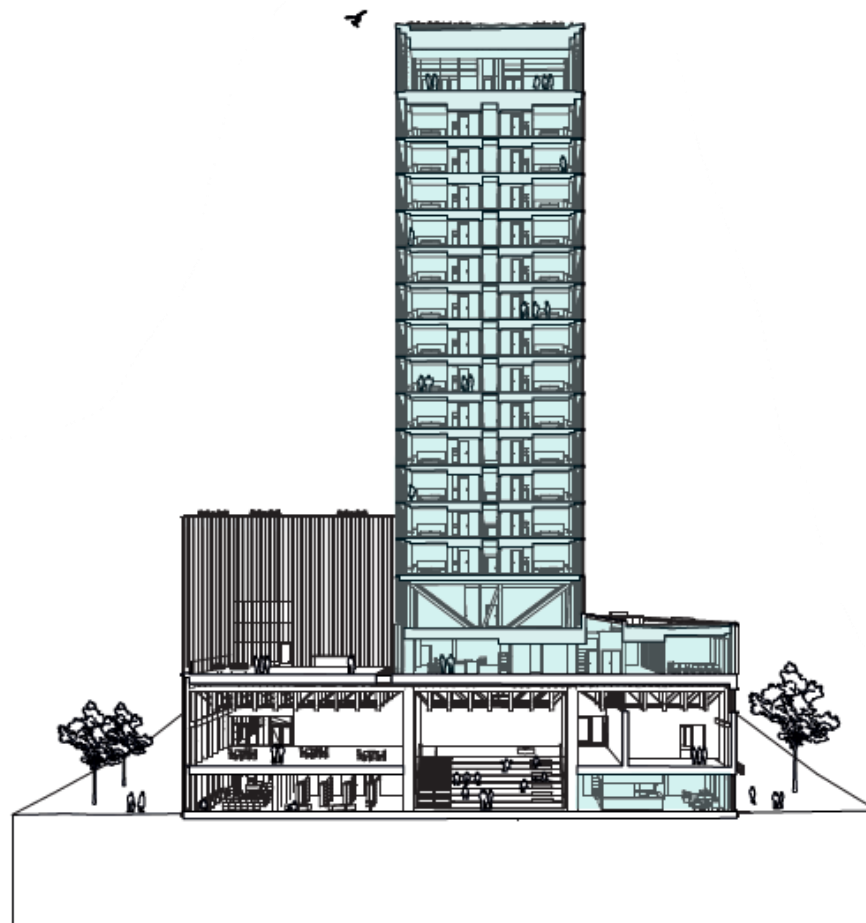


TIMBER ACOUSTIC PANELS



HOTEL, OPERATED BY ELITE

- 208 HOTEL ROOMS**
- CONFERENCE CENTER**
- GYM**
- ROOFTOP SPA**
- 3 RESTAURANTS**



Tvärsektion hotell

WOOD HOTEL

205 HOTEL ROOMS
2 ELEVATOR CORES



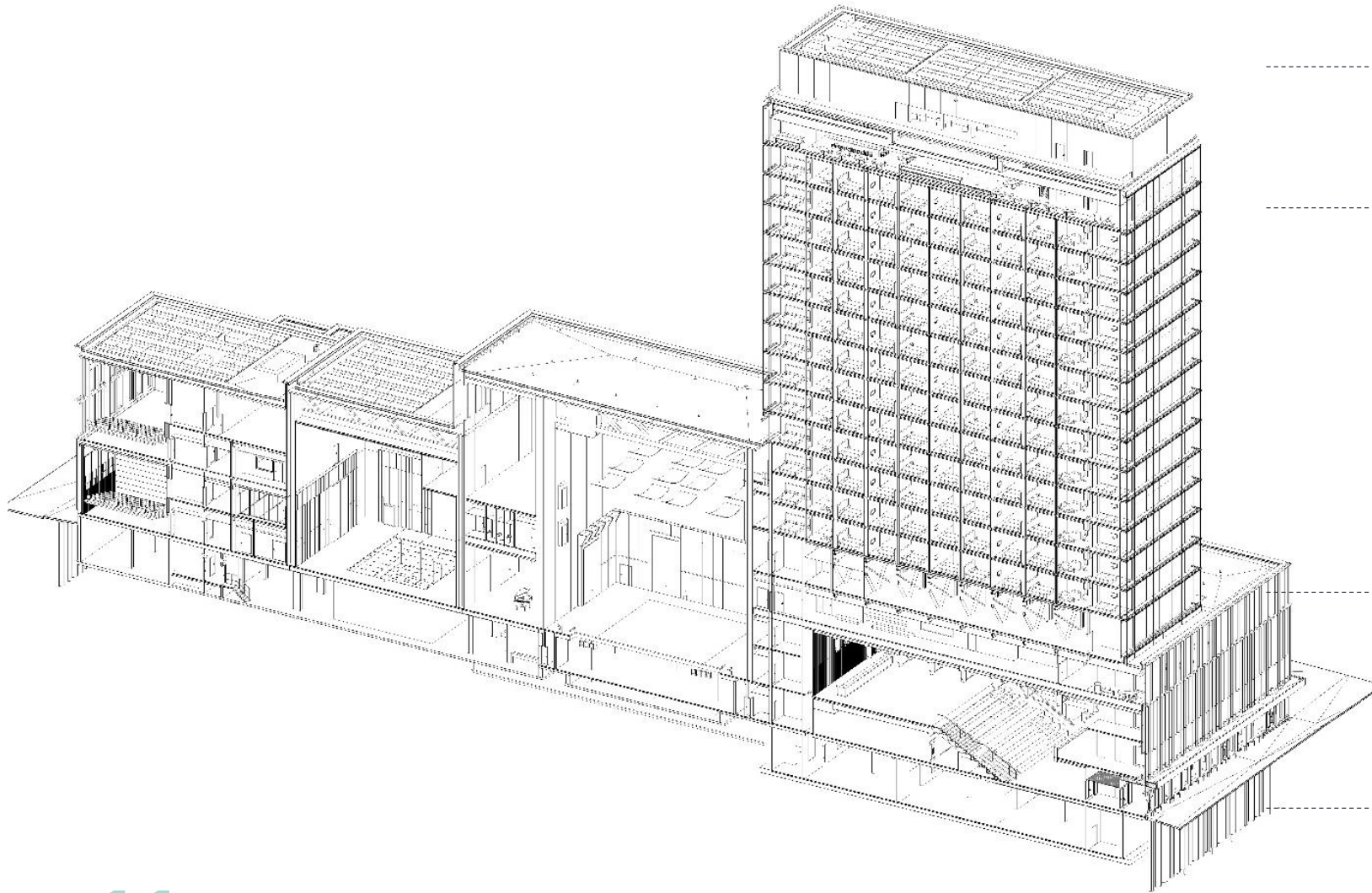
HOTEL ROOMS



ROOF TOP SPA



A LIBRARY OF SOLUTIONS



**GLT COLUMNS + CLT CORES
CONCRETE FLOOR SLABS**

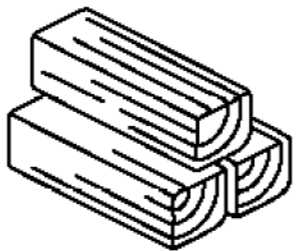
**PREFABRICATED 3D
CLT MODULES
13 STORIES**

**GLT COLUMNS AND BEAMS
+
CLT WALLS**

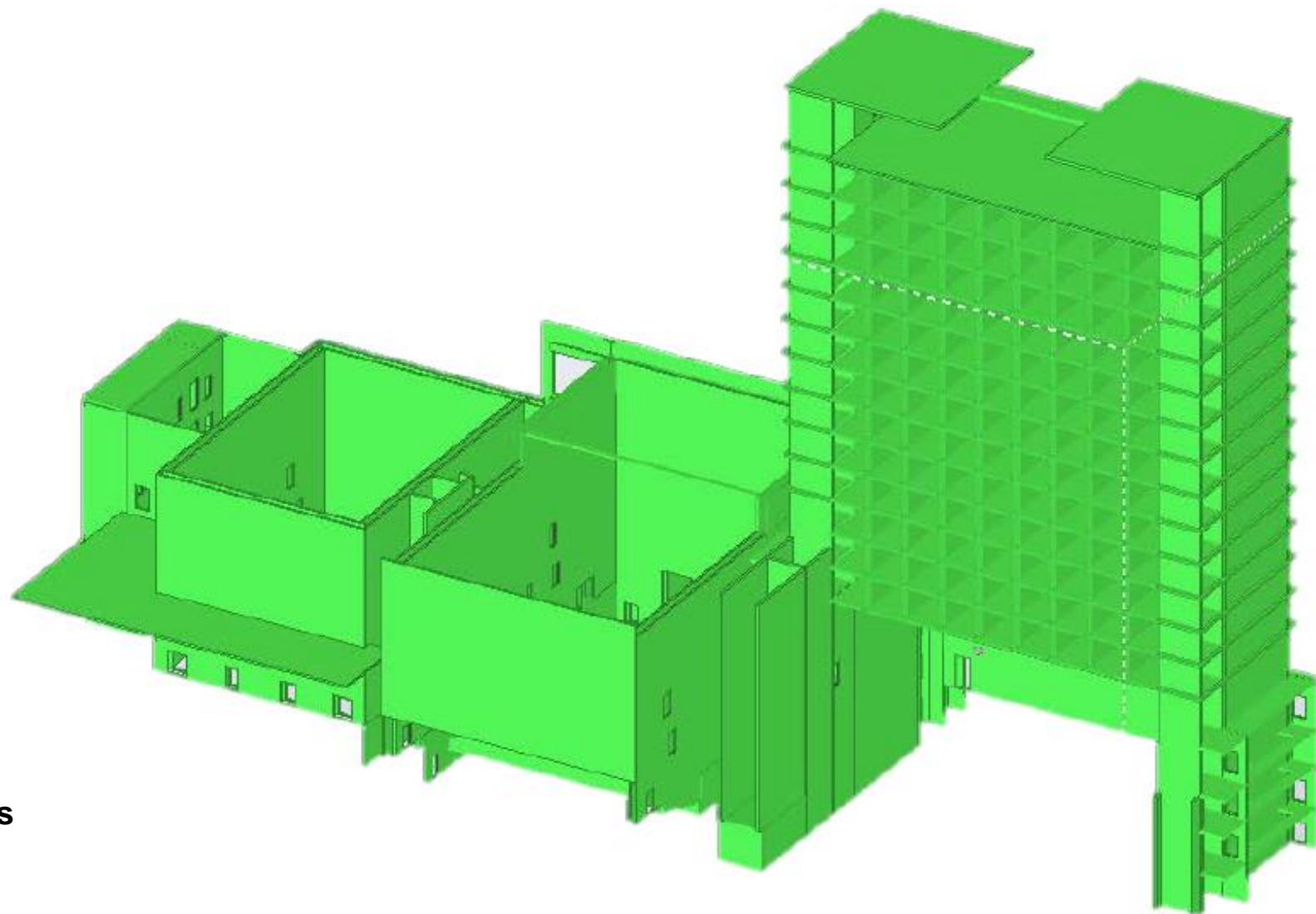
**CONCRETE FOUNDATION
BASEMENT**

ELEMENTS CLT

Carbon sequestration



-9095 ton CO₂e

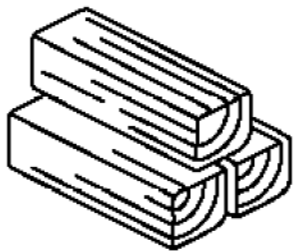


Planchers
Noyaux escaliers/ascenseurs
Murs contreventement
Modules 3D Hotel

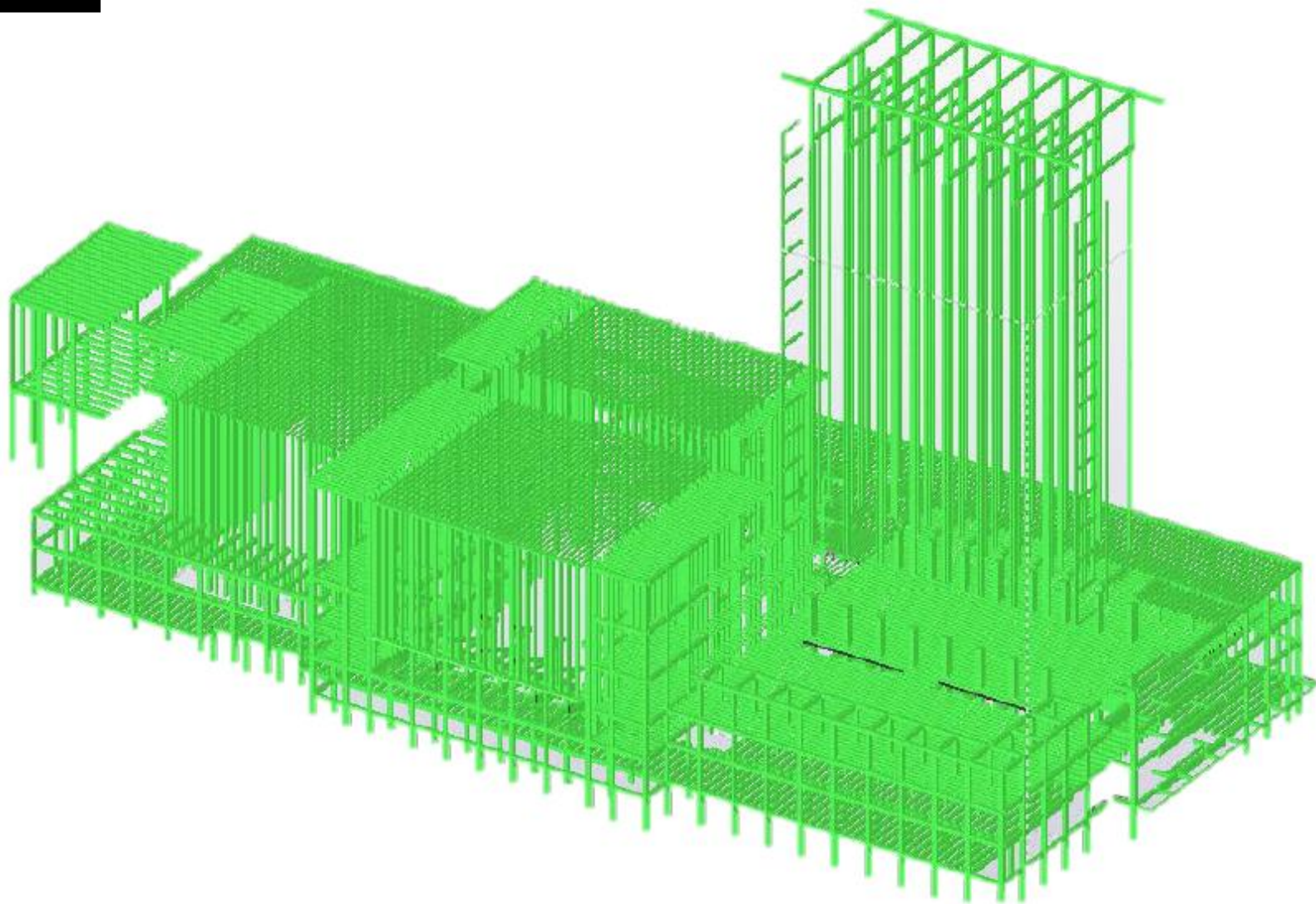
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ELEMENTS GLT

Carbon sequestration



-9095 ton CO₂e



**Poutres
Poteaux
GL32C**

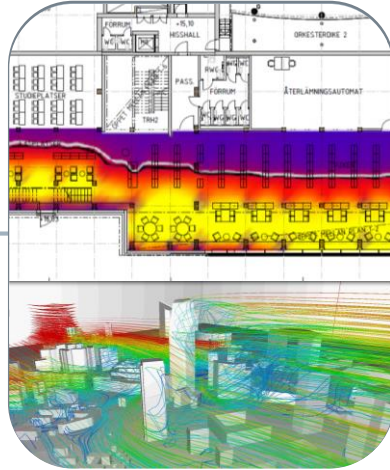
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BIM DESIGN

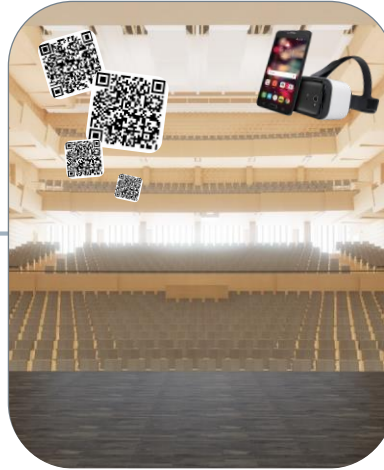
DESIGN TECHNICAL



SUSTAINABILITY



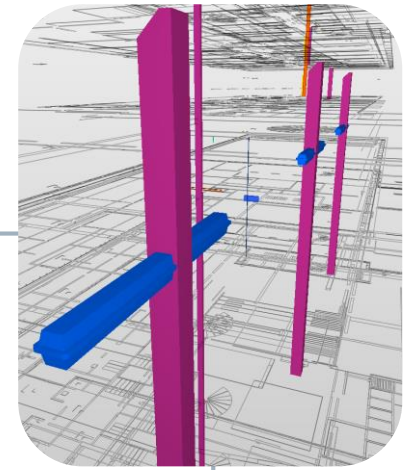
AR & VR



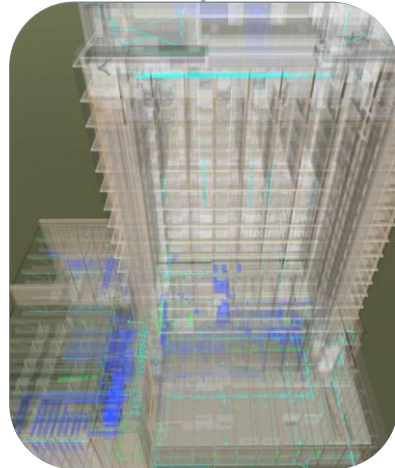
VIZUALISATION



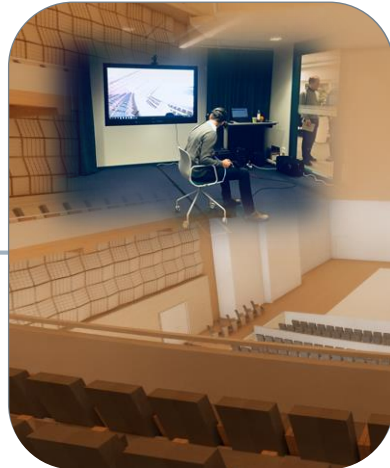
REVIEW COLLISIONS



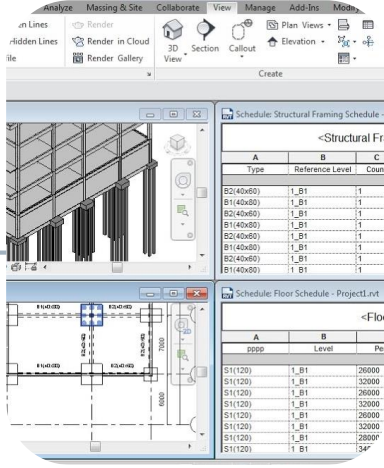
COORDINATION



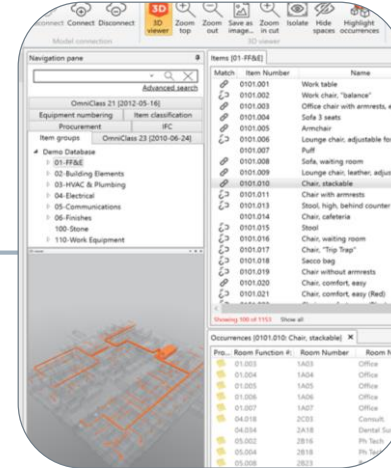
DIALOGUE



QUANTITY TAKE-OFF



DATABASE



ON-SITE



FIRE SAFETY

RATED "BR0" SWEDISH SYSTEM

CULTURE CENTRE: R60/R30

FULLY SPRINKLERED

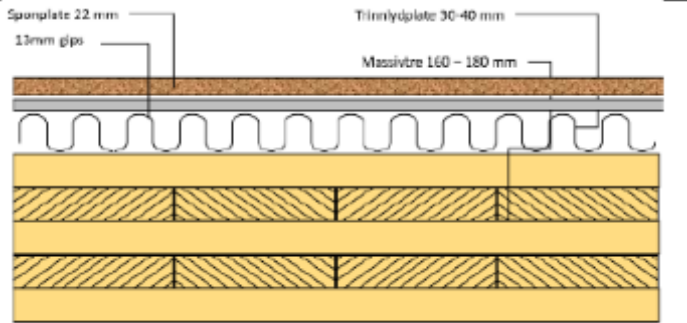
**HOTEL TOWER WITH TR1+TR2
EVACUATION STAIRS + EVACUATION LIFT.**

HOTEL R90/R60 CULTURE CENTRE: R60/R30

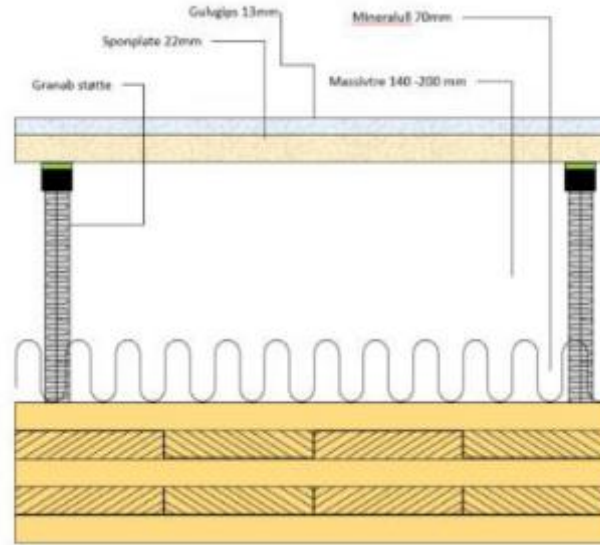
**OVERDIMENSIONED WOOD BASED ON STANDARD
CHARRING RATE**

**INTERNAL WOOD SURFACES FIRE COATED TO B-s1,d0
FACADE PANEL FIRE TREATED 2M ABOVE GROUND.**

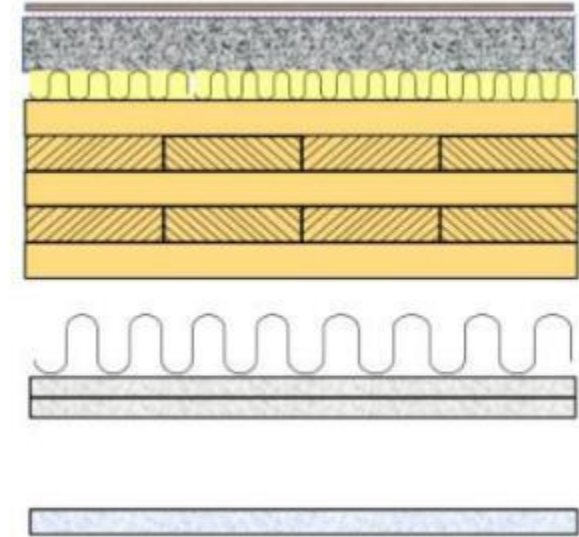




$R'w > 48\text{dB}$
Total thickness 205 mm

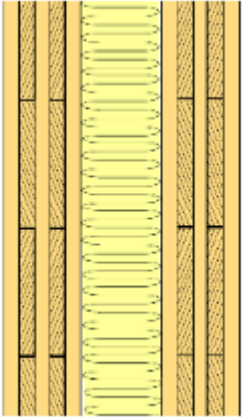


$R'w > 52\text{dB}$
Minimum thickness 245 mm
(875mm in project to adapt to terrace insulation and allow for ventilation ducts)

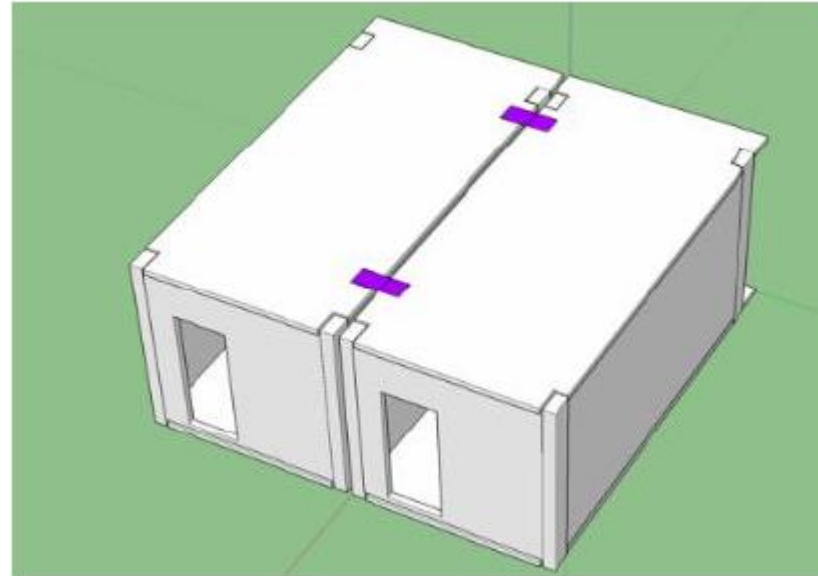


$R'w > 60\text{dB}$
Minimum thickness 475 +
acoustic ceiling

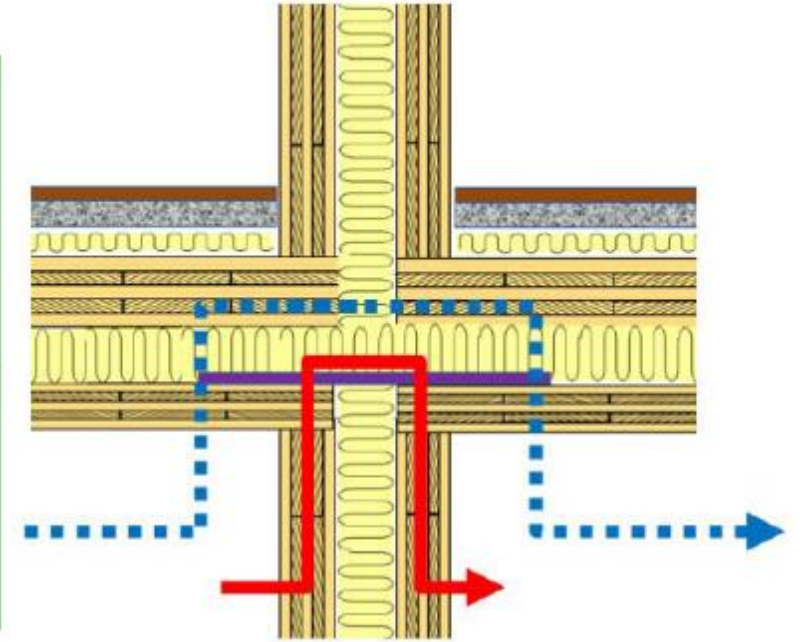
ACOUSTICS HOTEL



$R'w > 52\text{dB}$
Total thickness 300 mm

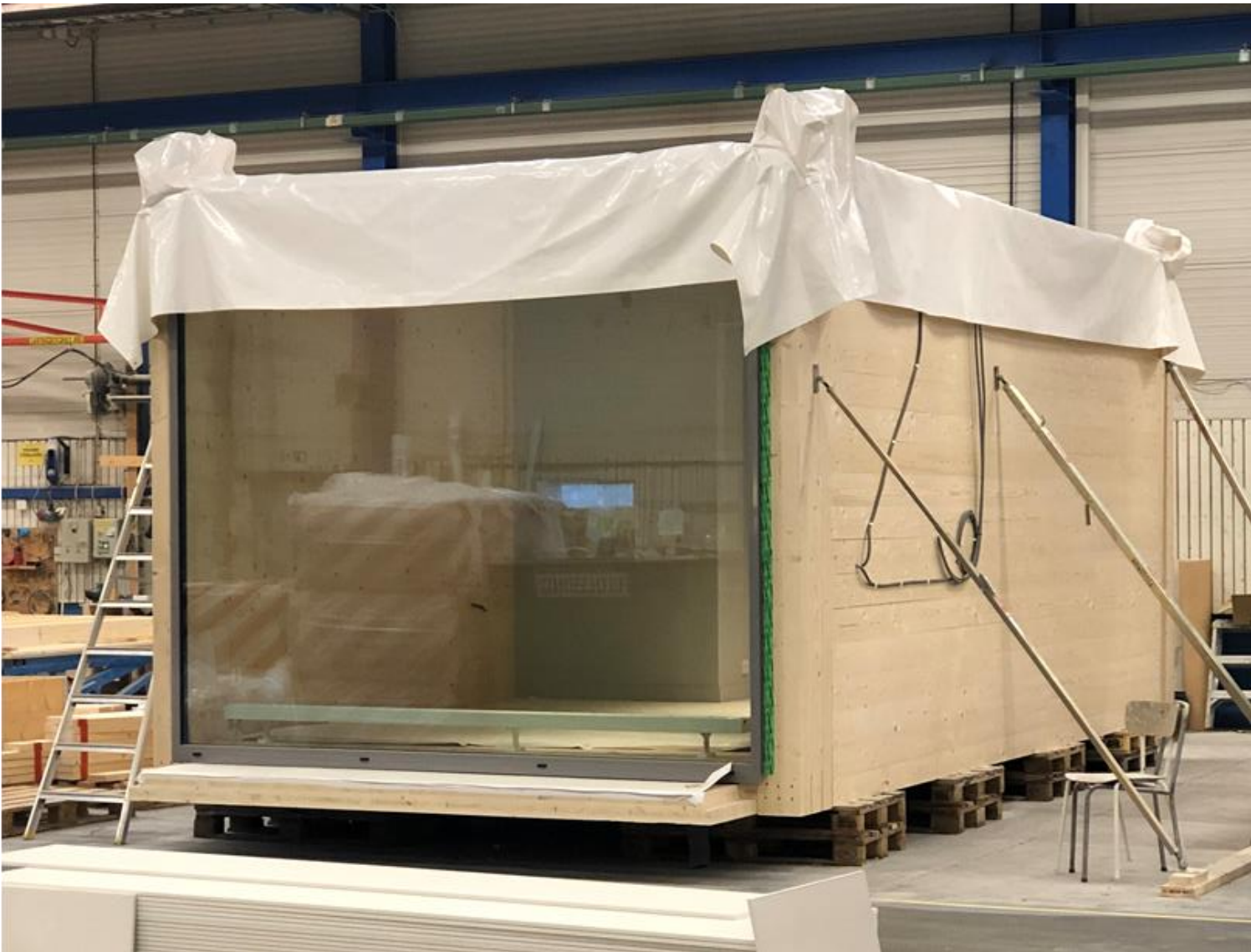


Modules stiffly connected
at ceiling by screwing
plates. Columns+ walls
not connected horizontally



Risk of flank transmissions
wall-wall and ceiling-
ceiling.

HOTEL ROOM MODULES



white

PREFAB MODULARITY

Why volumetric hotel modules.

Large quantity, few variations
Shortens the construction time,
parallel montage

Safe controlled working environment

Controlled logistics and quality
protocols



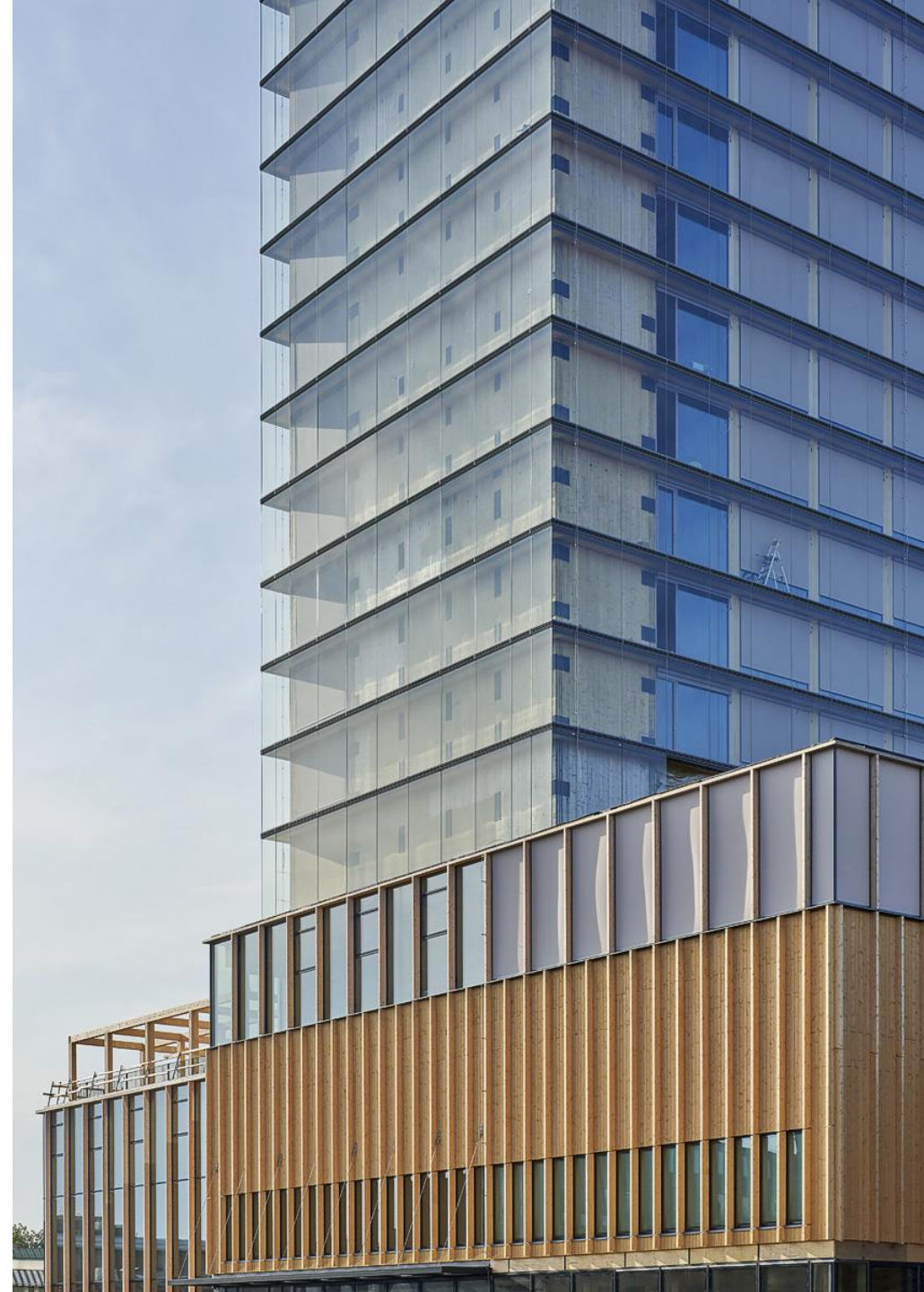
FAST CONSTRUCTION

73 weeks of montage
Built up in 13 segments
Largest element 27x3m 12tonn



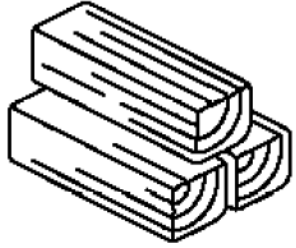
ENERGY PERFORMANCE

- EFFICIENT FACADE ENVELOPE
- ELIMINATION OF THERMAL BRIDGES
- FIXED AND MOBILE SUN PROTECTION
- HYBRID VENTILATION OF LARGE VOLUMES
- PHOTOVOLTAIC PANELS ON ROOFS AND FACADES
- 100% RENEWABLE HEATING AND COOLING GRID
- CONNECTED TO SMART GRID,
- OPTIMIZATION BY ARTIFICIAL INTELLIGENCE
- CERTIFICATION "GOLD" SWEDEN GREEN BUILDING COUNCIL MILJÖBYGGNAD.



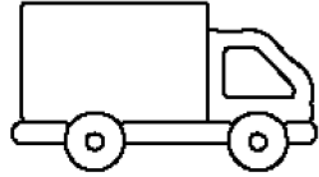
CO₂ LCA

Materials (A1-A3)



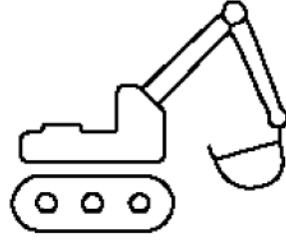
3550 ton CO₂e

Transportation (A4)



25 ton CO₂e

Construction process (A5)



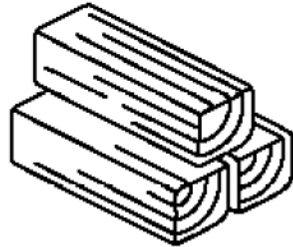
520 ton CO₂e

Operational energy (B6)



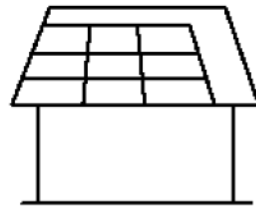
1540 ton CO₂e

Carbon sequestration



-9095 ton CO₂e

PV



-1095 ton CO₂e

RESULTS

Total emissions, 50 years

5631 ton CO₂-e

202 kg CO₂-e/ m²

Total balancing, 50 years

10190 ton CO₂-e

366 kg CO₂-e/ m²

A CLIMATE POSITIVE BUILDING



SHOWCASE FOR SUSTAINABLE CONSTRUCTION

**INTERNATIONAL AWARD FOR WOOD ARCHITECTURE
- WINNER 2022**

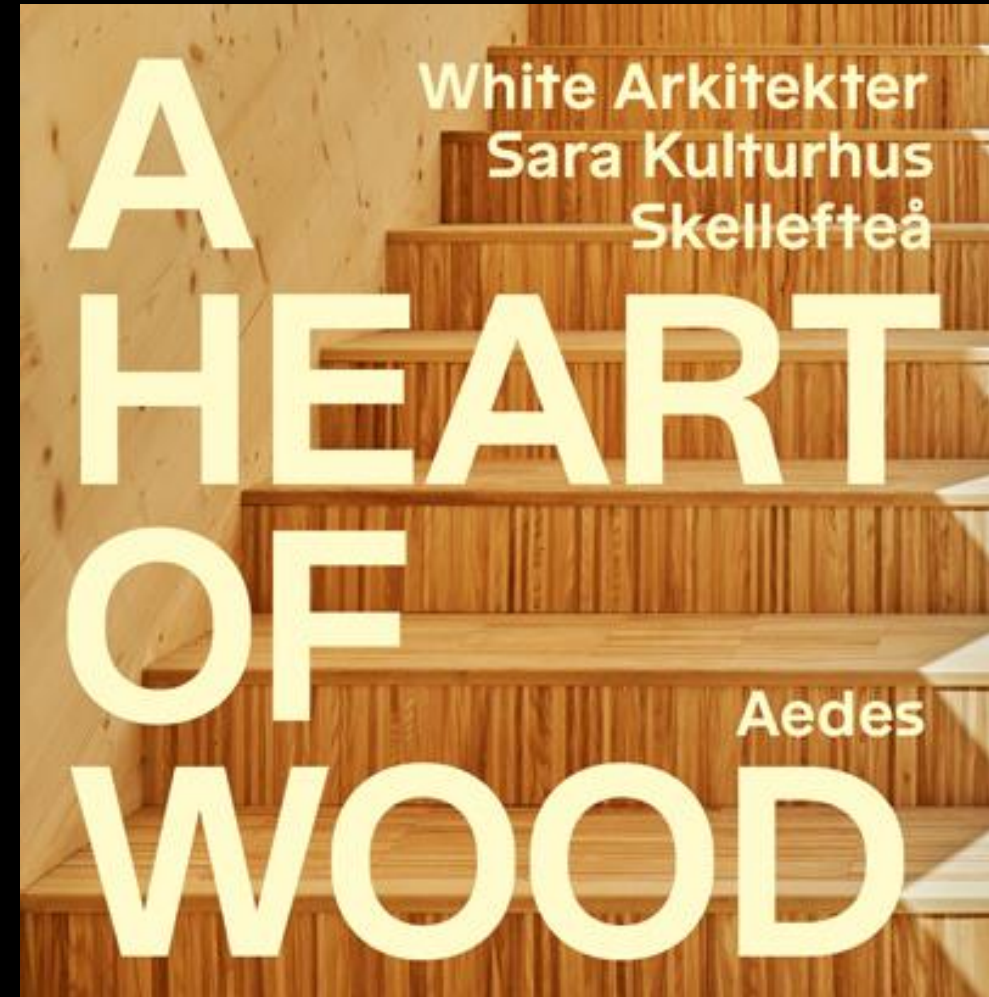
**MIPIM ARCHITECTURE REVIEW AWARDS 2018
-BEST FUTURE PROJECT CULTURE**

**HOLCIM AWARD EUROPE 2020
-BRONZE MEDAL**

**INTERNATIONAL DESIGN AWARDS 2021
-SPECIAL PRIZE**

**THE GUARDIAN UK
-THE BEST ARCHITECTURE 2021**

**INTERNATIONAL DESIGN AWARD LOS ANGELES
-BRONZE MEDAL**



SPACES THAT ENGAGES PEOPLE

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