BUILDING SMART WITH NATURE

RON BAKKER

PLP/ARCHITECTURE

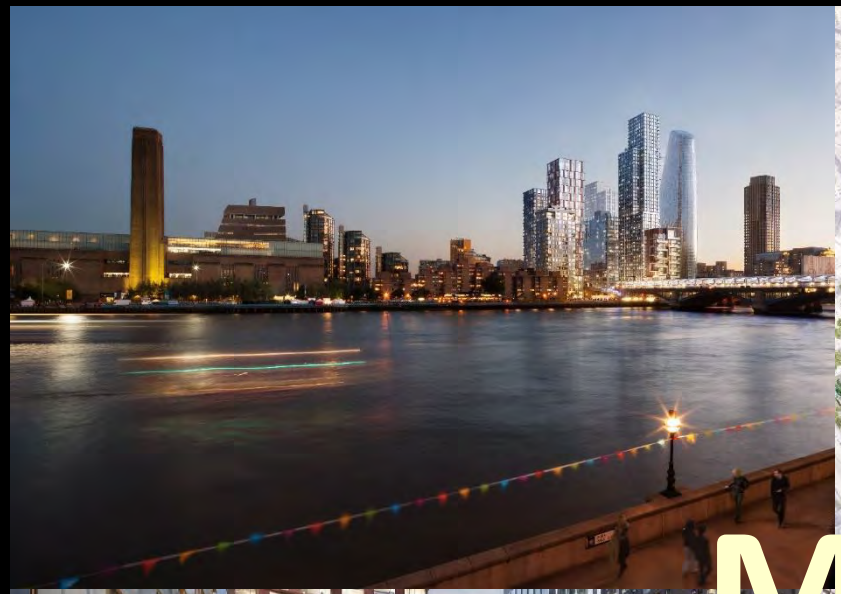
LONDON

TOKYO

SINGAPORE

AMSTERDAM

URBAN ECOSYSTEMS

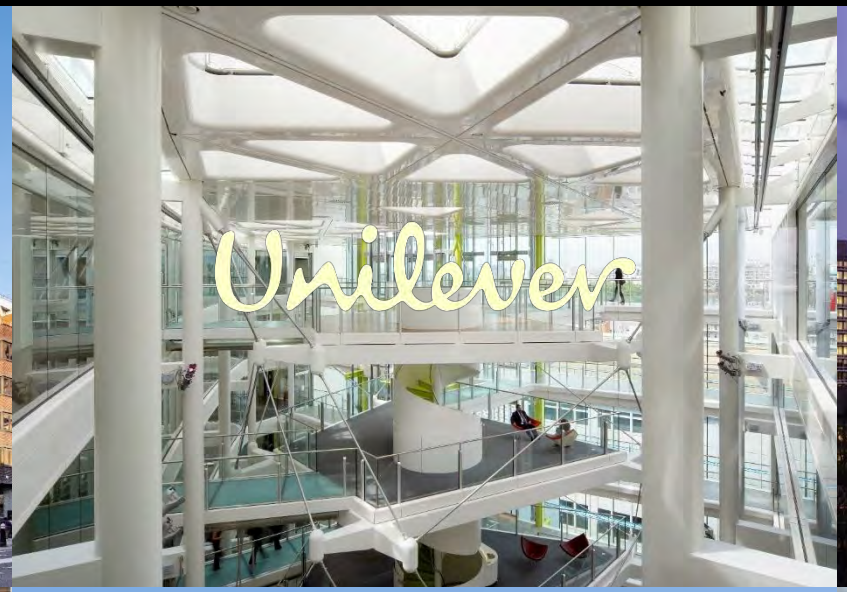


MASTERPLAN

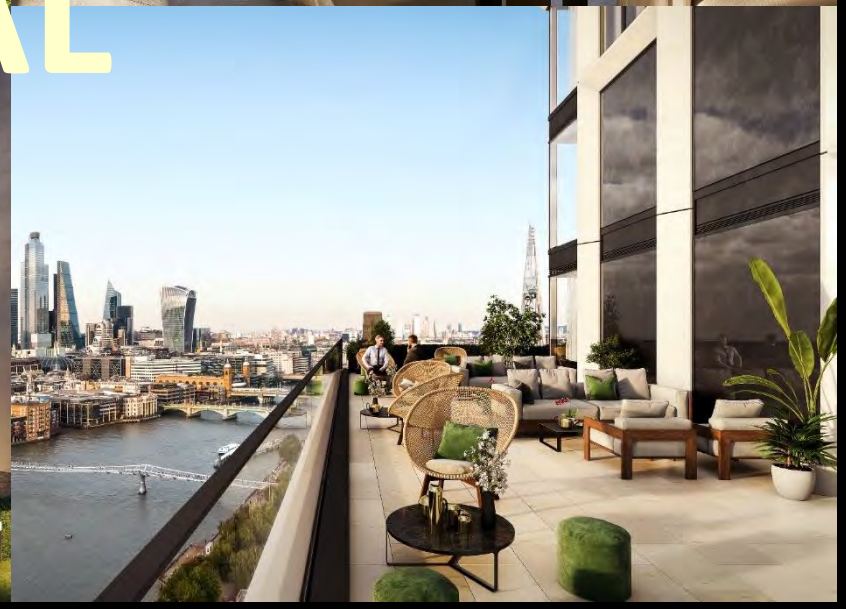
FUTURE OF WORK

WORKPLACE

WORKING WITH THE BIGGEST BRANDS

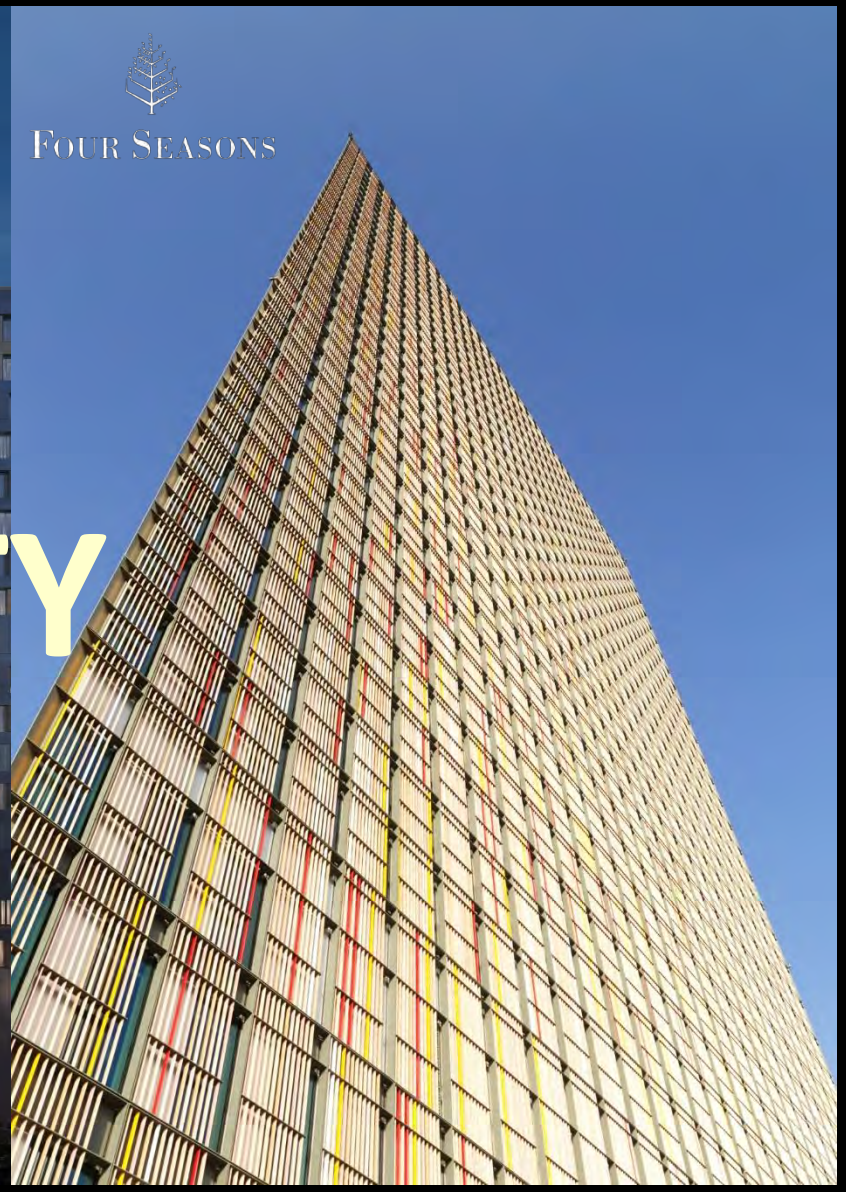


NEW LIVING CONCEPTS



RESIDENTIAL

NEW LIVING CONCEPTS

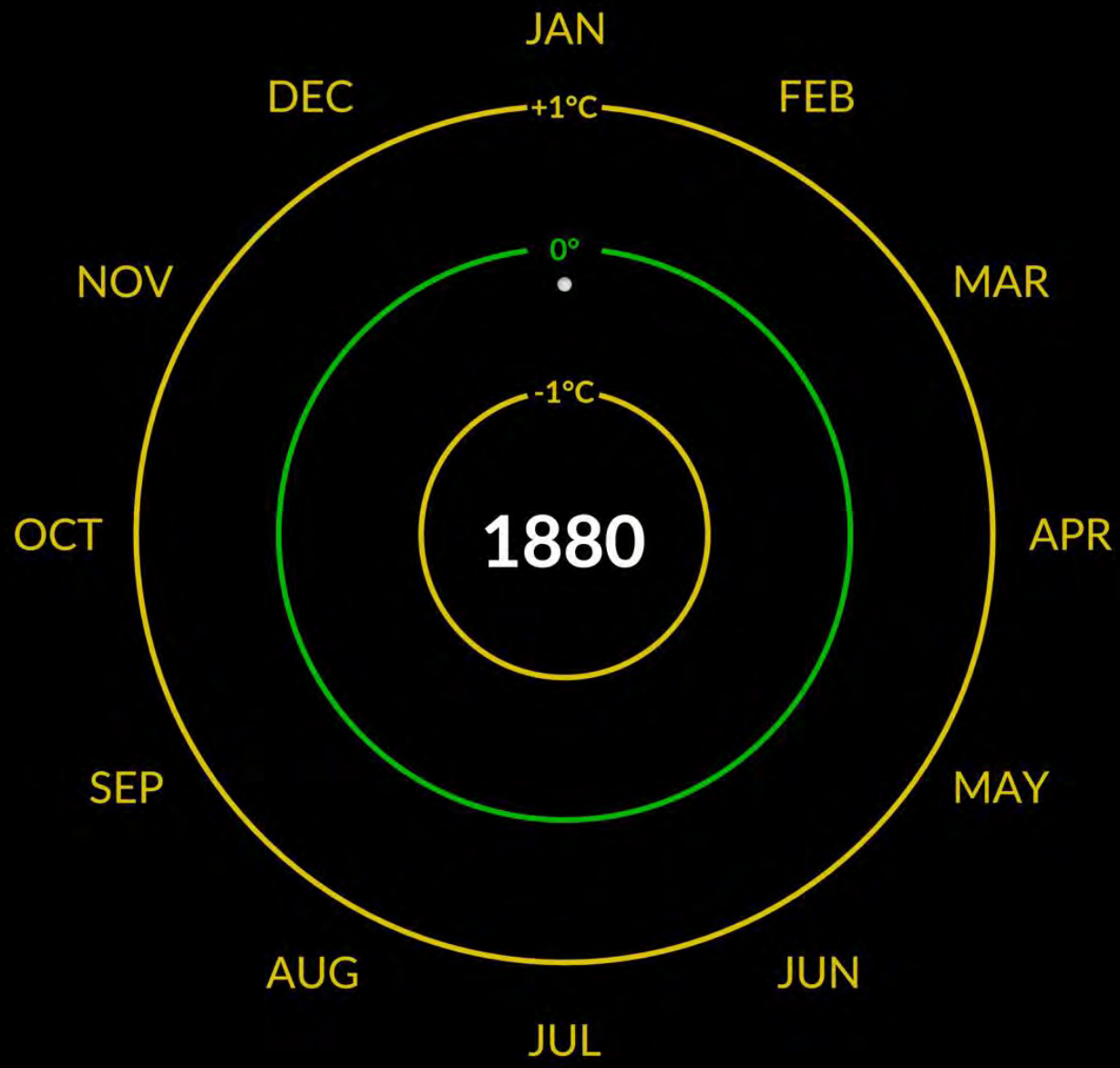


HOSPITALITY

ARCHITECTURE

MAKING A PLACE

MAKING A PLACE

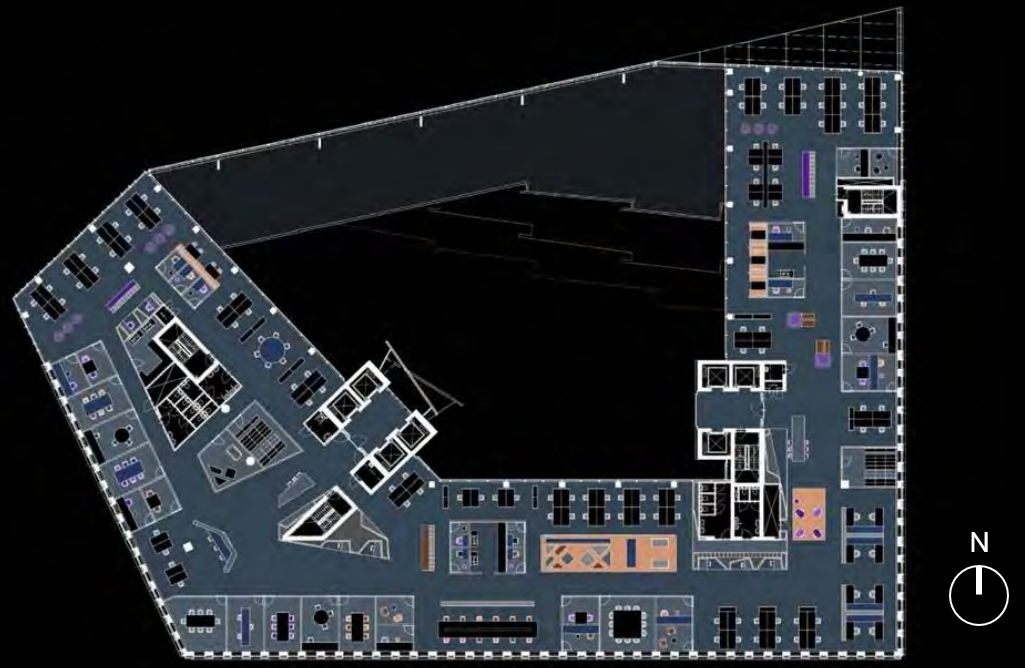


NASA 2022

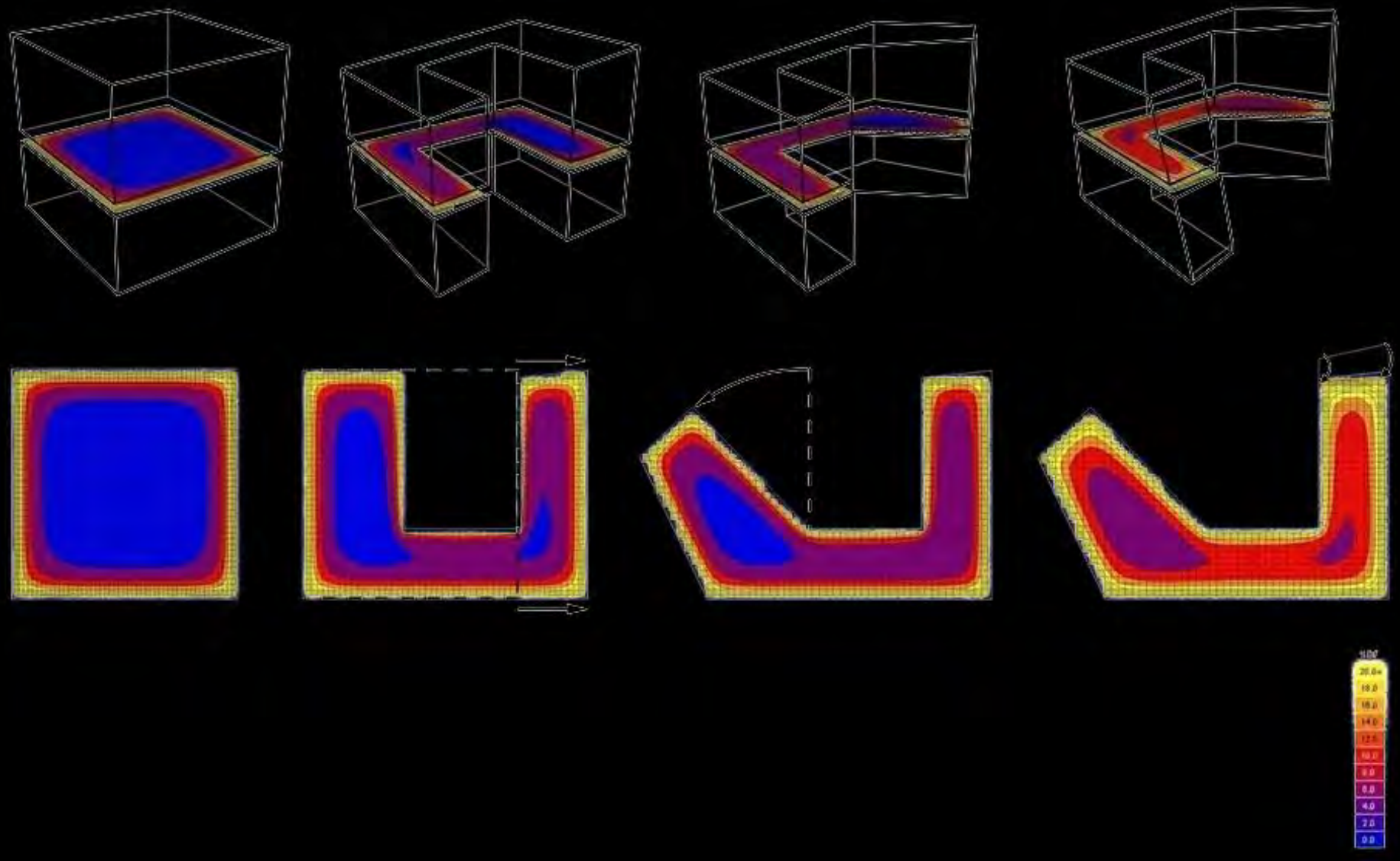
THREE PROJECTS

THE EDGE AMSTERDAM

In 2015, Bloomberg said: “The Edge is the most sustainable office building in the world, and possibly the smartest”.

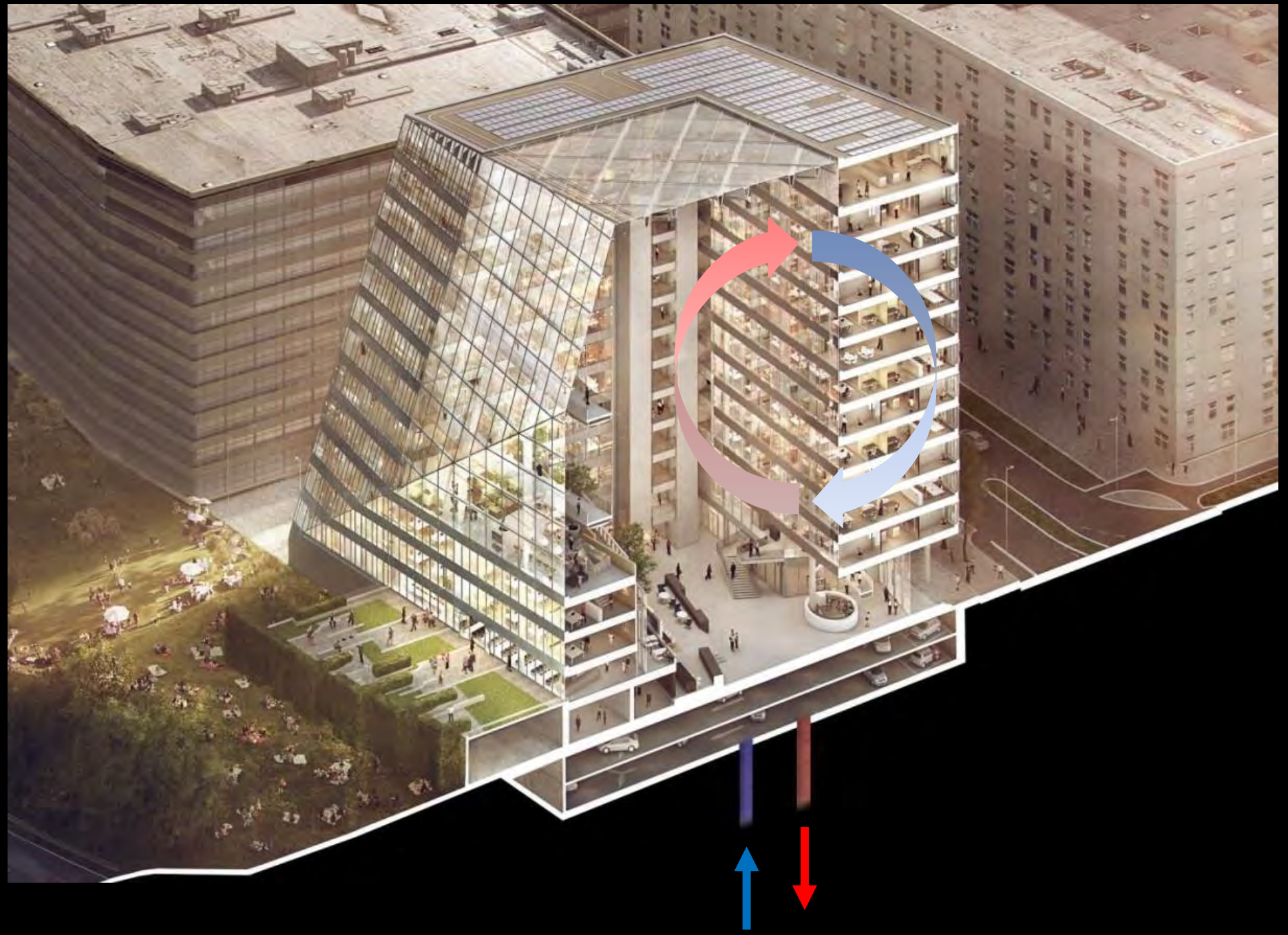


atrium



daylight v sunlight

4,200 m2 PV
= carbon neutral



aquifer = thermal battery

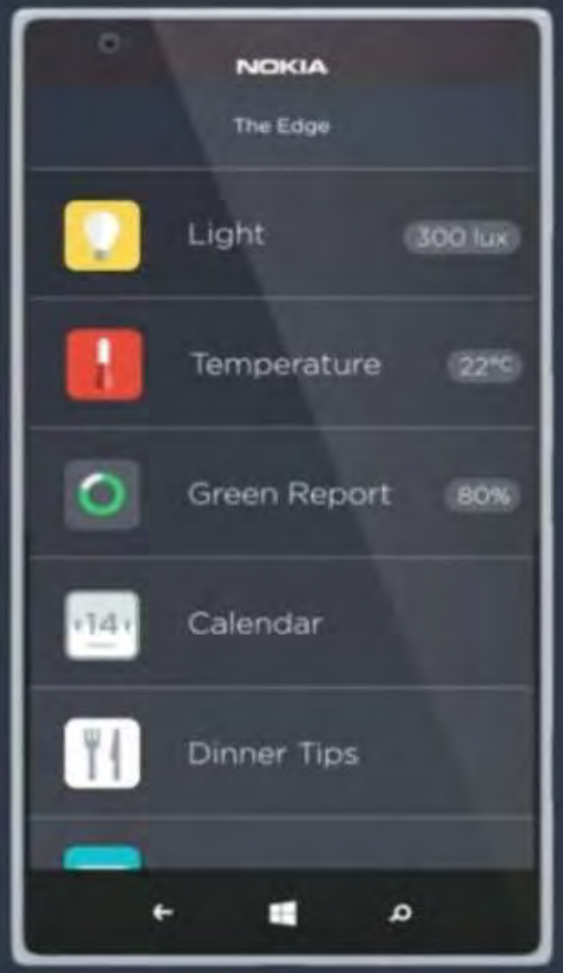
Centrum Tandheelkunde Amsterdam

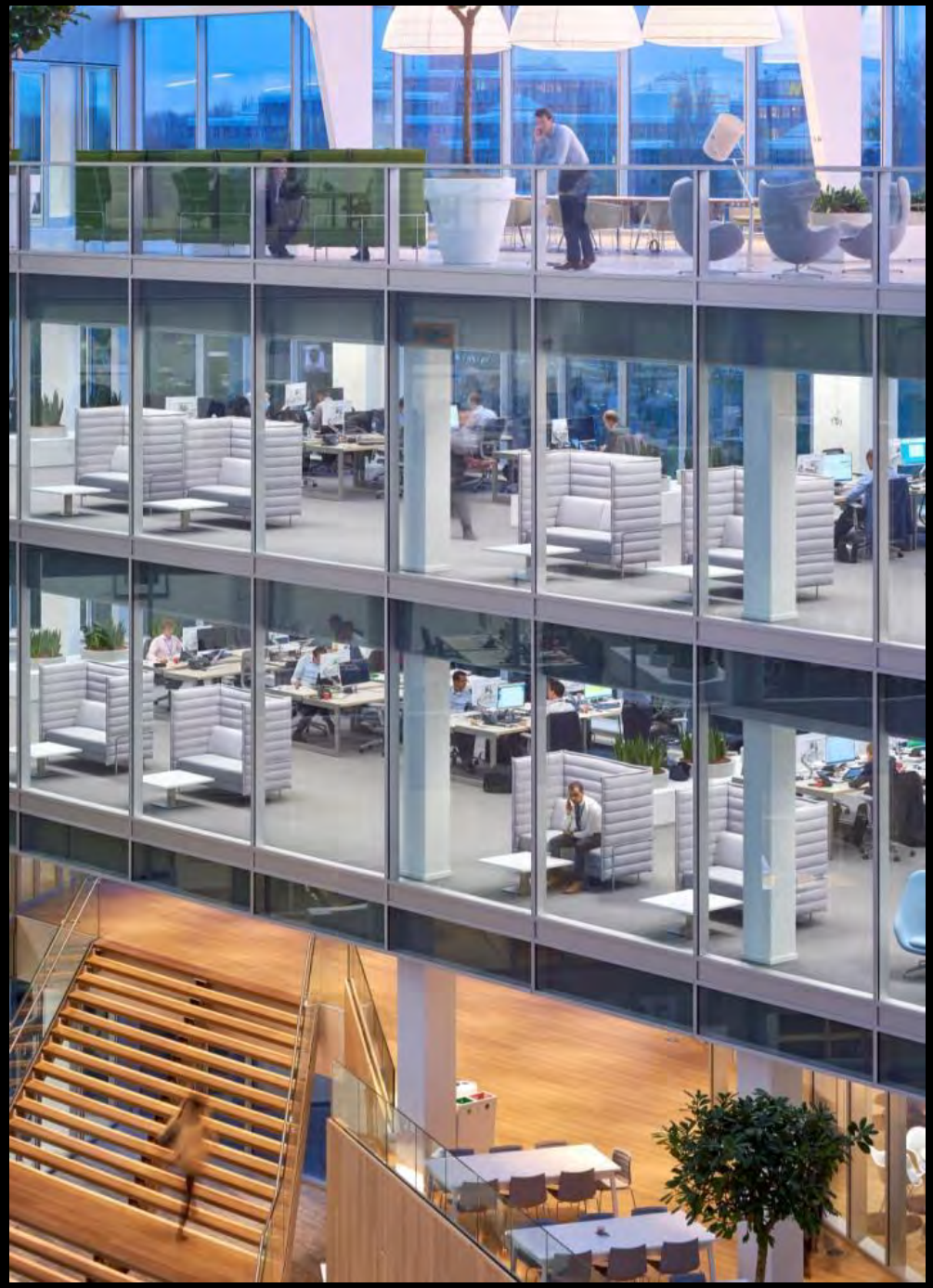
CABRIOLE
EDGE

5.43

set temperature
and lighting

to individual
preferences





GREEN

ELECTRICITY COST
70% ↓

HEATING AND COOLING COST
±0

CARBON NEUTRAL
±0
CO^2

SMART TECHNOLOGY

BUILDING MANAGEMENT COST
40% ↓

CAPITAL COST RETURN
8.3
YEARS

SPACE OPTIMISATION
1,000 DESKS FOR 3,100

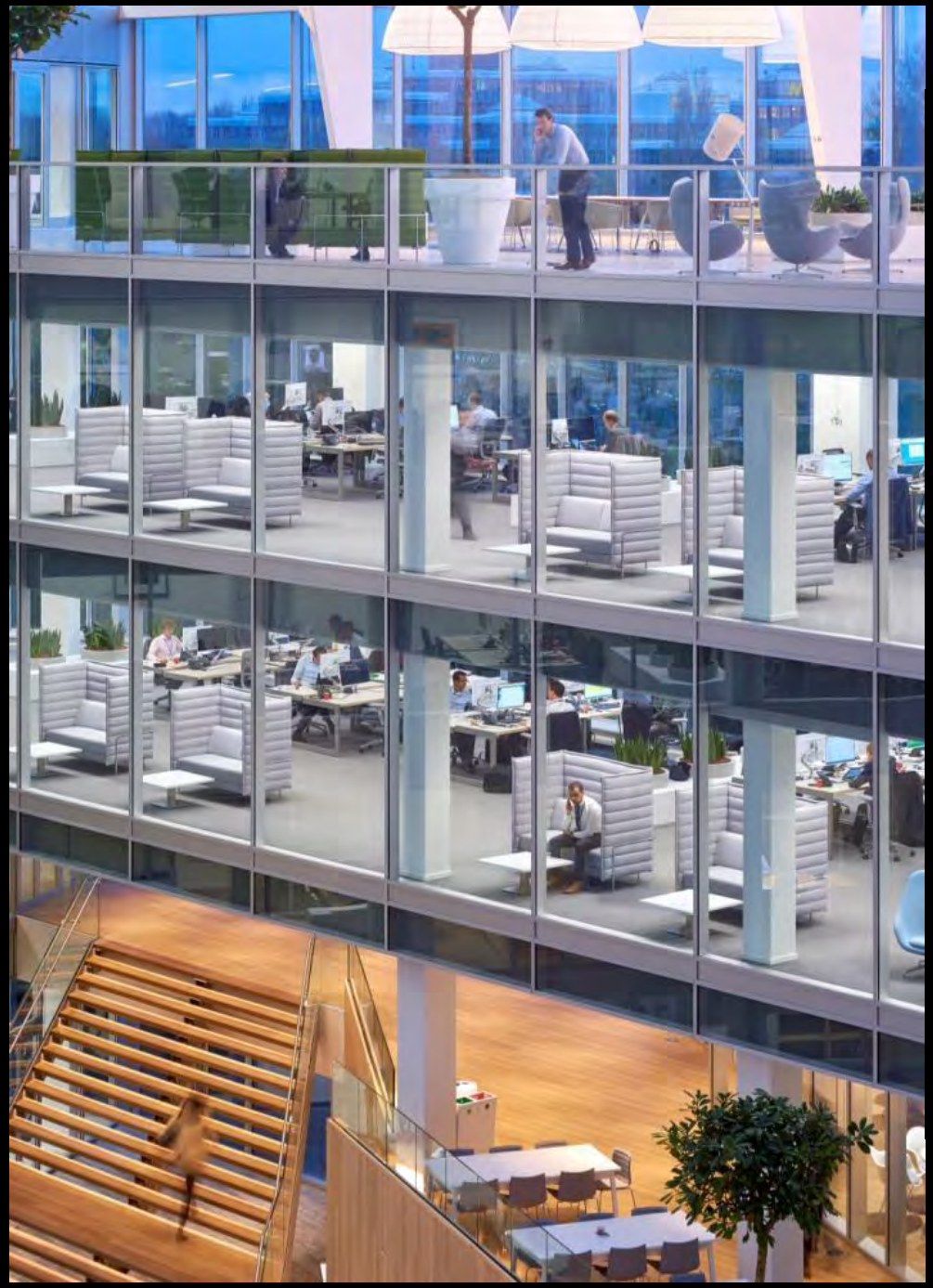
WELLBEING

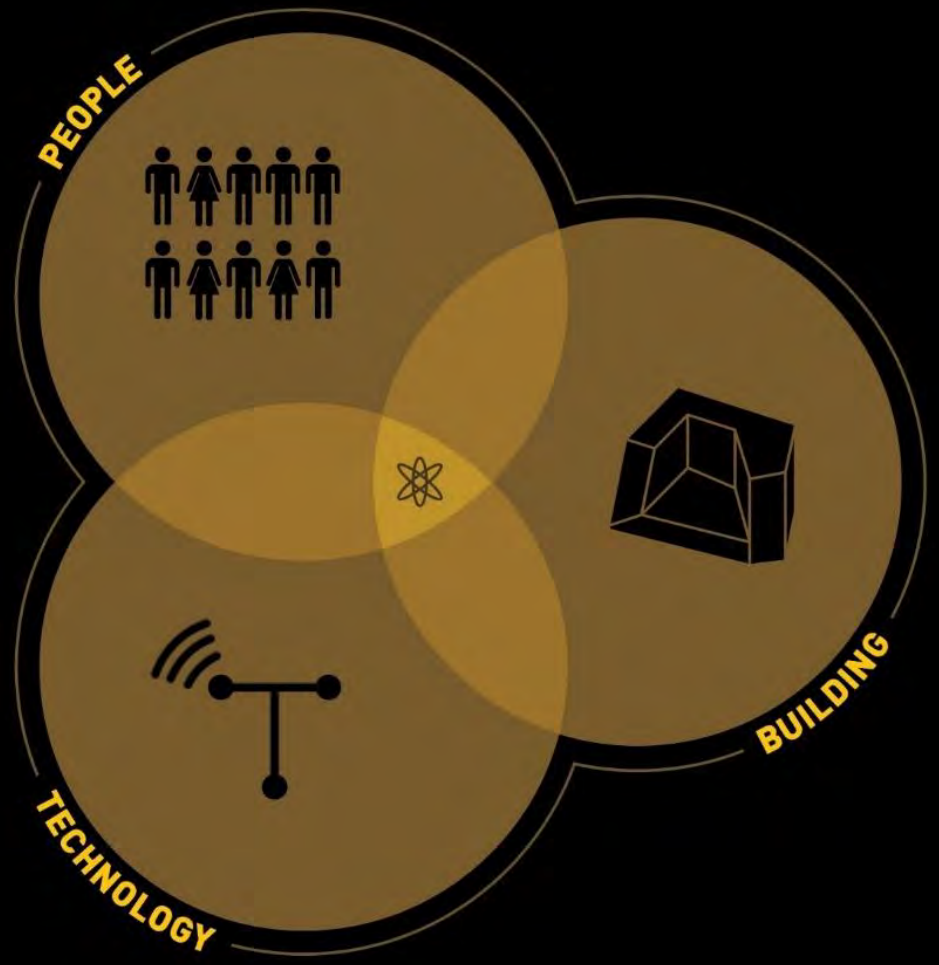
ABSENTEEISM
45% ↓

TALENT ACQUISITION
DELOITTE APPLICATIONS UP
2.5 X

EMPLOYEE SATISFACTION
↑

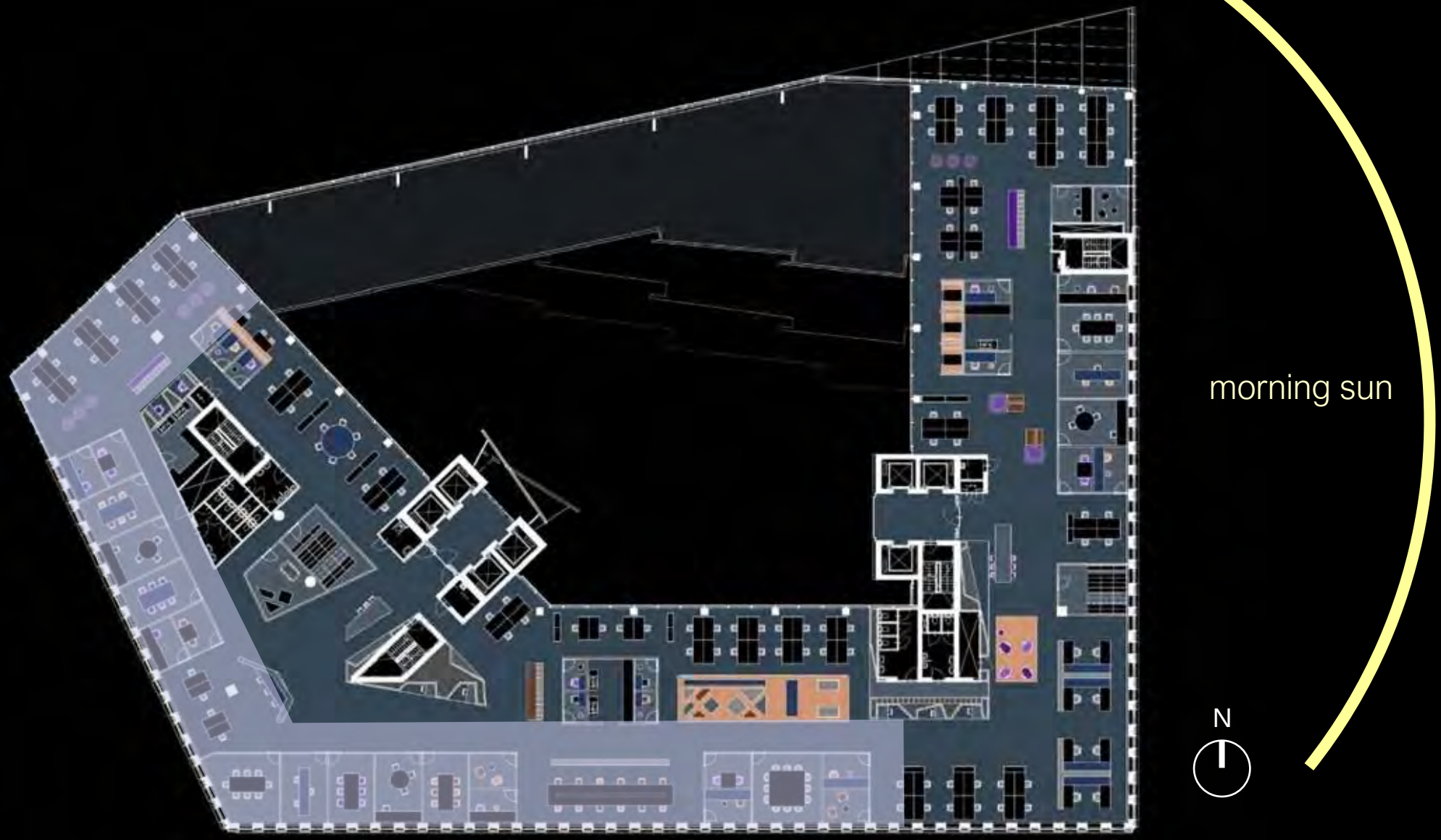
efficient and productive real estate



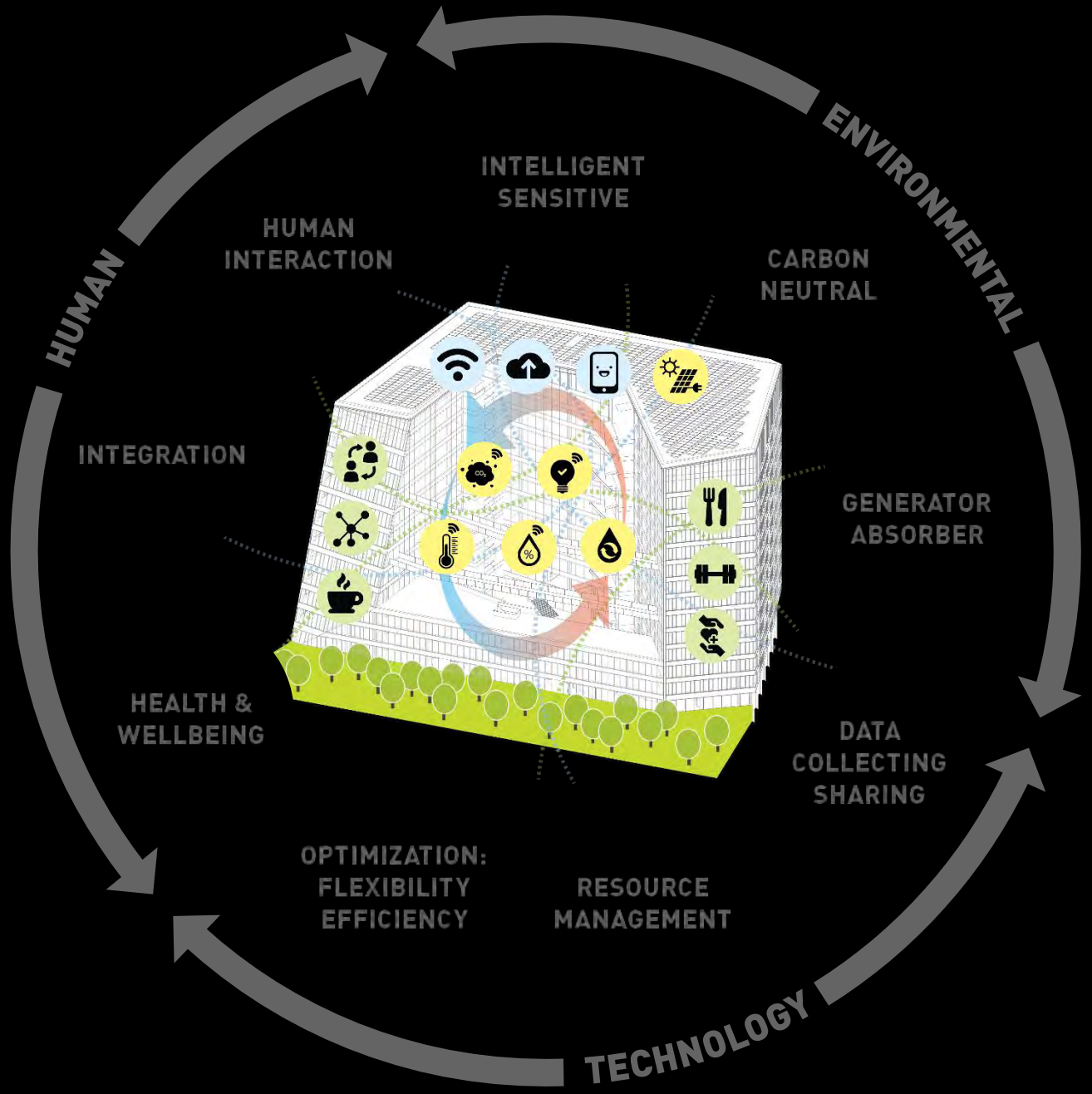


feedback loops

N


morning sun
N

afternoon sun
N

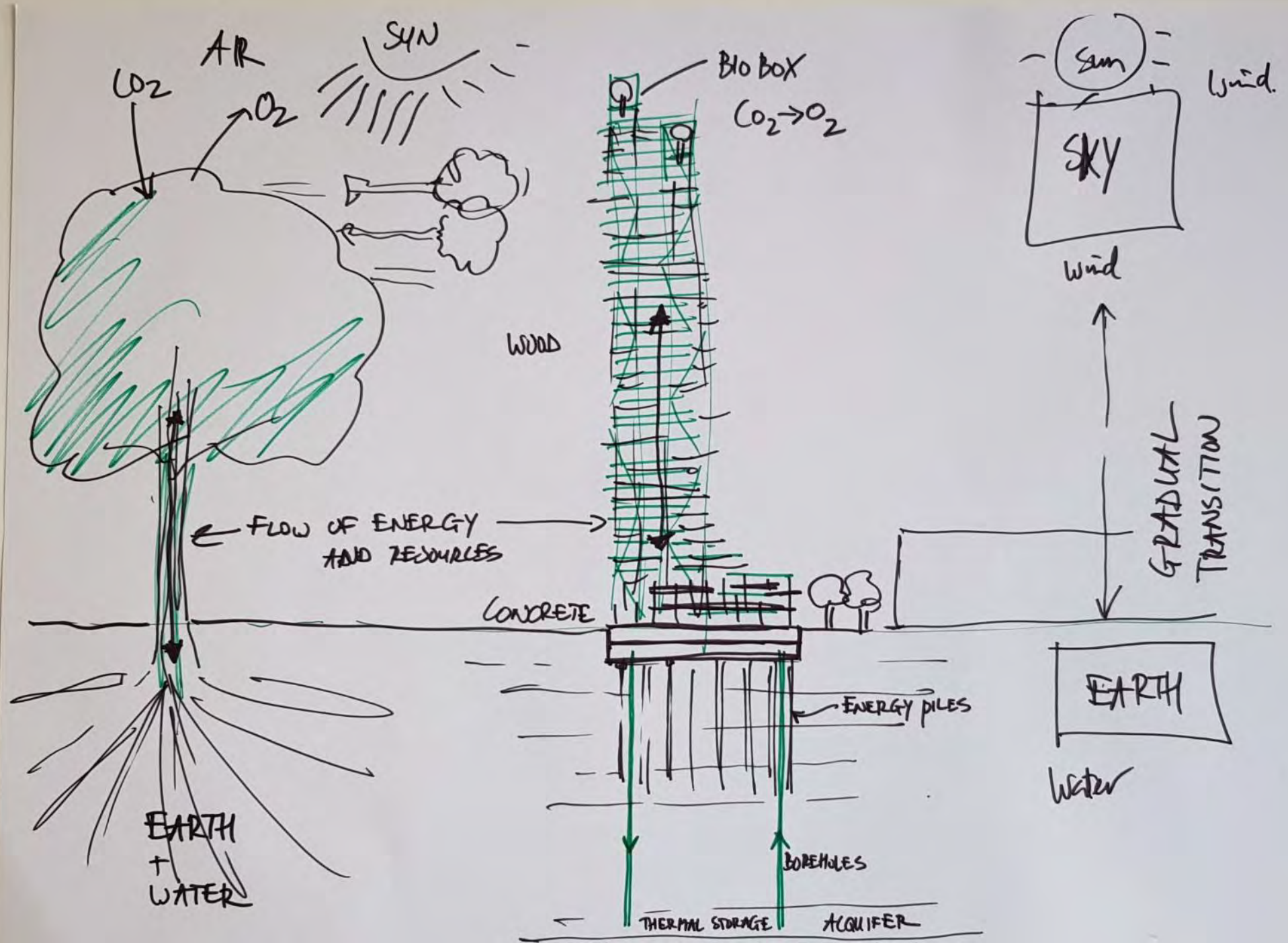


a smart building in 2023

TREE HOUSE

ROTTERDAM

Residential floors
Lodging and Amenities
Mixone
Green Roof Terrace
Station Plaza
East Plaza


AIR
SUN
CO_2
O_2
BIO BOX
$CO_2 \rightarrow O_2$
WOOD
FLOW OF ENERGY AND RESOURCES
CONCRETE
ENERGY PILES
BOREHOLES
THERMAL STORAGE
ACQUIFER
EARTH + WATER
Sun
Wind
SKY
wind
GRADUAL TRANSITION
EARTH
water

Natural network with other buildings

Building orientation - natural lighting

Water collection -projections

Building energy - PVpanels

Natural filter lobby

Connection with other buildings

Energy use reduction

Collection for plants

Water collecion for toilets

Solar light energy

Indoor renewed air

>130 m
green house - penthouses

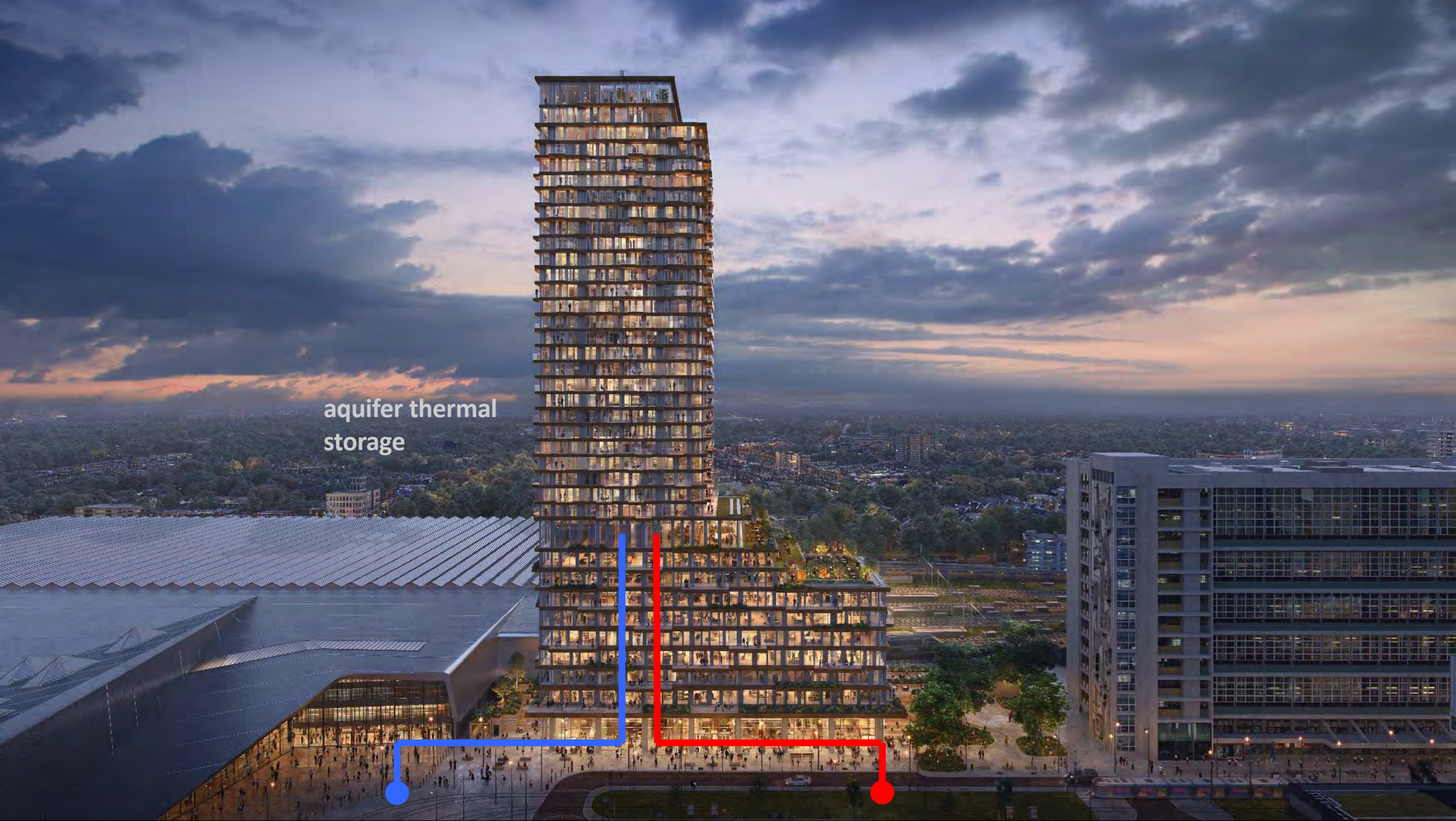
50-130 m
winter garden - north facade

30-50 m
different height ecosystems

10-30 m
blackbird, mason bee
aromatic plants, market garden

2-10 m
atalanta butterfly, shadbush,
house sparrow, public garden

0-2 m
robin, nightingale
garden vegetables for restaurant


aquifer thermal
storage

collect rainwater
and use for toilets
and showers

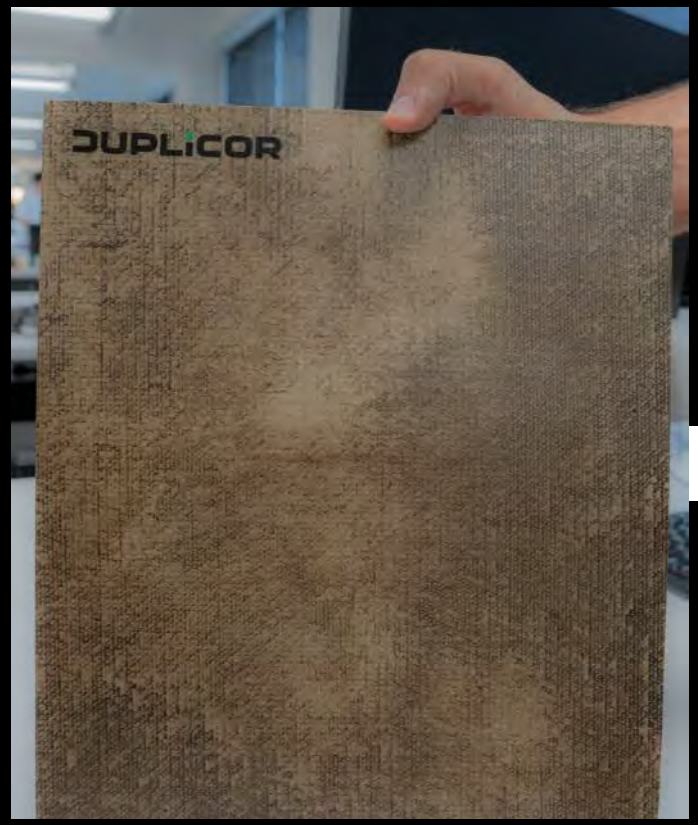
collect solar energy
1500 m2 PV

reduce
heat island effect

share heating
and cooling

natural habitats +
nesting places

TEST ME
PLATOWOOD



bio-based and made from waste

bio-based and made from waste

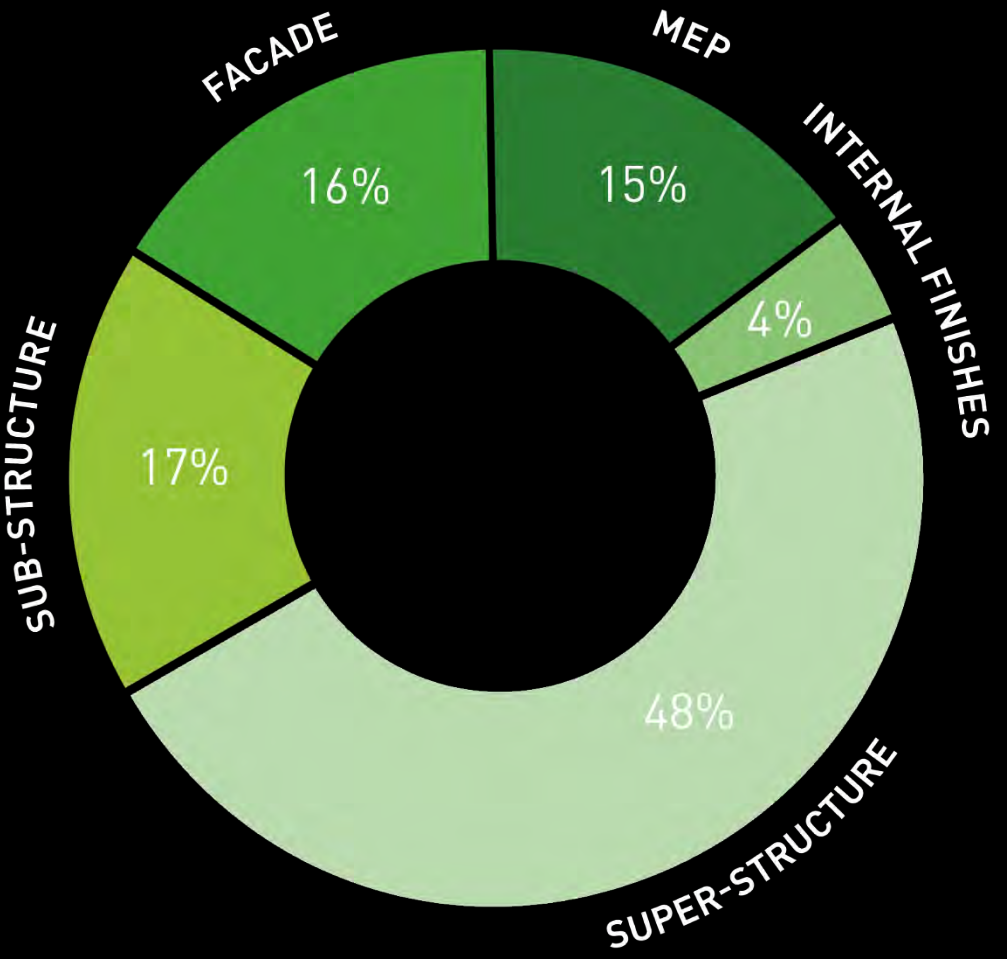
TOWER TEN
AMSTERDAM

PLP/ARCHITECTURE

embodied carbon

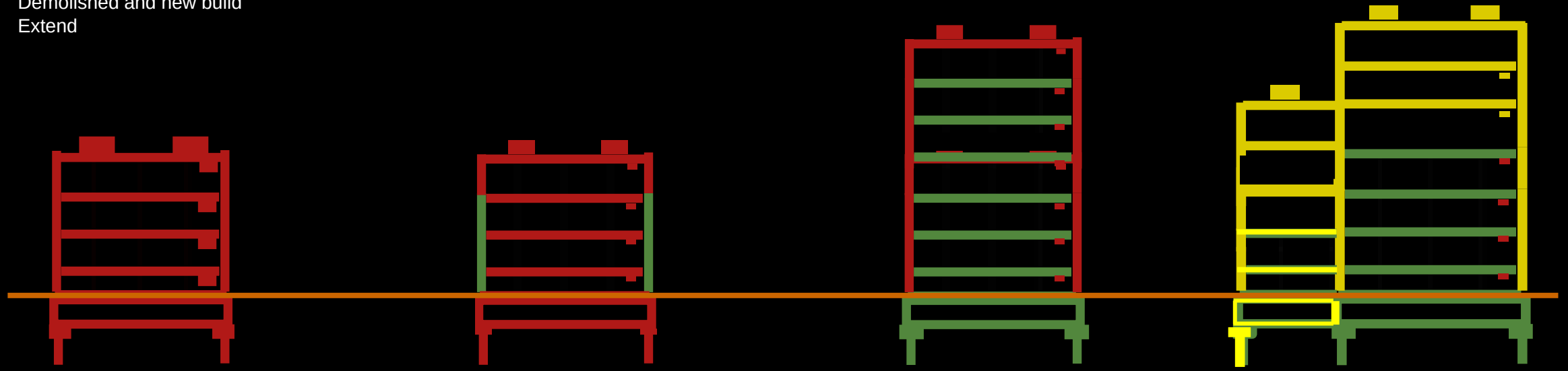
PARIS 2030

45% reduction of carbon emissions



TYPICAL BREAKDOWN OF OFFICE EMBODIED CARBON BY BUILDING ELEMENT

Retained
Demolished and new build
Extend



Demolish and new build

Retain facade

Reuse structure and retrofit

Reuse structure and extend

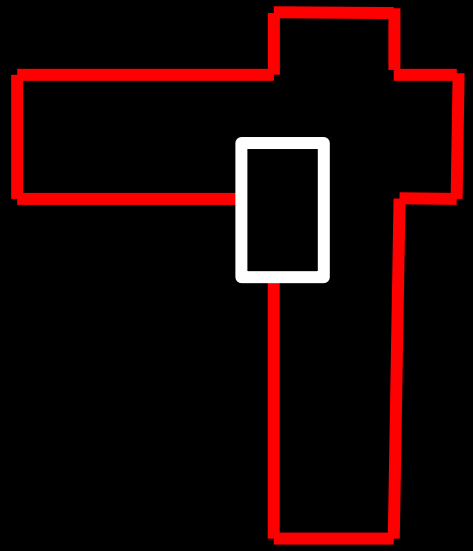
Holborn Viaduct, London, UK

Cleveland Clinic, London, UK

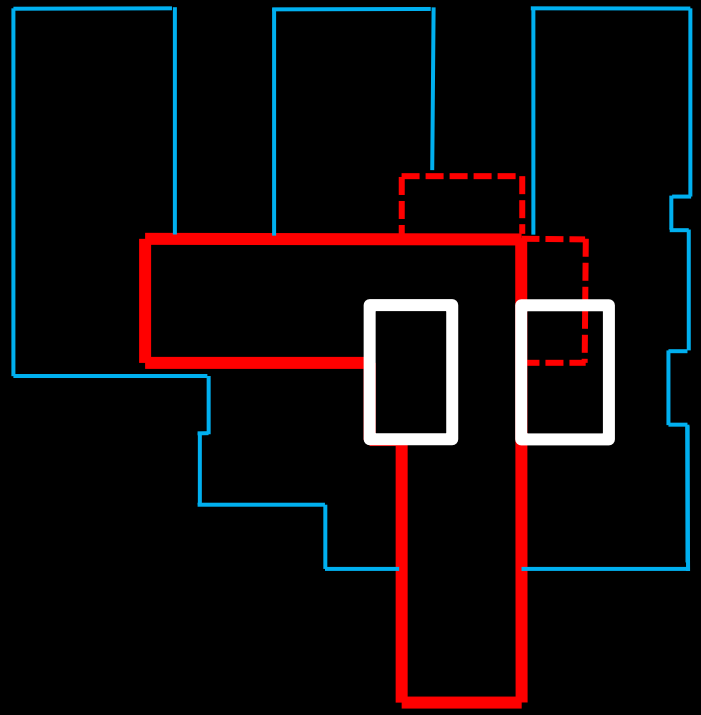
Corso Como Place, Milan, IT

WTC Tower Ten, Amsterdam, NL

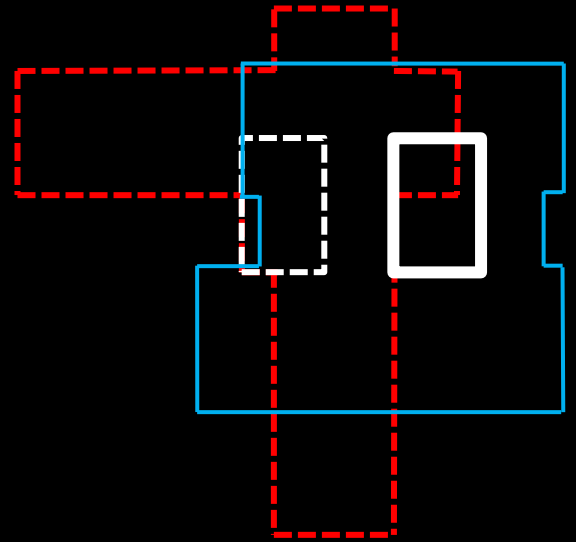
existing floorplate



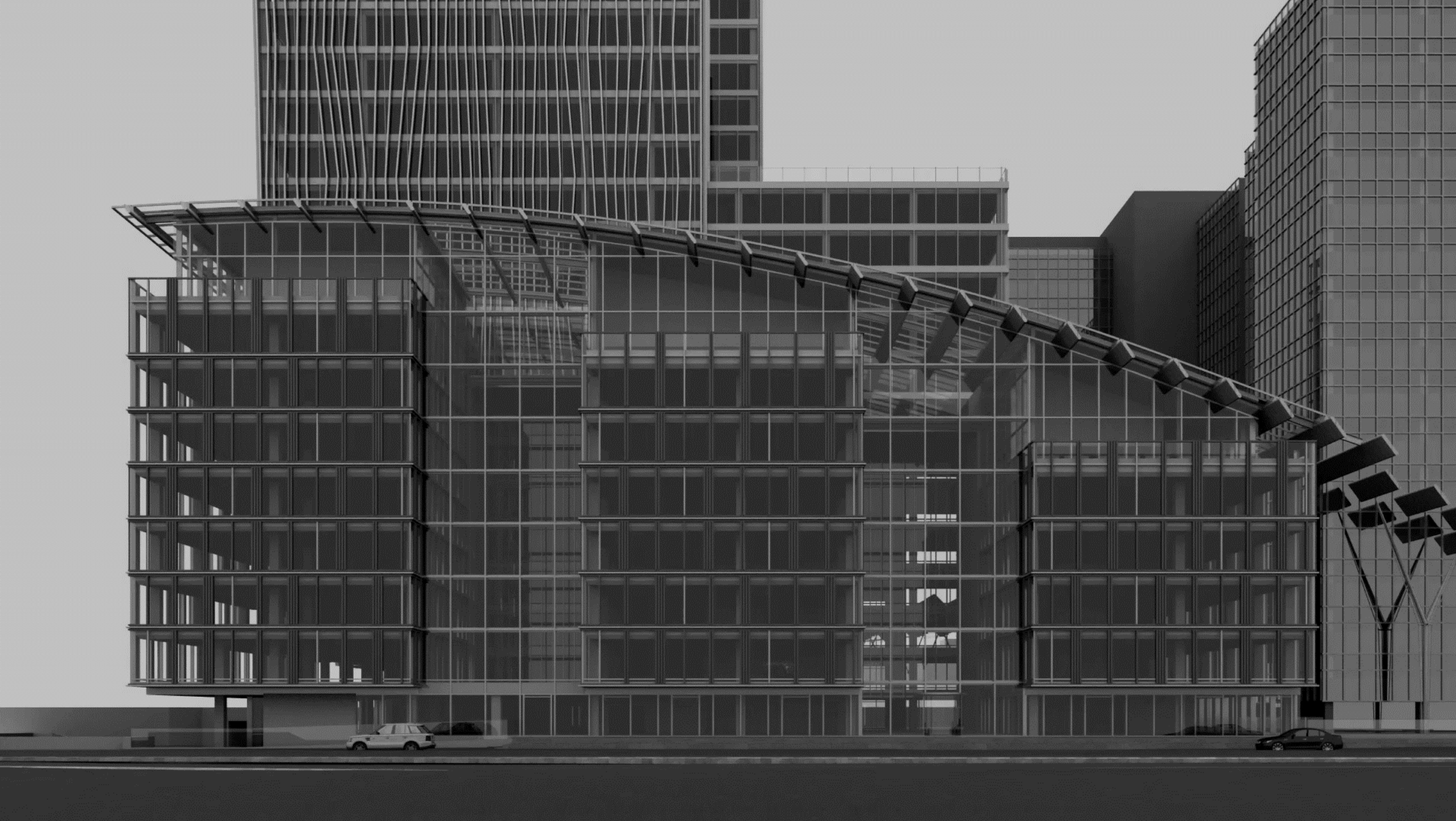
low rise



high rise



demolition – extension



last week

thank you!

rbakker@plparchitecture.com