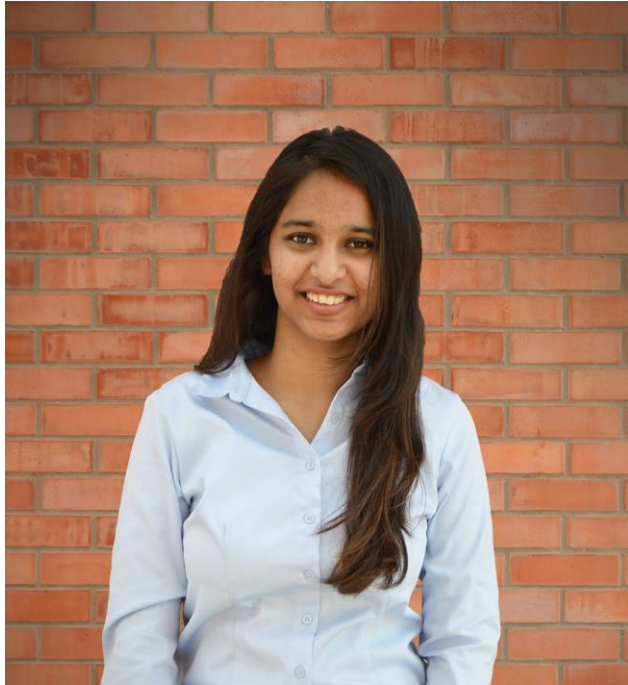


ARCHITECTURE STUDENT CONTEST

18th INTERNATIONAL EDITION, LISBON 2023

MEET THE TEAM
UNITED ARAB EMIRATES

TEAM 21
MANIPAL ACADEMY OF HIGHER EDUCATION, DUBAI



DIYAA KHAN



KASHYAPI SHAH



GOUTHAM CHANDRA

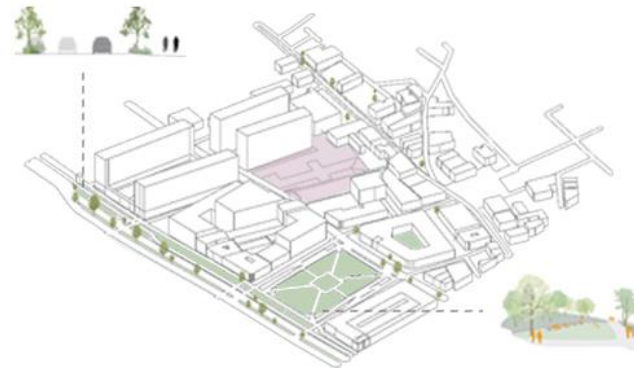
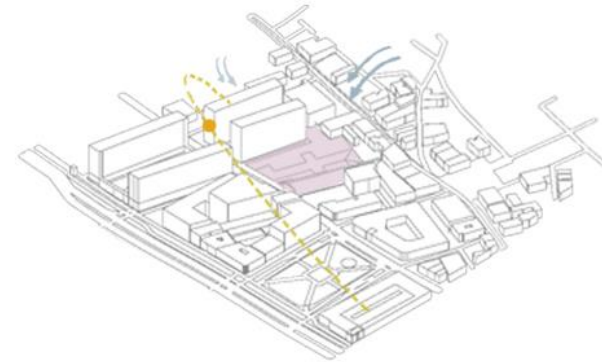
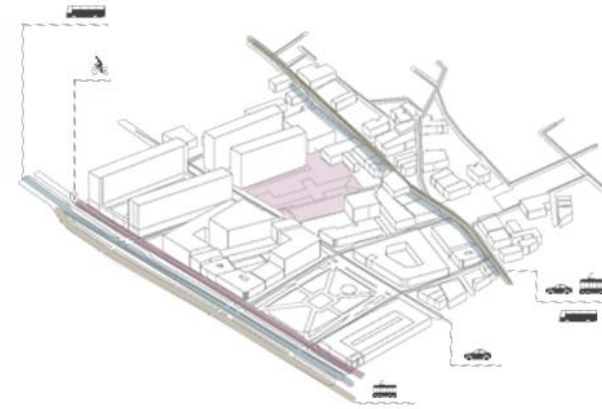
BOAVISTA TERRACES

B' LINK- BEING THE LINK

Bringing creative minds together as the main aspiration. We created B'link. B'link stands for Being the Link. We intend our space to be the link between creatives. Our demographics include people who appreciate art. Art in any form. It includes artists, designers, painters, chefs, film makers, writers etc.

We aim to foster connections between different disciplines of art and aim to create a space where they can exchange stories and create relationships.

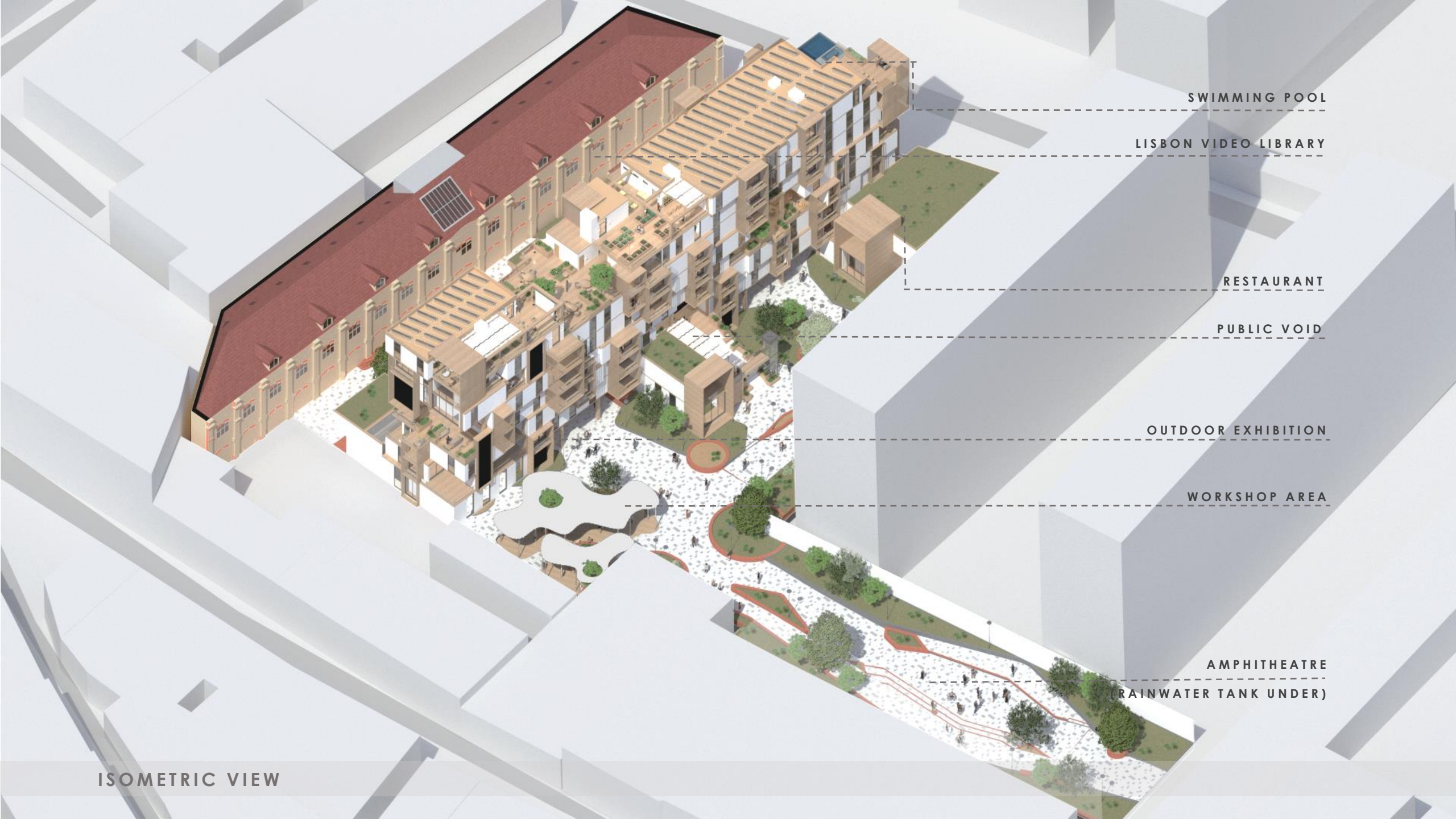




SITE CONTEXT:

LISBON, PORTUGAL

The site is located west from the City Center, close to the Tagus river bank. The plot is included in an area named Aterro da Boavista Nascente (East Boavista Landfill). Boavista is a neighborhood with great potential for revitalization and creative development. Its streets are adorned with expressive street art. The location is situated west of the City Center and is in close proximity to the banks of the Tagus River.



SWIMMING POOL

LISBON VIDEO LIBRARY

RESTAURANT

PUBLIC VOID

OUTDOOR EXHIBITION

WORKSHOP AREA

AMPHITHEATRE
(RAINWATER TANK UNDER)

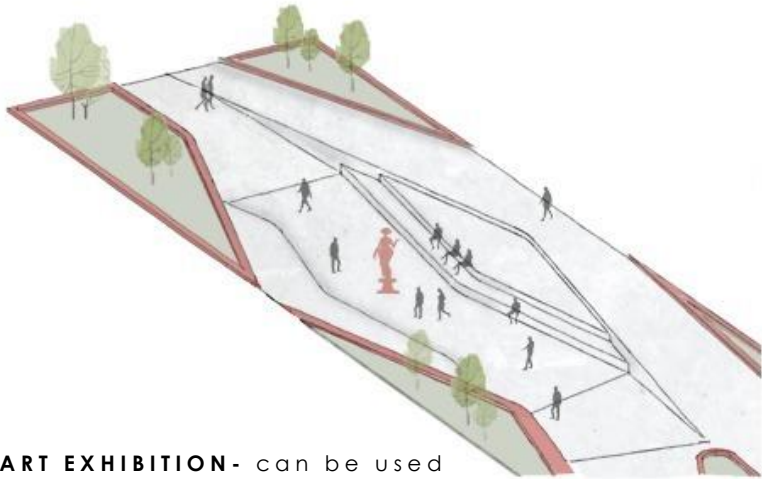
ISOMETRIC VIEW

MASTERPLAN: INTERGRATED WITH GROUND FLOOR PLANS





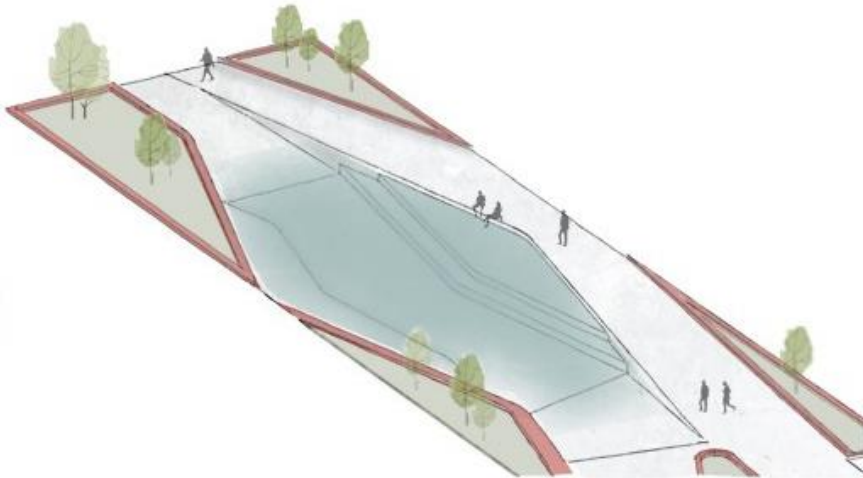
FOCAL POINT: AMPHITHEATRE



ART EXHIBITION- can be used throughout all seasons



CONCERT AND MOVIE NIGHTS- for special events



FLOATING EXHIBITION- collects water during rain



FOOD HUB/ FESTIVAL NIGHTS- can be used during moderate temperatures



AMPHITHEATRE: PUBLIC EVENTS



AMPHITHEATRE: FLOATING EXHIBITION



AMPHITHEATRE : FOOD FESTIVAL



COME PAINT WITH ME: PAINT BY NUMBERS MURAL



RESTAURANT



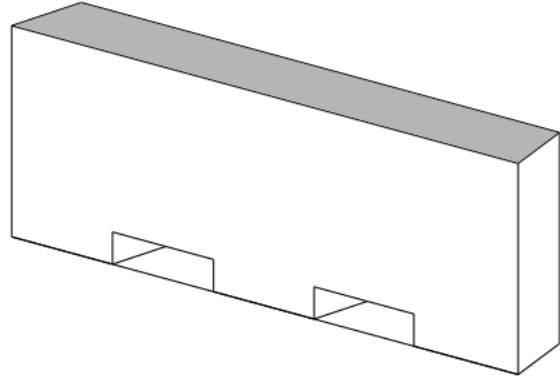
KEY PLAN



START UP- WORKSPACE

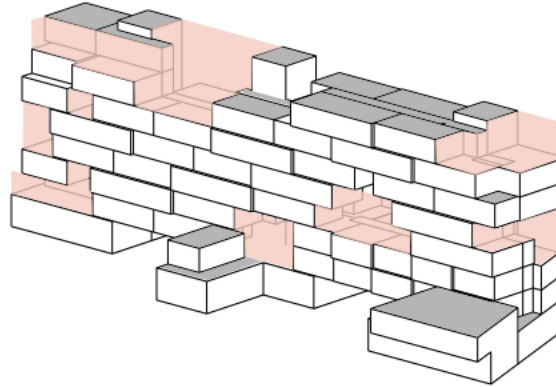
COMMERCIAL AREAS – GROUND FLOOR

FORM DEVELOPMENT



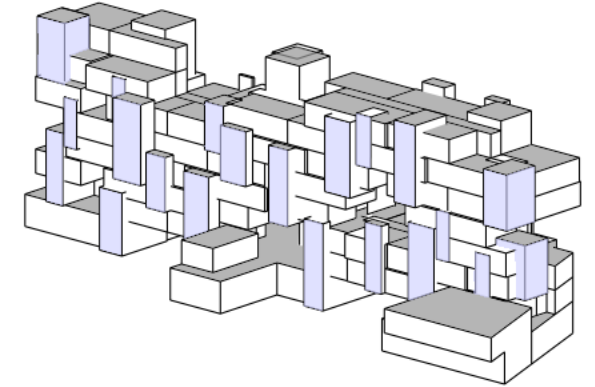
MAXIMUM BUILDING AREA

We created a form using the maximum area available and worked around iterations to create a form that is both functional and creative.



CREATING VOIDS

Worked out an apartment configuration and pulled and pushed spaces to create an interesting form. Created voids to act as interacting spaces and that in turn helped in capitalizing the views.



ADDING VERTICAL ELEMENTS

The site being linear, resulted in a linear form. Adding vertical elements helped break the linearity of form and made it look balanced.

BOAVISTA TERRACES

BUILDING B



ELEVATION

FAÇADE SCREENS

Prominent graffiti culture was noticed during the site analysis. The design aims to positively impact and encourage this creative process.

Façade screens were introduced to promote digital art and attract visitors while encouraging creativity in the community. The screens are strategically positioned for optimal impact.





FAÇADE SCREENS

WORKSHOP AREA

INTERACTIVE DISPLAYS

Workshop areas are present on the site for local youth to collaborate and produce digital art, which is then projected on the screens via interactive displays.



APARTMENT CONFIGURATION

BUILDING B



Seventh Floor: Type A – 0 Units, Type B – 3 Units, Type C – 2 Units

Sixth Floor: Type A – 0 Units, Type B – 5 Units, Type C – 3 Units

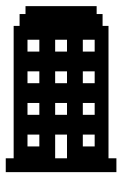
Fifth Floor: Type A – 0 Units, Type B – 7 Units, Type C – 3 Units

Fourth Floor: Type A – 0 Units, Type B – 4 Units, Type C – 3 Units

Third Floor: Type A – 0 Units, Type B – 5 Units, Type C – 2 Units

Second Floor: Type A – 8 Units, Type B – 2 Units, Type C – 2 Units

First Floor: Type A – 8 Units, Type B – 4 Units, Type C – 0 Units



Total number of apartments – 61 Units



Total number of parking spaces - 66

AMENITIES

BUILDING B





FLOOR PLATES

BUILDING B



3RD FLOOR PLAN











 CENTRAL VOID



4TH FLOOR PLAN



 OPEN WORKSPACE

- | | | |
|--|--|---|
|  Corridor |  Voids |  1BR – 5 + 4 |
|  Vertical Circulation |  Mechanical Services |  2BR – 2 + 3 |
|  Waste management |  Common areas (Co-Living) | |

FLOOR PLATES

BUILDING B



5TH FLOOR PLAN



LIFT LOBBY



6TH FLOOR PLAN

- | | | |
|----------------------|--------------------------|-------------|
| Corridor | Voids | 1BR - 7 + 5 |
| Vertical Circulation | Mechanical Services | 2BR - 3 + 3 |
| Waste management | Common areas (Co-Living) | |



MULTIPURPOSE TERRACE

FLOOR PLATES

BUILDING B



- Corridor
- Vertical Circulation
- Waste management
- Common areas (Co-Living)
- Voids
- Mechanical Services
- 1BR - 3
- 2BR - 2

7TH FLOOR PLAN



SWIMMING POOL



TERRACE FARMING



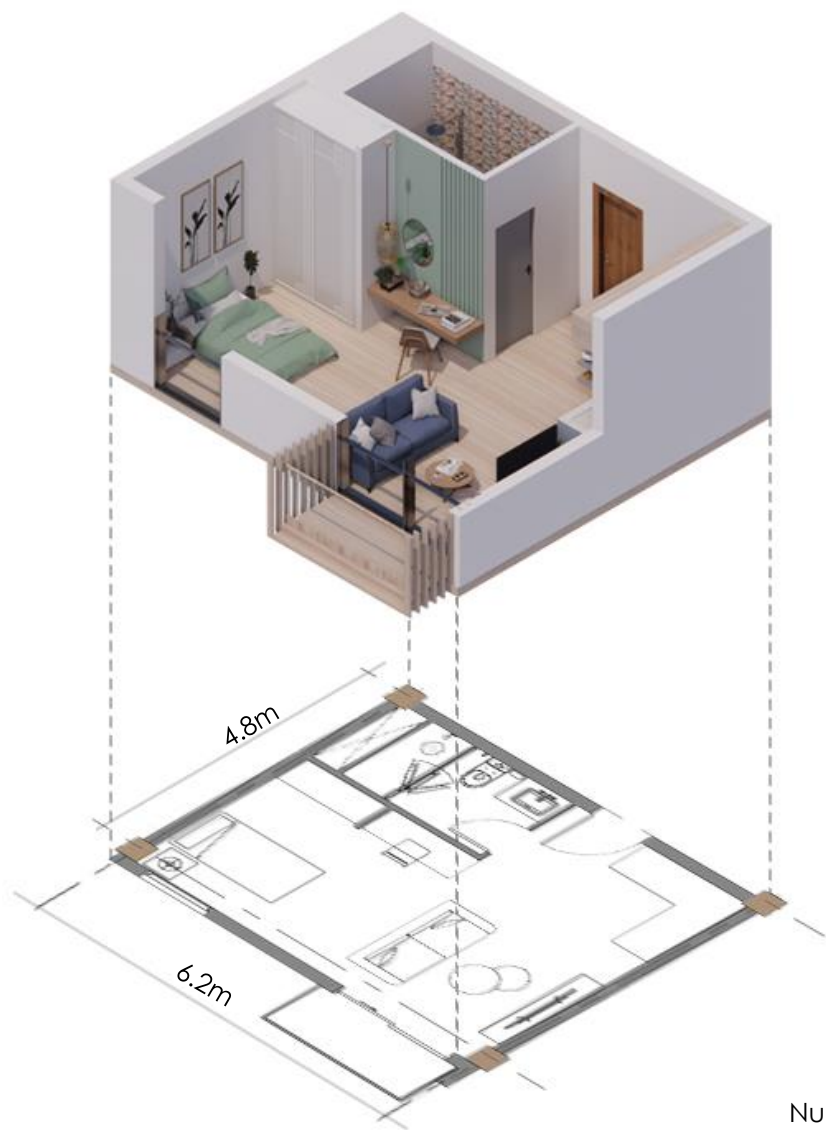
OPEN THEATRE



ENTRANCE TO PUBLIC VOID

HOUSING TYPOLOGY A

CO-LIVING SPACE



Number of single apartments - 10

Number of double apartments - 6





HOUSING TYPOLOGY B

1 BHK

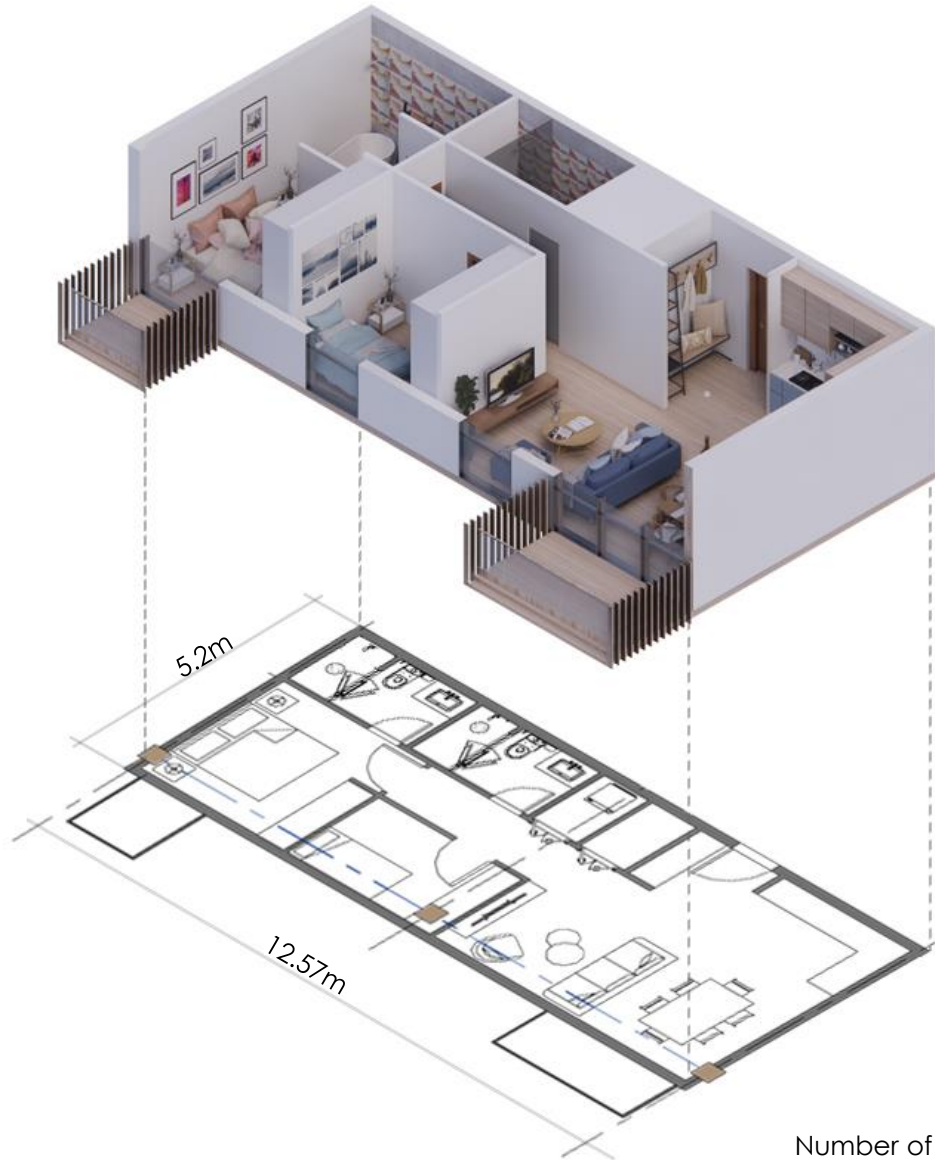


Number of 1 bedroom apartments - 30



HOUSING TYPOLOGY C

2 BHK



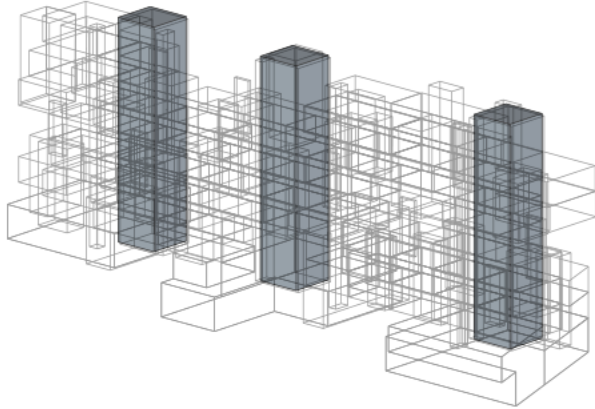
Number of 2 bedroom apartments - 15





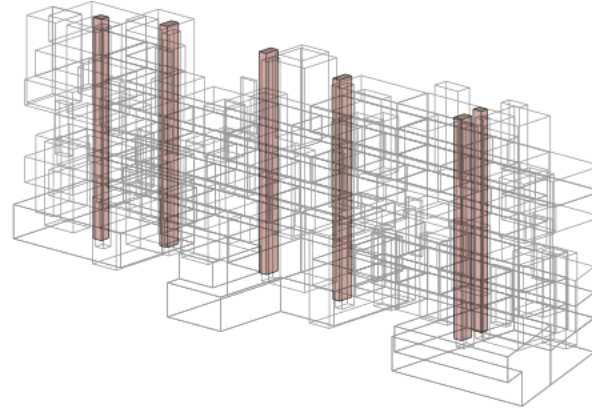
BUILDING SERVICES

BUILDING B



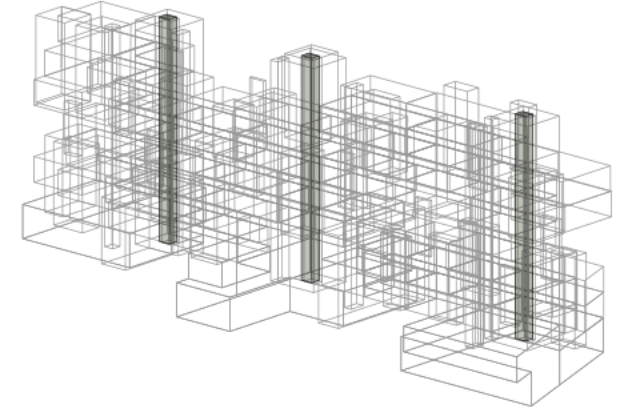
VERTICAL TRANSPORTATION

We have 3 building cores along the length of the building. Each core has a flight of staircase and a lift to provide access to higher floors. They open into corridors which connect the users to the apartments.



MECHANICAL CORES

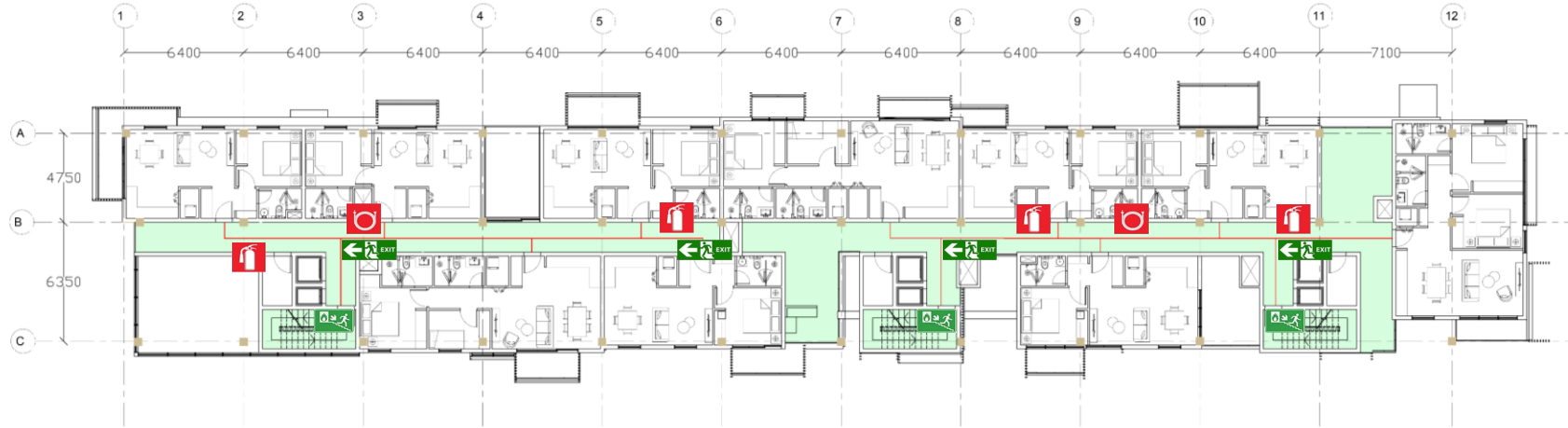
We have the ducts running through the entire height of the building. The ducting system works to protect cables and utility pipes.



WASTE MANAGEMENT

A garbage chute is provided as a part of each core. It is a long vertical space passing through each floor. The chute is easily accessible from each apartment and makes disposal convenient.

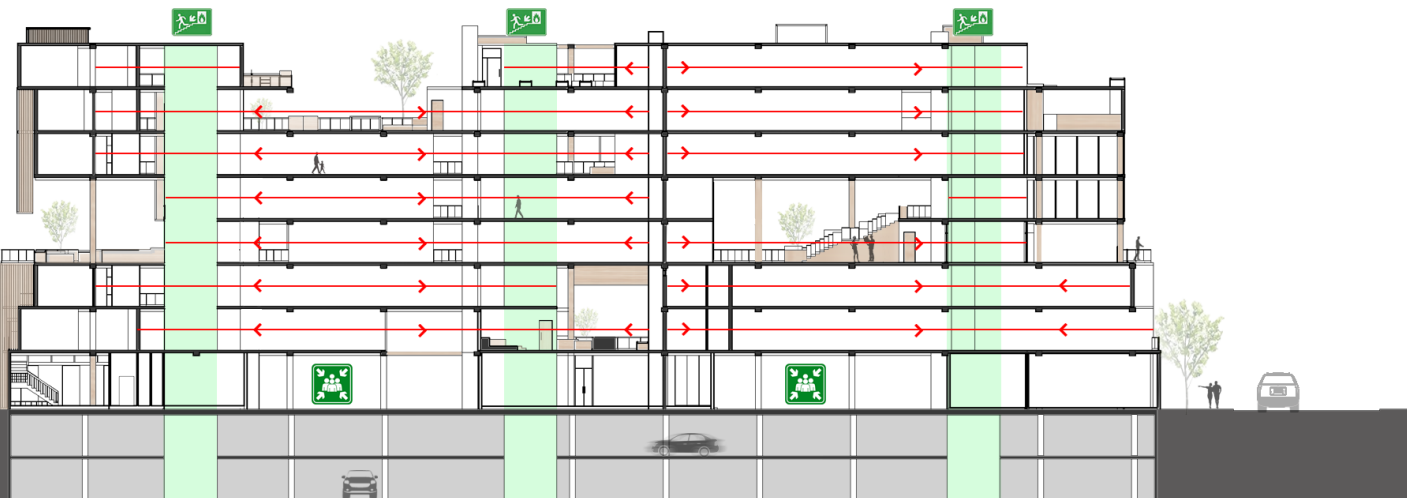
FIRE EVACUATION PLAN



LEGEND

- Fire Exit
- Fire Staircase
- Fire Extinguisher
- Fire Hose

FIRE EVACUATION SECTION



KIMMCO ISOVER Insulation has been used for the walls.

Properties:

- Non-Combustible
- Fire Rating – Class 0



STRUCTURAL SYSTEMS

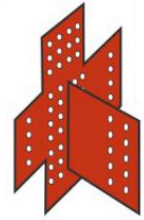
BUILDING B

Load bearing members (Columns and Beams) – Glu-laminated timber (GLT)

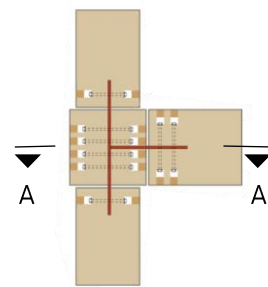
Slabs and walls – Cross laminated timber (CLT)

3 concrete cores

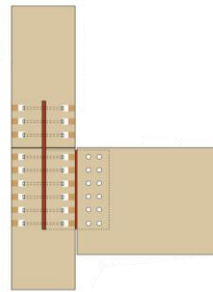
Slab, columns and beams of basement are made up of concrete



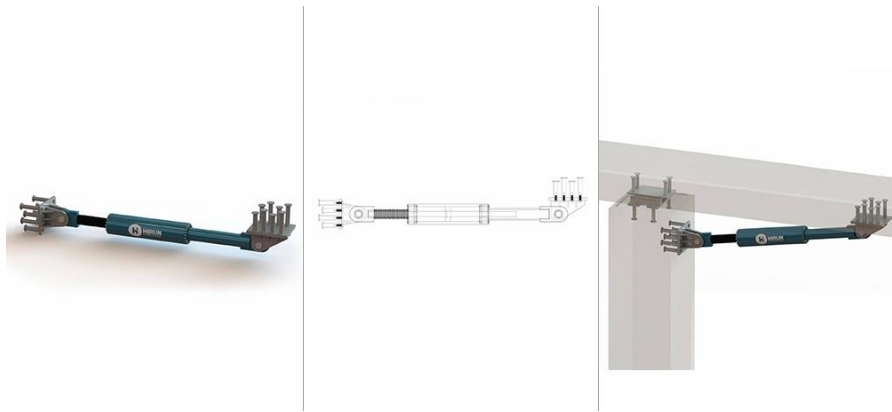
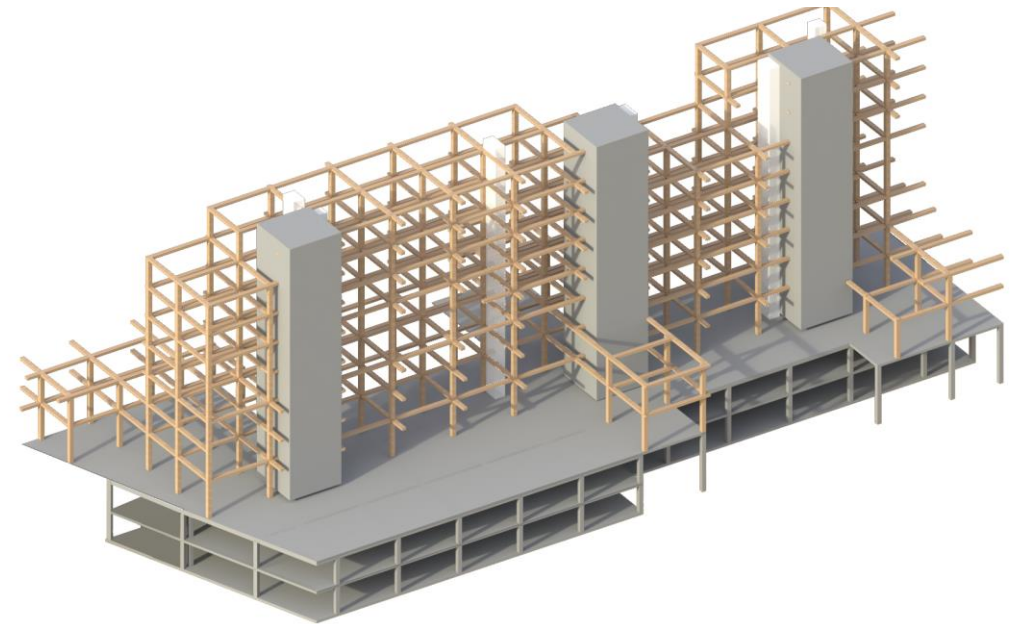
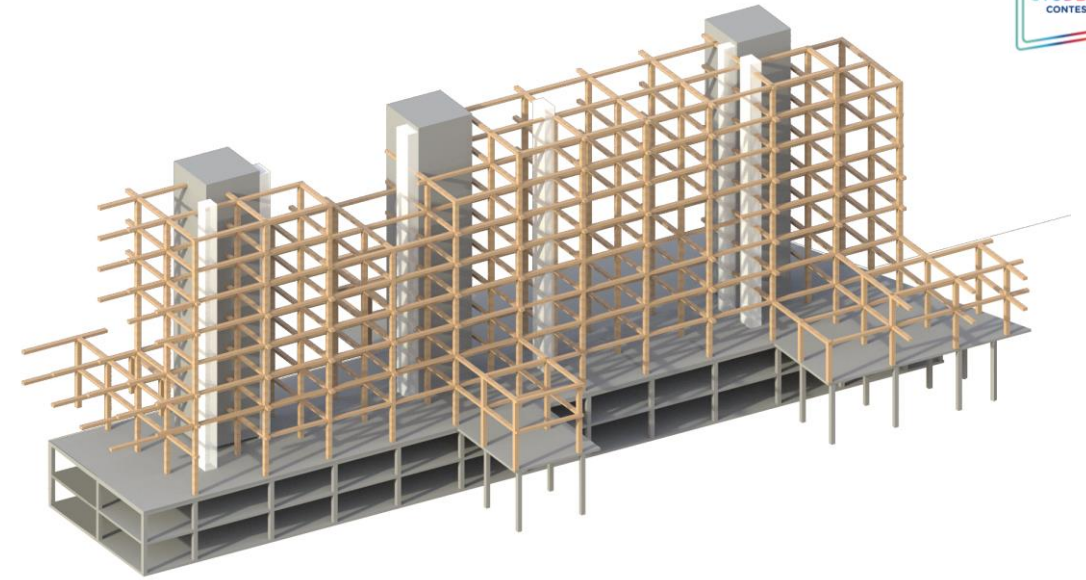
3D view of plate



Plan



Section AA'



FLUID VISCOUS DAMPER

These devices allow slow movements (creep, shrinkage and temperature effects) with negligible reaction but they maximize the energy dissipation of the device for dynamic motion (earthquake), modifying the seismic response of the structures and reducing the effects of an earthquake.



LISBON VIDEO LIBRARY

BUILDING A

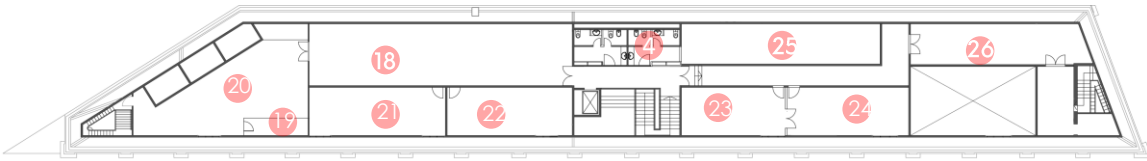
The main demographic of the Lisbon Video Library are film makers and film enthusiasts. The space provides them with facilities to explore their creativity.

The building has been categorized into different zones based on the three main divisions in the film making process:

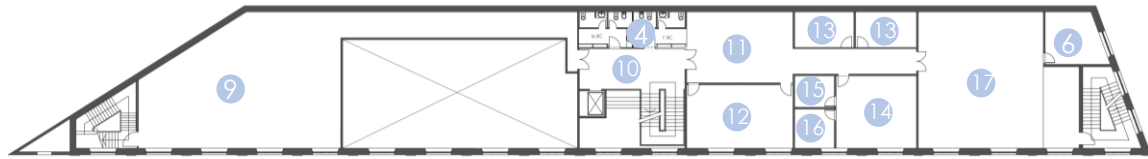
1. Pre-production
2. Production
3. Post- Production

PLANS, ELEVATION, SECTION

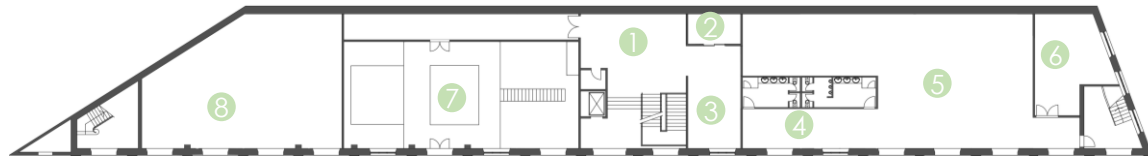
BUILDING A



2ND FLOOR PLAN



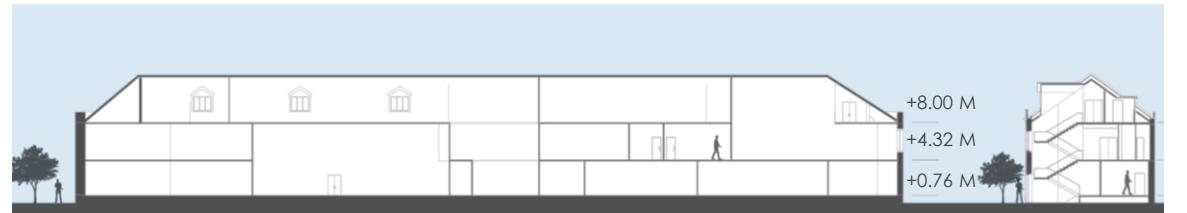
1ST FLOOR PLAN



GROUND FLOOR PLAN

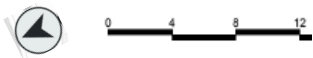


ELEVATION



SECTION AA'

SECTION BB'



LEGEND

1. Reception	5. Exhibition Room	10. Lobby	15. Sound Room	20. Individual and Collective Visioning Room	23. Video Editing Room
2. Cloak Room	6. Storage for exhibition	11. Waiting Room	16. Server Room	21. Coordinator Room	24. Video Digitalization Room
3. Shop	7. Auditorium	12. Meeting Room	17. Cyclorama	22. Film and Video Description	25. Archive Room
4. Washroom	8. Cafe	13. Reading Room	18. Lounge		26. Viewing Gallery
	9. Lisbon Film Commission	14. TV Control Room	19. Technical support		



LINK LATTE- CAFE





LINK LATTE- CAFÉ (EXTERIOR SEATING)

EXHIBITION HALL
BUILDING A



PRODUCTS USAGE

BUILDING B



Roof Membrane

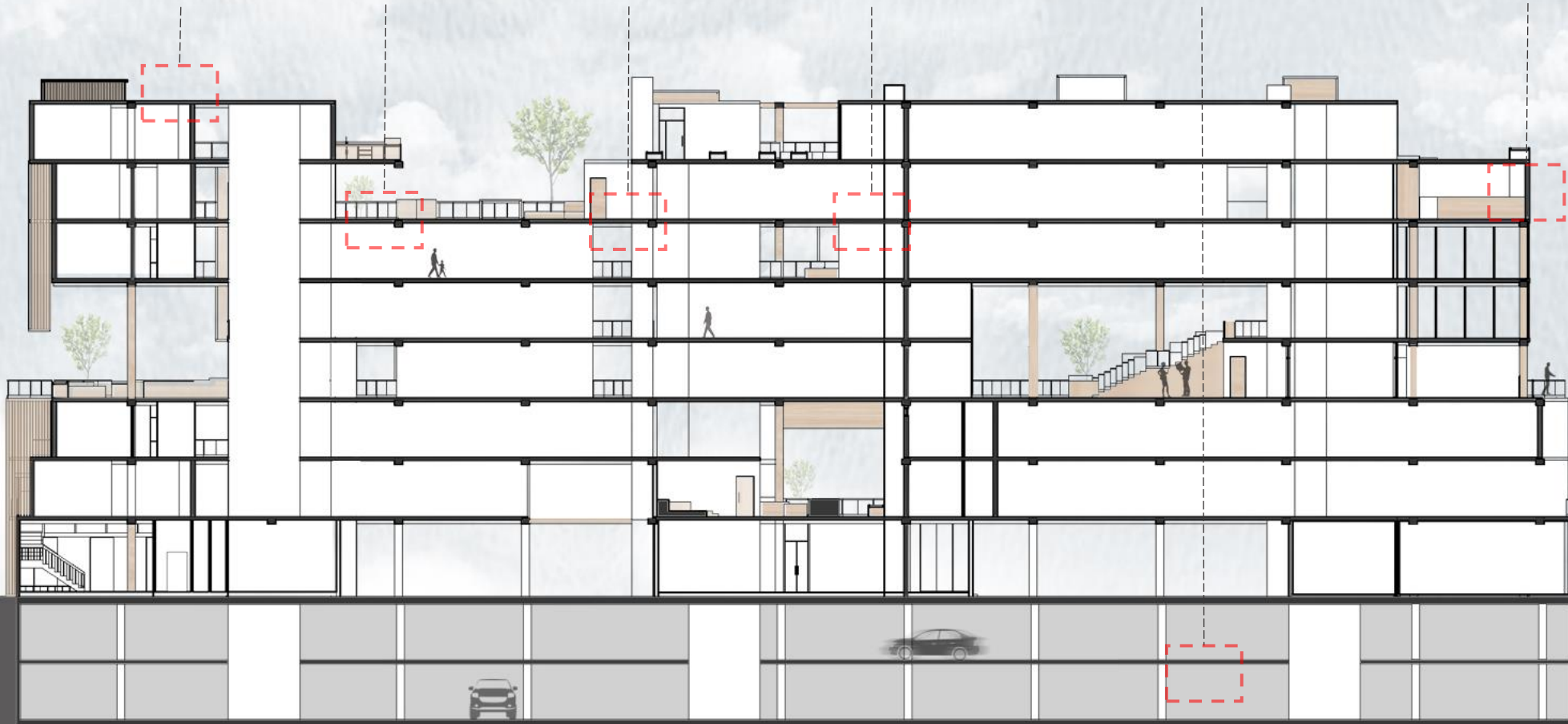
Waterproofing

Insulation

Gypsum Fiberboard

Low-Carbon Concrete

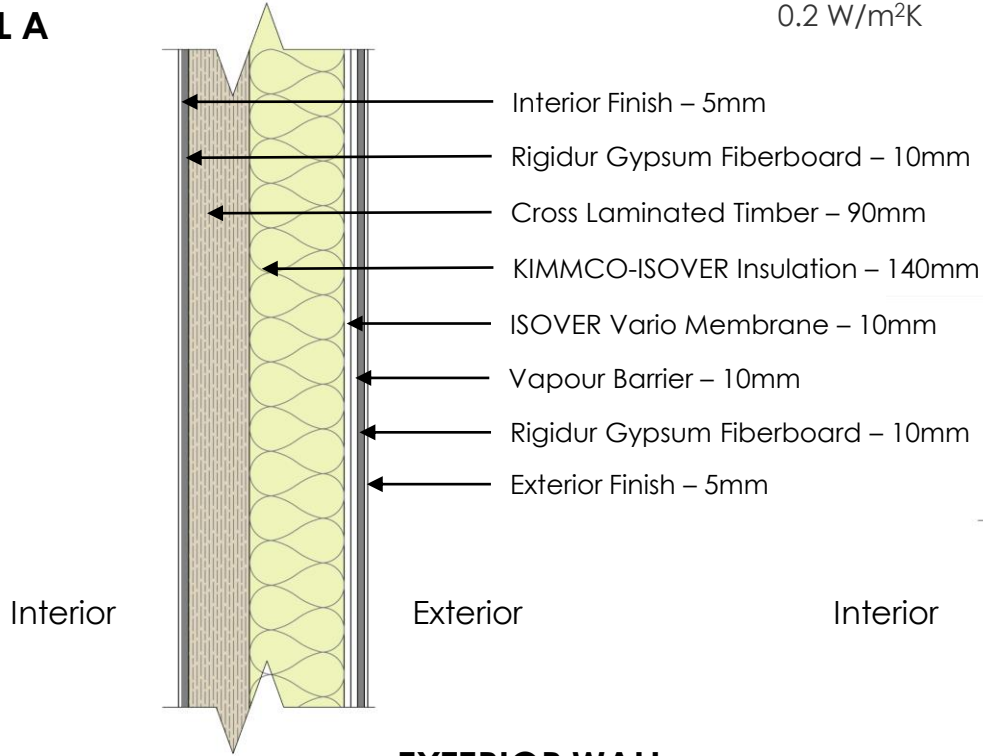
Airtightness membrane



CONSTRUCTION DETAILS

BUILDING B

DETAIL A



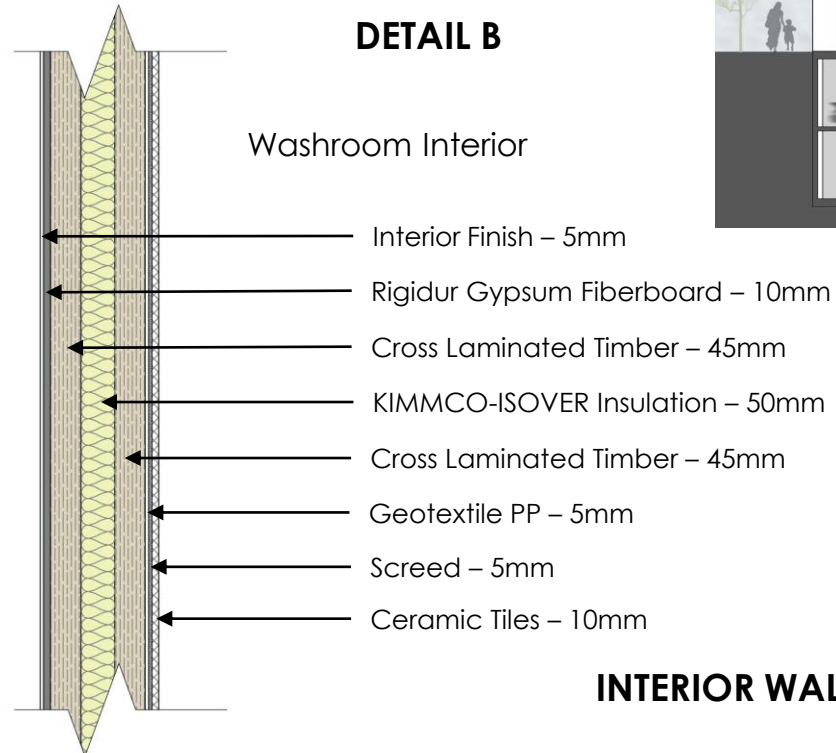
EXTERIOR WALL

U-Value of KIMMCO-ISOVER insulation:
0.2 W/m²K

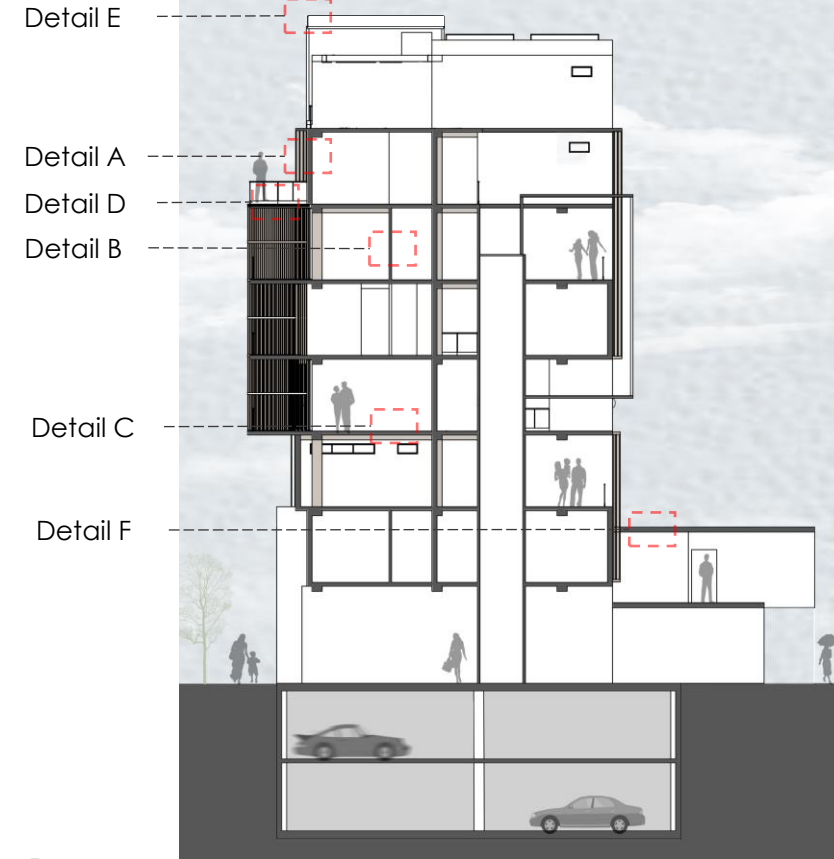
INSULATION

KIMMCO-ISOVER stone mineral wool products are made from natural stone. KIMMCO-ISOVER stone mineral wool are 100% recyclable.

KIMMCO-ISOVER Stone mineral wool offers superior thermal, acoustic and fire safe properties.



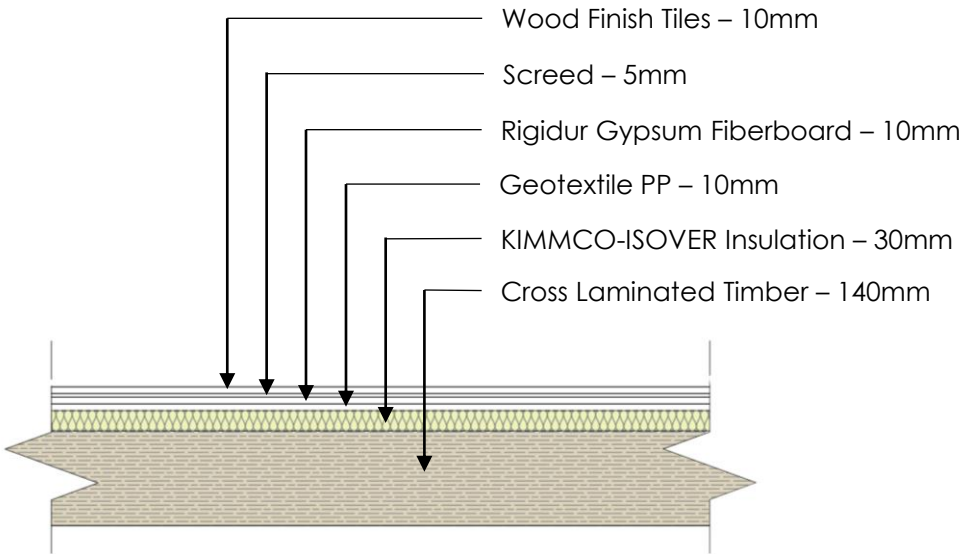
INTERIOR WALL



CONSTRUCTION DETAILS

BUILDING B

DETAIL C



EXTERIOR FLOORING

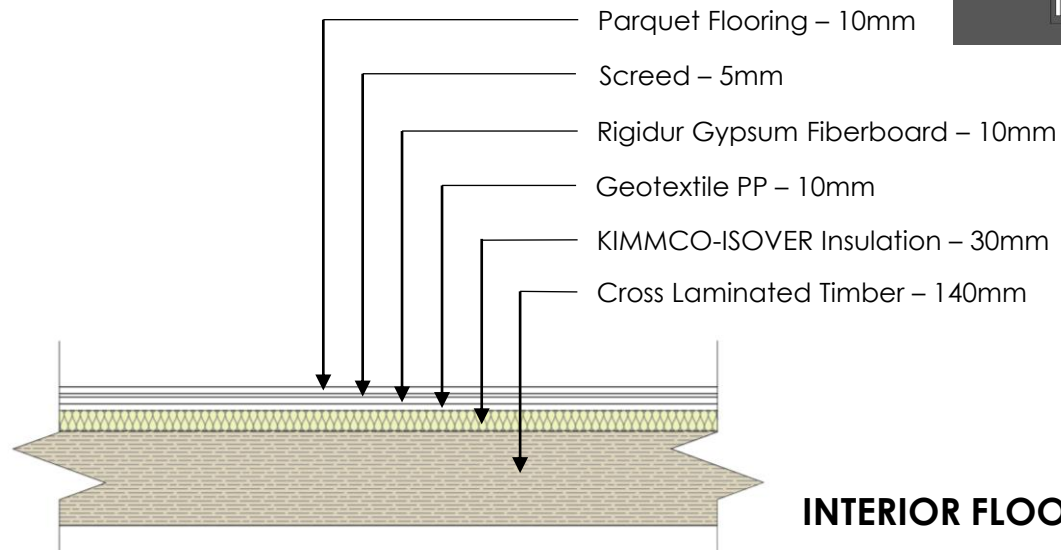
WATERPROOFING

Geotextile PP by Weber is a nonwoven geotextile made in high quality white polypropylene staples, It is UV stabilized, needle punched and calendared, produced without using of any glues or chemical binders and post-consumer raw material.

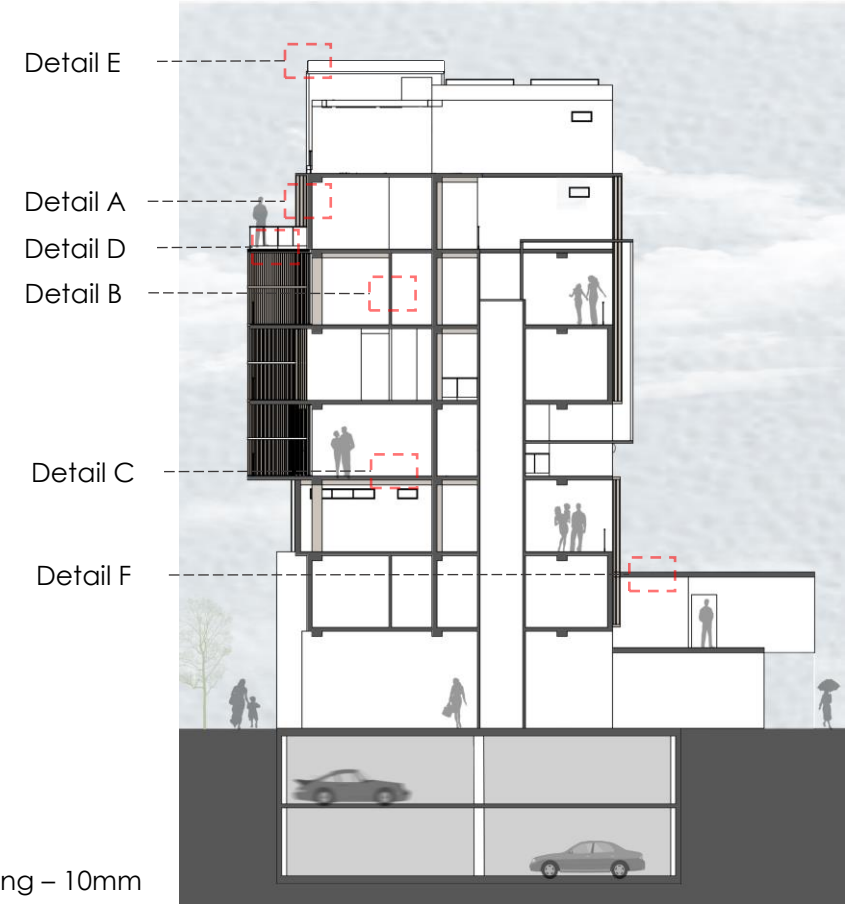
FIBERBOARD

Rigidur Gypsum Fiberboard is a primed board made of gypsum, paper fibres and mineral additives. For universal use as construction, fire-proof and damp-proof boards; extremely smooth and stable; hard surface; sound-insulating and non-combustible.

DETAIL D



INTERIOR FLOORING

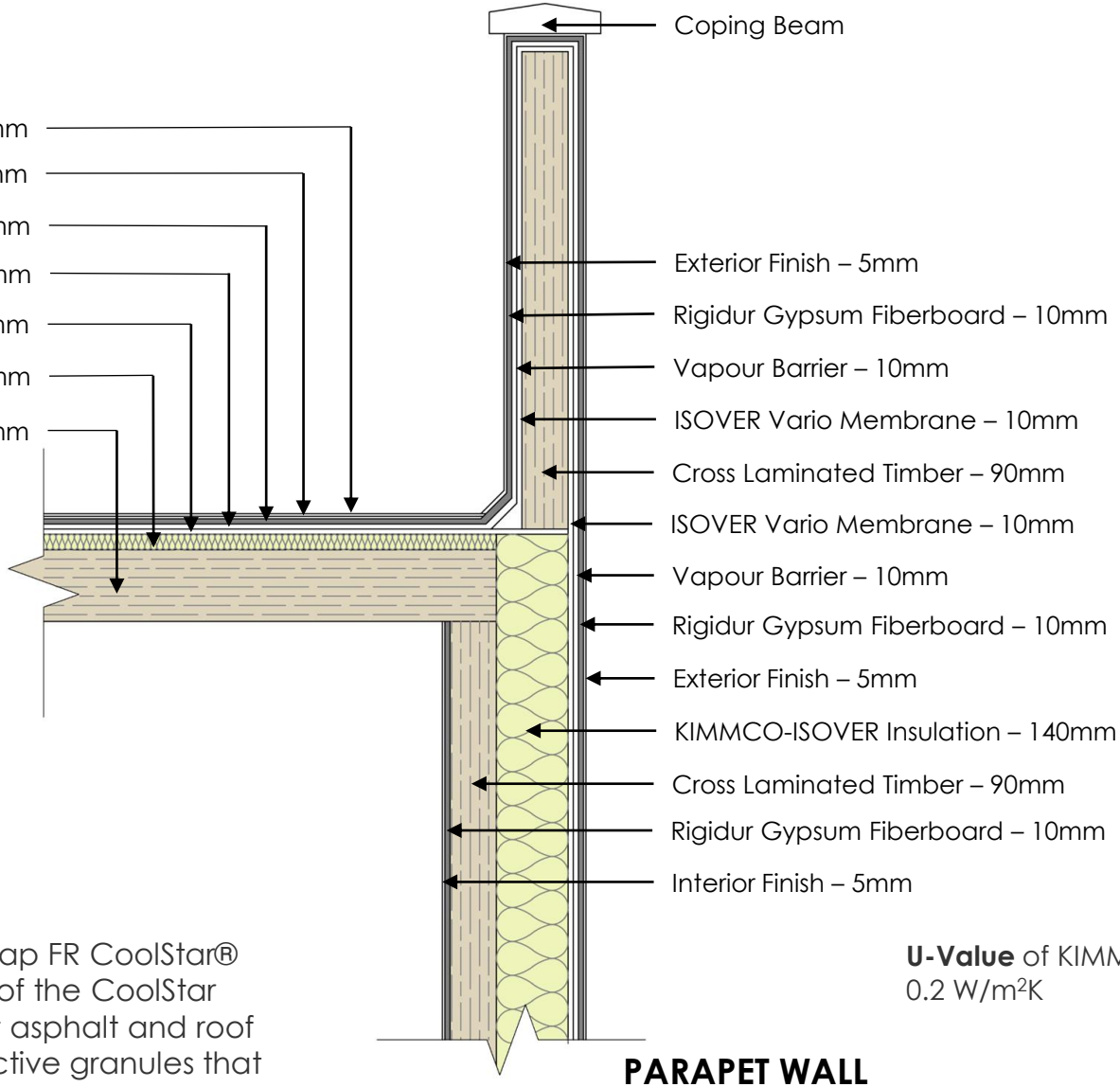


CONSTRUCTION DETAILS

BUILDING B

DETAIL E

- CertainTeed Flintlastic – 5mm
- Screed – 5mm
- Rigidur Gypsum Fiberboard – 10mm
- Geotextile PP – 10mm
- ISOVER Vario Membrane – 10mm
- KIMMCO-ISOVER Insulation – 30mm
- Cross Laminated Timber – 140mm

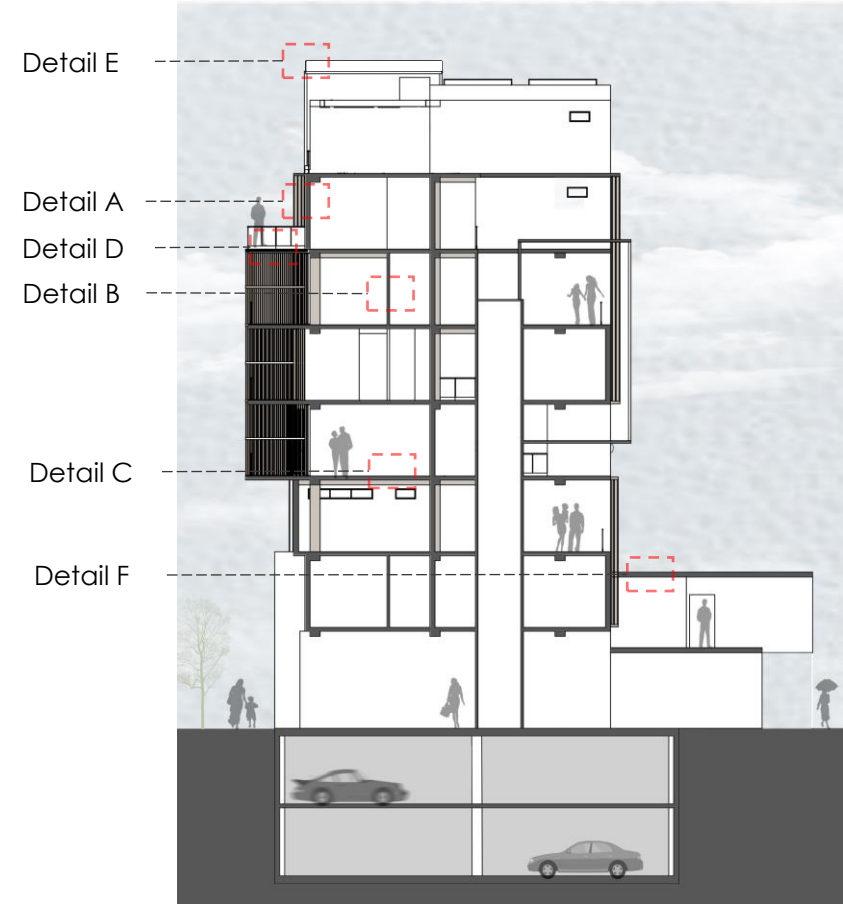


PARAPET WALL

ROOF MEMBRANE

CertainTeed Flintlastic® SA Cap FR CoolStar® roofing membrane, is a part of the CoolStar product line. It consists of hot asphalt and roof membranes with highly reflective granules that reflect sunlight to reduce roof temperatures.

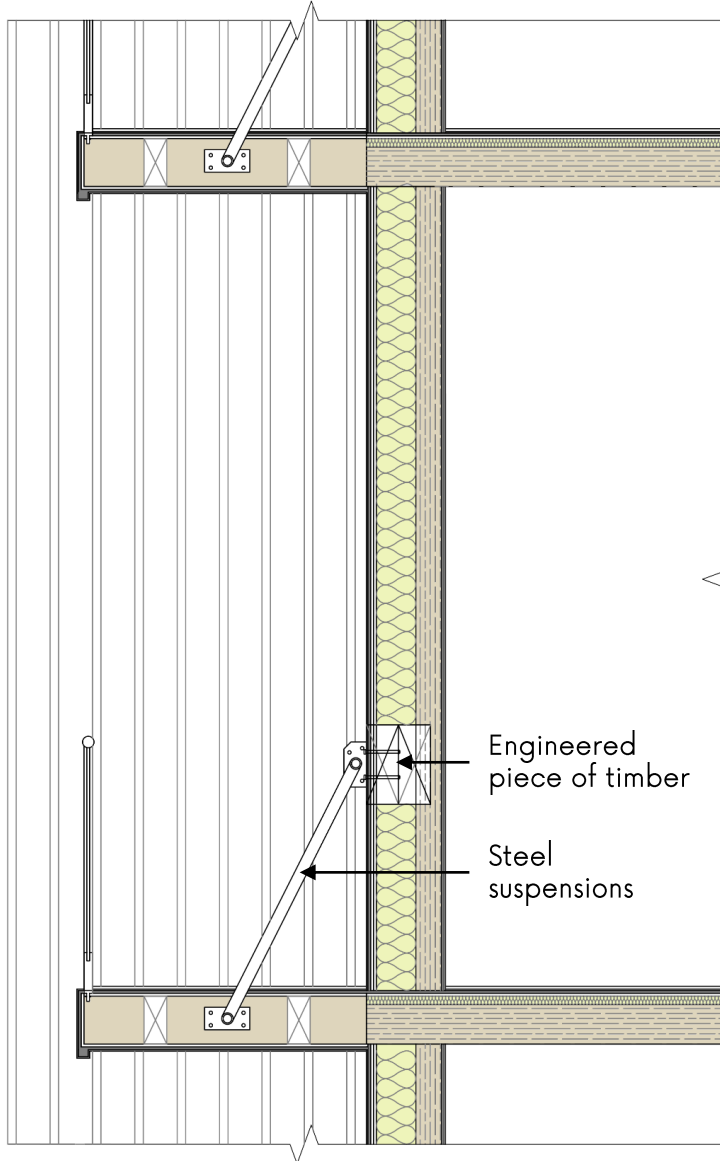
U-Value of KIMMCO-ISOVER insulation:
0.2 W/m²K



CONSTRUCTION DETAILS

BUILDING B

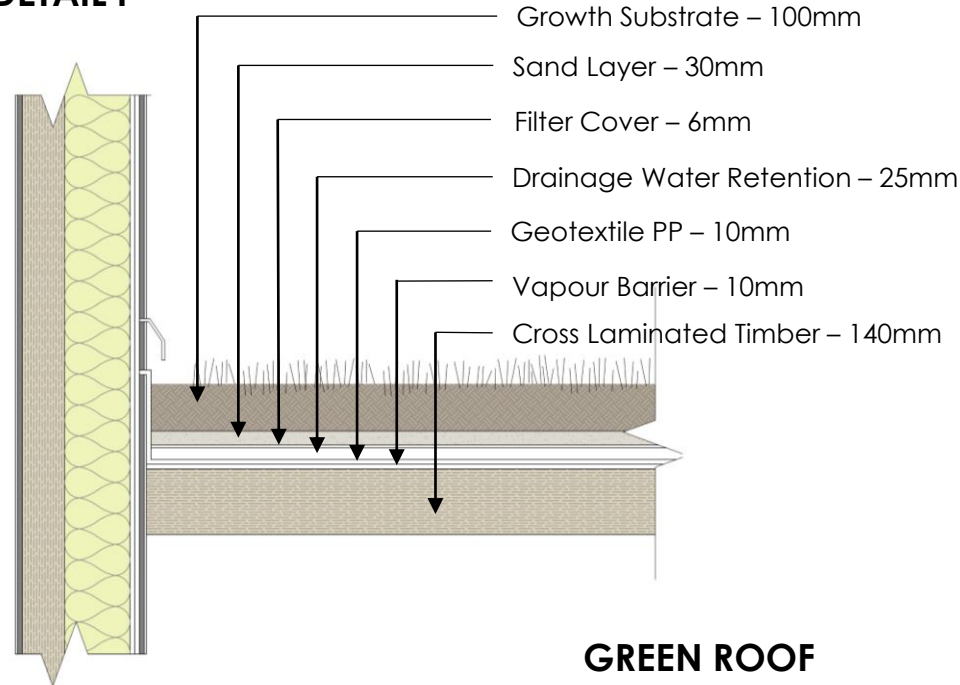
BALCONY DETAIL



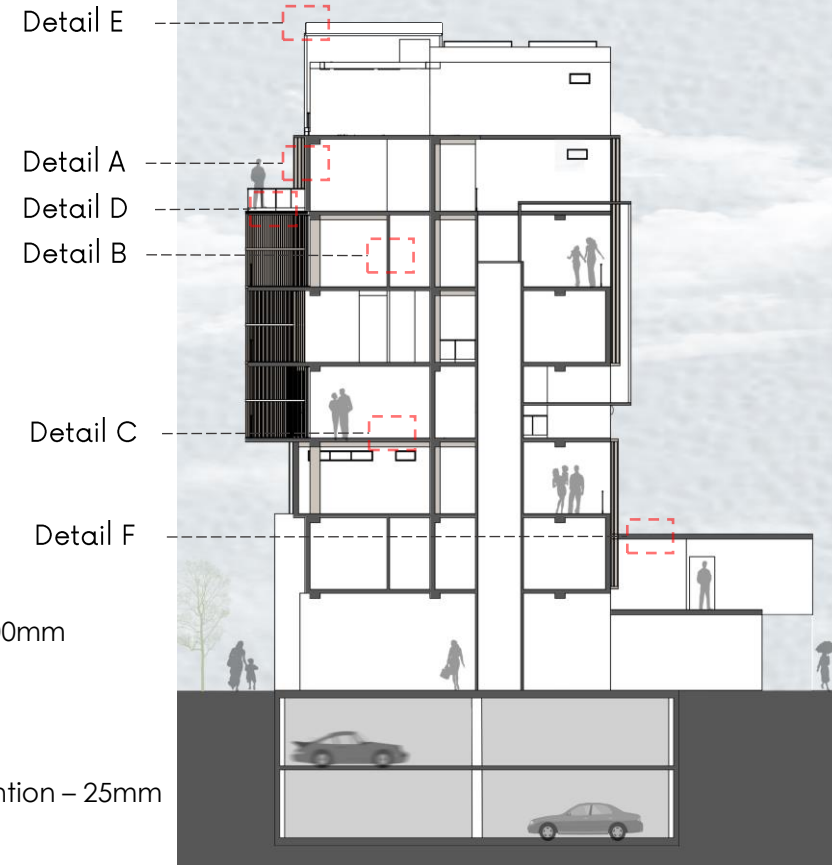
CANTILEVER - HUNG BALCONY

The balcony platform extends outwards without any visible support underneath. The structural support of the balcony is provided by the building. Steel suspensions help transfer the load to the building.

DETAIL F

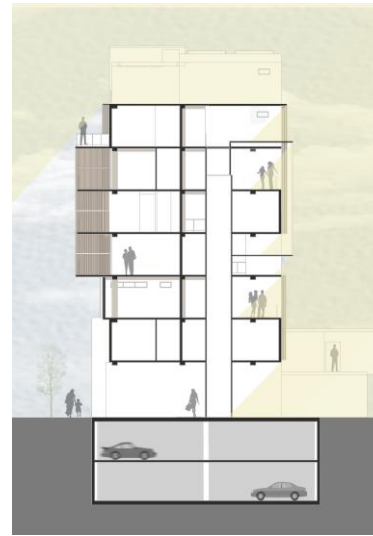


GREEN ROOF



Design Considerations Taken For Visual Comfort

1. **Layout of the house** allows openings in all rooms and thus allows natural light to enter. It also reduces the need for artificial lighting during the day
2. **Large windows** allow maximum amount of light coming in from one opening.
3. **Human Centric Lighting** provides visual comfort as it supports the human circadian rhythms. It focuses on the impact of lighting on human health, well-being, and performance.



Morning sun



Evening sun



**VISUAL
COMFORT**



Different activities and tasks require different levels of lighting to ensure optimal visibility and comfort for the people using the space.

For Example:

Living room: 100-300 lux

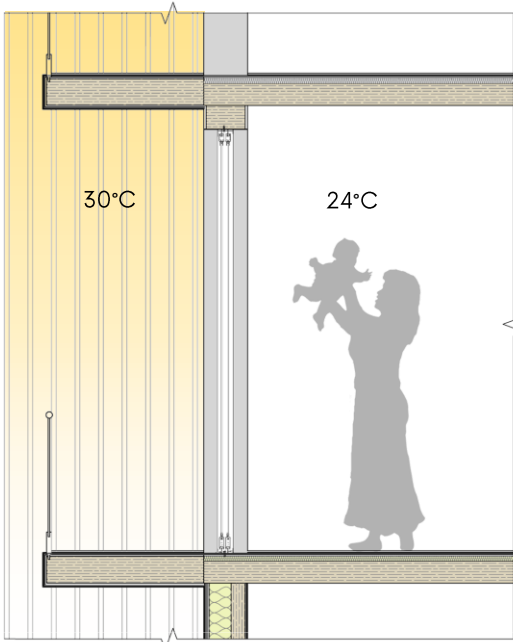
Kitchen: 500-1000 lux

Dining room: 300-500 lux

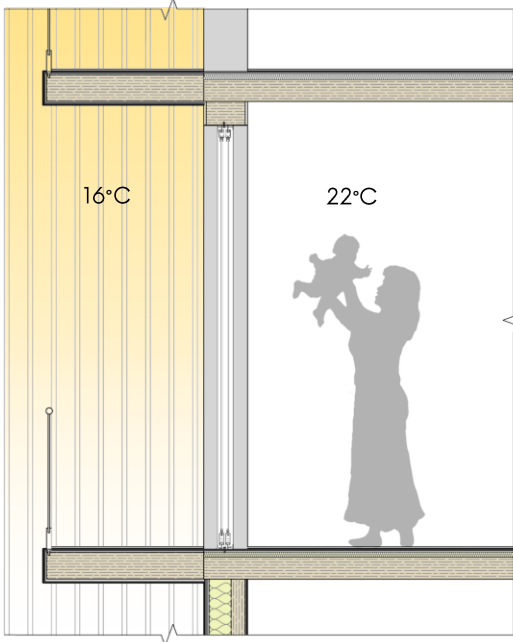
Bedrooms: 50-300 lux

Bathrooms: 500-1000 lux

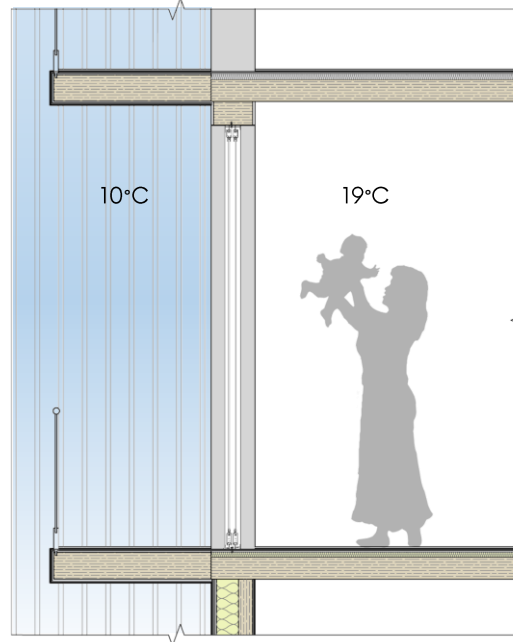
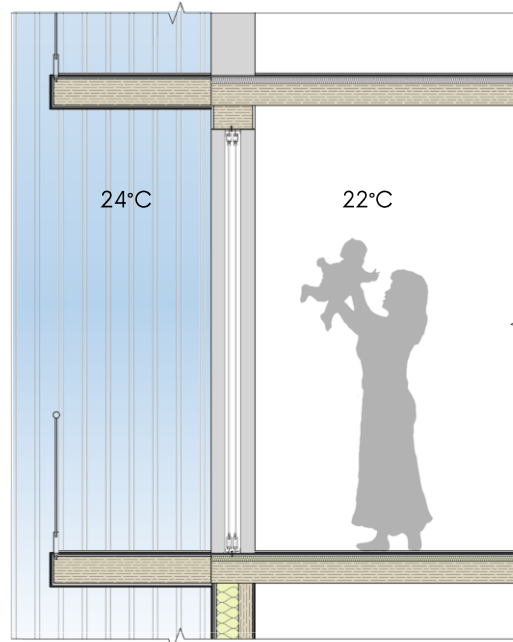




SUMMER



WINTER



AIRTIGHT MEMBRANE

ISOVER Vario membrane is an innovative membrane system designed to manage moisture whilst enhancing air-tightness.



THERMAL COMFORT

The glazing allows light to enter during the day while blocking most of the heat. It helps to contain the heat at night for ambient indoor temperatures.

Design Considerations Taken For Thermal Comfort

- 1. Insulation** helps slow down the transfer of heat between the indoor and outdoor environments, making it easier to maintain a consistent indoor temperature.
- 2. Natural ventilation** is achieved by maximizing window area and by increasing the number of windows across the apartments.
- 3. Energy-efficient windows** help to maintain the indoor temperatures.
- 4. Air tight membrane** on the exterior wall reduces heat loss and heat gain.

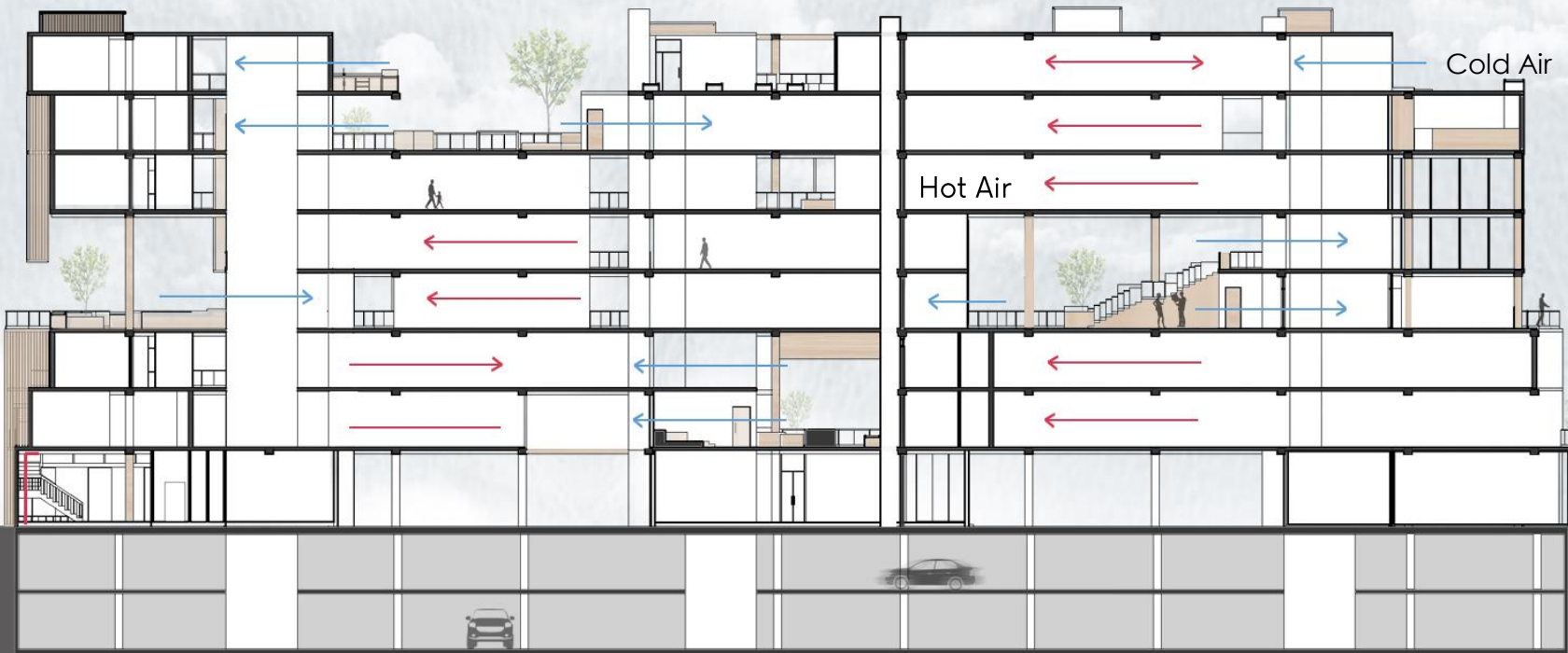


Design Considerations Taken For Indoor Air Comfort

1. **Large windows and open corridors** help in cross-ventilation. It reduces the temperature and helps to improve indoor air quality.
2. To prevent moisture problems, the room is well ventilated, and its envelope has a high level of **insulation and airtightness**.
3. The Green roof and plants help to absorb and reduce VOCs (Volatile Organic Compounds) present in the air.

Breathe

INDOOR AIR
COMFORT



Multi Comfort
BY SAINT-GOBAIN

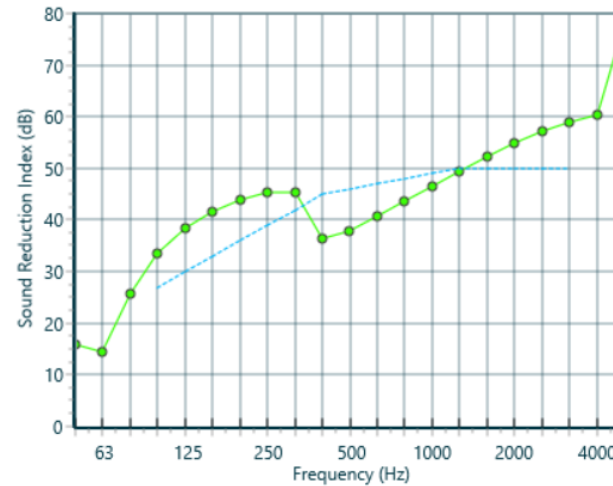
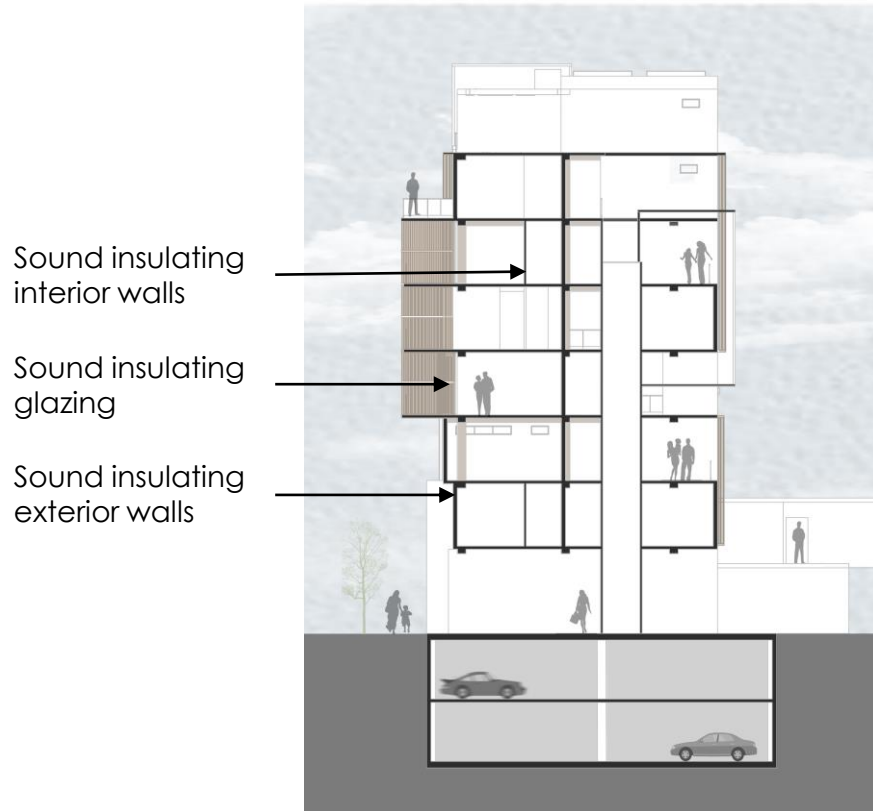
Design Considerations Taken For Acoustic Comfort

1. **Insulation solutions** help in providing acoustic comfort because it reduces the transmission of sound through walls, floors, and ceilings. When sound waves encounter a barrier such as a wall or ceiling, they can be reflected, absorbed, or transmitted through the material.
2. The **airtightness membrane** helps provide a completely sealed envelope to the building and prevents air leaks. This improves the acoustic comfort in the building



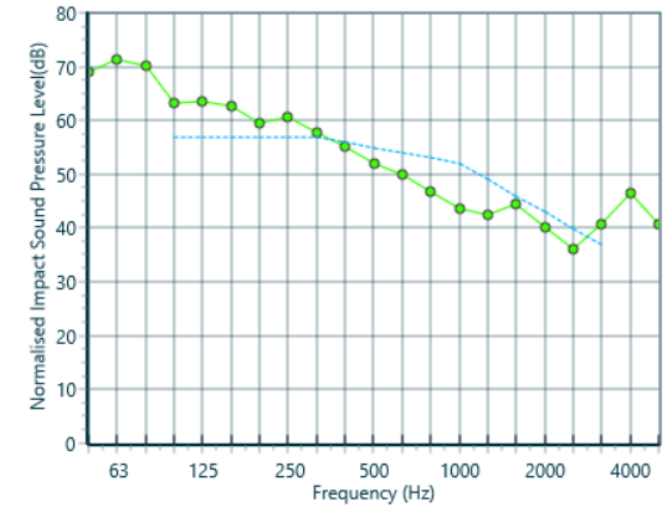
**ACOUSTIC
COMFORT**

Insulation solutions



Exterior Wall

Rw – 46 dB



Flooring

Ln,w – 55 dB

INSUL SOFTWARE

Charts for the sound insulation provided inside the room to



INSUL



SUSTAINABILITY

BOAVISTA TERRACES



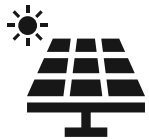
LOW-CARBON CONCRETE

CHRYSO EnviroMix ULC (Ultra Low-Carbon) a reduction of CO₂/m³ of concrete beyond 50%.

Low carbon concrete admixtures and services enabling the calculation and reduction of the CO₂ impact



CIRCULAR ECONOMY STRATEGIES:



SOLAR PANELS

We are using solar panels on the roof and aim to make our building close to net zero.



GREEN ROOF

Green roofs reduce building energy use by cooling roofs and providing shading, thermal mass and insulation.



GREYWATER REUSE

We are reusing water collected in the amphitheater for irrigation purposes.



REUSE OF MATERIALS

Materials from the existing buildings are being reused in our proposed design.





SOLAR PANELS AND PHOTOVOLTAIC PANELS

Energy Requirement: 809132 kWh Annually

Total Roof Area: 451.32 sqm | Number of Panels: 88 | Energy generated per panel: 2kWh per day

Total Energy generate per day: 176 kWh | Oriented towards South

Total Number of Photovoltaic Panels: 14 | Total Area: 201.27 sqm | Total Energy generated: 40.25 Kw per hour

LIFE CYCLE ASSESSMENT

BOAVISTA TERRACES



PERFORMANCE METRIC CARBON HEROES BENCHMARK (A1-A4, B4-B5, C1-C4)

Cradle to grave (A1-A4, B4-B5, C1-C4)	kg CO ₂ e/m ²
< 230 A	206
(230-340) B	
(340-450) C	
(450-560) D	
(560-670) E	
(670-780) F	
(> 780) G	

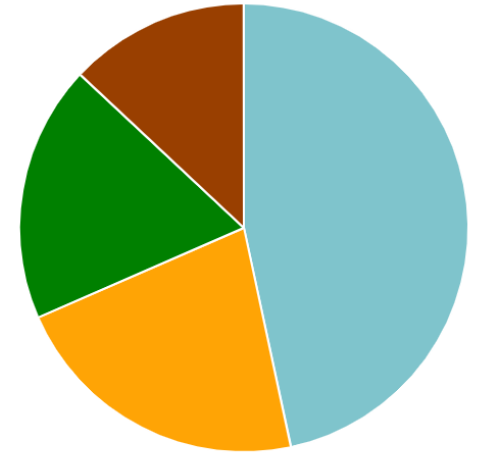


Total Carbon dioxide equivalent emissions from the project - 88.3 kg CO₂e / m² / year



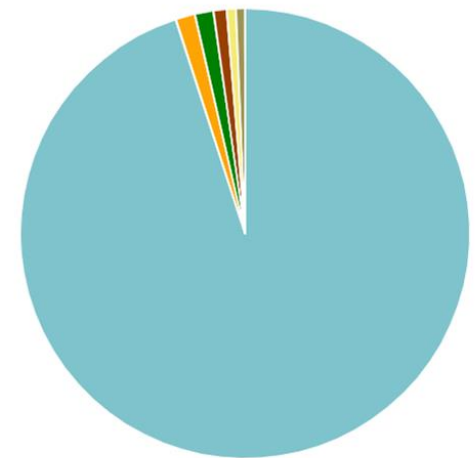
MASS KG - CLASSIFICATIONS

- Foundation, sub surface, basement and retaining walls – 46.6%
- Columns and load-bearing vertical structures – 21.8%
- External walls and façade – 18.5%
- Floor slabs, ceilings, roofing decks, beams and roof – 13.0%



GLOBAL WARMING KG CO₂e - CLASSIFICATIONS

- Electricity use – 95%
- Construction site scenarios – 1.4%
- External walls and façade – 1.3%
- Floor slabs, ceilings, roofing decks, beams and roof – 0.8%
- Columns and load-bearing vertical structures – 0.7%
- Foundation, sub-surface, basement and retaining walls – 0.6%





BOAVISTA TERRACES