

CONSOLIS

LATVIJA

MikroTik office building, Riga

Future-proof office building with
multifunctional prestressed hollowcore floor



May 2019



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CONSOLIS LATVIJA



| **Consolis Latvija**



Consolis Latvija



KEY FACTS ABOUT THE CONSOLIS LATVIJA



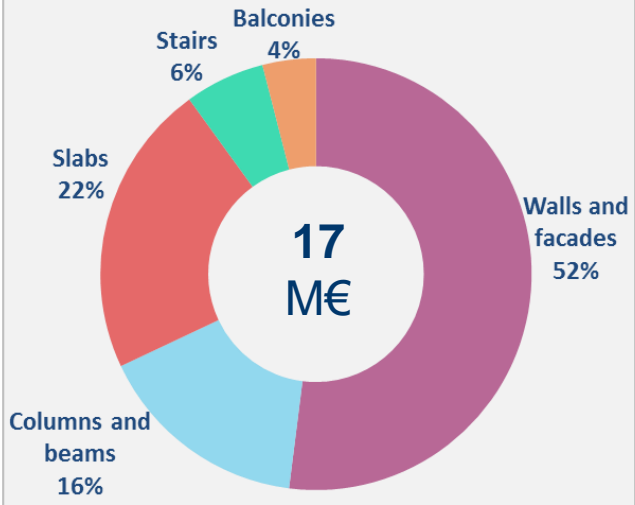
Headcount: 180 (290)



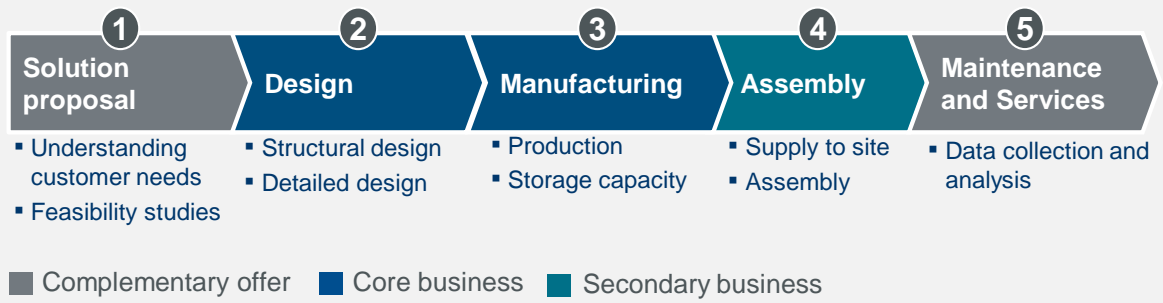
Locations:

- Offices: 1
- Factories: 1 (2)

Core products:



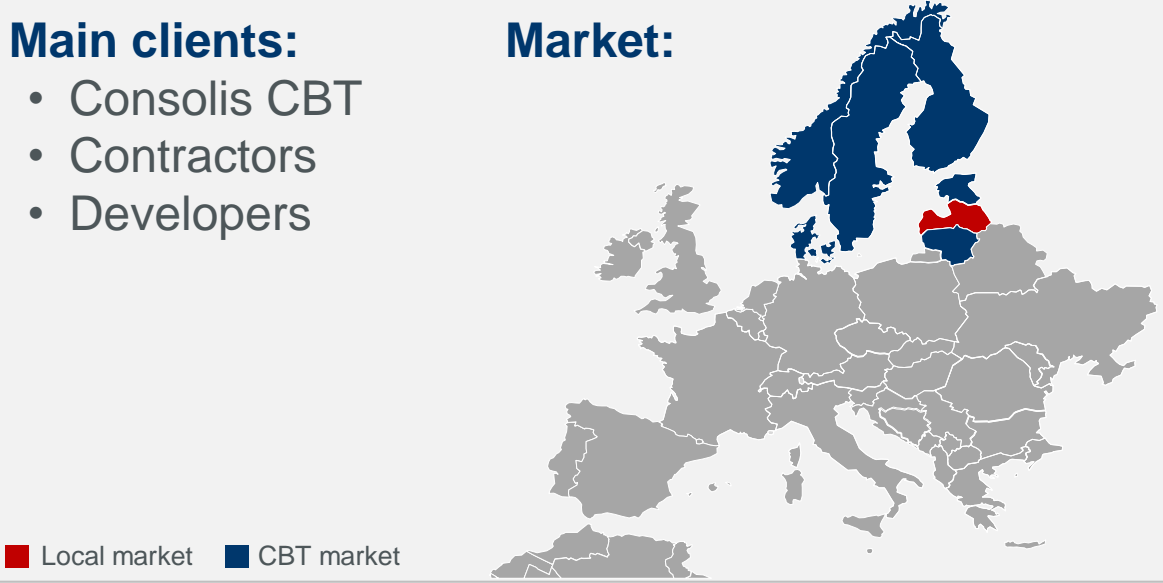
BUSINESS OF CONSOLIS LATVIJA



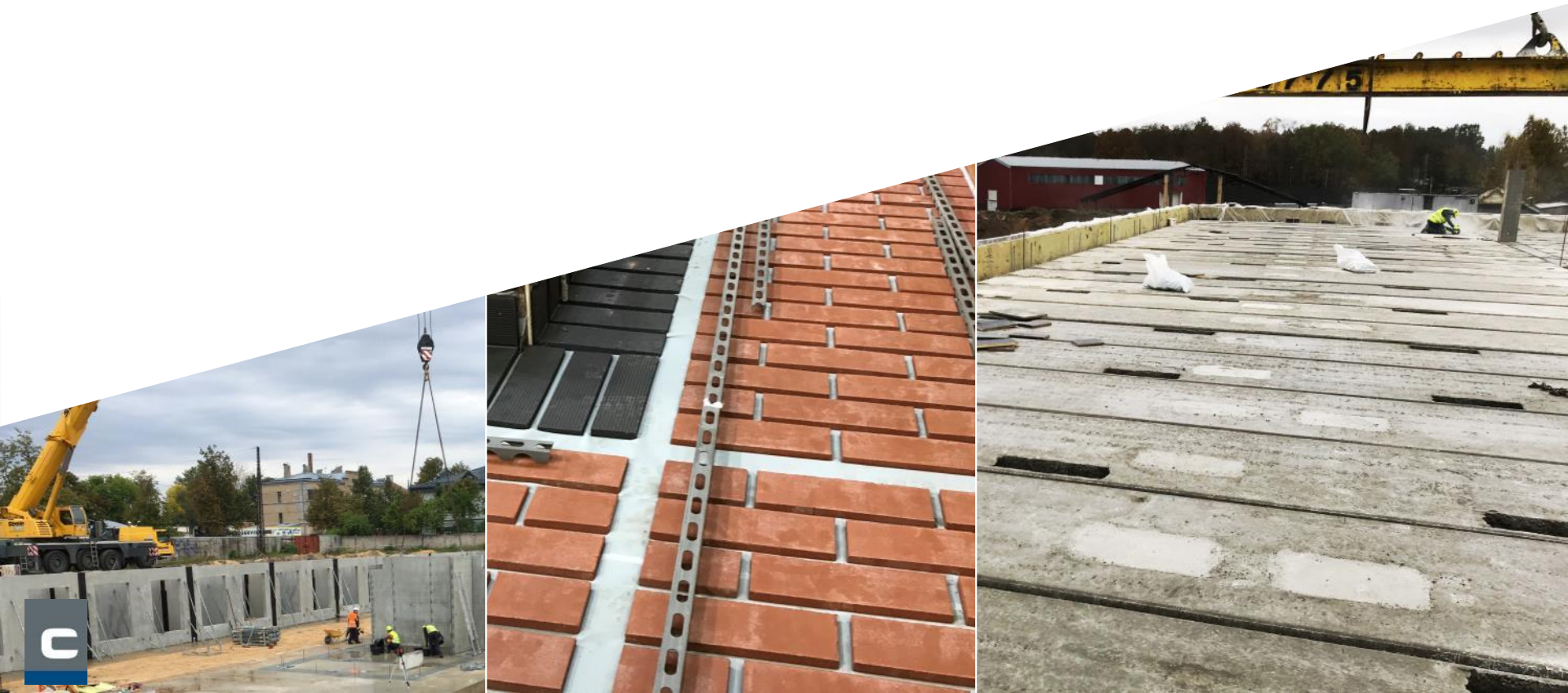
Main clients:

- Consolis CBT
- Contractors
- Developers

Market:



| Where we are today?



Global challenges

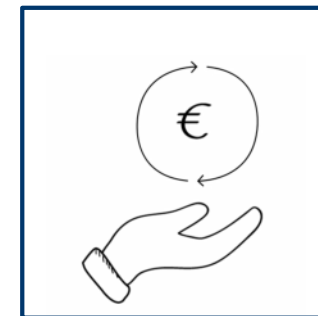
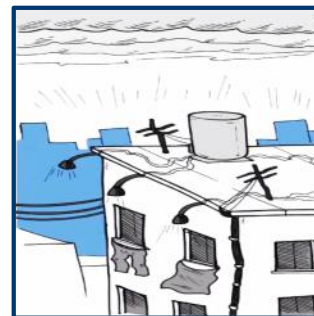
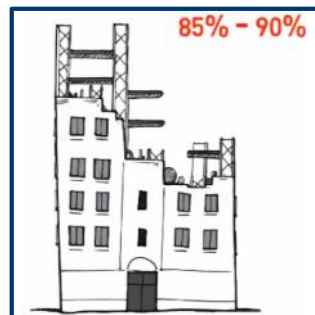
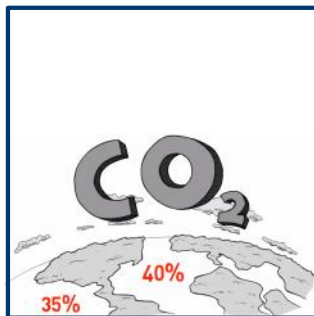
1. Climate Change → urge for CO2 reduction.

2. Resource scarcity and Waste → urge for construction solutions that reduce resource consumption and positively contribute to Circular Economy.

3. Health & Wellbeing → urge to improve indoor comfort and address increased overheating due to highly insulated buildings, complex installations that are not properly working in many situations etc.

4. Costs due to complexity and poor productivity → urge for affordable, simple and robust construction solutions and value chain collaboration.

5. Talent attraction and Skilled labor shortages → the image of the construction industry, and urge to use standardized, modularized and prefabricated components.



Market segment - Needs of targeted customer

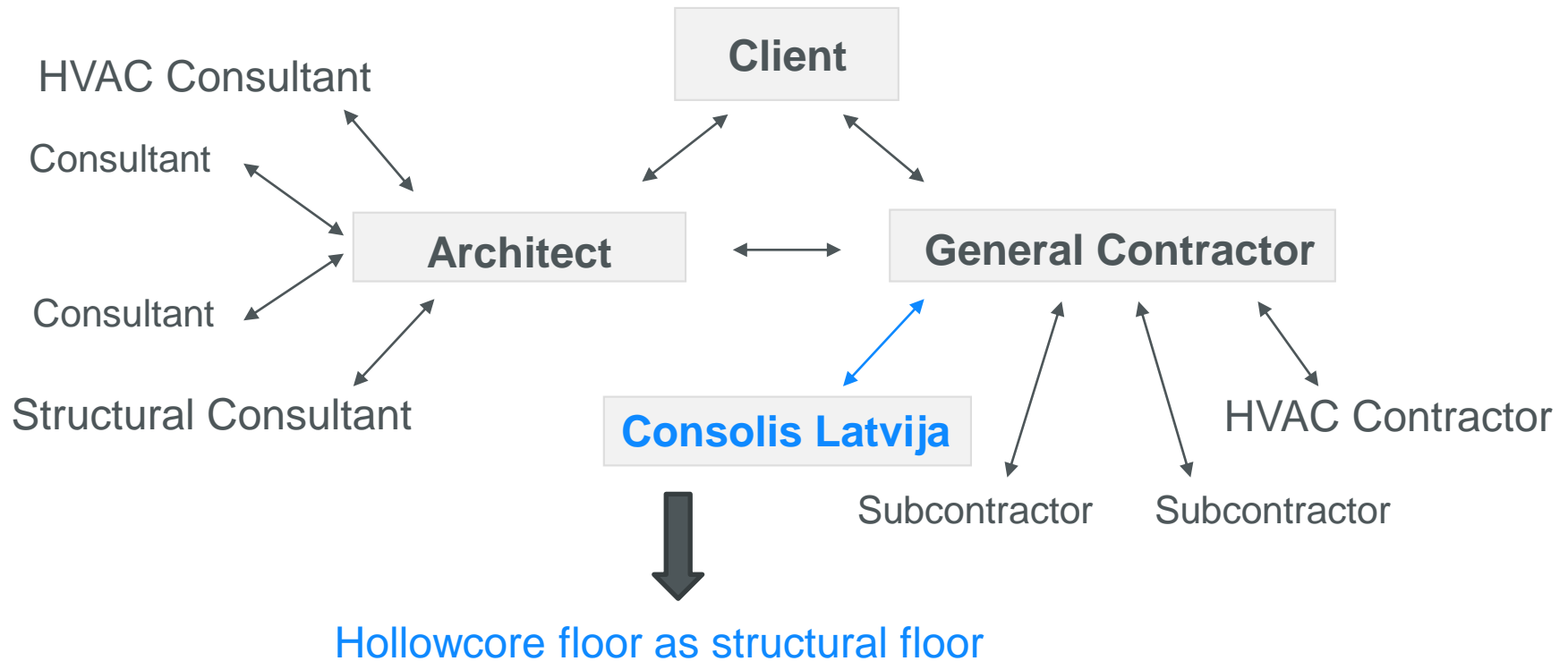
		Contractors	Real Estate Owners	Indirect customers
ENERGY consumption	Renewable energy	1	11	9
	Efficiency	10	26	20
	Electrical demand	1	12	5
	Low carbon	3	6	13
	Refrigerant management	0	6	4
SITE / LOCATION selection	Public transportation	3	9	3
	Site selection	10	12	5
	Grace/Elegance	1	11	10
	Cyclist facilities	0	6	4
INDOOR ENVIRONMENT quality	Air quality	1	12	12
	Daylighting	2	9	7
	Acoustics	2	11	10
	Thermal	7	14	14
	Smell	2	5	5
	Hygiene	3	6	7
MATERIALS usage	Material reuse	8	3	6
	Waste management	14	4	3
	Robustness	12	9	6
PROCESS AND MANAGEMENT of building	Planning	23	6	10
	Construction phase	35	0	0
	Commissioning	13	5	2
ECONOMICAL ISSUES	Costs	38	26	12
	Life cycle consideration	4	14	14
	Value stability	4	24	5
Building FUNCTIONALITY/ COMFORT	Flexibility / adaptability	2	22	12
	Access disabled persons	1	5	10
	Safety and security	12	10	17
INNOVATION	Innovation issues considered	6	7	14

CUSTOMER GROUPS:

- Contractors:** Main contractors, Companies making the erection, Construction managers, Pre-Cast contractors, Steel structure contractors
- Real Estate Owners:** End user – facility for own use, Project owners, Investors renting the facility further
- Indirect customers:** Consultants, Design offices, Architects, Construction managers, Authorities

Source: Consolis questionnaire about environmental friendly buildings, 2010.

Position in value chain



Hollowcore floor as structural floor



Floors in buildings contain a **major of mass** of total building structure, therefore have a **high material optimization potential**.

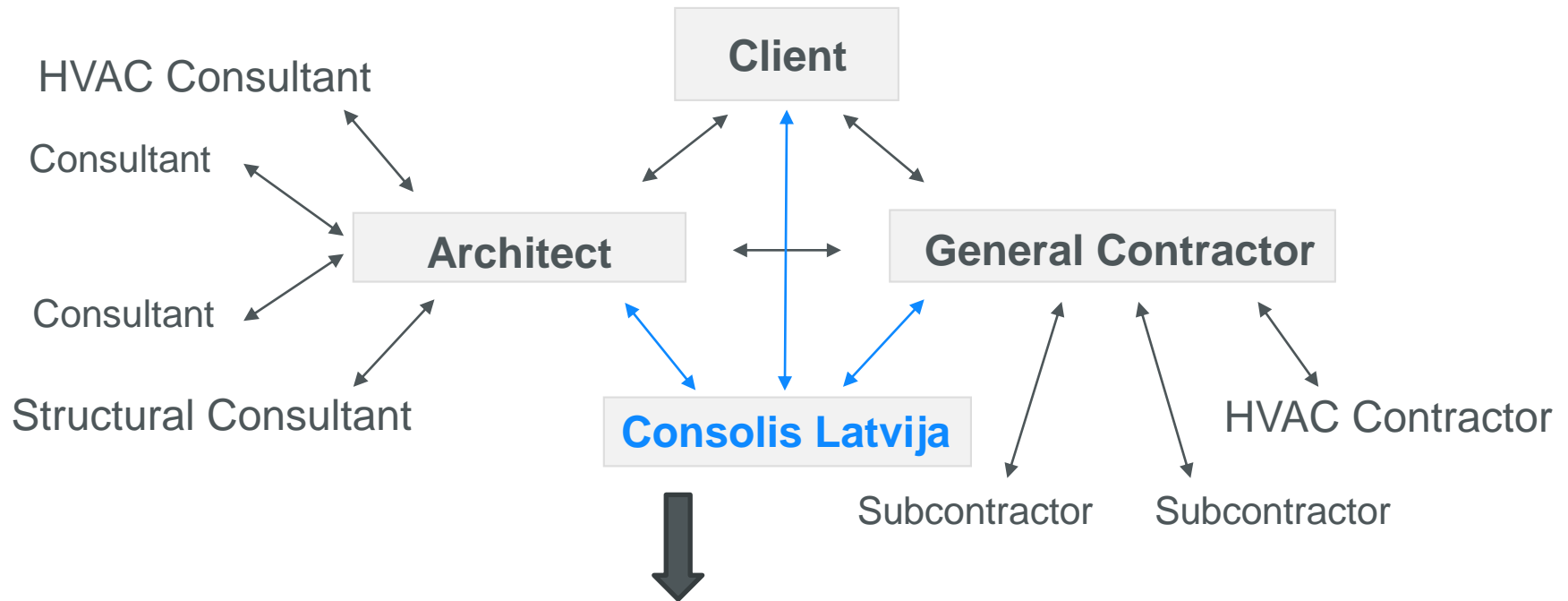
Precast concrete hollowcore-floors produced in highly **controlled & safe** factory environment use about **40% less concrete** and about **50% less reinforcement** comparing to solid cast-in-situ concrete floors.

As hollowcore-floors are **light**, they have **long spans**, up to **50% less embodied-carbon** and are **cost efficient**, thus is very competitive product.

| Where we want to be tomorrow?



Position in value chain

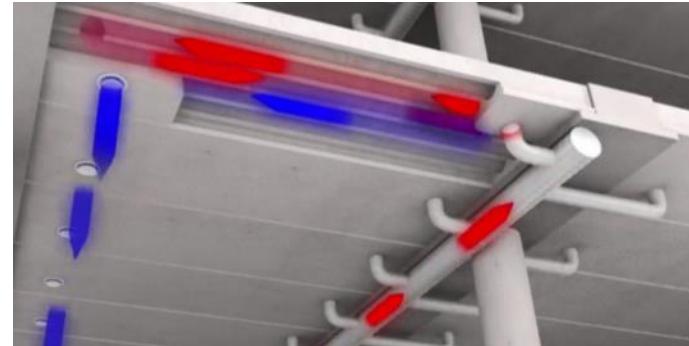


Hollowcore floor as structural floor

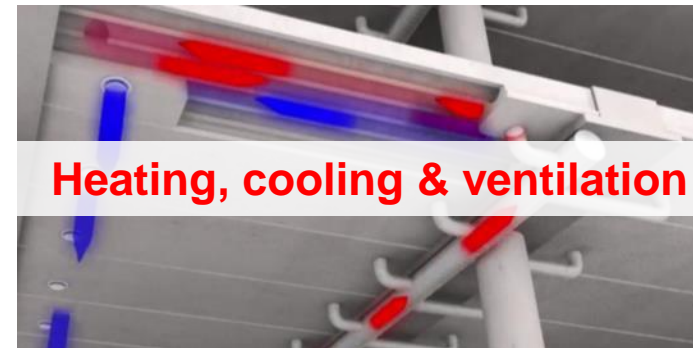
Hollowcore floor with more added value, e.g.

- part of HVAC system,
- integrated cabling & ducting,
- future adaptability

Hollowcore floor with more functions



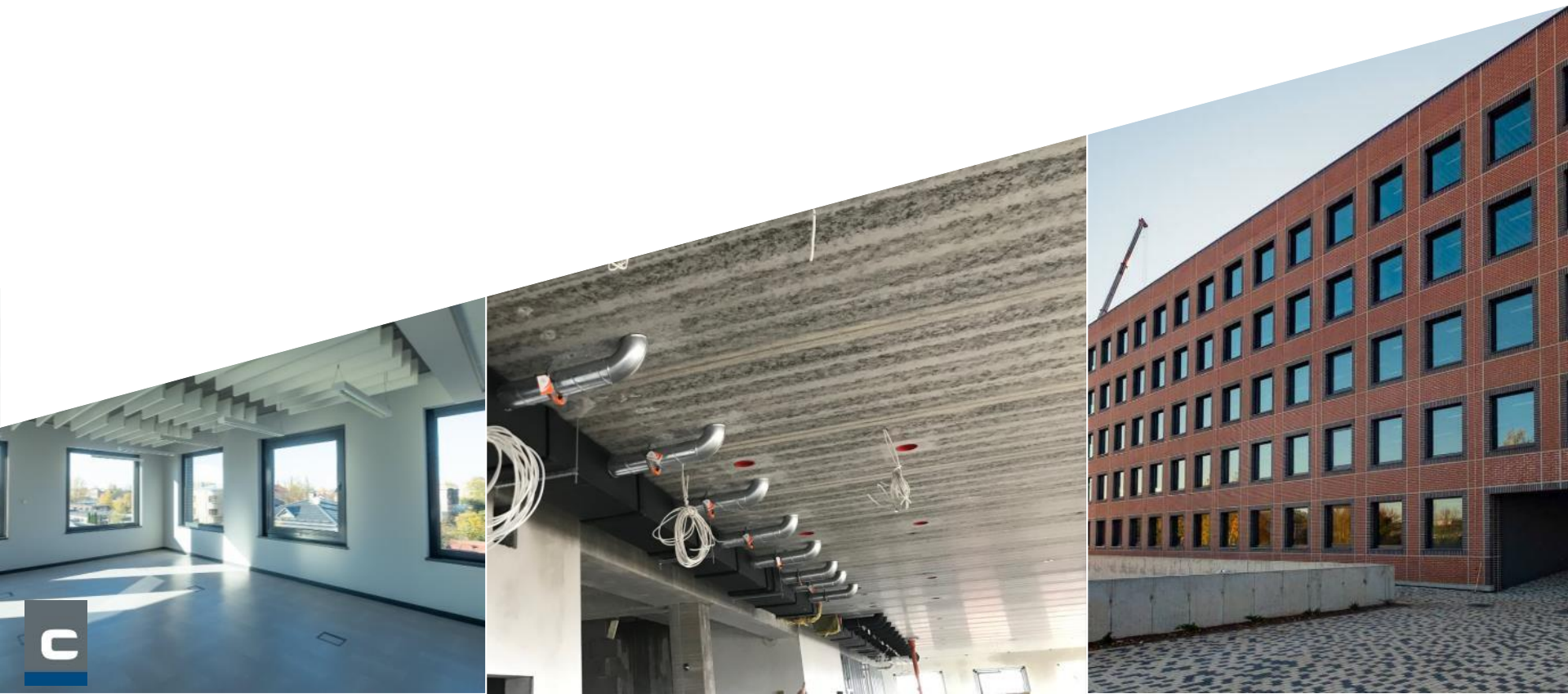
Hollowcore floor with more functions



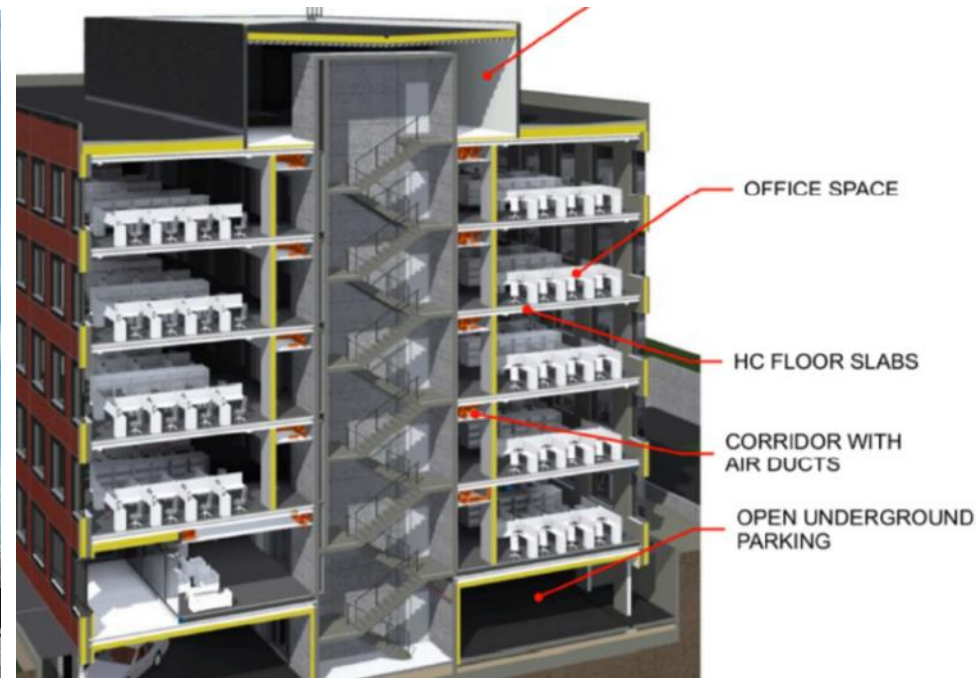


MikroTik office building, Riga

Future-proof office building with multifunctional prestressed hollowcore floor

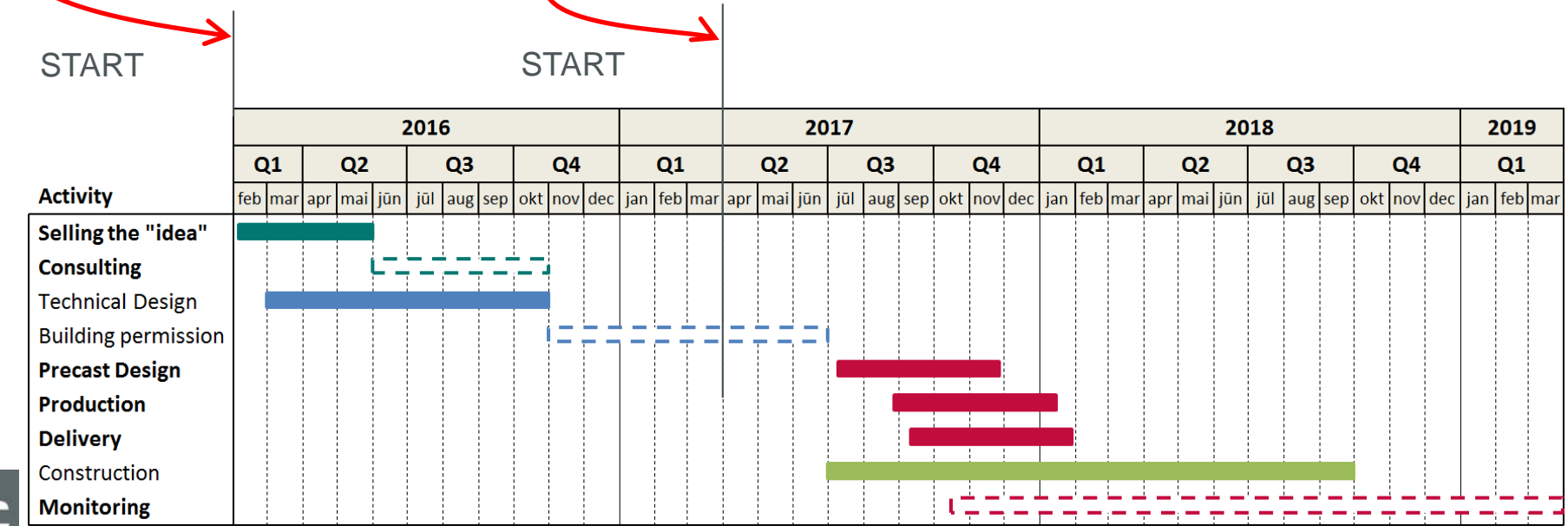


Overview

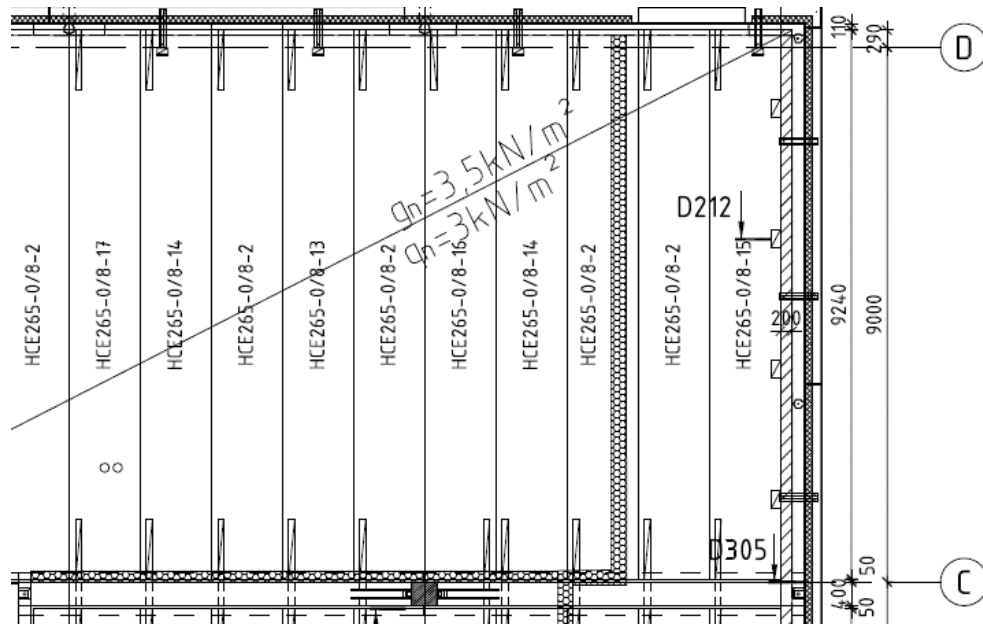


- A five store office building with underground parking
- Located in Latvia, Riga
- Total floor area ~6000m²
- An outstanding example of a sustainable building
- Built using hollowcore floor innovatively first time in Baltic market

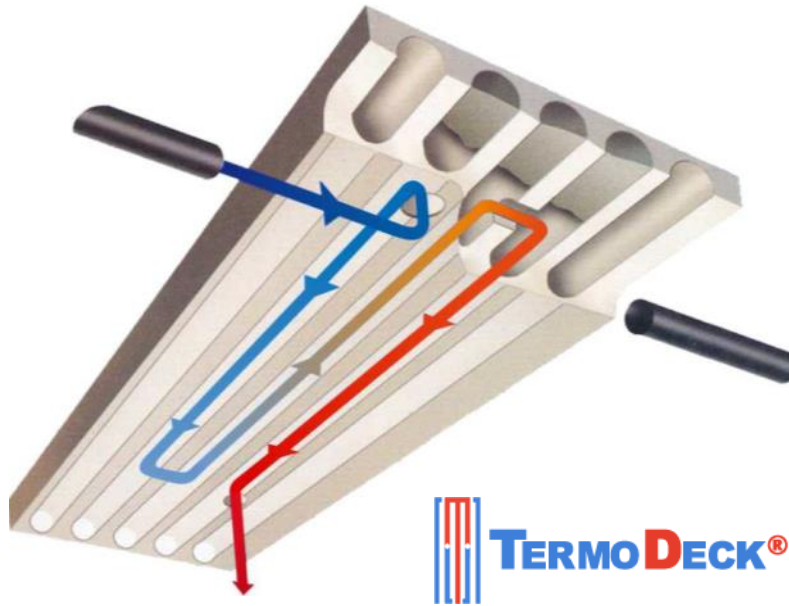
“Selling the idea” at an early stage allowed to provide an optimized HC floor solution with high added value



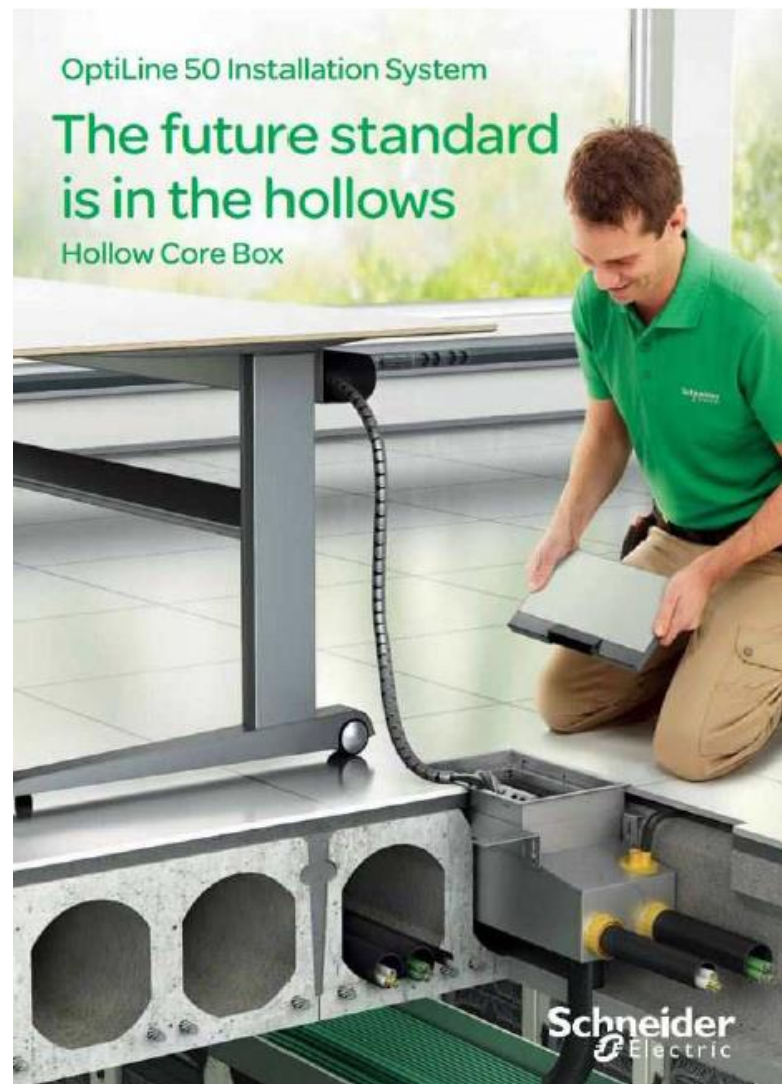
Load bearing long span hollowcore floor



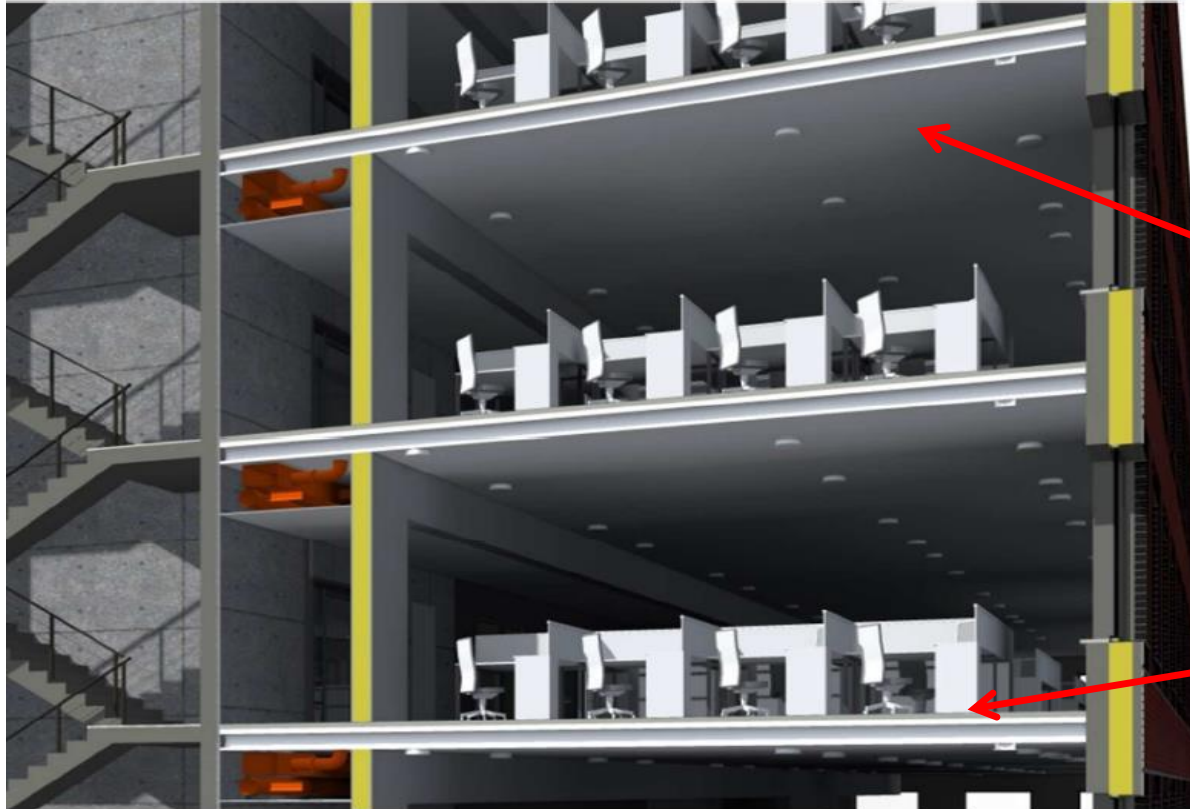
Hollowcore floor for heating, cooling and ventilation distribution



Integrated data and electricity cabling in Hollowcores



Building height reduction = savings



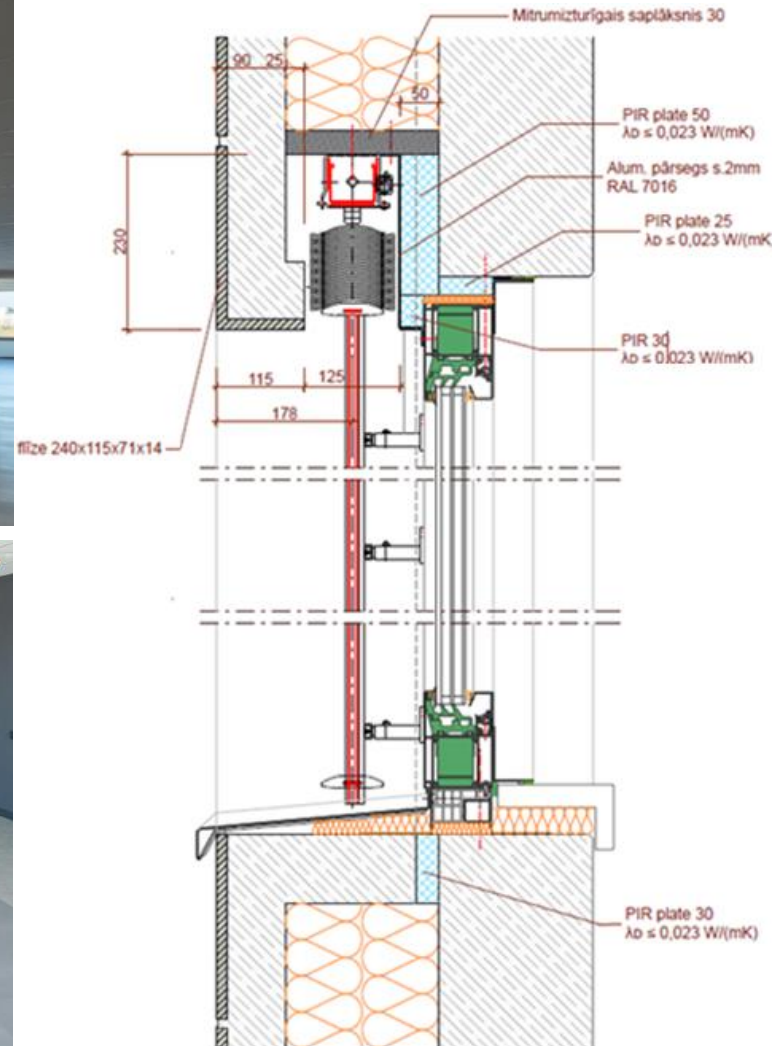
NO FALSE CEILING



NO RAISED FLOOR



Open space office with external solar shading integrated within the precast insulated facade wall

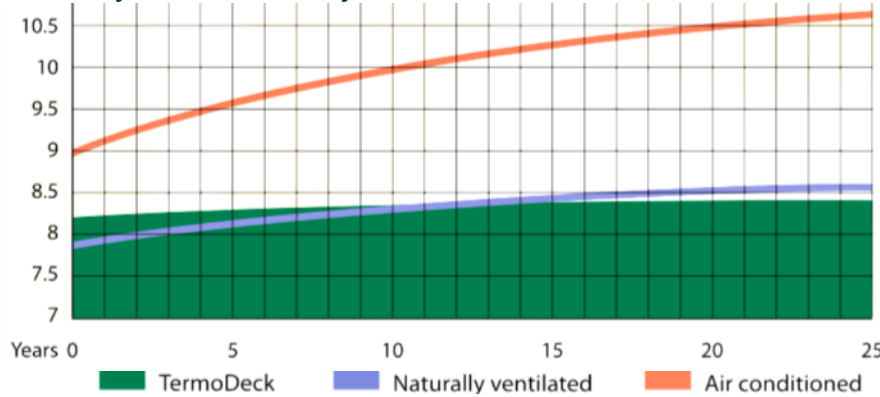


Precast concrete facade with brick cladding

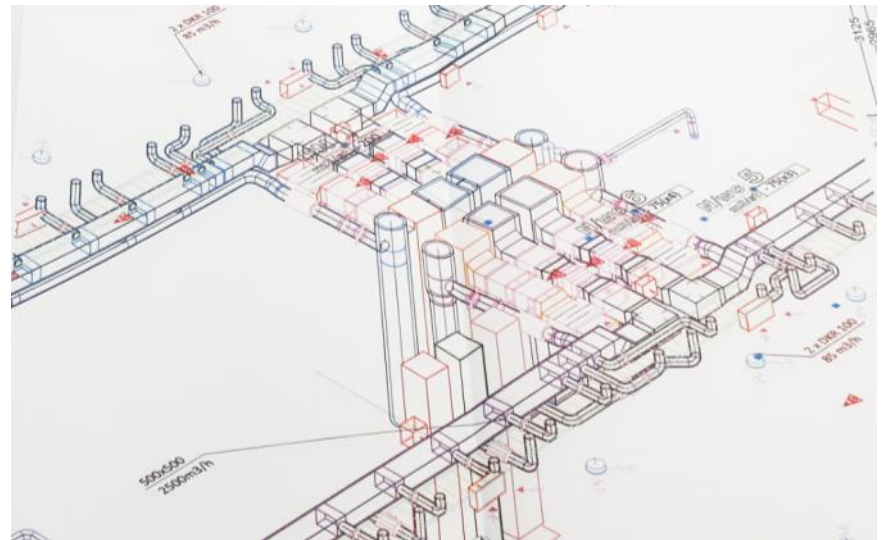
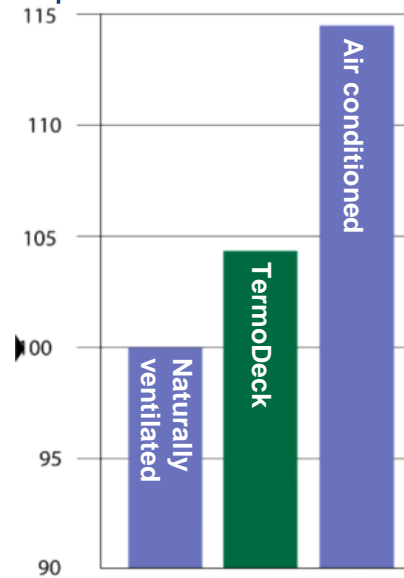


Capital and total life cycle costs of TermoDeck® buildings

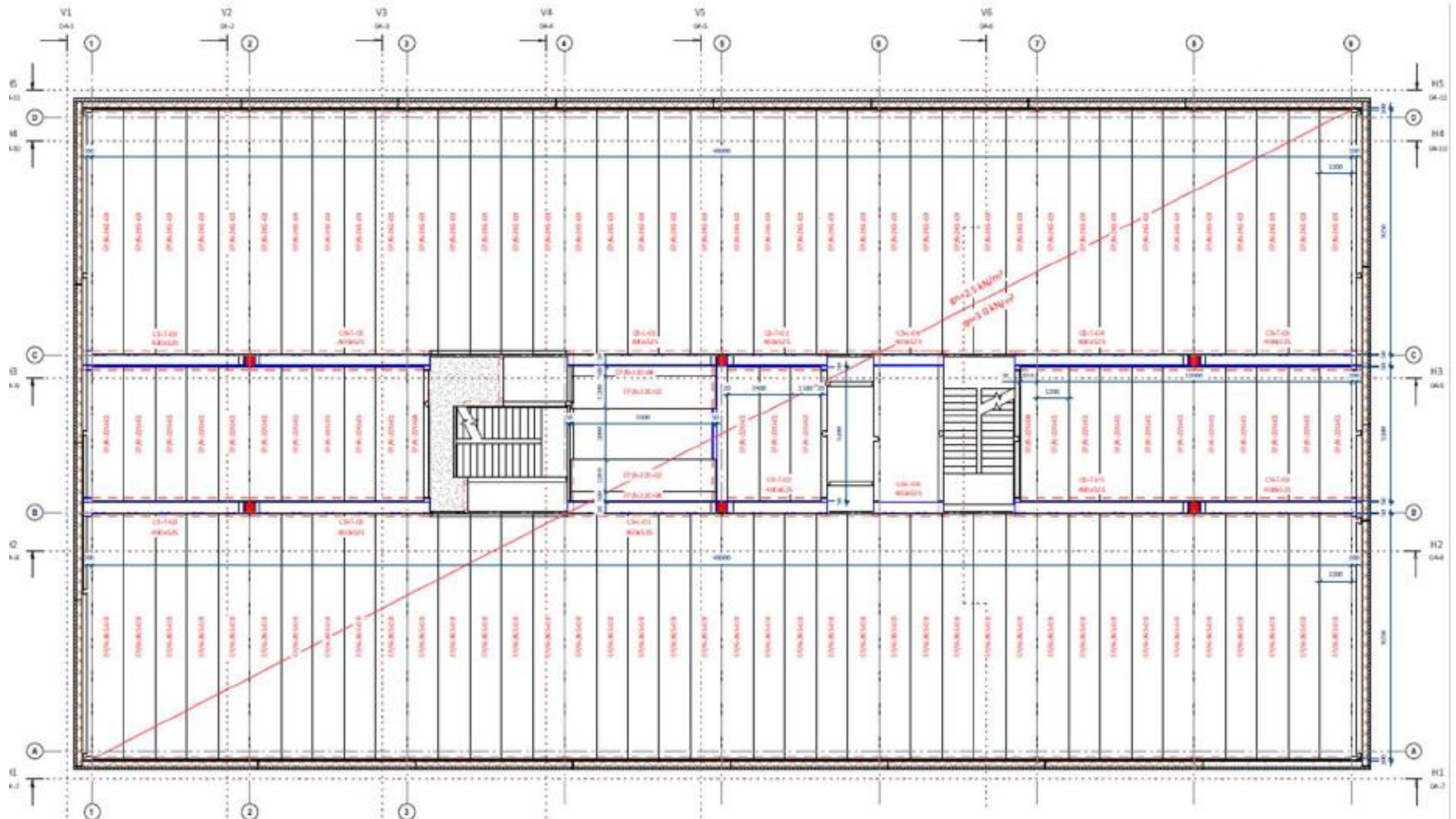
Life cycle costs 25 year



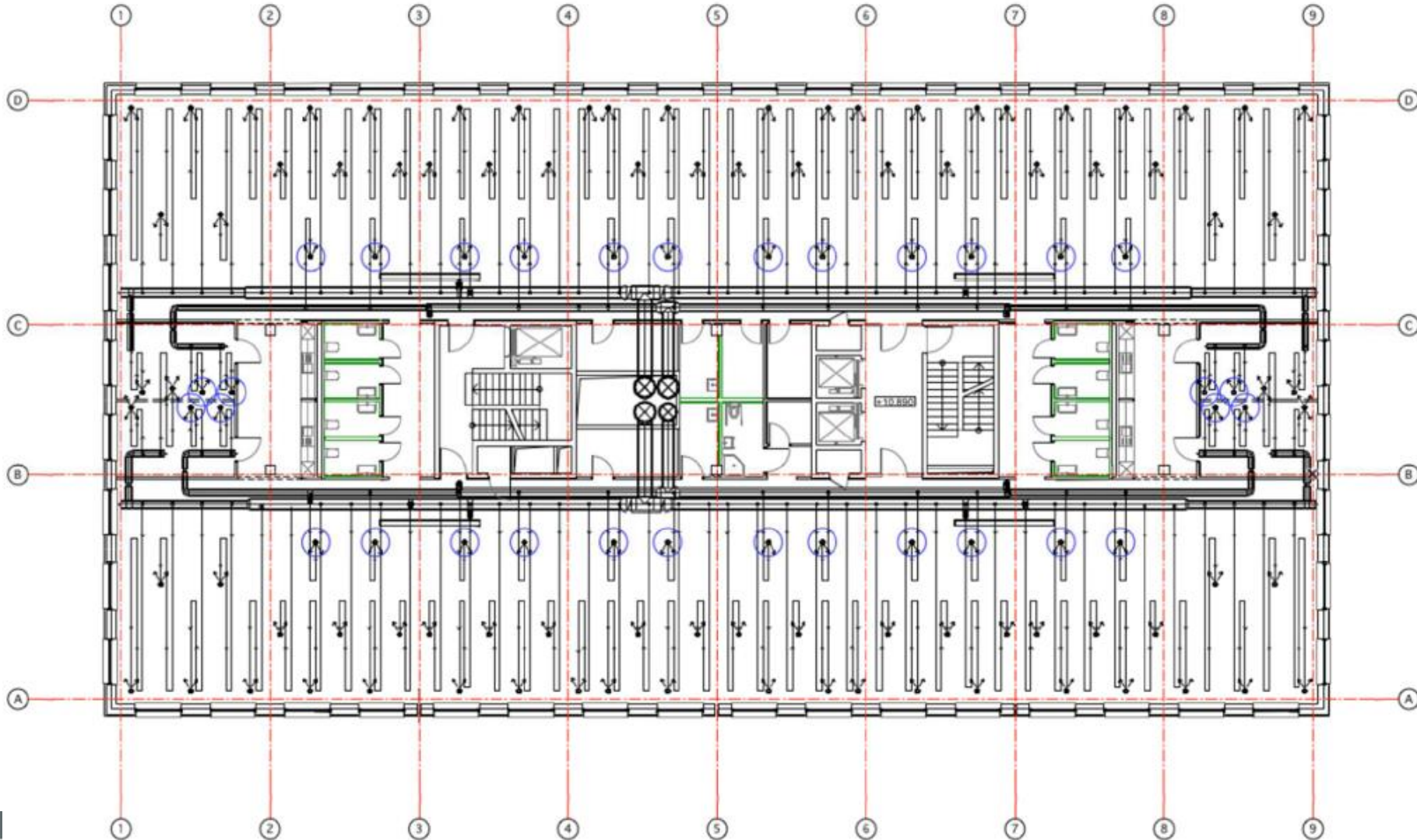
Capital costs



Hollowcore floor layout = simple

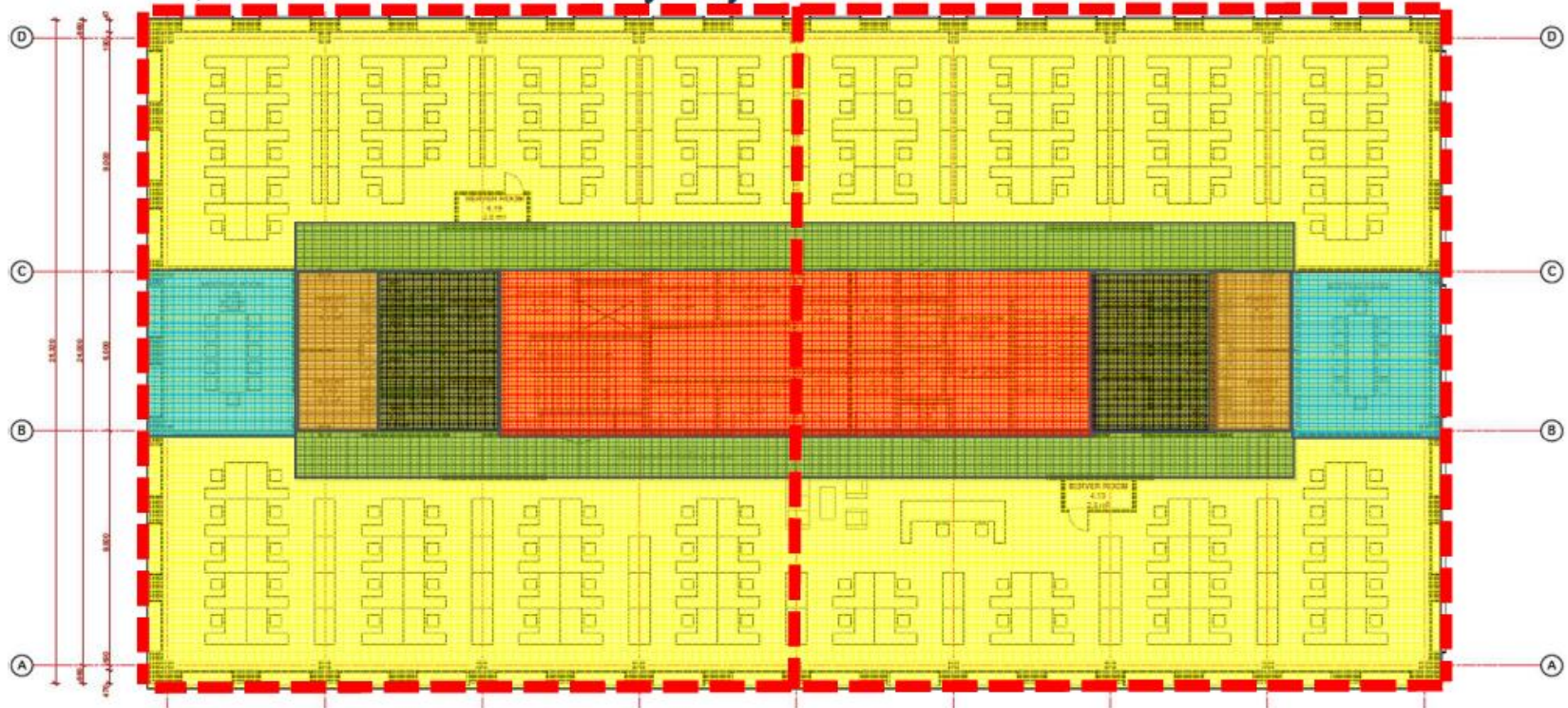









Hollowcore floor layout with supply air ducting



Floor layout future adaptability

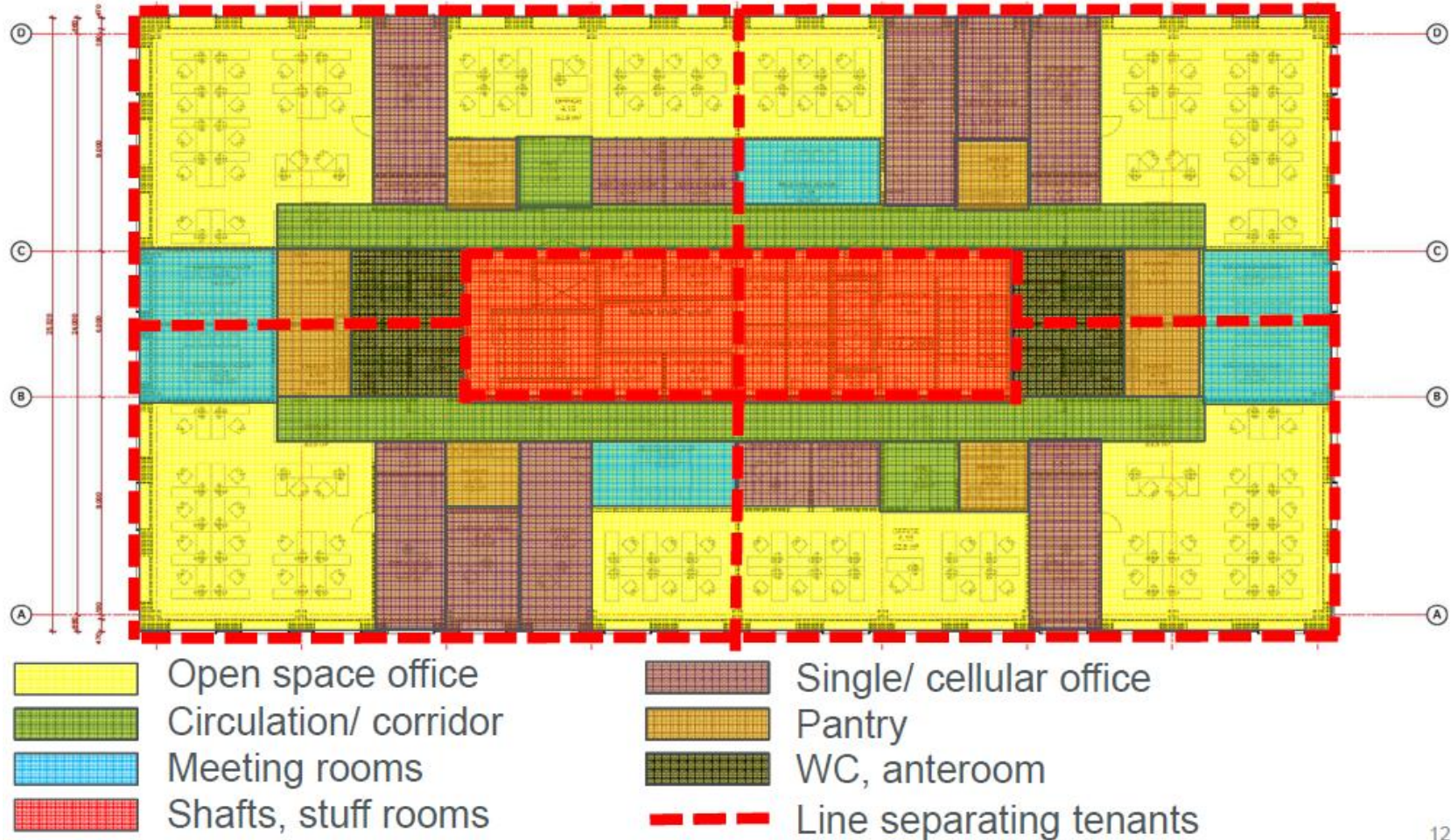
- NOTE! Typical floor space in case of Option 1 is intended for one tenant, but can be also easily adjusted for two tenants



- | | | | |
|---|---|---|-------------------------|
|  | Open space office |  | Pantry |
|  | Circulation/ corridor |  | WC, anteroom |
|  | Meeting rooms |  | Line separating tenants |
|  | Stair/ elevator/ HVAC shafts, stuff rooms | | |

Floor layout future adaptability

- NOTE! Typical floor space in case of Option 2 is intended for one, two, three or four tenants



MikroTik project – addressing Global challenges

1. Climate Change → CO2 reduction achieved through:

- saved materials (50% concrete & 40% steel saving with hollowcore floor compared to in-situe slab);
- reduced energy use (up to 20% lower energy consumption for heating & cooling with active use of thermal mass).

2. Resource scarcity and Waste → smartly designed hollowcore floor reduced resource consumption:

- reduced building height by 15%;
- avoided radiators for heating and chilled beams for cooling distribution;
- also allowed floor layout to be adaptable in the future to comply to changing user demands.

3. Health & Wellbeing → Hollowcore floor radiant heating and cooling ensure for the occupants

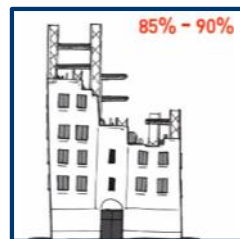
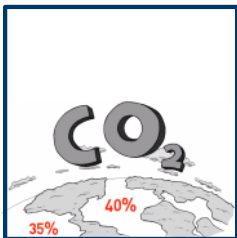
- maximum comfortable and stable indoor temperatures all year round;
- reducing overheating of the building.

4. Costs due to complexity and poor productivity → affordable and simple solution ensure:

- Reduced capital costs (reduction in materials, and machines)
- Lower operating costs.

5. Talent attraction and Skilled labor shortages → with sustainable and Simple precast solution:

- Sustainable solution is attractive (people are proud to produce, proud to work in that kind of building).
- Less people needed on site to assemble the building.





Thank you!