Mahindra Lifespaces

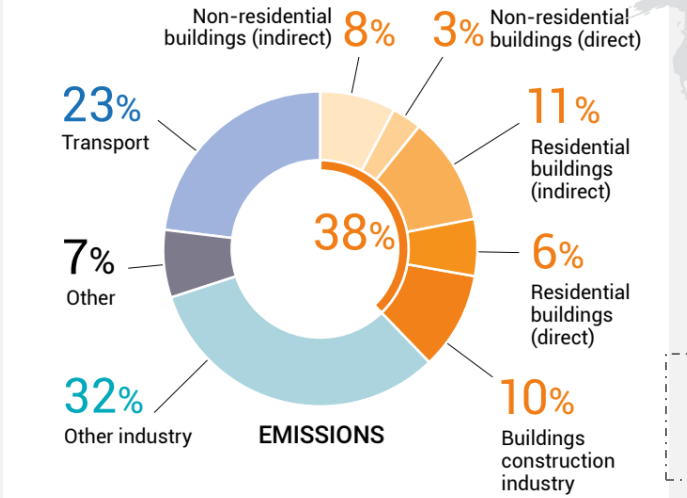
REAL ESTATE Decarbonization challenge

By 2100

REAL ESTATE CHALLENGES FOR DECARBONIZATION

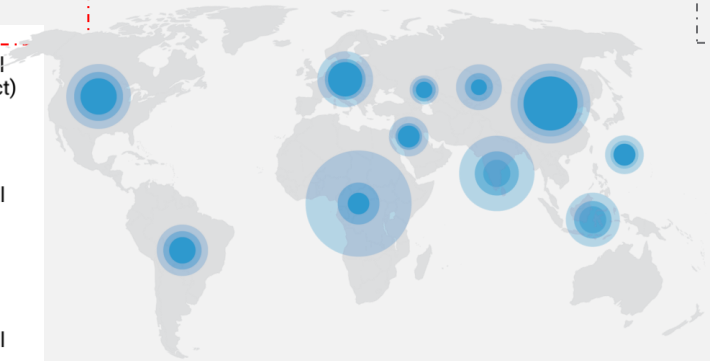
Sector Emissions

*The buildings and construction sector contributes to **38%** of Global GHG emissions.*



New Construction

Global building floor area is expected to **double** by 2060.



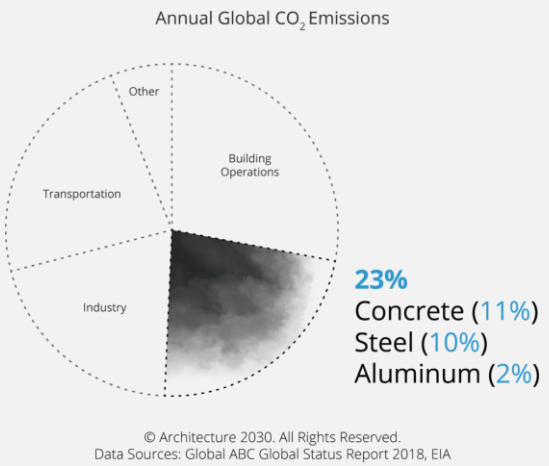
*We expect to add **2.4 trillion ft2 (230 billion m2)** of new floor area to the global building stock*

Existing Construction

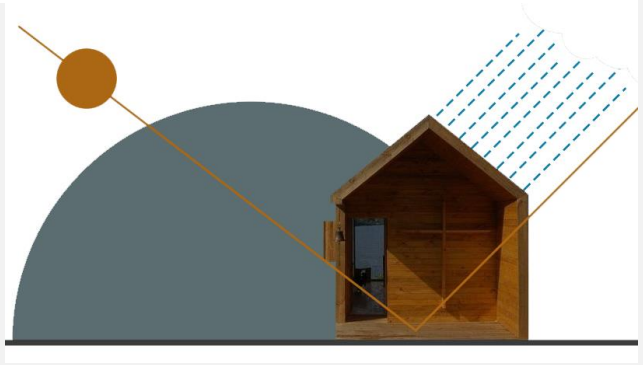
*Approximately **2/3** of the global building area that exists today will still exist in 2040.*

In 2040, 2/3 of the global building stock will be buildings that exist today. Without upgrades, they will still be emitting GHGs.

Embodied Carbon

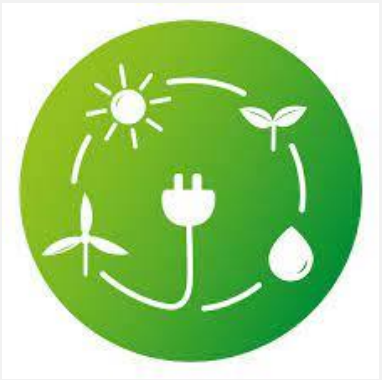


*Concrete, steel, and aluminum – are responsible for **23%** of total global emissions (most of this used in the built environment).*

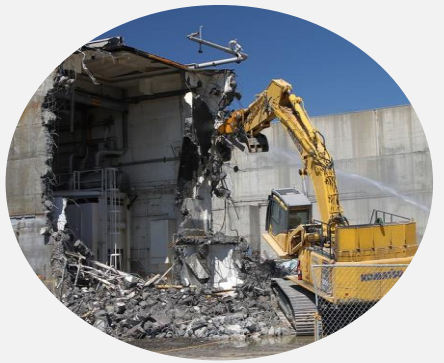


Climate Responsive Design Awareness

Green Investment & Policy Framework



RE Integration



C&D Waste Management

Mahindra Lifespaces : ESG Commitments

Science Based Target (SBT)

Approved SBT targets for Scope 1,2, & 3 emissions for,

- Mahindra **Lifespaces**
- MWC **Chennai**
- MWC **Jaipur**

Net Zero

Net zero by 2030 for all new developments

- Net Zero **Energy**
- Net Zero **Water**
- Net Zero **Waste**

The Green Army

Creating **"One million caring citizens"**

MLDL specific ESG commitments

Carbon Neutrality

Carbon Neutrality for Scope **1 & 2** emissions by **2040**

Zero Waste to Landfill (ZWL)

Achieve ZWL for ***offices, homes,*** *and* ***IC&IC*** by **2030**

Water Positive

Achieve **Water Positive** development by **2030**

Project Hariyali

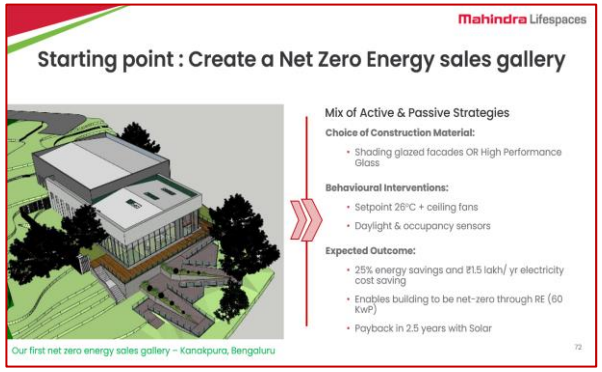
Plant **5 million** trees annually

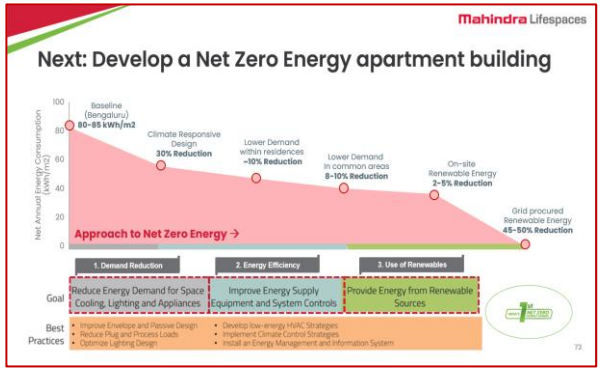
Nanhi Kali

Educate **1 million** girl children annually

Aligned with Mahindra Group ESG commitments

Focus inward:
Codified approach to *Climate Responsive Design*





CLIMATE RESPONSIVE DESIGN

Design for "least possible air-conditioning; and no artificial lights during the day"

1. Minimize solar radiation ingress through windows in summer
2. Minimize heat gains through walls and roof

3. In feasible climates and outdoor conditions, maximize building's potential to cool via natural ventilation

4. Design for adequate daylight

AVOID / ORIENT

SHADE

INSULATE

REFLECT

OPEN & VENTILATE

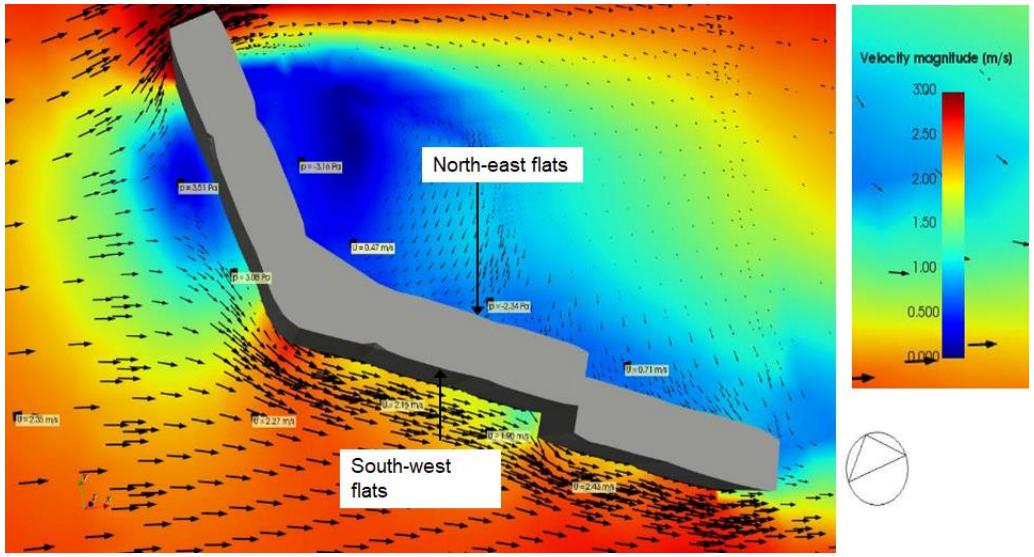
AVOID / ORIENT

REFLECT

- Building, Window Orientation
- Window Sizing
- Building Zoning
- Window Shading
- Internal layouts
- Window opening
- Wall and roof material
- Window material

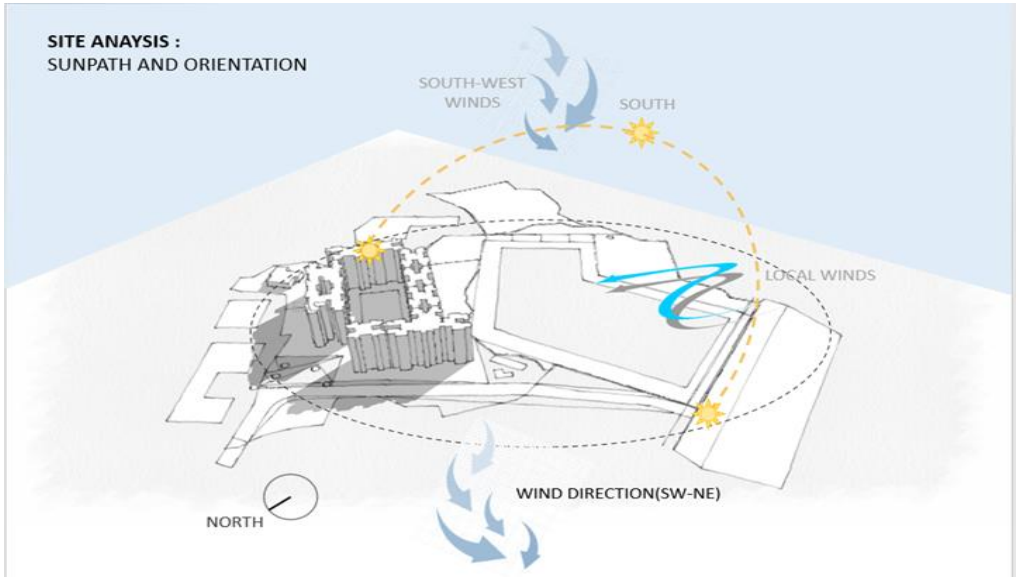
Focus inward:
Codified approach to *Climate Responsive Design*

CFD Wind-analysis



1. Identify and maximise natural ventilation within units
2. Leveraged for comparing design alternatives with quantification of ventilation potential

Sun-path analysis



1. Identify and orient buildings as per sun path
2. Leveraged for comparing design alternatives for minimization of heat gain

Focus Inward

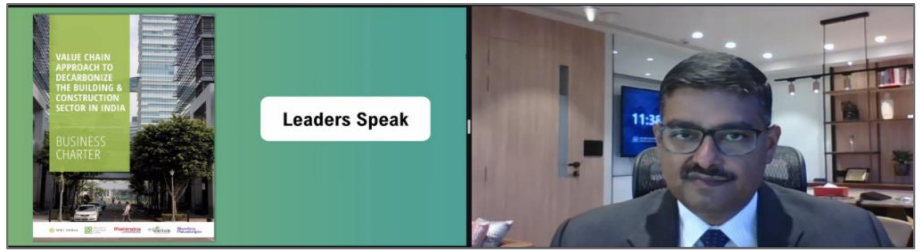
Sustainability Integration across value chain

Target	**Residential** – **INR 2500 crore** revenue by 2025 **and** **IC & IC** – **INR 500 crore** revenue by 2025					
Crafting Future with environmentally and socially responsible homes and industrial developments						
Growth Pillars	Business Growth	Product Standardization	Sales	First Time Right	Construction Management	Customer Experience
Business Function(s)	Business Development	Design | Marketing	Sales	Procurement | Contracts	Projects (Quality, Safety, & others)	CRM | FM
Value Chain Map	**Site Selection & Land Acquisition**	**GTM (Planning and Design)**	**Product Launch**	**Raw Material and Labour**	**Construction**	**Product Handover & Use**
Sustainability						
Sustainability Integrated Activities	• Site (Climate and ESG) **Risk Assessment** • **Environmental Impacts** • Ethical land acquisition and use **Site Finalization** • Environmental Impact Assessment **(EIA) – EC**	• **Climate responsive design (CRD)** • **Energy Simulation, Solar/wind** analysis, **Water** (Rainwater harvesting), & **Waste** (RRC in design) • **Material specifications** as per design guidelines • Green Building Precertification	• End-to-end **product sustainability features** handholding to sales • Product related **sustainability benefits** for customers	• **Vendor onboarding (code of conduct – ESG parameters)** • **Raw material sourcing** (aligned with design guidelines) • Strict adherence to **labour compliance** • **Training & skill development** of workers & contractors	• **Sustainability Maturity Assessment** • SOP development and training • **Site level measures** (Energy, water and waste reduction) • **Product level measures** (RWH, STP, Waste Management) • **Final Certification**	• **Product Handover SOP** • **Complaince** (EC, CTE, CTO) and other handovers to RWAs • Resident Assist • **Customer care & grievance** support • Customer Enagagement – **Make The Switch**

Focus outward:

Business Charter for Sectoral Decarbonization

Value Chain Approach for Decarbonization of Construction and Building Sector



WRI INDIA | 10 YEARS — Mahindra LIFESPACES

Value-chain approach to decarbonizing the building and construction sector in India

Concept Note

Context

The science is clear – limiting global warming to 1.5°C would require the world to reach net-zero emissions by mid-century[1]. To this end, United Nations Framework Convention on Climate Change (UNFCCC) launched a global campaign called Race-to-Zero to mobilize leading net-zero initiative from cities, regions, businesses, universities, and biggest investors. With the Paris Agreement realizing the role of the non-state actors including businesses to mobilize bold climate actions, the businesses will play a crucial role in the success of Race-to-Zero campaign. So far, 1,675 businesses across the world have successfully qualified to join Race-to-Zero[2].

Despite the pandemic, the world witnessed significant changes with net-zero commitments doubling in 2020 covering two-thirds of global emissions[2]. However, winning the race-to-zero would require disruptive sectoral transformations. Built environment (or buildings) would require 100% of the projects due by 2030 or after, to be net-zero carbon in operations with at least 40% less embodied carbon compared to current practice[3].

In the recent past, a few Indian businesses such as Mahindra Group, Dalmia Bharat Limited, Infosys, etc. have indicated laudable ambition to achieve net- ould imply that the commercial spaces such as buildings in the fac m part of race-to-zero journey. A

COMMITMENT

1. **Design** Net-zero Buildings
2. **Adopt** science-based net-zero targets
3. **Improved** operational efficiency for net-zero buildings
4. **Mainstream** low-carbon materials
5. **Develop & mainstream** climate-aligned building codes and standards
6. **Enabling** monitoring & tracking performance of a net-zero building