



The Architecture of Zero Five Strategies for Energy-Smart Buildings

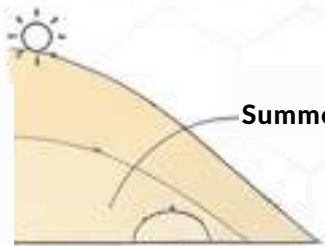


THE FUTURE IS DESIGNED, NOT CONSUMED

Buildings are no longer passive shells – they are dynamic engines of productivity and resilience.

From Delhi to Dubai to Dar es Salaam, the new architecture of energy is driven not by technology alone, but by intention – the will to design differently.

This is where every structure contributes to a regenerative future, transforming urban landscapes into vibrant ecosystems.



Summer Sun / Winter Sun

SRL > 78

Roof U = 0.20 W/m²·K

Optimise orientation: 25% WWR North, < 40% South

Heat Loss

Daylight Path

SHGC < 0.27

VLT > 40

25% WWR North | 40% South

Sealed Joints | Air-tightness

Select materials with SRI > 78

Scale invisible gains – achieves 5% annual energy savings

STRATEGY 1 | THE INTELLIGENT ENVELOPE

The envelope is architecture's skin and brain combined.

In a Net-Zero future, roofs, walls, and façades breathe, shade, and generate.

The Energy Conservation and Sustainable Building Code (ECSBC) 2024 transforms the envelope from a passive barrier into a performative instrument, its efficiency now measurable through the Envelope Performance Factor (EPF).



Envelope



Systems



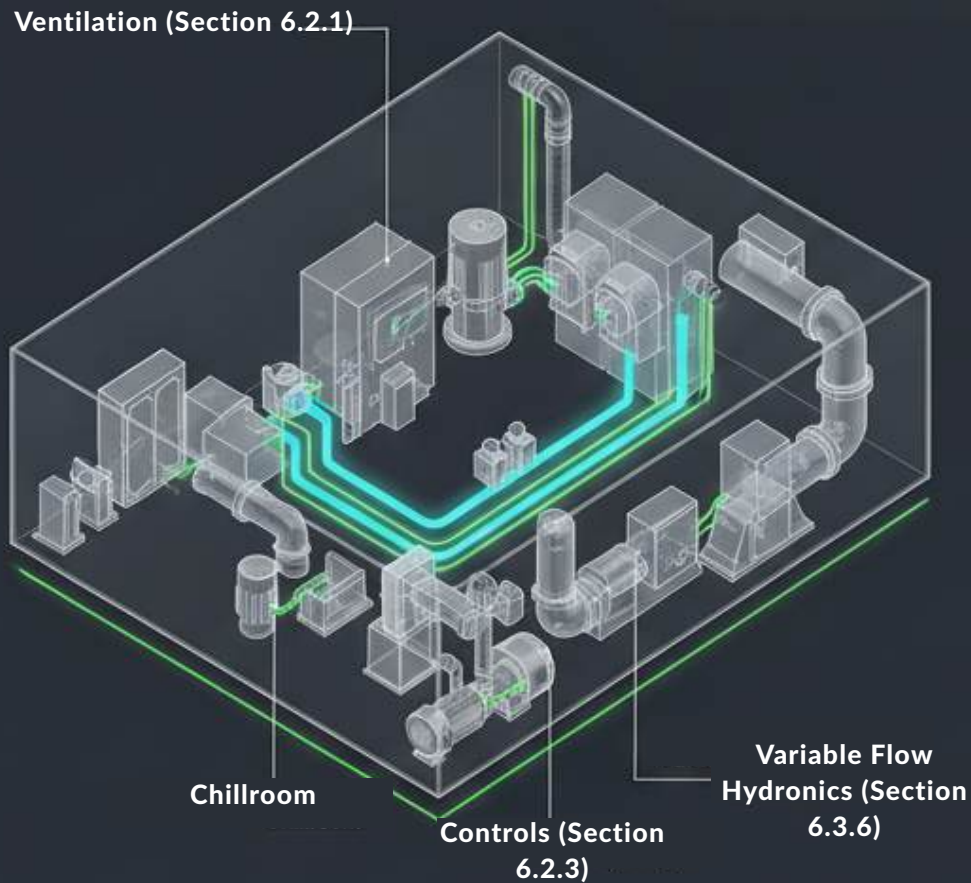
Lighting



Renewables

STRATEGY 2 | SMART SYSTEMS & CONTROLS

Smart systems are the hidden architects of comfort. Algorithms and feedback loops replace guesswork with precision. When data drives decisions, even a 1 °C adjustment in control can save up to 10% of energy.



STRATEGY 3 | LIGHT AS A BUILDING MATERIAL

Each lumen saved is a watt earned.

Daylighting
Integration

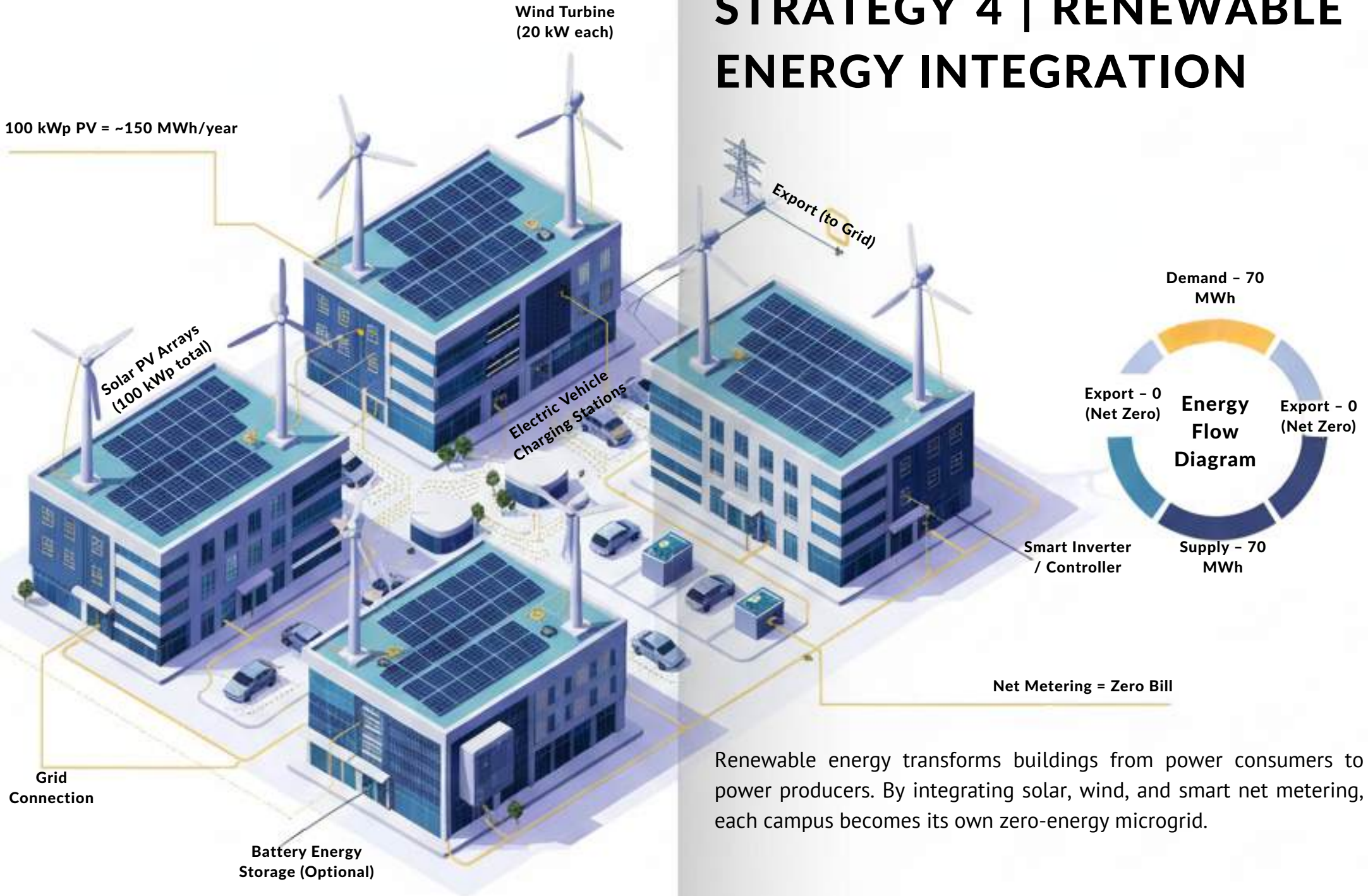
Occupancy Sensors
(ASHRAE 90.1 / ECBC
2024 compliant)

High-Efficacy LED
Lighting (≥ 120 lm/W)

Adaptive Controls &
Tunable White
Lighting

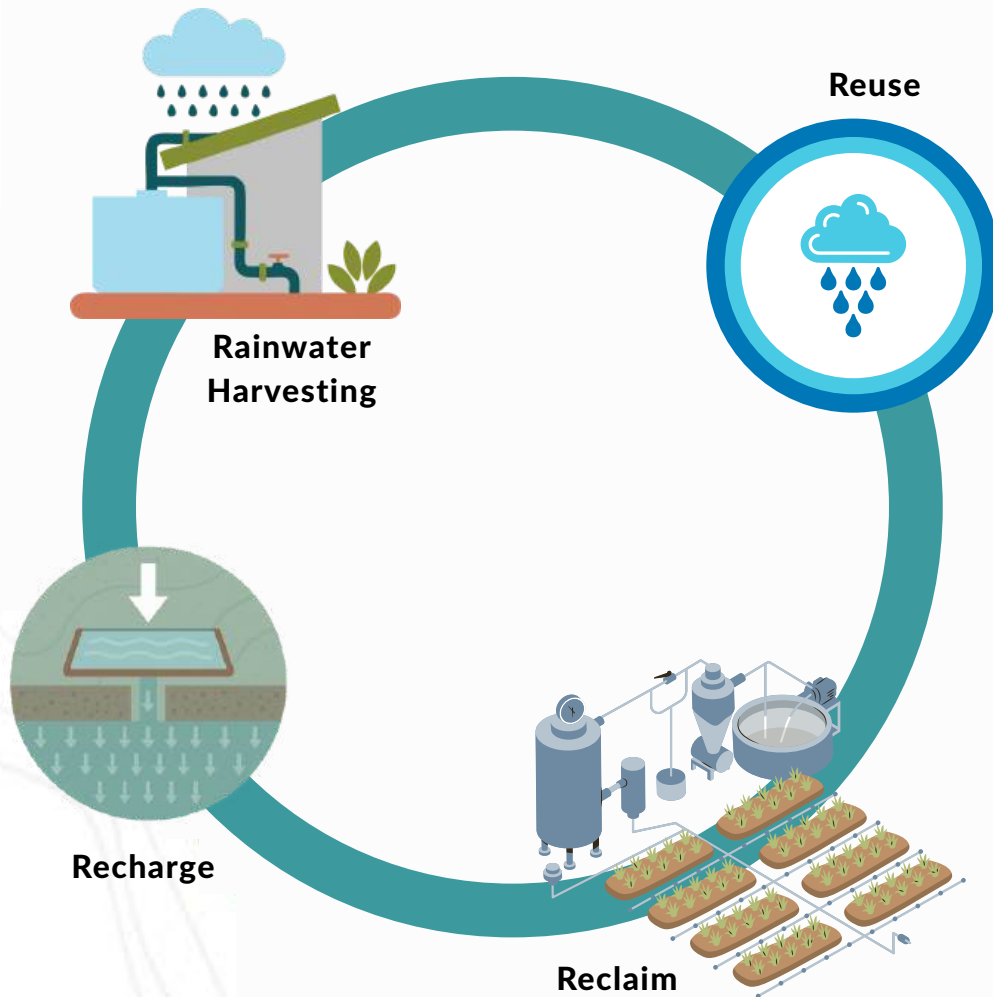


STRATEGY 4 | RENEWABLE ENERGY INTEGRATION



Renewable energy transforms buildings from power consumers to power producers. By integrating solar, wind, and smart net metering, each campus becomes its own zero-energy microgrid.

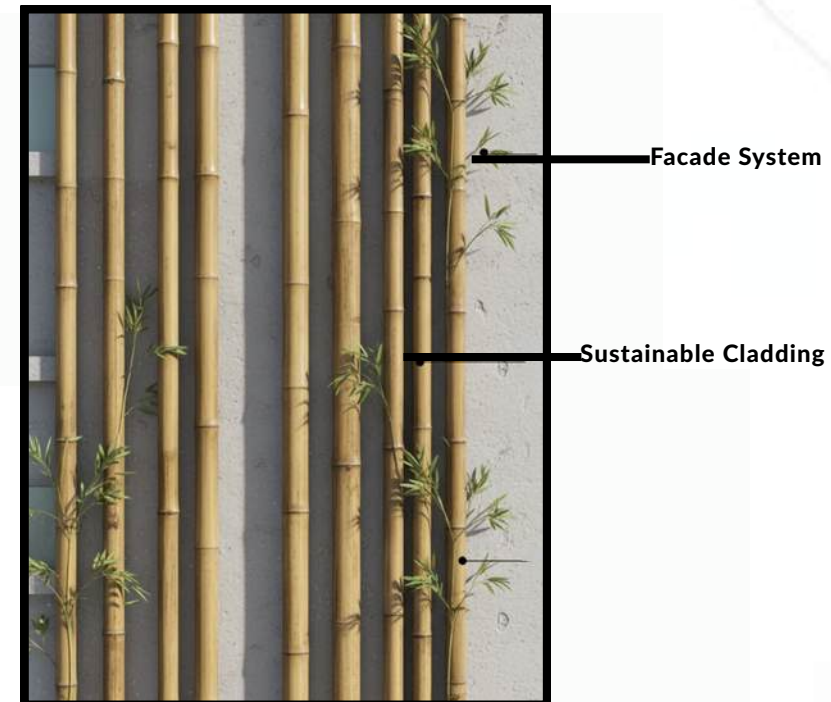
STRATEGY 5 | WATER & MATERIAL SYNERGY



DESIGNING WITH NATURE'S LOGIC

The regenerative envelope transforms materials like bamboo and low-carbon concrete into living, circular systems that heal rather than deplete the environment.

Regeneration is the new efficiency



A building is circular when its waste becomes its resource.

STRATEGY 6 | DIGITAL TWINS: WHERE BUILDINGS THINK BEFORE THEY'RE BUILT



DIGITAL SIMULATION & TWIN MODELLING |
Before you build, you already know.

STRATEGY 7 | THE HUMAN FACTOR

The ultimate metric of net zero is not energy — it's well-being.

When buildings breathe, light, and sound in harmony with human rhythms, they nurture communities that thrive.

Human-centric design elevates Indoor Environmental Quality (IEQ) — balancing thermal, visual, acoustic, and air parameters to create spaces that heal rather than exhaust.

Every element — from daylight-responsive façades to biophilic interiors — becomes part of a living system that listens and adapts.

In this synergy of comfort and consciousness, design itself becomes the most renewable resource.



Comfort is not a luxury - it's performance.

THE FOUR PILLARS OF NET ZERO CERTIFICATION

Recognised globally by the U.S. Green Building Council (USGBC), the LEED Zero framework expands the boundaries of sustainability—measuring not just energy, but the complete balance of carbon, water, and waste. Each pillar represents a measurable pathway to true regenerative performance.

LEED ZERO

ENERGY



LEED ZERO ENERGY

Recognises buildings that achieve net-zero energy balance, where on-site renewable generation or verified off-site procurement equals total energy consumption. This ensures that energy neutrality is real, measurable, and enduring.

LEED ZERO

CARBON



LEED ZERO CARBON

Awarded to projects demonstrating net-zero carbon emissions, accounting for both operational and embodied carbon. It quantifies reductions across direct and indirect emissions, supporting science-based decarbonisation pathways.

LEED ZERO

WATER



LEED ZERO WATER

Celebrates buildings that achieve water balance—returning as much water to the environment as they withdraw. This includes rainwater harvesting, greywater reuse, and on-site aquifer recharge, ensuring hydrological resilience.

LEED ZERO

WASTE



LEED ZERO WASTE

Granted to facilities diverting 90% or more waste from landfills or incineration. It promotes circular systems that turn waste into a resource—eliminating the very concept of waste itself.

Firstgreen Consulting: Your Partner for a Net-Zero Future

Design | Decarbonise | Deliver

About Us

Firstgreen Consulting is a leading sustainability and energy advisory firm delivering Net-Zero Energy, Water, Waste, and Carbon solutions for India's top corporates.

Working with clients such as DLF, HCL, Petronet LNG, and Maheshwari Mining, we design and verify high-performance campuses powered by solar, efficient systems, and intelligent water management.

With over 1 GW of solar projects, 80 million ft² of certified green buildings, and 100+ LEED/IGBC/GRIHA certifications, we transform sustainability into measurable performance – from concept to commissioning, from data to decarbonisation.

“At Firstgreen, we believe that every kilowatt-hour saved and every litre harvested is design intelligence made visible.”

- Dr Sanjay Vashishtha, CEO



Energy Efficiency|Renewables|Sustainability

Our Net-Zero Services Portfolio



MEASURE | MANAGE | DECARBONISE | DELIVER

Contact us: info@firstgreen.co | <https://firstgreen.co/>