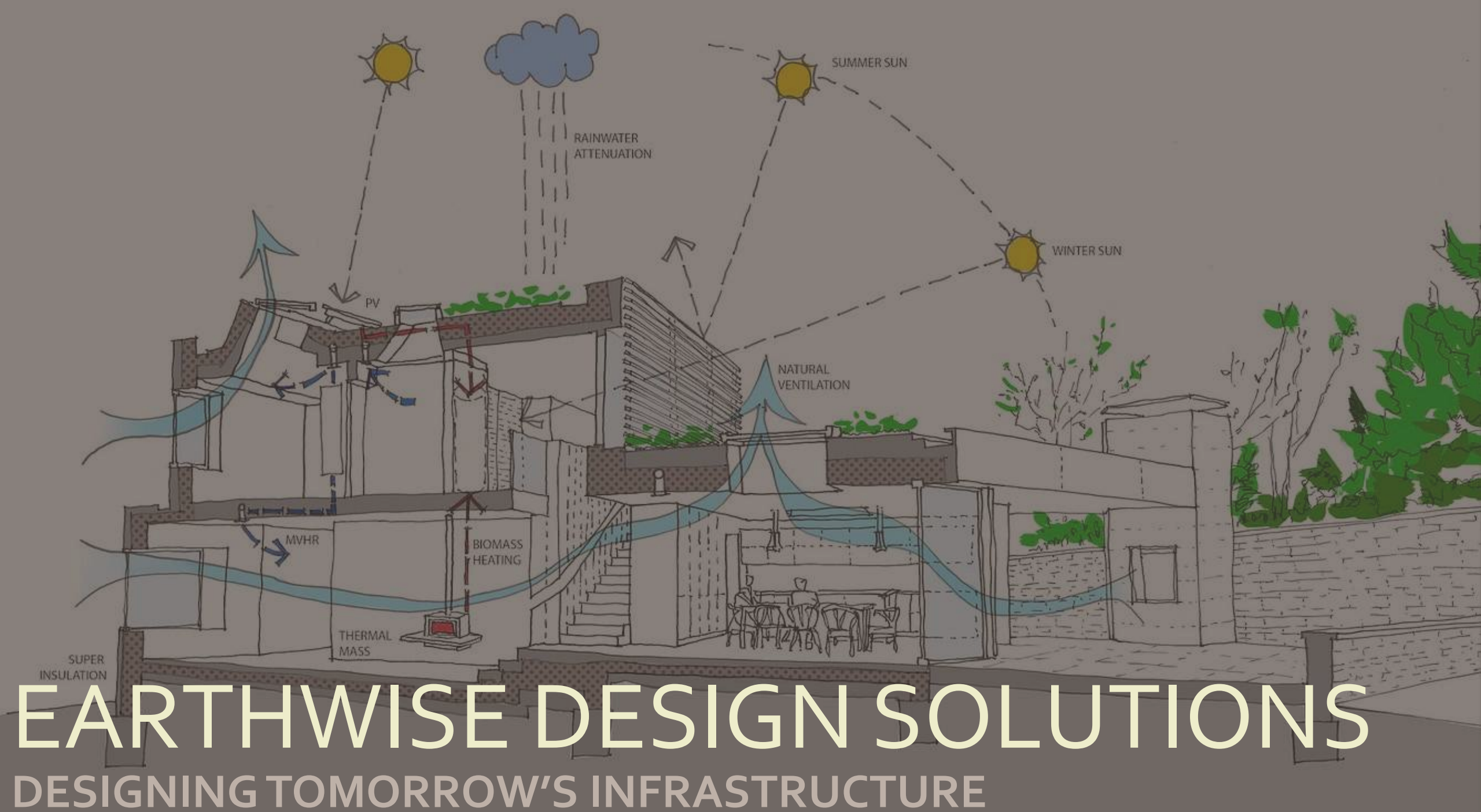




EARTHWISE DESIGN SOLUTIONS

DESIGNING TOMORROW'S INFRASTRUCTURE

SERVICES OFFERED.

Heating, Ventilation & Air Conditioning

Electrical System Design

Extra Low Voltage System Design (Data/Wi-Fi/Security/Networking
FA/PA/ Automation)

Plumbing & Fire Suppression System

Energy Simulation

BIM Modeling



Codes, Standards & Software's

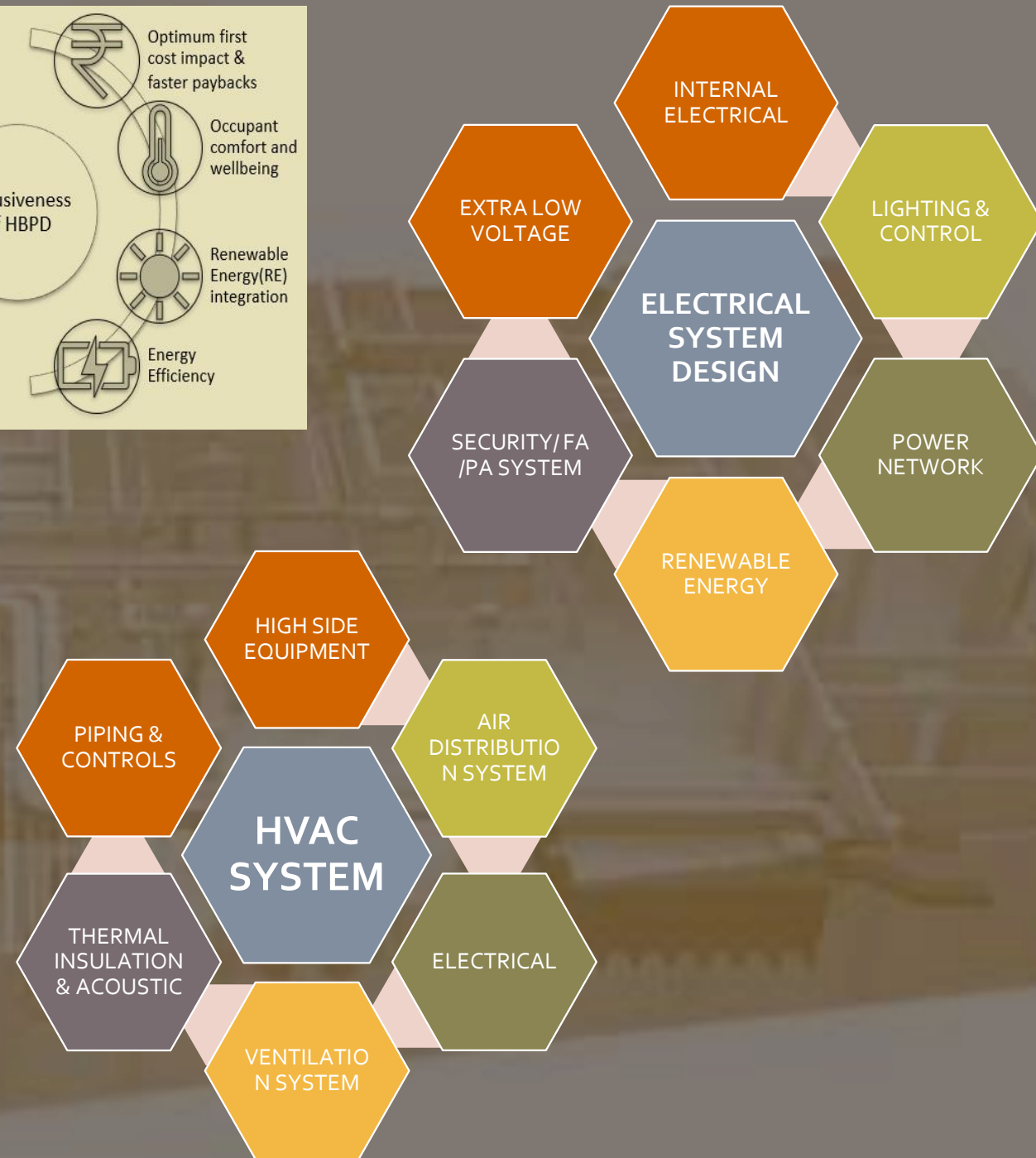
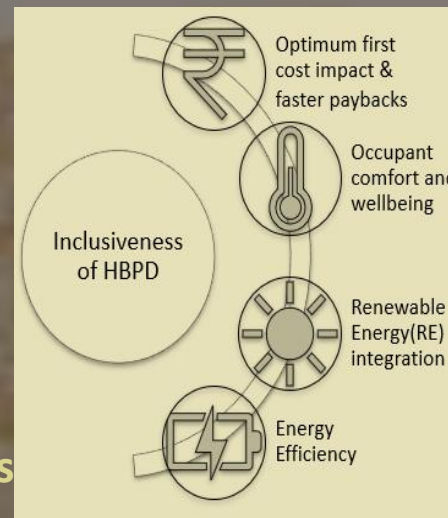
About Us.

Earthwise Design Solutions is a multi-disciplinary organization that provides design solution for Mechanical, Electrical, Plumbing (MEP), Energy Simulations, BIM Modeling and overall coordination of services. We pride ourselves on our response to the fast-changing needs and expectations of our clients and being able to provide solutions that rely on the latest technologies, are environment friendly and are resource optimized for all the project stakeholders as well as the occupants.

With an engineering team from various disciplines and experiences, we boast of the ability of thinking out of the box and offering the most efficient and cutting-edge solutions for all kinds of projects. Earthwise Design Solutions is a registered company in New Delhi, India.

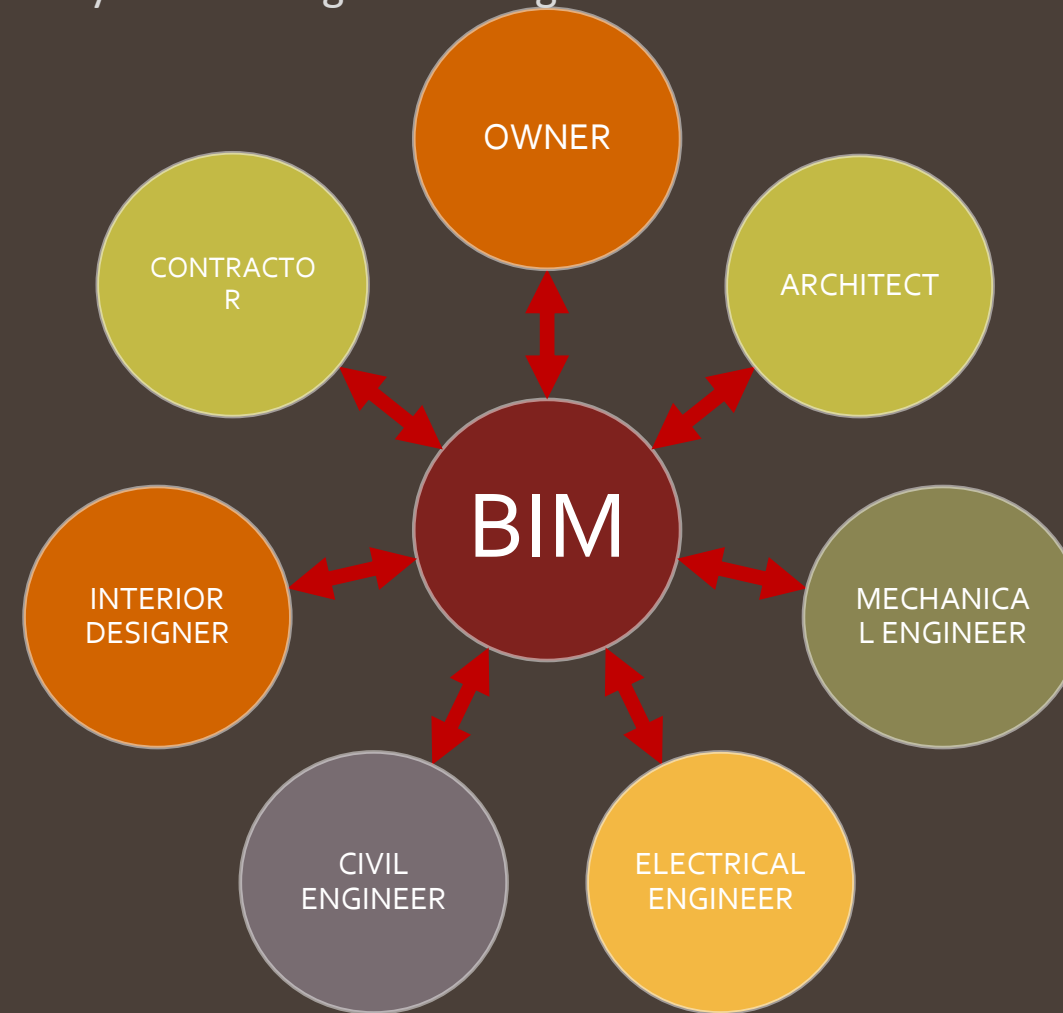
EFFICIENT BUILDING SYSTEM DESIGN

- Active and Passive system design
- Sustainability in design approach
- Compliance of Environmental regulation
- Energy saving calculations, Life Cycle and cost analysis and report
- Visual - Thermal comfort feasibility analysis
- Net-Zero Energy Feasibility and design approach



BIM (BUILDING INFORMATION MODELING)

- In Building Information Modeling (BIM) we provide services in 2D, 3D and 5D works which are more helpful for clients to design and extract information from the model to issue clash free drawings, rendering views of the project.
- Our team consists of architects, engineers, and other highly skilled professionals who can design BIMs from scratch or convert 2D drawings into 3D model that saves time and money by virtually assembling a building before construction actually begins.
- MEP BIM services offered
- Conversion of 2D design drawings to 3D models
- Coordination among different MEP trades
- Shop drawings
- Risk mitigation
- Clash detection
- Coordinate checking



Teams Project Experience

W HOTEL, HITECH CITY HYDERABAD

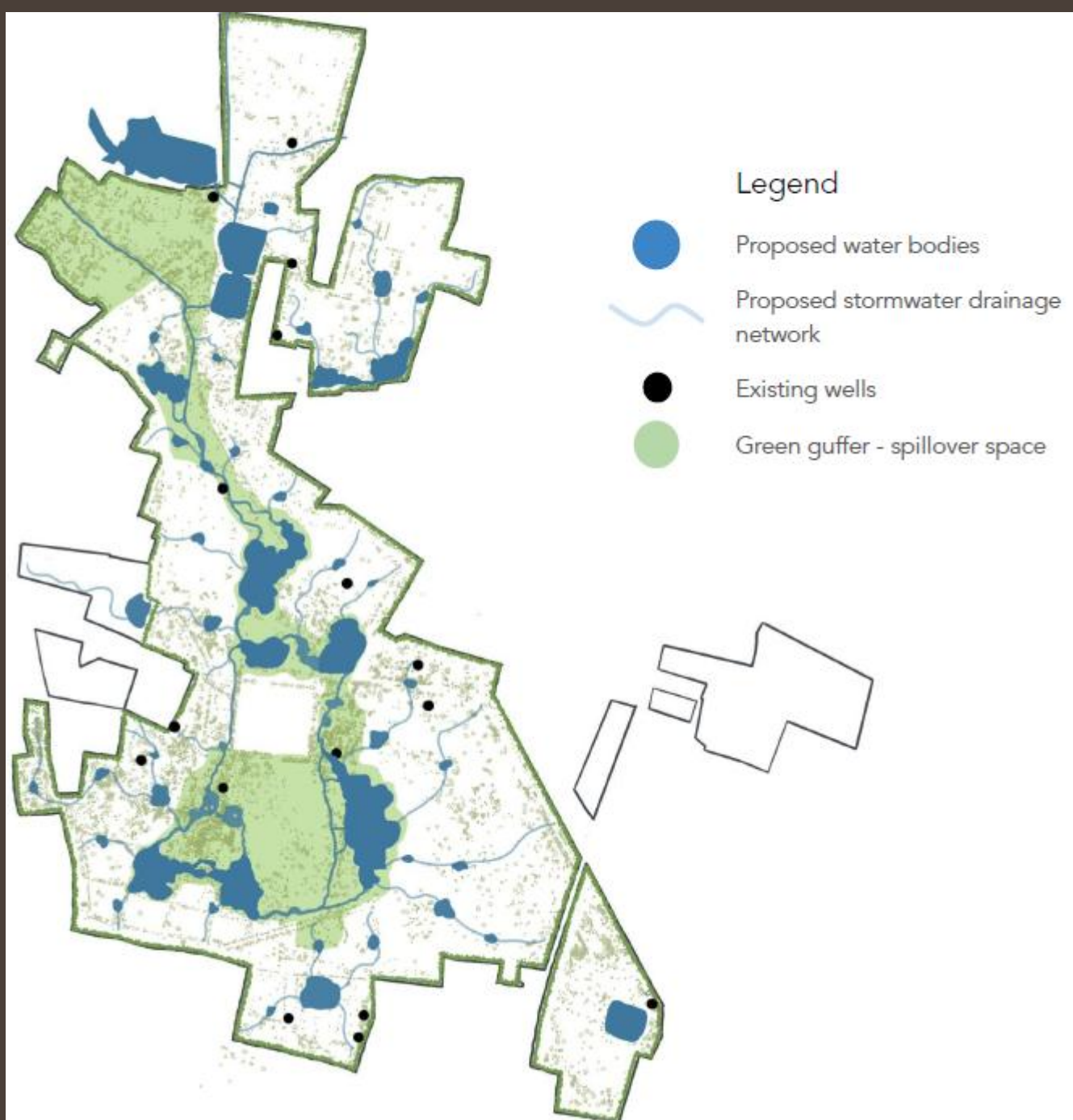


Built Up Area- 2,70,000 Sqft
Centralized Chilled Water System
170 Keys

DIXON TECHNOLOGY, NOIDA

Built Up Area- 4,00,000 Sqft
Cleanroom Application- ISO Class 6
Semiconductor Manufacturing



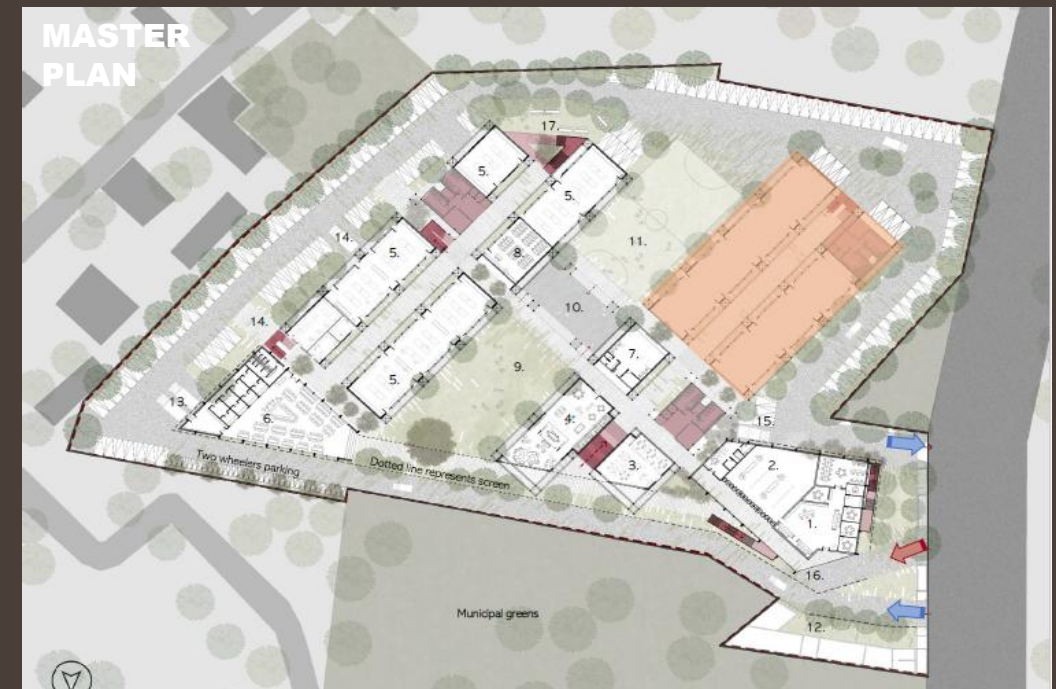


- Targeted for Most efficient Key Performance indicators such as Energy, Water, Air Environment, Materials etc.
- Electrical & ELV design
- High performance envelope
- Optimized electrical loads
- Use of natural water source such as Lakes, Wells, Rainwater for potable use
- Peripheral underground trench network in loop for MEP services with flexibility of tapping for services to any residential clusters
- Large interconnected lake network with 380 millions liters of water holding capacity

DHUN LIFE INTEGRATED TOWNSHIP JAIPUR



An Urban Campus with inherent features like public interface, socio culture space, Positive distinctive & future proof building, Energy efficient, water management, Natural lighting, Pollution control



- ◉ Area of approx. 4,00,000 Ft²
- ◉ Centralized Radiant Cooling system
- ◉ On site - Solar PV energy generation & integration
- ◉ Electrical & ELV design
- ◉ High performance envelope
- ◉ Optimized electrical loads



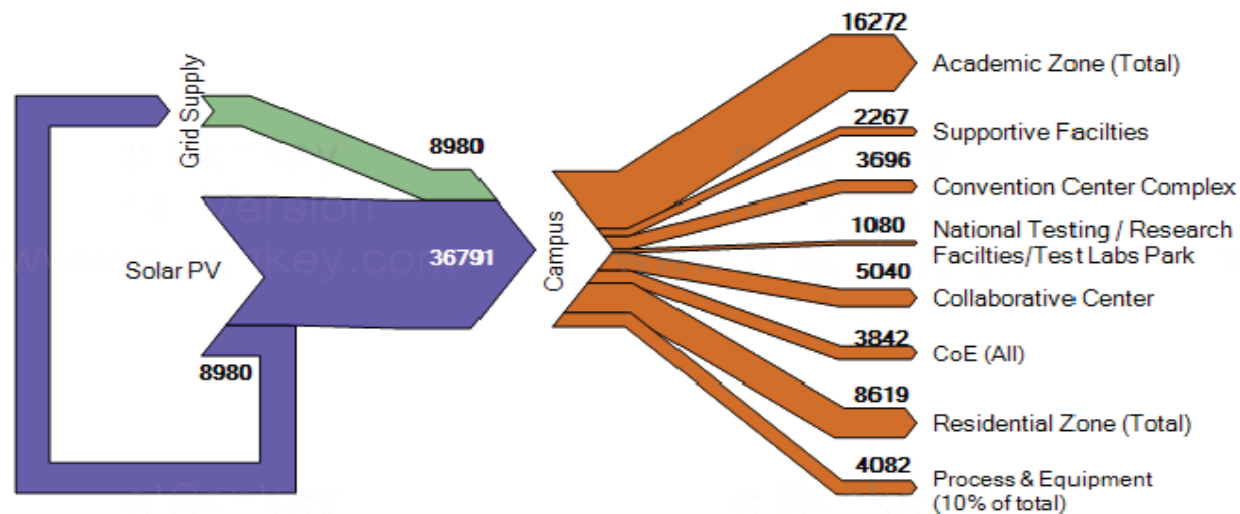
- ◉ EV charging station – Mid lvl.
- ◉ Low losses Transformers
- ◉ Super ECBC
- ◉ Day light harvesting
- ◉ Pollution free Gas Generators
- ◉ Energy management system
- ◉ Power quality improvement
- ◉ Occupancy based lighting controls
- ◉ Bio-gas to be used as Cooking gas
- ◉ Smart Street Pole
- ◉ Integrated Building Management System (IBMS)



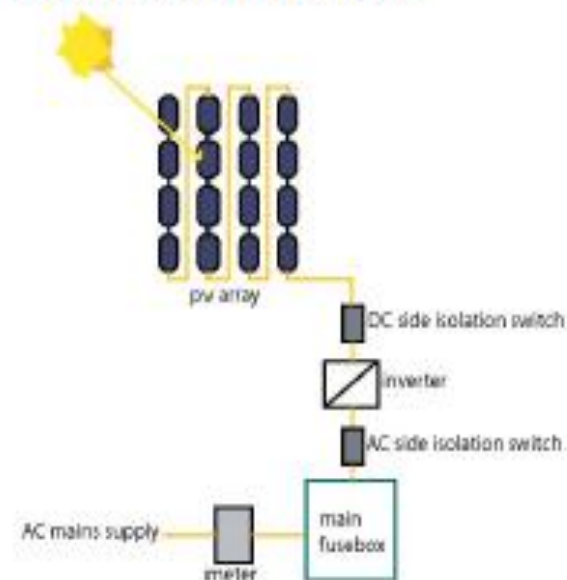
INDIAN INSTITUTE OF ART & DESIGN (IIAD), GURUGAM

High Performance Building Design

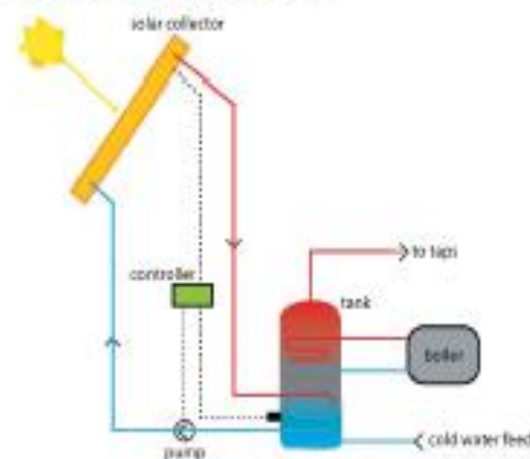
Net Zero Energy Strategy: Sankey diagram



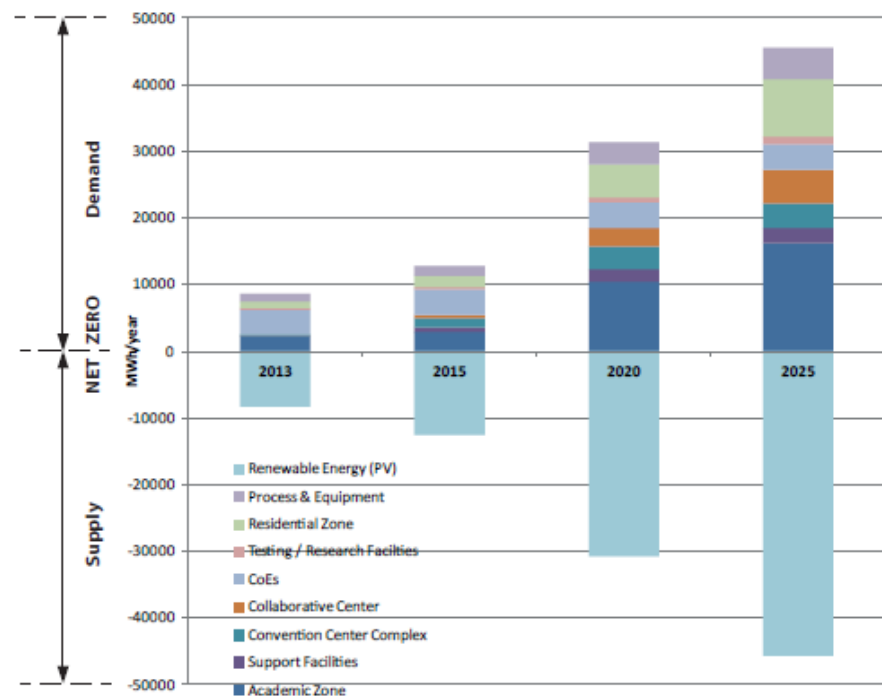
Building level PV strategy



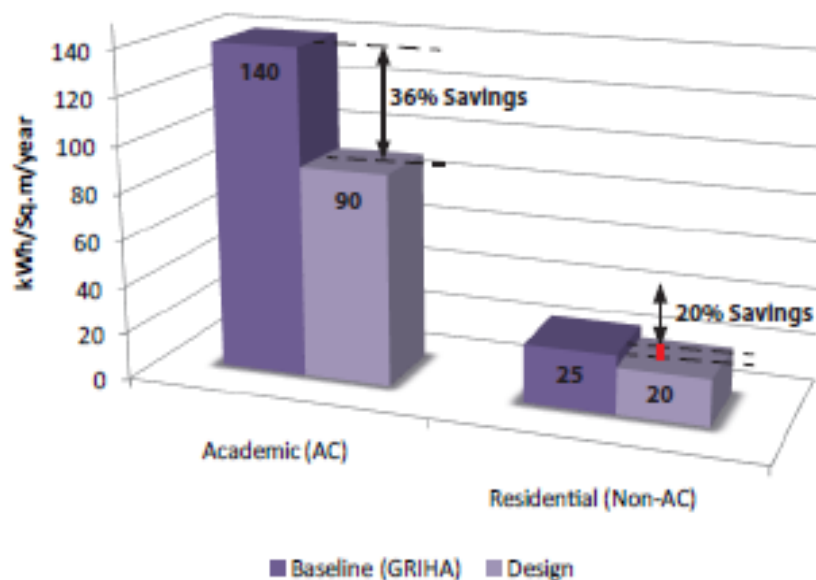
Site level PV strategy



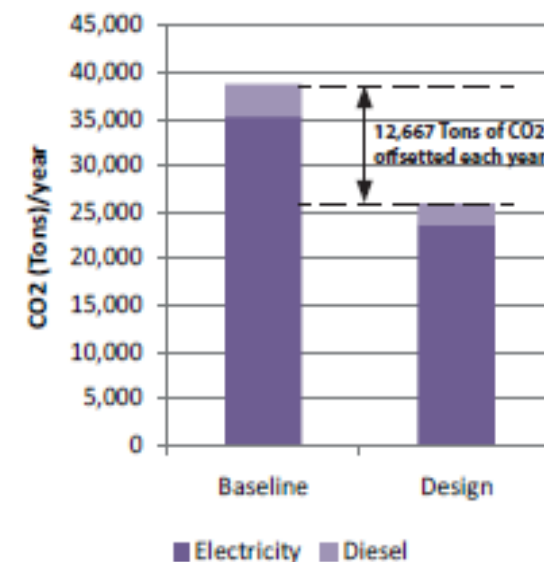
Phase-wise energy consumption chart



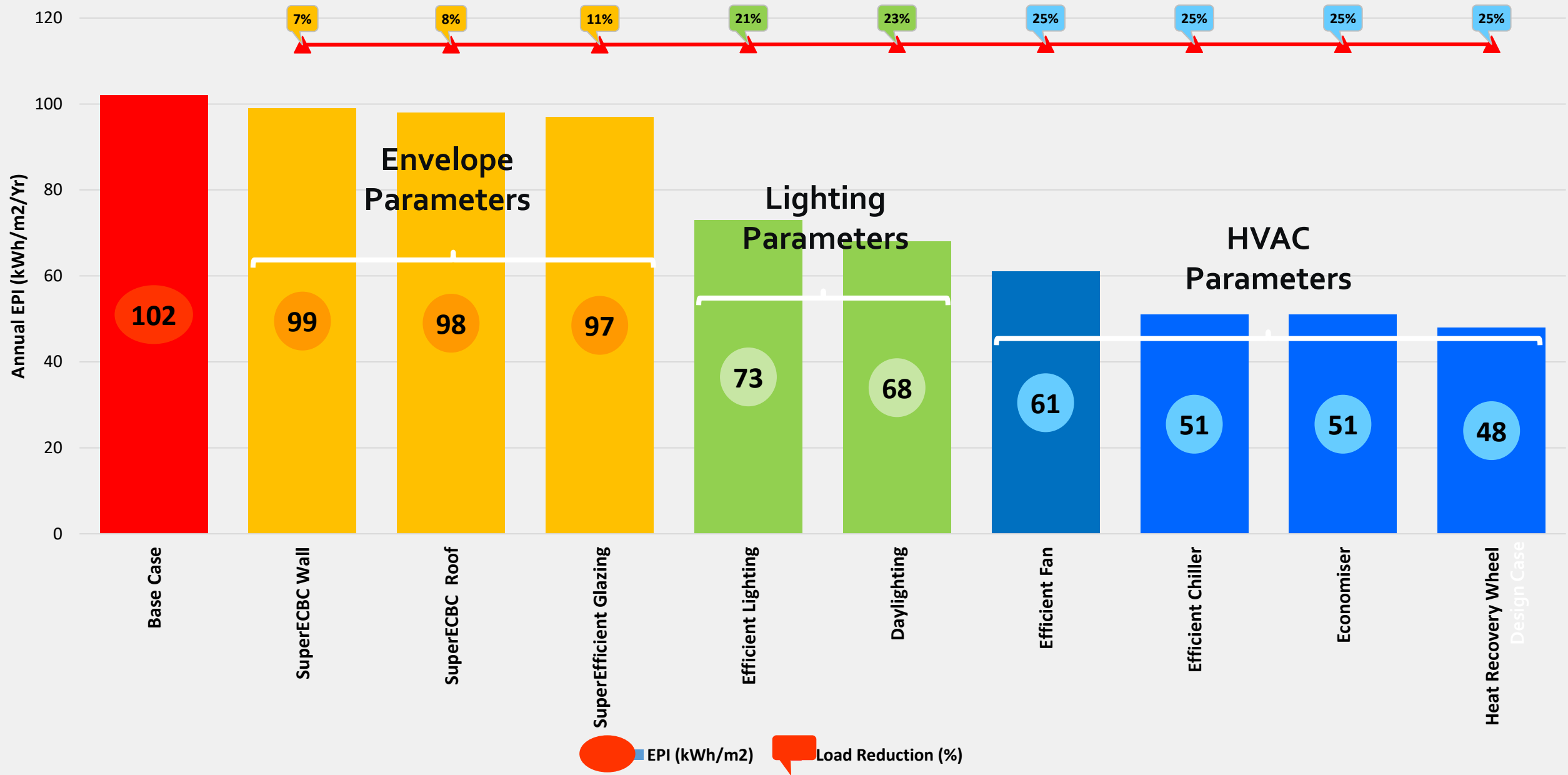
Baseline Optimization: AC vs. Non-AC



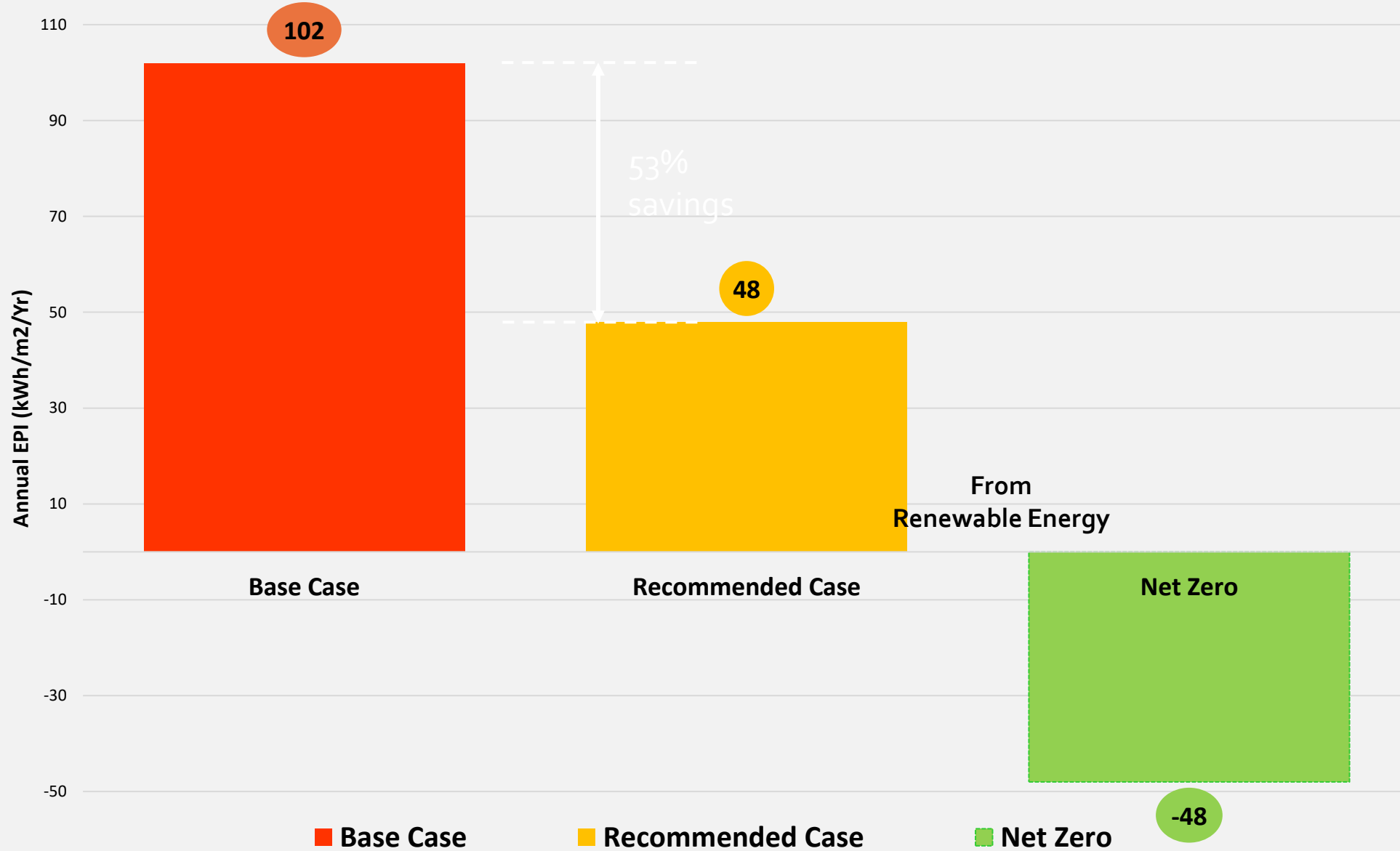
Savings in CO2 Emissions



Energy Performance Index (EPI) reduction with sustainable strategies



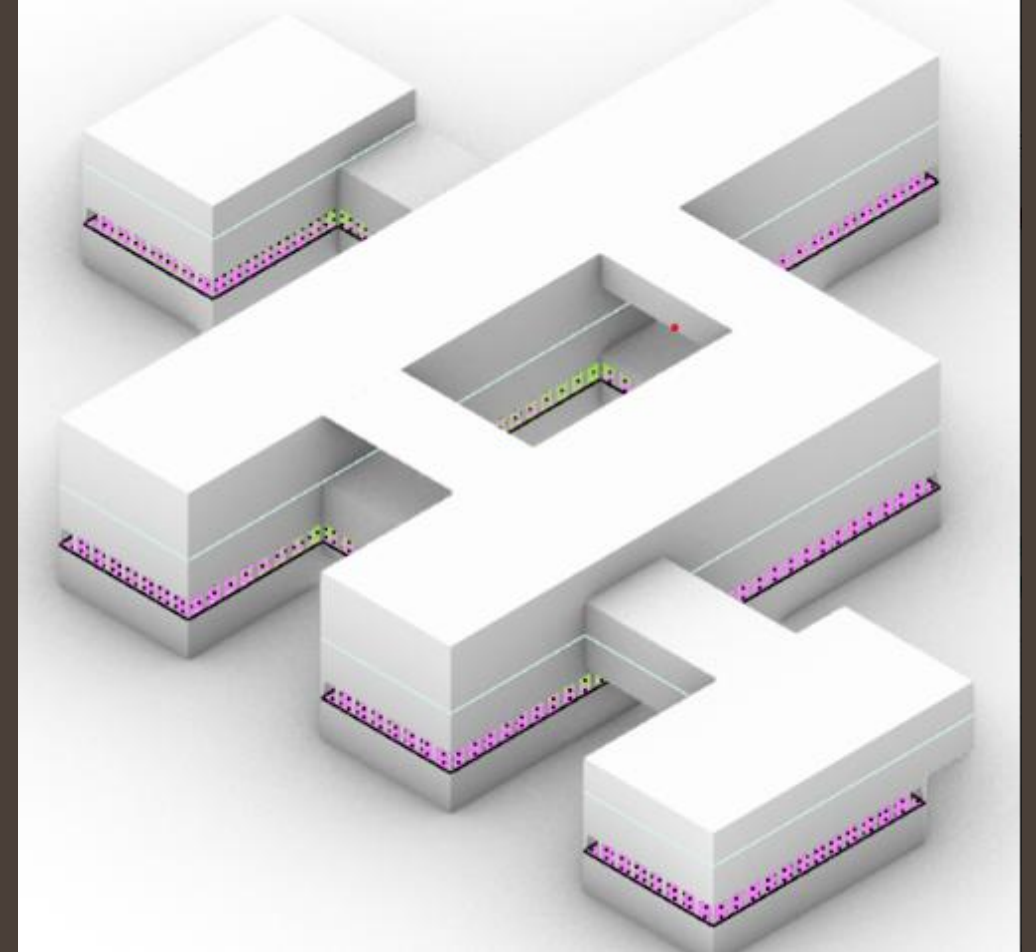
Net Zero Campus EPI Comparision



Combined EPI for
campus = 48
kWh/sq m /yr

Net Zero Building Analysis

- ⊙ Area of approx. 3,25,000 Ft²
- ⊙ Centralized Chilled Water based system
- ⊙ High performance envelope
- ⊙ On site - Solar PV energy generation & integration
- ⊙ Electrical & ELV design
- ⊙ Optimized electrical loads
- ⊙ EV charging station – Mid lvl.
- ⊙ Low losses Transformers
- ⊙ Super ECBC 2017
- ⊙ Day light harvesting
- ⊙ Pollution free Gas Generators
- ⊙ Energy management system
- ⊙ Power quality improvement
- ⊙ Occupancy based lighting controls
- ⊙ Smart Street Pole
- ⊙ Integrated Building Management System (IBMS)



BAL BHARTI INSTITUTE, MOHALI



Radiant Cooling



Thermal Energy Storage



Bio Methanation



Geothermal Cooling



Gas based Energy generation system



Absorption / Adsorption Chillers

- ◉ Feasibility Study & recommendation of Renewable & Energy Efficient Heating & Cooling System
- ◉ Energy Audit of existing facilities
- ◉ Design support for selected low carbon cooling technology
- ◉ Standard guidelines for low carbon heating/ cooling technologies

IKEA FACILITIES, NAVI MUMBAI & HYDRABAD

Location	Indore
Area (sqft)	50,000
Architect	Studio Kritarc
System Type	Radiant Cooling system
System Capacity	120 TR

- ◉ Radiant cooling system in design
- ◉ Instant HVAC system for visitors
- ◉ High performance envelope
- ◉ Optimized electrical loads
- ◉ Solar energy / BIPV
- ◉ EPI designed to be lower than 60 kWh/sqmt/year



JACUAR FLAGSHIP STORE, INDORE

Location	Guwahati
Architect	Studio Kritarc
System Type	VRF

- ◉ Retrofit work in existing building
- ◉ Instant HVAC system for visitors
- ◉ High performance envelope
- ◉ Optimized electrical loads

JACUAR FLAGSHIP STORE, GUWAHATI



- ◉ Area of approx. 2,00,000 Ft²
- ◉ Integrating proposed building MEP with existing Infrastructure network
- ◉ Redesigning of existing Electrical High side system for better and optimized design
- ◉ Centralized Chilled Water based HVAC system
- ◉ Solar energy



SR UNIVERSITY, WARANGAL



- ◉ Area of 10,000 Ft²
- ◉ Placement of blocks for maximum views in all direction
- ◉ Heat pump based underfloor heating
- ◉ Water saving by avoiding cooling tower system
- ◉ Solar energy
- ◉ Electrical & ELV design
- ◉ High performance envelope
- ◉ Optimized electrical loads
- ◉ EV charging station



RESIDENCE IN MUKTESHWAR, UTTARAKHAND

- ⦿ Area of 10,000 Ft²
- ⦿ Centralized hot water HVAC system with underfloor heating
- ⦿ Water saving by avoiding cooling tower system
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads



SAFAL RESIDENCE, CHAMBA, UTTARAKHAND

- ⦿ Area of 45,000 Ft²
- ⦿ De-central HVAC System
- ⦿ Modular STP for phase-wise development
- ⦿ Solar PV farm
- ⦿ Water filtration for domestic use
- ⦿ Rain water harvesting
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads
- ⦿ Electrical automation
- ⦿ Energy management system
- ⦿ Lighting Management System
- ⦿ BMS system



FLAMINGO RESORT, PATDI, GUJRAT



HOSPITALITY BUILDING

- ⦿ Area of 42,000 Ft²
- ⦿ Central Space Heating system
- ⦿ Under floor radiant heating for enhanced comfort
- ⦿ High efficient Heat pumps for Domestic Hot water requirement
- ⦿ Solar energy
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads
- ⦿ AHUs for fresh air
- ⦿ Swimming pool heating

1. Total site area – 90 Acre

2. Site Development

- One Hospitality building with rooms as cabins in woods Brand RAAS
- 60 nos. Luxurious High-end privately-owned Villas
- Master plan development

DEVANYA DEVELOPMENT, BHIMTAL, UK

High Performance Building Design

Location	Guwahati
Architect	Studio Kritarc
System Type	VRF

- ⦿ Retrofit work in existing building
- ⦿ Instant HVAC system for visitors
- ⦿ High performance envelope
- ⦿ Optimized electrical loads

Location	Guwahati
Architect	Studio Kritarc
System Type	VRF

- ⊙ Retrofit work in existing building
- ⊙ Instant HVAC system for visitors
- ⊙ High performance envelope
- ⊙ Optimized electrical loads



TERRACE VILLA

- ◉ Area of 8,000 Ft²
- ◉ Central Space Heating system
- ◉ Under floor radiant heating for enhanced comfort
- ◉ Heat pumps for Domestic Hot water
- ◉ Made in wood and natural stone

- ◉ Solar energy
- ◉ Electrical & ELV design
- ◉ High performance envelope
- ◉ Optimized electrical loads

DEVANYA DEVELOPMENT, BHIMTAL, UK

High Performance Building Design

MASTER PLAN

- ⦿ Cluster wise planning for Electrical and PHE system
- ⦿ High side equipment control and monitoring through centralized BMS
- ⦿ Use of natural resources for water such as Springs, Swales, River, ponds
- ⦿ Rain water harvesting and gravity use without pumping
- ⦿ Water storage main tank at peak point and gravity use to villas and Hospitality
- ⦿ Fully Electric Vehicle compatible site with network of EV charging station at multiple locations



DEVANYA DEVELOPMENT, BHIMTAL, UK

Location	Guwahati
Architect	Studio Kritarc
System Type	VRF

- ⦿ Retrofit work in existing building
- ⦿ Instant HVAC system for visitors
- ⦿ High performance envelope
- ⦿ Optimized electrical loads

Location	Guwahati
Architect	Studio Kritarc
System Type	VRF

- ⦿ Retrofit work in existing building
- ⦿ Instant HVAC system for visitors
- ⦿ High performance envelope
- ⦿ Optimized electrical loads



- ◉ Area of 1,25,000 Ft²
- ◉ Central chilled water system
- ◉ Solar energy
- ◉ Electrical & ELV design
- ◉ High performance envelope
- ◉ Optimized electrical loads
- ◉ EV charging station – Mid lvl.
- ◉ Low losses CSS



ACE, NAXAL UNIVERSITY, NEPAL

High Performance Building Design

- ⦿ This building uses Geothermal system for cooling the spaces
- ⦿ Multiple borewell system installed in the building
- ⦿ Another building of the campus was designed with earth air tunnel (EAT) cooling system
- ⦿ High performance building with very low EPI



RAJASTHAN CENTRAL UNIVERSITY (CURAJ)

High Performance Building Design



- ⦿ Two stage and Three stage air-conditioning system designed.
- ⦿ High efficiency design with heat pumps
- ⦿ HVAC & Electrical optimized load
- ⦿ At least 40% better in terms of efficiency from conventional system
- ⦿ Dual operations of conventional and non conventional HVAC system to save operational cost
- ⦿ Optimized daylighting with controls
- ⦿ High efficiency envelope
- ⦿ EPI designed to be lower than 60 kWh/sqmt/year

ANIL AGARWAL ENVIRONMENTAL TRAINING INSTITUTE

- ⦿ Area of 6,000 Ft²
- ⦿ Geo thermal energy based central Pond cooling system
- ⦿ High efficient under floor radiant cooling system
- ⦿ Water saving by avoiding cooling tower system
- ⦿ Solar energy
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads



ABOHAR VILLA, PUNJAB



SAFAL RESIDENCE, UTTARAKHAND



- ⦿ Area of 12,500 Ft²
- ⦿ Centralized energy efficient cooling system
- ⦿ Electrical & ELV design
- ⦿ Solar PV integration
- ⦿ Energy performance façade with insulated wall/roof & DGU glass
- ⦿ Optimized electrical loads
- ⦿ EV Charging Station



MORJIM HOUSE, GOA

- Built Up Area of 1,25,000 Ft²
 - Centralized chiller water HVAC system
 - High efficient under floor radiant cooling system
 - Electrical & ELV design
 - High performance envelope
 - Optimized electrical loads
 - Home Automation
-
- Digital Lighting dimming system in full house
 - Automatic motorized curtain system based on sun tracking system
 - Personalized temperature control
 - Pulse fencing based perimeter security system
 - Occupancy sensor based lighting control in basement car parking
 - BMS integrated lighting management system

MEHRA HIGH END RESIDENCE (JAQUAR)



- ⦿ Area of 15,000 Ft²
- ⦿ Geo thermal energy based central heating/ cooling system
- ⦿ High efficient under floor radiant heating/ cooling system
- ⦿ Water saving by avoiding cooling tower system
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads
- ⦿ Lighting Management System

HOUSE IN KATHMANDU, NEPAL

- ⦿ Area of 11,000 Ft²
- ⦿ Centralized Chilled water HVAC system
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads
- ⦿ Lighting Management System



RAIPUR FARMHOUSE, CHATTISGARH

- ◉ Area of 45000 Ft²
- ◉ Centralized HVAC system
- ◉ Electrical system with low losses equipments
- ◉ High performance envelope
- ◉ Optimized electrical loads
- ◉ Lighting Management System
- ◉ Solar PV integration (proposal)
- ◉ EV charging station



BHANDARI VILLA, RAJASTHAN



- ⦿ Area of 6,70,000 Ft²
- ⦿ Central chilled water system
- ⦿ Clean room applications
- ⦿ Solar energy
- ⦿ Electrical & ELV design
- ⦿ High performance envelope
- ⦿ Optimized electrical loads
- ⦿ PNG based generators
- ⦿ Free heating for process applications
- ⦿ CHP design

JACUAR LIGHTING OFFICE & FACTORY, BHIWADI

Location	Bhiwadi
Architect	G&N, Bangalore
System Type	Central chilled water system, Air cooling & Ventilation
System Capacity	600 TR
Renewable Energy	1 MW Solar PV panels



JAQUAR LIGHTING FACTORY

- ❖ Central chilled water system with primary variable pumps for factory's AC areas & Offices. Also designed the air cooling system with Air washers for other factory areas.
- ❖ All AHUs have been designed with EC motors for energy conservation.
- ❖ HVAC design for Class 10k & 100k level Clean room application
- ❖ Energy Modelling & energy simulation for optimising the building performance & design assistance for high performance envelope resulting reduction in HVAC load.
- ❖ Cooling towers have been designed with low approach temperature and to work on the ambient temperature and supply temperatures by modulation of the condenser fans with variable controls. This design have increased the cooling tower efficient & reduced the water consumption

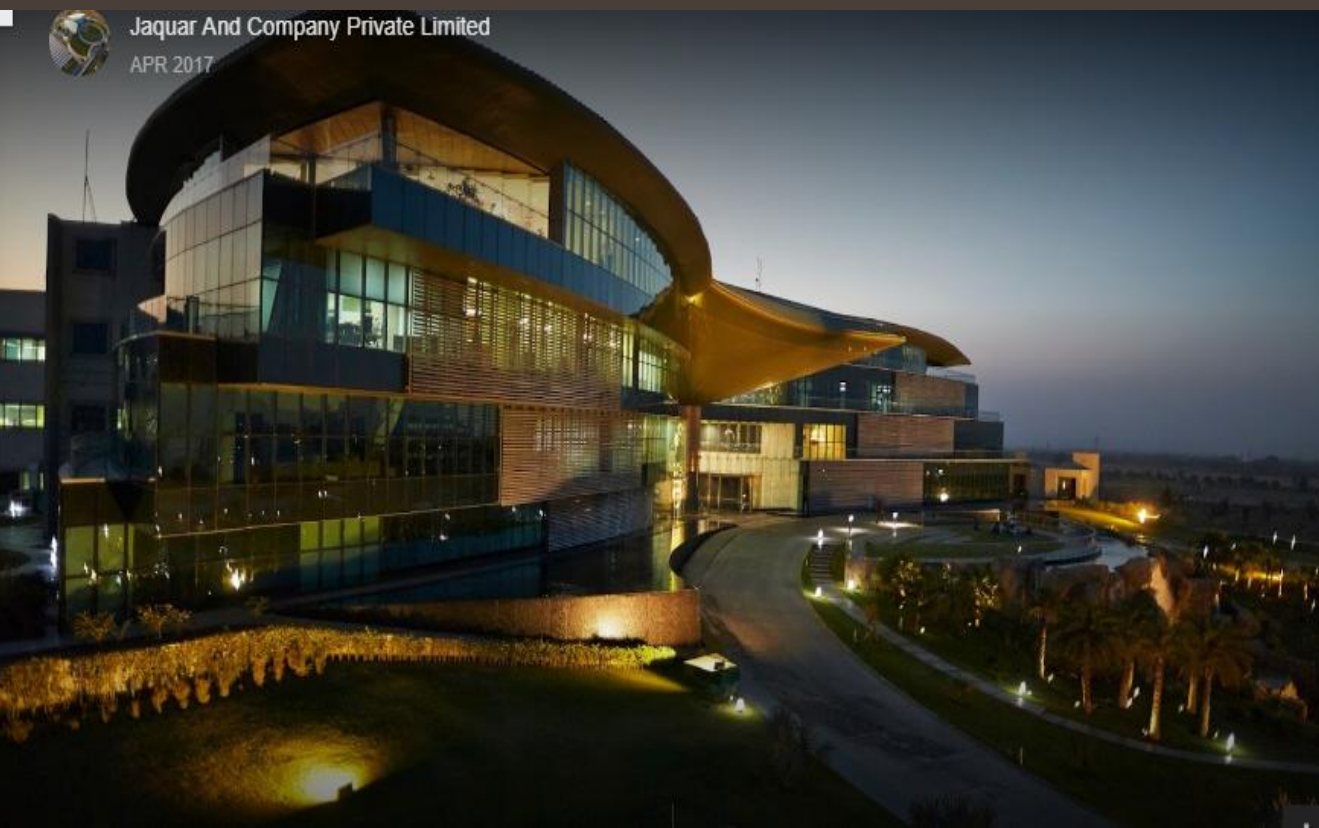
JAQUAR LIGHTING FACTORY

- ❖ Solar PV panels have been designed at terrace of approx. 1MW capacity for electrical power generation.
- ❖ Optimized electrical loads by using LED's
- ❖ PNG based gas fired Gensets have been designed & reduced the electricity bill during grid power cut-off. Also producing hot water by using genset exhaust.
- ❖ Biomass plant has been designed to generate LPG by kitchen waste from cafeteria.

NET ZERO ENERGY BUILDING

Location	Gurugram
Area	1,37,200 sqft
Architect	G&N, Bangalore
System Type	Radiant Cooling System
System Capacity	450 TR
Renewable Energy	1 MW Solar PV panels





Project Highlights

- ◉ Radiant Cooling System design.
- ◉ High efficiency plantroom design.
- ◉ High efficiency low side systems with sensors and controls

Project Highlights

- ◉ 35% less energy use as compared to conventional buildings
- ◉ 1 MW solar system designed by EDS
- ◉ First NET-ZERO office building of this size in North India

- ⦿ Area is 3,00,000 Ft²
- ⦿ Existing factory
- ⦿ Phase wise design without disrupting the factory
- ⦿ Dust and heat solution was made resulting in the better indoor environment
- ⦿ Evaporative cooling with water savings



JAQUAR UNIT 2, BHIWADI



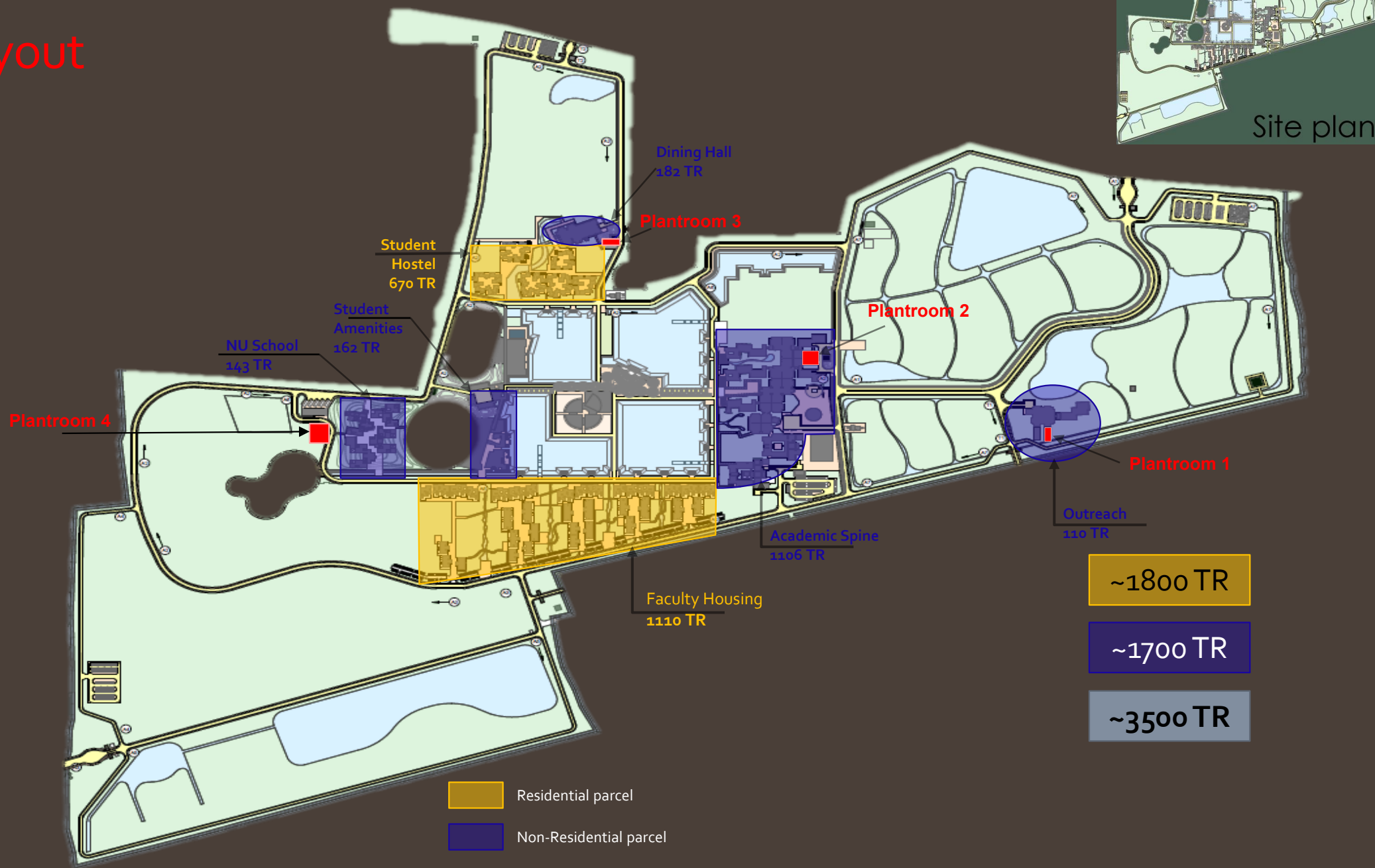
- ⦿ High efficiency district chilled water system
- ⦿ Huge benefit in diversities
- ⦿ HVAC & Electrical optimized load
- ⦿ At least 30% better in terms of efficiency from conventional system
- ⦿ 40 percent high side system CAPEX Savings

IIIT DELHI



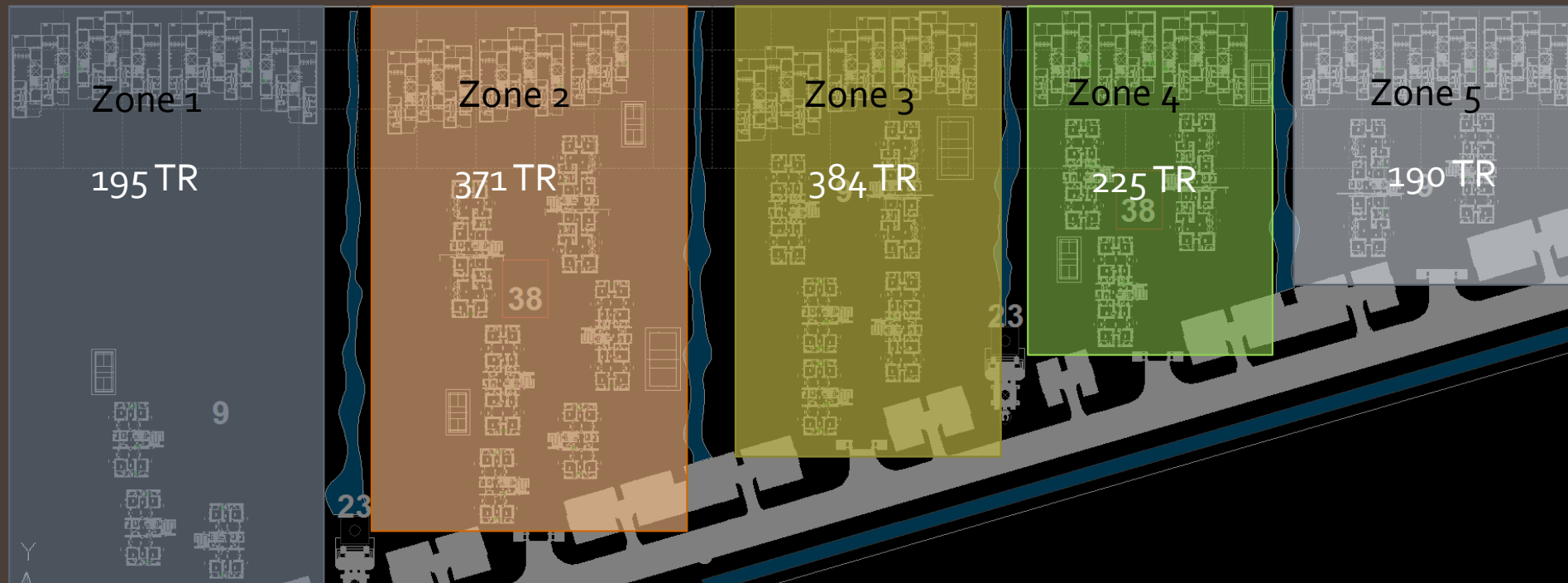
Nalanda University

Master Layout



Zoning layout

- Entire faculty residential parcel has been zoned out in 5 different zone for optimum operational feasibility



Location	Mumbai
Area (sqft)	80,000
System Type	Central System

- ❖ Airconditioned warehouse made with German standards
- ❖ Dual operation of system
- ❖ Air-conditioning and free cooling



Apple Warehouse & office, Mumbai

Gurgaon
GRIHA 5- star Certified

System Type	◉ Evaporative Cooling ◉ Factory environmental improvement ◉ Mechanical ventilation ◉ Exhaust System ◉ Spot cooling
Area	3,00,000 sqft

- ◉ Air cooling and mechanical ventilation is provided and are sufficient to maintain a temperature of 30 to 35°C.
- ◉ Indoor air quality improvement by designing a system aerodynamically correct and balanced air pressure in zones.
- ◉ Water saving feature introduced by EDS in the project in the evaporative cooling

JAQUAR BATH FITTINGS FACTORY, BHIWADI, RAJASTHAN

Location	Bachau, Gujrat
Area (sqft)	2,50,000 (new addition)
Architect	G&N Architects, Bangalore
System Type	Air cooling, Heating, Airconditioning



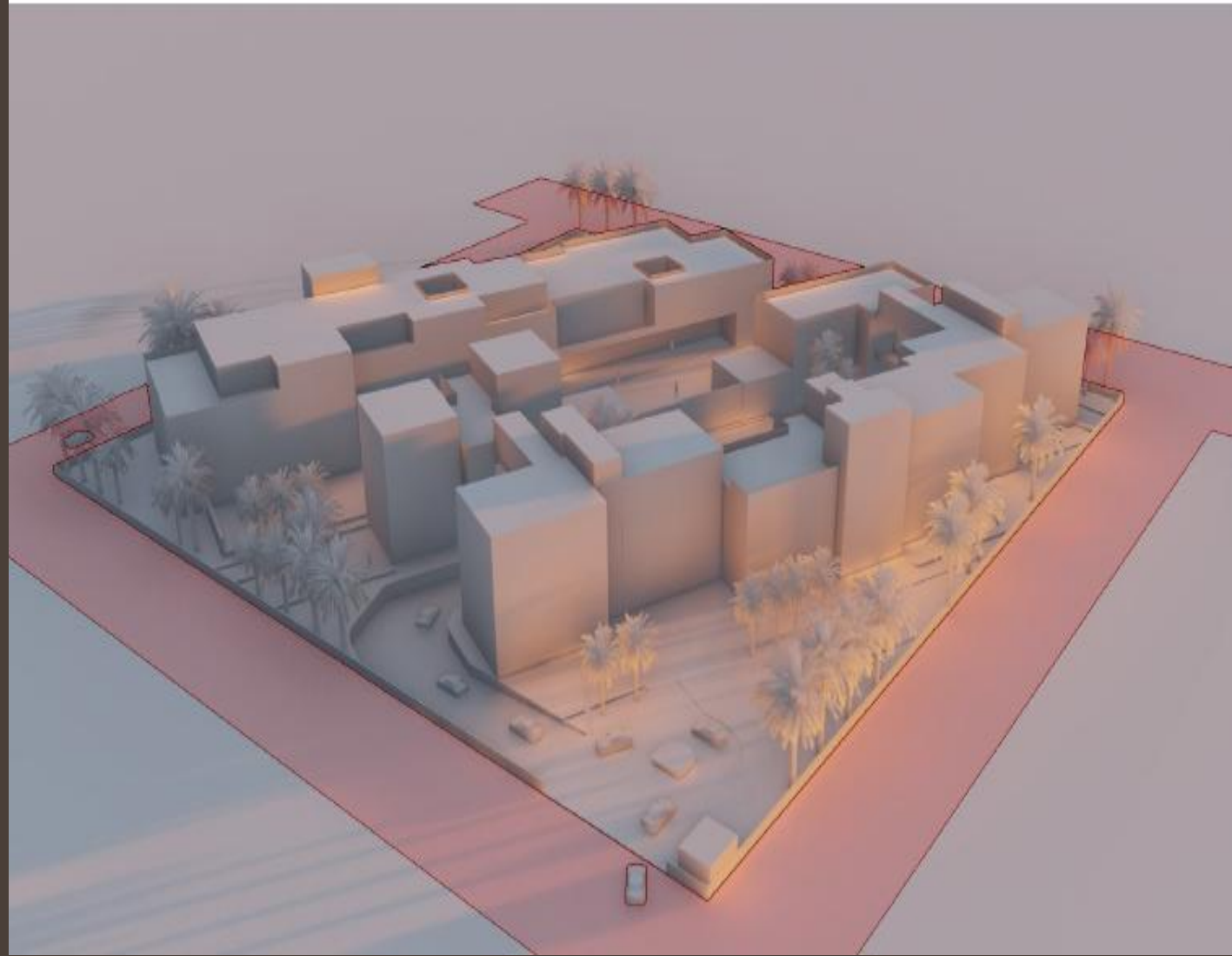
- ❖ Designed the system for maintaining 70 degC at night and 28degC in the day time with the same system.
- ❖ All customized equipment manufactured for this.
- ❖ System under operation and client has appreciated EDS as the production has increased above their expectation with the help of this system

Jaquar Sanitaryware factory & office, Gujrat

Gurgaon
GRIHA 5- star Certified

Location	Jeddah
Area (sqft)	54,000
Architect	SHIFT
System Type	Central chilled water system proposed

- ❖ Efficient chilled water system
- ❖ Solar energy
- ❖ High performance envelope
- ❖ DEWATS system
- ❖ Optimized electrical loads



Indian Consulate, Jeddah

Gurgaon
GRIHA 5- star Certified

Location	Jaipur, Rajasthan
Area	47,000 FT ² Approx.
Architect	Gayathri & Namith
System Type	VRF system



- ⦿ Temperature is maintained at $23 \pm 1^{\circ}\text{C}$
- ⦿ Instant cooling option is provided in the pathways in case of high occupancy scenario.
- ⦿ VRF are connected to occupancy sensors for providing instant cooling.
- ⦿ High efficiency lighting fixtures is used.

JACQUAR FLAGSHIP STORE, JAIPUR

HVAC design support and Analysis

- ⦿ Area is 3,00,000 FT²
- ⦿ Efficient chilled water HVAC system proposed
- ⦿ BIPV proposed
- ⦿ Solar hot water system analysis
- ⦿ High performance envelope
- ⦿ HVAC design support and Analysis

ITC NARMADA

Location	Rajokri, Delhi
Area	28,000 Ft ² Approx.
Architect	sP+a & Ahilia Homes
System Type	Underfloor Radiant Based Chilled Water System



DALMIA'S FARMHOUSE, DELHI

Location	Noida, UP
Area	8,500 Ft² Approx.
Architect	PPAL
System Type	Cleanroom Application, Chilled water system

KOHINOOR INDUSTRIES, NOIDA



- ◉ Solar Plant made in 90,000 Ft² area having 1MW production
- ◉ Synchronised with DG and Grid
- ◉ Has a latest technology to save diesel
- ◉ Net Metering
- ◉ Energy Storage

SOLAR AT LIGHTING FACTORY, BHIWADI

High Performance Building Design



- ◉ Solar Plant made
- ◉ in 90,000 Ft² area having 1MW production
- ◉ Synchronised with DG and Grid
- ◉ latest technology to save diesel
- ◉ Net Metering

SOLAR PLANT AT JAQUAR GUJRAT

NIFTEM (National Institute of Food Technology), Kundli



➤ Quark City office,
Mohali

with underfloor air
distribution system

➤ Quark City Mall
and Hotel, Mohali

➤ Quark City
residence, Mohali



IREO, The Grand Arch



TNI University, Neemrana

With earth air tunnel
system and
displacement ventilation





Raheja Mall, Gurgaon



Indian Embassy at Kathmandu

Major Plumbing & Fire Projects
Handled by our Associate

List of Project

- ❖ United Sprit Ltd (USL), Alwar
- ❖ United Sprit Ltd (USL), Baddi
- ❖ Hampton Hotel, Neemrana
- ❖ Lemon Tree Hotel, Aligarh
- ❖ Indian Building for Scree Rome, Okhla
Industrial Area Phase-II, Delhi
- ❖ IT Building for Bechtel, Udyog Vihar, Gurgaon
- ❖ Multiplex at Bhiwani
- ❖ Industrial Building (Pressure Die casting) for
MSSL, Manesar
- ❖ Industrial Building for MITSUBA, Neemrana

Thank You

Earthwise Design Solutions

Designing Tomorrow's Infrastructure —
Efficient. Intelligent. Sustainable.

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nabeel@earthwiseds.com.

Phone: 9891594353