A&B

www.jasubhaimedia.com
MUMBAI
SEPTEMBER 2022
VOL 34 (9)

ARCHITECTURE

Alea Kitchen
Pirouette House
Architect space surrounded by Architects
Performance evaluation of some Passive Energy Efficient Measures in Buildings

Jasubhai MEDIA

ADITYA BIRLA
HINDALCO

SELECTED Superbrand INDIA Consumer Validated 2019

HINDALCO
Everlast
Aluminium Roofing & Structurals
Nothing lasts as long as Everlast

DOES HEAT BELOW YOUR ROOF CAUSE STRESS TO YOUR EMPLOYEES ?

INSTALL HINDALCO EVERLAST ALUMINIUM ROOFING SHEETS

100% VIRGIN ALUMINIUM
100%
100% BUSINESS SENSE

Hindalco Everlast Roofing Sheets make complete business sense:

- Moderate temperature below the roof
- Do not rust, needing no maintenance
- Good resale value vis-à-vis other roofing materials
- A quality product from Hindalco - the world leader in aluminium rolled products

GREEN METAL
ENDLESSLY RECYCLABLE

NETWORK HE1031-19

For more information, please call: 1800-103-9494. E-mail: hindalco.everlast@adityabirla.com | www.hindalcoeverlast.com

We Work With Water

Terra from ARK aims to provide amazing flow rates; operates with easy convenience; is engineered for long lasting, trouble free performance; rivals expensive and European faucets in styling and appearance while costing a mere fraction of their price. Buy Terra, experience Gravity and Water at play...

Regd. User

CRYSTAL SANITARY FITTINGS PVT. LTD.

An ISO 9001:2015 Certified Company

Regd. Office: 121, Industrial Area, Phase I, Chandigarh - 160002. **Corporate Office:** 72, Industrial Area, Phase I, Panchkula, Haryana - 134113. **Phone:** 0172-4378800-10, 5057535.
Works: Village Sansiwala, P.O. Barotiwala, Tehsil Kasauli, Distt. Solan, Himachal Pradesh - 174103.
Customer Care: 1800 137 0072 (Toll Free). **Commercial Enquiries:** 0172-5048398
Email: info@crystalfaucets.com,www.crystalfaucets.com

ANDAMAN AND NICOBAR 9444401245. **ANDHRA PRADESH** 9444401245. **ARUNACHAL PRADESH** 9835096482. **ASSAM** 9835096482. **BIHAR** 9835096482, 9334067420. **CHANDIGARH** 9878696351, 9872654234. **CHHATTISGARH** 8591173214, 9752235783. **DADRA & NAGAR HAVELI** 9444401245. **DAMAN & DIU** 9878696351. **DELHI** 9878696351, 9872654234. **GOA** 9970282411. **GUJARAT** 9878696351. **HARYANA** 9878696351, 9872654234. **HIMACHAL PRADESH** 9878696351, 9872654234. **JAMMU & KASHMIR** 9878696351, 9872654234. **JHARKHAND** 9835096482. **KARNATKA** 9989964455, 9337011469. **KERALA** 9256019690, 7356541817. **LAKSHADWEEP** 9256019690. **MADHYA PRADESH** 8591173214, 9752235783. **MAHARASHTRA** 9970282411. **MUMBAI** 9878696351. **MANIPUR** 9835096482. **MEGHALAYA** 9835096482. **MIZORAM** 9835096482. **NEPAL** 9835096482, 8591173214. **NAGALAND** 9835096482. **ODISHA** 8591173214, 9437072400. **PUDUCHERRY** 9256019690. **PUNJAB** 9878696351, 9872654234. **RAJASTHAN** 8591173214. **SIKKIM** 9835096482. **TAMILNADU** 9444401245, 9940961118. **TELANGANA** 9444401245. **TRIPURA** 9835096482. **UTTAR PRADESH** 8591173214, 9369638531. **UTTARAKHAND** 9878696351. **WEST BENGAL** 9835096482.

crystalsanitaryfittings | #ark_crystal | arksanitaryfittings | crystalsanitaryfittings

FAUCETS | SHOWERS | FLUSHING SYSTEMS | PRESSURE SOLUTIONS | SENSORS | BATH DECOR

CMC Hosts IIID Architects at its 9th Avenue Gallery in Silvassa

India's leading marble company - **Classic Marble Company (CMC)** recently hosted the largest congregation of architects from the Institute of Indian Interior Designers (IIID) from Jaipur and Bangalore at its 9th Avenue Gallery in Silvassa. Over 50 architects participated in the two-day event where they were given a tour of the Gallery personally by the Managing Director of CMC – Mr Amit Shah. The 9th Avenue Gallery is home to some of the most exclusive, ostentatious collections of the rarest and most exquisite natural stones found on Earth. The architects were also given a tour of the company's state-of-the-art manufacturing plant and were familiarized with CMC's signature 'Process 360'.

The event was organized as part of CMC's initiative to reach out to architects and interior designers from across the country and acquaint them with the finer nuances that go into the making of the world's classiest marble and other exotic stones.

"We are thrilled to have hosted such a large gathering of architects from the Institute of Indian Interior Designers. It was a great experience for us and we got to learn a lot from the fraternity. Our intent was to bring together the like-minded people who conceptualize and design; and to offer them a first-hand experience of the material that they work across projects. CMC has been at the forefront of creating world-class products that give our architects the edge and aspire to continue bettering efforts in this direction. With the kind of positive response we have received so far, we will host more such events for architects in the near future," says Mr Amit Shah, Managing Director, CMC.

Some of the prominent architects who were part of the event included Ar. Sheetal Agrawal, Chairman, IIID Jaipur; Ar. Ashish Kala, Secretary, IIID Jaipur; Ms Kavita S Sastry, Chairperson, IIID Bangalore and Mr Vishwanath Venkat Rao, Hon. Secretary, IIID Bangalore. ■

Godrej Interio sees growing trend in purchase of premium furniture and aims to clock nearly 40% yearly sales this festive season

~ Launches bouquet of exciting customer offers targeted at customers to celebrate the commencement of festivities across India ~

~Observes rise in sales by 20% over last year~

As India sets to embrace the festivities, Godrej & Boyce, the flagship company of the Godrej Group, announced that its business Godrej Interio, India's leading furniture solutions brand, is aiming to clock 40% of its annual sales this festive season. Godrej Interio has also strengthened its omnichannel presence to enhance accessibility for its customers having increased delivery points from 2000 to 5000 pincodes across India.

By increasing its delivery points to over 100 cities currently, Godrej Interio is targeting to double the revenue through its e-commerce sales this festive season. Between April – September 2022, Godrej Interio has already added 45 stores throughout India in Tier 1, 2 and 3 towns to ensure greater accessibility to customers across a broader geography. To enhance the overall furniture buying experience, Godrej Interio is harnessing digital tools and technologies to create more captivating experiences for its customers.

Subodh Mehta, Senior Vice President (B2C), Godrej Interio said "As India is set to embrace the festivities, we are approaching the festive season through a combination of innovative product launches, marketing campaigns, and fabulous offers. Our wide network also allows us to be accessible to customers across the country. Festive sales often account for 35-40% of our annual sales. This year, there are positive indications in Q2 along with the restrictions completely lifted and consumer sentiments on a high around festive celebration and shopping, we expect a 15-20% increase in demand over last year. There is an uplift in demand across our categories like home furniture, storage, kitchens, and mattresses and there are new product launches in the pipeline. ■

For further details, please contact:
Elizabeth Bocarro
ebocarro@godrej.com

VOL 35 (9) | SEPTEMBER 2022 | MUMBAI
RNI Registration No. 46976/87, ISSN 0971-5509

INDIAN ARCHITECT AND BUILDER

JASUBHAI MEDIA PVT. LTD.

Registered Office: 26, Maker Chambers VI, 2nd Floor, Nariman Point, Mumbai 400 021, INDIA. Tel.: 022-4037 3737
Fax: 022-2287 0502 , E-mail: sales@jasubhai.com

PUBLISHED BY:

Jasubhai MEDIA

Cover: © Alea Kitchen

HP to enable 2000 digital classrooms across Government Schools in India

HP Accessible Learning for All (ALFA) initiative to partner with like-minded Corporates/ Corporate Foundations & NGOs

Continuing its commitment to enhance digital learning opportunities, HP India today announced it would enable up to 2000 digital classrooms under the HP ALFA (Accessible Learning for All) initiative. These digital classrooms will be set up in Government or Government-aided schools across 17 states for the students of classes 9th to 12th. The initiative is aligned with the New Education Policy (NEP) -2020 vision of the Govt of India goals.

HP is inviting corporate foundations and NGOs to participate in this initiative and the last date to submitting their request is October 07, 2022. HP will fund the capital expenditure required to equip each classroom with technology including Multi-function Printers, Webcams, a laptop for teachers, Smart TVs, Android boxes, and an internet dongle for connectivity.

Implementation will be managed by the HP's NGO partner NIIT Foundation with active support from other corporations, corporate foundations, and Non-Governmental Organisations (NGOs) as part of their CSR initiatives. HP, through NIIT Foundation as an implementing agency, will deploy cluster coordinators to monitor project implementation and progress across different clusters.

Ketan Patel, Managing Director, HP India said, "We are elated to introduce the HP ALFA program and are confident it will pave the way toward digital equity for underserved communities. This initiative is a true reflection of HP's global vision to contribute to becoming the world's most sustainable and just technology company. Through this project, we aim to accelerate quality education for young students and inclusive access to skills, knowledge, and technological expertise".

National Council for Educational Research & Training (NCERT)'s DIKSHA course content and syllabus will be used for the classroom learning program. The project will ensure that these students utilize the digital content and e-learning tools to the maximum and add further value to their learning journey. ■

For further details, please contact:
HP Inc.
https://www.hpindiacsr.com/solution/hpalfa

Shyam Steel launches its new digital campaign "Apna Ghar" featuring Bhojpuri actors Pawan Singh and Harshika Poonacha

~ Through this campaign Shyam Steel aims to drive across the message that Shyam Steel Apna Ghar App will act as an expert guide for any building construction activities ~

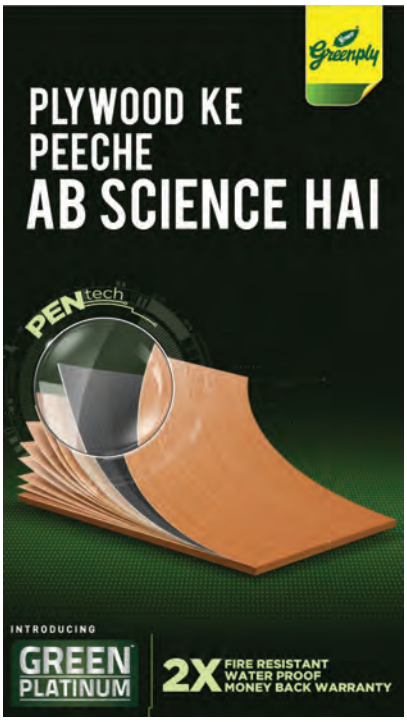
Shyam Steel, one of leading producers and manufacturers of primary TMT Bars, launched its new digital campaign "Apna Ghar" featuring Bhojpuri actors Pawan Singh and Harshika Poonacha. The campaign aims to create awareness about the holistic solutions provided by the Shyam Steel Apna Ghar App amongst the individual home builders. The film will be promoted digitally with a specific focus on the Bihar, Jharkhand, Odisha and the north-eastern markets.

Shyam Steel Apna Ghar App is a one stop solution from 'Neev se Pravesh Tak' which is an online platform, and a mobile App for consumers providing a holistic solution to individual home builders. This is a breakthrough in steel and manufacturing industry and has acted as a problem solver by entering a digital world which has made life easier for all the home builders. The tagline 'Neev Se Pravesh Tak' is self-explanatory when it comes to catering home building needs. The home builders will be provided with relevant information, inspirational ideas and reliable contacts at their fingertips. Through this campaign Shyam Steel has tried to reflect the essence of this App through a happy Indian couple who is planning to build their new home.

Speaking on the campaign launch, Mr Lalit Beriwala, Director, Shyam Steel said " We have received an extremely positive response from our consumers on the Apna Ghar App. The campaign will help us in making the consumers aware on the Apna Ghar App and its benefits. Shyam Steel has always been in forefront with its consumer driven technology and innovation. The App will aim to address all the concerns of individual home builders and scale-up businesses of the dealers by way of opening newer market geographies. Shyam Steel Apna Ghar app will also be an added advantage for us to actively engage with our target audience and business partners" ■

Greenply Industries launches its new product "Green Platinum"

~The CARB certified products also come with 2x fire resistant, waterproof and money back warranty features~



Greenply Industries Limited, one of India's largest interior infrastructure brands with over 30 years of experience in manufacturing a comprehensive range of plywood, block boards, decorative veneers, flush doors, and other allied products, today announced the launch of its new product "Green Platinum". The exquisite product portfolio will fall under Greenply's E-0 range of products.

Greenply Industries Limited has been at the forefront of driving innovation across its products and processes keeping the consumer health, safety, and well-being in mind. With the accelerated transformation in the interior sector post pandemic, the company introduced its fire-resistant plywood with E-0 compliance "Green Platinum" which is two times as effective in fire-resistant and waterproof properties as compared to other available plywood in its range. The product comes with PEN Tech technology which adds a protective mesh between the layers as well as on the surface of plywood, rendering it two times more fire resistant. The technology helps the product to function as a barrier to restrict the rapid spread of fire and helps to emit less smoke. Green Platinum is also enriched with an un-extended BWP resin rendering it two times as boiling waterproof as compared to regular fire-resistant plywood.

Salient features of Green Platinum

- E-0 compliant
- Fire Resistant & Waterproof
- Un-extended BWP resin
- CARB Certified
- Manufactured through PEN Tech & The 4 Press Technology
- Borer and Fungus Proof, Anti-termite guarantee
- 30 years warranty with 2x money back warranty

Remarking on the launch of the new collection range, Mr. Sanidhya Mittal, Joint Managing Director & CEO, Greenply Industries Ltd said "With innovation and technology at our core, we strive to create products that are made to fit the evolving needs of consumers. Through our extensive research on consumer behaviours, we found that there was a need for a product which combines fire resistant, waterproof and emission proof features, thus we came up with the product Green Platinum with an added feature of money back warranty. Through our continuous R&D process, we will be coming up with more such eco-friendly product which will promote aesthetic living among the consumer base. ■

Alea Kitchen – "one-of-a-kind" innovative retail exhibit

The red MDF ribbons wrapping the volume in different directions stimulate the customer's eye motion evoking interest and establishing instant engagement

With the halt in live shopping owing to the Covid 19 pandemic, retail outlets need to "up their game" and revamp their experiences to bring consumers back through their doors. The intent behind the design conceptualization of Alea Kitchen was to deviate from traditional retail concepts that are routine and repetitive offering a refreshing perspective on the presentation of modular kitchens available for purchase by the consumer. The innovative display is crafted to offer a one-of-a-kind retail experience with an interactive and immersive experience for clients selecting kitchen designs.

The showroom spread over an area of 4300 square feet in Industrial Area, Panchkula has been configured with a cluster centric strategy; wherein each pocket channels a distinct character while the transitional spaces organically coalesce transporting the visitor from one zone to another. A hierarchy of display walls, kitchen installations and out-of-the-box ceiling concepts form an attempt towards developing a minimalist,

It almost seems that the surfaces of the volume are dancing to the beats and rhythm of flavours

A curvilinear sofa in striking orange completes the look with a pop of colour and comfort

An intervention by nature benefits the indoors by connecting the visitors with the outdoors through light and views

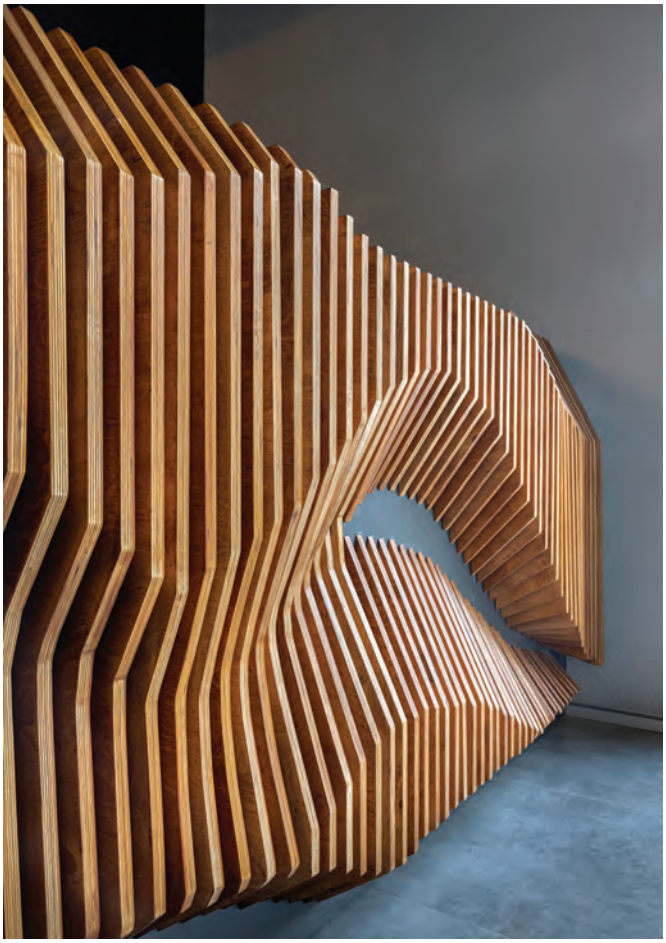
Each kitchen is designed to reflect a unique persona

Shades of ivory with wooden warmth in distinct grains and textures feature across all kitchens

The free-standing bar counter exhibits a fluid and amorphous form courtesy of its flowing curves crafted with a marble top

The intent behind the vision board of each of the six kitchens was to highlight the experience and functional value of Alea's services, while simultaneously crafting an aesthetic that is innovative and bears a never-seen-before vibe

It almost seems that the surfaces of the volume are dancing to the beats and rhythm of flavours



The reception counter with its dynamic design of wooden planes inserted in a grey cuboid evokes a parametric symphony whilst exuding warmth in the aesthetic

The counter is strategically positioned against a corner furnished in textured wallpaper walls with suspended bulbous luminaires in an open ceiling concept

innovative and striking aesthetic to assist the affirmative connection between the consumer and the product.

Copper rings suspended mid-air parallel to the ceiling plane with the aid of multi-directional taut metal wires evoke weightlessness in the rather compact volume of the reception and waiting area. Muted grey textured tiles on the floor and the marble wall form a serene canvas for the idiosyncratic ceiling design establishing undeniable eye contact. The reception counter with its dynamic design of wooden planes inserted in a grey cuboid evokes a parametric symphony whilst exuding warmth in the aesthetic. A curvilinear sofa in striking orange completes the look with a pop of colour and comfort.

From the main entrance of the showroom, the most exclusive kitchen alternative on display is visible. However, just as the client is rapt with the view of the pristine white and grey kitchen, on the left, a wall with folded planes captures the visitor's attention. The wall is a dialogue with surfaces seemingly pulled apart from the vertical plane supporting digital touch screens. These smart tablets let customers explore the offerings by Alea while allowing customers to form opinions and select their options. The technology presented in an engaging format is a constructive mode of stimulation

The installation has a curved grey seating along the partition clad in the blue fabric giving the kitchen a comprehensive look

The polyvalent wall has been executed in Flexi ply and MS sheet with a graphical kitchen sketch forming an intriguing backdrop

Each kitchen installation has been designed to entice visitors to interact, touch, and dwell in the magical ambiance created by food and its preparation

for the consumer. The polyvalent wall has been executed in Flexi ply and MS sheet with a graphical kitchen sketch forming an intriguing backdrop. Instead of competing with the tech that keeps shoppers at home, it is used in a way to bring people in.

Each kitchen installation has been crafted in a fashion that beckons the visitor to interact, touch and dwell in the magical atmosphere generated around food and its preparation! The intent behind the vision board of each of the six kitchens was to highlight the experience and functional value of Alea's services, while simultaneously crafting an aesthetic that is innovative and bears a never-seen-before vibe. The first kitchen the visitor experiences is equipped with fully functional appliances of premium quality. Designed to facilitate hosting live culinary events where chefs are invited to demonstrate the efficacy of the state of the art utilities. One of the latest mechanisms to be integrated is a downdraft chimney – the latest in exhaust air management for kitchens that are flushed to the countertop and elevated to eye level to efficiently extract the strongest kitchen fumes. Walls are completely utilized for retail display leaving ceilings as the canvas for creative freedom. Embellished with modern yet delicate chandeliers, the conspicuous ceiling above the first kitchen bears semblance to inverted contours painted in the same color as the main ceiling allowing a hint of character and drama without dominating the overall vibe.

the conspicuous ceiling above the first kitchen bears semblance to inverted contours painted in the same color as the main ceiling allowing a hint of character and drama without dominating the overall vibe

The transition from one kitchen display to another that could have been mundane, becomes the focal point of the store. Vibrant and eclectic bar counter zone has multi-functional utility; a breakout space for the employees, a discussion area for the clients and Alea representatives, an events spot; serving a completely different purpose to bring in guests who might not visit the store otherwise. The red MDF ribbons wrapping the volume in different directions stimulate the customer's eye motion evoking interest and establishing instant engagement. The tensile wires tied to the bold red ribbons bring character to the volume whilst crafting an eye-catching geometrical harmony. One of the walls sports a display unit, designed to showcase catalogues and manuals of Alea products, which is fabricated in black MS framework and white shelves against an interesting backdrop of graphics of kitchen supplies. It almost seems that the surfaces of the volume are dancing to the beats and rhythm of flavours.

The free-standing bar counter exhibits a fluid and amorphous form courtesy of its flowing curves crafted with a marble top, and MDF base furnished with porous wooden planar members. The counter is strategically positioned against a corner furnished in textured wallpaper walls with suspended bulbous luminaires in an open ceiling concept. Suspended forms, be it the light fixtures or the tensile wires manifest an airy and weightless vibe. Further,

the conspicuous ceiling above the first kitchen bears semblance to inverted contours painted in the same color as the main ceiling allowing a hint of character and drama without dominating the overall vibe

the monotonous height of the volume is punctuated by greens intertwined in the black-coated MS frame supporting the partitions from the ceiling. This brings nature and outdoors to the design while adding warmth to the aesthetic.

Individually each kitchen reflects a personality different from the other curating a gallery of installations and presenting the consumer with myriad experiences. Shades of ivory with wooden warmth in distinct grains and textures feature across all kitchens. One of them however stands out, bathed in pristine white, with moldings engraved in each shutter; the kitchen is emblematic of the perfect blend of modern and classical themes. The installation has a curved grey seating along the partition

clad in the blue fabric giving the kitchen a comprehensive look. An intervention by nature benefits the indoors by connecting the visitors with the outdoors through light and views. Nature is weaved throughout the retail space, either in the form of a stretch wallpaper appearing to be scenery out of a window, actual windows or greens suspended from the ceiling along with the partitions.

The creative process was fuelled with an aspiration to encourage a holistic and engaging interaction between the consumer and the product bridging the gap between what we see in a showroom and what is installed at the site of the project. The objective was to devise a unique scheme to make the store stand out from its competitors, bringing a fresh new look so that the showroom carries its own unique identity. The strategically and sensitively carved out display zones in the layout along with the spatial design composition establish the pinnacle of experience design combined with a world-class branding experience. ■

FACT FILE

Project Name	: Alea Kitchen
Location	: Industrial Area Phase 1 Panchkula (Haryana) India.
Area	: 4300 SQFT.
Principal Architects Area	: Ar. Badrinath Kaleru, Ar. Prerna Kaleru
Design team	: Ar. Anusha Sharma,Ar Nisha Sarao, Ar Mridha, Ar Dilratan
Consultants:	
LightDesign team	: Om Electrical (Osram)
Electrical	: Mr Tajender Kalsi (The Luminar)
Materials:	www.jasubhaimedia.com
Lighting	: Osram
Paint /texture	: Dulux Paints
Laminate	: Merino Laminates
HVAC	: Daikin (Mr. Harsh)
Metal Work	: Alea Kitchens
Furniture	: Alfa Furnitures
Tiles	: kajaria
Bathroom Fixtures	: Kohler
Mirror / toughened glass	: Miraj

Architect space surrounded by architects

Text Credits: Ar. Piyush Pandya
Image Credits : Agrawal Colour Vision
Drawing Credits: RKGA Consultants Pvt Ltd

Tthrough Passage

During the journey of glorious 50 years, the RKGA team expanded considerably and needed a horizontally and vertically, physically and organisationally well-connected space. The in-house designed workplace called for an environment where ideas come together cohesively. The zealous and inexhaustible founders of the firm wanted a place that is connected to their home, enabling constant connection, comfort and off-office hours working. Thus the 1700 sqft large primary level of the building was dedicated to the workplace. This inevitably posed some challenges in

Meeting Room


Legend
1. Waiting lobby
2. Reception
3. Server room
4. Lift
5. Lift Lobby
6. Conference room
7. Meeting room
8. Toilet
9. Cabin 1
10. Cabin 2
11. Cabin 3
12. Material library
13. Staff area
14. Lunch area
15. Plotter/Printer
16. Pantry
17. Staff toilet(F)
18. Staff toilet(M)
19. Servant room
20. S.Toilet
21. Store
22. Parking
Utility Entry
DN
Service Entry
UP
Entry to FF
UP
Office Entry
UP
Residence Entry
0 1 2 4m
N
Ground Floor Plan
R O A D

after plan

before plan

plan 3d

following the grid and byelaws prescribed margin(MoS) combined with a deep desire to experiment with space, volume and materials.

The office's internal spatial arrangement was kept simple and fundamental with well-drawn details and well-thought character that made the place unique for workers and clients. The office's paramount objective is to facilitate the process of the client's agreement on the design proposal while equipping the designers and architects, comfortably, to prepare the best designs.

The west-facing entrance verandah with a PVC dark ceiling bringing ease from the scorching sun is designed to entice visitors with carefully created flooring leading to the main portal. The first vertical element, the wall of the building is decorated with cultural hints bringing focus on God Ganesha with a terracotta background, emitting a positive aura in the environment.

The overall planning of the office is divided into three parts- workplace, guiding place, and interaction place. The amenities are housed on peripheries.

Interaction place is for clients to wait, observe and relax before a respective responsible employee attends to them. This area includes the reception which is the first human interaction point for a prospective client. The round edge of the reception table responds to the round edge of the personal meeting room while flowing into the corridor leading to the conference room, head office and the workplace. This

Reception

Conference

Through Passage

Studio

Studio

Studio

Studio

Studio

Cabin

Olunch area

Cabin

lunch area

Entrance Varandah

roundedness dissolves the rigid boundaries of the rather space-constrained reception and facilitates openness. The yellow personal meeting room for one-to-one meetings with a crafted round glass wall is a highlight of the reception that talks about the firm. The reception has a handwoven life-size portrait of Vinci's Vitruvian Man hinting toward the fundamentals of architecture.

The circle of the Vitruvian man repeats itself on the glass wall of the subsequent conference hall and executive director's cabin as a mirror and as a transparent frame respectively while making a narrow corridor capacious and voluminous.

In the central part-the guiding place, three cabins are planned. The first on the right side is the founder's cabin which is light grey and simple in the scheme. On the left side, the executive director's room and director's room are located that

Corbusier's modulor man on the entry door of the main workplace centralises the corridor. The narrow corridor amazes one and culminates in the main bigger workplace where the associate and junior architects, designers and engineers function. The workplace is equipped with slickly designed hidden lockers, cupboards and storage areas adjoining a pantry, printing areas, lunch areas and common toilets. Semi-covered lunch area placed neatly in the MoS is designed to provide a contrasting, refreshing and destressing ambience with a mural of RKGA's most iconic works in bright coloured mosaic.

The office is filled with details of architecture, architectural quotes from master architects, and a play of material and lighting facilitating an edifying and stimulating environment for working designers and clients. The office interior experiments but yet doesn't shock, excites yet comforts and promotes yet composes. ■

are connected to each other through the material library and with the conference subentry. The director's cabin is planned with a yellow coloured rear wall based on their energetic personality and personal interests. The executive director's office is designed with dark grey colour which, as per him, helps him to concentrate more. Both cabins are closely connected with the main workplace.

FACT FILE

Project	:	Architect's Design studio
Location	:	Indore, MP, India
Architect: Team	:	Ar. Akashdeep Gupta Ar. Ravi Mandoria, Ar. Aastha Rana
Client	:	RKGA Consultants Pvt Ltd
Project Area	:	1700 sqft
Project Estimate	:	50 lakh approx.
Initiation of Project	:	Dec 2021
Completion of project	:	June 2022
Office Website	:	https://www.rkgaltd.com

Performance evaluation of some Passive Energy Efficient Measures in Buildings

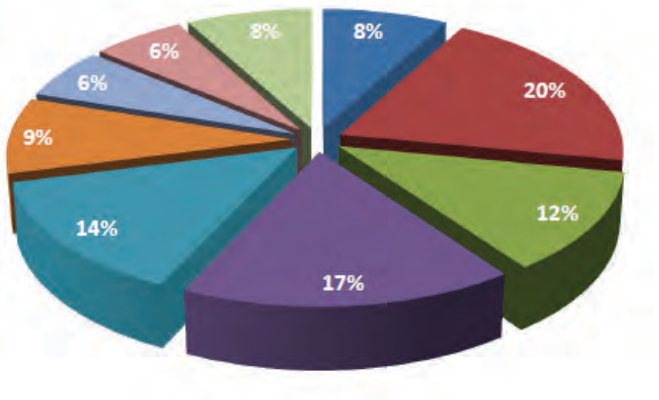
Text & Image Credits: Ar. Rajesh Malik

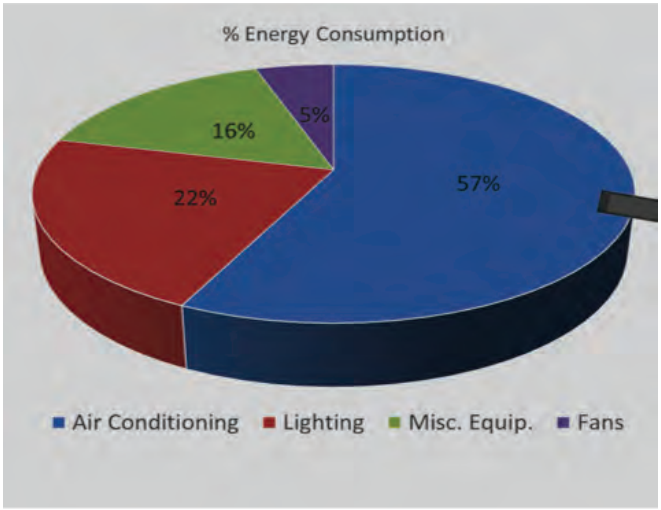
Ar. Rajesh Malik has thirty-three years of professional experience in the industry as well as academics. He has a passion for research and sustainable and energy efficient design. He has published papers in reputed national and international journals. Presently in private practice, he has managed a diverse range of projects ranging from IT campuses to residential and hotel projects.

Conscious attempts are being made lately to improve energy efficiency of Air-conditioning systems on account of the heightened awareness of the energy intensive property of conventional Air-conditioning. Besides, it has been established that Air conditioning is also the major contributor to HFC and CO2 emissions. Significant reduction in energy consumption has been achieved on account of the incorporation of passive cooling and heating techniques in modern buildings. However, in the absence of the required research and on account of some limitations, these techniques have not been able to offer completely satisfactory solutions in respect of achieving the desired comfort conditions. Besides, the functioning of these techniques is heavily dependent on external climatic conditions. It is, therefore, essential to revisit these techniques, explore the possibility of integrating these with conventional technologies and assess the results. This article briefly covers three of such technologies a) Earth Air Tunnel b) Solar Chimney and c) Passive Downdraught Evaporative Cooling and makes an attempt to understand the effectiveness of using these technologies in live projects, namely a) TERI RETREAT, GURGAON b) TORRENT RESEARCH LABORATORIES, AHMEDABAD and c) NIIT, NEEMRANA. An analysis of the energy and cost savings on account of using these technologies in the respective projects is also undertaken. Finally, the pros and cons of each of these measures is enumerated so as to pave the way for further research and perfection of these technologies.

RATING SYSTEMS FOR GREEN BUILDINGS, GRIHA: WEIGHTAGE OF POINTS: ENERGY

Extensive studies and analysis by GRIHA have led to the following analysis whereby the maximum weightage is given to Energy in the context of awarding ratings for Green buildings, thereby underscoring the importance of energy efficiency in Architectural Design. A further detailed analysis of energy consumption brings to light the fact that Air conditioning takes the major share of about 51%, thus establishing that Air conditioning is the largest consumer of energy in the building sector. It has also been proven to be the biggest contributor to HFC & Co2 emissions. One of the biggest drawbacks of conventional Air conditioning is that it uses recycled air, the percentage of the which varies as per the requirements. There are serious health concerns on account of recycling of air, which have received a lot of attention during and Post COVID, with a school of thought even questioning the wisdom behind the conventional Air conditioning system and it's inability to cope up with the required indoor comfort conditions during the pandemic.





- Maximum weightage given to Energy-20%
- Followed by Water-17%
- Sustainable Building Materials, -14% I
- Occupant comfort & Wellbeing -12%

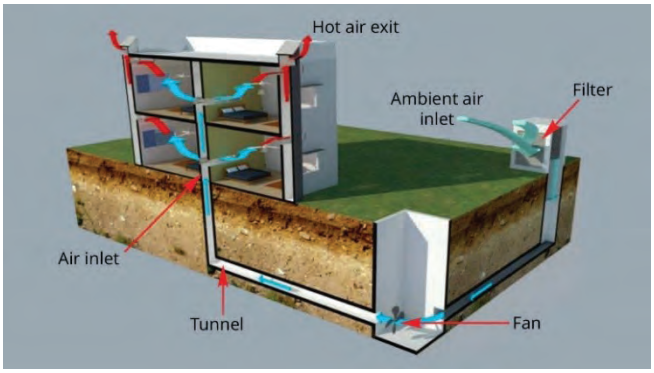
PASSIVE COOLING CONCEPTS: PROVEN ENERGY EFFICIENCY

Of late, there is a renewed emphasis among Architects, Civil Engineers and organisations concerned with the Green building movement to re-introduce proven passive air-cooling techniques into the Architectural Design process so as to achieve the desired thermal comfort. Some of these techniques have already been incorporated in building projects over a period of time, with varying degree of success. One such proven and down to earth technology is the 'Earth Air Tunnel System', successfully proven in projects like the TERI RETREAT Building, Gurgaon and NIIT Neemrana, Rajasthan. Although there are several other projects country wide which have implemented these technologies, these two projects have been picked up for the purpose of this article on account of the proven effectiveness of both the systems.

Earth Air Tunnel System:

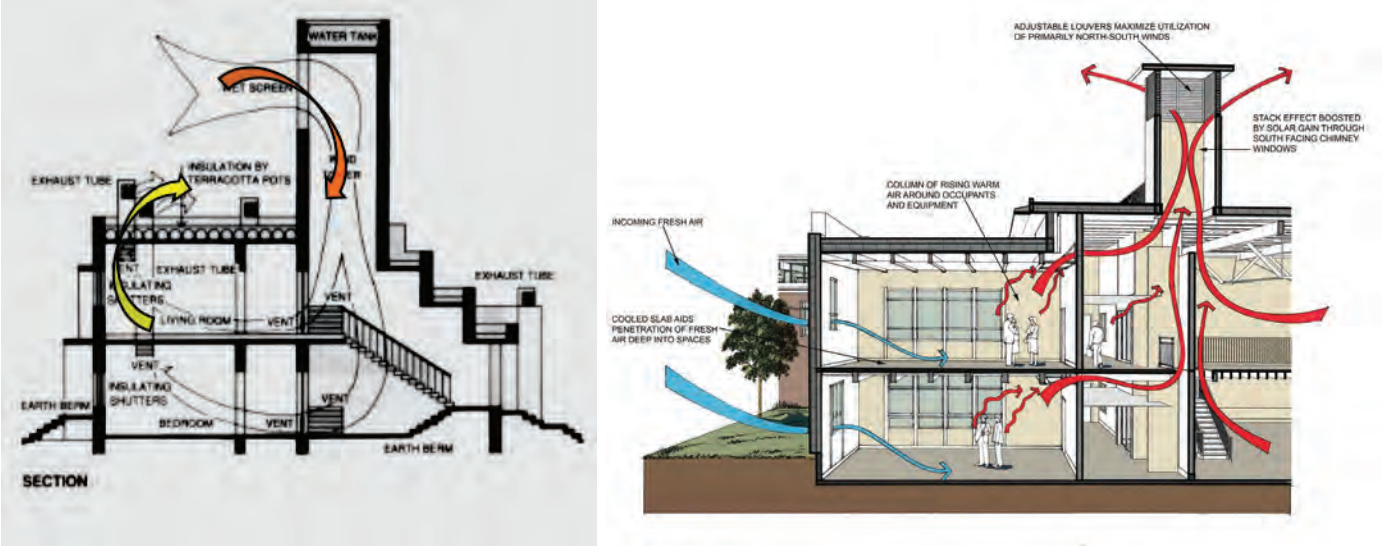
To put it very simply, the EAT takes advantage of the fact that, at a depth of about 4 m below ground, the temperature inside the earth remains nearly constant, unaffected by external temperatures. Thus, a tunnel at this depth will acquire the same temperature as the surrounding earth and the external air at high temperature blown through the tunnel will impart its' heat to the tunnel and cool down in the process. The cool air is then re-circulated in the living or working areas. The cool air then absorbs heat from the surroundings, becomes warmer, and is made to escape through a 'Solar Chimney.' The concept has been successfully used both for indoor cooling as well as heating in hot and dry climatic regions in India as well as other parts of the world.

Earth Air Tunnel



Earth Air tunnel

The main intent of the Solar Chimney system is to augment & channelise the upward flow of the warm indoor air and make it exit to outdoors, as a final culmination of the air



PDEC & Solar Chimney as a) Separate and b) Combined structures

movement cycle. During this process, the ambient temperature of the air increases while the absolute humidity reduces. The Air becomes less dense, causing an upward air movement. The high surface temperature of the solar chimney further augments the upward air movement. As a general practice, Solar Chimneys are located on the South face to maximise the heat gain. The cross section of the Solar Chimney is an important factor for enhancing the air flow.

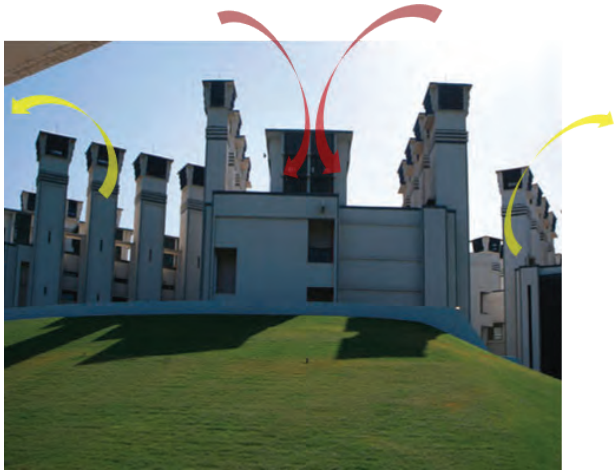
Passive Downdraught Evaporative Cooling

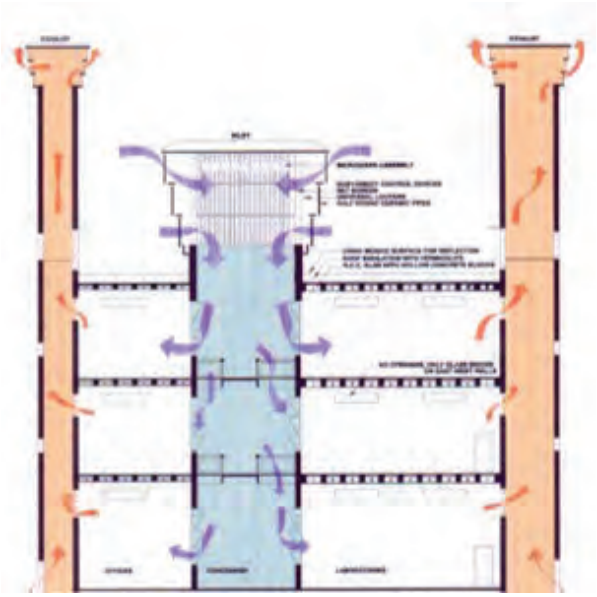
Passive Downdraught Evaporative Cooling utilises the basic concept behind evaporative cooling. Water has a high latent heat of evaporation, which is the primary reason behind the cooling of air due to the evaporation of moisture. This technology utilises the high wind speeds available at a certain height above the roof of the building in hot and dry climatic regions, captures the wind and makes it moist by means of sprinkling fine droplets. The moisture a) increases the density of the air, forcing it to descend downwards and b) causes evaporative cooling, bringing down the ambient temperature of the air. The slowly moving downward wind is captured into the living or working spaces where it absorbs heat from the bodies, surfaces and equipment and becomes warmer in the process. This warm air, being lighter in density, tends to rise upwards. It's upward journey is enhanced by the high surface temperature of the Solar Chimney or the PDEC tower, depending on the design, from where it is finally exhausted to the external atmosphere. PDEC is sometimes used in conjunction with the solar chimney and sometimes in isolation.

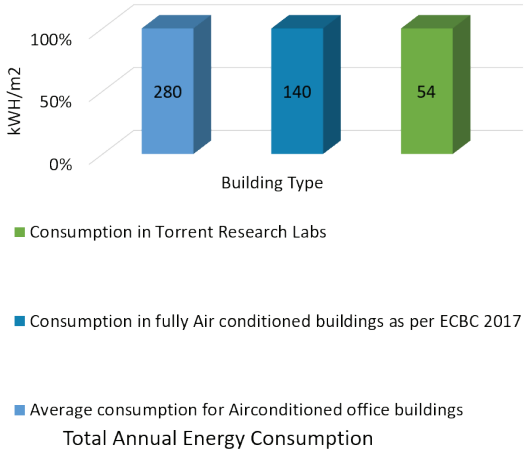
Case Study: Torrent Research Laboratories, Ahmedabad

Project details:

- Project Period: 1994-99
- Size: Built-up area is approximately 16000 m^2
- Area cooled by PDEC-approx. 72% of 16000 m^2
- PDEC used in conjunction with conventional air conditioning.
- A total of six laboratories and office blocks
- Four laboratories being cooled with PDEC.

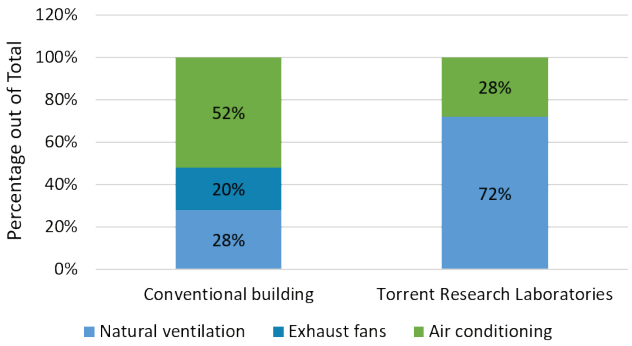






Total Annual Energy Consumption

- The total annual average energy consumption by all the buildings in Torrent Research Labs –approx. 54 kWH/m2,
- The average consumption for air-conditioned office buildings in India – approx. 280-500 kWH/m2
- Energy consumption prescribed by ECBC 2017- 140 kWH/m2
- Air-conditioning plant capacity saved, is about 200 Metric Tonnes



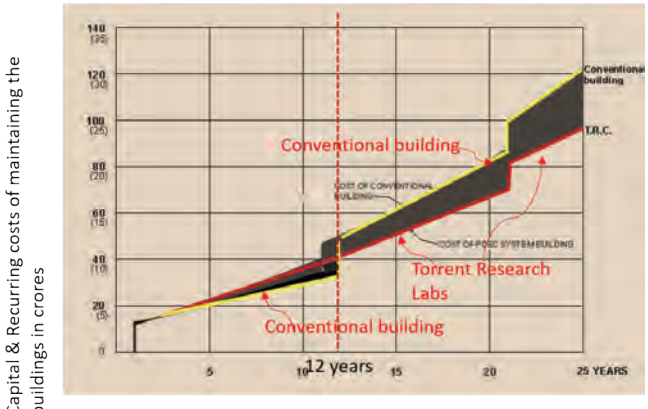
Percent proportion of different means of Ventilation:

- In a conventionally air-conditioned building, Air conditioning accounts for about 52% of the total ventilation,

whereas in Torrent Research Labs, Air conditioning accounts for only 28% of the total ventilation.

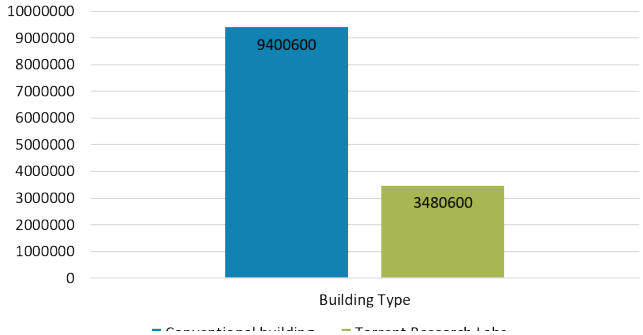
- While natural ventilation accounts for about 28% of the total ventilation in a conventionally air-conditioned building, it accounts for nearly 72% of the total ventilation in Torrent Research Labs.

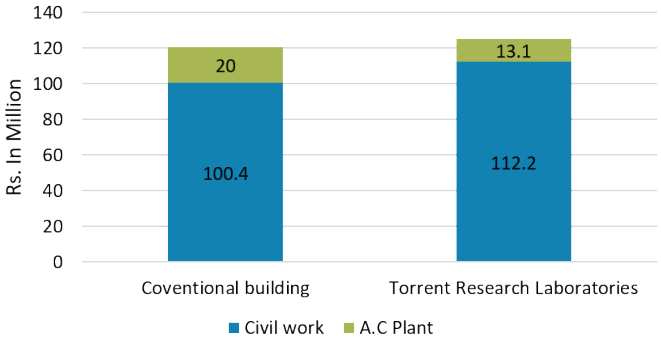
A COMPARISON BETWEEN A CONVENTIONAL BUILDING AND TORRENT RESEARCH CENTRE OVER A TIME PERIOD OF 25 YEARS



A COMPARISON BETWEEN A CONVENTIONAL BUILDING AND TORRENT RESEARCH CENTRE OVER A TIME PERIOD OF 25 YEARS

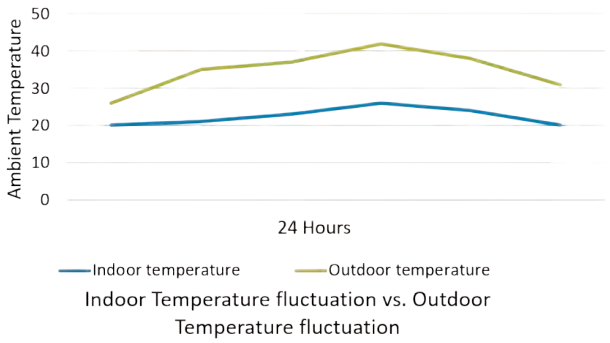
The graph indicates a comparison between the capital and recurring costs in a conventionally air-conditioned building vs. Torrent Research Labs. For the first twelve years of operation, the cost incurred on Torrent Research Labs is higher than that incurred on the conventionally Air-conditioned building, mainly on account of the additional civil cost incurred due to PDEC & Solar chimney. However, the payback on the higher investment in Torrent Research Labs starts from the 12th year onwards mainly on account of the savings in Electricity due to the significantly reduced Air-conditioning load. The maintenance cost of conventional Air-conditioning has been ignored in these calculations. It has been documented that there is an annual savings of approx. Rs. 60 lakhs due to reduced electrical consumption on account of the reduced requirement of Air conditioning and less use of artificial lighting during the day.





Break up of Cost for Civil works & A.C plant

Improvements in the internal comfort conditions:

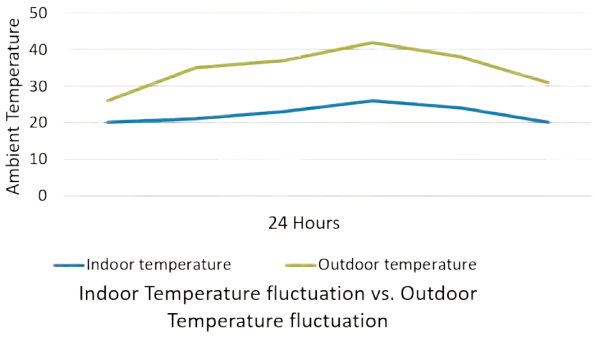


Indoor Temperature fluctuation vs. Outdoor Temperature fluctuation

Some important findings:

- Internal maximum temperatures are about 12-14 degrees lower than the peak external temperatures during the hot and dry season. Indoor temperatures of 29-30 degrees have been achieved when the external temperatures ranged between 43-44 degrees during this season. This is a remarkable achievement. With ASHRAE 55 talking of adaptive comfort, it has been established in studies that ambient temperatures ranging between 29-30 degrees do correspond to the adaptive comfort zone in place of the conventionally accepted temperature range for the comfort zone.
- While there is a huge diurnal variation in the external temperatures on account of the nature of the climate (difference between peak day temperature and lowest night temperature is in the range of 14-17 degrees), the fluctuations in the indoor temperatures are in the range of 6-7 degrees only.

Thus, the combination of PDEC & Solar chimney has been able to substantially stabilise the indoor temperatures in a climate known for very high day time temperatures and low night time temperatures. In an ordinary building without passive control measures, this temperature stabilisation is absent, making the job of the designer quite difficult and requiring a great amount of resilience and adaptability on the part of the occupant.

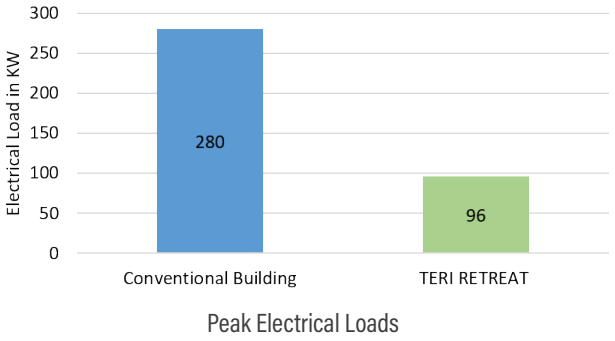


Indoor Temperature fluctuation vs. Outdoor Temperature fluctuation

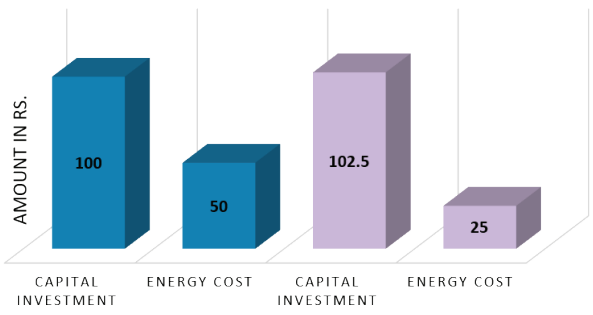
CASE STUDY: T.E.R.I RETREAT Building

- Project Period: 1997-2000
- Built-up area approximately 3000 m^2.
- Four tunnels of 70 m length and 70 cm diameter laid at a depth of 4 m below Ground.

- Conditioned air from Earth Air Tunnel supplied to the living quarters in The South block.
- Each room in the south block has a 'Solar chimney.'
- Four fans of 2 HP each force the air into the Earth Air Tunnel.
- Earth Air Tunnel supplemented with absorption chillers powered by LPG in humid season.
- Earth Air Tunnel used both for cooling in summers and heating in winters.



Peak Electrical Loads



Capital Investment Cost VS. Energy Cost

CAPITAL INVESTMENT COST VS. ENERGY COST

Some important findings:

- Reduced Peak Annual Electrical load of 96 KW in TERI RETREAT building compared to Peak Annual Electrical load of 280 KW in a conventionally air-conditioned building, amounting to an annual saving of 184 KW.
- With an additional capital investment of 25% over the conventionally air-conditioned building, the TERI RETREAT building is able to save about 50 percent energy costs compared to a conventionally air-conditioned building. Thus, for a marginal increase in capital investment, there are substantial savings in energy costs, mainly on account of the savings in Electrical costs due to reduction in the Air conditioning load.

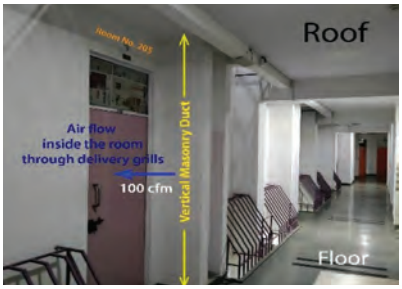
CASE STUDY: N.I.I.T NEEMRANA Building

- Project Period: 2006-2009 (Phase One)
- Built-up area Approx. 300,000 m^2
- Combination of Earth Air tunnel, Solar Chimney and Air intake tower .

E.A.T

Air Intake Tower

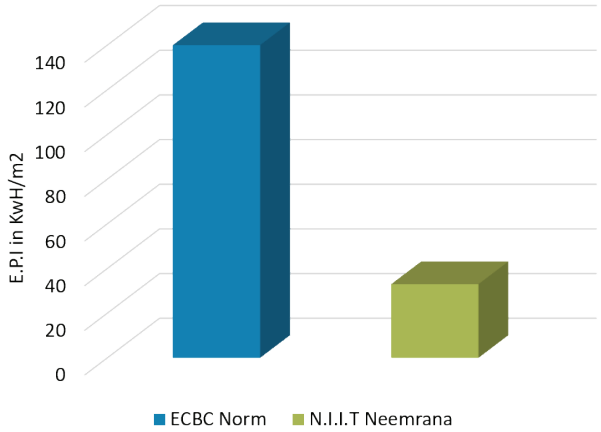
Solar Chimney



Air cooling duct

Some important findings:

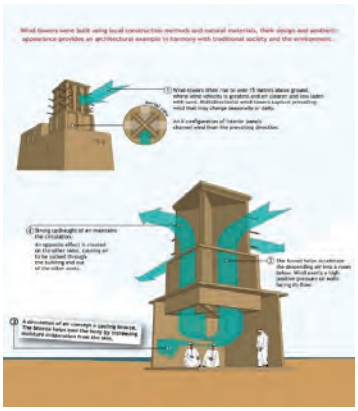
- EPI Achieved is 33 kWH/sqm. /Year as against the ECBC stipulated norm- 140 kWH/sqm. /Year for this category of buildings.
- Indoor comfort temperature range was maintained between 28-30 degrees C, as per the adaptive comfort range given by ASHRAE 55. This is a very bold departure by the designers from the conventionally used comfort range of 23-26 degrees C, thereby establishing the effectiveness of the concept of adaptive temperature, and is a contributing factor to achieving the desirable indoor comfort conditions.
- Another outstanding achievement of the combination of PDEC & Solar Chimney is ensuring 100 percent fresh air circulation in the areas covered by the system, which is considered ideal from health perspective. There is zero recycling of air unlike in conventional Air conditioning, which is of particular importance in a pandemic situation, on account of reducing the risk of contamination through the microbes.



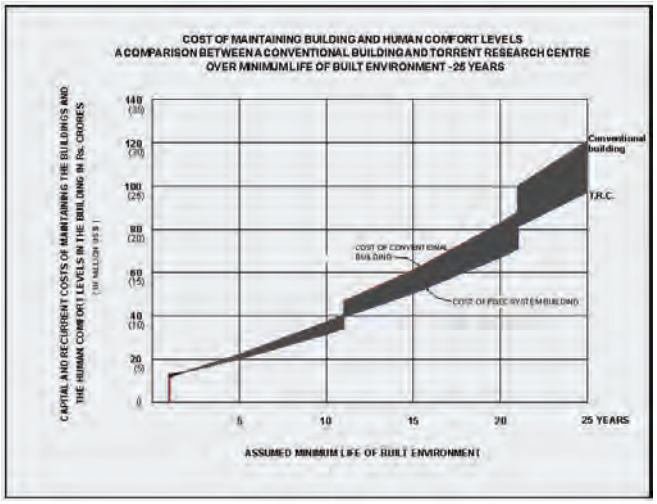
Comparison off E.P.I Achieved In N.I.I.T Neemrana Vs. E.P.I Recommended By ECBC

Some Key Disadvantages of Using PDEC, Eat & Solar Chimney:

- The performance of the PDEC + EAT + Solar Chimney combination drops with the increase in indoor humidity, as these technologies have been developed primarily for hot and dry climatic regions and have not taken into account the humid conditions during the rainy season. There are no inbuilt provisions in the technology to address the issue of increase in outdoor and indoor humidity, resulting in the use of fans to resolve the same. In the case of Torrent Research Labs, fans had to be installed at a later date when the indoor



discomfort increased during the humid months.



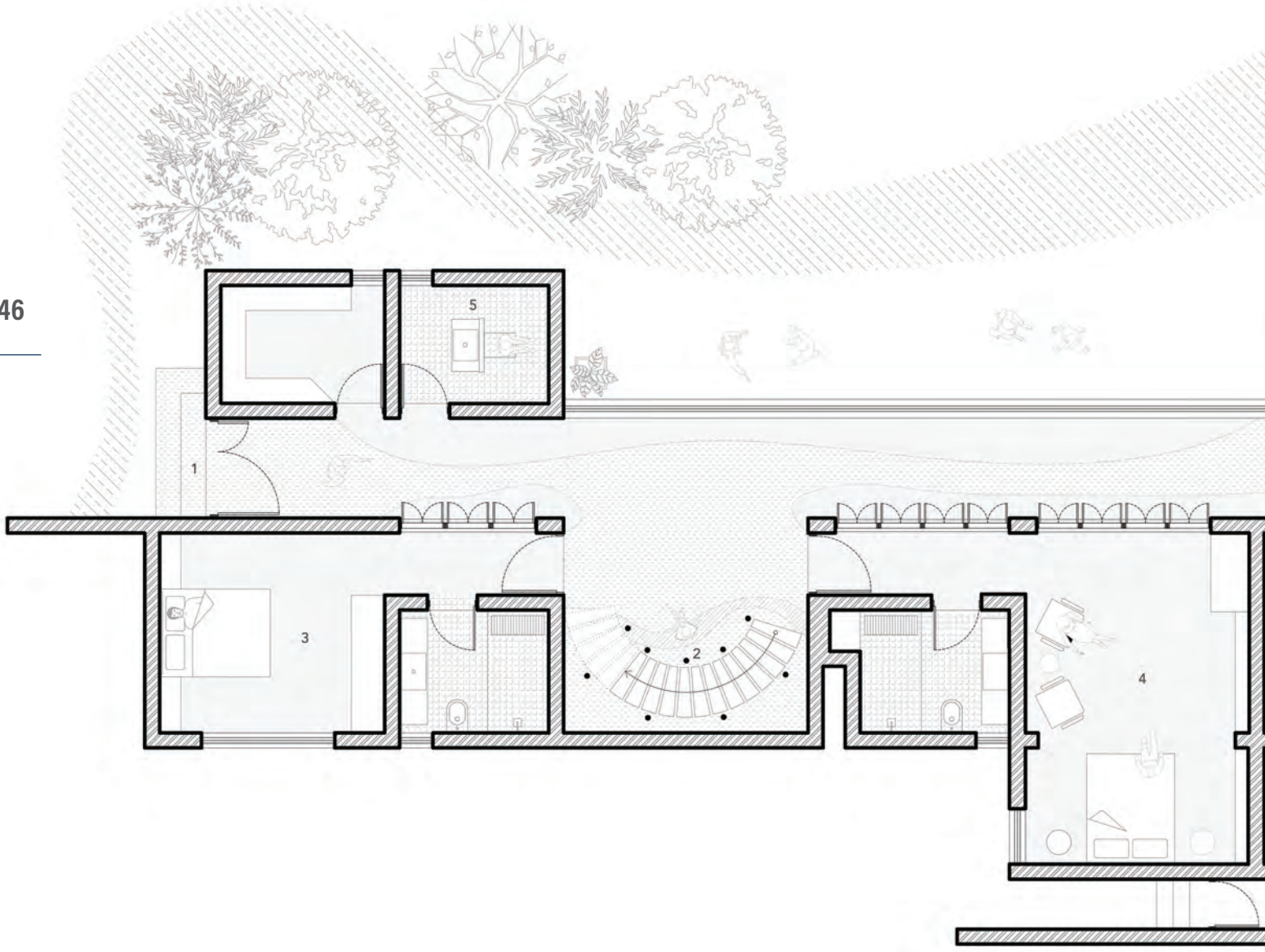
- The performance of PDEC is highly dependent on the external wind velocities. When the external wind velocity is high, it's performance is good, and goes down when the external wind velocity reduces.
- Ideally, the solar chimney should be placed on the Southern face since it receives the maximum solar radiation and thereby heats up the chimney surface. However, design constraints may not permit all the Solar Chimneys to always be located on South face. This is an important consideration and needs to be addressed suitably by other measures.
- The use of each of these technologies in isolation or in combination entails an increase in the civil capital cost over conventionally Air-conditioned buildings, which eventually gets balanced due to savings in running Electricity costs over a payback period which varies from one building to another.
- Many hot and dry climatic regions also have a short duration cold and cloudy winter season. While E.A.T has successfully been used for winter heating as well, PDEC + Solar Chimney system is inappropriate for the cold and cloudy climate or the winter season.
- There is a risk of micro bacterial contamination and blockage of the water nozzles on account of the use of micronizers in PDEC. ■

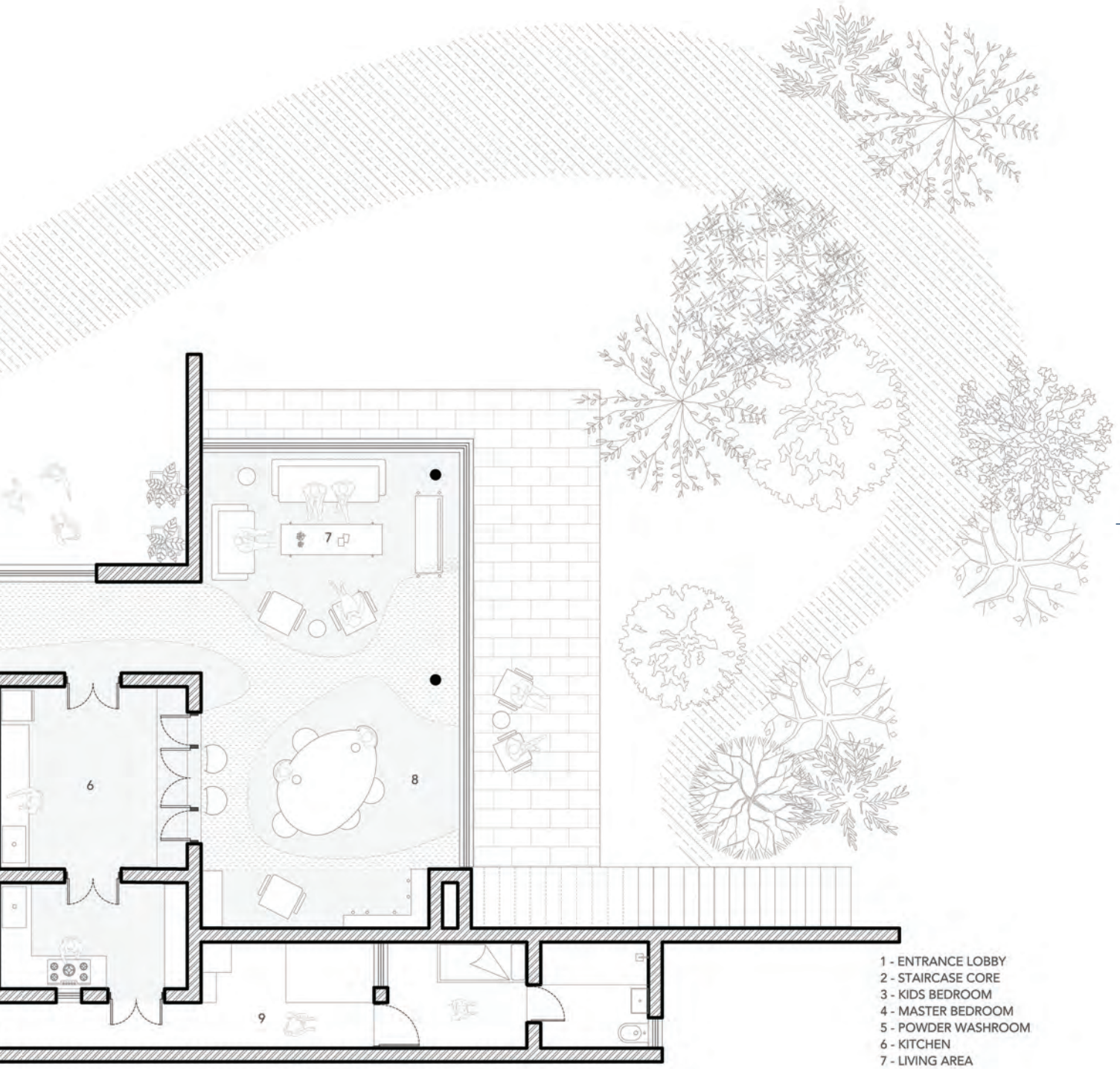
Pirouette House

A second home for a family of two with two toddlers, the Pirouette House is designed as an oasis that shuns superfluous ornamentation to adopt unique elements that take inspiration from nature.

As if on a guided journey through a dense forest, one approaches the house through a long entrance corridor, feeling the depths of the space in the movement. A river-like flooring pattern in Kadappa, juxtaposed against the otherwise constant IPS flooring, becomes a guiding and defining marker throughout the house. As a second home, each space embraces a sense of openness with multiple levels of porosity introduced through ingeniously crafted louvered fenestrations. These allow a peek into the bedrooms as one traverses through this corridor.

The staircase, with its sculptural quality derived from the series of lean columns, is a socially active space as if a meadow in a jungle. It leads to an entertainment space on the first floor that doubles up as a second living room on the more and merrier kind of days. Each of the two bedrooms on the ground floor flanks on either side of this staircase. The master bedroom has a defined, relatively larger, sitting space for entertainment. The bed, side tables, and the


5
1
3
2
4



1 - ENTRANCE LOBBY
2 - STAIRCASE CORE
3 - KIDS BEDROOM
4 - MASTER BEDROOM
5 - POWDER WASHROOM
6 - KITCHEN
7 - LIVING AREA
8 - DINING AREA
9 - SERVICE AREA

0'10' 20' 40' 80'

PLAN

atypical storage furniture are cast-in-situ carrying forward the monolithic and rustic theme, unifying materiality and furnishings with a combination of IPS and teak wood. The children's bedroom, continuing the monolithic language in its minimal furniture, is a smaller space allowing for an ample open floor play area.

On the journey through the corridor, one counters the kitchen before being led to the living space as the final destination. Divided as a wet and dry-kitchen combination of two separate spaces, the kitchen opens up to the living space with a combination of windows that give way to a breakfast counter once opened.

The common living area, as a weekend home, is the most intimate and yet the most public. The flowing river flooring defines two islands, the dining space with a reading corner and the living space. The egg-shaped dining assumes a formal bearing, while the bright yellow sofas are more personal and conversational.

The Pirouette House is an experience where one pauses to witness the art collectibles and the quirky furniture and lighting pieces, each of which has a spirit animal, like the monkey lamp on the staircase, the centipede credenza in the corridor, the owl bedside units in the master bedroom, the flamingo bar chairs on the breakfast counter, and the leafy bookshelf in the common living space. One maneuvers it as a ballet dancer, tiptoeing, plié-ing (bending), and pirouetting (spinning) through spaces, to encounter various eccentric elements, juxtaposed in a symphony. ■

FACT FILE

Client	:	Shikha and Kairav Amin
Typology	:	Residential
Location	:	Glade one, Ahmedabad
Status	:	Completed, January 2022
Area	:	3500 sqft
Photography	:	Palak Jhaveri
Flooring	:	Bharat Flooring and ID projects team
Artworks	:	Archer Art Gallery, Kairav Engineer
Lime Plaster	:	Kesarjan Building Center Pvt Ltd
Furniture	:	Compartment S4, Tectectona Grandis, A Cube Inc., Design Studio
Lights	:	Oorjaa
Upholstery	:	Abstrac Home
Civil and Furniture Works	:	ID Projects - Roopesh Bhatia

RNI No: 46976/87 Registered with Register of Newspaper of India, ISSN 0971-5509