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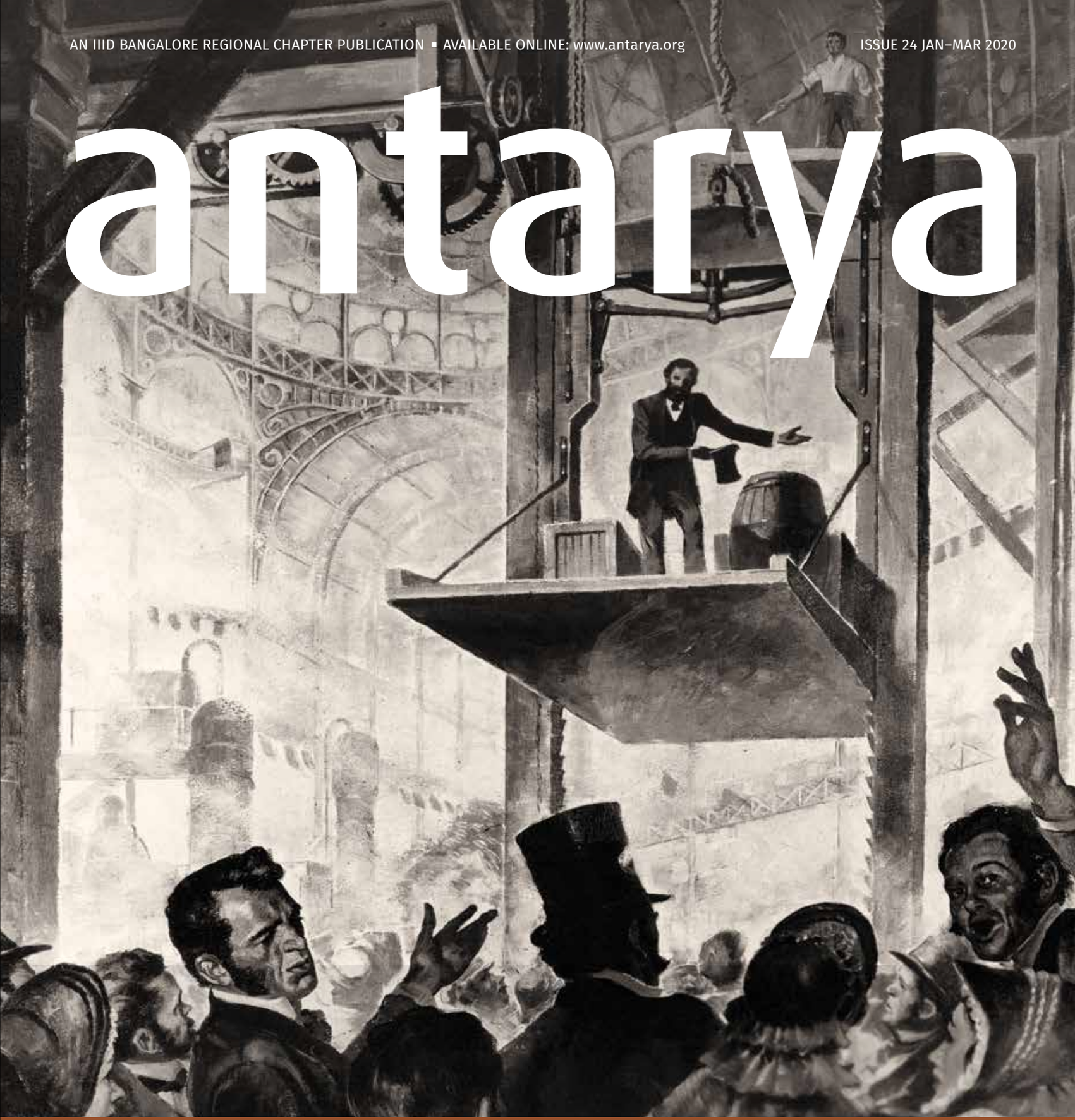
antarya

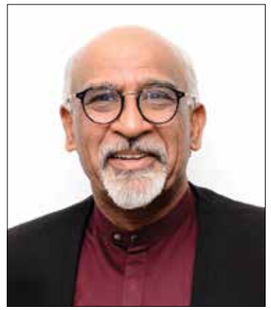


A VERTICAL JOURNEY

UNOFFICE
WATER, GREENS & CORPORATE MEETINGS
FEATURING: SANJAY MOHE

IIID BANGALORE REGIONAL CHAPTER
INSTITUTE OF INDIAN INTERIOR DESIGNERS
Bangalore Regional Chapter

From the Chairman and Managing Editor's Desk



DINESH VERMA

Dear Members,

Be Safe and Stay Safe is the message as these are very trying times for the entire world.

The past three months have brought in a sea change in humanity across borders. Our roads are sans vehicles, our parks are empty, our shopping is online and our homes have turned into offices. The Covid-19 has made us realise that the human race has pursued a wrong path all along and a reset on the same is urgently needed.

The brighter side is, the 60 day pause that ensued to check the pandemic resulted in rejuvenating our environment, with the lakes getting cleaner, the air getting purer, the fauna choosing to step out and explore and perhaps regain their lost turf from the human inhabitants. The lockdown also resulted in undue hardship for the migrant labourers, a sizeable section of them belonging to the construction industry. IIID BRC was quick to address their plight and wasted no time in tapping into its resources to lend a helping hand.

Our team distributed free masks, PPE kits for the hospitals and organised **"Unmasked"** – a series of 10 episodes that featured interactions with the leading professionals in the industry. The resources raised from the *Unmasked* episodes were used to address the urgent needs of migrant construction workers and craftsmen.

At a time when moods are dipping to an all-time low and the path appears directionless, we need to look at a vertical shift that would propel us higher. Keeping that as the motto - this issue of Antarya traces the history of mechanically assisted vertical transport for humans. This innovation in vertical transport has changed the way buildings were conceived over time. Today, thanks to the *Lifts,* as these are termed, our skyscrapers pierce past the clouds.

Antarya wishes all its readers to Be Safe & Stay Safe and we look forward to better times with more programs, interactions and also the next issue of Antarya.

Dinesh Verma
verma@acegrouparchitects.com

IIID BANGALORE REGIONAL CHAPTER

IIID Bangalore
Regional Chapter Emblem

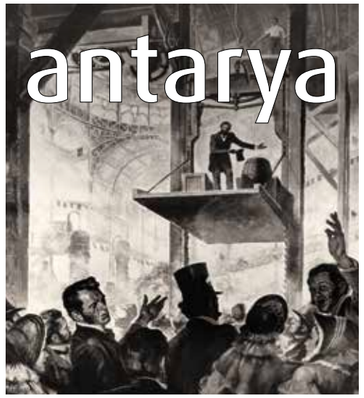
The letter form B and its mirrored version together form this symbol. The idea is inspired by the forms of Rangoli. Bangalore as a city is a unique combination of the traditional and the contemporary. This coexistence of dual cultures is iconic of Bangalore as it is present in arts/ architecture and the general landscape of the city and its culture. Using Rangoli (Traditional) as the basis, we have created letter form B (Modern) and reflected this form to enclose the space in between (Interiors). The colour palette is also representative of the traditional and modern.

ISSUE 23 OCT–DEC 2019

REVIEW

"Antarya, although a design magazine best suited for architects and interior designers, is also overloaded with relevant information for Marble Italia®. Right from understanding the kind of projects various architects and interior designers are curating across the country, it also helps us understand flooring options being considered. The use of natural stones across projects inspires us to bring in material from different quarries suiting the design and style of architects and interior designers featured in Antarya. Antarya also provides our team with information on new designers and architects across India. This helps our marketing team reach out to them and present our products. It is a great resource for us and we look forward to the publication regularly. " Overall it's a dependable resource for information and is a must have in all our studios.

Mayur Patil (Partner)
Marble Italia®, Bengaluru



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COVER IMAGE
Elisha Otis demonstrating his safety system, Crystal Palace, 1854.
Source: ***Wikicommons.***

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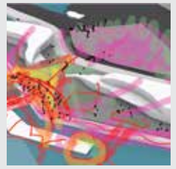
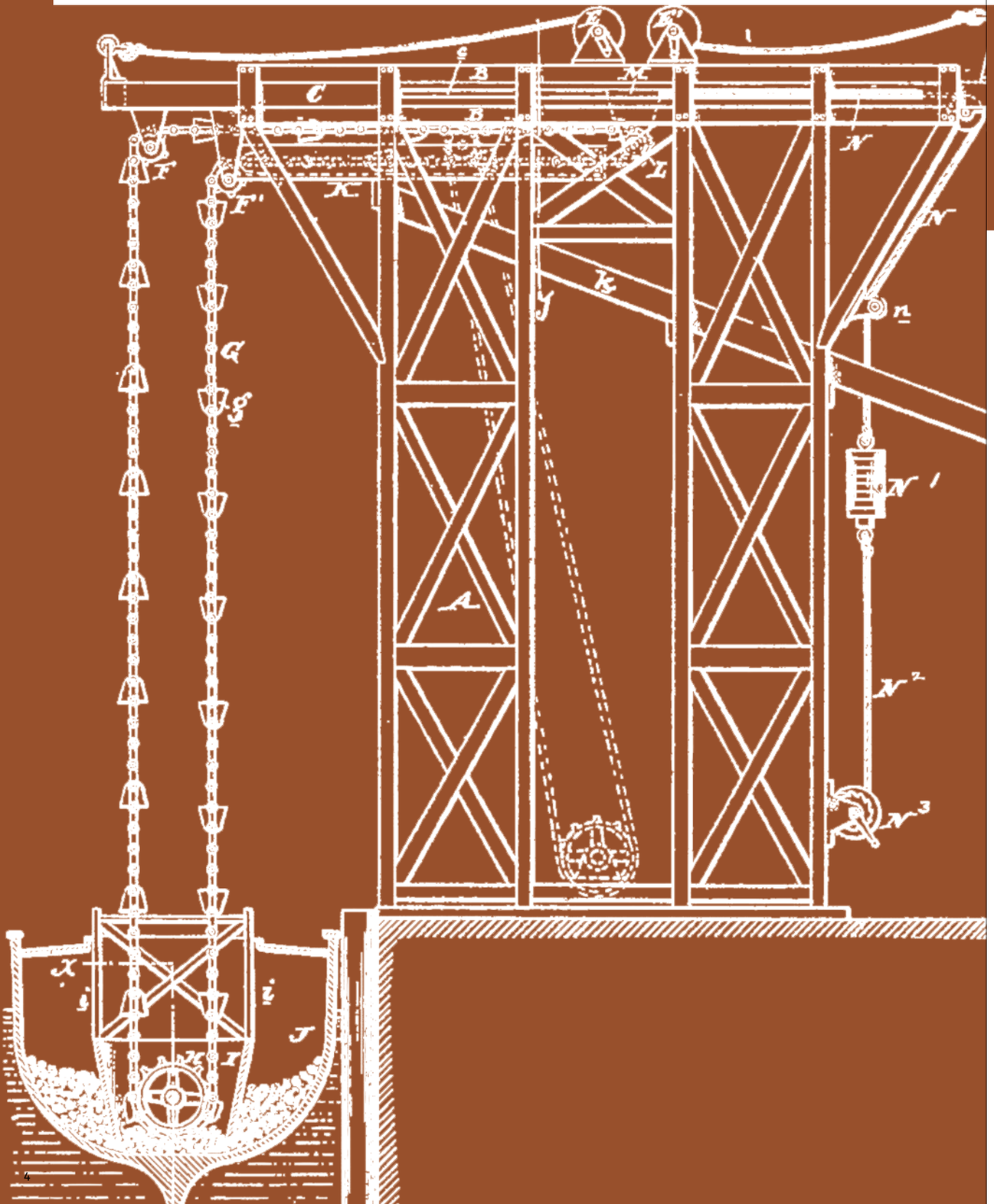




A VERTICAL JOURNEY

BY NANDHINI SUNDAR

Transportation of passengers and freight over different levels is not a current day scenario but an age old phenomenon dating back to beginning of civilisation. Seeking to find efficient modes to realise the same equally dates centuries back with the earliest recorded attempts going back to the 1st century BC where Greek mathematician Archimedes is reported to have built the very first elevator or one that addressed the concept of vertical transportation, around 235 BC.

While this is documented evidence of his attempt, archaeologists, based on their excavations, suspect that a primitive concept of elevators existed amongst the ancient civilisations. Excavations in several ancient ruins have revealed shafts that could be used for elevator transport. Vertical lifts are also believed to have been used in the construction of the pyramids in Egypt.

Facing Page: *Elevating Apparatus who reported that Archimedes built his first elevator, vintage line drawing or engraving illustration. Source:* ***Alamy.com***

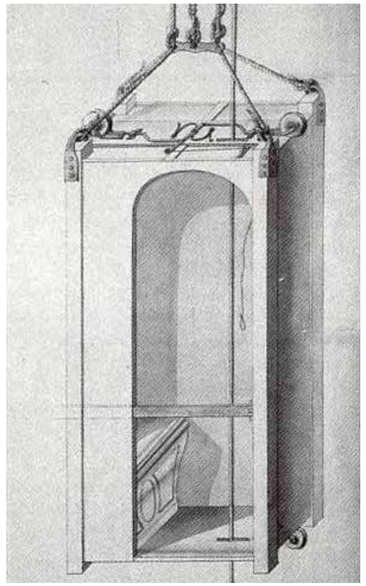
THE DOCUMENTED BEGINNINGS

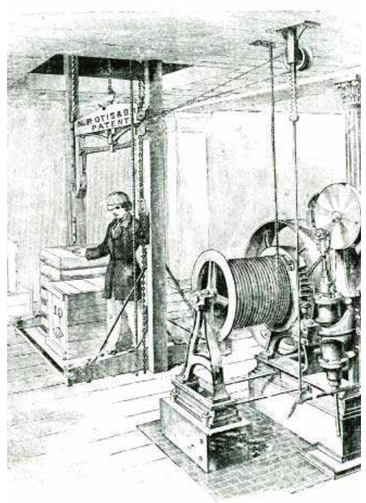
The Greek mathematician, physicist and astronomer, Archimedes is credited with inventing the first documented elevator, where his device operated using ropes and pulleys. These ropes and pulleys are believed to have been coiled around a winding drum by a capstan and levers. Starting 1st Century AD, crude form of elevators became a more common feature in the Roman Empire, where they were used widely at the Roman Colosseum to transport the gladiators as well as the wild animals from the lower levels to the arena. These primitive forms of the earliest elevators were operated by human, animal and water power and were used primarily to transport heavy loads.

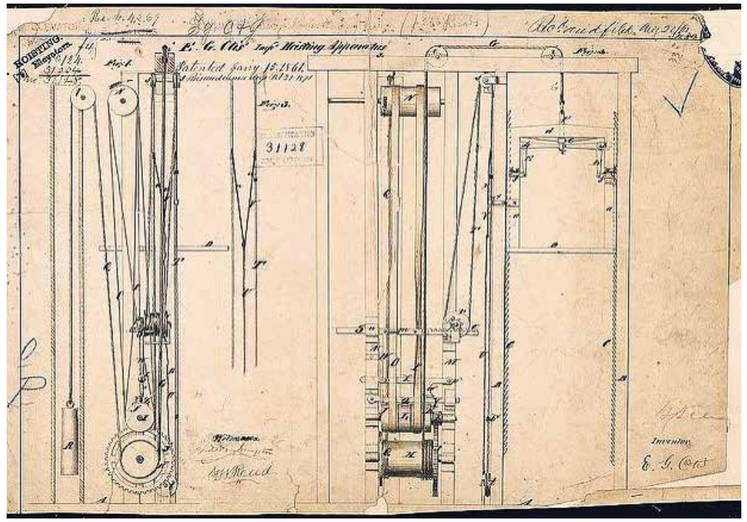
The Middle Ages witnessed several monasteries housed in the mountains use small basket ‘elevators’ for the movement of people and material to their secluded location. These monasteries were built with no land access, the elevators proving to be their only source of entry and exit. For instance, the monastery in St Barlaam, Greece was perched at 200 feet above the ground with the only mode of reach being the hoists used for access.

The 18th century saw King Louis XV using one of the earliest elevators for passenger use, the elevator being known as the ‘flying chair’. Installed by Blaise-Henri Arnoult at the Palace of Versailles in 1743, the elevator was said to have been used by the king to permit secret visits by his mistress. The elevator is deemed to have been operated by the passenger where a cord connected to a pulley system with counterweights was pulled when required to use.

The king is also credited with yet another form of elevator, christened ‘flying table’ in his retreat Château de Choisy, which enabled him to dine with his private guests without intrusion from his servants. On ringing a bell, the table, laden with its elaborate meal, would rise from the kitchen beneath to the dining area above.







The 18th century also saw the first elevators being constructed in the two Russian palaces of St Petersburg and Moscow. The unnamed Russian technician created an elevator which lifted its cabin by using the screw mechanism. His elevators were later installed in London too, though it was thirty years thence.

The invention of the steam engine in 1765 by James Watt opened up new possibilities of moving larger heavier loads such as lumber, steel, coal vertically during the Industrial Revolution, by enabling the primitive form of elevators to use steam. While the elevators during the mid-19th century were powered by steam, the ropes used for their operation were not considered safe for passenger travel as they posed the danger of wearing out and breaking.

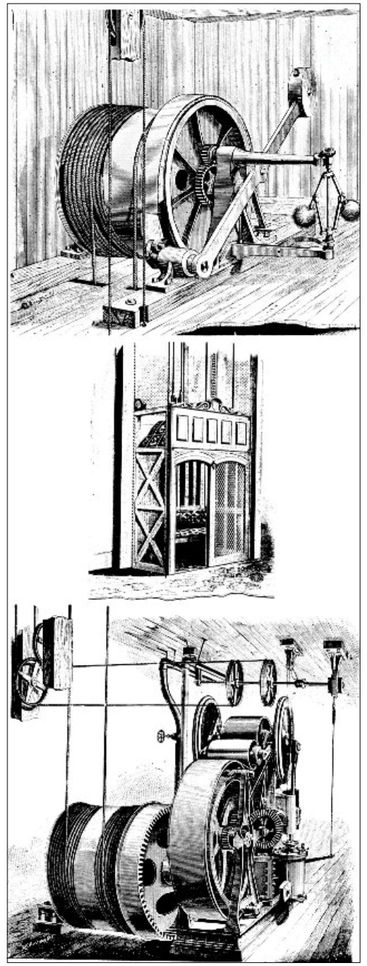
These hydraulic elevators were mostly used for transporting material over small vertical distances. The technique used

Top Left: *Lift used only by monks at Meteora monastery, Greece. Source:* ***Flickr/buzia (by Buzia).***

Top Right: *A 'flying chair' (in fact, it was a small cabinet) took one of his mistresses to her rooms on the third floor of the Palace of Versailles. This early lift, created by Blaise-Henri Arnoult, was operated by a rope and used counterweights and pulleys. The occupant simply sat in the cabinet and used the rope to raise or lower it as needed. Source:* ***watertightconcrete.basf.co.uk.***

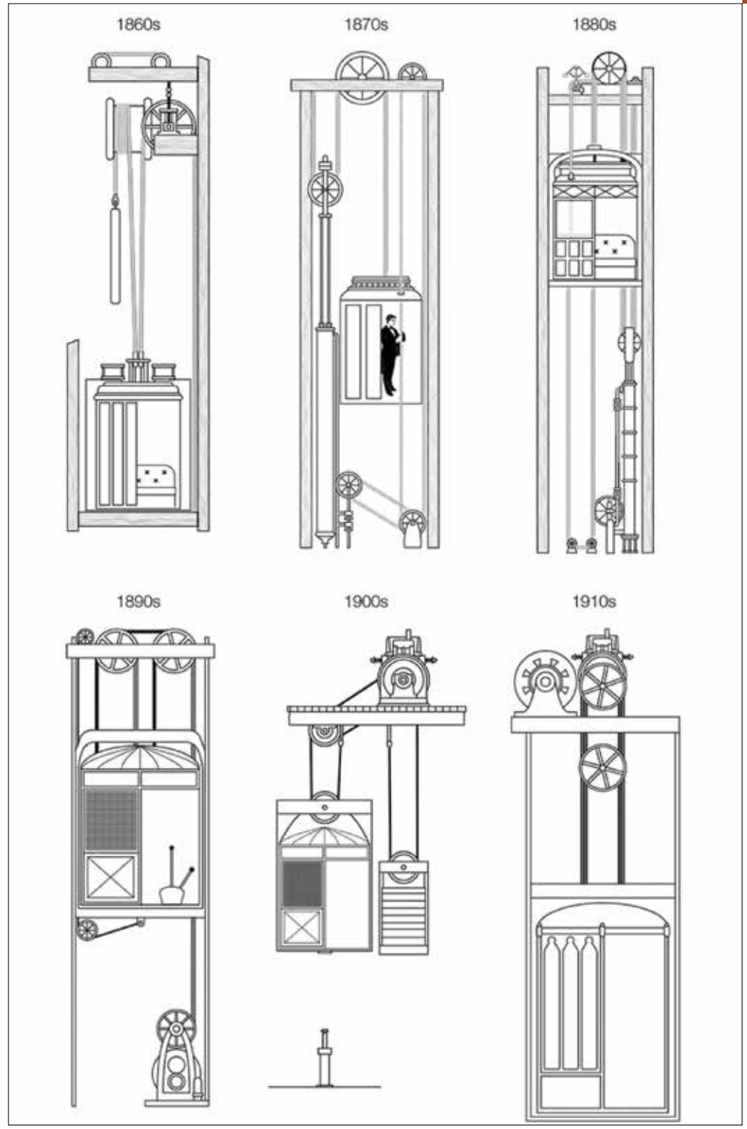
Above Left: *Elisha Otis invented the first independent steam engine for elevators allowing any building to have an elevator. Source:* ***twitter.com/OtisElevatorCo.***

Above Right: *Patent drawing for Elisha Otis's safety elevator. Source:* ***watertightconcrete.basf.co.uk.***



Above: *Components of the steam passenger elevator at the time of its peak development and use (1876). Source:* ***The Project Gutenberg, EBook of Elevator Systems of the Eiffel Tower, 1889, by Robert M. Vogel***

Right: *Innovative Elevator Technologies by Otis (circa 1860s to 1910s). Source:* ***(Buildings) Nichols paper.docx, Pg. 17***



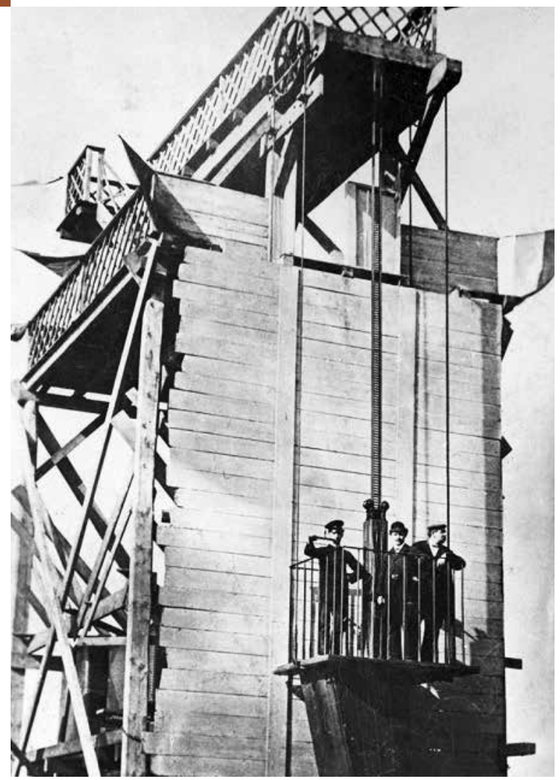
here involved the water pump increasing the pressure of the main plunger to push the freight upwards. Besides, it catered to only short distances and was not practical for tall buildings. It was later replaced by the rope geared elevators with multiple pulleys, invented by Henry Waterman of New York.

THE METAMORPHOSIS

The safety concern attached to the durability of the ropes to transport passengers soon led to invention of a safety break by Elisha Graves Otis in 1852 which ultimately revolutionised the vertical transport industry. Under the technique adopted by Otis, when the elevator's hoisting rope broke, a spring would operate pawls on the car which would force it to position with the racks at the sides of the shaft, resulting in the car remaining suspended in place.

Otis demonstrated his new technique in New York Crystal Palace during the Exhibition of Technical Achievements, 1854. By 1857, his first commercial passenger elevator was installed in a five storey departmental store in New York. This revolutionised the elevator industry and marked the beginning of buildings altering their vertical expanse across the world.

By 1878, a faster, more economical hydraulic elevator was introduced by Otis. The end of



Above: *Up 20 meters at 1.8 kilometers per hour – the first electric elevator at the Pfalzgau Exhibition in Mannheim, 1880. Developed by Werner von Siemens. Source:* ***new.siemens.com/***

19th century saw the use of electricity for elevators being explored. The first electric elevator was built by German inventor Werner von Siemens in 1880. Here, the elevator moved with the aid of a motor that was built underneath the platform which was raised by using a gear system based on the dynamo-electric principle. By 1887, automatic door closure mechanism of the elevator shaft was patented by American inventor, Alexander Miles.

Year 1924 saw Otis Elevators installing the first automatic control system to control the varying speed of elevators addressing the acceleration, speed between floors and deceleration before it came to a stop. In 1944, a safety bumper was patented by Joseph Giovanni, an American inventor, to prevent the elevator doors closing automatically on a passenger or object. By 1979, fully automated elevators came about, with Otis Elevators introducing microprocessors into their elevator control systems.

NEW AGE ELEVATORS

With buildings kissing the skyline across the world, the role of elevators in the vertical transportation of people and material has become vital and irreplaceable. Not only is efficiency in operation the order of day for these elevators but also the speed at which they move through the multiple levels. Shanghai Tower, the second tallest

Above: *Interior of the tram capsule in the Gateway Arch. Source:* ***Wikicommons***

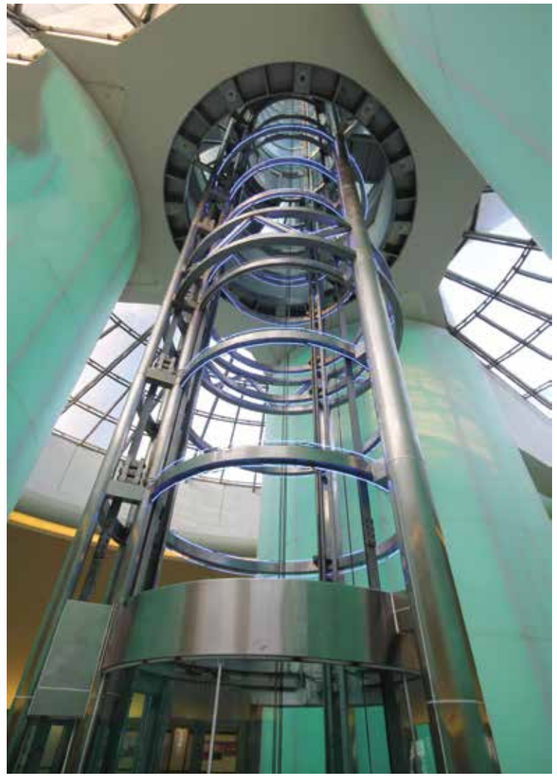
building in the world at 632 metres after Burj Khalifa which stands at 828 metres, has elevators designed by Mitsubishi Electric Corporation, travelling at 67 feet per second, traversing over 121 floors.

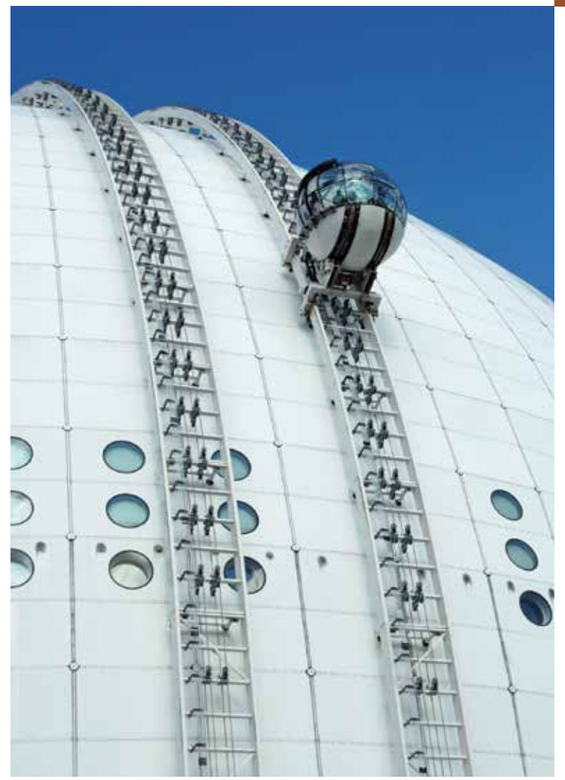
The Jeddah Tower in Saudi Arabia, whose construction has been halted but will be the tallest building in the world on completion, will require even faster elevators to pass through its one kilometre vertical expanse. Currently, Kone, a Finnish company, has come up with a carbon-fibre rope design for the elevators to ensure the ropes are strong enough to travel through a 660 metre vertical distance.

Not only is the efficiency and speed of elevators the prime concern of the elevator industry, but also the safety of these cars. Many safety features have been explored and incorporated by companies such as the over-acceleration, over-speed protection patent filed by Otis Elevator Company in 2009, to automatically trigger a mechanical brake attached to the electromagnetic trigger whenever the elevator over speeds. Yet another patent filed by Juan Carlos Abad from Switzerland brings in a safety circuit to decelerate the elevator in a controlled fashion on activating the emergency stop.

PEEKING INTO THE FUTURE

Not only are innovators working towards increasing the speed and safety of the new age elevators, but are also looking to possibilities of switching to magnets in place of ropes. The recent move of German company ThyssenKrupp to explore use of magnetic levitation is a case in point. The proposed elevator is expected to reduce the elevator footprint drastically besides permitting multiple cars in each shaft, with the possibility of the cars being able to travel both vertically as well horizontally.





Top Left: *Elevator at Shanghai Tower, China. Source:* ***www.deviantart.com/jim5975***

Top Right: Right: *Elevators at the Ericsson Globe, Stockholm. Source:* ***Wikicommons***

Above: *The sideways elevator that will revolutionize building. Source:* ***Image courtesy of ThyssenKrupp (archinect.com).***


1


2


3


4


5


6

1, 2, 4, 5: The metal staircase wraps stunningly around the glass elevator that serves as a silent transparent component servicing three levels of the residence. The spiral staircase reveals a spectacular sculptural form, the glass railing artistically curved to wrap around the glass lift, while the underside metal treads appear as a captivating bonnet at each level of the structure.

3, 6: The glass elevator with its sculptural staircase serves as the focal element in the expansive free flowing living, dining and kitchen spaces of the residence. Built on a precipice, the panoramic view of the valley from the adjoining courtyard proves as an irresistible contrast to this metal and glass extravaganza.

A SCULPTURAL EXTRAVAGANZA

An elevator is often viewed as a mundane fixture in a space, present purely to fulfil functional requirements. **Architect Dominic Dube of DDIR Architecture Studio** turns this apparent functional element into a sculptural extravaganza to serve as the highlight in the residence.

1, 2: The objective was to harmonise the stainless steel and glass hydraulic elevator with its rustic, earthy surroundings. Wood was chosen to accomplish this, wrapping the stainless steel body of the elevator car in natural teak, creating a sense of harmony amongst the contrasting surface materials of steel, wood and exposed concrete.

3, 4, 5: This sophisticated glass elevator moves on a Piston, leaving one guessing about the hidden support for the lift car. The lift car comes sans counter weights, ropes, guiders. The elegant glass car is housed amidst a rich play of wood in the stair treads to mark a contrast and yet usher in warmth and beauty.

HARMONY IN CONTRAST

The presence of contrasting materials can appear discordant, yet the right design and placement can usher in harmony in this contrast. **Architect Sanjay Gandhi of Reflection Interiors & Architecture** enhances the aesthetics of the glass and steel elevator cars with a harmonious contrast of materials in the space

1: The glass cube of the elevator car contrasts aesthetically with the sculptural treads of the spiral staircase.

2: The glass elevator serves as design statement on the façade of the building.

3: The transparent glass elevator sits snugly amidst a green sunlit courtyard, the sunlight and greens visually penetrating the interiors of the car.

4:The onyx and glass clad exteriors of the elevator complements the rich expanse of cream Italian marble flooring and prominent glass partitions in the space

5: The rose gold copper sheet cladding on the exteriors of the elevator strikes resonance with the elegant grandeur of the interior space.

RESONATING THE **PREVAILING DÉCOR**

Any element brought into a space has to resonate with the prevailing décor in order to blend in seamlessly. **Architect Ganesh Kumar BK of Studio69** plays with the materials used for the elevator to fuse it perfectly into the space.

1

2

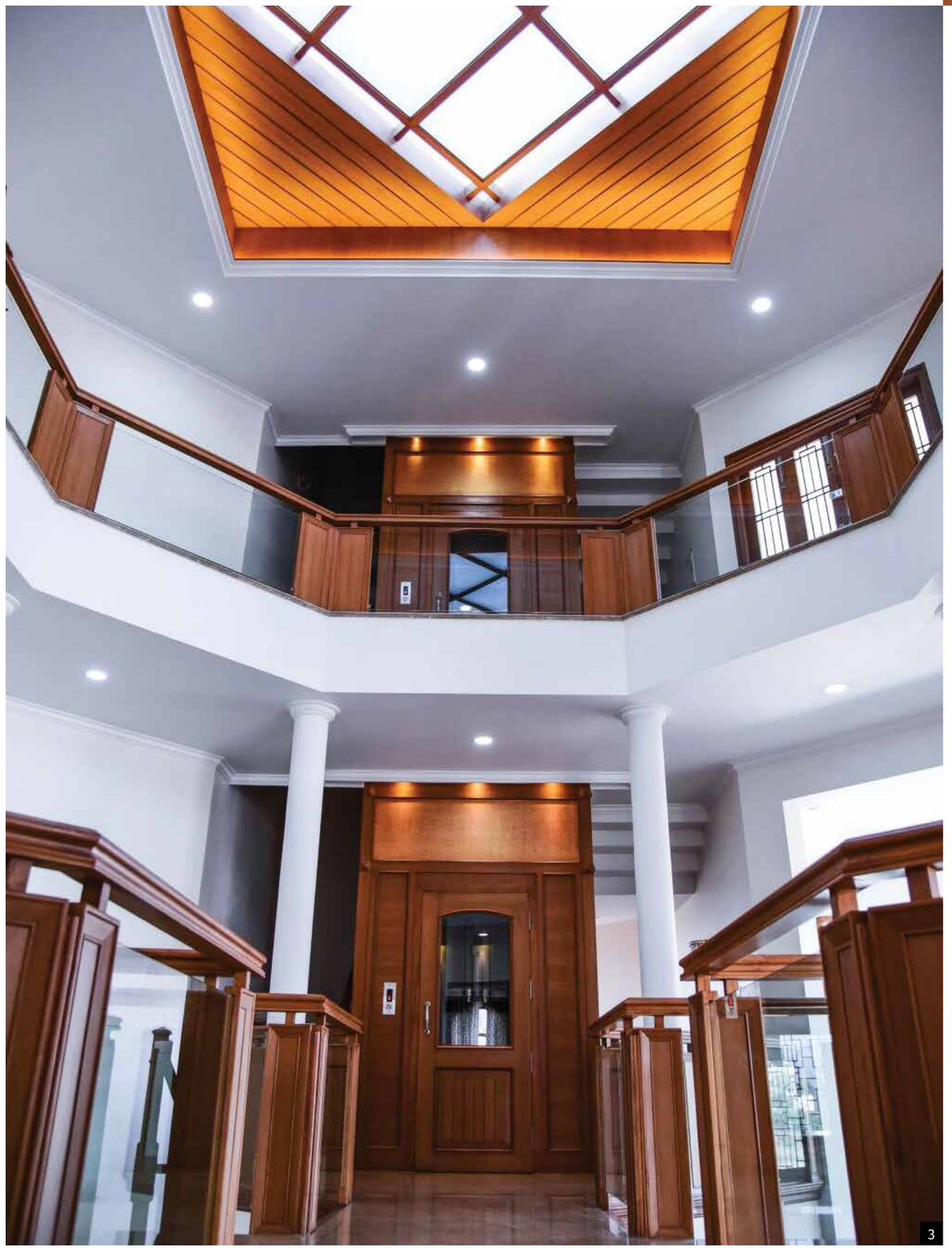
1: The spiral staircase with glass and steel railings houses the circular glass lift that fits snugly into its core. The delicate glass featuring in the railings and the lift serves as a striking contrast to the expanse of marble stone on the treads and floor.

2: The glass and wood elevator permits entry of copious natural light into the car from the skylight featuring above.

3: The accent is on wood and its richness, the woody expanse on the exterior cladding of the lift as well as the rest of the interiors keeping the tones warm and rich.

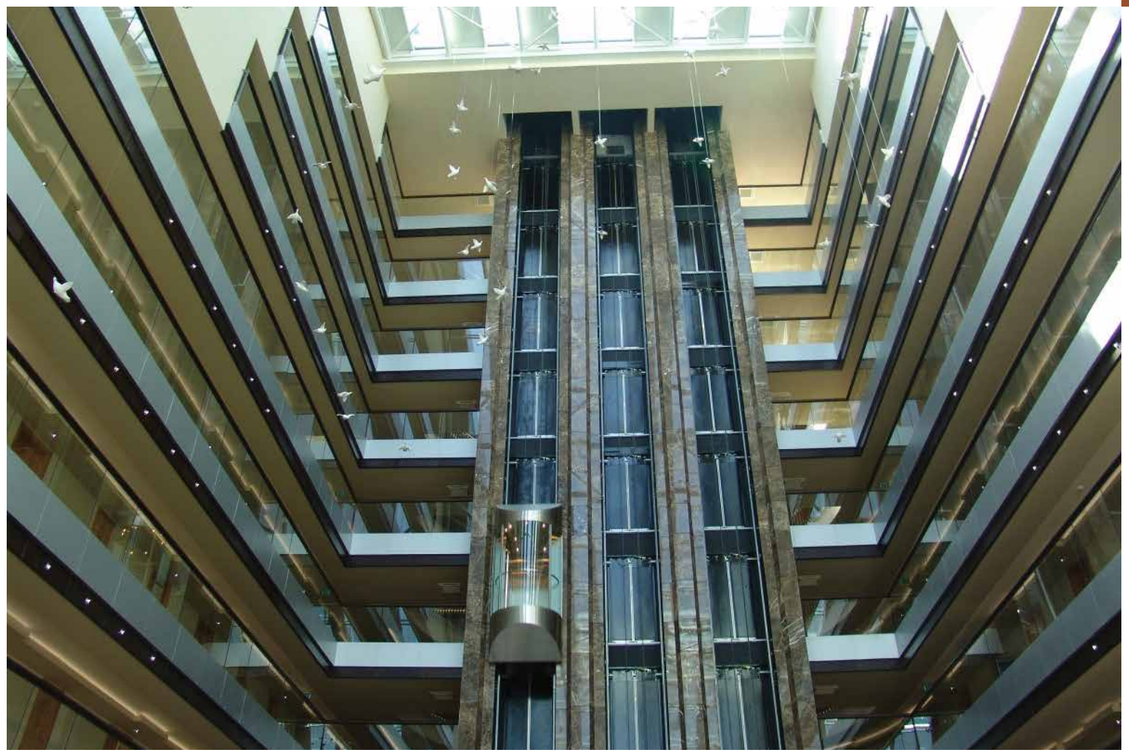
RICH TONES OF
WARMTH AND FRAGILITY

Wood brings in richness and warmth while glass ushers in a delicacy to the ambience. **Architect Dinesh Verma of ACE Group Architects** opts for glass and wood clad elevators to set the right tone in the space



3

RIDE VERTICALLY WITH TEKNIX



The urban lifestyle has increasingly become an unavoidable vertical journey, the scarce availability of land prompting buildings to expand vertically way beyond what was conceived possible a century back. This steep vertical expanse of urban buildings has made vertical modes of transport an indispensable component of every structure. This irreversible trend has, not surprisingly, prompted a universal scouting for convenient, reliable, efficient modes of vertical transport that also come with added benefits such as aesthetics and low carbon footprint.

Teknix Elevators Pvt Ltd, an ISO 9001-2008 certified company for vertical transport, has had a single uncompromising goal over the three decades of its operation: to achieve the ultimate excellence in the field of vertical transportation. Entering into collaboration with Germany's **SRH Aufzuge GmbH** whose network spans across 46 countries with a global manufacturing unit based in Germany as well as in China, has ensured this vision of Teknix is realised to its full potential. The collaboration has given Teknix the access to technology that offers elevators with a speed of 8m/s, wrapped in German engineering, quality and precision.

TEKNIX
VERTICAL TRANSPORT SOLUTION

THE TEKNIX ADVANTAGE

The new generation elevators made with the superior German technology and engineering precision are designed to address the minutest details while delivering impeccable quality and craftsmanship. Given the strong green accent laid on the manufacture and performance of the elevators, they offer multiple modes for reducing the carbon footprint. This premium range of new generation elevators come with Ultra High Precision integrated close loop VVVF drive with Direct Landing technology and Designated Torque Injection. The stylish touch sensitive human interface devices, sourced from the best in the industry, further add to the impeccable ride experience. The IGBC certified elevators also come with 20 to 25 per cent lower power consumption as compared to similar premium elevators in the market.

INCREDIBLE FEATURES

The state of the art Teknix Greentek range of elevators come with a mindboggling range of incredible features that stands this range apart from the rest in the industry. Its progressive architecture that packs design and functionality in its core combined with

an impressive and harmonious interior inevitably concludes in the production of a sophisticated model that represents German workmanship and precision.

Customised to Suit

When a structure is designed to meet personal or commercial use specifications, the vertical transport in the building is also expected to meet the stipulated conditions and required norms. Here, the possibilities for customisation of elevators is a sought after feature, especially in differentially designed structures, irrespective of whether it is a corporate building, commercial or even residential. Teknix Greentek comes with various options for customisation, in terms of design, material use, colours, cabin size, shape, human interface devices.

While the stainless steel used within the cabin is of the highest 304 grade, the interiors can be customised with leather finish walls, wood floors, Italian marble floors, mirror walls, cork with epoxy coated walls, rich wood panelled walls, vinyl finish walls to name a few. Even the stainless steel opted has many variants, ranging from linen finish, 3D finish textures and come with a range of Exquisite Colours manufactured

with Physical Vapour Deposition Technology, to list a few. As for the touch panels, customisation of this human interface device is welcomed to increase the user comfort as well as the interior aesthetics of the elevator car.

Conserving Power

Teknix Greentek offers an immense saving in power consumption that goes up to 60 per cent compared to the conventional geared elevators. This is achieved by opting for the high efficiency gearless Permanent Magnet Synchronous machine with extreme low friction and power losses that offer up to 98 per cent efficiency. The Designated Torque Injection technology aids in further reducing the power consumption as compared to other gearless elevators. This technology in the controller uses feedback data received from the load sensor in terms of the load in the elevator cabin and Designates the Torque according to the load in the car, resulting in huge power saving while ensuring a smooth ride.

Given its high green quotient, in addition to the power saving, the gearless motor opted requires no lubrication and zero maintenance and is manufactured using Rare Earth Permanent Magnet, giving an extremely high torque at very low RPM which makes these servo motors unique in nature. When the elevator is on idle standby mode, the motor switches to hibernation function, enabling the power consumption to fall by 80 per cent and returns to full mode immediately on call registration.

Ride it Smooth

Teknix Greentek elevators are equipped with multi-computer based close loop integrated drive system with artificial intelligence that aid in offering a totally smooth start and stop in each ride. Teknix Greentek also comes with first in class ultra-heavy duty guide rail drive system. These guide rails are thicker at 16mm on the sides as against the conventional 9mm rails used. The increased thickness offers extra support that result in the ultimate smooth ride besides enhancing the longevity of the elevator. Given the use of the Direct

Landing System by using rotary encoders which are developed with machine learning functions, the creeping speed function used in the conventional elevators is eliminated by the means of levelling sensors. The presence of differently designed over-speed governors again ensures a smoother ride experience.

While the Sisal used in Wire ropes is sourced from Africa and manufactured in Germany using African Sisal and high tensile special grade steel, Casted Monomer Polymide nylon sheaves are used as pulleys for running the elevator. Conventional elevators opt for metal Sheaves as pulley, resulting in very high abrasion and wearing down of ropes. Steel Wire ropes on the Monomer Polymide nylon sheaves eliminate this abrasion besides doubling the life of the ropes as well as offering a far smoother ride.

Height Matters

In a cramped urban scenario, every inch matters, even in a spacious building. This extends to the elevators and the space allocated for the same. Sensitive to this urban space constraint, Teknix Greentek comes with the outstanding feature of low headroom height which clears up more space for use. Add to this the absence of requirement for a separate machine room. The result is a significant space saving in the installation and maintenance of the elevator.

While Teknix Greentek comes with low headroom height, interestingly, the German manufactured doors Mechanisms which are used here invariably come at 2100mm instead of the standard 2000mm that is opted. The increase in height is recommended to enhance the aesthetics of the cabin.

Silence is the Key

Dynamic noise isolation technology using undercar dampers and floating Calipers and upper car isolators ensure the Teknix Greentek elevators offer a noise free, vibration free ride. The elevators are further pre-fitted with monomer-cast Polymide sheaves that reduce the noise levels caused by friction while increasing the life of the ropes by 50 per cent. The stainless steel cabins also come with Noise Deadening and Resonance Dampening Mat which reduces the shaft noise, permitting a silent smooth vertical journey.

Hassle Free Service

A factor that is most debated and serves as a cause for concern, both during and after purchase is the quality of customer service offered. The speed with which a breakdown is addressed proves to be crucial especially in a segment such as this as it determines the time duration of the disruption in the normal functioning of a building. Teknix, with its large and well trained service team spread across the city, comes with the immense advantage of an unmatched speed of attendance and closure of breakdowns. Besides, the German engineering and technology that is operational, further guarantees minimum breakdowns and requests for attendance.

SAFETY IS PARAMOUNT

The primary factor addressed when installing a vertical transport system is

the type and extent of safety measures in place to ensure the occurrence of a mishap is negligible or nil. Teknix Greentek is sensitive to this requirement, bringing into place a complete progressive safety system addressing multiple segments that cover the structure and working of these new generation elevators.

Over speed, over load, over run protection
A downward over speed protection device with terminal switch for electrical contact detachment, prevents the elevator from over speeding due to breakage of the drive media. Systems are in place to prevent the elevator car from being overloaded beyond the desired load capacity. An elevator can overshoot or undershoot and in such an instance, the occupants are protected by a three stage terminal limit cut off system that assures occupant safety. All these safety measures are certified by confirmative European code.

Door safety
There are many instances of accidents occurring when the elevator door automatically closes without sensing the person or object in between. Safety measures initiated by Teknix Greentek safeguard against such accidents with the Light curtains and Anti-squeeze door system coming as a standard fixtures in all the elevator cars.

The light curtains feature as a dense infrared curtain with crisscross beams to form an invisible safety net at the entrance whereby any object or person coming between the doors is immediately detected and responded.

The Anti-squeeze door system serves as an add-on safety measure to the light curtains. In such a case where the light curtain malfunctions, the motor returns the door on sensing the pressure of an object or a person between the doors.

Braking smoothly
An abrupt halt or a jerky movement of an elevator can cause knee injuries or even injuries in the spine. The Teknix Greentek gearless machines, with the Dual Vented Disc brakes, ensure the elevator car comes to a gradual halt. This smooth braking of the elevator occurs even when the speed of travel is below 2m/sec. Besides this, an Automatic Brake Testing system to check the condition of the brakes on a daily basis, adds to the safety and reliability of the smooth functioning of the elevator.

The hydraulically operated pit buffer system with terminal switch for electrical circuit detachment offer further safety as this is an oil filled buffer as compared to the conventional spring. The presence of UCM device also shields against an unintended car movement caused by snapping of the ropes. In case of power failure, there is an automatic rescue device that brings the elevator car to the nearest floor to rescue the occupants safely.

Shield from fire and earthquake
The Permanent Magnet Synchronous motor used in the elevator is made from innovative die casting. A Dual Thermic Protection with

positive temperature coefficient resistors prevents a motor burn out in case of a winding overheat. While these measures protect against overheating and an internal fire, the Teknix Greentek doors come with 120 minutes of fire rating as a standard certified feature as per the confirmative European code. Likewise, the elevators have an option to be installed with additional earthquake protection system which stops the car at the nearest landing in case of an earthquake.

WALK IN TO EXPERIENCE

Nothing can match a visual or physical experience of a product and this is true of elevators too. The touch and feel of the product, the physical assimilation of the unique features has its own impact that cannot be replaced by mere oral rendition of the exclusive features. Recognising this crucial factor governing the final decision making, Teknix throws open its one-of-its-kind experience centre, inviting the discerning customer to walk in and physically experience the premium features of its range of elevators.

Kings House.

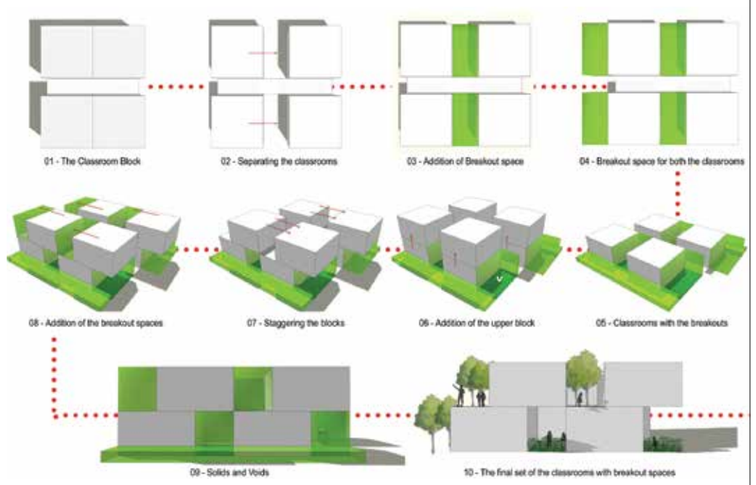
RAW, IN SYNC WITH NATURE

AKSHAY HERANJAL BY NANDHINI SUNDAR

The first thing that struck me when I met **Architect Akshay Heranjal of Purple Ink Studio** is his undying ever cheerful smile. Little did I realise, his structures too emitted the same positivity and cheer, the ever-present greens in his buildings vying with the raw textures where nature blended in seamlessly to take permanent residence amidst the built form.

Having schooled in architecture in Hubli, young Akshay started his career with Architect Sanjay Puri after completing his brief internship with Architect Karan Grover. “Architect Puri was not only my mentor, but his design and work style wields a strong influence on my approach to structures”, says Akshay.

Shreyas Retreat.



STARTING YOUNG

He was barely 27 years when he eventually moved to Bengaluru in 2011 to start his own architecture studio along with his partner, Landscape Architect, Aditi Pai. “Aditi takes the lead on landscape in all our structures, which is an integral part of our design as we believe in ushering in the greens in whatever form possible, however small the building or the site may be”, he adds. Over the last nine years, the duo has been the recipient of multiple awards for architecture and landscape.

Interestingly, his very first project proved to be a large one involving design and construction of an 80,000 Sq ft apartment complex, King’s House. “There were 8 units, each of 10,000 Sq ft, with one extending to 20,000 Sq ft.” Incidentally, this very first project brought him recognition and accolades, marking the beginning of many such iconic future works waiting to unfold.

The success of his first project brought him the Courtyard House where he worked to introduce a contemporary twist to the concept of courtyards. “The ideology behind the concept of Thotti Mane is more relevant to coastal areas based on the wind movements but in terms of climate in a place like Bengaluru, a contemporary take on the concept seemed more relevant”, Akshay explains.

When he received the project involving a 4 screen multiplex in Gujarat, Akshay realised that the challenge posed here was very different, prompting him to address the material palette as well as the cultural implication before opting an organic approach to its design.

“Every project that we received, especially in the initial years were different, forcing us to go back to the design

Pramiti School – Process drawing and the building.

table and start afresh with the concept and approach adopted.” The succeeding projects of Shreyas and Pramiti School likewise had to be approached from a totally different sphere as both involved a constant connect between open, semi-open and built spaces in the structure.

RAW AND MINIMAL

A common strain that runs through all of Akshay’s projects, however varied the functional intent of the space maybe as well as the topographic conditions of the site, is the material palette which is kept raw and minimal as well as the seamless connect to the built and un-built spaces. “The typology opted is dependent on the context and the experience factor, but the material

Pramiti School.

palette is mostly kept simple while ensuring the natural elements including the play of light on the surfaces are successfully brought inside”, elaborates Akshay while stressing that his structures do not adopt any fixed style.

The Pramiti School, situated in the suburbs of Bengaluru, had diametrically opposite approach to education as compared to conventional modes. Not surprisingly, the ensuing structure had to reveal this differential experience and method of teaching, resulting in a blend of built and un-built spaces where a seamless connect was established between the open, semi-open and built spaces, the material palette kept raw and natural.

Vanantara.

The school is sans the conventional classroom, the curriculum and method of teaching activity driven, carried in semi-open and open spaces. The one acre site with its 12000 Sq ft built up area has merely 8 closed classrooms with the rest featuring as open and semi-open areas. Given the intent to connect even the closed spaces to the green exteriors, the classrooms were built as staggered blocks with four featuring at ground level and the remaining stacked to create semi-covered spaces beneath and green terraces accessible from each classroom.

Bricked jaalis aligned to the Northeast and Southwest, cut out the direct sunlight while permitting ample natural ventilation into the open and semi-open spaces. The brick pergola roof further brings in shade to the open areas, enabling students to use the spaces through the day.

The administrative block with its cafeteria and library reveals similar sentiments in design. Marked by earth berms around its front entrance, the structure offers a low slung entry. A sunken café prevails in the

Vanam.

centre, with a large open area which serves as an open meeting room when required.

The library is placed on level one with a central tree court and sloped roof structure that is partly in glass to usher in the North sun. A brick jaali encloses the periphery of this library, letting in copious natural ventilation through the day. “The bricks here are consciously angled to complement the wind movement in the spaces”, adds Akshay.

Since the intent was to be tuned strongly to nature, the structure reveals total absence of paint on the inside, the textures of the interior and exterior walls, ceiling and floor revealing rough as well as polished exposed cement, pigmented cement, bricks and Kota stone.

FUSING THE BUILT WITH THE UN-BUILT

His project Vanantara is on a 70 acre site encompassing 200 villas with three different typologies. The design intent is consciously kept understated, organic and rustic, with specific spaces allotted for cattle, dairy farms, horses, prohibiting entry of vehicles beyond a specified point. “Each villa is built on half to quarter acre sites with the footprint of the physical structure not exceeding 1200 Sq ft.”

The villas dip 6 feet below ground level, the sunken structure ensuring only the remaining 6 feet of the building is evident. The H-shaped structure clubs the public spaces of the residence to one side and private spaces on the other with a sunlit green courtyard in the midst. “The H-shape is angled to widen at the entrance porch to permit better wind flow into the interiors”, adds Akshay.

The living area, which incidentally opens on all four sides, steps out to a lush green courtyard which connects to the water bodies around the building. The courtyard into which the living area seamlessly blends, hosts a dead wall to permit screening and entertainment. While the furniture in the living area is built-in, terracotta jaalis throw in interesting patterns into the space. The residence comes with no main door; instead, a stacked door opens on to the entire interior space. An array of earthen pots, brick floor, random rubble and textured plaster walls mark this entrance.

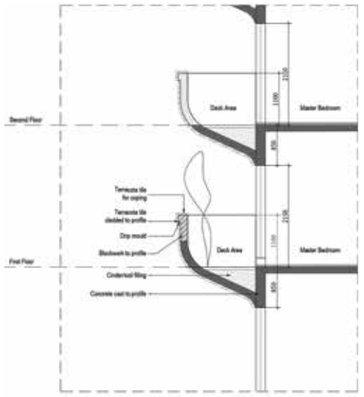
The courtyard and entrance is a deliberate combination of narrow and wide spaces to lend an experiential entry into the residence. Along with the combination of brick and cement floor leading up to the entrance, the alternating narrow and open spaces permit physical contact with the textured walls, offering the touch and feel experience.

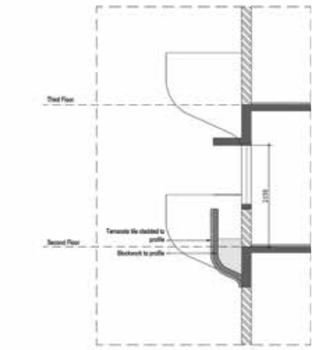
The private section hosting the bedrooms also hosts a sunlit courtyard into which the bedrooms open up. Random rubble contrasts with an earthy terracotta vertical jaali enclosure on one side and an exposed concrete wall on the other. While light filters in through the jaalis, throwing in myriad patterns on to the courtyard, the bedrooms too come with skylights to usher in natural light into the space.

PRODUCTIVE BALCONIES

Vanam, a mid-rise apartment complex

Vanam.





Vanam Section.

comes with an unbelievable blend of copious greens and built structure spread over each individual two bedroom unit. Housing 20 units in all, the internal layout of each residence is designed to respond to the outdoors where the connection to the greened balconies is seamless.

While the balconies accessed from the bedrooms are structured to be green spaces, with adequate water proofing done, the step out areas from the dining are designed to address multi-purpose activities if greening is not the desired option. “We worked on the concept of creating productive balconies where even vegetables can be grown besides permitting a tree for each apartment unit to be planted in the space”, explains Akshay.

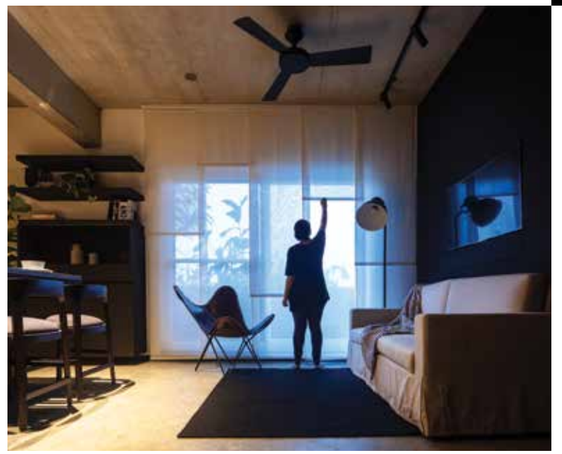
“The balconies are sloped below to accommodate a greater depth in soil to permit growth of trees. The balconies, partly open to sky, are staggered to create a double height clearance to enable the trees to grow”, he adds. While one bedroom steps out to this green balcony, the second bedroom opens on to the planter beds on the window ledge to compensate for lack of a step out balcony. “The objective is to bring in the greens into every room in spite of the spaces being small”, he states.

While the drip irrigation system and water proofing addressed successfully the greening features in the balconies, the curves incorporated under the balconies were challenging, given the budget constraint under which we had to execute, adds Akshay. Brick cladding on one section of this curved concrete breaks the monotony, creating an earthy contrast to the rustic cement textures and green foliage. “The bricks cut down the visual scale of the structure”, points Akshay.

The topography of the site incidentally creates a steep incline from the road inwards. This incline was capitalised by converting it into a basement with stilts, where the access to the ground level is akin to a first floor. Further, a dramatic entry with a double height corrugated sheet wall cast in exposed concrete was introduced to alter the visual experience of the small site.

SIZE DOES NOT MATTER

His interior project Shunyo, challenges



Shunyo.

the way we live in a small apartment. “It is about managing and making the most of 950 Sq feet space while breaking out of the conventional concept of living, dining, kitchen, bedrooms”, says Akshay. Here he creates one unified space where all the functions blend into the same space, with each functional use altering the space at a given point of time.

Thus, the massive cantilevered concrete kitchen counter doubles up as the dining table, while the dining seating alters to serve as the living room when not dining. The second bedroom likewise doubles up as a lounge when not used for resting, the mattress filling the entire room, with backrests sewed on to the walls over the bedding. The foldable section of the mattress at the centre permits altering of the lounging space into a twin bed at night.

The material palette is totally understated, with most of the items made at site. While six coats of grinding on the concrete was resorted to bring in the smoothness and shine to the dining table as well as the pigmented concrete floor, solid wood was used to make the custom designed furniture. Clay bricks layered in parquet pattern cover the balconies to usher in the earthy warmth along with the greens, while arresting artworks mark the doors and walls that face the entrance, creating a dramatic, artistic entry into the raw rustic interior.

TUNED TO THE TOPOGRAPHY

His ongoing project, Manipal School of Architecture is on a 3.5 acre site with a 2.15 lakh Sq ft of built up area. The topography of the site is a steep incline, the contours sloping down to 18m from Northwest to Southeast and 9m from Southwest to Southeast. The campus is designed as a 4-block structure, with 6 studios placed on each floor of the L-shaped academic block where each studio steps out to an open green terrace. The staggered levels come with stepped seating and tree courts in the exterior spaces of each studio, revealing a lush green terraced structure.

The staircase leading to each level is also staggered to permit students to walk through each floor and interact. Since the rains are copious in this region as well as the sun harsh during summer, the terraces would need cover for use through the year. “It is a college of architecture and hence it is left open to the students in each of these studios to design their own temporary cover each year. This brings in flexibility as well an opportunity for students to think and design their space”, points Akshay.

The structure comes with a single sided corridor to usher in maximum natural light while the interiors of the studio is a mix of both single and double height spaces with angled saw-tooth openings over the windows to allow wind to flow in unhindered. Light shelves prevail to cut direct sunlight and heat ingress. “The L-shaped structure is designed to permit wind to move in similar manner as it did when the valley was earlier open”, he adds.

The administrative block incorporates an expansive cantilevered roof over the water body which has been created over a prevailing rainwater catchment area. The roof creates a dramatic entrance to the college, while the massive brick and laterite staircase doubles up as the front porch and elevation. “The steps are in fact the sculptural entity of the scaled down map of Manipal, flowing down to culminate in the rain-fed waterbody beneath”, says Akshay. During summers when the water dries up, this space doubles up as an exhibit centre.

An 18m inclined topography can be visually challenging when not addressed right. Akshay has addressed this steep contour by visually scaling the front block to human requirements, taking advantage of the incline, even though the structure is tall by actual scale. “The lowest end of the site houses ground plus five levels while the higher end comprises ground plus two levels”, explains Akshay. To keep with the local flavour and topography, the exteriors of the building is clad in local stones along with laterite floors while the interiors come with cement floors and exposed concrete ceiling.

Manipal School of Architecture.

CONTEMPORARY YET ROOTED IN HERITAGE

AKSHARA VERMA &
RAJA ARJUN

OFFICE OF COGNITIVE DESIGN (OCD) IN COLLABORATION WITH ACE GROUP ARCHITECTS

PROJECT
Mahé

DESIGN TEAM
Architects Raja Arjun, Akshara Verma, Kartik Uchil

LANDSCAPE DESIGNER
Omal Paul

CONTRACTING TEAM
Nimit Mehta

It is a 150 year old building in Anjuna Goa, the structure revealing the Portuguese style, having been built in the era of Portuguese occupation. The building rests amongst a set of old Portuguese residences that reveal a tidy amount of misinformed, almost insensitive refurbishments to the heritage structures. Besides these residences, a range of other structures that include a church prevail in the neighbourhood, nestling amidst a scattering of coconut and palm trees.

While this fairly worn out heritage building was devoid of any specific historical relevance or natural panoramic views, the voluminous spaces held much promise. A small portion of this structure was to be retained as a residence after the proposed refurbishment, with the rest to be readied to serve as a restaurant which breathed comfort and convenience of modern lifestyle, yet retaining the old world charm of its heritage roots and complementing the coastal cuisine that was to be tabled.

When **Architects Akshara Verma of ACE Group Architects and Raja Arjun of Office of Cognitive Design (OCD)** took up this project, their first response was to address the cuisine proposed to be served and break down its components which revealed an undoubtedly Indian flavour with European influence. The conceptualisation of the space then revolved around lending a fitting experience for the diner that connected fairly with the cuisine served.

“It was not easy to retrofit a 150 year old residence with services and tech facilities needed for a contemporary restaurant. Besides, the availability of water, power and adaptively reusing a section of the yard and bedrooms as a fully functional kitchen posed a big challenge”, states Akshara on the immediate hurdles that faced them in converting the heritage structure into an eatery.

Not surprisingly, the first process opted by the architects was to segment a portion of the building as the residence for the owner, where the residence had its own separate entrance, porch and garden.

“Having taken care of the owner’s residential requirement, we were able to focus on the rest of the building for conversion into the restaurant. This opened up the inherent advantages that the structure offered for its transition-the sturdy walls, the lofty ceilings, the fine timber elements. Keeping these elements of 19th century splendour intact, we set to work and introduced the relevant contemporary features that infused a sense of lightness into the spaces”, explains Akshara.

CONFIGURING IT TO THREE EXPERIENCE ZONES

What then emerged from these musings and observations was a space that offered a relaxed environment in modern Goa, yet does not break completely away from its roots. The restaurant MAHE was thus born, composed broadly into three diverse experiences- The Main House, the Outhouse, the Garden.

An attractive charcoal-black brick pathway was laid to lead to the 325 Sqm Main House. The Porto-house, painted in uncharacteristic charcoal, leads through a stark lobby and thence on to two dining halls. A portico that prevailed here, added during one of the renovations, was dismantled to restore the original arrival space at the entrance.

A light and breezy bar, the Blush Hall, opens on to the front of the Main House. Raw steel portal frames, high-seats, minimal décor marks this bar. A more intimate dining space, the Jade Hall, overlooks the internal courtyard from where sunlight filters inside in myriads patterns, altering the mood as the day progresses. A long wooden bench, light contemporary movable tables and chairs mark the interiors.

The 30 Sqm Outhouse is designed as a cheerful lounging area for diners, the bright white walls, book-lined shelves, a low day-bed, a few stray loungers and a swing turning the space into an attractive much sought after destination. The veranda in the Outhouse is repurposed as a bar to serve diners in the Outhouse as well as in the Garden.

The Garden is sandwiched between the Main House and the Outhouse, enabling diners to taste nature as they dine under the large mango tree nestling amidst a varied range

of foliage. Community and round tables designed in delicate metal and set in white pebbles feature in the Garden, contrasting the dark Charcoal exteriors of the Main House.

OPENING UP THE VENTS

Having designated the spaces into these three segments, the next step was to address the multiple doors and windows which needed to be opened up to not only let in the much needed daylight but also usher in a contemporary flavour to the old world ambience. The doors and window shutters were thus painstakingly replaced with pivoted glass shutters encased in raw mild-steel.

The glass, besides ushering in copious natural light, opened the interiors to the exterior landscape. Since the objective was to retain the heritage roots, care was taken to ensure the proportions of the shutters resonated with characteristic Indo-Portuguese style while the modern materials revealed contemporary leanings. The large shutters flush to the exteriors imitate the traditional flatness of a Porto residence. Pivoted to the walls, the shutters also lend character to the façade when kept open.

Incidentally, the raw mild-steel resonates across MAHE, being explored in a delicate form to keep in tune with the sensitivities of

the heritage structure and the coastal cuisine served. Thus, the bar is framed in raw steel and so are the footrests and stays. Even the hardware, bolts were crafted on site in mild-steel.

REVAMPING THE ROOF AND FLOOR

Given the age of the structure, it is not surprising that the roof and the flooring needed strong address, the condition of both damaged in many sections. The existing roof was hence restored, with some of the roof tiles at the junction of the bar and dining spaces being replaced with glass tiles to permit sunlight to wash the internal walls and timber roof members in subtle patterns. The prevailing timber trusses and rafters were retained, refurbished and kept exposed.

The existing flooring revealing much damage, the same had to be redone, though a conscientious call was taken to keep the new floor patterns light coloured and devoid of recognizable traits as much as it was feasible. The result was a choice of a bright-white insitu terrazzo floor for the common spaces while a polished IPS replaced the existing flooring in the dining and gallery spaces.

The floor patterns form a seamless baseline on the walls to merge fluidly the horizontal and vertical expanse. The flooring at the junctions was accentuated with sleek brass inlays in a disc form. These brass discs take another form on the walls in the dining area as wall lights to emit shielded light into the space.

The existing flooring in the erstwhile main hall of the residence, now repurposed as the bar space, was retained given its good condition. The old flooring, revealing a composition of patterned mosaic set in three colour tones, not only effuses the heritage roots of the structure but also sets the tone for the colours used across the now refurbished interiors.

MINIMALISM IS THE LANGUAGE

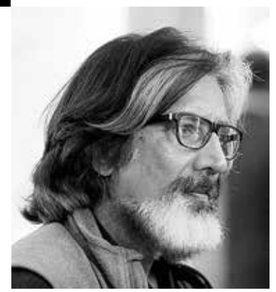
The original carpentry of the residence was retained with minimal new pieces introduced. The new pieces were consciously kept clean, minimal, reflecting old school leanings. The existing batten doors were retained and polished to elicit their former glory. Inspiration was taken from the battens while building the doors of the restrooms, benches in the dining spaces and the bar-shelves.

An interesting décor element in the form of end to end embellishment in broken mirror was introduced in the restrooms to contrast with the bare, largely texture-less spaces of the rest of the interiors. The sink too reveals similar inclination, with the in-situ cast bowl designed over a wooden tray.

In keeping with the minimal language of the interiors, the colour palette veers largely towards neutrals, with blacks, white, grey and subtle hints of brown that originate from the existing carpentry and roof tiles, prevailing across the spaces.

“Porto-homes have a significant link with the colour of their exteriors that feature as blues, reds and yellows. Yet we took a bold call to paint the walls in charcoal grey - a colour that is least represented in Goan architecture. The colour raises eyebrows yet retains the old-world charm, evoking a sense of nostalgia”, says Akshara.

The twin dining areas and the gallery however contrast this palette with pale blush, dusty jade and breezy yellow on to which soft colour variations are captured as the day progresses. The soft furnishings team these base colours with their deep greens, tans, camels with contrasting plum, salmons and peaches while the custom printed cushions bring vibrancy and cheer.



WATER, GREENS & CORPORATE MEETINGS

BY NANDHINI SUNDAR

SANJAY MOHE

MINDSPACE ARCHITECTS

PROJECT
Titan Integrity Campus, Bengaluru (Titan Company Ltd)

BUILT-UP AREA
3,90,000 Sq. ft.

DESIGN TEAM
Architects Sanjay Mohe, Suryanarayanan V, Swetha A, Joseph K T, Er. Mahesh S

LANDSCAPE DESIGNER
One Landscape, Hong Kong

INTERIOR DESIGNER
MMoser

STRUCTURAL CONSULTANTS
Sterling Engineering, Bengaluru

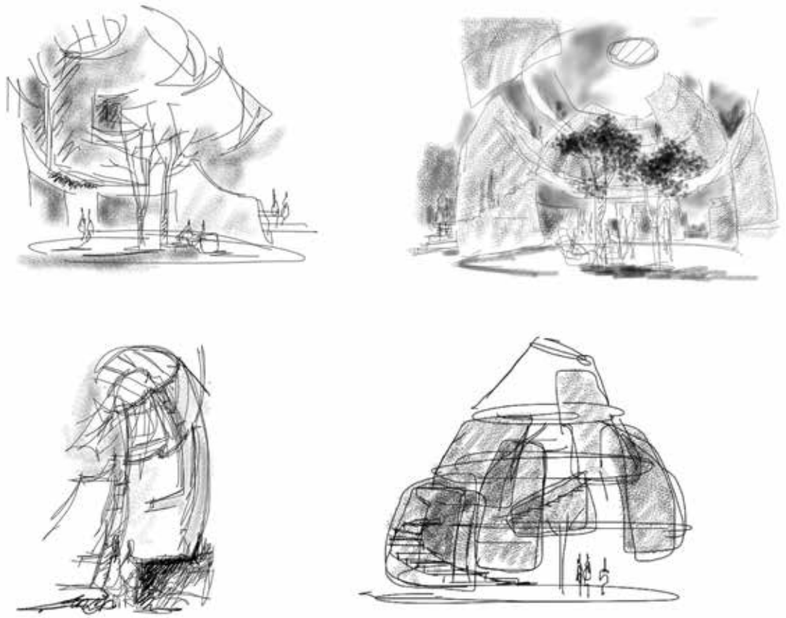
HVAC CONSULTANT
Airtron Consulting Engineers Pvt Ltd

PHE/FIRE CONSULTANT
Maple Engg-Design Services (India) Pvt Ltd

ELECTRICAL CONSULTANT
Sripeksha Engineering Consultancy Services Pvt Ltd

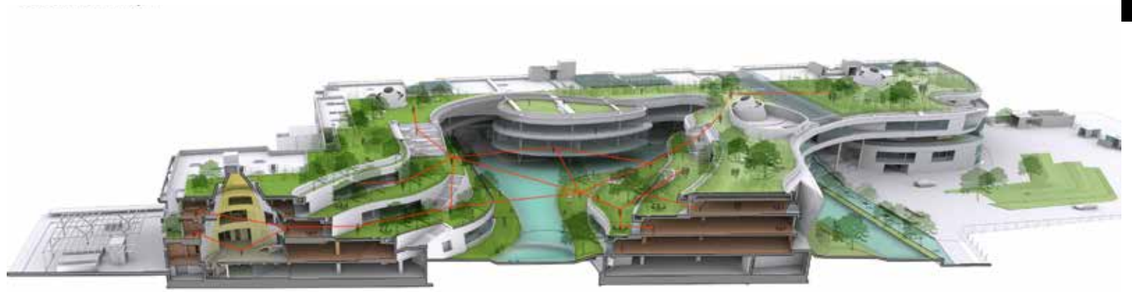
LIGHTING DESIGNER
Light Vista, Bengaluru

PICTURE CREDITS
Purnesh Dev Nikhanj, MindSpace Architects



Atrium concept sketch.

Talk about corporate meetings, landmark decisions, the work environment of the movers and shakers and the first thing that comes to mind are straight jacketed spaces, an overpowering formal ambience, sombre corporate members working in built spaces that are equally starched, conventional. But how about operating on similar crucial proceedings from a space that is a far cry from the stiff corporate ambience, a space that breathes in the fresh moist air, links with lush green terraces, operates amidst copious natural light, tunes into the soft flow of water and its endless ripples? Sounds incredible?

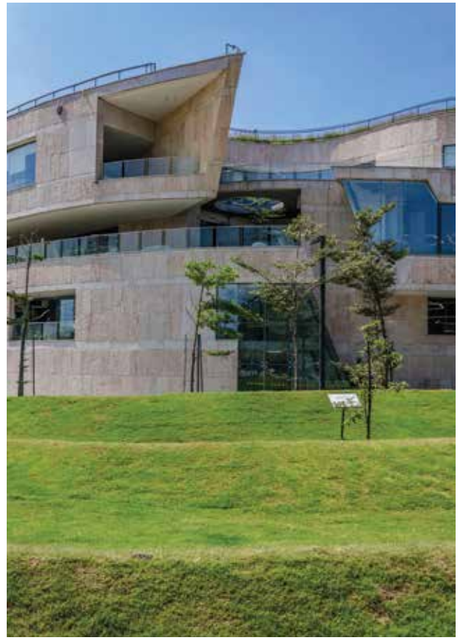


The Titan Corporate Office designed by **Architect Sanjay Mohe** of **MindSpace Architects** fits precisely into this unconventional ambience, offering a work experience that is not only rejuvenating but also one that 'prompts employees to spend more time in office than required'. The 4 lakh Sq ft of corporate office is built on a 6.5 acre site that was flanked by natural lakes on the eastern and western sides. A vacant land prevails on this western side between the site and the upper lake. "The design opted was based on the assumption that both segments of the lake would have been connected, with water flowing through the site", states Mohe on the design intent.

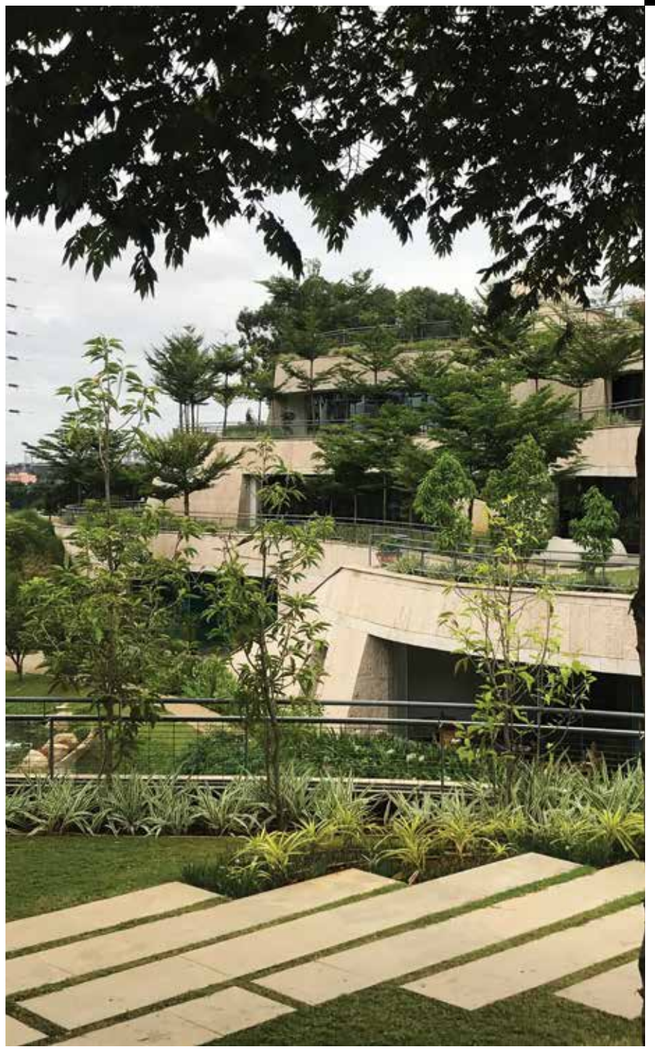
Perspective drawing details.

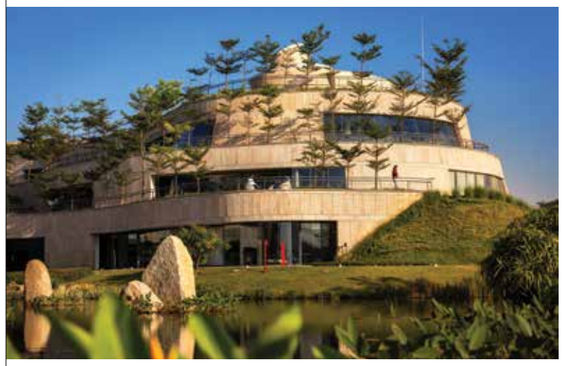
Aerial view.

Staircases connecting green terraces.



Entrance facade.





Above & Left: Receeding terraces and green ramp.

To tune in with the original specs of the site, an overwhelming presence of water is structured into the built space. The ground floor at the entrance of the building lifts up 2.7m to hover over this expansive waterbody that meanders through almost an acre of the site. A wide staircase along the cascading waterbody leads to the central spine of the building, connecting thence to water and greenery beyond.

Large waste granite boulders sourced from various quarries prevail in this bio lake, accentuating the aesthetics and the energising presence of water, while the local fish keep the water naturally clean. “The raise of 2.7m at ground level brings in a seamless connect between the internal bio lake and the external Veerasandra Lake, visually submerging the boundary edges”, explains Mohe.

Incidentally the pool is self-sustaining, fed by rainwater that collects on the multiple terraces of the building and routed into the bio pool. “The shallow pool, which is physically separated, yet visually connected to the bio lake near the central spine, also encompasses the stored firefighting water that is spread over. Thus, a functional requirement is met while turning the same into an aesthetic component.”

TERRACED GREENS

The ergonomic structure spanning three levels is staggered with green terraces on each level, the pathway winding up from the ground level to the top in a continuous loop through lush green ramps. Each individual built space opens on to a greened terrace that spans an average 5 to 10m. Each of terraces on the first and second level and on

Cascading greens and central waterbody giving a valley like feel.

Open air theatre.

Working amidst greens, seamless inside outside connectivity.

Change in volume along first floor corridor.

Green terraces as extension of indoor office space.

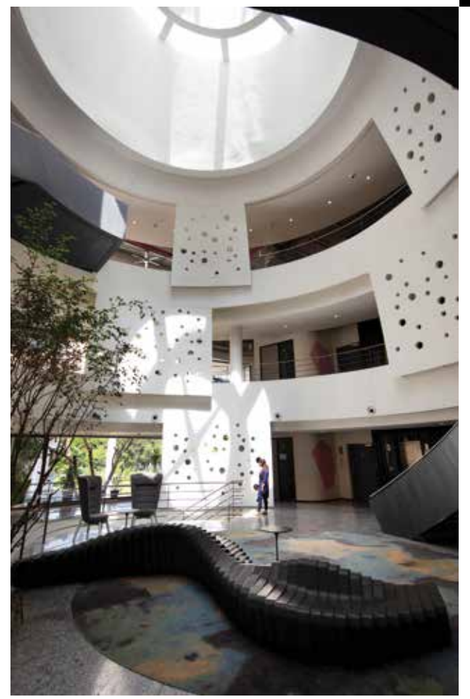
the roof houses an average of 27, 30 and 45 trees respectively. The individual terraces are layered with 40cm of soil sinking to accommodate water proofing, soli and grass planting while the larger trees have a soil sinking of 1100mm along with a few planted on grass mounds of 1000mm.

The sumptuous green lawns house steps and seating to permit employees to work in the open, amidst nature, offering an energising outdoor informal workspace. Besides outdoor working, the cascading green terraces, reminiscent of rice fields, come with walking trails of about 650m for those who choose to take a break and venture. “In the ensuing years, the greens on the receding terraces are expected to embrace most of the built structure, making it appear as a non-building”, states Architect Swetha.

The orientation of the building is such that the lengthier portions face North-South, letting in glare-free natural light into the interiors. The porosity in planning and form ensures there is continuous movement of breeze with wind tunnels creating a Venturi effect. The presence of the green turfed terraces at every level further creates a micro climate in the lower levels they cover, reducing the ambient temperature through their green presence.

GREEN WALL

Since the Western side of the building brings in the harsh evening sun, Mohe decided to cash in on the copious natural light while cutting its heat ingress. “The Western façade was designed as a series of concrete troughs at every 2m to grow plants and creepers. Staggered metal panels covered with creepers screen the western sun. This not only ushers in the greens to each level, but cuts the harsh light while permitting



Atrium

unhindered natural ventilation to prevail in the spaces”, he elaborates. While the green wall shields the interior spaces from the harsh western sun, a green buffer zone between the green wall and useable spaces cuts the radiation.

THE CENTRAL SPINE

The central spine comes as a linear double height space along the waterbody, integrating with a series of wide steps, courtyards, product display walls, seating and informal meeting spaces. The spine culminates into an atrium that connects to the dining area where one can dine beside the serene waterbody and abounding greens. The dining area connects three levels, doubling up as a multi-purpose event space.

A faceted glazed crystal floating structure features over the waterbody along this central spine, symbolising Titan’s association with jewellery. Though initially designed to house the design section of the corporate house, eventually the space was converted to accommodate the senior management.

MULTIPLE ATRIUMS

Given the five verticals that encompass Titan’s corporate functions, the structure was planned such that each vertical has its own individual zone, yet is connected to the rest through five voluminous atriums that usher in plenty of natural light while throwing out hot air. The individual office spaces are also conceived such that the interiors are enveloped in natural light through the day, entirely doing away or minimising the need for artificial lighting.

“The internal spaces come with skylights wherever the footprint exceeds 20m”, Swetha adds. Even where artificial lighting prevails, occupancy sensors ensure

Water edge.

Central spine with MD block floating above water.

Morning east light on the ceiling.

judicious use. The five atriums, besides connecting vertically all the floors starting from the basement, also enable natural light to filter into the basement. The skylight comes with the corporate logo of Titan embossed on it.

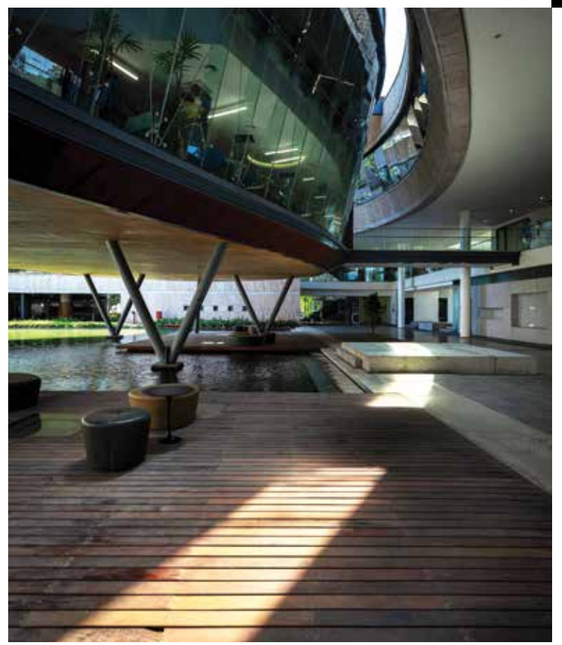
EVAPORATIVE COOLING

With the design incorporating green terraces and an expansive waterbody to create an adequate micro-climate, situated as it is in Bengaluru where the weather is not hostile, installation of air conditioning became a questionable component. “The sprawling terraces were consciously designed to encourage outdoor working and interaction. Fitting air conditioners calls for totally sealed interior spaces which would eliminate stepping out on to the lush green terraces”, explains Swetha.

The dilemma resulted in coming up with the concept of evaporative cooling. “The concept of evaporative cooling system is experimented for the first time on such a large scale for office spaces. It comes with a built-in two/three stage air-conditioning which minimises energy consumption by 30 per cent compared to conventional ACs”, says Mohe.

The system, requiring continual air movement, is coupled with highly energy efficient HVLS fans (High Volume Low Speed) that consume about 20 Watt energy while producing 200 per cent more air volume compared to a 60 W domestic ceiling fan. Third stage air conditioning becomes operational, when necessary, only during the high humid months. The resulting outcome of the multiple strategic design interventions is that, the ambient temperature does not exceed 26°C even during peak summer.

Sunrise.



Skylight between MD’s Block and office creating canyon effect.

Keeping with the natural tones, green terraces and sustainable modes, the exteriors of the structure exudes a rustic intent. While cobble stones, unpolished granite mark the pathways, the exterior walls are dry clad in 30mm granite, with an insulating air gap of 50mm that further aids in reducing the ambient temperature of the interiors. Further, the glazed facade ceiling incorporates a 1.2m shading element to mitigate the heat ingress. This Platinum LEED rated building relies on solar power to cater to 25 per cent of its already minimal lighting requirements.

Twilight refelections.

RESCUING A PART OF **HISTORY**

BY NANDHINI SUNDAR

ARCHIETERIORS

PROJECT
Bowring Institute

AGE OF THE STRUCTURE
132 years

SIZE OF THE STRUCTURE
40,000 Sq ft (Plinth Area)

LOCATION
Bengaluru

DESIGN TEAM
Architect Sriram Krishnan; Stuart Clarke, Project Coordinator; H S Srikanth, Hon. Secretary, Bowring Institute; Dr Ashwath Narayana, Archaeology Heritage and Museums, Department of Karnataka

PICTURE CREDITS
Before: Bowring Institute
After: Architect Sriram Krishnan

Bowring Institute Bangalore – Before

It is a structure that dates back to late 19th century, year 1888 to be precise; a structure that has a profound history to it, frequented as it was by the British regiment posted in the Bangalore Cantonment and the wealthy socialites of that era who chose to flaunt during the British regime. It is a structure that has stood tall and endured the test of time while being a silent spectator, not just to the change of reign marking the beginning of an Independent India, but also to the many changes that have thence swept the society, altering the social norms that prevailed during the era of its physical manifestation.

The 132 year old heritage Colonial structure left behind from the British raj is housed in one of oldest private clubs in the city of Bengaluru, the Bowring Institute, founded in 1868 by Benjamin Lewis Rice. This central building, constructed on the principles of Victorian architecture blended with tones of Indo-Saracenic, is divided into three wings, a large convention hall in the centre, flanked on either side by expansive multi-functional spaces with one of them housing an impressive library that is constantly frequented by eager members.

When the heritage building came up for restoration, the state of the structure was extremely worrisome, with sections in the danger of giving way at some point of time, contends Stuart Clarke, Project Coordinator for the restoration and also Treasurer of the Club. “There were deep cracks in the walls due to deterioration in the foundation where temporary patchwork had been done, paying no heed to the structural implications and the heritage value of the building. Most part of the roof and walls were damaged due to heavy seepage, threatening the stability of the structure”, he states. Over the past six decades, multiple alterations had been carried without understanding the long term repercussions, resulting in cancerous imprints which now needed a holistic approach for restoration, he further adds.

While the restoration of this structure, initiated in 2015 took over a year in planning and final execution, the actual restoration process commenced in September 2017 and took over two years to complete. “It began with zoning different activities that needed address in Phase I pertaining to the structural restoration. Phase II involves refurbishing the interior spaces keeping in perspective the heritage value of the structure”, states **Architect Sriram Krishnan, of Archieteriors,** the Lead Architect involved in the restoration.

Bowring Institute Bangalore – After Restoration

External Cancerous imprints before restoration.

Internal damages weakening the structure.

Lime mortar – critical ingredients.

Central hall column clad with teakwood reapers.

LIME MORTAR ON ORIGINAL LINES

The entire structure had been built using lime mortar and lime plaster. The restoration hence involved taking up the challenge of preparing the lime mortar on site to the exact specifications as followed in the original lime plaster used over a century back. “The lime stone used was certified by ASI. The lime powder was ground on site with sieved river sand and wild Aloe Vera. Inknut water was added to this to bring in the required consistency. The resulting mixture was fermented in a pit for 14 days and covered with 2 to 3 layers of gunny bags and one layer of hay to ensure there was no penetration of sunlight”, explains Sriram on the procedure.

Once fermented, the cake like mixture effuses a pungent smell besides generating a lot of heat. “Constant exposure to the lime brought on heat boils to the workers, requiring alternate day rotation for the artisans doing the plaster”, says Sriram. To get the right adhesiveness, the fermented lime mixture was then mixed with palm sugar water, inknut water and egg white in required consistency to produce the authentic original lime plaster.

RESTORING SUBSTRUCTURE

In the structural analysis done prior to restoration, it was concluded that the substructure was badly damaged due to aging and weathering. Trenches of 1.5 x 2 m dimension were hence dug along the foundation. The soil around the foundation was strengthened by sand and lime piles of 50 mm diameter with grouting pressure of 10 kg/Sq m at every 450 mm c/c to a depth of 600 mm. The entire surface of the foundation wall was evaluated and stones were further repointed with the cavities filled with lime mortar. The foundation of the building was then strengthened by RCC buttressing. “The diaphragm RCC was proposed as a guard against external soil pressure to the foundation while the in-between space was filled with lime concrete which acted as a cushion between the diaphragm RCC wall and the foundation”,

Diaphram RCC to strengthen the foundation.

Evaluation of foundation wall.

Removal of abutments.

ISMC beam insert to rectify structural crack.

elaborates Sriram on the strengthening method adopted for the substructure.

RESTORING SUPERSTRUCTURE

The structure is incidentally built with 24inch wide load bearing brick walls with stone lintels, stone stilts and brick arches. Since the wall surfaces of the building had developed multiple cracks, the restoration started with stripping the old plaster. This bared the walls completely, exposing the structural defects which were of two types- structural cracks and weathering cracks.

“The structural cracks seen radiating from the roof across the arches down to the foundation, were treated using ISMC members internally and externally. Most of the big arch openings revealed signs of structural failure. ISMC members were used as structural beams over the weak arch openings to reduce the load, thus increasing its life span without damaging the aesthetics of the heritage structure. They were placed by creating a recess in the walls and bolted from both sides. The gaps around the ISMC members were filled with pressure grouting of lime mortar blended with GP2 (hardening chemical) and were finished with lime plaster without any compromise to the original character”, explains Sriram. Further, the weathering faults were treated using crack stitching technique and finished with lime mortar.

The main convention hall of the heritage structure comes with stone arches which did not show any cracks. The columns supporting these arches were made up of sandwiched layers of stone slabs held together by a central dowel. The entire colonnade was re-plastered with a specific grade of lime mortar to get a mirror finished lime render. The base of each pillar was clad in 1.5 inches solid teak wood reapers to create a fabulous wood wrapping for this historical hall.

ADDRESSING THE FLOORING

The original flooring of the structure is oxide based floor tiles.

Finished flooring.

Damaged rafters of Madras terrace roof.

Existing Sloping Roof with asbestos sheets.

Originating from Europe, they are similar to the floor tiles used in the Mysore Palace. Most of the flooring was weathered, requiring replacement with similar pattern and style. After carrying out a detailed study to replicate the original character, a specific floor design was made for each room and the tiles customised to meet this flooring pattern. The floor tiles in the aisle of the main hall, being in good condition, were retained in their original character.

The central hall comes with a floating wood floor. It is a trabeated system of wooden joists, rafters and planks supported on brick piers. The entire wooden members here were damaged due to weathering, requiring replacement. “The framework of solid wooden joists and rafters that prevailed was warped at multiple locations. The damaged sections were examined individually and replaced with necessary strengthening and support of stub bricks piers. Marine ply was used as a base board to achieve an even surface over 50 per cent of the retrieved framework of joists and rafters. Teak wood planks of 1200 x 125 x 24 mm size were used for the final flooring surface to usher in the desired look of a Grand Central Hall”, says Sriram.

RESTRUCTURING THE ROOF

The heritage building came with two types of roofs- sloping wooden roof and flat madras terrace roof. A strong interconnection and balance prevailed between the two for rainwater runoff and structural stability. Given this scenario, Sriram had to devise a resourceful strategy based on weather as well as difficulties in execution. According to him, the prevailing condition of the tiled roof and the supporting timber trusses was abysmal. “The damaged timber rafters had been removed many years earlier and replaced with asbestos sheets. These sheets had to be removed and replaced with timber rafters in tune with the original design.”

Wooden trusses, though in good condition, were found to have warped with an average 40 mm settlement due to the uneven

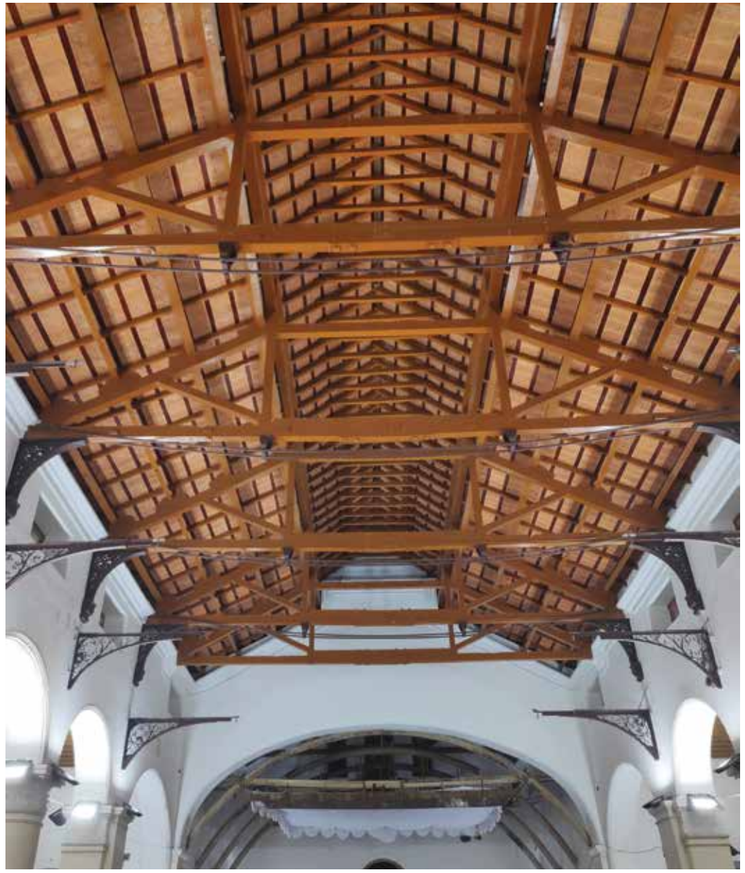
Madras terrace roof – Under construction.

Madras terrace roof after completion.

loading. “The queen truss especially had sizeable warping on it, requiring bracings to be done to remove the same.” A three-layer roof was then laid with the top layer being Mangalore tiles and the bottom layer ceiling comprising clay tiles. A new layer of corrugated galvalume sheet was introduced to prevent seepage from the damaged roof tiles. “These sheets do not rust and become an excellent barrier material and also act as a fine insulator, dipping the ambient internal temperature”, adds Sriram. The clear storey windows of roof become vents to let out the hot air, thus enhancing the natural cooling of the internal spaces.

The flat Madras terrace roof had developed multiple leakages and hence needed to be re-laid. In accordance to the original roof structure, the first layer of the roof comprised of steel / wooden rafters over which the second layer made of bricks in the size of 150 x 100 x 30 mm were laid diagonally on an incline of 5 to 10 degrees. The third and fourth layers came with another set of similar bricks, but were laid flat to cover the joints as well as ensure good bonding for roof.

Lime mortar mixed with broken brickbats formed the fifth layer that was carefully laid to offer the right slope to drain the



Main hall roof after restoration.

Sloping roof after restoration.

Interior view of the roof after restoration.

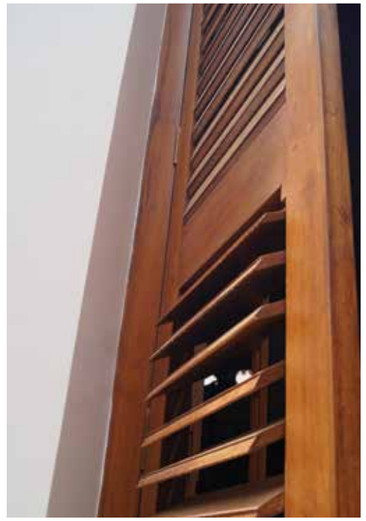
Damaged facade.

Reopened fenestrations after restoration.

surface runoff. Over this came two layers of 12 mm thick clay tiles which serve as the final weatherproof layer along with the lime pointing. Given the age of the structure, there was extensive presence of hardwood for structural supports. These supports were replaced with new hardwood rafters prior treated with anti-termite coatings. Totally 30 per cent of the old wood was retrieved and used as 2.5-inch strips for routing wiring inside the building.

REBUILDING MULTIPLE OPENINGS

In keeping with the era of its construction, the building came with multiple openings that featured as windows and doors, as ventilators that stood as solitary elements below the high ceiling as well as part of the window and door frames. While the ventilator frames that extended from the windows and doors were mostly in good condition and retainable, their solitary counterparts were all damaged, needing replacement.



Reworked Wooden louvered window.

Ornamentation of parapet wall in lime mortar.

Finished ornamentation.

Restored Facade as per original design.

"Some of the large external doors had been bricked and sealed and converted into windows. These had to be broken up and the original forms brought back. In most cases the door frames with their openable ventilators were intact and retained, but the doors were not salvageable and were replaced by new teak wood doors made to the original specifications by artisans working on the site", says Sriram. The situation was similar with regard to the fettered windows too, the new teak wood shutters crafted at site in tune with the original design.

VERANDAS AND EXTERIOR DETAILING

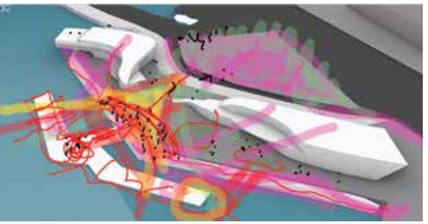
The original rafters holding up the tiled roof in the veranda had to be fully replaced due to irrecoverable damage. The wrought iron railings enclosing the veranda had also fully rusted, requiring replacement with similar designs. The external detailing and motifs on the parapet walls and on the roof were likewise damaged and these had to be reconstructed by referring to past pictures of the structures. Thus, the cornices, detailing on the parapet, reconstruction of the damaged kalashas were all done, each perfected to minute detail. The granite stone cladding on the base of the external walls too were given a facelift with pointing done in the cladding.

The restored building was recently inaugurated and is set to become fully operational to handle business once the Phase II involving the interior refurbishment is completed shortly.

IT IS TIME TO CHANGE:

A RELOOK AT THE ARCHITECTURAL STUDIO LEARNING

BY PROF. JAFFER AA KHAN



The sudden urgency of COVID-19 pandemic has changed the way we would look at the architectural studio of the future. This abrupt halt and closure of educational institutions starting from mid-spring semester has created a disruption that could never be imagined. Globally the impact was seen and the struggle of traditional learning environment challenged by digital intervention. This drastic migration to digital tools has exposed our inefficiencies and challenges to keep up with the studio progress.

While the higher studios were able to adapt to a certain extent, the lower studios were worst hit as students were just beginners, entering the digital phase. With as many as 450 plus schools in India and many standalone institutions, this abruptness would have been a disaster and of course in many cases breath-taking. The current crisis has led to many questions with capabilities of the faculty who were in many cases unprepared. The critical challenge was to create and disseminate knowledge to capitalize on this unexpected change.

Digital learning is nothing new. Architectural schools around the world have been offering digital courses for theory subjects or run a module to complete course credits. Many of these courses are available free. It is time that the Indian architecture schools wake up and prepare for the future as the present crisis seems to be a beginning of what is expected in future. As this shift from analog to digital happened, the schools needed to develop new strategies that would promote virtual learning and probably will be a regular part of the curriculum in future.

I remember in 2013, I used to run a collaborative virtual lecture for my students in Chennai. The lecturer was in London and I was travelling to Toronto and my students were in Chennai attending this lecture. This was beyond the requirement of University, but I was trying out different things at the time and the School itself was setting a trend in the region.

But running a virtual studio is completely different from lectures where the content is fixed. The virtual studio is a one-to-one interaction with a student and most of the time the entire cohort of students are participating or observing the discussion. Many online platforms facilitate this virtual studio. During this crisis, the university I teach and run studios quickly adopted the virtual learning environment and provided training to the faculty.

The ZOOM platform used was very effective. All discussions can be recorded and if you have a digital pen and the touch screen computer, one can sketch on the drawings to provide instant feedback. There is an option of using the “Whiteboard” where you can make additional sketches to explain to the students. There are other platforms like Skype, Cisco WEBEX, Facetime, Google, Miro and others.

Each of these programs has its advantages and disadvantages but generally good to communicate with students. There could be a combination of two of the programs to provide better feedback and have an effective interactive session. The institutions which would like to adopt virtual learning can choose to have any one of the platforms.

In my international studios, I use a combination of social media to communicate. I create a Facebook page for the studio and a WhatsApp group for communication. With an additional interactive platform like Zoom, virtual learning becomes more impactful. But how impactful is the biggest concern. We all know that face to face interaction of discussing, drawing and visualizing is a very large part of the design studio and it is the studio culture.

Will this studio culture of future change? How can you measure the success of the virtual studio environment? How can we train and equip the faculty? Can digital learning be introduced much earlier in the architecture program? What will be the impact on the infrastructure of the School? Can the students learn off-site and help create an apprenticeship where a student can work, learn and do the entire course digital, except that the reviews can happen in the School? All said and done, the architectural studio needs a complete relook and reimagined for the future and the regulators need to take a lead in this process.

AN INSIGHT INTO A POSSIBLE FUTURE

BY PROF. K JAISIM

I am writing this article sitting in the idyllic Suvidha (a village for the retired elderly) on the outskirts of Bengaluru, having run away from the mad rush and pollution that drives one mad.

As late as mid1970s I have walked this Garden City with many from all over the world and especially with architects and planners from Singapore who admired the way this regal city was and learnt from it to establish one of the finest cities on Earth- Singapore. Now what a change! If there is a word deeper than chaos than this is it. Every day the city fathers and whoever has any say in whatever, like little children bring in their pet toys and play hither and thither with no respect or consideration.

From here where? I am an eternal optimist. I strongly believe that we are in that crucible of metamorphose that habits change. The challenge is phenomenal. But having toured the rest of the country which by comparison is miserable by any measure, I am convinced that this city will rise again.

Urban design and planning is important. But it becomes impotent when following a western model. Utopian thinking again like bi-cycle and bullock cart tracks etc make no objective contribution or sense.

I am convinced it is not too late to go underground on many aspects and leave the surface alone to slowly repair and recover its wounds. Whatever is left we must conserve and conserve with responsibility. Shift the emphasis of growth to the peripheral areas. The link between Bengaluru, Mysuru and Tumakuru interspersed with other second and third tier cities with high speed transport, both public and private, will make an emphatic impact. People want and desire mobility between home, work and entertainment.

Imagine a scenario of high density residential areas and work and entertainment spaces interspersed with large green spaces maintained and enjoyed by the very people who are an integral part of this scenario. If the very voluntary organizations which make all the noise about decency and sensibility were to focus their energies about making citizens aware and respond, it would make all the senses integrate to make a civil society possible for one and all.

There ought to be no rigid guidelines but abstract overall objectives about high rises and sprawl. Both have merits. Here is where Architects come in. This neglected breed of professionals must take on the responsibility to ensure that their designs and creations have a sustainable and flexible model with that rare sense of aesthetics which make life worth living with context and content.

The Garden City of Bengaluru will, yes, be a large mega polis not just a metropolis. Politicians and bureaucrats must only set guidelines and be not the doers. This aspect of private public participation must be clearly defined and practiced.

People from villages and other parts of the world migrated into this rare plateau of the earth for its friendly climate and people. They did not save or respect or preserve – they just stamped everything down. Fortunately today a few senses have woken up. We need to change and for the better. We have learnt that Haste makes Waste. As an example, make metros a pleasure to travel by making it first class. So individuals using cars will rather use this transport. Nothing comes free, some sort of payment must be levied only then demand and respect sustains.

The hinterland and the suburbs will grow. Bengaluru with wisdom will not just spread but will grasp technology and grow tall. High rises with imaginative architecture can be wonderful spaces to live and work. With it will also come many underground malls and city centers, which will allow the green cover to remain and promote the micro-climate to flourish and make daily living for all citizens a pleasure.

ERGONOMIC, UNCONVENTIONAL

BY NANDHINI SUNDAR | FEATURING PRATHIMA SEETHUR

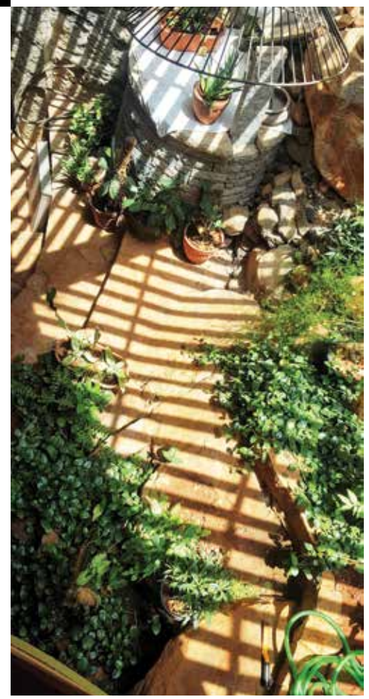
Above: The sunlit internal courtyard with its terracotta rafters, connects to the internal spaces.
Below: The sculptural staircase with its skylight, connects the three levels.

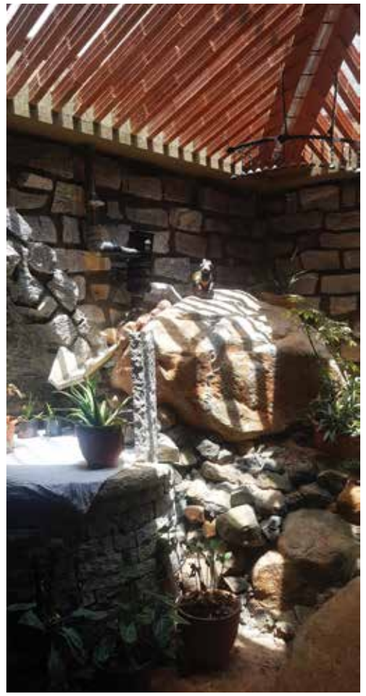
Interesting play of light through the terracotta pergolas and jaalis.

The first thing that strikes you when you meet her is the quiet reserved demeanour. Information on her designs is not easily forthcoming, requiring substantial probing and questioning. An interview with her certainly requires ample homework to be done on her works and design sense to raise not just the right queries but to delve deeper and extract the minute details.

Architect Prathima Seethur of **Wright Inspires** firmly believes her works talk for her and if there is a desire to understand her work better, then it would require a physical walk through of the spaces. And that is exactly what I did, walked through every space that I wished to understand and elaborate on! “I am better at designing than talking”, smiles Prathima apologetically. “My spaces articulate better than my words.” And that was certainly so, as I discovered on walking through them after a lengthy interview with her.

Having graduated from MS Ramaiah Institute of Architecture in 1999, Prathima decided to join Jaisim Fountainhead to learn directly from the ‘Master’. “I had interned with Architect Chitra Viswanath for 6 months and realised that my design inclination was towards earthy structures where the green quotient is total. Even as a student I was fascinated with Architect Jaisim Krishna Rao’s design sense. When the opportunity came to work under his guidance, needless to say, I grabbed it with both hands”, she states.





Multiple patterns of light and shadow mark the interiors.

MENTOR'S INFLUENCE

On completing her two year stint with Ar. Jaisim, Prathima decided to start her own design firm in year 2002. Walking through her structures, a factor that is almost palpable is the influence of Jaisim's design approach. Be it the fusion of skylights and strategic vents with the functional spaces, the differential treatment lent for each staircase, the presence of raw rustic tones blended with the profoundly earthy textures, the ergonomic shapes or the almost pedestrian treatment given to the façade in most of her buildings, the designs reveal a profound impact of her mentor's style.

The residential project Aakruthi is a case in point. The façade of the building is almost fort like, the front elevation ensconced in perforated metal sheet, concealing totally an arresting angled interior space complete with a large sky lit internal courtyard on to which the entire free flowing living, dining and open kitchen spaces open. Spread over three levels which include the ground, first level and the basement, the residence built on a 40x60 site appears large, with the setback spaces cleverly fused in to create the internal courtyard.

While the sky lit sunken courtyard along with its copious greenery, brings in ample natural light into the inward looking residence, the terracotta pergolas covering the courtyard throw in interesting shadow patterns that alter as the day progresses. The angled spaces reveal a visual connect between all the three levels, including the basement. Terracotta walls, filler slab ceiling bring in an earthy contrast to the Kota and Jaisalmer stone floors even as the organically shaped staircase with its parquet treads infuses an artistic dimension to the interiors.

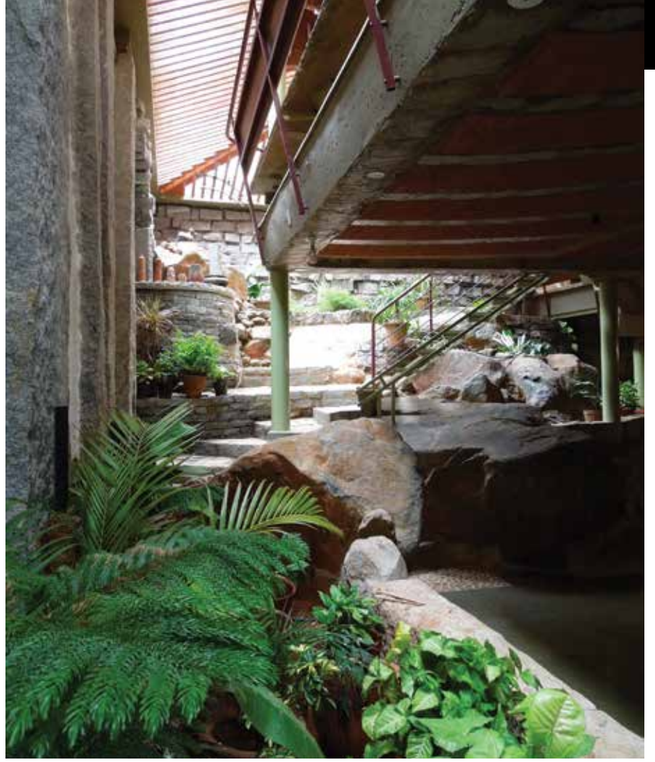
The basement comes with consciously slanted exposed brick walls to create the natural acoustics. The presence of sky lights is interestingly not confined to the interior courtyard alone, prevailing in the bedrooms as small cut outs in the ceiling, as strategic vents on walls and even in the bathrooms. "The idea is to usher in ample natural light, yet keep it subdued and not harsh", says Prathima.

DYNAMIC AND INDEFINABLE

The residence Prakriti reveals similar ergonomic design, the residence cum office building incorporating a large sunlit courtyard replete with massive granite boulders that had prevailed on the site, teamed with copious greenery. The living area, with its central open kitchen and dining, fuses into this charming internal courtyard, bringing in a seamless blend of the interior and exterior spaces. Chappadi Stone seating around the courtyard are part of the sparsely furnished living space where the accent is on highlighting nature and the natural elements, the material palette of granite, exposed bricks and Kota stone reiterating this intent in no uncertain measure.

The office, built in the basement, shares the energizing internal courtyard which dips down from the ground floor. "This portion of the site had a large rock formation. It was left to us to either remove or retain it as part of the structure. We decided to retain it in its existing state, designing the section as an internal courtyard that connected the residence and office", explains Prathima. The courtyard incidentally is part of the setback area which has been deftly fused into the built space. Random rubble retaining walls enhance further the play of nature and rustic tones to contrast with the sizeable presence of exposed bricks.

Random rubble and Chappadi stone ceiling mark the entry to the architect's studio.



Internal courtyard.

The staircase connecting the ground floor with the first level comes with an ergonomic shape that is hard to define, its very structure proving to be the accent piece in the minimally decorated free flowing interior. Terracotta vertical fenestration wall features in the mezzanine library area, cutting out the harsh light, creating drama with their light and shadow patterns. The sunlight filtering in through the glass brick vents on the filler slab ceiling on the first level, further complement this play of light and shadows. "The idea was to make the spaces dynamic with altering patterns through the day."

While the punctured ceiling, strategic vents on the walls in the form of terracotta jaalis, glass bricks, usher in plenty of natural light and ventilation into the interiors including the bedrooms and bathrooms, the residence reveals a total absence of lintels, the doors built from floor to ceiling, nestling between stone and bricks. The ceiling too reveals drama, ranging from clay pot filler slabs to concrete ribbed slabs, veering away from the conventional horizontal state to accommodate curves, sweeps and slopes, to connect to similar slanted walls.

"I love to experiment and prefer the unconventional approach where the emerging edifice does not conform to expected or stipulated norms. Nature is intriguing and cannot be confined to specific dimensions. I try to reflect this strong element of nature in my spaces, both in design and material use", says Prathima.

UBIQUITOUS STRUCTURAL COMPONENTS

Interestingly, while walking through all her spaces, a few elements come in as standard design components. While the sky light is omnipresent in all her structures along with strategic vents on walls to ensure there is no requirement for artificial lighting through the day even inside a residence built in a tightly fitted 30x40 site, all her structures unanimously feature large windows, with a sizeable number constructed as bay windows. Ample greenery finds its way into the interiors as well as in the terraces, the aggregate structural composition reiterating firmly the strong sustainable quotient that her designs hinge on.

"The internal courtyards, large windows and incisions on the walls in combination with the terracotta filler slab ceiling, not only remove the need for artificial lighting from dawn to dusk, the ambient temperature also remains cool, the abundant natural ventilation removing the need for even fans except during peak summer. Even during peak summer, the interiors remain several notches cooler than the exterior temperature", states Prathima.

Perforated terracotta ceiling complements the colourful stair treads.

Brick ribbed slab ceiling and boulders found in the site incorporated into the basement.

Free flowing lounge connecting to the internal courtyard.

Yet another strong feature evident in her structures is the clever, consistent incorporation of the setback spaces into the built area. “The objective is to ensure not only maximum use of spaces but also ward off the usual maintenance issues that crop up when setback spaces are left open and unused”, explains Prathima. Incorporating the setbacks automatically brings forth inward looking structures, the internal courtyards becoming the highlight zones of the built structure.

COMBINATION OF SLANTS, SWEEPS AND CURVES

Given her strong green inclinations, all her structures reveal a combination of stone with exposed bricks or terracotta, the natural materials featuring in angled forms, where many a time the physical form defies clear definition. Thus, walls do not necessarily feature as straight verticals but can manifest as a slant. The roof is not built to be a conventional horizontal cover but as multiple slopes, curves, sweeps, where the final physical composition of the structure becomes the speaking point, determining the language of the ensuing interiors.

The Shyamala Jaisimha residence is a classic example of this strong design inclination of Prathima. Built with angled outer walls that pan out at ground level and slant inwards on the first level to bring in a differential dimension to the façade, the residence comes with an array of sweeps and slopes on the roof too. The sky lit interior spaces are articulated with the presence of prominent large uncut granite stones and exposed bricks in combination with strategic vertical vents in the slanted walls to usher in copious natural light.

The totally inward looking Akshaya residence literally begins on the setbacks; yet the blending is so finely done that one fails to notice. The three level house integrating the basement, ground and first floor, not surprisingly comes with the sky light where the free flowing naturally lit interiors reveal ample presence of terracotta, stone and filler slab ceiling that combine with a sizeable presence of wood to lend warmth.

RESTRUCTURED INDUSTRIAL SHED

When Prathima was approached to turn a defunct printing house in the Peenya industrial area into a cheerful factory space, her first reaction was to slice out sizeable sections of the walls in vantage spots and create punctures on the roof to bring in natural light and ventilation. “The interiors of the factory were totally dark with less than 5 per cent openings, being merely a combination of walls and asbestos roofing”, says Prathima.

“A naturally lit and well ventilated factory space comes with its own energy quotient that will impact labour productivity immensely. Physically opening up the spaces was the first step towards achieving this”, she adds. The language of the factory now stands altered right from the reception area where terracotta walls combined with terracotta piers on the façade set an earthy tone, matched by the sound of flowing water and ample greenery.

Entrance lobby of the factory.

Stores inside the factory.

Light and connectivity of the spaces.

Terracotta pergolas and filler slab ceiling contrast the stone walls.

An expansive solid wood door marks the entrance.

Inside outside connect.

A fine blend of stone, wood and brick usher in warmth.

Rich earthy hues mark the common space.

Brick filler slab ceiling complements the inwardly tapering brick walls.

The metal windows that existed earlier in the shop floor were removed to be replaced with terracotta jaalis that let in air and ample light into the interiors. Even the entrance doors have segments opened up and covered with perforated metal sheets to ensure there is constant unhindered free flow of air into the interiors. “The entire 30,000 Sq ft shop floor is naturally lit through the day and has no air-conditioning or even fans. Yet, the ambient temperature continues to be comfortable because of the natural ventilation”, points Prathima.

The expansive double height shop floor, structured aesthetically to belie the factory feel, is visually connected, yet partly shielded from the reception by a horizontal running work table made from recycled packaging wood that serves as the demarcating element while being functional. While an equally earthy boardroom with wood and terracotta is carved out of the factory floor, colourful metal mesh shutters and industrial storage shelves mark the stock area, lending colour to the shop floor.

The asbestos roofing that prevailed earlier was ripped open and replaced with metal and polycarbonate sheets with sky light slits at regular intervals to let in uniform natural light into the factory space. Terracotta jaalis under the polycarbonate sheets featuring as gable wall panels to connect to the greenery and sky outside, create a stack effect to throw out the hot air from the interiors. The terracotta jaalis further connect the interiors visually to the abundant exterior greenery prevailing on the site.

RECAPTURING THE **BIODIVERSITY**

BY NANDHINI SUNDAR

Four feet high mound.

It was certainly a dream realised, a dream that came about as a young teen when gazing into the watery expanse that many a time featured as patches of dry bed bereft of surrounding vegetation. The zone under discussion is the 800 hectare Ousteri Lake, an important wetland in Asia and home to many migratory birds, estimated around 20,000 every year, in the surrounding bird sanctuary. About 390 hectares of this lake fall under Puducherry domain while the remaining 410 hectares lies within Tamil Nadu jurisdiction.

Observing this phenomenon as a young lad was **S Vimal Raj,** the daily visits and ponderings by the lakeside urging him to do what he could to revive the wetlands so that the birds would return not just to visit but to nest too. Even after completing his engineering and leaving his native village to take up a job in Bengaluru, the call of the lake and the birds continued to be intense.

This man-made lake dating to nearly 150 years has had exotic migratory birds coming in from as far as Europe, Russia, Sri Lanka, Indonesia, with most nesting in the region. With heavy tree felling occurring around the lake coupled with lower rainfall, not only was there a fall in the number of bird visits but the nesting pattern too had almost disappeared.

FINDING A WAY

This fervent, almost burning desire to revive the biodiversity of the lake resulted in Vimal gathering his like-minded friends and setting out to find a way to make his dream a reality. And make his way he certainly did, teaming up with three of his friends, Prabhu N Ponmudi, K Raman, N Ratheesh and chalking out a plan to bring back the migratory birds to rest as well as to nest in the lake area. While the plan for the same was easy to formulate, execution involved funding and the four friends had not a pie to spare except their individual physical service.

"This is when I approached Lions Club of Pondicherry Host, Lions MJF M Kaliyanamoorthi

Aerial view of the islands.

Freshly laid island before greening.

Spoonbills flocking the island.

of Five Star Group, who agreed to donate Rs 3 lakhs towards the project. The funding was participated by Lions Club International, 324 A3, District Governor Ln. Geetha Kamalakannan. Yet, this funding was not sufficient to see the project through. This is when we reached out to individual donors who contributed small amounts, enabling us to collect the required funds", says Vimal.

With the required funds in place, the four friends embarked on reviving the lake and its biodiversity in June 2019.

ISLANDS AND MOUNDS

"The year we started turned out to be a dry year, the lake bed turning totally dry after a record 40 years. The parched lake bed worked to our advantage as we were able to start digging in various sections of the lake to create islands and mounds where the birds would later use for nesting", says Vimal. Totally 8 islands, each ranging from 10 to 15 feet in height and 100m apart, were created within an area of about 20,000 Sq ft. "The islands were created in different shapes, starting from circular islands to linear to C-shaped ones. The islands were also created well away from the mainland as human presence hinders breeding."

The circular islands came in a diameter of 20 to 30m while the linear ones went up to 150 feet in length. As waders and ducks prefer smaller mounds to rest in as against islands, 7 mounds of 10 to 20m diameter and 4 feet in height were created in the lake bed. "The respective height and sizes of the islands and mounds were decided based on the water level in each section of the lake and also the specific requirements of the birds which would be frequenting them. For instance, large birds such as the Oriental Darter, Painted Stork, Open Bill, Spoon Bill, Pelican, Ibis, require large trees to nest while ducks choose tall grass on mounds", explains Vimal. Over a period of time we also discovered that the circular islands and mounds were more effective and drew larger flock of birds as compared to the linear or C-shaped counterparts, he adds.

Marking being done for the islands.

S Vimal Raj with Prabhu N Ponmudi, K Raman, N Ratheesh.

Circular island.

Linear island.

The mud for creating the islands and mounds were dug out from the lake bed surrounding the proposed island or mound. “No mud was sourced from outside, the entire requirement having been met from the lake bed”, he states. Once the lake is full on receiving copious rains, the water level around the islands would increase to over 10 feet according to him, leaving the islands standing barely 6 to 8 feet over water.

Further, the decision to excavate the lake bed around the proposed island or mound to source the mud for the same, created a large capacity akin to a trench to hold water around the islands and mounds. “Given the depth of these trenches going up to 3m, water will not dry up here even during peak summer. During the two and half months of dry season, this stored water will help sustain not only the birds but also the trees and vegetation on the islands and mounds”, Vimal further elaborates.

While the 8 islands were created for the migratory birds to nest in, the mounds were explicitly created for the turtles and ducks as “they rest on the grass mounds, bask in the sunlight and also breed on the same unlike the birds which need thick trees amidst an expanse of water.”

GETTING THE VEGETATION RIGHT

Excavating the lake bed around the spots picked to create the islands solved easily the problem of sourcing mud. But what about the vegetation, specifically the particular type of trees that require to be planted on these islands? “Migratory birds nest only in the trees and these trees need to feature on the islands built to attract these birds. But the variety of trees to be planted need to be not only native but also ones that can stay in water through the year, all 365 days to be precise”, points Vimal.

Though there were plenty of trees in the region that were native to the place, only one tree amongst these, the Barringtonia Acutangula was capable of withstanding the continuous flow of water through the year. “Incidentally only a handful of Barringtonia Acutangula was available in the area. This is the scene not just here but across most lakes in the country as most of these trees have been cut down over the years. We decided to address this by having a nursery for its saplings and soon succeeded in planting 700 saplings along with many other native trees such as Bamboo, Palm, Flame of the Forest, Arjuna, Jamun, Peepal, Banyan, fig, Acacia Nilotica”, he says.

Interestingly, the planting of the Barringtonia Acutangula saplings and other native trees did not solve all the issues the team faced. They soon realised, if they had to stop the erosion of mud from the islands and mounds, which would automatically occur when heavy rains ensued, thick vegetation was urgently required. This

Large saplings planted in the island.

Fully grown millets.

Migratory birds stopping over at the lake.

problem was solved by scattering large amounts of millet seeds on the sides of the islands and mounds.

"The fast growing millets soon gave the urgently needed green cover to stop the clay soil from getting washed away. But till the rains started, these millets required physical watering which was not easy given the lack of manpower to carry it out. With no pumps or pipes to aid this watering, water had to be physically carried in pots which was quite challenging."

Though the millets took roots and gave the much sought after green cover for the mounds, the saplings planted on the islands proved to be not a complete success as envisioned, with a sizeable number dying. "We later found that the young trees or fairly well grown saplings had almost a 100 per cent survival rate than the tender saplings. We then made the required changes and succeeded in bringing in the tree cover on to the islands."

WINGED VISITORS FLOCK IN

With the onset of the monsoons and the trees and green cover taking firm roots, the visit of the migratory birds followed. "While the number of migratory birds visiting registered a marked increase, a few new species too halted in the region to feed and rest. The next three to five years will see the full fruit of this exercise with the bigger migratory birds visiting and also the ones traditionally nesting in the area returning to nest in the lake as before. We expect several thousand more birds to stop by and breed here every season a couple of years from now."

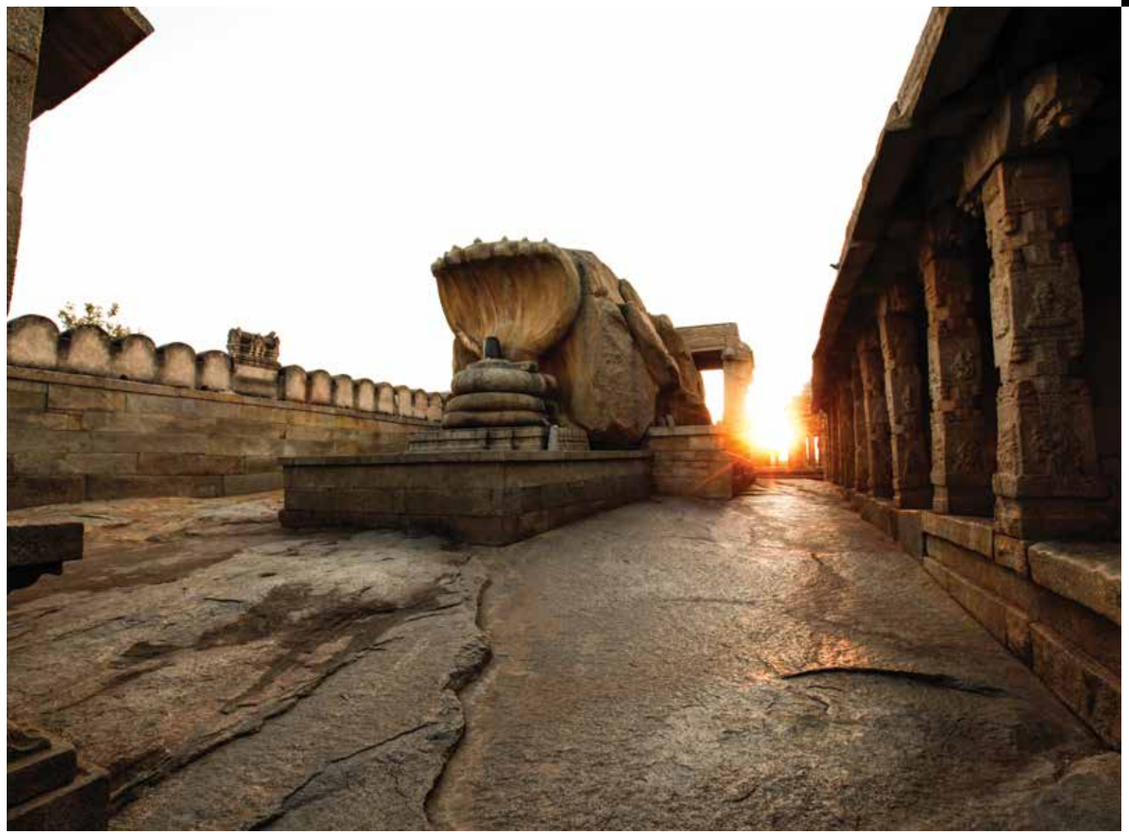
An increase in number of migratory birds will also directly increase the quantity of bird droppings, Vimal points. "These bird droppings serve as excellent fertilisers besides increasing breeding of fish which in turn serve as a rich source of food for the migratory birds. The circle gets complete and better every year once the biodiversity is fully revived."

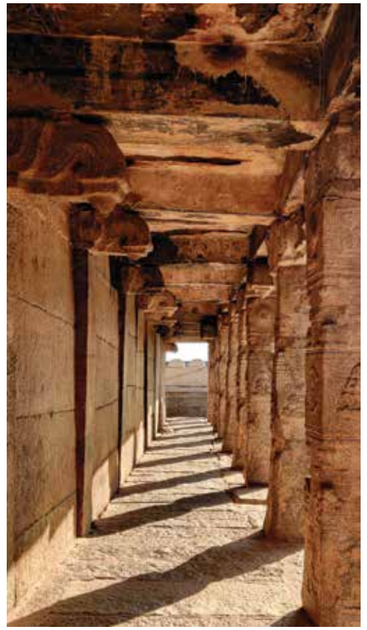
As of now the range of exotic migratory birds stopping over at the lake include Lesser Whistling Duck, Cotton Pygmy Goose, Northern Shoveler, Cormorant, Yellow Bittern, Black Bittern, Garganey, Eurasian Wigeon, Indian Spot-billed Duck, Northern Pintail Little Grebe, Oriental Darter, Painted Stork, Open Bill, Spoon Bill, Spot Bill, Pelican, Ibis, besides many others.

Enthused with the success of his intervention in the Ousteri Lake, Vimal is currently looking at yet another lake and its biodiversity in Tiruvannamalai, located in Tamil Nadu. "We have visited the region and explored the options and plans are underway", smiles Vimal, indicating clearly that his work does not stop with just one lake.

A SAGA OF **CARVINGS AND STONE**

Historical temples hold a special charm, given their astounding architecture and incomparable stone carvings. The charm is even more when such shrines come with a legend. **Interior Designer Mahesh Chadaga** captures with his lenses the mindboggling stone carvings and architecture of one such legendary 16th century temple situated close to Bengaluru





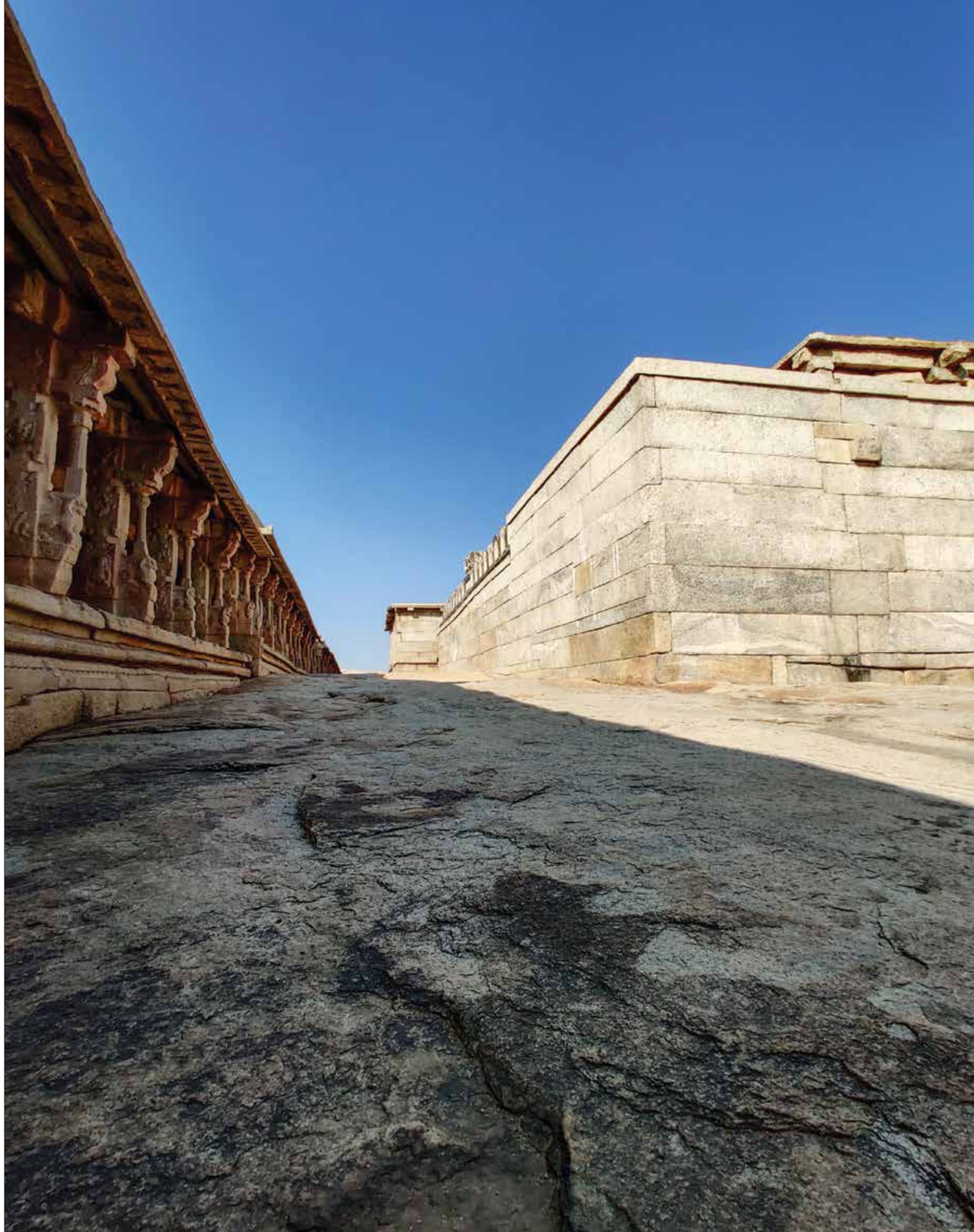
The first thing that strikes you when you behold the 16th Century Veerabhadra Temple in Lepakshi, Anantapur District, is the expanse of stone and the monumental stone carvings. Displaying Vijayanagara style of architecture, the temple is not only home to some mammoth carvings but also to legends involving those entrusted with its construction as well as connecting to the epic Ramayana.

The temple, built in 1530 on a hillock of granite rock, is considered as one of the important pilgrimage sites of Lord Shiva. The temple is laid out in three parts, and encircled by two enclosures, with a profusion of sculptures and paintings at the entrance to the sanctum sanctorum. The hanging pillar features in this section, the pillar totally disconnected from the ground, yet serving as an important connect and support for the prevailing beams and pillars in the hall.

Legend has it that during the British era, a noted engineer tried to move the hanging pillar to understand the structural dimension of the architecture, only to find it disturbing the rest of the beams and pillars. The stone pillars and beams reveal multiple carvings depicting the various *Puranas* and mythologies while fresco paintings depicting the epics Ramayana and Mahabharata feature on the ceiling.

The courtyard of the temple sports a massive *Shivalinga* with a seven headed serpent guarding over it, all carved from a single stone. A partly finished *Kalyana Mandapa* also features in this courtyard, lending credence to yet another legend of the temple that points to what appears to be blood stain marks on the stone walls close to this *Kalyana Mandapa.*

A monolithic Nandi bedecked with garlands and bells, features about 200 metres from the temple. Measuring 20 feet in height and 30 feet in length, the Nandi is carved out of a single block of granite.



HAPPENINGS IN BRC
JANUARY TO MARCH 2020

MEMBERS' DAY OUT

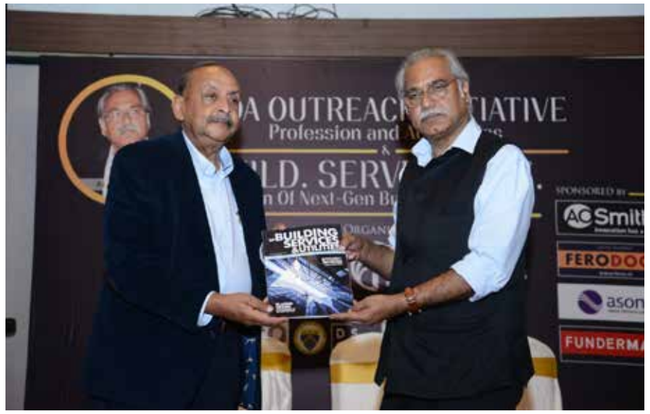
IIID BRC decided to host a Day Out for its members in DIVIKSHA, a farm house on the outskirts of Bengaluru with a lot fun, frolic and of course, delectable cuisine. Close to a hundred members gathered to indulge in innumerable games, group activities, tug of war, besides using the opportunity to connect professionally. The perfect hosts, Chairperson Ar. Dinesh Verma and his wife Vijaya Verma ensured the Members' Day Out was not only memorable, but unforgettable too for all the attendees.

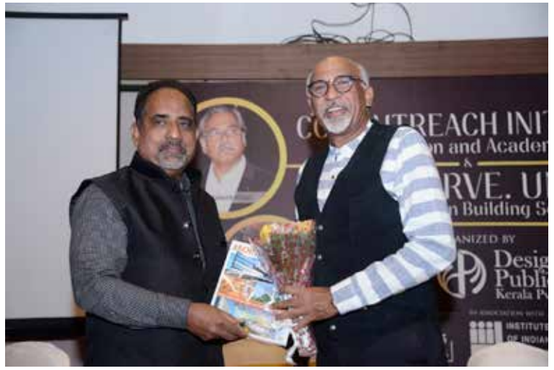
FOUNDERS' DAY

It is certainly a day to remember, honour the founders, recall the past, gain from the learnings of the last two decades and forge into the future. The Founders' Day was celebrated with much pomp in the Experience Centre of NCL Veka, the sponsor for the memorable event. The evening saw the IIID BRC Founders and Past Presidents honoured, where each shared some of their experiences and journey with the gathered members.

PRESENTATION: ARCHITECT N MAHESH IYER

Build, Service, Unite, a lecture delivered by renowned Architect N Mahesh Iyer and Managing Editor of Building Services & Utilities (BSU), held the gathered designer fraternity, students and academicians in rapt attention. The presentation focused on the contemporary developments in building services which have paved the way for more efficient and dynamic buildings. Mahesh Iyer pointed that these new channels have widened the scope of creativity of designers.

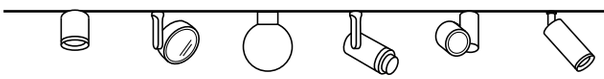




The event was hosted by Designer Publications Kerala Pvt Ltd and Dayanand Sagar College of Architecture, in collaboration with the Council of Architecture (CoA), supported by IIID BRC and IIA Karnataka Chapter. Past president of CoA, Architect Uday Gadkari and current President Architect Habeeb Khan addressed the gathered audience. Habeeb Khan called for greater interaction between the Council and its members. An interactive session followed with many queries raised, the audience sharing actively their multiple views with the CoA.

ALASKA

The reinterpretation of the
incandescent filament light bulb.



MINIMAL TRACK

DESIGNED BY RUBÉN SALDAÑA

Step 1

Install the structure of Minimal Track
with the anodized black profile.

Step 2

Electrifiy the system with
the flexible rubber cable.

Miniaturization: a new paradigm

Micro-sized track, luminaires and components.
Surface track with a trimless visual effect.
Visual uniformity, a black minimalist line.
Easy installation: pin, fix and enlight.

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