

CEBACA

Coimbatore Builders And Contractors Association

TIMES

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BLUEPRINTS OF SUCCESS

THE ART OF CONSTRUCTION PLANNING...



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President's Message

Dear Esteemed
Members of CEBACA,

As we present the final edition of CEBACA Times for the year 2024-2025, I extend my heartfelt gratitude to each one of you for your invaluable contributions throughout the year. Your dedication and expertise have been the cornerstone of our association's ongoing success and growth.

This edition, themed "Blueprints of Success - The Art of Construction Planning," underscores the vital role that meticulous planning plays in the realm of construction. Effective planning is not merely a prerequisite but an art that ensures efficiency, sustainability, and profitability in our projects. It's the blueprint that guides us from conceptual design to the final brick, reflecting our commitment to excellence and innovation in the construction industry.

Throughout this year, your collaborative efforts have not only strengthened our community but have also advanced our industry's standards. Whether it was through participating in our events, contributing to our magazine, or leading community initiatives, your active involvement has been instrumental.

As we wrap up this year, let us take pride in our accomplishments and the strides we've made together. The insights shared in this edition reflect our collective wisdom and are geared towards enhancing our strategic approaches to project management and execution.

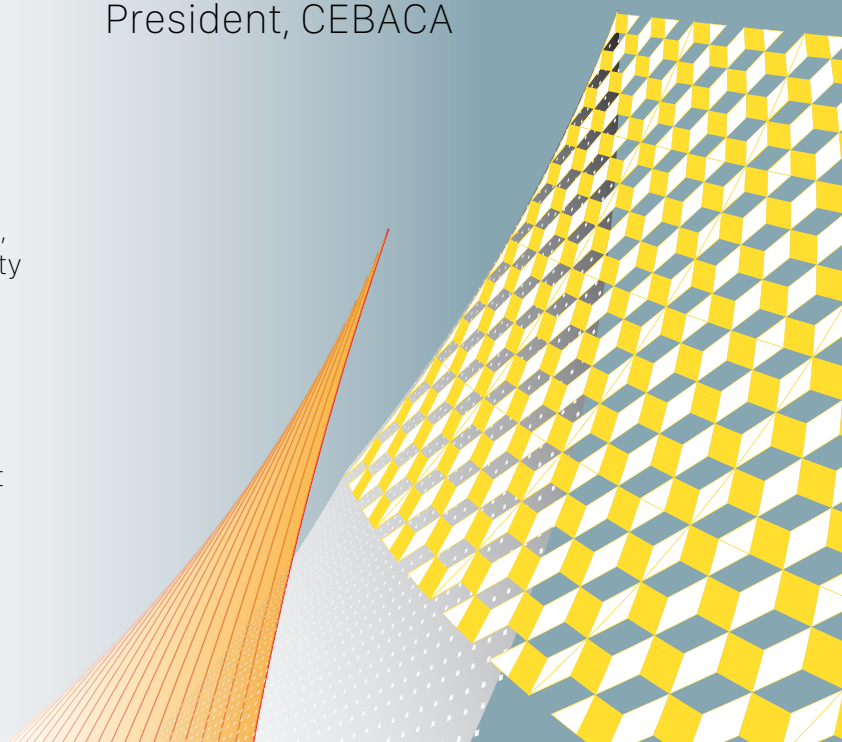
Thank you once again for your unwavering support and contributions.

Let us look forward to another year of new opportunities, achievements, and continued success in shaping the future of construction.

Warm regards,



Mr. S P Raamanathan
President, CEBACA



Drivers of Change

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Mr. R. Senthil
Mr. B. K. Balakrishnan (Coordinator)
(for Media & Website)

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Dr. A. Sudhahar

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Mr. D. Veerapathiran
Mr. S. G. Swaminathan

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Coimbatore Builders and Contractors Association

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The Legacy

The Vision

CEBACA has a vision of seeing its nation as a superpower flourishing with ethical values, wealth, and advanced science and technology and it recognizes the importance of education in achieving this vision. It also envisions restoring the nation's ancient glory and promoting harmony among its people through Social and Environmental Well-being.

The Mission

CEBACA's mission is to create an atmosphere that motivates students to pursue their studies by providing training and the necessary infrastructure for schools that lack basic facilities such as classrooms, libraries, labs, sports materials, and toilets. We are also committed to increasing awareness and education on social and environmental issues, including the quality of life of individuals and communities and the importance of conservation, and sustainable living. To help achieve this goal, CEBACA will facilitate public participation and industry support.

The Values



Professional Ethics

At CEBACA Professional ethics is at the core of our value system, it acts as the determining factor to guide the professional behaviour of our member organizations. Integrity, Confidentiality, Competence, Objectivity, Professional Responsibility, and Accountability.



Safety

At CEBACA safety is given priority and importance in all aspects of the organization's operations, culture, and decision-making processes.



Empowerment

At CEBACA Empowerment is one of the foundational pillars of our strategy. We firmly believe in increasing the capacity of our members, staff, and students and helping them make informed decisions and take action to achieve their goals.



Commitment

At CEBACA commitment underlines every action taken by each member and it has contributed immensely to our success over the past decade.



Quality

At CEBACA quality is imperative, it determines every activity undertaken by us.

The Theme

You have to dream, before your dreams can come true.

— Mahatma Gandhi

“Blueprints of Success - The Art of Construction Planning.”

In the realm of construction, the adage “failing to plan is planning to fail” could not be more pertinent. This edition of CEBACA Times, themed “Blueprints of Success - The Art of Construction Planning,” delves into the critical significance of meticulous and strategic planning in the construction industry. The theme underscores how well-laid plans serve as the backbone of every successful construction project, guiding teams from inception to completion.

Construction planning encompasses a broad spectrum of activities, from scheduling and resource allocation to risk management and compliance. It ensures that projects are executed efficiently, within budget, and on time. Effective planning enables construction professionals to anticipate potential issues and devise solutions proactively, thereby minimizing disruptions and maximizing productivity.

Moreover, in an era where sustainability and efficiency are paramount, advanced planning techniques, including the use of Building Information Modeling (BIM) and other digital tools, have become indispensable. These technologies allow for greater precision in planning, with detailed visualizations and simulations that help optimize the use of materials, reduce waste, and ensure structural integrity.

The theme also highlights the importance of collaborative planning. Involving various stakeholders—including architects, engineers, contractors, and clients—in the planning process ensures that all perspectives are considered and that the final plan aligns with everyone’s expectations and requirements.

As we explore various facets of construction planning in this edition, we celebrate the artistry and science behind successful project management. By mastering the art of construction planning, we not only enhance our capability to deliver outstanding projects but also contribute significantly to the evolution and sustainability of our industry. Let this edition serve as a blueprint for success, inspiring innovation and excellence in all your future endeavours.



The Final Countdown

October - March Report

"As we approach the year's end, this section revisits our journey from October to March, chronicling the highlights and key discussions from our Monthly and Executive Committee Meetings. This report offers a retrospective look at our collaborative efforts, strategic decisions, and progress, marking milestones that shaped our association's direction and successes during these pivotal months."



Monthly Meetings October – March



On December 9, 2024, the 7th Monthly Meeting of CEBACA convened at The Coimbatore Cosmopolitan Club, featuring insightful product presentations by VESAT and Reva Doors. Members gathered to explore innovative solutions in solar energy and advanced door systems, enhancing industry knowledge and collaborative opportunities.



The 8th Monthly Meeting of CEBACA took place at The Coimbatore Cosmopolitan Club on January 6, 2025. This session highlighted a product presentation by MASSS Tuff, where members delved into the latest advancements in durable construction materials, fostering discussions on enhancing building quality and sustainability.



The 9th Monthly Meeting convened at The Coimbatore Cosmopolitan Club on March 10, 2025, fostering dialogue and networking among members focused on collaborative growth and industry challenges.

ECM, October - March



The 7th EC Meeting took place at Hash Six Hotels on October 28, 2024, focusing on strategic planning and operational decisions.



The 8th EC Meeting was held at Rathna Residency on November 27, 2024, where key initiatives and future strategies were meticulously discussed.



The 9th EC Meeting convened at Chettinad Court Yard on December 23, 2024, focusing on year-end reviews and setting objectives for the upcoming year.



The 10th EC Meeting was held at CEBACA Tower on January 27, 2025, where leaders strategized on innovations and improvements for the association.

PROJECTS

Academic Panel:



On January 20, 2025, the Civil Engineers On-Site Training Program took place at Kerala Club, featuring Chief Guest Er. G. Ganesh, President of SEAT and MD of RG Associates. His impactful session, titled "Engineering is not about Ideas, it's about making Ideas Happen," inspired attendees with practical insights into bringing engineering concepts to fruition.

Pre-employment Residential Training Program

From February 17-22, 2025, a Pre-employment Residential Training Program was held at KPR Institute of Engineering & Technology, equipping participants with essential skills for their upcoming professional engagements.



Training Panel:



On November 19, 2024, the 3rd Training Panel Programme took place at Chettinaad Court Yard, focusing on critical safety skills. The session covered "First Aid in Accidents & Basic Life Support" and "Safety in Construction Work Sites," equipping participants with essential knowledge to enhance safety on construction sites.



The 4th Training Panel Programme was held on November 29, 2024, at KPR Institute of Engineering and Technology, delivering advanced industry-specific training to enhance the skills and knowledge of participants.



The 5th Training Panel Programme convened at COINDIA Hall, Race Course on March 4, 2025, offering attendees comprehensive training sessions focused on innovative techniques and trends in the industry.



The 6th Training Panel Programme featured the Civil Engineers Technical Updation Programme, providing the latest industry insights and advancements to enhance the professional capabilities of civil engineers.



On March 28, 2025, CEBACA hosted the Edu-Connect Faculty Development Programme at Rathna Residency on Variety Hall Road. This initiative aimed to enhance the skills and knowledge of faculty members, equipping them with innovative teaching methodologies and industry insights to foster academic excellence.

Social Service Panel:



On October 9, 2024, a tree plantation event was hosted at Le Meridien Hotel, demonstrating a commitment to environmental sustainability and community involvement.



On March 12, 2025, CEBACA participated in the Kankeyam Palayam Govt School's opening of its new building, marking a significant milestone in educational development.

Member Service Panel:



CEBACA members experienced an enjoyable tour filled with leisure and adventure.

Events

CEBACA Day



CEBACA Day was joyfully celebrated on October 16, 2024, with members sharing happiness and camaraderie in festive gatherings.

Design Yatra Exhibition



The President and members of CEBACA participated in the inauguration of the Indian Institute of Architects' Design Yatra Exhibition, celebrating World Architecture Day 2024 with inspiring displays and discussions.



On November 8, 2024, CEBACA President SP. Raamanathan inaugurated the new branch of SKY & SKAY AGENCIES, marking a significant expansion in their service reach and capabilities.

On December 7, 2024, Perur Adheenam Thavathiru Ramaswamy Adigalar met with CEBACA office bearers and members, fostering spiritual and communal ties within the construction industry community.



On February 13, 2025, CEBACA hosted a Stakeholders Meet at The Coimbatore Cosmopolitan Club, with 50 members and 40 traders participating in a collaborative session to discuss industry developments and opportunities.



The inauguration of the "One Village, One Banyan Tree" planting scheme, a program celebrating the 24th year of Perur Adheenam's spiritual journey in the ancient Tirutanga village. The event, held on March 20, 2025, with the support of Isha's Cauvery Calling initiative, aims to plant banyan trees in every village across Tamil Nadu. The photograph captures the beginning of this initiative, highlighting the community's involvement in environmental conservation and spiritual celebration.

Celebration Space

KNOW YOUR MEMBER



Mr. D. Sabtharishi

Proprietor, Rishi & Associates

Explore the compelling journeys of CEBACA's members in October's "Know Your Member" section. Uncover personal tales of resilience, creativity, and achievement that showcase the varied skills and contributions of our members, thereby enhancing the fabric of our construction community.

Where did you begin your academic journey?

"My academic path began in the quaint village of Thandalai near Trichy. My early schooling was up to the 3rd standard in the village, after which I transitioned to Ramakrishna Gurukulam until the 10th standard. I pursued my higher secondary education at the Tiruvedagam branch of Ramakrishna Gurukulam."

Why did you choose Civil Engineering?

"Honestly, civil engineering chose me by accident rather than decision. After completing my education, I was unsure about my path and ended up in this field, which turned out to be a blessing in disguise."

When did you find yourself in this field?

I embarked on my professional journey immediately after college, joining Meganathan & Co., where a family friend was employed. There, I began to familiarize myself with the intricacies of Civil Engineering. One of my initial projects was with Karunya Institutions, where I worked until 1991. In 1992, I established my own firm, Ms Rishi Associates, initially securing projects, including building crèches for institutions, through references provided by my mentor. This period was pivotal as it allowed me the freedom to learn and solidify the foundation for my future endeavours."

Who were the people who inspired and influenced you the most?

"Many people have influenced me throughout my career. I am particularly thankful to my clients and mentors who trusted me with varied projects, allowing me to grow and refine my craft continually."

What are some of your notable projects?

"Over the years, I've been involved in numerous projects, from residential buildings involving architectural innovations like cost-effective construction techniques that utilize exposed brickwork without plastering to industrial works with Craftsman Automation Pvt Ltd. Noteworthy projects include the Sakthi Group Institutions, PPG institutions, and Messer Cutting Systems."

What is your advice to entrepreneurs?

"To all newcomers in the field, embrace change, and always prioritize quality over cost. Adapt to trends and focus on building a reputation for excellence."

What is your vision for CEBACA?

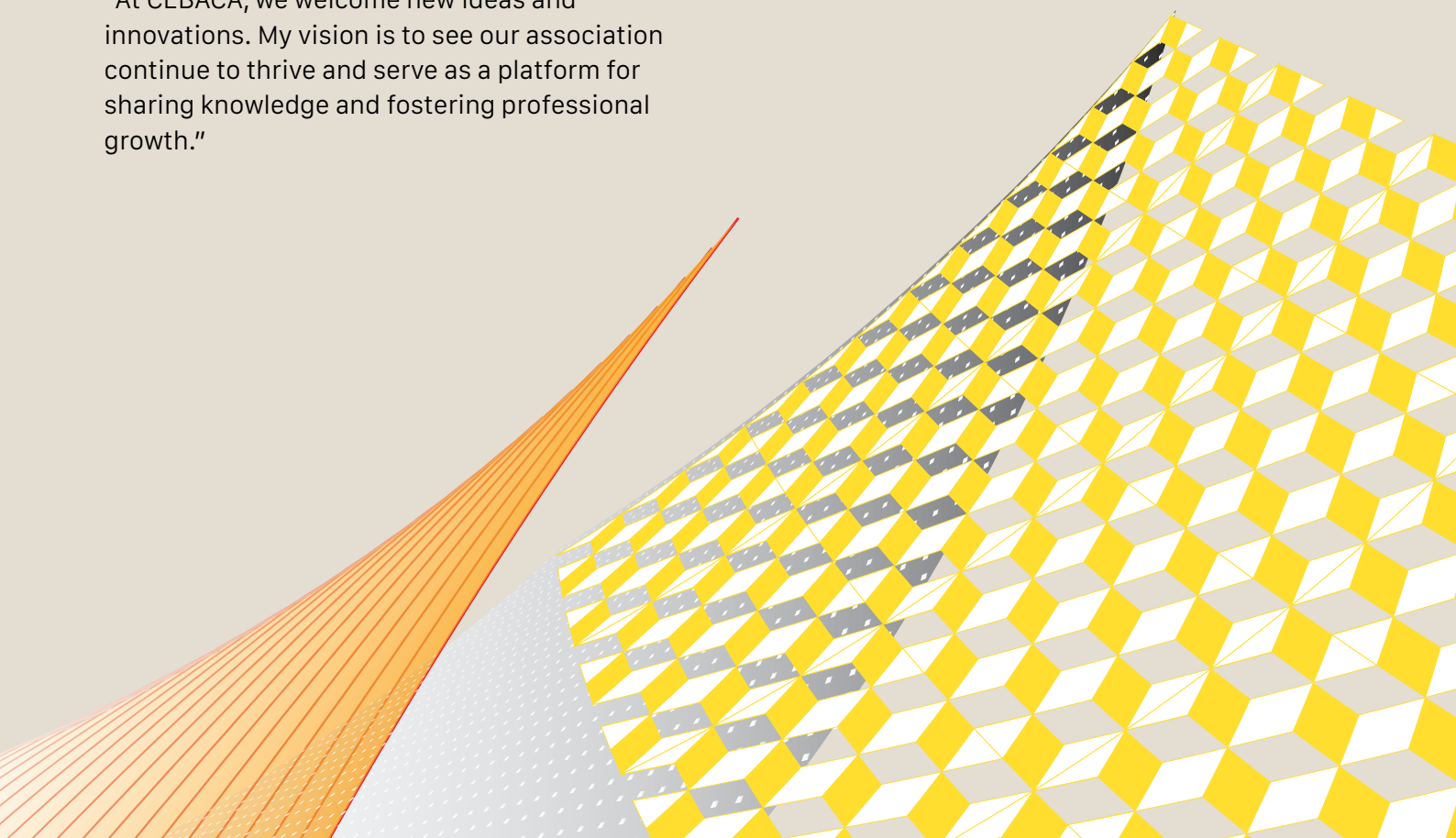
"At CEBACA, we welcome new ideas and innovations. My vision is to see our association continue to thrive and serve as a platform for sharing knowledge and fostering professional growth."

What about your family?

"My wife has been a tremendous support as a homemaker. We are proud of our daughter, who is pursuing her postgraduate degree in Analytics in Australia after an undergrad in Information Technology and a stint as an interior designer. Our son, a graduate from PSG, now works with Tata Steel in Jharkhand."

My life philosophy

"I relish tackling challenging projects; the success of overcoming such challenges is what brings me true joy. My life philosophy revolves around persistence, learning from every experience, and making the most out of every opportunity presented."



Tech Talk

DR. A. SUDHAHAR



Chief Consultant , DIMENSIONS
Chairman – Association of Consulting
Civil Engineers (India), Coimbatore Centre

Phone : +91 98431 53400
Email : constructeasy@yahoo.com

Dear Readers,

This series is a small attempt to understand the nuances of earthquakes, the general principles and related techniques to build earthquake resistant structures. The various parts of this series are a collection of information obtained from various open sources and curated by experience gained through design and execution of various structures and my personal involvement in the rebuilding of the affected areas after the Bhuj earthquake in the year 2001.

However, for a more detailed understanding of the subject, it is recommended that the reader may refer to specialist literature and design monographs on the subject. For ease of understanding, the subject has been dealt with in a question-and-answer format. For more specific queries, the reader may contact the author. Happy learning !

How does a building experience earthquake forces?

Inertial forces:

The ground motion caused by the earthquake will cause the movement of the foundation of the buildings. As a result, the various parts of the building is also dragged along. Depending on the flexibility of the walls / columns , the movement of the various parts such as the foundation, columns, walls and roof are different from each other.

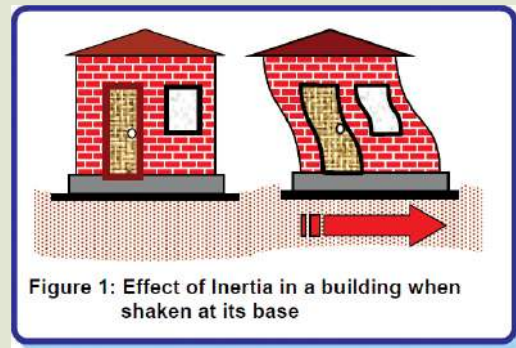


Figure 1: Effect of Inertia in a building when shaken at its base

What would be the magnitude of the earthquake force?

If the roof of a building is considered to be having a mass 'M' and the acceleration of such a movement is 'a', then the force 'F' experienced by the element would be M times the acceleration.

$F = M \times a$ (Refer Newton's second law of motion)

Thus, if the building is lighter, the force experienced by it would be smaller.

What are the effects of deformation in the columns of the building?

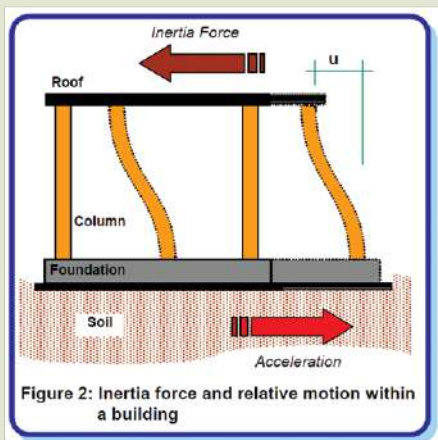
The inertial forces developed by the roof and various elements of the structure is transferred to the ground. This transfer predominantly takes place through the columns. Since the movement between the roof(s) and foundations are different, the columns undergo relative movement between their ends.

The columns have a tendency to remain straight and hence would try to resist the relative movement between its ends and thus would experience forces in accordance to its stiffness. The horizontal earthquake forces carried by the column would hence be negligible and the stiffness forces would be predominant.

If the relative displacement between the ends of the column is considered as 'U' and the stiffness of the column is considered as 'K', then the stiffness force experienced by the column 'Fc' would be stiffness times the relative displacement.

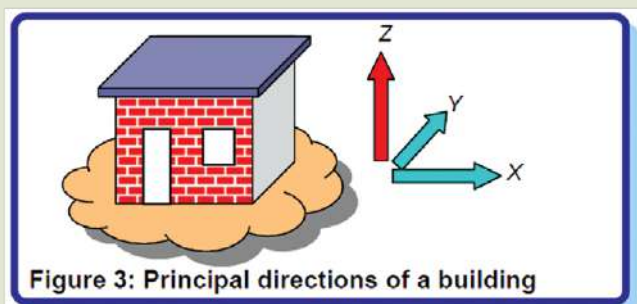
$$F_c = K \times U$$

Thus, if a column is stiffer (larger cross section), it would experience larger stiffness force and resist the displacement.



What are the effects of ground shaking on the building?

During an earthquake, the ground shaking happens in all the directions, resolved into three primary directions (X,Y and Z axis).



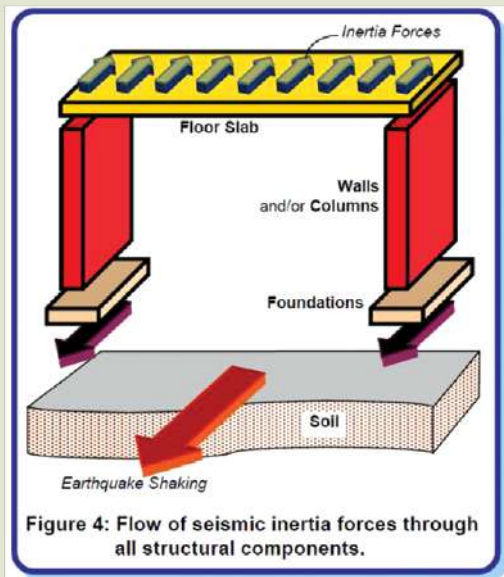
However, it should be understood that these movements happen back and forth and are cyclic in nature. Thus, the inertial forces along the horizontal directions (X and Y axis) are both positive and negative and their magnitude is dependent on the mass and the horizontal acceleration of the ground movement.

The vertical acceleration of the ground motion will add up or subtracts the forces from the gravity forces (which is the Mass of the building multiplied by acceleration due to gravity). Generally, buildings are design to resist the vertical gravitational with adequate factor of safety. Hence, practically the vertical earthquake forces are generally resisted by the structure while the horizontal earthquake forces are the real concern.

How are the inertial forces flowing to the foundation?

Under horizontal shaking of the ground, horizontal inertia forces are generated at level of the mass of the structure (usually situated at the floor levels). These lateral inertia forces are transferred by the floor slab to the walls or columns, to the foundations, and finally to the soil system underneath. So, each of these structural elements (floor, slabs, walls, columns, and foundations) and the connections between them must be designed to safely transfer these inertia forces through them. Walls or columns are the most critical elements in transferring the inertia forces. But, in traditional construction, floor slabs and beams receive more care and attention during design and construction, than walls and columns. Walls are relatively thin and often made of brittle material like masonry. They are poor in carrying horizontal earthquake inertia forces along the direction of their thickness. Failures of masonry walls have been observed in many earthquakes in the past. Similarly, poorly designed and constructed reinforced concrete columns can be disastrous. The failure of the ground storey columns resulted in numerous building collapses during the 2001 Bhuj (India) earthquake.

Resource: IITK-BMTPC



How does the architecture of the building influence its earthquake resistance?

The flow of the earthquake forces to the ground is critical to the stability of the structure. However, the shape, size and geometry of the structure is very critical and basic to achieve satisfactory performance of the building against an earthquake. A poorly configured building, in its architectural form, can only be improved to a certain extent through careful structural design of the elements to overcome the undesirable effects caused by the unfavorable features. Wherein, a building with a good architectural configuration can be easily designed structurally to perform well during an earthquake.

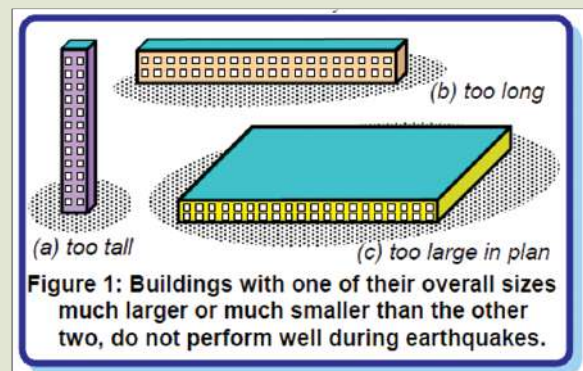
What are the fundamental factors to be considered while designing the architectural configuration of buildings to achieve earthquake resistance?

Size of Buildings:

1. Buildings with large height to base ratio (Tall buildings) will have large horizontal displacements and hence are to be intensively analyzed for structural design.

2. Buildings with large length to width ratio (long buildings) will have a weaker stability along the width and hence would become uneconomical in structural configuration if the weakness has to be overcome.

3. Buildings with very large plans will have more inertial forces due to the large mass of the roof systems. Such plans can be subdivided into smaller blocks.



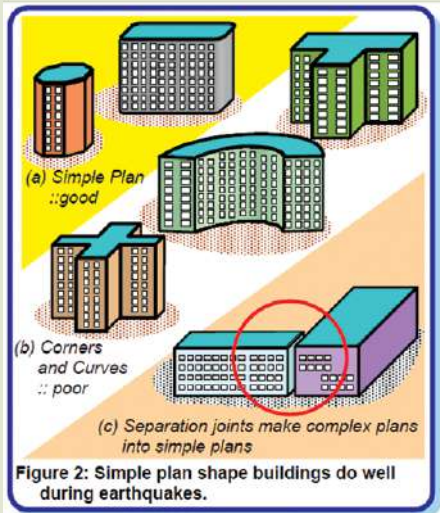
Horizontal layout of the building:

1. Buildings with simple plan configurations perform well during earthquakes. Hence simple geometries such as squares, rectangles or simple polygons should be chosen for the Plan.

2. Re-entrant corners in case of U shaped, L shaped, T shaped or + shaped buildings will undergo significant damages and hence are generally not desirable.

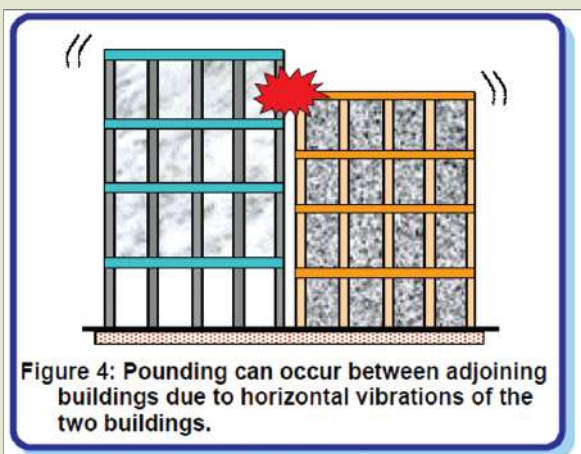
3. In case of such shapes with re-entrant corners are preferred, the same can be subdivided into simpler shapes and designed as individual units.

4. The distribution of columns in the plan also has to be carefully provided to avoid uneven stiffness distribution



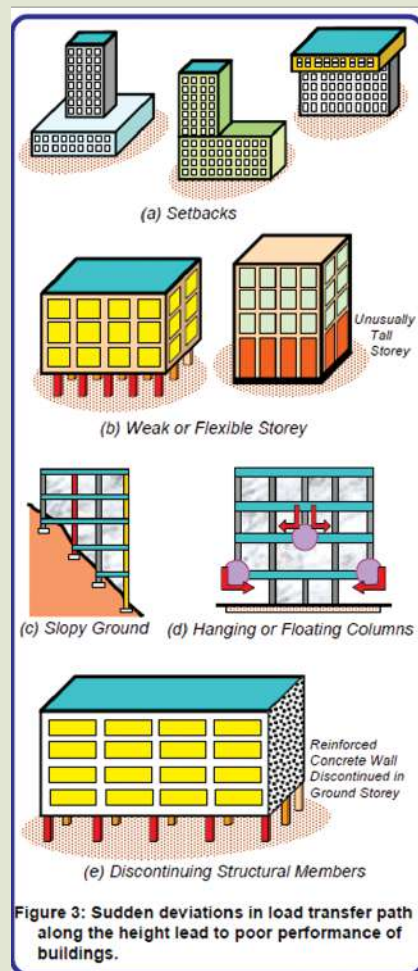
Adjacency of Buildings:

1. When buildings are placed too close to each other, the horizontal displacement of the buildings during an earthquake can create the buildings to collide against each other and hence can produce very large impact forces.
2. The adjacency of buildings should be carefully studied against the displacements and suitable precautions are to be considered during the structural design.
3. The impact of shorter buildings at the mid-height level of taller buildings are considered very impactful and hence



Vertical layout of Buildings:

1. The earthquake forces of the higher floors of a building are transferred to the subsoil through a system of columns which experience stiffness forces. If the vertical configuration is non uniform, sudden jump in earthquake forces will happen at different levels and hence will induce more damaging forces.
2. Such change in plan area at different heights will require a varied stiffness distribution and can create twisting effects on the building
3. Buildings on slopy terrain can have different heights of columns and hence will undergo damages easily
4. Buildings with floating columns will attract more damage at the level of discontinuities and hence should be generally avoided.



Net-Zero Buildings: Guiding the Way Ahead for Sustainable Future



J PREMKUMAR

Principal Consultant,
INFINUSTECH

As the world battles climate change and global warming, sustainability has become a crucial aspect of building design in the past decade. From the materials used in construction to the energy consumption of buildings, sustainability has become a key factor in determining the long-term viability of a project.

As we progress, a more holistic and well-rounded approach to sustainability seems to be taking shape. Nowadays, architects and engineers are not only considering the environmental impact of construction and operation, but also the economic, social, and cultural implications of the built environment. With this ideology, the concept of “net-zero buildings” has emerged as the next big thing in building design.

What is a Zero Energy Building?

Net-zero buildings are structures that produce as much energy as they consume, effectively creating a self-sustaining energy system. They are designed to be energy-efficient, using high-efficiency appliances, lighting, HVAC systems,

and insulation, and to generate renewable energy through the use of solar panels, wind turbines, and geothermal systems. Net-zero buildings aim to reduce their carbon footprint and minimize their impact on the environment. They often incorporate energy management systems to monitor and control energy usage, as well as sustainable materials and passive design strategies to reduce energy demand and improve indoor environmental quality.



The Need for Net-Zero Buildings

The need for net-zero buildings is growing as the world faces the pressing challenge of the climate crisis. With global temperatures rising and extreme weather events becoming more frequent, it is clear that action must be taken to reduce our carbon footprint and mitigate the impacts of climate change. One way to do this is through the creation of net-zero buildings, which can play a critical role in reducing our overall energy consumption and dependence on fossil fuels.

Net-zero buildings are a carbon conscious response to the growing need for sustainability in the built environment. With the construction

industry responsible for a significant amount of the world's greenhouse gas emissions, it is essential that we look for ways to create buildings that are energy-efficient, environmentally responsible, and sustainable. By incorporating renewable energy systems, energy-efficient design, and sustainable materials, net-zero buildings offer a solution to the problem of unsustainable building practices and help to reduce the impact of the built environment on its unbuilt counterpart.



Top 6 Criteria to Design Net Zero Building

The demand for net-zero buildings is speedily increasing across the globe. Architects, Engineers and urban designers are making a conscious effort to innovate designs for creating a sustainable future. Below are the 6 key factors that need to be considered while designing a net-zero building.

Energy Efficiency

To design a net-zero building, it's essential to have a comprehensive understanding of energy efficiency and renewable energy generation. This includes the latest technologies, techniques, and best practices for reducing energy consumption and maximizing the use of renewable energy sources.

Energy efficiency can be achieved through a variety of means, including high-efficiency appliances, lighting, HVAC systems, design strategies, and insulation.

These features help to reduce the amount of energy required to run the building, which in turn reduces its overall carbon footprint.

Passive Design Strategies

An essential element of net-zero buildings is the incorporation of passive design strategies that reduce energy demand and improve indoor environmental quality. These strategies include the use of natural light, ventilation, and shading to control temperature and improve air quality. They also often feature green spaces, such as rooftop gardens, which can improve air quality, reduce urban heat islands, and provide additional energy benefits through the use of shading and insulation.

Renewable Energy Generation

A building must produce as much energy as it consumes for achieving net zero energy. This is typically achieved through the use of renewable energy sources, such as solar panels, wind turbines, and geothermal systems. These systems generate clean, renewable energy that can be used to power the building and reduce its dependence on the grid and fossil fuels. The use of multiple renewable energy sources can also provide a more resilient and stable energy supply, ensuring that the building remains net-zero even in the face of changing weather conditions.

Smart Energy Management Systems

Net-zero buildings also often incorporate energy management systems, which allow the building's energy usage to be monitored and controlled. These systems can be used to track energy consumption and production, optimize energy usage, and ensure that the building remains in balance.

By using data from these systems, building owners and managers can make informed decisions about energy usage and make changes to improve efficiency and reduce costs.

Sustainable Materials

Sustainable materials are naturally available in the environment or are made from recycled resources. They typically have a lower carbon footprint throughout their lifecycle in comparison to conventionally-used materials. This includes materials used for construction, as well as products used within the building, such as furniture, flooring, and paint. The use of sustainable materials can also improve indoor air quality, enhance durability and longevity, and increase occupant comfort. For example, using low-emitting materials such as low-VOC (volatile organic compounds) paint and adhesives can help to reduce indoor air pollution.

Adaptive Reuse

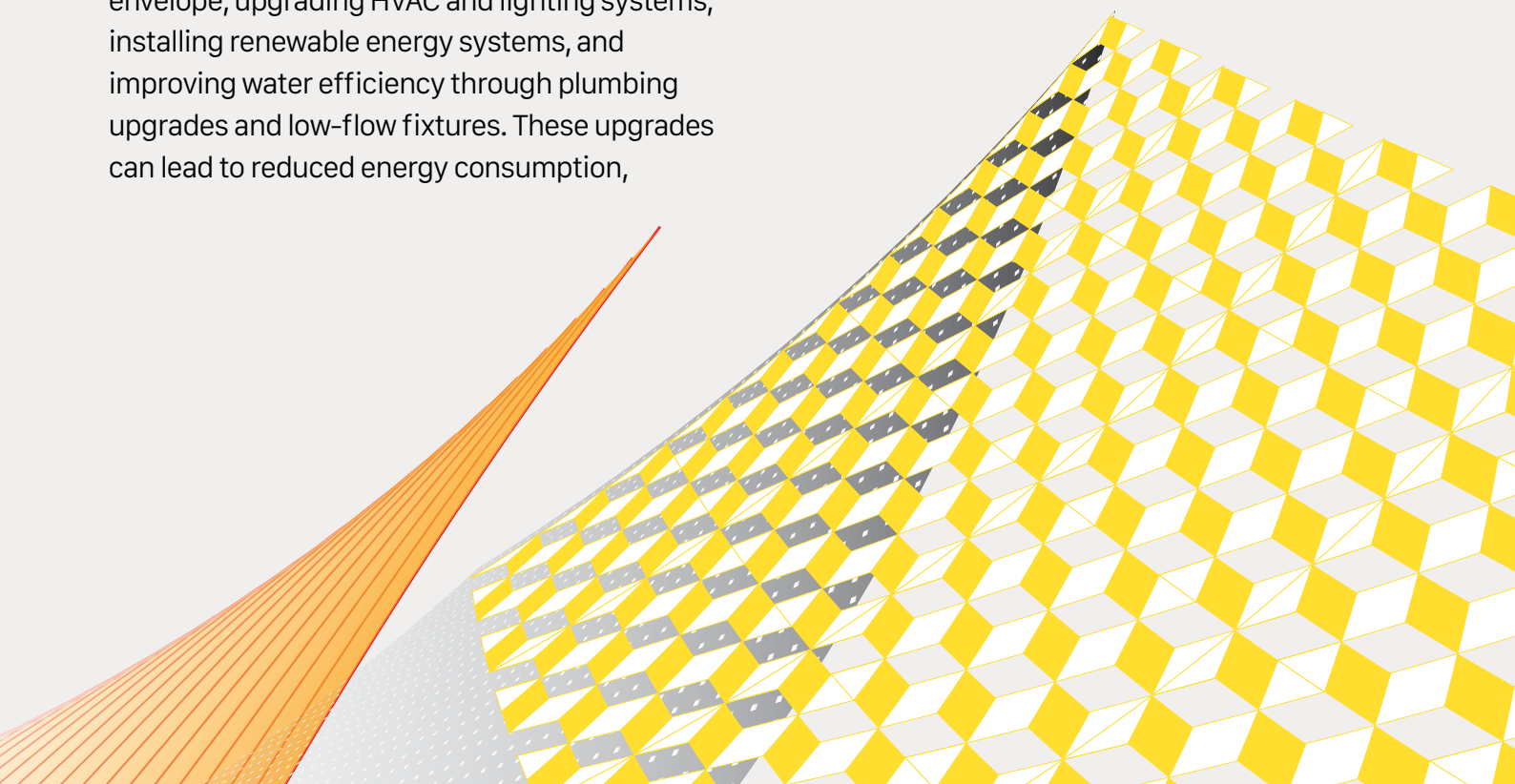
Adaptive reuse involves retrofitting existing structures to create net-zero buildings. This approach involves improving the building envelope, upgrading HVAC and lighting systems, installing renewable energy systems, and improving water efficiency through plumbing upgrades and low-flow fixtures. These upgrades can lead to reduced energy consumption,

improved heating and cooling efficiency, clean energy generation, and improved water efficiency. The result is a net-zero building that is energy-efficient and environmentally friendly.

In Conclusion

Net-zero buildings are an effective solution to address the challenges of a rapidly degrading environment. By reducing energy consumption and increasing renewable energy generation, they help to mitigate the impacts of climate change and create a more sustainable future.

If you want to create sustainable buildings, computational design tools can be of great help. It aids in the creation of net-zero buildings by enabling architects and engineers to optimize the design, energy consumption, and overall performance of a building.





Make your walls speak with our bricks

ஸ்ரீ அண்ணாமலையார் சேம்பர்ஸ்

அன்பார்ந்த வாடிக்கையாளர்களே

- ★ இந்தியாவிலேயே முதல் முறையாக **WASHING METHOD** முறையில் மண்ணை சுத்தம் செய்து உயர்தர செங்கற்கள் உற்பத்தி செய்யப்படுகிறது.
- ★ எங்களின் கற்கள் உயர்தர தொழில்நுட்ப இயந்திரங்கள் உதவியுடன் **WIRECUT** முறையில் சரியான வடிவத்தில் சரியான எடையில் மற்றும் நல்ல நிறத்துடன் உற்பத்தி செய்யப்படுகிறது.
- ★ எங்களிடம் கற்களை செட்டில் வைத்து மின்விசிறிகள் மூலம் உலர வைக்கும் வசதி உண்டு.
- ★ எங்களிடம் உரிய நேரத்தில் உரிய இடத்தில் முதல் மாடி வரை ஏற்றி டெலிவரி செய்து தரப்படும் வசதி உள்ளது.
- ★ வருடம் 365 நாட்களும் சப்ளை செய்து தரப்படும்.

- ★ கல் உற்பத்தி செய்தல்
- ★ கற்களை உலரவைத்தல்
- ★ கற்களை அடுக்குதல்

- ★ கற்களை முதல் மாடி வரை ஏற்றி தரும் வசதி உள்ளது.



புளியம்பட்டி/ பழனி/ திண்டுக்கல் மாவட்டம்



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Member's Feat:

SHILP DESIGN COMPETITION



Ar. Dharuniesh Palaniswaamy

Partner, Palaniswamy and Company

Principal Architect, Dharuniesh Architects

Winner- SHILP Design Competition, Young Architects Festival 2025

The "Kudaivarai MWH- The Eternal Sculpt" was adjudged as the winner and felicitated on the final day of the YAF Event on 9th February, 2025 by the National President of the Indian Institute of Architects, Ar. Vilas Vasant Avachat. Brief Summary of the competition

Introduction

The SHILP Design Competition, part of Young Architects Festival 2025 (YAF), is a prestigious national-level, open, one-stage competition that sought visionary architectural solutions for a Sustainable MICE and Wellness Hub in Mahabalipuram, Tamil Nadu. This winning project embodies the principles of Indian Knowledge Systems (IKS) and modern sustainability, aligning with the YAF's theme: Transcend, Transform, and Together.

Context– Mahabalipuram

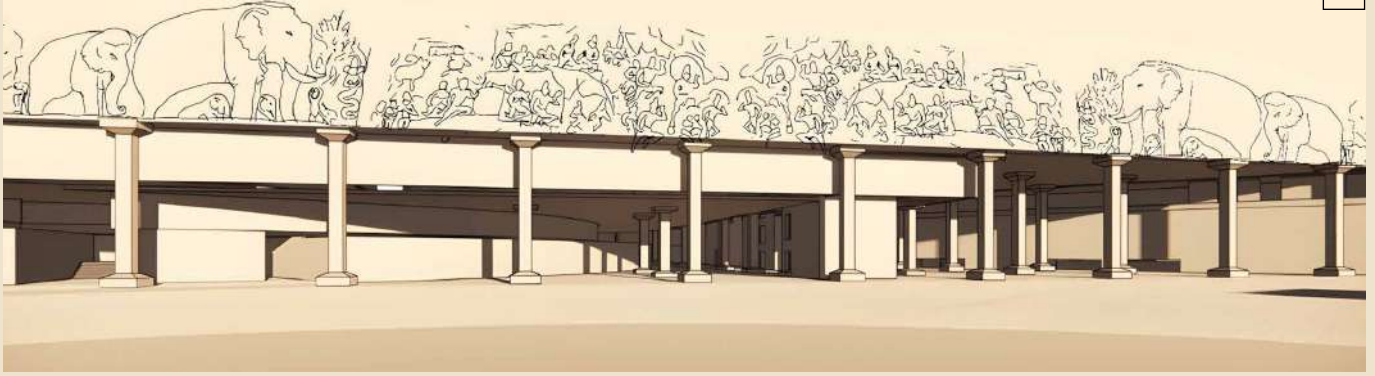
Mahabalipuram, a UNESCO World Heritage Site, is renowned for its Pallava-era rock-cut temples and coastal ecology. This project successfully integrates historical contemporary conservation sustainable architecture, creating a model for eco-tourism and responsible development.

Objectives & Design Approach

The SHILP competition aims to select concept designs for a MICE and Wellness Hub proposed by the TTDC in PPP model at Mahabalipuram. Synergy– Harmonizing spaces for seamless functionality. Transcend - Pushing design boundaries through innovation and sustainability. Transform– Ensuring adaptability for future needs. Together - Encouraging collaboration among tourists, businesses, and locals. IKS & SDGs– Blending Indian architectural traditions with Sustainable Development Goals (SDGs). Environmental Synergy– Implementing nature-based solutions for energy, water, and biodiversity conservation.

Spatial requirements

This proposal requires the design to include the following spatial requirements apart from the other spaces which the Architects might deem to be necessary for the context:- Convention Center for conferences, exhibitions, and cultural events. Wellness facilities integrating Yoga, Ayurveda, spa, and accommodations (100 keys). Sustainable infrastructure with renewable energy, water recycling, and waste management systems. Coastal ecosystem preservation through green infrastructure and biodiversity strategies.



Evaluation Criteria

The jury assessed designs based on Innovation and originality, Sustainability and environmental impact, Integration with Mahabalipuram's cultural heritage, Functionality and adaptability and Quality of architectural spaces and materials.

Competition Timeline and Jury process

The competition launched on 25th Nov 2024, with a deadline of 16th Jan 2025. Shortlisted entries presented on 8th Feb 2025 at the YAF Event, with 45 minutes for design presentations and Q&A with the jury and delegates.

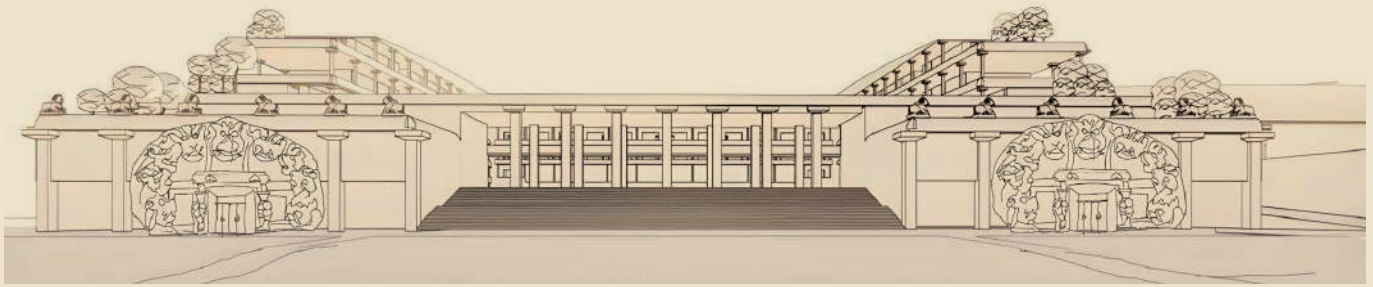
Vision and Mission

Mahabalipuram is famed for its rock-cut architecture, envisioned by the Pallavas and crafted by Sthapathis. The Kudaivarai style, carved from granite, reflects its rich heritage and enduring craftsmanship. The region also hosts the Mahabalipuram Annual Dance Festival against these historic monuments. The proposed MICE and Wellness Hub, next to the Shore Temple, will feature world-class infrastructure with stunning views of the Temple and Bay of Bengal. The project aims to preserve the area's historical significance, enhance biodiversity, and support sustainable development. The 'Kudaivarai-MWH' will embody the essence of rock-cut architecture using modern techniques, with careful attention to surface finishes and details. It will also reflect local cultural elements designed by the Sthapathis. The facility will attract international events, including the Mahabalipuram Annual Dance Festival, with flexible spaces for

interaction between locals, tourists, and business visitors. The 'Kudaivarai-MWH' explores developing a world-class MICE facility, drawing insights from the Mahabalipuram Master Plan by L&T and PwC for MoT and TTDC under Swadesh Darshan 2.0. By integrating the themes of Transcend, Transform, and Together into a cohesive design approach, the project aims to create a vibrant ecosystem that fosters innovation, collaboration, and environmental stewardship, setting a new paradigm for MICE and development in Southern India.

Concept and Goals

The design focuses on creating a synergy that fosters collaboration and community, emphasizing the importance of togetherness. It integrates traditional Indian values, drawing from the rich knowledge systems of the past, while also designing with environmental synergy by aligning with nature for sustainability. The concept of transcend encourages pushing the boundaries of innovation and knowledge, seeking to set new standards in both architecture and functionality. Transform highlights the need for flexible spaces that can adapt to evolving needs and challenges, ensuring the facility remains relevant over time. Finally, the transition of spaces is thoughtfully considered, with a focus on seamless flow and clear space definition, creating dynamic environments that evolve and cater to various functions and interactions. This holistic approach aims to blend tradition with modernity, fostering a forward-thinking, community-centered space.



Master plan and Design

Site Area: 32.5 acres Build-up Area: 4,65,000 sq. ft. Situated near the UNESCO-listed Shore Temple, the site features the Bay of Bengal to the east, barren land to the south, and Sculpture museums, Government Offices to the west. The design ensures contextual harmony, with two key axes oriented toward the Shore Temple and the sea, maximizing scenic views. The layout guides visitors seamlessly from the entrance and parking, which also serves Shore Temple visitors. Public spaces occupy the lower levels while more private areas are placed above. The expo area in the south is planned for future expansion, and shopping and dining spaces connect various zones which fosters interaction between tourists, business visitors, and locals. The existing street shopping space is preserved, with new structures enhancing the experience. The Adventure Sports block offers various activities, including surfing at the renowned East Coast spot. The monument carvings reflect the lifestyle and beliefs of their era; the new design will similarly showcase the region's contemporary culture while maintaining the same architectural style. The complex offers diverse amenities for business visitors, tourists, and locals, allowing for high customization to host tailored events and festivals.

Key aspects of the Design

This project integrates best practices from regional Indigenous Knowledge Systems (IKS) and international sustainability standards for long-term viability. Key features include IoT-based HVAC and lighting, smart parking, EV charging, energy-efficient fixtures, rooftop solar, rainwater harvesting, wastewater treatment & reuse, bio-waste treatment, and waste and energy audits. Our design includes a weather warning system and an on-site fire rescue team for adventure sports and local community safety. Surface finishes evoke rock-cut spaces using modern materials, while repurposed shipping containers for street shopping and cafés align with sustainability goals and regulations. The design prioritizes indigenous tree conservation, selective replanting, and strategic placement for wind barriers, shading, and landscaping, with excavated topsoil reused to reinforce environmental efforts. Natural lighting and ventilation are maximized, with IoT-controlled HVAC and lighting adapting to the crowd movement and weather changes. Community engagement is central, involving traditional sculptors (Sthapathis) and local workforce training. The project enhances tourism, serves as an international MICE venue, creates jobs, and fosters a positive social impact.

Sincere Gratitude!

First and foremost, I extend my heartfelt gratitude to my parents, my Gurus, God, saints, family, friends and wellwishers for guiding me to where I am today and where I will go next. I express my gratitude to everyone who has had a significant impact—both directly and indirectly—on this path, without whom I might not have reached this milestone.

I express my deepest gratitude to my paternal family, particularly my grandfather, the late Mr. Velusamy, my grandmother, the late Mrs. Suppathaal (whom I never met in life), and my parents, Mr. V. Palaniswaamy and Mrs. P. Velumani. I am equally grateful to my maternal family—my grandfather, the late Mr. A.K. Samiappan (whom I never met in life) and my grandmother, Mrs. S. Lakshmi—whose lives have served as profound guidebooks of values, continuously shaping me into a better human being in society.

A special note of gratitude goes to my paternal great-uncle, Er. K.K. Palaniswamy, and my father, the founders of our firm, under whose leadership we have successfully completed 43 years in the private construction sector. Their strong foundation and professional values have been instrumental in my growth, allowing us to build a reputable clientele in a highly competitive field. The bond I share with the company and our PAC family dates back to my childhood, making this journey even more special.

I sincerely thank every member of our firm—construction laborers, civil engineers, architects, staff, and senior management—who have contributed, big or small, at various stages of the firm's journey. I regret that I may not know every individual who has been a part of the firm's past, but I deeply appreciate each of their efforts in shaping its legacy and success. I am deeply grateful to Ar. Venkatesh, my dear college friend and our project architect, whose contributions played a pivotal role in completing this competition work.

I extend my heartfelt appreciation to our construction and architectural clientele as well as the architects of our construction projects we have collaborated, for their unwavering support and guidance. I am equally grateful to our consultants and vendors for their valuable partnership journey.

A sincere thanks to the IIA for its ongoing efforts in advancing architecture, including initiatives like YAF 2025. Special Appreciation to the Sponsors for the YAF 2025: Havells, Kone, NCL Buildtek Ltd, Nexion, Guntupalli, Roca, Saint Gobain, URC, Elite Contractors (Chennai) pvt ltd and Fenesta.

I am deeply grateful to the institutions that have shaped my thoughts and life—GRD, St. Jude's Public School and Junior College and Sasi Creative School of Architecture—for their unwavering support and encouragement. I extend my heartfelt appreciation to all my professors for their invaluable guidance throughout my journey, with a special mention to my former Dean, Dr. Mohammed Ali Sharieff, and Ar. Nachiketha . B . Phathanjali, whose mentorship has been instrumental during college and beyond. I am also grateful to Team3, New Delhi, and Chitale & Sons, Chennai, for the invaluable professional knowledge they imparted to me.

Cebaca has been instrumental in shaping me as a professional, and I thank the Cebaca family members for their encouragement which has been a true blessing. I am also incredibly fortunate to have some of the Cebaca members as my architecture clientele, for which I am truly grateful.

To everyone who has celebrated my successes and encouraged me through challenges, I am deeply thankful. With a vision to expand our horizons in this field, I embarked on this architectural journey to explore diverse aspects of design.

I sincerely hope you all experience the joy I felt while designing and winning this project, wishing you immense success and fulfillment in all your future endeavors.

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Residents Welfare Associations (RWAs) are the key bearers of community management, which focuses on creating harmonious living among the residents. But to address the various needs of a residential community either they employ local available skills and manage on their own or they have to resort to the services of the professional Facility Management (FM) Companies. But with the introduction of new age technologies in "Smart Buildings" and with the modernisation of electrical & plumbing systems the complexities have become multifold which is necessitating the move towards FM companies. Some basic urban challenges / needs in this new age :

- 1) Managing Blue collared workforce and ensuring timely services

- 2) Workforce skill challenges which necessitates regular training & development
- 3) Proactive / Preventive / systematic maintenance failure resulting in unwarranted expensive repairs / breakdowns
- 4) Water / STP treatment plants, water management, Lift, CCTV has regular monitoring needs which is adding complexities technically
- 5) Monitoring compliance – EB bills, Lift licences, Fire licences, Water quality reporting, waste disposal, insurance timely renewal, Parking management etc
- 6) Dependency on skilled workforce, controlling absenteeism/timely refilling resources is a big challenge
- 7) Inventory management of various assets (tubelight, valves, motors etc) especially in a big community
- 8) Organising Festive season get togethers needs planning & flawless execution

The Importance of Residential facility management

Residential Facility Management is not simply about housekeeping / security maintenance only; it is how the residents live in a secure, hygienically clean and comfortable environment. Through the provision of security services, maintenance of property and other relevant services, Facility Management Companies exclusively focus on the all aspects of facility requirements of residential communities. They specialise in Building Management Systems and that lets them properly coordinate different facilities and optimise energy consumption.

Customised services for diverse communities

Residential communities may be large or small, inhabited by people of different ages and with different requirements. Facility Management Companies are in a position to serve and respond to the requirements of each community depending on the problems encountered. For instance, a giant apartment compound may have to incorporate security and surveillance measures of the higher level, while a comparatively compact residential complex may aim at a greater number of green zones and playgrounds. These companies work to ensure that they meet the needs of the different communities by providing customised services that will improve the quality of life.

Sustainability measures in the management of residential facilities

Also sustainability is gradually emerging as an important factor in society and hence Residential Facility Management is getting a facelift in this aspect. These are such things as energy-efficient Building Management Systems, waste minimization measures and water-saving measures. Through this way, the Facility Management Companies also ensure that their operations are environmentally friendly while at the same time enabling the RWAs to cut down on costs of utility.

Improving Communication and Public Relations

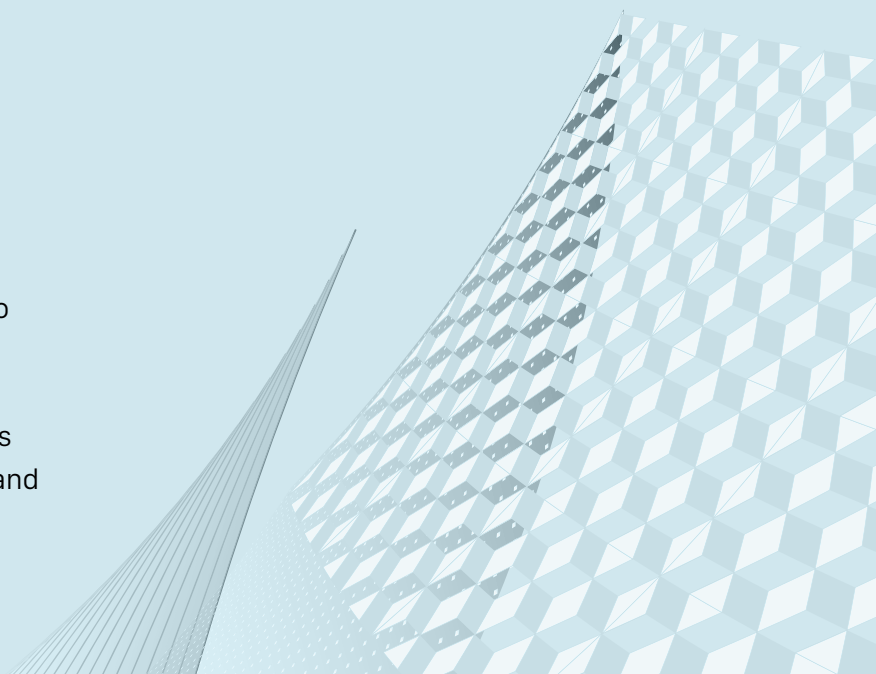
Communication is one of the most important aspects that define how well a residential community is managed. Some of the Facility Management Companies have adopted the use of technology products that enable residents to report matters of concern, report maintenance issues and even receive updates on matters concerning the common areas. These platforms increase openness and bring people together, and residents feel that they are part of something.

BMS (Building Management systems) is used by facility management companies to manage residential buildings to minimize energy use and improve the comfort of occupants.

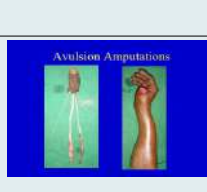
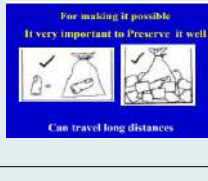
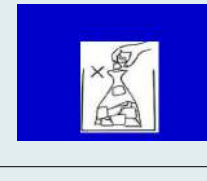
RWAs and Facility Management Companies are critical for the sustenance of good residential communities. Companies in the Residential Facility Management industry understand the needs of the residents, and thus the environment is made safe, sustainable and comfortable for habitation.

At UPSFM, we manage 50+ Residential communities in Chennai varying from 150 - 2500 unit communities (total of 15000+ homes) & know the kind of problems faced by the Resident Welfare Associations in the management of residential complexes. Overall we have a team strength of 3000+ strong team across all sectors & regions. Our specific Residential Facility Management solutions aim at improving the community's living standards by offering a wide range of solutions including state-of-the-art BMS and green solutions.

Visit www.upsfm.com to find out how we can assist your community in providing the best standard of living to its inhabitants.



Principles of First Aid

	Basic Principles of First Aid: • Preserve Life: Ensure that the person is alive and prevent the situation from worsening. • Prevent Further Harm: Avoid aggravating the injury, and if possible, move the injured person away from danger. • Promote Recovery: Help stabilize the person's condition until professional medical help arrives.		
			
	Triage is the process of sorting and prioritizing patients based on the severity of their injuries or medical conditions, ensuring that those who need urgent care receive it first. It's particularly important in situations where there are multiple casualties, such as accidents or disasters. In first aid, triage helps you make quick decisions to provide the best possible care when resources (like time, medical personnel, or supplies) are limited.		
	Bleeding control is essential for preventing shock, infection, and death from excessive blood loss. Promptly applying pressure, controlling the wound, and monitoring the person's condition can greatly improve their chances of recovery. Always call for medical help in severe cases. • Minor Cuts: Clean with water, apply pressure with a sterile bandage, and elevate the area. • Severe Bleeding: Apply direct pressure to the wound with a clean cloth or dressing. If the bleeding doesn't stop, apply more pressure or use a tourniquet above the wound (for limbs). • Internal Bleeding: Keep the person still, and seek emergency medical help immediately Minor Bleeding: • Apply pressure to the wound with a clean cloth or sterile bandage. • Elevate the injured area to reduce blood flow. Severe Bleeding: • Apply direct pressure with a clean cloth. • If bleeding doesn't stop, apply more cloths and pressure (don't remove the first one). • Elevate the injured limb. • Seek immediate medical attention.		
			
			
First Aid Do's in Case of Amputation: 1. Do Call for Immediate Medical Help 2. Do Control Bleeding 3. Do Keep the Amputated Part Safe 4. Do Preserve the Amputated Part's Condition 5. Do Elevate the Limb (if possible and safe) 6. Do Reassure the Victim 7. Do Keep Monitoring the Person		First Aid Don'ts in Case of Amputation: 1. Don't Attempt to Reattach the Amputated Part Yourself 2. Don't Apply Ice Directly to the Amputated Part or the limb. 3. Don't Remove the Amputated Part from the Clean Cloth 4. Don't Delay Seeking Medical Help 5. Don't Attempt to Stop Bleeding with a Tourniquet Unless Absolutely Necessary 6. Don't Let the Victim Move Around Too Much 7. Don't Delay Transportation	
			

 	Steps to Transport an Amputated Part: 1. Ensure Safety First: • Make sure the area is safe before helping the injured person (e.g., away from traffic, electrical hazards, or other dangers). • Call for emergency medical help immediately. Inform them about the amputation so they can be prepared for reattachment. 2. Control Bleeding (on the person): • Apply direct pressure to the wound using a clean cloth, sterile dressing, or bandage to control bleeding. • Elevate the affected limb if possible, unless it causes more pain or damage. 3. Wrap the Amputated Part: • Rinse (if possible) the amputated part with clean water (only if it's visibly dirty, avoid scrubbing). Don't immerse the part in water. • Wrap the amputated part in a clean, sterile dressing or gauze. Use a clean cloth if sterile gauze is unavailable. 4. Place the Part in a Plastic Bag: • Place the wrapped amputated part in a clean, waterproof plastic bag or similar airtight container. • Do not place the part directly in ice. Ice can damage the tissue and hinder reattachment. The part must stay cool but not frozen. 5. Cool the Amputated Part (with ice): • Place the plastic bag or container with the amputated part in another bag or container filled with ice and water. • Make sure the ice is surrounding the bag but not in direct contact with the amputated part. • Do not put the part directly on the ice, as this can cause frostbite to the tissue. 6. Label and Transport: • Label the bag (if possible) with the person's name, time of the injury, and the amputation site (e.g., left arm, right leg).
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 	• Transport the amputated part to the hospital as quickly as possible. Keep the part cool (but not frozen) during the transport. Fractures & Sprains: • Fracture: Immobilize the injured area (splint it if possible), avoid moving the person, and seek medical help immediately. • Sprains/Strains: Use the R.I.C.E method: • Rest the injured area. • Ice it to reduce swelling. • Compression with a bandage. • Elevation to reduce swelling. Splinting is a technique used in first aid to immobilize an injured body part, typically a limb, to prevent further injury and to reduce pain while waiting for professional medical help. Splinting is most commonly used for fractures (broken bones) and sprains (ligament injuries), as well as dislocations.
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In a first aid situation, if a splint is needed to immobilize a fracture, you can use various materials that are available. Here are some things that can be used for splinting:

1. **Wooden Sticks or Branches** - Find a straight stick or branch, ensuring it's long enough to extend above and below the injury. Secure it with cloth, bandages, or any available strips of fabric.
2. **Cardboard** - Cut a piece of stiff cardboard large enough to immobilize the limb. Secure it tightly with cloth or strips of material.
3. **Clothing (Shirts, Jackets, Towels, Scarves)** - Fold clothing items like shirts, towels, or scarves into a thick, padded shape. Wrap them around the injured limb and secure with bandages, belts, or strips of fabric.
4. **A Metal Rod, Pipe, or Any Rigid Object** - Find a metal rod, pipe, or any rigid object that is straight and long enough to extend above and below the fracture. Secure it with cloth or bandages.
5. **NEWS Paper, Magazine or Book** - Stack a couple of magazines or a book to form a rigid structure. Use bandages or clothing to secure it around the fractured limb.
6. **Plastic or Styrofoam Sheet** - Cut or shape a piece of plastic or Styrofoam into a splint that fits the injured limb. Secure with cloth or strips.
7. **Pillow (for Arm or Leg)** - Place a soft pillow around the limb, padding it and keeping it from moving. Secure it with cloth, belts, or strips.
8. **Canoe Paddle, Ski Pole, or Broomstick** - These objects can be used as a straight, rigid splint. Place it on the injured limb and secure it using fabric, bandages, or strips.

9.

10. **A Belt or Rope** - After placing the splint, use a belt or rope to help tie it around the injured area. Ensure that it is snug, but not too tight to restrict circulation.
11. **Elastic Bandages (e.g., Ace Bandage)** -After placing the splint, wrap the elastic bandage around the splint and injured area to hold it in place. Be careful not to wrap too tightly.
12. **Tape (Duct Tape, Medical Tape)** - Tape can be used to secure a splint made from sticks, cardboard, or clothing. Ensure it doesn't cut off circulation.
13. **Cotton or Cloth Pads** - Use soft cloth or cotton pads to cushion the splint, preventing it from pressing too hard on the skin or the fracture site.



Removing a helmet should be done cautiously and only when absolutely necessary for medical reasons. Always prioritize **spinal stability** and call for help as soon as possible if there are signs of severe injury.

Helmet Removal (in Two People)

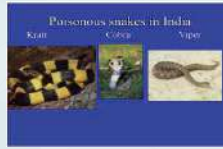
- Position yourself at the head of the injured person.
- One person (you) should gently hold the person's head and neck in alignment, making sure not to rotate or tilt the head.
- The other person should gently lift the back of the helmet, tilting it slightly backward and then slowly moving it upward and forward off the person's head. This should be done as one fluid motion without jerking.
- If the helmet is stuck, do not force it. Gently wiggle it or have a second person help adjust it.

Helmet Removal (If Alone)

- If you're alone, stabilize the head and neck with one hand while loosening the chin strap.
- Carefully lift the helmet from the back and gently tilt it forward to remove it, being mindful of any movement of the neck or head.
- **If the helmet feels stuck, do not attempt to force it off. Instead, leave the helmet on until help arrives, unless the person's airway is obstructed or they need CPR.**

Choking 		Choking: • For Adults and Children over 1 year: Perform the Heimlich maneuver (abdominal thrusts). • For Infants under 1 year: Give 5 back blows followed by 5 chest thrusts.
	If alone 	The Heimlich maneuver (also known as abdominal thrusts) is a first aid procedure used to help clear a person's airway if they are choking. It is performed when someone's airway becomes obstructed by a foreign object, such as food or an object, and they are unable to breathe, speak, or cough effectively. The goal of the Heimlich maneuver is to force air from the lungs to expel the object blocking the airway. It can be lifesaving in an emergency situation when the person is unable to dislodge the object themselves.
Burns:  superficial	Burns: • Minor Burns: Run cool water over the burn for 10-15 minutes. Apply a sterile dressing and avoid applying ice directly. • Severe Burns: Call emergency services. Do not remove burnt clothing. Cover the burn with a clean cloth or dressing. • Electrical Burns: Cut off power and avoid touching the victim until you're sure they're not in contact with the source of electricity.	
	Burns • Minor Burns (1st degree): • Cool the burn with running cool (not cold) water for 10–20 minutes. • Cover with a sterile dressing or clean cloth. • Avoid applying ice or ointments. • Severe Burns (2nd and 3rd degree): • Do NOT remove burnt clothing stuck to the skin. • Cover the area with a clean cloth or sterile dressing. • Seek medical help immediately. • Avoid using ice or ointments.	
First Aid in Burns  Pour water		

  	How to Minimize Electrical burns Risks: • Immediate medical attention is crucial, even if the person seems to be "okay" after the incident. Many risks, like heart issues or nerve damage, may not be immediately obvious. • Proper burn care (cleaning, dressing, and monitoring for infection) can help prevent complications. • Rehabilitation (physical therapy, psychological support) may be required to help the person recover both physically and emotionally from the trauma of the burn. The best prevention is avoiding electrical hazards - use proper safety equipment, follow guidelines, and never handle electrical equipment without proper training. • Electrical burns often cause internal damage that isn't visible immediately. Burns can also result in cardiac arrest, so fast intervention is critical. • People who experience electrical burns are at risk for long-term complications, including nerve damage and loss of muscle function. 
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		SNAKE BITE FIRST AID 1. Stay Calm and Get Help • Keep the victim as calm and still as possible. • Call emergency services immediately. Time is critical. 2. Keep the Affected Limb Immobilized • Keep the bitten area below the heart level. • Stay still. 3. Remove Tight Clothing or Jewelry 4. Clean the Bite Area (if safe to do so) • Do NOT wash the bite area, as this could interfere with identifying the type of snake . • Do NOT try to suck out the venom, 5. Keep Track of Symptoms • Look for signs of swelling, bruising, dizziness, nausea, or difficulty breathing. • Note the time of the bite.
		6. Do NOT Try to Capture or Kill the Snake • Don't risk another bite or exposure to venom. 7. Monitor Breathing and Circulation • If the person is unresponsive or not breathing, be ready to perform CPR if you are trained. 8. Stay as Still and Calm as Possible Until Help Arrives • The victim should lie down with their head lower than their chest if they feel faint or dizzy. 9. Transport to a Hospital • Antivenom is often required, so it's critical that the victim be transported to a hospital with the right medical equipment and expertise.

Water is Life

தண்ணீர் வாழ்க்கையின் அடிப்படை

Er. Udayanand, MRICS

It is a precious Natural Resource.

இது விலைமதிப்பற்ற இயற்கை வளம்.

It is required for the existence of the life on Earth as it is an essential component of all the biological process.

இது அனைத்து உயிரியல் செயல்முறைகளின் இன்றியமையாத அங்கமாக இருப்பதால், பூமியில் உள்ள உயிரினங்களின் இருப்புக்கு இது தேவைப்படுகிறது.

65% of our body is water and 90% of plant tissue is water.

நமது உடலில் 65% நீர் மற்றும் 90% தாவர திசுக்கள் நீர்.

Water defines our environment and shapes our landscape.

நீர் நமது சூழலை வரையறுக்கிறது மற்றும் நமது நிலப்பரப்பை வடிவமைக்கிறது.



Each person on earth requires a minimum of 20-50 liter of water per day, but many people do not have access to it.

பூமியில் உள்ள ஒவ்வொரு நபருக்கும் ஒரு நாளைக்கு குறைந்தபட்சம் 20-50 லிட்டர் தண்ணீர் தேவைப்படுகிறது.

Water defines our environment and shapes our landscape.

நீர் நமது சூழலை வரையறுக்கிறது மற்றும் நமது நிலப்பரப்பை வடிவமைக்கிறது.

“ WATER IS THE DRIVING FORCE OF ALL NATURE”.

— LEONARDO-DA-VINCI.

"நீர் அனைத்து இயற்கையின் உந்து சக்தி".

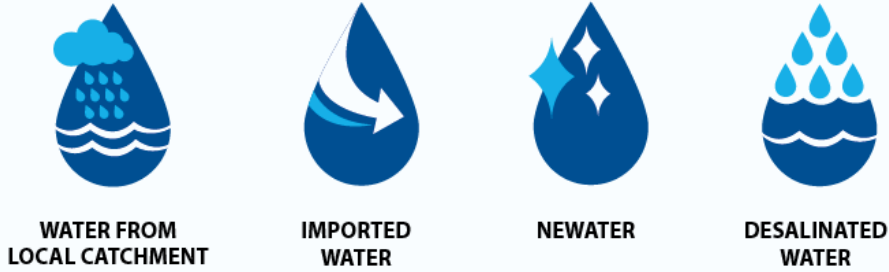
லியோனார்டோ-டா-வின்ஸ்



Water management in Singapore

Singapore is considered to be one of the most water-stressed countries in the world. It is heavily dependent on rainfall due to the **lack of natural water resources**, and limited land is available for water storage facilities.

Singapore has built a robust, diversified and sustainable water supply from four water sources known as the Four National Taps – **Water from Local Catchment**, **Imported Water**, **high-grade reclaimed water known as NEWater** and **Desalinated Water**.



உலகிலேயே தண்ணீர் பற்றாக்குறை உள்ள நாடுகளில் ஒன்றாக சிங்கப்பூர் கருதப்படுகிறது. இயற்கை நீர் ஆதாரங்கள் இல்லாததால் மழையை பெரிதும் சார்ந்துள்ளது, மேலும் நீர் சேமிப்பு வசதிகளுக்கு குறைந்த நிலமே உள்ளது.

Navy shower -

A ten-minute shower takes as much as 230 litres of water, while a 2 minute navy shower usually takes as little as 11 litres; one person can save 56,000 litres per year.

ஒரு பத்து நிமிட குளியல் 230 லிட்டர்கள் தண்ணீர் தேவைப்படுகிறது, அதே சமயம் கடற்படை குளியல் பொதுவாக 11 லிட்டர்கள் எடுக்கும். ஒரு நபர் ஆண்டுக்கு 56,000 லிட்டர்களை சேமிக்க முடியும்.



WATER IS SCIENCE - அறிவியல்

Substances easily dissolve (or) mix with water.

பொருள் எளிதில் கரைகிறது

WATER IS FOOD நீர் - உணவு

Water is essential for growing, processing, packing and Transporting our food.

உணவை வளர்ப்பதற்கும், பதப்படுத்துவதற்கும், பேக்கிங் செய்வதற்கும், எடுத்துச் செல்வதற்கும் தண்ணீர் அவசியம்.

1 cup of Coffee (காபி)	- 140 liter of water
1 cup of Tea (தேநீர்)	- 35 liter of water
1 cup of Soft drink (குளிர்பானம்)	- 94 liter of water
1 kilogram of Wheat (கோதுமை)	- 1,100 liter of water
1 kilogram of Beef (மாட்டிறைச்சி)	- 22,000 liter of water



All rivers in India are mostly call by a Goddesses names - Godavari, Ganga, Krishna, Yamuna, Sabari, Kaveri .Only **Bramhmaputra** is a **male river** as it flows south - west through the Assam Vally and South throught Bangaladesh.

இந்தியாவில் உள்ள அனைத்து நதிகளும் பெரும்பாலும் பெண் தெய்வங்கள் பெயரால் அழைக்கப்படுகின்றன அஸ்ஸாம் பள்ளத்தாக்கு மற்றும் தெற்கே வங்காளதேசம் வழியாக தென்மேற்கில் பாய்வதால் பிரம்மபுத்திரா மட்டுமே ஆண் நதியாகும்.

An inch of water covering one acre of land is equivalent 1,00,000 ltrs.

ஒரு ஏக்கர் நிலத்தில் உள்ள நீர் 1,00,000 லிட்டருக்கு சமம்.

97% of water on earth is found in the ocean, 2.5% is unavailable fresh water (trapped in glaciers , underground) 0.5% is available fresh water.

பூமியில் உள்ள 97% நீர் கடலில் காணப்படுகிறது, 2.5% குடிநீர் பயன்படுத்தப்படாமல் பனிப்பாறைகள் , நிலத்தடியில் சிக்கி சிக்கிக்கொண்டது உள்ளது, 0.5% குடிநீர் மட்டுமே பயன்படுத்தக்கூடியது.

There is more water in the atmosphere than in all of our rivers combined.

நமது நதிகள் அனைத்தையும் விட வளிமண்டலத்தில் அதிக நீர் உள்ளது.

Fresh water pipes originally were made from hollowed wooden logs.

குடிநீர் குழாய்கள் முதலில் குழிவான மரக் கட்டைகளால் செய்யப்பட்டன.



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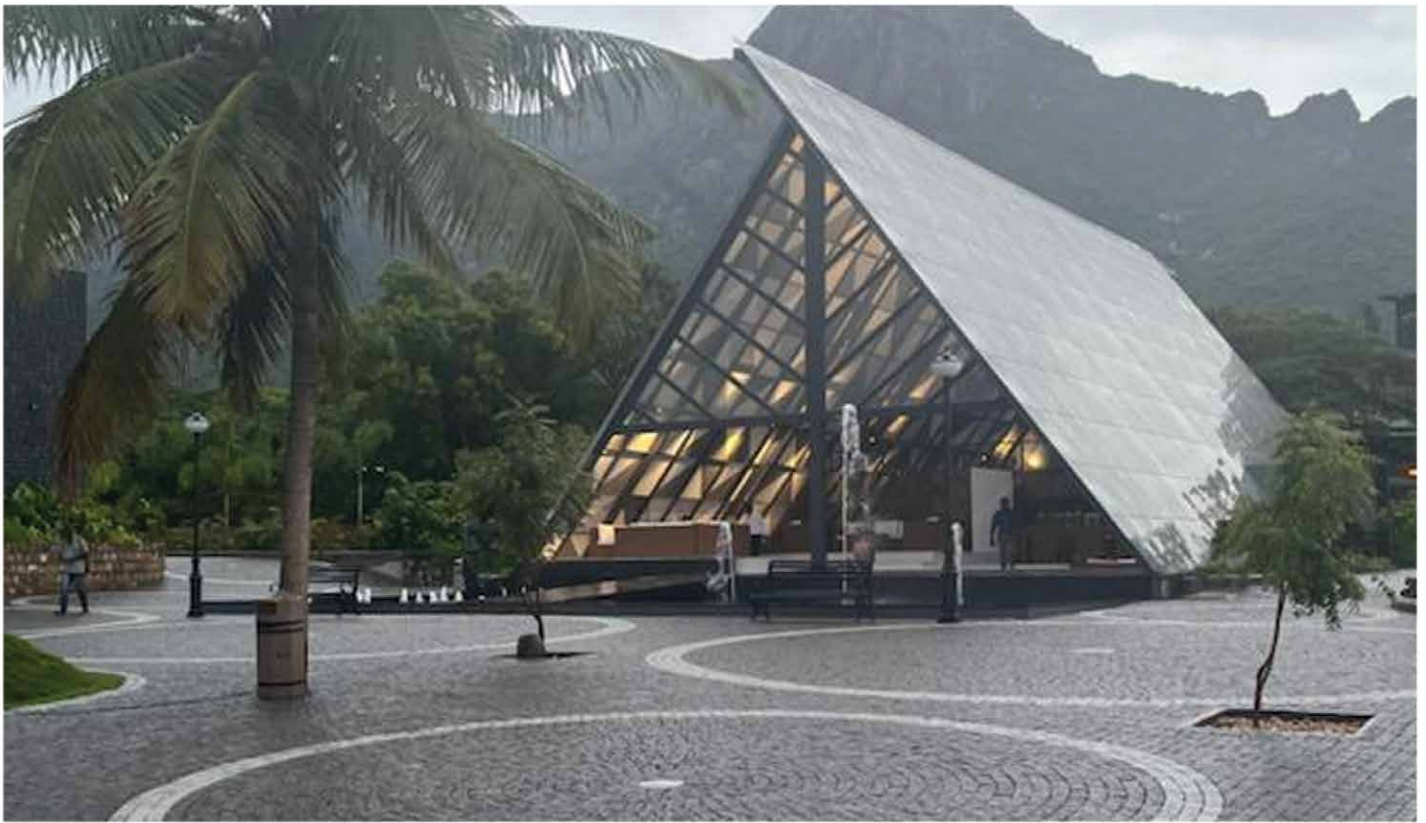
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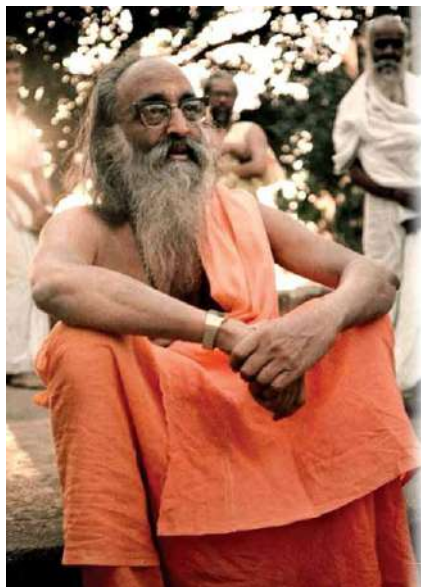
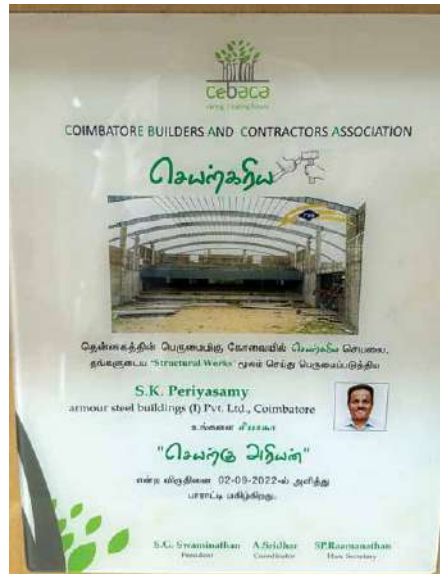
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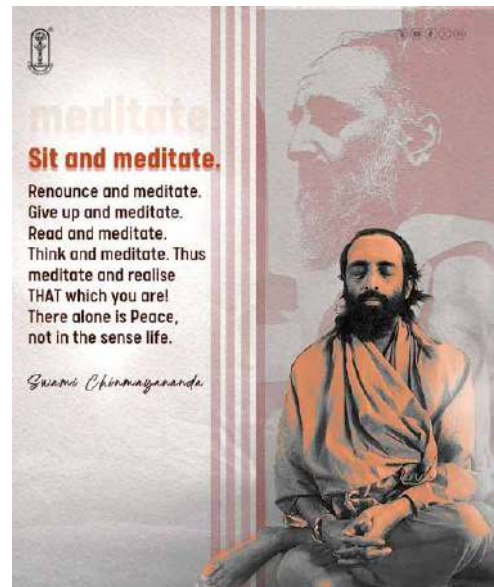
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IN LIFE TO
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YOURSELF, USE
YOUR HEAD,
BUT TO
HANDLE
OTHERS, USE
YOUR HEART.

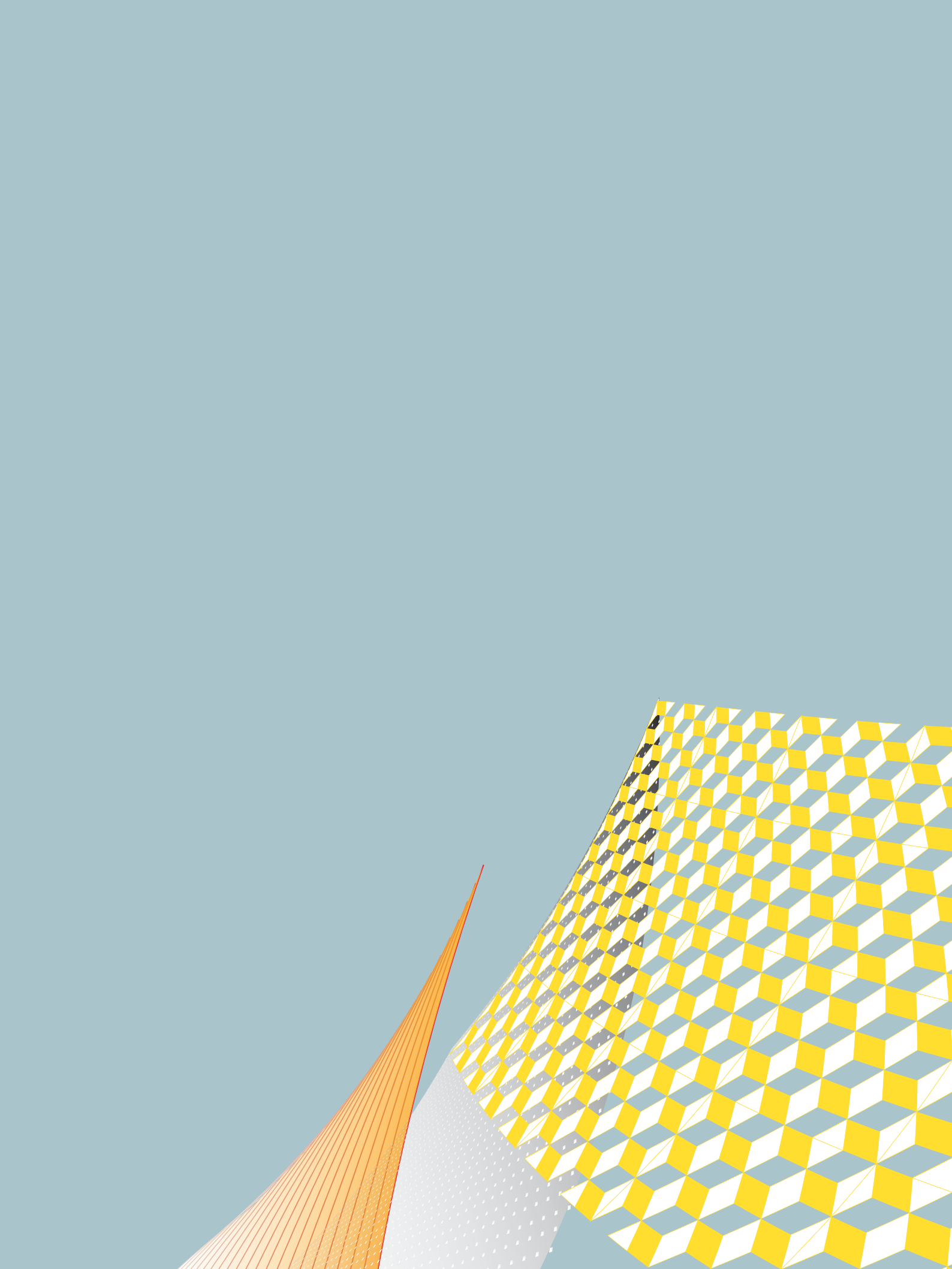
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Man can
change his
destiny-not by
wishing for it,
but by working
for it.

-Swami Chinmayananda Ji





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