

PJMT
NGEC

[NATIONAL
GREEN
EARTH
CHALLENGE]



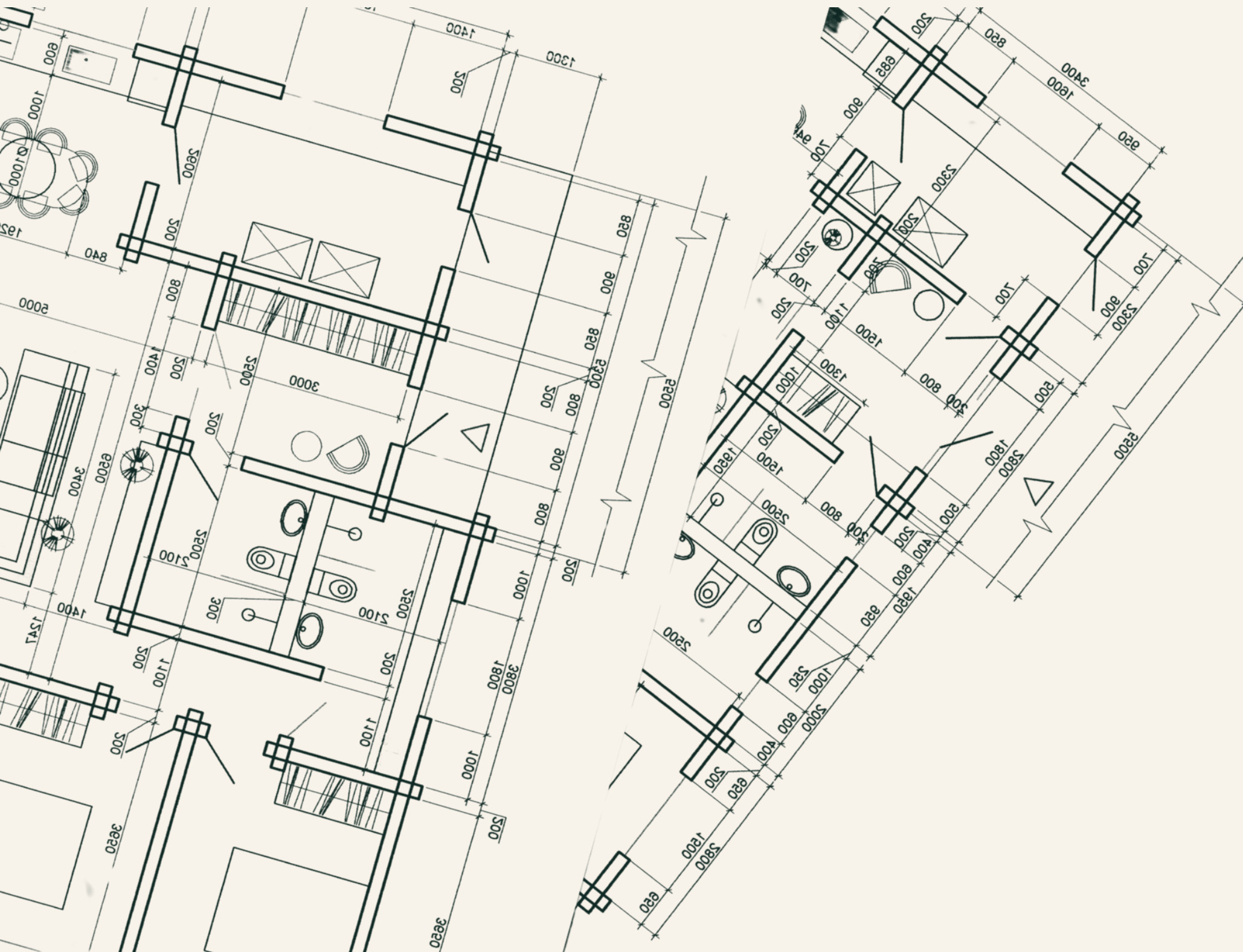
PREM JAIN MEMORIAL TRUST

The Architecture-Engineering (Arch-Eng) Challenge

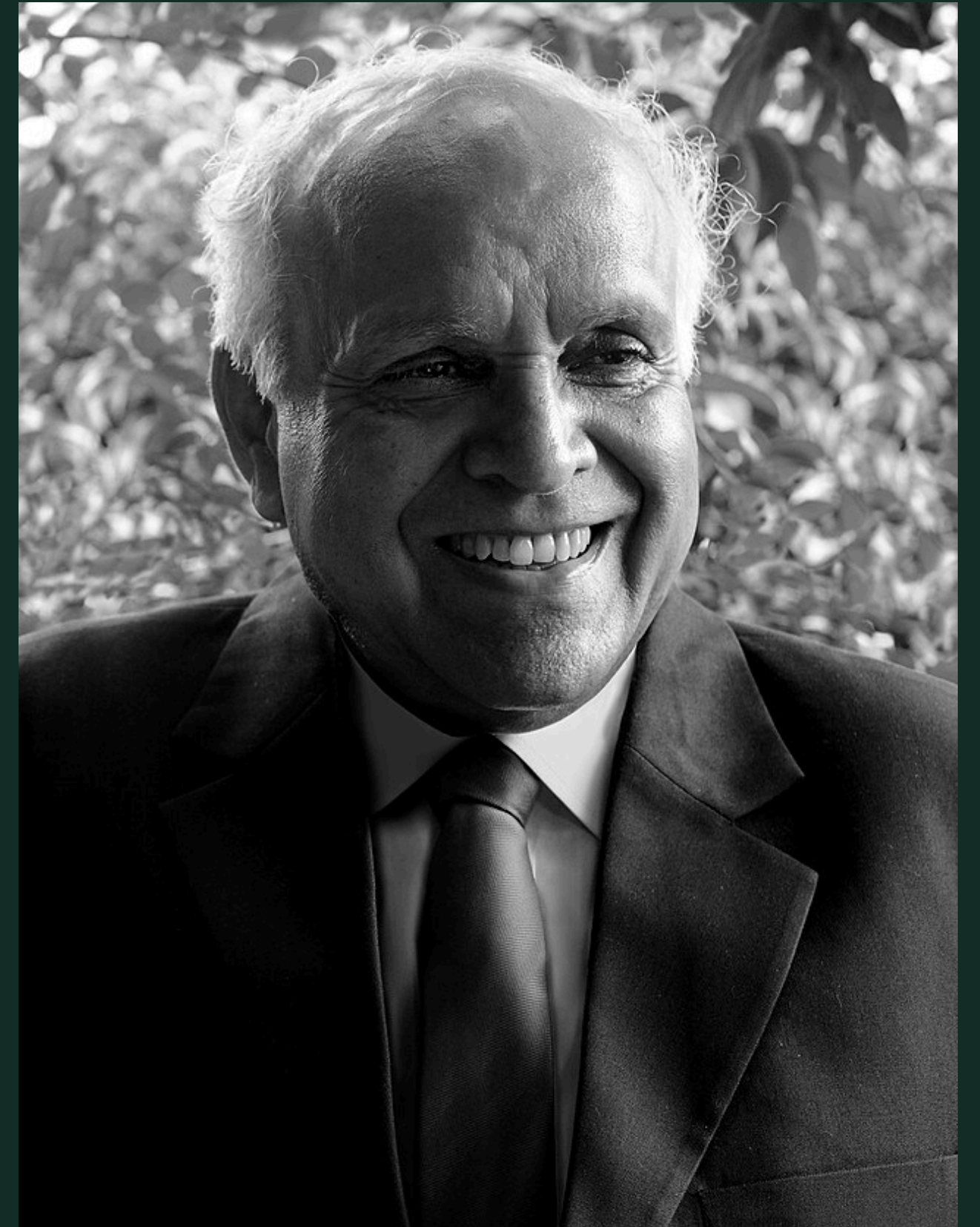
Introductory Brief

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"If we can change the way you think about building, maybe what you build will change the world."



Dr. Prem Jain
Father of Green Buildings in India

THE NATIONAL GREEN EARTH CHALLENGE

The **Prem Jain Memorial Trust National Green Earth Challenge** invites **students of Engineering, Architecture, and Design colleges across India** to tackle critical environmental challenges by developing **innovative and sustainable design solutions for the built environment**. With the mounting pressures of climate change, resource depletion, and urbanization, this challenge emphasizes the importance of a **transdisciplinary, integrated approach**. Participants will blend insights from various disciplines to create solutions that are not only eco-friendly but also socially inclusive.

The challenge is rooted in the ancient Indian concept of the **Panchabhutas** – **Bhoomi (Earth), Gagan (Space/Sky), Vaayu (Wind), Agni (Fire/Energy), and Neer (Water)**. These five elements serve as a profound framework for sustainable design, each embodying essential qualities that shape both our environment and our approach to harmonious design. Participants are encouraged to draw inspiration from the Panchabhutas and **incorporate the 5Rs (Repurpose, Recycle, Refuse, Reuse, and Reduce)**, along with the principle of **Reinvent**. The goal is to develop designs that minimize environmental impact and align human activity with nature. This challenge invites students to harmonize modern innovations with sustainable practices, creating future-ready, sustainable designs, products, spaces, materials, and technologies.



GUIDING PRINCIPLES BEHIND THE CHALLENGE: A *TRANSDISCIPLINARY CHALLENGE*



The PJMT National Green Earth Challenge emphasizes **collaboration across disciplines**, including;

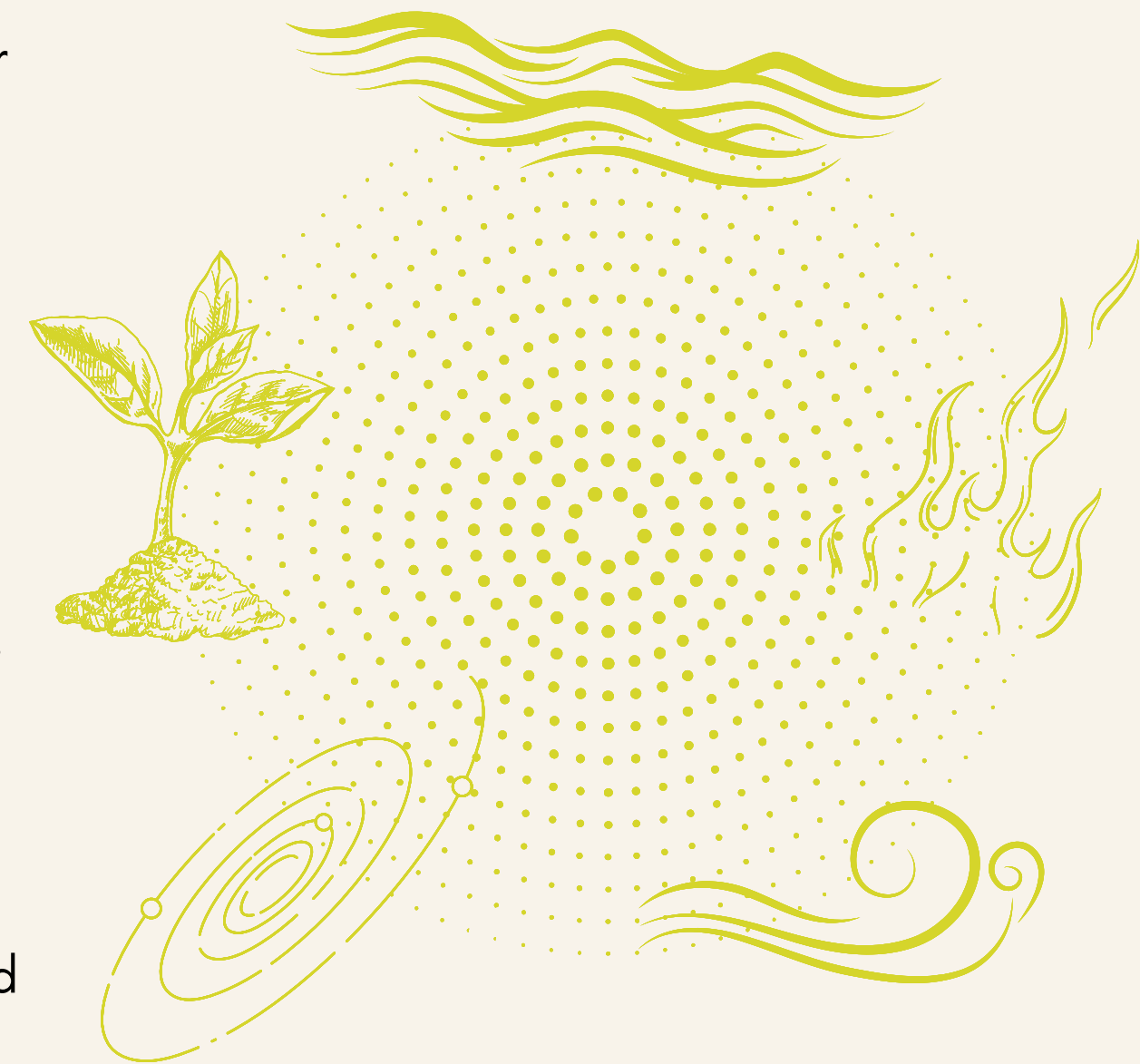
- **Engineering:** Energy and Water Systems, Material Efficiency, Waste Management, Infrastructure innovation, Renewable Energy Systems, Sustainable Transportation, Smart Grids, and Thermal Efficiency
- **Architecture:** Eco-friendly, Aesthetic, and functional space planning, sustainable materials, Passive Solar Design, Climate-responsive Architecture, Low-Carbon Material, and Net-Zero Buildings
- **Planning and Design:** User-centric, adaptable, and durable product, special design, Smart Cities, Sustainable Mobility, Green Infrastructure, and Inclusive Urban Design
- **Environmental Science:** Ecosystem management, biodiversity, climate adaptation, Habitat Restoration, Ecological Footprint, Air Quality Management, and Resource Conservation.

This transdisciplinary framework ensures that the design solution is holistic, addressing environmental, social, and technological aspects while incorporating the 5Rs and the idea of Reinventing conventional practices to enhance the efficiency of existing systems.

GUIDING PRINCIPLES BEHIND THE CHALLENGE: *THE PANCHABHUTAS*

We believe that Nature is composed of five elements, called the ***Panchabhutas***. While innovating, it's crucial to focus on the elements used, their role in production, the product's life cycle, and the impact of innovation. Some innovations may address challenges like pollution or how to harness these elements effectively. Even when solving other problems, remember these elements are interconnected, and we must not harm one while leveraging another. **The five *Panchabhutas* include:**

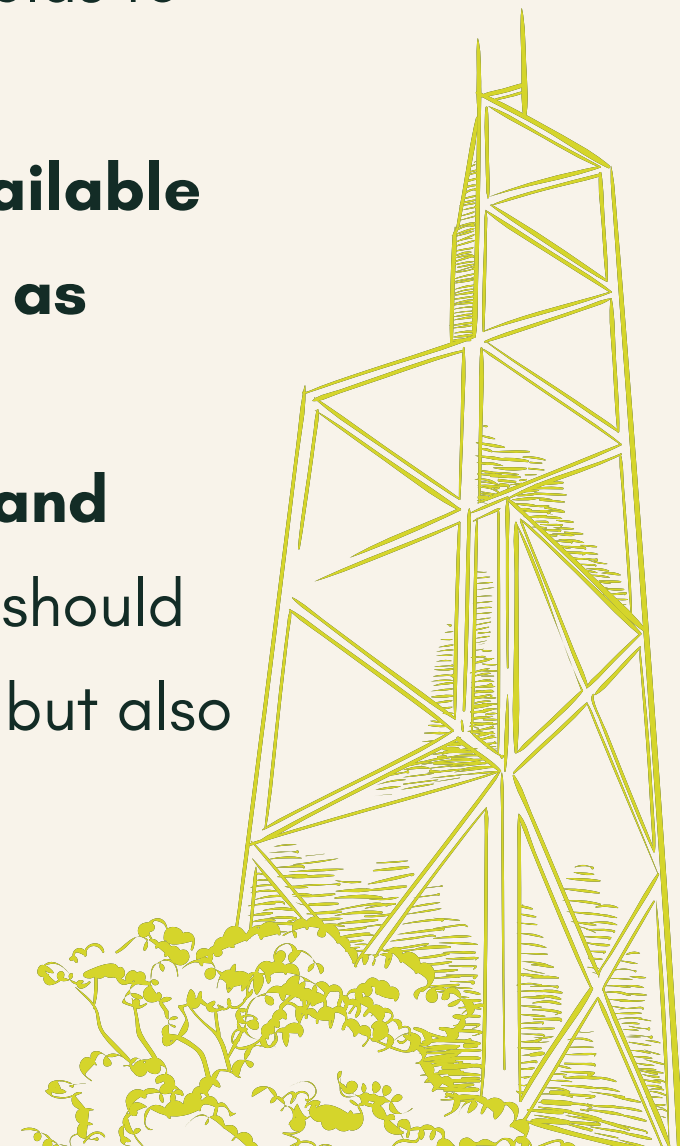
- ***Bhoomi* - Earth:** the element that focuses on the materials that are being used - including the innovation to create new materials for construction or clothing, repair or reuse of old materials, and the amount of waste that is generated along with its effective disposal.
- ***Neer* - Water:** is the element that focuses on the use, storage, and cleanliness of water as well as the impact on bodies of water and monsoon cycles.
- ***Agni* - Fire/Energy:** is the element that focuses on sun, fire, and heat - especially how these are used as sources of power and energy.
- ***Vaayu* - Air:** is the element that focuses on airflow systems, the use of wind for power, and the positive or negative impact on air.
- ***Gagan* - Sky/Space:** is the element that focuses on the space/site of development, construction or production.



THE THEME AND PROBLEM STATEMENT

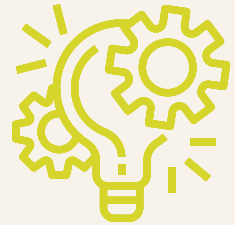
The Arch-Eng theme encourages Architecture and Engineering students to create sustainable design solutions that are rooted in evidence and address issues related to the environment & people. The challenge emphasizes a transdisciplinary approach, integrating the environmental, social, and technological aspects while designing the solution. Participants should bring their innovative ideas and subject matter expertise to reinvent conventional practices or provide an alternate solution to enhance efficiency.

The principles of this challenge are the **5Rs—Repurpose, Recycle, Refuse, Reuse, Reduce.** While this category is primarily for engineering and architecture students, we encourage them to **think beyond their primary discipline** and incorporate methodologies from other fields to enrich their submissions. Participants are encouraged to creatively **repurpose available resources by utilizing strategies such as advanced product design, spatial reconfiguration, material innovation, and energy-efficient systems.** Submissions should not only challenge conventional thinking but also embrace out-of-the-box creativity.



EXAMPLES FOR THE ARCH-ENG CHALLENGE

Here are some examples to help participants understand the types of submissions they can create. These examples are meant for reference only and should not be considered submission templates. These examples aim to inspire diverse and creative approaches to the competition, however, we expect participants to create their own sustainable projects for submission.



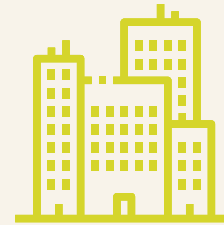
Building Innovations

- Participants can focus on innovations in areas such as energy, water, waste, or air management within a building.
- Architects might explore passive systems, natural lighting, or other sustainable design strategies, while engineers could focus on advancements in net-zero technology or energy-efficient systems.



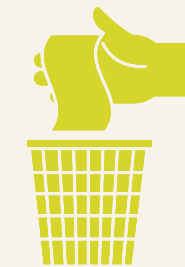
Air Quality Solutions

- Submissions could involve innovations to manage particulate matter (PM1.0 or PM2.5) in various environments, such as homes, offices, or vehicles.



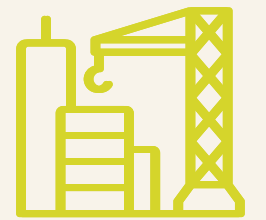
Efficiency in Existing Buildings

- Participants may propose ways to improve energy efficiency in existing buildings, targeting systems like air conditioning or lighting to reduce energy consumption.



Sustainable Sanitary Disposal

- Innovations could address energy-efficient methods for the disposal of sanitary products in large facilities, such as commercial buildings, hospitals, or educational institutions.



Alternative Structural Materials

- A design could propose architectural or structural solutions that minimize or eliminate the use of traditional materials like steel, concrete, or cement, while still delivering aesthetically appealing spaces with inviting volumes.

EXAMPLES FOR THE ARCH-ENG CHALLENGE

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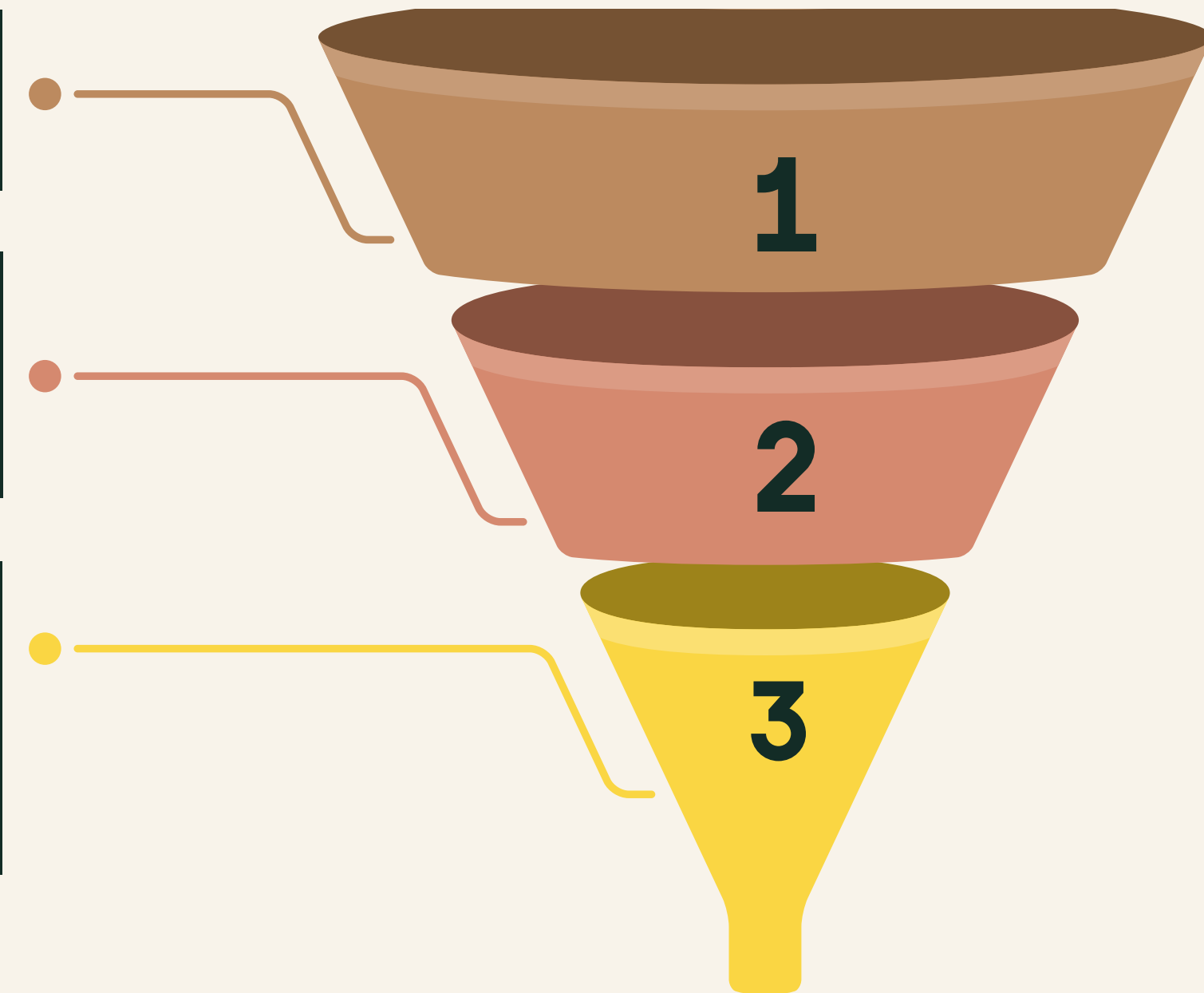
- CII – Sohrabji Godrej Green Business Center - <https://www.re-thinkingthefuture.com/case-studies/a4417-cii-sohrabji-godrej-green-business-centre-by-karan-grover-and-associates-first-lead-platinum-certified-building-in-india/> <https://archestudy.com/when-architecture-meets-technology-cii-sohrabji-godrej-green-business-centre-hyderabad/>
- Bosco Verticale – Examples of Sustainability in modern architecture forms - <https://archestudy.com/top-5-examples-of-sustainability-in-modern-architecture-forms-in-the-world/>
- Suzlon One Earth in Pune - <https://www.usgbc.org/projects/suzlon-one-earth> <https://www.archdaily.com/466958/suzlon-one-earth-global-corporate-headquarters-christopher-benninger> <https://www.re-thinkingthefuture.com/case-studies/a4045-suzlon-one-earth-pune-by-christopher-charles-benninger-zero-energy-project/>
- 10 Small Scale Designs That Have Large Scale Impacts - <https://www.re-thinkingthefuture.com/designing-for-typologies/a3898-10-small-scale-designs-that-have-large-scale-impacts/>
- Sustainable Architecture Practices in India: Case Studies and Success Stories - <https://www.kaarwan.com/blog/architecture/sustainable-architecture-case-study-in-india?id=346>
- Biome Environmental Solutions - <https://www.re-thinkingthefuture.com/sustainable-architecture/a5989-biome-environmental-solutions-pioneering-sustainable-architecture-of-regional-india/>

EVALUATION AND JURY STAGES

First Stage: A panel of experts in the field will review all applications and rank the top solutions from **four zones - North, East, South, and West.**

Second Stage: The top solutions will present their submissions online to a distinguished jury in each zone. Per zone, three prizes will be awarded at this stage: **zonal winner, zonal first runner-up, and zonal second runner-up.**

Third Stage: The **zonal winners and first runners-up** advance to the third stage, competing in **Delhi** for the National Prize. They will present their solutions while incorporating feedback from previous stages. A **national winner and national runner-up** will be announced at this stage.



EVALUATION CRITERIA

Trans-disciplinary.

Integrates ideas, methods, and approaches from multiple disciplines to create innovative and holistic solutions.

Relevance

Adheres to the principles of the Panchabhutas and the 5Rs (Repurpose, Recycle, Refuse, Reuse, Reduce).

Innovation

The idea is original, fresh, and not plagiarized.

Circularity

The concept prioritizes the reuse of materials and minimizes waste.

Function

Grounded in the practical use that the design or product is expected to serve.

Aesthetic

Visually appealing and inviting, enhancing the overall experience.

Reliability

Designed to withstand the test of time and endure real-world challenges.

Economy

Practical and affordable, ensuring feasibility.

Efficiency

Optimizes resource use, minimizes waste, and enhances overall performance.

Scalability

Capable of being scaled up and easily replicated.

ELIGIBILITY CRITERIA

1

The challenge is open to undergraduate students currently enrolled in architecture, engineering, or design programs.

2

You can participate individually or form teams of 2 or 3 members. Teams can consist of students from different batches or colleges, as long as all members meet the eligibility criteria.

3

Eligibility is restricted to Indian citizens.

4

We encourage you to seek support and input from faculty members for guidance. However, this is not a requirement, and you will not be evaluated for this step.



SUBMISSION GUIDELINES

All submissions must be submitted via the [PJMT National Green Earth Challenge portal here](#). No hand-drawn drawings or submissions will be accepted. Please keep digital renderings ready.

The submission is in three parts –

1. Team Details
2. About the solution: Subjective answers
3. Project Proposal: Attach your project proposal in PDF format.

Attach your project proposal in **PDF format**, following these guidelines:

- **Do not include** your name, college, or any identifying details in the PDF.
- Include your **registration code in the upper right-hand corner of the first page** of the PDF.
- Limit your submission to a **maximum of 10 sheets**.
- **Sheet size:** 1920x1080 pixels (horizontal or vertical format).
- Ensure content is legible when viewed on a **digital device** (e.g., laptop, PC).
- Add diagrams and pictures that are **clear and readable**.
- Ensure that your **maximum file size** does not exceed 25MB.
- Ensure that your **submitted work is original** and acknowledges the relevant references. Your submission should not have been published prior.

IMPORTANT DATES

13th November 2024

Applications Open for the PJMT
National Green Earth Challenge



01st-02nd March 2025

Zonal Rounds to be conducted
across all four zones



06th January 2025

Deadline to submit applications
for the Challenge



28th-29th March 2025

National Rounds to be held in
New Delhi



AWARDS AND PRIZES

Zonal Rounds: Top entries from each zone will present their ideas to an esteemed jury. The winners in every zone will receive the following cash prizes:

Winner: ₹25,000

First Runner-Up: ₹18,000

Second Runner-Up: ₹12,000

National Round: The zonal winners and first runner-ups from each zone will compete at the Grand Finale in Delhi. The winners will receive the following cash prizes:

Winner: ₹1,50,000

First Runner-Up: ₹50,000

TERMS AND CONDITIONS

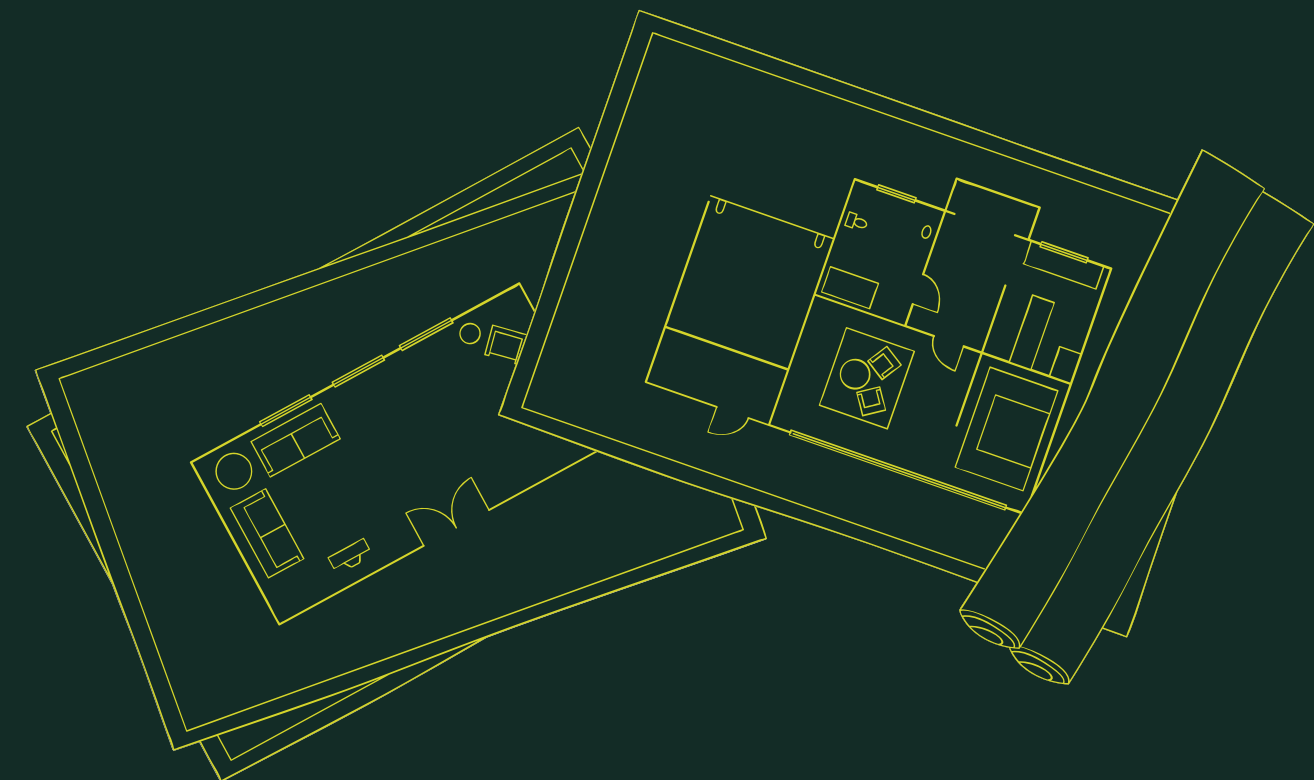
1. Each participant is allowed only one submission.
2. The jury's decision will be final and binding.
3. By participating in the competition, participants confirm that their submission has not been entered into any other competition until the results of this challenge are announced.
4. The organizers reserve the right to promote and publish any or all entries on any platform for non-commercial, research, educational, or development purposes. Proper credit will be given to the authors for any material that is published.
5. The sponsors are not liable for any costs incurred by participants during their research for this competition.
6. For any clarifications, please reach out to the organizers.

REFERENCES/READINGS

Students should refer to the following book to guide their submission:

"Path of Green" by

Dr. Prem Jain



ABOUT THE ORGANIZERS

Prem Jain Memorial Trust is organizing the NGECC in collaboration with Young Leaders for Active Citizenship (YLAC) and the National Institute of Urban Affairs (NIUA), with support from the Indian Green Building Council (IGBC).

Prem Jain Memorial Trust (PJMT) upholds Dr. Prem Jain's legacy as the Father of the Green Building Movement in India. PJMT's Mission is to create, establish and maintain sustainability through education, recognition, and nurturing future generations. The Trust aims to identify future leaders who can be a catalyst for the global development of sustainability, create awareness about the environment, and nurture India's young talent by educating them about sustainable development ecosystems.

Young Leaders for Active Citizenship (YLAC) empowers young people to engage in the democratic process and build their capacity to lead change. By broadening perspectives, fostering critical socio-political thinking, and building leadership skills, YLAC equips them to make a lasting impact on society. Their work spans various thematic areas, including sustainable mobility, climate justice, gender equity, and disability inclusion.

The National Institute of Urban Affairs (NIUA) is an autonomous body under the Ministry of Housing and Urban Affairs (MoHUA). NIUA is focusing on research, training, and information dissemination in urban development and management. The Urban Youth Unit (uYu) at NIUA aims to create a youth-centric ecosystem by involving young individuals in urban development through decision-making, research, and innovation.

CONTACT US

For any queries, please write to us at **ngec@premjainmemorialtrust.com**!

Feel free to reach out regarding inquiries about the challenge ([FAQs are here](#)), application issues, and media-related questions, or explore opportunities for knowledge and outreach partnerships with us!