

K. K. WAGH INSTITUTE OF ENGINEERING EDUCATION AND RESEARCH, NASHIK

ACTIVITY REPORT

Exhibition of Models of Sustainable Structures

World Environment Day | 5th June 2026

1. Program Details

Department	Civil Engineering
Academic Year	2025-2026
Program Type	Exhibition
Program Theme	Sustainable Structures, Green Building Technologies, and Eco-friendly Infrastructure
Activity Name	Exhibition of Models of Sustainable Structures
Duration	1 Day
Date	05 June 2026
Venue	Environment Lab, 1st Floor, Department of Civil Engineering
Mode	Offline
Organized By	Department of Civil Engineering, K. K. Wagh Institute of Engineering Education and Research, Nashik
In Association With	Institution's Innovation Council (IIC)
No. of Participants	30 Students
No. of Faculty Involved	4
Faculty Coordinators	Mrs. Shital S. Ajnadkar Ms. Neha V. Sonawane

2. Objective of the Program

The exhibition was organized on the occasion of World Environment Day to achieve the following core objectives:

- To provide a collaborative platform for civil engineering students to design, develop, and present physical and conceptual models of sustainable structures.
- To foster innovative design thinking geared towards green building technologies, reducing carbon footprints, and lowering environmental impact.
- To create awareness among engineering students and visitors regarding resource conservation, waste material reuse, and energy efficiency in building construction.
- To align technical education outcomes with practical sustainable development initiatives.

3. About the Exhibition

The Department of Civil Engineering, in active collaboration with the Institution's Innovation Council (IIC), organized a one-day Exhibition of Models of Sustainable Structures on 05th June 2026. Held at the Environment Lab on the 1st Floor of the Civil Engineering Department, the exhibition commenced at 11:00 AM.

The event served as an experiential learning forum where student groups displayed physical scale models demonstrating creative solutions to modern climate challenges. Visitors, faculty members, and peers engaged directly with the exhibitors to understand structural stability, material lifecycle, eco-efficiency, and cost-effectiveness of the presented prototypes.

4. Themes Covered

The student models comprehensively integrated modern engineering principles with green strategies under the following focus areas:

- Green and Climate-Resilient Buildings: Vernacular architecture, high-thermal-mass elements, and passive heating/cooling designs.
- Sustainable Construction Materials: Innovative use of industrial by-products, fly-ash bricks, recycled plastic aggregates, and organic alternatives.
- Water & Waste Management Systems: Rooftop rainwater harvesting systems, zero-liquid-discharge prototypes, and greywater filtration models.
- Renewable Energy Integration: Building-Integrated Photovoltaics (BIPV), net-zero energy home models, and smart grid automation layouts.

5. Activities Conducted

The programmatic timeline of the exhibition featured several key phases:

- Inauguration Ceremony: The event was inaugurated at 11:00 AM by senior faculty emphasizing the civic duty of engineering branches towards ecology.
- Technical Demonstrations: Participating student teams delivered technical pitches detailing their planning logic, material compositions, and validation metrics to visitors.
- Expert Review & Judgment: Senior faculty members reviewed each project on criteria including originality, architectural innovation, environmental viability, and presentation clarity.

6. NBA Program Outcomes (POs) Mapping

From the perspective of the National Board of Accreditation (NBA), this activity directly contributes to the attainment of several key Program Outcomes (POs) for Civil Engineering:

Program Outcome (PO)	Level	Justification / Contribution
PO3: Design/Development of Solutions	Medium (2)	Students conceptualized and designed miniature physical models adhering to eco-friendly constraints, structural load paths, and localized space efficiency.
PO6: The Engineer and Society	Medium (2)	Models showcase engineering solutions targeting social requirements like affordable eco-housing and low-cost community sanitation systems.

PO7: Environment and Sustainability	High (3)	The theme directly satisfies PO7. Students demonstrated practices for minimizing carbon footprints, reducing embodied energy, and engineering lifecycle sustainability.
PO9: Individual and Team Work	Medium (2)	Models were conceptualized, fabricated, and showcased by collaborative student clusters, fostering group dynamics and project execution skills.
PO10: Communication	High (3)	Exhibitors delivered technical presentations and structural explanations to visitors, external evaluators, and faculty, enhancing verbal communication.

7. Sustainable Development Goals (SDGs) Alignment

This student technical display aligns explicitly with the United Nations Sustainable Development Goals (SDGs):

SDG Goal	Alignment / Description
SDG 7: Affordable and Clean Energy	Fulfilled via prototypes illustrating passive architecture optimization, net-zero layouts, and building-integrated solar panels (BIPV).
SDG 9: Industry, Innovation, and Infrastructure	Fostered by encouraging innovative design modifications, utilizing cutting-edge localized alternative building materials, and designing verification pathways.
SDG 11: Sustainable Cities and Communities	Promoted structural paradigms that make housing models and building structures resilient, inclusive, and eco-compatible with evolving microclimates.
SDG 12: Responsible Consumption and Production	Demonstrated structural frameworks utilizing industrial waste replacement materials (fly-ash, silica fume, recycled aggregates) to reduce resource depletion.

8. Learning Outcomes

The exhibition effectively bridges engineering pedagogy with hands-on technical applications. Upon conclusion, participating students achieved the following competencies:

- Ability to practically execute structural designs conforming to sustainable and green building standards.
- Enhanced understanding of alternative, cost-effective, and low-carbon footprint materials within civil workflows.
- Developed proficiency in project management, model fabrication, team collaboration, and scientific communication.
- Deepened awareness of an engineer's professional role in driving climate resilience and fulfilling Sustainable Development Goals (SDGs).

Faculty Coordinator

Mrs. S. S. Ajnadkar / Ms. N. V. Sonawane

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