



## Solar Decathlon India, A Brief Note

### Background

Solar Decathlon India (SDI) is a student competition that attempts to address the urgent need for climate action in India, because we are the largest site of urbanisation, growth and innovation in the world. SDI is a net-zero building challenge for undergraduate and postgraduate students from Indian academic institutions to address climate change by developing innovative, net-zero energy, and climate resilient solutions for the building sector in India.

SDI's objectives and goals align with India's Panchamrit plan for climate action, presented by Prime Minister, Narendra Modi, at the COP26 meeting in Glasgow, United Kingdom which stated to achieve the target of a net-zero emissions by 2070.

Building construction and operations contribute to nearly 1/3rd of India's emissions that cause global warming. India's building sector is expected to grow at an incredible rate, with 70% of its floor area in 2050 estimated to be new construction. SDI helps contribute to the country's climate action plan by demonstrating and scaling innovation, helping to decarbonise the building sector and building capacity to manage and adapt to the risks of climate-related impacts.


### Solar Decathlon India (SDI)

SDI was launched in 2020, and it is now in its fourth annual cycle. Student teams' partner with building owners and real estate developers and collaborate with equipment and material manufacturers to develop affordable and energy efficient solutions for live building projects.

Projects include residential, commercial, and educational buildings, construction worker housing, as well as disaster relief community resilience shelters. The jury consists of a panel of industry experts on various aspects of the designs including affordable cooling, net-zero energy, net-zero water, resilience, innovation, and embodied carbon.

Students gain multiple benefits – learning about new ways to design buildings; hands-on experience on projects; opportunities to have their ideas implemented by their partners; connections with leading industry professionals, and; job opportunities in the green collar economy. SDI is producing a new generation of building professionals who enter the workforce with expertise on net-zero solutions and a commitment to sustainable buildings.





**Over the last three years, SDI has become the largest net-zero building challenge in the world.**

Almost 4,000 students from over 200 colleges across 23 Indian States and 73 cities have collectively worked on approximately 56 million square feet of new buildings for over 200 real estate partners. More than 35% of the participating colleges integrate SDI into their coursework each year. SDI has over 50% participation from female students and 33% of our jury members are women experts on cooling and net-zero buildings.

The SDI experience shows a growing awareness and interest among students to adopt sustainable building design and construction as a career choice. SDI's gamified learning model brings these students, who are tomorrow's change-makers, into the program and gives them learning and connections with real-world professionals. This model has led to students getting placements, industry getting engaged, and a flywheel effect towards changing the education and professions for making buildings sustainable in support of India's target of a net-zero emissions by 2070.

### **Why Solar Decathlon India? Some facts**

- Net-zero buildings present the opportunity to reduce 1/3<sup>rd</sup> of our CO<sub>2</sub> emissions, and resilient buildings also are our first defence against climate change hazards like heat waves, storms, and floods.
- While building codes such as the ECBC and Eco-Niwas Samhita, provide regulations for efficient energy usage in commercial and residential buildings, these are not mandatory, and many states are yet to enforce them.
- The real estate sector largely operates in a business-as-usual mode, with a perception that sustainable buildings cost more.
- About 500,000 students graduate every year in India from building sector-related courses with a curriculum that does not prepare them to implement NZEBs to take Climate Action. Out of the 450+ architecture colleges, less than 20 have coursework related to energy efficiency or sustainable design.
- SDI in turn enables students and faculty to learn about climate action, while providing awareness to faculty in academic institutions regarding net-zero building strategies.

SDI is developing the next generation of architects, engineers, and entrepreneurs who can deliver net-zero-energy buildings and help India achieve its 500 GW Non-fossil energy capacity by 2030. SDI aligns with the Panchamrit plan and the Atmanirbhar Bharat Abhiyaan campaign, supporting India's ambitious climate targets.





## Solar Decathlon India 2023-24

This year SDI has five building divisions and a new product division. While the building divisions focus on upcoming and new greenfield projects, the product division focuses on the existing stock of residential buildings. The challenge for this division is to reduce heat stress or improve cooling energy performance. Participants of this division will develop innovative products that could be purchased off-the-shelf and installed in existing residences by homeowners themselves or with the help of local technicians.

The challenge requires all participating teams to be multidisciplinary and have a faculty mentor. Teams in the building division will need to partner with a building owner or developer whose project they will work on. Teams from the product division will partner with an industry partner who provides support for materials, equipment, knowhow, testing etc., along with an interest in the outcome to help the team achieve its potential.

Solar Decathlon India is conducted by the Alliance for an Energy Efficient Economy (AEEE) and the Indian Institute for Human Settlements (IIHS) under the aegis of the Indo-US Science and Technology Forum (IUSSTF). Solar Decathlon India is supported by the Department of Science and Technology (DST), Government of India.

[solardecathlonindia.in](http://solardecathlonindia.in)

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