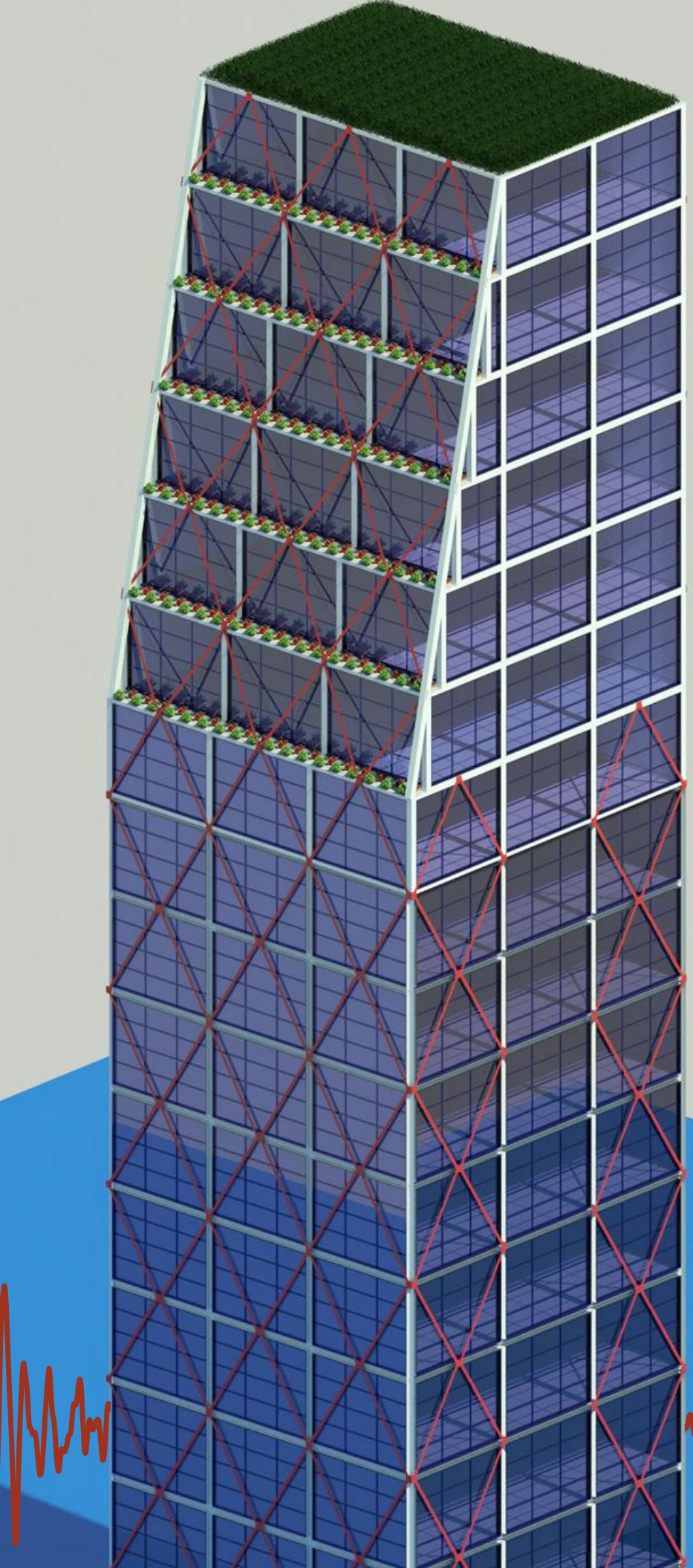

ISSUE: 1
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QUAKE ZONE

Newsletter of EERI IIT Bombay
Student Chapter

IN THIS ISSUE

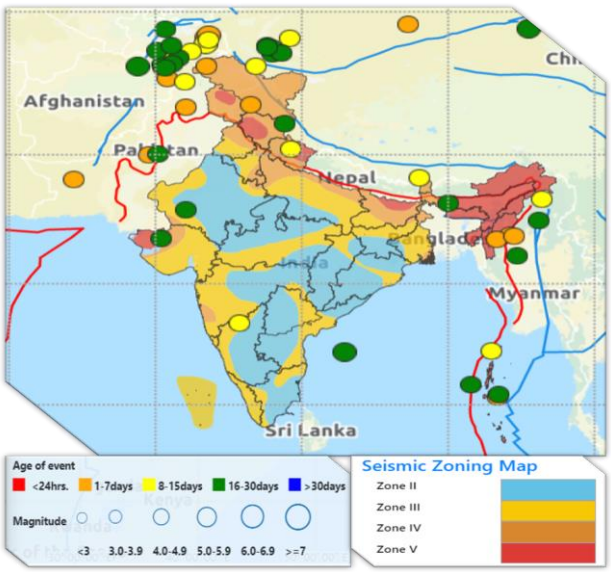
EARTHQUAKE ENGINEERING?

Earthquake engineering is concerned with the effects of earthquakes as well as ways for lessening their severity. Earthquake engineering is a vast field that includes geology, seismology, geotechnical engineering, structural engineering, risk analysis, and other technical disciplines. Earthquake engineering encompasses structural engineers, geotechnical engineers, geologists, and seismologists. Over time, earthquake engineering has become a key civil engineering subject. Technically it is a multi-phased process that includes describing earthquake sources, determining site effects and structural reaction, and describing seismic protection solutions. The following are the primary goals of earthquake engineering:

1. To predict the effects of earthquakes on infrastructure.
2. Design, develop, and maintain structures so that they perform as expected and in accordance with building codes during and after seismic activity.
3. To assess the socio-economic aspects of the of the earthquake hazard and formulate mitigations policies.

RECENT EARTHQUAKES

Seismic activity in Indian subcontinent from 1st August 2021 to 30th September,2021



Source: https://seismo.gov.in/MIS/riseq/earthquake

LEARNING FROM EARTHQUAKES

2001 BHUJ EARTHQUAKE

Photo: CVR Murty

In the year 2001, a 7.7 M_w magnitude earthquake struck Gujarat, India. A total of 13,805 lives were lost and over 1.2 million houses were damaged and almost 8000 villages in Gujarat, west India were affected. Several newly constructed multistory structures, including roughly 130 in Ahmedabad and one in Surat, also collapsed. In this earthquake, the vulnerability of then current Indian constructions and the requirement for seismic conformance were clearly demonstrated. Several medium and small earth dams have been seriously damaged. The earthquake shook a vast area, and the magnitude of the tremor reached X on the MSK scale. Gujarat's administration introduced the Gujarat Earthquake Reconstruction and Rehabilitation Policy four months after the earthquake. The policy proposed a different approach to urban and rural construction, with the estimated cost of rebuilding to be US $1.77 billion (*know more*).

THERMOCOL: THE FUTURE OF EARTHQUAKE-RESISTANT BUILDINGS !

Thermocol may be the future material for earthquake-resistant buildings, as it provides thermal insulation and reduces the amount of energy needed to manufacture construction materials. Thermocol, or Expanded Polystyrene (EPS), when utilised as a composite material in the core of a reinforced concrete sandwich, can withstand earthquake forces on up to four-story buildings, according to researchers at IIT Roorkee. The researchers put their findings to the test using a full-scale building made of thermocol sandwiched between two layers of concrete. A computer simulation of a realistic four-story skyscraper was used to support the investigation. The analysis shows that this technique is capable of resisting earthquake forces, even in the most seismic zone (V) of the country, without any additional structural support (*Know more*).

SEISMOTECH

GET EARTHQUAKE DATA ON YOUR PHONE: BHOOKAMP APP

Available in both android and IOS platforms, the BhooKamp application monitors real-time monitoring of earthquakes. It provides earthquake characteristics like magnitude, location of the epicentre, focal depth, intensity, origin time etc, of earthquakes worldwide. The app provides safety tips before, during and after earthquake. A few minutes after the shaking, the application updates with all of the tremor's data. It can also be viewed in browser on the official website of Nation Centre for Seismology (NCS). NCS is the nodal agency of the Government of India for monitoring of earthquake activity in the country and worldwide.

Download from Play Store: Bhookamp Play Store

Download from App Store: Bhookamp App Store

EARTHQUAKE ENGINEERING CONFERENCES AND EVENTS

- 17th World Conference on Earthquake Engineering from September 27 to October 2, 2021 (Extended conference period till November 2,2021). Check out for more at http://www.17wcee.jp/
- 12th National Conference on Earthquake Engineering (12NCEE): 12NCEE, Salt Lake City, Utah, from June 27-July 1, 2022. Check out for more at https://www.12ncee.org/about/about-12ncee
- The Third European Conference on Earthquake Engineering and Seismology in Bucharest from September 4 to September 9, 2022. Check out for more at https://3ecees.ro/conference/

EERI IIT BOMBAY NEWS

IIT BOMBAY STUDENTS SHINE AT SDC 2021

The undergraduate Seismic Design Competition (SDC) is conducted every year by Student Leadership Council (SLC). About 11 undergraduate civil engineering students from IIT Bombay participated in the SDC competition this year under the mentorship of Prof. Meera Raghunandan. A total of 37 teams from 10 different countries participated in the competition. Among the 7 awards in the SDC, the IIT Bombay team received the "Charles Richter Award for the Spirit of the Competition". This was the first time that an Indian team has bagged an EERI SDC award. The students were asked to design the extension of balsa wood hospital building for the COVID-19 patients in the city of Seattle. (2015). To be part of SDC 2022 Team check out https://www.eeriiitb.com/join-us

SDC 2021 Team

EERI IIT Bombay Student Chapter

ALL ABOUT EERI

The Earthquake Engineering Research Institute (EERI) is the leading non-profit membership organization dedicated to understanding earthquake risk and increasing earthquake resilience in communities worldwide. EERI membership includes researchers, practitioners, and students in engineering, geoscience, social science, architecture, planning, government, emergency management, public health, and policymaking. For more info https://www.eeri.org/

EERI IIT BOMBAY STUDENT CHAPTER

The EERI IIT Bombay student chapter aims to learn about earthquakes and their social, economic, and environmental impact and practices to reduce earthquake risk. This chapter motivates students to pursue a career in the field of earthquake engineering and related fields. EERI Student Chapter at IIT Bombay provides a platform to participate in several EERI competitions and activities.

JOIN US

Any student of IIT Bombay can join the EERI IIT Bombay student chapter. Follow the link https://www.eeriiitb.com/join-us

BECOME EERI MEMBER

EERI membership will help you stay current with the latest scientific and engineering advances, better understand the social and economic impacts of earthquakes, and serve as an advocate for seismic safety. Follow the link: join-eeri-today

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Undergraduate students of IIT Bombay are invited to be part of Seismic Design Competition (SDC) 2022. Check out https://www.eeriiitb.com/join-us

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