SHIVALINGA BADDIPALLI

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Structural Analysis Lab, A11 building,
Indian Institute of Technology, Mandi.
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RESEARCH EXPERIENCE

Project Associate | IIT Mandi [Aug 2021 – Present]

- I worked on the project titled "Seismic Safety Assessment of Life-line Buildings in Mandi District," funded by the Himachal Pradesh State Disaster Management Authority (HPSDMA).
- Moreover, the seismic vulnerability of the building stock of Mandi town in Himachal Pradesh was assessed through RVS by an extensive field survey of 1009 buildings with the collaboration of the Ph.D. research scholar (*Under Review*).
- Besides, in this tenure, I also worked on the masonry infill effect on the blast response of buildings (*Accepted*).

PROFESSIONAL EXPERIENCE

Project Associate | IIT Mandi [Aug 2021 – Present]

- I worked on various consultancy projects for the clients such as Defence Research and Development Organisation (DRDO), Ropeway and Rapid Transport System Development Corporation HP Limited, and Ministry of Tribal Affairs involving vetting/design proof-checks of different RC buildings complying with the provisions of IS 1893:2016 Part 1, IS 13920:2016, and IS 456:2000 using structural analysis and design softwares (STAAD.Pro and SAP2000) in the tenure of the project associate.

EDUCATION

Qualification	Year	Institution/University	CGPA/%
M.Tech in Structural Engineering	2021	Indian Institute of Technology (IIT) Mandi	7.5 CGPA
B.Tech in Civil Engineering	2018	JNTU Hyderabad	64.51 %
Intermediate (11^{th}&12^{th})	2014	Board of Intermediate Education, AP	92.7%
SSC (10^{th})	2012	Board of Secondary Education, AP	9.5 GPA

PUBLICATIONS/CONFERENCES

- **S. Baddipalli**, M. Kulariya and S.K. Saha (2023), "Influence of Masonry Infills on Blast Response of Earthquake-Resistant Reinforced Concrete Buildings," Structures, 50, 908-924, https://doi.org/10.1016/j.istruc.2023.02.078. [**SCI-E indexed and SJR Q1 division**]. (Click to view)
- **S. Baddipalli**, M. Kulariya and S.K. Saha (2023), "Effect of Dynamic Material Strength on Blast Response of Earthquake-Resistant Reinforced Concrete Buildings," 13th Structural

Engineering Convention (SEC-2023), VNIT Nagpur, India, December 07-09, 2023 (*Abstract Accepted*). (Click to view)

- Y. Aggarwal, **S. Baddipalli** and S.K. Saha (2022), "Seismic Vulnerability Assessment of Important Buildings in Mandi Region, Himachal Pradesh, India," Two-day Symposium on Socio-Technological Aspect of Seismic Disaster Management, IIT Guwahati, India. (Click to view)
- Y. Aggarwal, **S. Baddipalli** and S.K. Saha (202x), "Construction Practices and Seismic Vulnerability Assessment of Buildings in Indian Himalayan Region: A Case Study," Natural Hazards Review (ASCE) (*Manuscript Under Review*).
- **S. Baddipalli** and S.K. Saha (202x) "Comparative Cost-benefit Analysis of Buildings Installed with Seismic Mitigation Devices," (*Manuscript Under Preparation*).

COMPUTER SKILLS

• Drafting and Documentation	:	AutoCAD, Origin, QGIS, MS office.
• Designing and Analysis	:	SAP2000, STAAD.Pro, OpenSees (Basic), ABAQUS (Basic).
• Programming	:	MATLAB, Python.

PROJECTS UNDERTAKEN

Influence of Masonry Infills on Blast Response of Earthquake-Resistant Reinforced Concrete Buildings

(Project Associate Tenure) | IIT Mandi [**Feb 2022 – Dec 2022**]

This study addresses the effect of infill strength, infill's nonlinearity, and seismic design level on the blast response of buildings through deterministic and probabilistic assessments using an uncoupled approach. Moreover, the present work provides insights through detailed numerical study, which is required prior to planning and designing suitable blast-mitigation measures. Further, the proposed scaled distances can be used for rapid blast risk assessment of masonry-infilled RC buildings.

Construction Practices and Seismic Vulnerability Assessment of Buildings in Indian Himalayan Region: A Case Study

(Project Associate Tenure) | IIT Mandi [**Dec 2021 – Oct 2022**]

This paper deals with performing a seismic vulnerability assessment of buildings in a city in the Indian Himalayan region. An extensive survey of 1009 buildings were conducted. New hybrid building typologies have identified where construction with stone masonry is prevalent. This paper also discusses the construction practices followed and the non-compliance with building bylaws in the region. The gap between construction knowledge and actual implementation is highlighted. Further, different region-specific vulnerability attributes are highlighted and discussed in detail. At last seismic vulnerability assessment of buildings is performed using two rapid visual screening methods viz. National Disaster Management Authority (NDMA) India, Federal Emergency Management Agency (FEMA).

Seismic Safety Assessment of Life-line Buildings in Mandi District

(Project Associate Tenure) | IIT Mandi [**Aug 2021 – Oct 2022**]

Herein, extensive field surveys were performed for the preliminary seismic assessment of the hospital buildings through "Rapid Visual Screening (RVS)", NDT tests (Ultrasonic pulse velocity test, rebound hammer, and rebar-locater) were performed on buildings, and necessary data were collected. As built structural drawings were prepared and the hospital buildings were modelled and analyzed to assess their seismic safety. Final recommendations were proposed with detailed assessment reports for seismic strengthening of existing RC and masonry hospital buildings.

Comparative Cost-benefit Analysis of Buildings Installed with Seismic Mitigation Devices

(Postgraduate project) | IIT Mandi **[Sept 2020 – July 2021]**

This project aimed to estimate the seismic performance and expected seismic losses of multi-story buildings equipped with seismic base isolation and tuned mass damper (TMD). Moreover, detailed expected seismic losses of buildings were estimated for different ground motion intensities. The expected annual loss (EAL) was calculated, which will be used as an insurance premium for the buildings against damage-causing earthquakes. Further, cost-benefit studies were performed to provide the client or decision-makers with insightful information to choose a specific cost-effective seismic mitigation technique over various alternatives.

RELEVANT COURSES

- Structural Dynamics with Application to Earthquake Engineering
- Analysis and Design for Earthquake-Resistant Structures
- Finite Element Methods in Engineering
- Structural Engineering Laboratory
- Numerical Methods for Engineering Computation
- Engineering Seismology and Seismic Hazard Assessment (Audited)
- Blast Engineering (Audited)
- Advanced Design of Structures

WORKSHOPS AND SEMINARS

- Attended the 7th International Congress on Computational Mechanics and Simulation (ICCMS 2019) organized by IIT Mandi in December 2019.
- Attended the 3rd Kenji Ishihara Colloquium on Earthquake Engineering webinar series on May 2021, organized by EERI California (San Diego Regional Chapter).
- Attended Web-Based Training: FEMA P-2018, Seismic Evaluation of Older Concrete Buildings for Collapse Potential, presented under the National Earthquake Technical Assistance Program (NETAP) on 9th June 2021.
- Attended the short course on "Structural Reliability and Risk-Based Design" by Dr. Raffaele De Risi (a Senior Lecturer in Civil Engineering at the University of Bristol) at University G.d'Annunzio in Pescara, Italy between 16th January to 20th January 2023.
- Attended the Distinguished Lecture Series on "Towards Next Generation Design of Sustainable, Durable, Multi-hazard Resistant, Resilient, and Smart (SDuMuRS) Civil

Infrastructure" by Dr. Hong Hao, Professor, Curtin University, Australia on on 26th April 2023

POSITIONS OF RESPONSIBILITY

- Presented and demonstrated the theory and application of Non-Destructive Tests (NDT) on real-life structures using relevant codal provisions to master students in the "Structural Engineering Laboratory" course.
- Volunteered in the 7th International Congress on Computational Mechanics and Simulation (ICCMS 2019) organized by IIT Mandi in December 2019.
- Received honorarium from the director for assessing the academic building (A9) for further remoulding and retrofitting.
- Assisted Dr. S.K. Saha in preparing a presentation for a talk on "Repair and retrofitting for enhancing seismic performance of RC structures."
- Teaching assistant for the course 'Mechanics of Rigid Bodies (IC 240)'.
- ASCE Society Student Member, India Section - Southern Region and Structural Engineering Institute (SEI) Member.
- NSS IIT Mandi PG volunteer 2019-2021 and organized various social events like blood donation, plantation drives, and social awareness events in college and nearby villages.

STRENGTHS

- Persistence and adaptability in working through challenges and setbacks.
- Strong interest and curiosity to conduct scientific research and contribute to the growth of human knowledge.
- Good writing and communication skills in English.
- Flexible to work for any given role.
- Ability to conduct independent and collaborative research.
- Team player and can work with the team comfortably.
- Zeal to learn new things and a conscious being with a positive attitude. Constantly striving to enhance my perceptions and Intelligence to use myself to my full potential.
- I believe that "Sweat in practice is better than blood on the battlefield."

AWARDS AND ACHIEVEMENTS

- Received Teaching Assistantship by MHRD, Government of India, for pursuing M.Tech at Indian Institute of Technology Mandi through GATE Examination.
- Obtained partial scholarship (partial tuition fee waiver) from the Government of Telangana to pursue my B.Tech based on the merit of intermediate education (11th & 12th) and EAMCET entrance examination.
- Awarded full tuition fee wave off to pursue my intermediate education (11th & 12th) based on the merit of SSC (10th standard).

PERSONAL PROFILE

- Date of Birth : 29th October 1995.
- Languages Known : Telugu, Kannada, Hindi, and English.

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CONTACT DETAILS OF REFEREES

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