



Rishikesh Duarah

STRUCTURAL ENGINEER

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SUMMARY

- Currently working as an **Assistant Professor and Coordinator** in the Department of Civil Engineering at the Assam Royal Global University, Guwahati, Assam also **pursuing PhD from CSIR-NEIST, Jorhat**
- Worked as a **Structural Engineer** for **MAKS Engineers, PC in Hamilton, NJ, 2017-18**
- Worked as a **Structural Seismic Fragility Engineer** for **Southern Nuclear Operating Co**, a division of Southern Company in the **Risk Informed Engineering Department in Birmingham, AL, 2016-2017**
- Graduated from the **University at Buffalo, The State University of New York (SUNY)** with a **Master of Science (M.S.) in Civil/Structural Engineering, 2016**

EDUCATION

University at Buffalo, State University of New York, Buffalo, NY

M.S in Civil Engineering, Structural & Earthquake Engineering, GPA 3.3/4

Feb. 2016

Vellore Institute of Technology, Vellore, Tamil Nadu

Bachelor of Technology in Civil Engineering, GPA 8.52/10

May, 2014

Army Public School, Narangi, Guwahati, Assam

Senior School Certificate Examination, CBSE, Science, 88.9 %

May, 2010

St Stephen's High School, Tinsukia, Assam

High School Leaving Certificate Examination, SEBA, 86.17%

May, 2008

RELEVANT COURSEWORK

Advanced Structural Analysis, Advanced Mechanics of Solids, Structural Dynamics and Earthquake Engineering, Advanced Concrete Design, Advanced Steel Design, Pre-Stressed Concrete Design for Highway Structures, Masonry Design, Bridge Engineering, Foundation Engineering, and Soil Mechanics.

SKILLS

Technical: SAP2000, AUTO-CAD, Staad-Pro, Xtract, MS Office, RSP Match, Mathcad, SC-SASSI, Micro-Station

Codes: AISC Seismic Manual, ASCE 7, AASHTO LRFD, ACI-530, ACI-318, ACI-341, ASCE 4-98, IS 456, IS 1893

LICENCE CERTIFICATION (E.I.T.)

- Fundamentals of Engineering (F.E.) examination for Civil Engineering conducted by NCEES, USA November 2015
<https://account.ncees.org/rn/1599050-839235-dbed75a>
NCEES ID15-990-50
- Associate Member, Institution of Engineers(India), Kolkata, July 2023

PUBLICATION

1. Research Papers Published/Accepted for Publication in peer reviewed Journals:

Sl. No.	Research Papers Published in peer reviewed Journals
1.	Behavior of Masonry Infilled Walls with RC Frames under In-Plane Loads International Journal of Research for Applied Science and Engineering Technology, Volume 7 Issue IV, Apr 2019
2.	Behavior of Drift in a Soft Storey Building with Masonry and Steel Bracings International Journal of Research for Applied Science and Engineering Technology Volume 8 Issue IX, Sep 2020
	Research Papers Presented & Accepted for Publication
1.	Paper accepted and presented in National Conference on Science for Society, Environment and Sustainability (SSES-2022) held on November 24th-26th 2022 at CSIR-NEIST Jorhat on the topic “Relationship between Compressive Strength and Flexural Strength of Concrete: A Review”

2. Seminar, Workshop and FDPs Attended:

Sl. No.	Seminar, Workshop and FDPs attended
1.	CSIR-SRTP 2020 programme, organized by CSIR-NEIST Jorhat, June-August, 2020.
2.	Recent Trends in Structural and Environmental Engineering 08-11 July 2020, conducted by GIMT, Guwahati and organized by ASTU, Guwahati under TEQIP-III
3.	One Day Seminar "Steel: The Preferred Material of Construction in Seismic-prone Areas" on January 20, 2024 conducted by IIT-Guwahati and INSDAG

WORK EXPERIENCE

**Department Coordinator, Department of Civil Engineering, Royal Global University
October 2020- Present
Guwahati, Assam, India**

- Departmental coordination with Registrar’s Office and Vice-Chancellor’s Office, keeping all records relevant to the administration of the department
- Administrative responsibilities of the university dealing with students, guests and management of events.

**Assistant Professor, Department of Civil Engineering, Royal Global
University July 2018- Present
Guwahati, Assam, India**

- Responsibilities include teaching the students of Civil Engineering both in the Bachelor’s and Master’s level
- Started the Master’s course in Structural Engineering
- Currently working as a guide on two research projects including one relating to weak story buildings in Guwahati, Assam

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Structural Design Engineer, MAKS Engineers, PC July 2017- March 2018 Hamilton, NJ, USA

- Calculation of loads on frames and design of frames for renovating buildings.
- Worked on the design and production of drawings of sign structures on transportation structures.
- Worked on the design of a RCC 7-story building.
- Worked on the development of reports for inspection of bridges and culverts.
- Site visits for testing of materials and checking reinforcement placement in construction.

Structural Fragility Engineer, Southern Company March 2016-June 2017 Birmingham, AL, USA

- Finite Element Analysis 2D and 3D Modelling of nuclear power plant structures on SAP2000 under supervision of senior engineer.
- Development of site-specific acceleration time history records.
- Performing SSI analysis using SC-SASSI and seismic PRA fragility evaluations of nuclear power plant structures, for beyond design basis earthquakes.
- Calculation of factor of safety, conservative deterministic failure margin (CDFM) capacity for shear walls and associated risk in structure due to seismic hazard.
- Preparation of detailed report of calculations and drawings using Mathcad and AutoCAD respectively

ACADEMIC PROJECTS

Design of a Multi Girder Steel Bridge

Fall 2015

- Designed the superstructure of a single span and two span multi girder steel bridge.
- Design requirements were based on NYSDOT and AASHTO for capacity calculation of multi-girder steel I-section
- Load rating of the bridge for Strength I and Service II limit states along with adequate distribution factors was performed.
- Prepared design reports and CAD documents.

Analysis of a Bridge using MCEER/ATC 49 guidelines

Spring 2015

- A real-life bridge was selected for this project located in Boston, MA.
- The bridge was then modelled in SAP2000.
- Performed multi-mode, pushover, linear and non-linear time history analysis and assessed the bridges performance

Repair of a Pre-Stressed bridge using external Post-Tensioning

Spring 2015

- The objective was to study retrofit techniques for damaged bridges using external post-tensioning
- Studied various methods to apply external post tensioning to a precast beam girder.
- Calculated the ultimate moment capacity of the girder using two methods of external post tensioning.

Analysis of Masonry In-filled Walls with RC Frames

Spring 2015

- The objective was to devise a successful method to model masonry infilled walls.
- Studied various methods to model masonry in-filled walls
- Modelled and analyzed masonry in-filled walls using various strut models in SAP2000
- Performed pushover analysis and compared the various strut model results with the experimental results

Behavior of Reinforced Concrete Beams Incorporating Secondary Steel Fibre Reinforcement FYP 2014

- The objective was to study the possibility of replacing traditional steel stirrups in beams and columns

with steel fibres and its effects on the resistance to shear force.

- RCC beams reinforced with steel fibers, traditional stirrups or both together were studied.
- Load versus deflection plots of the concrete beams with steel fiber dosages ranging from 0.5% to 2% of the weight of concrete were plotted.
- Beams containing 1% steel fibers showed the best results and it was observed that steel fibers complimented the overall load carrying capacity of beam

Comparison of Response Spectrum of two places using RSP Match

Fall 2012

- A software named RSP Match was used and the response spectrum of a fault near Vellore was compared to places where major earthquake events have occurred.