**Dr. K.G. BHATIA
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FIE, FISET, FIAStructE, FICI, MISWE
Chartered Engineer IE(India); Honorary Engineer IISEE (Japan)**

<http://machinefoundation.com/profile.html>

**Formerly:**

* General Manager - Bharat Heavy Electricals Ltd.,
* President - Indian Society of Earthquake Technology
* Chairman - Indian Society of Earthquake Technology, Delhi Chapter
* Expert Member - Group on Earthquake Preparedness, Govt. of NCT of Delhi
* Member, Research Council, Structural Engineering Research Centre, A body of Council of Scientific & Industrial Research (CSIR), Government of India
* Member - Dept. of Science & Technology (DST), Government of India - Committee on Seismic Instrumentation
* Member - DST - Committee on Augmentation of shake table facility at Univ. of Roorkee
* Member - Selection Committee (as Chancellor's nominee) for position of Assistant Professor in Earthquake Engg. Dept. at Univ. of Roorkee
* Member - Selection Committee, for position of Professor in Continuing Education Dept. Univ. of Roorkee
* Member - Board of Studies, Institute of Technology - BHU, Varanasi, India
* Member - Standing Advisory Committee, Dept. of Applied Mechanics, Indian Institute of Technology, Delhi

**MEMBER - PROFESSIONAL BODIES**

**PROFESSIONAL BODIES**

* Fellow, India Society of Earthquake Technology
* Fellow, Institution of Engineers (India)
* Fellow, Indian Association of Structural Engineers
* Fellow, Indian Concrete Institute
* Member, Indian Geotechnical Society
* Member, International Society of Soil Mechanics & Foundation Engineering
* Member, Indian society of Wind Engineering

**OTHERS**

* MEMBER, BUREAU OF INDIAN STANDARDS on the following committees:
	+ CED 39 Earthquake Engineering (IS 1893 - Pt 1 - Member main body)
	+ CED 39:6 Industrial Structures (Convenor IS 1893 - Pt 4)
	+ CED 37 Structural Safety of buildings (IS 875)
	+ MED 28 Mechanical Vibration and Shock
	+ CED 43 Foundations Subjected to Dynamic Loads

**PUBLICATIONS:**

**(a) Book**

(i) Foundations for Industrial Machines- A Handbook for Practising Engineers, 1st edition, D-CAD Publishers, March 2008, New Delhi, India. (ii) Foundations for Industrial Machines- A Handbook for Practising Engineers, 2nd edition, D-CAD Publishers, Sept 2011, New Delhi, India.

**(b) Technical Papers**

1. BHATIA KG and DRAKOPOULOS JC, "A study on the displacement components of Rayleigh wave", Journal "Annali di Geofisca", Vol. XXIV, no.1, Greece, 1971.
2. SWAMEE PK and BHATIA KG, "Economic Open Channel Sections", Journal of Irrigation & Power, India, April 1972.
3. BHATIA KG and DRAKOPOULOS, JC, "On the analysis of Rayleigh wave in elastic media", Journal "Annali di Geofisca", Vol. XXV, no.l, Greece, 1972.
4. BHATIA KG and SINHA KN, "Effect of Soil Structure Interaction on the Behaviour of Machine Foundations", International Symposium on Soil Structure Interaction, University of Roorkee, Roorkee, India, 1977.
5. BHATIA, KG, "Soil Structure Interaction Problems under Dynamic loads" - A theme report - International Symposium on Soil Structure Interaction, University of Roorkee, Roorkee, India, 1977.
6. BHATIA KG et.al. "Seismic Analysis of Steam Generator & PHT System", 6th Symposium on Earthquake Engineering, University of Roorkee, Roorkee, India, 1978.
7. KAMESWARA RAO C and BHATIA KG, "Torsional Vibrations of Short Thin-Walled Beams by FEM", 6th Symposium on Earthquake Engineering, University of Roorkee, Roorkee, India, 1978.
8. BHATIA KG et.al., "Soil Structure Interaction Effect on the Response of Turbo-generator Foundation", All India Seminar on Turbo Generator Foundations, Nagpur, India, 1980.
9. BHATIA KG et.al., "Three Dimensional Analysis of 110 M.W. Boiler Support Structure subjected to Seismic Excitation", 7th World Conference on Earthquake Engineering, Istanbul, Turkey, 1980.
10. BHATIA KG, "Soil Structure Interaction Effects on the Response of 210 MW TG Frame Foundation", International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, St. Louis, U.S.A., 1981.
11. BHATIA KG and NATRAJAN R, "No Tension Approach to Define Failure Phenomena for Rock-fill Dam subjected to Earthquake Loading", International Conference on Recent advances in Geotechnical Earthquake Engg. and Soil Dynamics, St. Louis, U.S.A., 1981.
12. BHATIA KG, MATHUR A and MEHROTRA VK, "Earthquake Design Criteria of Power Plant Equipment", Symposium on Earthquake Disaster Mitigation, University of Roorkee, Roorkee, India, 1981.
13. JIYAVAN R, GANAPATHI K & BHATIA KG, "Dynamic Analysis of a Parallel-flow Heat Exchanger Tube", BHEL Journal, New Delhi, India, 1981.
14. RAMDASA K, SINGH AK and BHATIA K.G, "Dynamic Analysis of Frame Foundation Using FEM", 7th Symposium on Earthquake Engg., Roorkee, India, 1982.
15. SINGH AK, and BHATIA KG, "Seismic Analysis of Vertically Mounted Heaters", 7th Symposium on Earthquake Engg., Roorkee, India, 1982.
16. KAMESWARA RAO C, RAMADASA, K, SINGH AK. and BHATIA KG, "An Approximate Analysis of 110 MW Boiler Support Structure subjected to Seismic Excitation", 7th Symposium on Earthquake Engg., University of Roorkee, Roorkee, India, 1982.
17. KAMESWARA RAO C and BHATIA KG, "Seismic Analysis of 220 kV Current and Voltage Transformers", 7th Symposium on Earthquake Engg., University of Roorkee, Roorkee, India, 1982.
18. SINGH AK, RAMADASA, K., KAMESWARA RAO, C. and BHATIA KG, "Seismic Analysis of General Piping System for Narora Atomic Power Plant", 7th Symposium on Earthquake Engg., University of Roorkee, Roorkee, India, 1982.
19. SINGH AK, RAMADASA K, BHATIA KG and SHARMA J.M., "Dynamic Analysis of Power Plant Piping System under Shock Load", 7th Symposium on Earthquake Engg., University of Roorkee, Roorkee, India, 1982.
20. KAMESWARA RAO C. and BHATIA KG, "Evaluation of Seismic Analysis Techniques for Static Electrical Equipment", 7th Symposium on Earthquake Engg., University of Roorkee, Roorkee, India, 1982.
21. BHATIA KG and NATRAJAN, R., "No Tension Analysis to Study the Effects of Reservoir on the Failure Acceleration of Rock-fill Dam During Earthquake", 7th Symposium on Earthquake Engg., University of Roorkee, Roorkee, India, 1982.
22. BHATIA KG, "Machine Foundation in Power Plant and other Industries - Case Studies", International Conference on Case Histories in Geotechnical Engg., University of Missouri - Rolla, St. Louis, U.S.A., 1984.
23. SINGH AK and BHATIA KG, "Modelling Aspects in Evaluating Response of Main PHT System", Symposium on Earthquake Effects on Plant and Equipment, Hyderabad, India, 1984.
24. BHATIA KG, "On the Seismic Qualification of Plant and Equipment", Symposium on Earthquake Effects on Plant and Equipment, Hyderabad, India, 1984.
25. BHATIA KG, "Earthquake Withstanding and Check Analysis of Equipment", Bulletin of the Indian Society of Earthquake Technology, India, June 1987.
26. SINGH AK and BHATIA KG, "Seismic Qualification of Nuclear Equipment", 9th World Conference on Earthquake Engg., Tokyo, Japan, 1988.
27. SINGH AK and BHATIA KG, "Base Isolation of Equipment and System", Bulletin of Indian Society Earthquake Technology, India, Dec. 1989.
28. SINGH AK and BHATIA KG, "The Seismic Qualification of Mechanical Systems", Third International Conference on Case Histories on Geotechnical Engineering. St. Louis, Missouri, USA, June 1-6, 1993.
29. BHATIA KG, SINGH AK and MISRA R, "Equipment Qualification subjected to Dynamic Load" Tenth Symposium on Earthquake Engineering, University of Roorkee, Roorkee, India, 1994.
30. BHATIA KG, "Seismic Qualification of Machinery" Symposium on Earthquake Effects on Structures, Plant and Machinery" New Delhi, India, 1996.
31. BHATIA KG, "On The Earthquake Resistant Design of Industrial Structures : Codal Provisions", Proc. 11th Symposium on Earthquake Engineering, Roorkee, India, 1998
32. BHATIA KG, "Seismic Safety Regulations for Indian Industries", An Invited talk,11th Symposium on Earthquake Engineering, Roorkee, India, 1998
33. BHATIA KG, "Machine Foundation Design : a state of the art", Journal of Structural Engineering, Vol. 33, No. 1, April-May 2006, pp 69-80

**Technical Reports**

**Field Problems**

* Higher vibration problem of 110 MW Turbo Generator Unit at Paricha, UP.
* Pen Stock Vibration of Salal Hydro Power Station.
* Strengthening of Boiler Support structure of Wanakbori (IV) Thermal Power Plant.
* Stress & Vibration Analysis of TG Foundation JTPCL, Torrangallu
* Stress & Vibration Analysis of ID Fan for TNPL Recovery Boiler
* Vibration measurement of Compressor Unit-II for Amorphous Silicon Plant, Gurgoan
* Vibration measurement on TG foundation Unit-1&2 at Narora Atomic Power Station
* High Vibration Problem of TG Pedestal at Khaperkheda Thermal Power Station
* Stress analysis of Disc & blade of HP Stage 4 for 236 MWe Madras Atomic Power Plant

**Machine Foundation Design**

* Frame Foundations for very high speed compressors of - G.O.P. Naphtha Cracker Project, IPCL, Baroda.
* Hyper Compressor Foundation for - PFY, IPCL, Baroda, using vibration isolation system.
* Design of Machine Foundations for Turbo Generator, Boiler Feed Pump, ID Fan, FD Fan, GR Fan Etc. for
	1. 120 MW Tripoli West Power Station
	2. 60 MW Captive Power Plant, I.O.C., Mathura
	3. 210 MW Thermal Power Station, Parli, Maharashtra
* Vibration Isolation System for Gas Turbine foundation at Trichy

**Stress and Vibration Analysis of Motors, Fans and Blowers**

* Dynamic analysis of Vertical Motor for Vijaywada Thermal Power Station
* Dynamic analysis of IGNP Motor
* Dynamic analysis of Vertical Motor
* Frequency calculation of Fan 11 bladed
* Analysis of Vertical Blower
* Dynamic analysis of 6 pole General Motor

**Weight Optimisation**

* Weight optimisation of Transmission Tower for Rokhia Thermal Power Station
* Weight optimisation of Boiler Chimney for NEEPCO
* Weight optimisation of Boiler Chimney for TEC
* Weight optimisation of Boiler Chimney for IOC Digboi
* Stress and Vibration Analysis of Reactor Tank (80R)
* Circuit Breaker Support Structure

**Seismic Analysis**

**Nuclear Power Plants**

* Seismic analysis of Steam Generator and Main Primary Heat Transport System for 236 MWe Kaiga Atomic Power Plant
* Seismic analysis of Steam Generator and Main Primary Heat Transport System for 236 MWe Rajasthan Atomic Power Plant
* Seismic Qualification of a) Moderator Heat Exchanger, b) Reserve Gas Cylinder, c).Pressuriser, d) Bleed Condenser, e) Bleed Cooler, f) ECC Cooler and g) FM Return Cooler for 500 MWe Nuclear Power Plant
* Seismic analysis of Steam Generator and Main Primary Heat Transport System for 500 MWe Nuclear Power Plant

**Thermal Power Plants and Industrial Systems**

* Seismic Qualification of Industrial Boiler structure for IOC Digboi
* Seismic Qualification of Industrial Boiler structure for NEEPCO, Kathalguri
* Seismic Qualification of Condenser for Dahanu Thermal Power Plant
* Seismic Qualification Boiler Feed Pump Motor for Cyprus
* Seismic Qualification of LP Heater for Dahanu Thermal Power Plant
* Seismic Qualification of Turbine Oil Cooler for Dahanu Thermal Power Plant

**Shock Analysis**

* Shock analysis of Main Motor Generator
* Shock analysis of Electrical Control Panel for Main Motor Generator