

Figure 2: Double layer Bamboo space structure

The structural component has been developed recently in a concrete column reinforced with bamboo segments of the *Dendrocalamus giganteus*. As can be seen in Figure 3 it can work as permanent shutter and one economises the finish (Ghavami 2001).



Professor Khosrow Ghavami

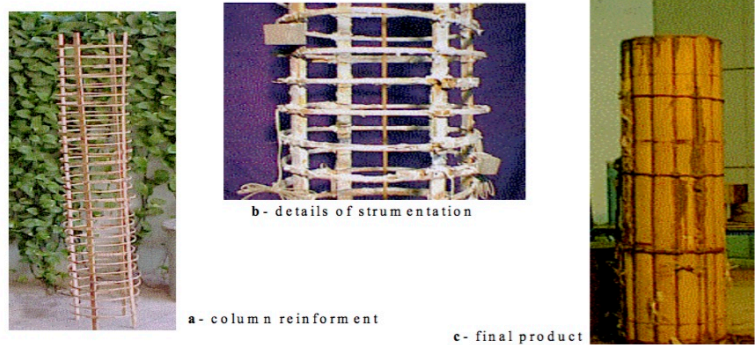


Figure 3: Bamboo rods as reinforcement for concrete column

From: Khosrow Ghavami, "Eco-construction and infrastructure", RIO3 – World Climate & Energy Event, 1-5 December 2003, Rio de Janeiro, Brazil

See:

- https://www.researchgate.net/profile/Khosrow_Ghavami
- <https://br.linkedin.com/in/khosrow-ghavami-90bb0611>
- https://scholar.google.com.br/citations?user=3PO_qxQAAAAJ&hl=en
- http://www.rio12.com/rio3/proceedings/RIO3_431_K_Ghavami.pdf

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Biography:

Khosrow Ghavami is Emeritus Professor of the Civil Engineering Department at Pontificia, Universidade Católica do Rio de Janeiro (PUC-Rio), visiting senior research scientist at FZEA/USP Sao Paulo, Research Fellow of the National Council of Research (CNPq Level, 1A highest level since 1978) and Scientist of our State, (FAPERJ) Brazil, Honorary Professor and Doctor at the Federal University of Paraiba (UFPB). He is the Founding Member, Chairman of the International Committee on Non-conventional Materials and Technologies, (IC-NOCMAT since 1984), of "Brazilian Association of Non-conventional Materials and Technologies (ABMTENC)", Fellow of American Society of Civil Engineers (F.ASCE), Member of Brazilian Institute of Concrete (IBRACON), Gesellschaft fuer Angewandte Mathematic and Mechanics (GAMM until 2000) and American Mathematical Society (until 2003). Emeritus member of Brazilian Association of Mechanical Sciences, (ABCM). He acted as consultant and coordinator of various national and international projects. He is collaborating with UFPB, University of Sao Paulo (USP), University of Campina Grande (UFCG), CEFET of

Minas Gerais, ENTPE-France, Princeton University, University of Tanzania, Witswatersrand University, etc. Research Fellow - Imperial College of Science, Technology and Medicine until 1978, and since 2003 is visiting Research Fellow at Princeton University. He is member of the Editorial Board of Journals: Green Materials, Structures and Building, published by the Institution of Civil Engineers, England. Thin-Walled Structures, Journal of Constructional Steel Research (until 2005) and Cement & Concrete Composites (until 2012) - all published by Elsevier. Engineering Structures & Technologies, published by Taylor Francis and Vilnius Gedimino Technical University. Asian Journal of Civil Engineering (Iran), Brazilian Journal of Agricultural and Environmental Engineering among others. He has experience in Civil Engineering, with emphasis on Structural Engineering and non-conventional Materials and Technologies (NOCMAT). His continuing research on bamboo and integrated composites reinforced with vegetable fibers and bamboo started in 1979, developing structural elements using recently developed materials. He has been carrying out research programs considering the theoretical and experimental analysis of Plates and Shells. He has been founding member of the committee of the ISO norm for Bamboo Structures besides being the founding member of INBAR (International Network for Bamboo and Rattan). He has edited and co-edited 15 books besides 11 book chapters. Dr. Ghavami presented more than 35 invited Keynote lectures in four continents of the globe. He has supervised more than 80 Master and Ph.D., thesis besides being organizer and co-organizer of many International conferences. He is the author and co-author of more than two hundred and forty technical papers. He received his Ph.D. and DIC. from Imperial College of Science and Technology, University of London, and B.Sc.(with First Class Honors) and M.Sc. (with distinction) from Drudjbi Narodov University, Moscow-Russia.

Selected Publications:

- Ghavami, K., 1973. Experimental Study of Stiffened Plates in Compression up to Collapse”, Journal of Constructional Steel Research, 28: 197-221.
- Ghavami K, Conci A, Rocha SAS. (1983) Resistencia Compressao De Placas De Aco Enrijecidas Longitudinalmente. In Proc. VII Congress Brasileiro de Engenharia Mecanica-COBEM 83, Uberlandia, Brasil: 339-349.
- Ghavami K, Conci A, Rocha SAS. (1983) Metodos De Calculo De Placas Enrijecidas Sob Carregamento De Compressao Axial. In Proc. VII Congress Brasileiro de Engenharia Mecanica-COBEM 83, Uberlandia, Brasil: 351-361.
- Ghavami K. (1986) The Collapse of Continuously Welded Stiffened Plates Subjected to Uniaxial Compression Load. In Proc. Inelastic Behaviour of Plates and Shells, Simp. Rio de Janeiro, 1985, eds. L. Bevilacqua, R. Feijoo & R. Valid, Springer Berlin: 404-415.
- Ghavami, K. Experimental study of stiffened plates in compression up to collapse. Journal of Constructional Steel Research, v. 28, n. 2, p. 197–222, 1994. (Special Brazilian Issue, Guest Editor Khosrow Ghavami).
- Brosowski B, Ghavami K. (1996) Multi-Criteria Optimal Design of Stiffened Plates. Part I, Choice of the Formula for Multi-Criteria for Buckling Load. Thin Walled Structures. 24(9): 353-369.
- Brosowski B, Ghavami K. (1997) Multi-Criteria Optimal Design of Stiffened Plates. Part II, Mathematical Modelling of the Optimal Design of Longitudinally Stiffened Plates. Thin Walled Structures. 28(2): 179-198
- Khosrow Ghavani, “Eco-construction and infrastructure”, RIO3 – World Climate & Energy Event, 1-5 December 2003, Rio de Janeiro, Brazil
- Ghavami, K. and M.R. Khedmatib, 2006. Numerical and experimental investigations on the compression behaviour of stiffened plates. Journal of Constructional Steel Research, 62: 1087-1100.
- Mohammad Reza Khedmati, Mehran Rastani and Khosrow Ghavami, “Numerical study on the permissible gap of intermittent fillet welds of longitudinally stiffened plates under in plane axial compression”, Journal of Constructional Steel Research, Vol. 63, No. 10, October 2007, pp. 1415-1428
- Mohammad Reza Khedmati, Khosrow Ghavami and Mehran Rastani, “A comparative study on three different

construction methods of stiffened plates-strength behaviour and ductility characteristics”, Rem: Revista Escola de Minas, Vol. 60, No. 2, April/June 2007

Mohammad Reza Khedmati and Khosrow Ghavami, “A numerical assessment of the buckling/ultimate strength characteristics of stiffened aluminium plates with fixed/floating transverse frames”, Thin-Walled Structures, Vol. 47, No. 11, pp 1373-1386, November 2009

Khostrow Ghavami and Mohammad Reza Khedmati, “Nonlinear large deflection analysis of stiffened plates”, Chapter 4 in Finite Element Analysis – Applications in Mechanical Engineering, edited by Farzad Ebrahimi, October 2012