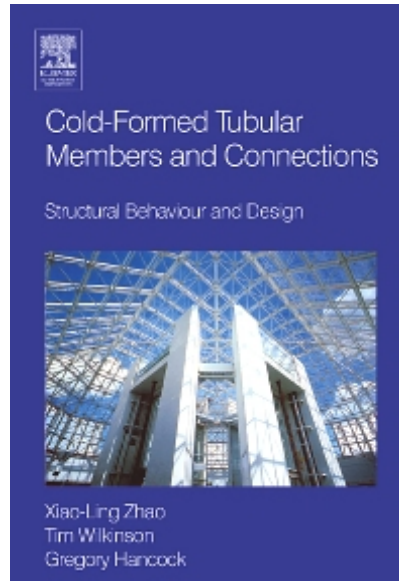




**Professor Tim J. Wilkinson**



From: Zhao, X., Wilkinson, T., Hancock, G., Cold-Formed Tubular Members and Connections: Structural Behaviour and Design. Sydney: Elsevier, 2005, 240 pages.

See:

<http://sydney.edu.au/research/opportunities/supervisors/266>  
<http://sydney.edu.au/engineering/people/tim.wilkinson.php>

Center for Advanced Structural Engineering  
School of Civil Engineering  
The University of Sydney

### **Autobiography:**

"Structural steel is used as the 'skeleton' that supports buildings and bridges. Columns and beams of steel are held together with connections made from bolts and welds, and we need to ensure that these components and the connections between them do not buckle or break. As technology advances we are increasingly able to make thinner and stronger steel beams, but this can sometime induce new and different types of buckles to develop. My research considers how new shapes and strengths of steel beams will behave. Will they buckle in the same way as older, thicker beams, or do we need to consider new types of failure that we must avoid? Some of my work is carried out in our structures laboratory, using hydraulic machines that can place heavy loads onto beams and columns to simulate what they experience in a real building or bridge. I record how they behave under these loads, and then analyse these results on a computer. My research allows me to use a combination of engineering knowledge, mathematical skills and common sense to find solutions to engineering challenges, but it's my teaching that gets me most excited. I've taught more than 2000 civil engineering students over the past 15 years, and those students have gone on to design and build hundreds of buildings, bridges, roads and tunnels. I like to think that I've had an influence on them and given them some of the theoretical and practical grounding that has enabled them to become so successful."

### **Research Interests:**

Behaviour, design and connections in cold-formed structural steel hollow sections and open sections; steel connections; welding; finite element analysis; internet; improving learning and teaching outcomes in

engineering; Structural Behaviour of Hollow Flange Channels; Local Buckling of Structural Steel Hollow Sections; Connections in Steel Structures and Floor Vibrations in High Rise Buildings.

**Activities:**

Conference Secretary of CIMS2008 (5th International Conference on Coupled Instabilities in Metal Structures)  
Technical Expert for CIDECT (Comite International pour le Developpement et l'Etude de la Construction Tubulaire)

2006-2007: Australian Steel Institute: Professional Development Lectures - AS 4100 Steel Design Refresher Course - Sydney, Brisbane, Perth, Melbourne

Member of Standards Australia Committee WD003, Welded Structures

**Selected Publications:**

**Book:**

Rasmussen K. and Wilkinson T. (Editors), Proceedings of the fifth International Conference on Coupled Instabilities in Metal Structures CIMS2008, University Publishing Service, The University of Sydney, 2008

Zhao, X., Wilkinson, T., Hancock, G., Cold-Formed Tubular Members and Connections: Structural Behaviour and Design. Sydney: Elsevier, 2005, 240 pages.

**Journal Articles, etc:**

Becque, J., Wilkinson, T. (2015). A new design equation for side wall buckling of RHS truss X-joints. 15th International Symposium on Tubular Structures (ISTS 2015), London: CRC Press/Balkema.

Yao, Z., Wilkinson, T. (2015). Experimental investigation of the static capacity of grade C450 RHS K and N truss joints. 15th International Symposium on Tubular Structures (ISTS 2015), London: CRC Press/Balkema

Mohan, M., Wilkinson, T. (2015). Finite element simulations of 450 grade cold formed K and N joints. 15th International Symposium on Tubular Structures (ISTS 2015), London: CRC Press/Balkema

Becque, J., Wilkinson, T. (2012). Experimental investigation of the static capacity of grade C450 RHS T and X truss joints. The 14th International Symposium on Tubular Structures (ISTS14), Leiden: CRC Press.

Mohan, M., Wilkinson, T. (2012). FEA of T & X joints in Grade C450 steel. The 14th International Symposium on Tubular Structures (ISTS14), Leiden: CRC Press.

Duong, D., Md Yusof, A., Wilkinson, T. (2011). Compression Capacity of Hollow Flange Channel Sections with Web Penetrations. 7th International Conference on Steel and Aluminium Structures (ICSAS 2011), Singapore, Singapore: Research Publishing Services

Wilkinson, T., Judd, M., Popplewell, M., Salhani, J. (2010). Bearing capacity of hollow flange beams with web penetrations. 13th International Symposium on Tubular Structures, London, UK: CRC Press.

Wilkinson, T., Stock, D., Hastie, A. (2010). Eccentric cleat plate connections in hollow section members in compression. 13th International Symposium on Tubular Structures, London, UK: CRC Press.

Wilkinson, T., Ranzi, G., Williams, P., Edwards, M. (2009). Bolt prying in hollow section base plate connections. Sixth International Conference on Advances in Steel Structures, Hong Kong: Hong Kong Institute of Steel Construction.

Wilkinson, T., Ning, X., Yang, A., Yang, B. (2009). Capacity of screwed connections between fabricated fittings and cold-formed hollow sections. Sixth International Conference on Advances in Steel Structures, Hong Kong: Hong Kong Institute of Steel Construction.

Cao, Y., Wilkinson, T. (2009). Shear capacity of hollow flange channel beams in simple connections. 12th International Symposium on Tubular Structures (ISTS12), The Netherlands: CRC Press/Balkema.

Wilkinson, T., Jouaux, R. (2008). Critical Strain in the Flange Local Buckling of Square Hollow Sections in Bending. 5th International Conference on Advances in Steel Structures, Singapore: Research Publishing Services.

McMahon, B., Laing-Peach, T., Spear, N., Wilkinson, T. (2008). Shear Capacity of Litesteel Beams with Circular Web Openings. Fifth International Conference on Thin-Walled Structures, Brisbane, Australia: Queensland University of Technology.

Wilkinson, T., Dempsey, R. (2008). The Evolution of Hollow Flange Sections: From Concept to Practice. Fifth International Conference on Coupled Instabilities in Metal Structures CIMS2008 (volume 2), Sydney Australia: The University Publishing Service, University of Sydney.

Williams, P., Edwards, M., Wilkinson, T., Ranzi, G. (2008). Uplift Tests on Steel Hollow Section Baseplate Connections on Concrete Footings. 5th International Conference on Advances in Steel Structures, Singapore: Research Publishing Services.

Wilkinson, T. (2007). Combined Action Member Design In As 4100. Pacific Structural Steel Conference 2007 - Steel Structures in Natural Hazards (PSSC 2007), New Zealand: New Zealand Heavy Engineering Research Association and Steel Construction New Zealand.

Wilkinson, T., Brecht, M., Turner, J., Walford, T. (2007). Combined bending and bearing capacity of a new generation of hollow flange channel sections in cold-formed steel. Pacific Structural Steel Conference 2007 - Steel Structures in Natural Hazards (PSSC 2007), New Zealand: New Zealand Heavy Engineering Research Association and Steel Construction New Zealand.

Zhu, Y., Wilkinson, T. (2007). Compression capacity of hollow flange channel stub columns. Steel and Aluminium Structures ICSAS'07, Oxford, UK: Oxford Brookes University.

Cao, Y., Wilkinson, T. (2007). Shear Connection Tests for Hollow Flange Channels. Steel and Aluminium Structures ICSAS'07, Oxford, UK: Oxford Brookes University.

Wilkinson, T., Zhu, Y., Yang, D. (2006). Behaviour of hollow flange channel sections under concentrated loads. 11th International Symposium and IIW International Conference on Tubular Structures (2006), Leiden, The Netherlands: CRC Press/Balkema.

Zhu, Y. and Wilkinson, T. (2006), "Finite element analysis of structural steel elliptical hollow sections in pure compression", Proceedings of 11th International Conference on Tubular Structures, Quebec.

Wilkinson T., (2006), Structural Mechanics, Pearson Education, ISBN 978-0-7339-8023-7

Wilkinson, T., (2006), "Classification for local buckling of cold-formed tubular members", Proceedings, India Australia Workshop on Cold-Formed Steel Structures, Madras, India, January 2006, pp 201-218.

Wilkinson, T. & Teh, L. H., (2006), "Rotation Capacity of Hollow Section Connections", Proceedings, India Australia Workshop on Cold-Formed Steel Structures, Madras, India, January 2006, pp 245-262.

Zhao X. L., Wilkinson T. and Hancock G. J., (2005), Cold-Formed Tubular Members and Connections: Structural Behaviour and Design, Elsevier, ISBN 0-080-4410-17

Wilkinson, T., Daniels, D., Wilton, M., & Wood, D, (2005), "Uplift Tests on Column Base Plate Connections", Advances in Steel Structures, Proceedings of the 4th International Conference on Advances in Steel Structures, Shanghai, China, Shen, Z. Y., Li, G. Q. & Chan, S. L. (eds), Elsevier, pp 1801-1806.

Wilkinson, T., & Jouaux, R., (2005), "Tests to Examine the Effect of Axial Compression on the Rotation Capacity of Square Hollow Sections", Advances in Steel Structures, Proceedings of the 4th International Conference on Advances in Steel Structures, Shanghai, China, Shen, Z. Y., Li, G. Q. & Chan, S. L. (eds), Elsevier, pp 1807-1812.

Yang, D., & Wilkinson, T., (2005), "Bearing Tests of LiteSteel Beams (LSB)", Structural Engineering - Preserving and Building into the Future, Proceedings of the Australian Structural Engineering Conference 2005, Newcastle, Australia, Stewart, M & Dockrill, B. (eds), Engineers Australia, on CD.

Cao, Y., & Wilkinson, T., (2005), "Combined Axial Compression and Bending Tests of Cold-Formed Rectangular Hollow Sections", Structural Engineering - Preserving and Building into the Future, Proceedings of the Australian Structural Engineering Conference 2005, Newcastle, Australia, Stewart, M & Dockrill, B. (eds), Engineers Australia, on CD.

Hancock G.J., Bradford M.A., Wilkinson T.J., Uy B. and Rasmussen K.J.R. (Eds), (2003), "Advances in Structures – Steel, Concrete, Composite and Aluminium", Proceedings ASSCCA'03, Balkema, Rotterdam, Volumes 1&2. ISBN 90 5809 588 6.

Wilkinson T. and Hancock G. J., (2002), "Predicting the rotation capacity of cold-formed RHS beams using finite element analysis", Journal of Constructional Steel Research, Elsevier, Vol 58, No 11, November 2002, pp 1455 - 1471.

T. Wilkinson, G.J. Hancock (2002), Finite element analysis of plastic rectangular hollow sections beams, Research report N° R792, Department of Civil Engineering, University of Sydney, Australia