



Professor Herm Hofmeyer

The middle and right-most images above are from: H. Zakhimi, H. Hofmeyer, H.H. Snijder and M. Mahendran, “Explicit and interaction direct strength methods for combined web crippling and bending moment failure of first-generation trapezoidal steel sheeting”, *Thin-Walled Structures*, Article 106927, Vol. 157, December 2020

See:

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Summary:

Hèrm Hofmeyer is a professor in the Department of the Built Environment at Eindhoven University of Technology (TU/e). He enthusiastically focuses on two types of research. The first, Computational Structural Design, involves the application of Computer Science to building structures and their design process. Unique developments include automated zoning, iterative structural grammars, stabilization, generation of conformal geometries, simulations of co-evolutionary design processes, and structural optimization. Applying the high scientific standards of Applied Mechanics, the developments are verified with additional implementations, genetic algorithms, and case studies from practice. The second type of research is related to the application and further development of the finite element method for structural engineering. Using experimental data, dedicated finite element models are developed to obtain in-depth knowledge on the structural behavior. Specifically for thin-walled structures, corner radii and supports with contact are modeled accurately, and dedicated solution strategies are followed to enable mode-jumping and failure mechanisms with a dynamical nature. The knowledge obtained is used for theoretical models that improve or compare current design rules.

Academic Background:

Hèrm Hofmeyer obtained an MSc in Computer Aided Structural Design/Applied Mechanics in 1994. Parallel to a part-time job as a responsible lecturer in architectural design studios, he was awarded a PhD in Applied Mechanics/Steel Structures in 2000. He was a visiting PhD student at Universität Stuttgart, Germany (Prof. E. Ramm) and QUT Brisbane, Australia (Prof. M. Mahendran). After his PhD, he became part-time Assistant Professor and unit board member Research Affairs, and part-time Specialist and Project Leader at ABT consulting engineers. Since 2006, he is a full-time Associate Professor with ‘Ius Promovendi’, the right to award PhD's, and was unit vice-chair up to 2016. Hèrm was also a visiting scholar at the Université de Liège, Belgium (Prof. J.-P. Jaspart), and RWTH Aachen, Germany (Prof. P. Russell). Over 35 scientific articles, 70

scientific conference contributions, and 60 MSc-theses have been published, of which several awarded. Hèrm acts as reviewer for ISI journals; is member of conference scientific committees; and serves as jury member for (inter)national research foundations. Nine PhD and two PDEng positions have been obtained via external research funds, and he has additionally supervised two government-financed PhDs as a co-promotor. He received a University Teaching Qualification with highest distinction for 7 out of 8 criteria, and received the Department's Bronze Award 'MSc lecturer 2016' and Gold Award 'BSc lecturer 2019'. Finally, he is member of ECCS-TC7, CIB-W78, and the Graduate School Engineering Mechanics.

Selected Publications:

- H. Hofmeyer, Combined web crippling and bending moment failure of first-generation trapezoidal steel sheeting, experiments, finite element models, mechanical models, PhD-thesis + report, Technische Universiteit Eindhoven, Department of Architecture, Building and Planning, Structural Design Group (2000)
- Hofmeyer, H., Kerstens, J., Snijder, B. & Bakker, M. 2000, "FE Models for sheeting under interaction load", Fifteenth International Specialty Conference on Cold-Formed Steel Structures, pp. 105-119.
- Hofmeyer, H., Kerstens, J., Snijder, B. & Bakker, M. 2001, "New prediction model for failure of steel sheeting subjected to concentrated load (web crippling) and bending", *Thin-Walled Structures*, vol. 39, pp. 773-796
- H. Hofmeyer, J.G.M. Kerstens, H.H. Snijder, M.C.M. Bakker, Combined web crippling and bending moment failure of first-generation trapezoidal steel sheeting, *J. Constr. Steel Res.*, 58 (2002), pp. 1509-1529
- Hofmeyer, H. 2005. Cross-section crushing behaviour of hat-sections (Part I: Numerical modelling). *Thin Wall. Struct.*, 43: 1143–1154.
- Hofmeyer, H. 2005. Cross-section crushing behaviour of hat-sections (Part II: Analytical modelling). *Thin Wall. Struct.*, 43: 1155–1165.
- M. C. Bakker, M. Rosmanit and H. Hofmeyer, Elastic post-buckling analysis of compressed plates using a two-strip model, *Thin-Walled Struct.* 45(5) (2007) 502–516.
- M.C.M. Bakker, M. Rosmanit, H. Hofmeyer, Prediction of the elasto-plastic post-buckling strength of uniformly compressed plates from the fictitious elastic strain at failure, *Thin-Walled Struct.*, 47 (2009), pp. 1-13
- H. Hofmeyer, M. Rosmanit, M.C.M. Bakker, Prediction of sheeting failure by an ultimate failure model using the fictitious strain method, *Thin-Walled Struct.*, 47 (2009), pp. 151-162
- H. Hofmeyer and J. Courage, "Analytical and finite element modeling of long plate mode jumping behaviour", *Thin-Walled Structures*, Vol. 73, pp 101-111, December 2013
- R.A.J. Heurkens, H. Hofmeyer, M. Mahendran, H.H. Snijder, Direct strength method for web crippling—lipped channels under EOF and IOF loading, *Thin-Walled Struct.*, 123 (2018), pp. 126-141
- H. Hofmeyer, E.M.C. Vervoort, H.H. Snijder, J. Maljaars, Representativeness of compressed flange behaviour for trapezoidal steel sheeting under combined web crippling and bending, *Proceedings of the 8th International Conference on Thin-Walled Structures ICTWS*, July 24-27, Lisbon, Portugal (2018)
- H. Zakhimi, H. Hofmeyer, H.H. Snijder and M. Mahendran, "Explicit and interaction direct strength methods for combined web crippling and bending moment failure of first-generation trapezoidal steel sheeting", *Thin-Walled Structures*, Article 106927, Vol. 157, December 2020