

CURRICULUM VITAE | WIBKE DE VILLIERS

PERSONAL INFORMATION

NAME Wibke Irmtraut de Villiers (née Dunaiski)
DATE OF BIRTH 31 August 1984
GENDER Female
NATIONALITY South African
LANGUAGES English, Afrikaans & German fluent

CONTACT DETAILS

TEL NUMBER +27 21 808 4072
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QUALIFICATIONS

2006.12 Bachelor's Degree in Civil Engineering, Stellenbosch University, Cum Laude
2008.12 Master's Degree in Civil Engineering, Stellenbosch University, Cum Laude
2019.12 Doctor in Philosophy in Civil Engineering, Stellenbosch University

RESEARCH INTERESTS

Development and regulation of alternative sustainable building materials
Life cycle analysis of building materials

WORK EXPERIENCE

2009.02 – 2010.12 Aurecon: Structural design engineer
2011.01 – present Stellenbosch University: Lecturer, Researcher – Unit for Construction Materials

AWARDS & ACHIEVEMENTS

2003 Liebenberg & Stander Prize for Best First Year in Civil Engineering
2005 Best Student in Communication in Civil Engineering
2006 Best Student in Structural Steel Design
2018 PhD Participation Grant in 72nd RILEM Week, Delft, Netherlands
2019 HL Reitz Medal for Best Postgraduate Student in Civil Engineering

BURSARIES

2003 – 2005 South African Institute of Steel Construction Bursary
2006 – 2008 Wilhelm Frank Scholarship
2003 – 2008 Stellenbosch University Merit Bursary
2004 – 2006 Stellenbosch University Sports Bursary

TEACHING EXPERIENCE

Strength of Materials 143
Strength of Materials 224
Theory of Structures 324
Building Materials 254 (Sustainability)
Cement-Based Materials (Postgraduate)

PUBLICATIONS

DISSERTATION

Computational and Experimental Modelling of Masonry Walling towards Performance-Based Standardisation of Alternative Masonry Units for Low-Income Housing. Dissertation, Stellenbosch University, 2019.

THESIS

Investigation into the Effective Lengths of Web Compression Elements in Parallel Chord Trusses. Thesis, Stellenbosch University, 2008.

JOURNAL ARTICLES

Durability of Chemically Modified Sisal Fibre in Cement-Based Composites. M.D. De Klerk, M. Kayondo, G.M. Moelich, W.I. De Villiers, R. Combrinck, W.P. Boshoff. *Construction and Building Materials*, 241, 2020.

Effect of Various Liquid Admixtures on Cracking of Plastic Concrete. R. Combrinck, M. Kayondo, B.D. Le Roux, W.I. De Villiers, W.P. Boshoff. *Construction and Building Materials*, 202, pp139-153, 2019.

Evaluation of Locally Available Synthetic Macro Fibres in a Single Fibre Pull Out Test in Concrete. CM Odendaal, AJ Babafemi, R Combrinck, WI De Villiers & WP Boshoff. *Journal of the South African Institute of Civil Engineering* 60, pp21-23, 2018.

The Effect of Mixing on the Performance of Macro Synthetic Fibre Reinforced Concrete. JO Lerch, HL Bester, AS Van Rooyen, R Combrinck, WI De Villiers & WP Boshoff. *Cement and Concrete Research* 103, pp130-139, 2018.

CONFERENCE ARTICLES

Numerical Modelling of Alternative Masonry Units. WI de Villiers, J Fourie & WP Boshoff. CONMOD2018, August 2018, Delft, Netherlands.

Thermal Testing of Alternative Masonry Walls. WI de Villiers, CL Pagel, C Robins, B Potgieter & WP Boshoff. 10th International Masonry Conference, July 2018, Milan, Italy.

Environmental Sustainability Evaluation of Low-Cost Buildings: The Case of Buildings under the JENGA Project. PBK Mbewe & WI de Villiers. Sustainable Futures Conference, September 2016, Nairobi, Kenya.

Evaluation of Materials Laboratory Capacity for Promotion of Design-Build Teaching Approach in Architectural Courses. PBK Mbewe & WI de Villiers. Sustainable Futures Conference, September 2016, Nairobi, Kenya.

Environmental Impact of Residential Building Envelope: A Comparison between Thermal Performance and Occupant Energy Usage. A van Noordwyk, WI de Villiers & WP Boshoff. CONMAT'15, August 2015, Whistler, Canada.

3D Modelling of Alternative Masonry Walling for South African Low-Cost Housing. WI de Villiers & WP Boshoff. 9th International Masonry Conference, July 2014, Guimarães, Portugal.

The Influence of Percentage Replacement from Coarse Recycled Concrete Aggregate. DW Immelman & WI de Villiers. SEMC International Conference, September 2013, Cape Town, South Africa.

Alternative Materials for Masonry Units. WP Boshoff, MD de Klerk, WI de Villiers & RDT Filho. Southern African Housing Foundation International Conference, September 2013, Cape Town, South Africa.

Full Life Cycle Analysis of the Environmental Impact of Low-Income Housing in South Africa. WI de Villiers, WP Boshoff, A van Noordwyk, C Brewis & J Brits. Southern African Housing Foundation International Conference, September 2013, Cape Town, South Africa.

Regulation of Alternative Building Materials and Systems in South Africa. WI de Villiers. Southern African Housing Foundation International Conference, September 2012, Cape Town, South Africa.

The Development of a Decision-Making Model to Determine the Appropriateness of Alternative Building Technologies for Application in the Social Housing Industry. WI de Villiers & WP Boshoff. Southern African Housing Foundation International Conference, September 2011, Cape Town, South Africa.

SUPERVISION

MASTERS

Tensile and Shear Characterisation of the Joint Interface of Alternative Masonry. JM Schmidt, 2020.

In-Plane Structural Response of Single-Storey Unreinforced Walls Constructed of Alternative Masonry Units. EP Shiso, 2019.

Characterisation and Evaluation of the Mechanical Properties of Alternative Masonry Units. J Fourie, 2017.

The Characterisation of Compressed Earth Blocks Stabilised with Cement and Agro-Industrial Residues. D Malherbe, 2016. (co-supervision)

Quantifying the Sustainability of the Built Environment: The Development of a Complete Environmental Life Cycle Assessment Tool. A van Noordwyk, 2015.

Structural, Economic and Environmental Feasibility of Plastic Load-Bearing Walling and Roofing System for Low-Income Housing. F. le Roux, 2014.

The Influence of Percentage Replacement on Aggregate and Concrete Properties from Commercially Produced Coarse Recycled Concrete Aggregate. DW Immelman, 2013. (co-supervision)

Quantifying the Sustainability of the Built Environment: Model for the Determination of the Environmental Impact of the End-of-Life Phase. J Brits, 2012. (co-supervision)