

Dr. Trevor Neville Haas, Pr. Eng., Pr. Tech. Eng.

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Personal Information

Date of Birth 06 February 1971
Nationality South African
I.D. Number 710206 5133 081
Marital Status Married with 3 dependants

Education - Tertiary

- **Doctor of Philosophy (Ph.D.):** Civil Engineering ~ 2007 ~ Stellenbosch University ~ South Africa
Dissertation Title: Numerical (FEA) Evaluation of Crane End Buffer Impact Forces
Promotors: Dr. P. Maincon and Prof. P. Dunaiski
- **Master of Science Degree:** Civil Engineering Specializing in Structural Engineering ~ 1999 ~ Southern Illinois University at Carbondale, U.S.A.
- **National Higher Diploma:** Civil Engineering ~ 1992 ~ Peninsula Technikon ~ South Africa
- **National Diploma:** Civil Engineering ~ 1991 ~ Peninsula Technikon ~ South Africa

Engineering Council of South Africa (ECSA) Registration

Registration category Professional Engineer, Pr. Eng.
Registration Number 20160781

Registration category Professional Engineering Technologist, Pr. Tech. Eng.
Registration Number 200270073

Rural roads in the O.R. Tambo Region, EC. The project was essentially to provide experiential training opportunities for 15 students and 6 engineers / technologists in training under the supervision of a professional engineer. I was responsible for the overall project management of the project.

Position **Senior Lecturer**, Department of Civil Engineering
Employer **Walter Sisulu University of Science and Technology** (formerly Transkei Technikon and Eastern Cape Technikon)
Duration September 1999 to January 2008

Responsibilities

- As above and in addition
- Act as subject head/course leader in Structural Analysis
- Lecture to senior diploma students
- Advise H.O.D. regarding developments in Structural Analysis courses
- Upon returning from sabbatical in 2007, investigated the viability of the B-Tech degree (Structural Engineering) for possible implementation in 2008. This entailed subject development, recruitment of professionally registered industry staff to assist in course development and teaching and recruitment of students.

Subjects Taught

Theory of Structures II, Structural Analysis II and III, Documentation III, Drawing II

Position **Lecturer**, Department of Civil Engineering
Employer **Walter Sisulu University of Science and Technology** (formerly Transkei Technikon and Eastern Cape Technikon)
Duration July 1993 to August 1999

Responsibilities

- Lecture junior and senior diploma students
- Assist with syllabus design and development of various subjects
- Prepare teaching aids
- Conduct tutorials
- Implement self-evaluation systems
- Attend seminars and conferences

Subjects taught

Applied Mechanics I, Surveying I and II, Construction Materials I, Drawing I and II,
Construction Methods I, Water Engineering II, Documentation III

Publications – Master’s and Doctoral Dissertations

- **T. N. Haas**, (2007), “Numerical (FEA) Evaluation of Crane End Buffer Impact Forces”, A dissertation submitted in fulfillment of the requirements for the Degree, Doctor of Philosophy in Civil Engineering, Stellenbosch University, South Africa.
 - **T. N. Haas**, (1999), “Finite Element Analysis of Retrofitted Carbon Fiber Reinforced Concrete Beams”, A thesis submitted as partial fulfillment of the requirements for the Master of Science Degree, Southern Illinois University at Carbondale, U.S.A.
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Journal Articles – Published

- M. Solms, **Haas, T. N.**, “*Alternative Approach to Analysing Infrastructure Using Limited Acceleration Time History Analysis*”, Presented at 2016 International Conference on Structural and Civil Engineering (ICSCE 2016), Hong Kong, 9 – 11 July 2016, *accepted for publication in International Journal of Structural and Civil Engineering Research* Vol. 6, No. 2, May 2017
- M. Solms, **Haas, T. N.**, “*Seismic evaluation of the north bound N1-R300 bridge interchange*”, The South African Journal of Civil Engineering, SAICE, Vol 58, No. 4, December 2016, pg 62 to 71, Paper # 1475.
- **Haas, T. N.**, W. Jarvis “*Modelling of Unreinforced Masonry Infill Panels*”, 3rd International Conference on Advances in Civil, Structural and Construction Engineering, CSCE 2015, Rome, Italy, 10 – 11 December 2015, *accepted for publication in International Journal of Civil and Structural Engineering– IJCSSE*, Vol 3, Issue 1, 18 April 2016, pg. 279 to 283.
- **Haas, T. N.**, A. Koen, “*Eccentric Loading of CFDST Columns*”, International Journal of Civil, Architectural, Structural and Construction Engineering Vol: 8 No: 12, 2014, pg 1191 to 1195.
- **Haas, T. N.**, T van der Kolf, “*Seismic Analysis of URM buildings in South Africa*”, International Journal of Civil, Architectural, Structural and Construction Engineering Vol: 8 No: 12, 2014, pg 1196 to 1203.
- **Haas, T. N.**, “*A review of the functions of the conference and session chairpersons*”, International Journal of Engineering Science and Innovative Technology (IJESIT), Vol.3, Issue 5, September 2014, pg 1 to 7.
- **Haas, T. N.**, “*How to avoid common presentation mistakes at international conferences*”, International Journal of Engineering Science and Innovative Technology (IJESIT), Vol.3, Issue 4, July 2014, pg 287 to 294.
- **Haas, T. N.**, “*Maximum Horizontal Longitudinal Force Due To Crane Loading Using A Coupled Approach*”, Civil Engineering and Urban Planning: An International Journal, CiVEJ, Vol. 1, No. 1, June 2014, pg 91 to 101
- Albertyn H., **Haas, T. N.**, Dunaiski, P., “*Accounting for moment-rotation joint and column base response in analysis of portal frames to determine displacements*”, The South African Journal of Civil Engineering. SAICE, Vol 56, No. 1, April 2014, pg 69 to 76.
- **Haas, T. N.**, Smith, D., “*Are reinforced concrete bridges more economical than structural steel bridges?*”, The Jordan Journal of Civil Engineering, JJCE, Vol. 8, No.1, 2014, January 2014, pg 43 to 57
- **Haas, T. N.**, Maincon P., Dunaiski P., 2012, “*The effect of parameters on the end buffer impact force history of the crane*”, The South African Journal of Civil Engineering, SAICE, Vol 54, No. 1, April 2012, pg 55 to 62.
- **Haas, T. N.**, Maincon P., Dunaiski P., “*Estimation of the maximum end buffer impact force for a given level of reliability*”, The South African Journal of Civil Engineering, SAICE, Vol 54, No. 1, April 2012, pg 63 to 68.

Journal Articles – Submitted

- W. Jarvis, **Haas, T. N.**, “*Effects of Seismicity on RC frames with masonry infill panels*”, SAICE journal
 - J. Terblanche, **Haas, T. N.**, E. van der Klashorst, “*Towards a design procedure for slotted bolted connections as energy dissipaters in braced steel frames*”, *Journal of Constructional Steel Research*
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Peer Reviewed Conference Proceedings – Delivered

- M. Solms, **Haas, T. N.**, “*Alternative Approach to Analysing Infrastructure Using Limited Acceleration Time History Analysis*”, 2016 International Conference on Structural and Civil Engineering (ICSCE 2016), Hong Kong, 9 – 11 July 2016.
- **Haas, T. N.**, W. Jarvis “*Modelling of Unreinforced Masonry Infill Panels*”, 3rd International Conference on Advances in Civil, Structural and Construction Engineering, CSCE 2015, Rome, Italy, 10 – 11 December 2015.
- **Haas, T. N.**, A. Koen, “*Eccentric Loading of CFDST Columns*”, International Conference on Civil, Structural and Earthquake Engineering, The ICCSEE 2014, Dubai, UAE, 25 – 26 December 2014. Paper accepted as journal article.
- **Haas, T. N.**, T van der Kolf, “*Seismic Analysis of URM buildings in South Africa*”, International Conference on Civil, Structural and Earthquake Engineering, The ICCSEE 2014, Dubai, UAE, 25 – 26 December 2014. Paper accepted as journal article.
- **Haas, T. N.**, “*Mistakes Made by Presenters at International Conferences*”, International Civil Engineering & Architecture Symposium for Academicians 2014, ICESA 2014, Side, Turkey, 17 – 20 May 2014.
- **Haas, T. N.**, Albertyn, H., “*Analyzing Portal Frames Using Rotational Springs*”, The 5th International Conference on Structural Engineering, Mechanics and Computation, SEMC 2013, University of Cape Town, South Africa, 2 – 4 September 2013.
- **Haas, T. N.**, Smith, D H., “*Are Short Span Reinforced Concrete Bridge Girders Cost Effective*”, The 5th International Conference on Structural Engineering, Mechanics and Computation, University of Cape Town, South Africa, SEMC 2013, 2 – 4 September 2013.
- **Haas, T. N.**, Albertyn, H., “*Determining Rotational Joint Stiffness Using Finite Element Analysis*”, 10th International Congress on Advances in Civil Engineering, ACE 2012, Ankara, Turkey, 17 – 19 October 2012.
- **Haas, T. N.**, van Wyk, R.M., “*Experimental investigation to determine the effect of a step or gap in crane rails*”, International Conference on Metal Structures, ICMS 2011, Wroclaw, Poland, 15-17 June 2011.
- **Haas, T. N.**, Maincon P., Dunaiski P., “*Finite Element Analysis Modelling of Full Scale 5-ton Electric Overhead Travelling Crane and the Crane Supporting Structure*”, The 4th International Conference on Structural Engineering, Mechanics and Computation, SEMC 2010, University of Cape Town, South Africa, 6 – 8 September 2010.

- **Haas, T. N.**, Maincon P., Dunaiski P., “*Evaluation of End Buffer Impact Forces*”, International Association of Bridge and Structural Engineering (IABSE) Symposium, IABSE 2009, Bangkok, Thailand, 9 – 11 September 2009.
- Craddock, J.N., and **Haas, Trevor**, “*The Effects of a Fiber-Composite Wrap on the Properties of Reinforced Concrete Beam,*” International Conference on Composites Engineering, ICCE 2000, Denver, Colorado, U.S.A., July 2-8, 2000.

Funding Received (R999 185 funding received thus far)

- 2009 → R21 660 received from the Dept of CE to attend IABSE 2009 international conference in Bangkok
- 2010 → R7 425 received from the Dept of CE to attend the SEMC 2010 international conference in South Africa
- 2011 → ± R25 000 received from the Dept of CE and DRD to attend ICMS 2011 international conference in Poland
- 2012 → ± R26 500 received from the Dept of CE and DRD to attend ACE 2012 international conference in Turkey
- 2012 → R30 000 received from the DRD at Stellenbosch University
- 2012 → R60 000 received from the Dept of CE for Master’s degree bursary
- 2013 → R50 000 received from the Department of Research Development at Stellenbosch University
- 2013 → R106 500 received from NRF
- 2013 → R12 500 received from the Dept of CE to attend SMEC 2013 international conference in South Africa
- 2014 → R345 600 received from NRF
- 2014 → R12 500 received from the Dept of CE to attend ICESA 2014 international conference in Turkey
- 2015 → R289 600 received from NRF
- 2015 → R12 500 received from the Dept of CE allocated to attend international conference

Post Graduate Students Supervised - Completed

Master’s Degree

- **Ms I Idowu (December 2010)**
Topic: Numerical Evaluation (FEA) of End Stop Impact Forces for a Crane Fitted with Hydraulic Buffers
- **Mr H Albertyn (December 2011) – Cum Laude**
Topic: The effect of moment-rotation joint behaviour on the displacements of portal frames
- **Mr W Jarvis (March 2014)**
Topic: The effect of moderate seismic actions on low income concrete framed buildings
- **Mr T van der Kolf (March 2014)**
Topic: The effect of moderate seismic actions on low income unreinforced masonry buildings

- **Mr A Koen (March 2015)**
Topic: An Investigation into the Axial Capacity of Eccentrically Loaded Concrete Filled Double Skin Tube Columns
 - **Mr J Terblanche (December 2015) – Cum Laude**
Topic: Modelling of Slotted Bolted Friction Connections as Seismic Energy Dissipaters in Braced Steel Frames
 - **Mr M Solms (December 2015)**
Topic: Seismic Evaluation of the North Bound N1-R300 Bridge Interchange
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Post Graduate Students Supervised – Current

Master's Degree

- ❖ *Greg Maybery* (Graduation date – March / April 2017)
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External Examiner

- 11+ Master's degree thesis reviewed (External) – 4 for Durban University of Technology and 7+ for University of Cape Town
 - Arbitrator for Doctor of Technology degree - DUT
 - Several Master's degree thesis reviewed (Internal)
 - External examiner for University of Cape Town's Advanced **Dynamics** Master's degree level course
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Reviewer and Session Chair

- Reviewed 2 journal article for SAICE
 - Reviewed 10+ journal articles for the Jordan Journal of Civil Engineering
 - Reviewed 1 journal article for the International Journal of Civil Engineering and Urban Planning
 - 2x Session Chair at International Conference
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Consulting Work

- Conducting structural engineering analysis / design work on a part-time basis (± 1 day per week).
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Engineering Council Of South Africa (ECSA)

- ECSA assessor for the Civil Engineering technology program (± 40 accreditation completed as assessor and team leader). As team leader I am responsible for a team of between 4 and 8 team members to

determine whether the National Diploma and Bachelor of Technology in Engineering programs meet the National and International standards (Sydney and Dublin Accords).

- Deputy Visit Leader for the ECSA accreditation visit to Cape Peninsula University of Technology – September / October 2008. As Deputy Visit Leader I was responsible for 6 teams of approximately 100 assessors to provide guidance and ensure that the teams conduct the accreditation visits according to the National and International standards (Sydney and Dublin Accords).
- Visit Leader for the ECSA accreditation visit to Vaal University of Technology – 26 to 29 March 2012 and 11 to 13 March 2013. My functions were the same as the Deputy Visit Leader. However, in this capacity I took full responsibility of the entire management of the accreditation visit and was required to present and defend the various teams' reports.
- Visit Leader for the ECSA accreditation visit to Nelson Mandela Metropolitan University – 20 and 21 August 2015.
- Member of the ECSA's Technology Program Accreditation Committee since 2013. This committee is the highest decision making committee with respect to Engineering Technology Education.
- Member of the ECSA's Technologist Registration Committee. On this committee we deliberate on candidates who apply to become Professional Engineering Technologist
- Member of the SGG. This committee was responsible for drafting the unit standards for a new suite of engineering technology qualifications, i.e. exit level outcomes for the certificates, revised National Diploma and Bachelors of Engineering Technology qualifications.

Awards

Obtained an **ATLAS** scholarship through **USAID** to pursue a **Master's Degree** in Civil Engineering at Southern Illinois University at Carbondale, USA from January 1997 to May 1999. During this period I undertook a bridging course for entry into the Master's degree program and also completed 3 subjects at Doctorate level.

Consulting Work - Recent

- Conducting structural engineering design work on a part-time basis (1-day per week)

Design work includes

- Design of structural elements (Steel, concrete and timber)
- Modeling of structural work.

Selected Projects:

Project: **Exploratory investigation**

Description: Analyzing a 4 storey unreinforced masonry building to ensure it complies with earthquake requirements.

Project: **Helderberg Village Houses – Helderberg – Cape Town**

Description: The analysis, design and detailing of R.C. beams and slabs founded on piles.

Project: **Building in Cape Town**

Description: The analysis and design of a steel canopy truss around perimeter of the building. I was also responsible for the connection details and review of working drawings.

- Project: **15 on Orange Hotel – Cape Town**
Description: The analysis and design of a 6 storey steel staircase supported by 23m two hollow steel circular sections. A modal analysis was conducted and necessary amendments made to correct the natural frequency of the structure.
- Project: **18 Tower Dock – Waterfront – Cape Town**
Description: The analysis and design of a single flight of a steel staircase with two landings. This included the connection detail design and review of working drawings.
- Project: **Sky Bridge Link Across Adderly Road – Cape Town**
Description: Initial analysis of the sky bridge link across Adderly road.
- Project: **Shared Services Centre – Portal Frame Analysis – Vangate Mall**
Description: The analysis and design of steel portal frames (pergolas), including connection detail design at Vangate Mall.
- Project: **Steel support for backwash tank - Virgin Active**
Description: The analysis and design of a steel support for a 5 500L backwash tank supported to the ceiling of the basement. Also responsible for connection details design and checking of working drawings.
- Project: **Marina Beach Club House - Seychelles**
Description: Preliminary design for a timber roof truss supported on limited columns for Marina Beach Club House.
- Project: **Slab Design for Parking Garage - Seychelles**
Description: The analysis and design of a flat slab using strip method.
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