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### **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  
*Promoters.* 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
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### **Engineering Council of South Africa (ECSA) Registration**

<b>Registration category</b>	Professional Engineer, Pr. Eng.
<b>Registration category</b>	Professional Engineering Technologist, Pr. Tech. Eng.

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### **Employment**

<b>Position</b>	<b>Senior Lecturer</b> , Department of Civil Engineering; Structure's Division
<b>Employer</b>	<b>Stellenbosch University</b>
<b>Duration</b>	February 2008 to date

#### **Responsibilities include but limited to**

- Teaching Strength of Materials courses at undergraduate level
- Supervise 4<sup>th</sup> year student projects (usually 6 per year)
- Act as co supervisor for 4<sup>th</sup> year student projects
- Supervise graduate students doing research into Earthquake Engineering, Dynamics and Steel Structures
- Secure funding for research work

- Mentor students from disadvantage backgrounds to ensure they graduate
- Perform various administrative functions in the department and division
- Developing a Seismic Engineering Unit at Stellenbosch University which commenced in 2012. To date 3 students graduated from this Unit. 2 more will graduate in 2015.
- The Undergraduate coordinator for the Civil Engineering degree. Responsible for the quality management of the Civil Engineering degree.
- The responsible person for the departmental preparations for the impending ECSA accreditation visit in 2018. In this portfolio I responsible for checking all program related matters and ensuring that it complies with the SU policies and ECSA requirements.
- CHE evaluator for civil engineering programs

### Subjects Taught

Strength of Materials 254,      Strength of Materials 224,      Strength of Materials 143,  
Supervision of final year projects

### Areas of Research Interest

- Finite Element Analysis
- Dynamics
- Seismic / Earthquake Engineering
- Engineering Education

### Position

**Head of Department**, Dept. of Civil Engineering

### Employer

**Walter Sisulu University of Science and Technology** (formerly *Transkei Technikon and Eastern Cape Technikon*)

### Duration

January 1996 to December 1996

January 2000 to December 2003

### Responsibilities

- Responsible for the smooth operation of the Civil Engineering Department at Butterworth and East London Campuses (125km apart)
- Oversee a staff complement of 2 Senior Lecturers, 11 lecturers, 1 Senior Technician, 1 Technician and 1 Secretary and ± 230 National Diploma and 30 B-Tech degree students
- Represent the Civil Engineering Department at Faculty Management Executive, Technikon Management Committee and Senate meetings
- Coordinating the implementation of B-Tech degree programs in Water and Transportation Engineering starting July 2000
- Responsible for preparation of SERTEC / ECSA documentation for 1996, 2000 and 2003 evaluations
- Responsible for guiding staff and obtaining full accreditation in 1996, 2000 and 2003 by SERTEC / ECSA
- Liaise with industry and the Civil Engineering Advisory Committee to determine the relevance of the curriculum
- Together with the Director of Roads and Public Works (DRPW) (Eastern Cape), a memorandum of agreement conceptualized and implemented for a capacity building project to empower the DRPW to regrade and reblade 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

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**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

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**Publications –Doctoral and Master’s 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 NI-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*”, 3<sup>rd</sup> 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– IJCSE*, 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.

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## 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**

- **Haas, T.N.**, Marsh, R., “*The Effect Of Wall Opening Sizes On Unreinforced Masonry Subjected To Dynamic Loading*”, Fifth International Conference on Advances in Civil, Structural and Mechanical Engineering - CSM 2017, Zurich, Switzerland, 2 – 3 September 2017 – **Paper accepted**
- M. Solms, **Haas, T. N.**, “*Alternative Approach to Analysing Infrastructure Using Limited Acceleration Time History Analysis*”, 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*”, 3<sup>rd</sup> 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*”, 10<sup>th</sup> 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*

- **Mr G Mayberry (April 2017)**

*Topic: Susceptibility of Low Cost Housing to Seismic Activity in South Africa*

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### **External Examiner**

- 14+ Master's degree thesis reviewed (External); 4 for Durban University of Technology and 10+ 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 specialist structural engineering analysis / design work on a part-time basis ( $\pm 1$  day per week).
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### **Engineering Council Of South Africa (ECSA)**

- ECSA assessor for the Civil Engineering technology program ( $\pm 40$  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.
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### **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.

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