

Curriculum Vitae

Of

Walied A. Elsaigh

B.Sc. Hons (Khartoum/ Sudan), Hons,
M.Eng, Ph.D (Pretoria / South Africa)
Postdoctoral (Cincinnati /USA)

Walied A. Elsaigh, Ph.D.

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whelsaigh@yahoo.com (less frequent)

Personal Details

Date of Birth	20 th of April 1970
Nationality	Sudanese
Sex	Male
Marital Status	Married
Languages	Arabic (mother language) English (study language)

Education

Doctor of Philosophy - Faculty of Engineering, University of Pretoria - July 2007. Title of Dissertation: Modelling the Behaviour of Steel Fibre Reinforced Concrete Pavements.

Master of Engineering - Transportation Engineering/ Pavement Materials, Faculty of Engineering, University of Pretoria, July 2001, South Africa. Title of Dissertation “Steel Fibre Reinforced Concrete Ground Slabs”.

Bachelor of Engineering (Honors) in Transportation Engineering, Faculty of Engineering, University of Pretoria, October 2000, South Africa.

BSc (Honors) - Civil Engineering- Faculty of Engineering, University of Khartoum, Sudan - 1996.

Academic Experience

Assistant Professor, Department of Civil Engineering, King Saud University, Riyadh, KSA. 2011 - Until present

(Refer to annexure)

Postdoctoral Research, Department of Civil Engineering, University of Cincinnati, Ohio / USA, September 2009 – October 2010.

The postdoctoral study included a major research on “utilization of Waste Materials in Construction of Flexible Pavements”. The research was divided into two streams as follows: (a) Beneficial Use of Petroleum Contaminated Soil in Hot-mix Asphalt, (b) Use of Unburned Coal and Coal Combustion By-Products in Hot-mix Asphalt. The postdoctoral study also included a minor research on “use of thin concrete pavements for third world countries”. The research reconsiders data from full-scale road test conducted

in South Africa several years ago as well as some new data from the USA.

Assistant Professor, Department of Civil Engineering, Omdurman Islamic University, Omdurman, Sudan, December 2008 – August 2009.

Taught the following modules

- Advanced concrete technology – Elective course for 5th year / Bachelor students.
- Rigid pavement design – Elective course for 5th year/ Bachelor students.
- Concrete technology – for 3rd year/ Bachelor students.

I was actively involved with graduation projects for final year students. I was part of the examining committee for three groups (three projects) of students. The projects were as follows (Titles in the original documents are in Arabic):

- Towards Improving Mechanical Properties of Western Omdurman Gravel: Mechanical Stabilization to Boost up CBR.
- Wad El-Bashir Signalized Intersection: Traffic Prediction and Possible Scenarios for the year 2020.
- Marshall Mix Design (Asphalt concrete) .

Lecturer, Institute for Constructional and Environmental studies Khartoum, Sudan, Post graduate trainings for practicing Engineers. I have trained three groups of engineers in three different training cycles. Each group was approximately 25 trainees. The training aimed at providing practicing engineers with concrete technology knowledge. The training also aimed at putting emphasis on local concrete practice in Sudan and hot weather concreting.

Training Seminars, Petra Ready-mix Concrete, Khartoum / Sudan. The seminars were run over eight days to provide training for personnel at Petra Ready-mix concrete plant. The training aimed at providing engineers and technicians with concrete technology knowledge. In addition, the training put emphasis on ready mixed concrete quality control, quality assurance, concrete practice and concrete mix design (23 July – 3 August 2009).

Lecturer, Department of Civil Engineering, University of Karari, Omdurman, Sudan, March 2008 – August 2009.

Taught the following modules

- Construction materials – for 3rd year / Bachelor students.
- Concrete technology – for 3rd year / Bachelor students.
- Transportation Engineering – 2nd year / Diploma students.

Tutor, Department of Civil and Chemical Engineering, University of South Africa, Johannesburg, South Africa, March 2007 – September 2007

Taught the following 4th year modules:

- Geometric Design of Roads (GDS C-401).
- Pavement Technology (PVT C401).
- Concrete Technology (CNT C-401).

Research Assistant, Civil Engineering Laboratory, University of Pretoria, Pretoria, South Africa, January 2000 – August 2007

I was involved in several research and experiments concerning modelling of concrete and concrete roads including:

- ☒ Experiments regarding the use of Steel Fibre Reinforced Concrete (SFRC) on the national industrial route (N3) between Durban and Johannesburg. A plain concrete section, on the truck lane, was replaced using SFRC. The length of the section is approximately 250 m.
- ☒ Large-scale experiments on a quarry exit comparing different types of concrete pavements (Jointed SFRC pavement, CRCP pavements and jointed plain concrete pavements).
- ☒ Shotcrete experiments comparing different concrete mixtures with and without steel fibres.
- ☒ Several beam tests with different sizes. The aim included comparing material flexural properties, toughness, failure mechanism, types of steel fibres etc.
- ☒ Full-scale slab tests comparing plain concrete and SFRC. The tests included both elevated and ground supported slabs.
- ☒ Development and construction of a testing frame at the experimental farm of the University of Pretoria. The testing facility will be used to study the behaviour of ground slabs.
- ☒ Round and square plate tests and analysis using finite element methods.
- ☒ Modelling the compressive behaviour of foamed concrete.

Industrial Experience

Senior contract Engineer. Nehmiah Construction, Khartoum, Sudan September 2007 - August 2009. Assumed the following responsibilities:

- Supervise the design, contract documents, and contract negotiations for various contracts with links to the United Nation Mission in Sudan.
- Supervising Engineer for two Villa in Omdurman and Shambat /Khartoum.

Structure and construction Engineer, Jakoet& Associates Consultants, Cape Town, South Africa, July 98 – December 98

Assumed the following responsibilities: Structural Design, Bridge construction

management with HH&O – Cape Town, and Symphony Way construction site a project that consisted of approximately 4 km of asphalt road and a pre-stressed concrete over-road bridge. Left the company to pursue postgraduate studies at the University of Pretoria.

Construction Engineer, Bee Development and Housing Co., Ltd., Khartoum, Sudan, November 95 – February 98

- Supervision of El AEEN HOUSING PROJECT in Khartoum. The project comprised 63 units of typical R.C. double story buildings. I was participating on the structural design and the site work.
- Resident Engineer, BEE PETROLIUM section, construction of BEE petrol depots and supervision of construction of CAR GAS stations.
- Resident Engineer, Elmanshia Project. Construction of three-story reinforced concrete building.

Trainee/Resident Engineer with KARPLIEN Consultants, construction of the Sudanese French Bank in Khartoum. The training included both site and office work.

Engineering Trainee at BEE HOUSING construction sites.

Publications

Journal papers (published)

Elsaigh, W. A. and Kearsley, E.P., “Effect of Steel Fibre Content on Properties of Concrete,” Journal of Concrete/ Beton, No.102. The Concrete Society of Southern Africa. Halfway House, South Africa. December 2002.

Kearsley, E.P. and Elsaigh, W.A., “Effect of Ductility on Load-carrying Capacity of Steel Fibre Reinforced Concrete Ground Slabs,” Journal of the South African Institution of Civil Engineering. Vol. 45, No. 1. Johannesburg, South Africa. 2003.

Elsaigh, W. A. “ Discussion: Strength of steel fiber reinforced concrete ground slabs. Paper by Chen, S., No 157, April 2004, pp. 157-163”. Proceedings of the Institution of Civil Engineers, Structures & Buildings 158, Issue SB2, April 2005, pp. 153-154.

Elsaigh, W.A., Robberts, J.M., and Kearsley, E.P., “Modelling the Behaviour of Steel-Fibre Reinforced Concrete Ground Slabs. I: Development of Material Model”. Journal of Transportation Engineering, ASCE, Vol. 137, No. 12, December 2011, PP.882 – 888.

Elsaigh, W.A., Kearsley, E.P., and Robberts, J.M., “Modelling the Behaviour of Steel Fibre Reinforced Concrete Ground Slabs. II: Development of Slab Model”. Journal of Transportation Engineering, ASCE, Vol. 137, No. 12, December 2011,

PP.889 – 896.

Journal papers under publication)

Aldossari, K.M., Elsaigh, W.A. Shannag, J.M. Behaviour of High Strength Steel Fibre Reinforced Concrete Ground Slabs. Paper is under review by the Magazine of Concrete Research, ICE (April, 2015)

Conference Papers

Elsaigh, W.A., Robberts, J.M., and Kearsley, E.P., “Modelling Non-linear Behaviour of Steel Fibre Reinforced Concrete.” Proceedings of the 6th RILEM Symposium on Fibre Reinforced Concrete. Lake Como, Italy. September 2004.

Elsaigh, W.A., Robberts, J.M. and Kearsley, E.P., “Steel Fibre Reinforced Concrete for Road Pavement Applications.” Proceedings of the 24th Southern African Transport Conference (SATC). Pretoria – CSIR, South Africa. July 2005.

Elsaigh, W.A. and Kearsley, E. P., “Effect of Matrix Strength on Performance of Steel Fibre Reinforced Concrete.” Proceedings of the 3rd Young Concrete Engineers’ Practitioners’ and Technologists’ Conference. Midrand, South Africa. May 2006.

Aldossari, K. M., Elsaigh, W., Shannag, M., “Effect of Steel Fibers on Flexural Behavior of Normal and High Strength Concrete”, World Academy of Science, Engineering and Technology, International Science Index 85, International Journal of Civil, Architectural Science and Engineering, 8(1), 2014, 117 - 122.

Unpublished Reports

Elsaigh, W.A., Ioannides, A.M., Barth, Ed., Hassan, A. Use of Unburned Coal and Coal Combustion By-Products in Hot-mix Asphalt. Paper is under review by co- authors / University of Cincinnati and U.S. EPA/ USA.

Elsaigh, W.A., Ioannides, A.M. Bart, Ed., Hassan, A. Beneficial Re-Use of Petroleum Contaminated Sediment in Hot-Mix Asphalt Mixtures. Paper is under review by co-authors / University of Cincinnati and U.S.EPA / USA

Professional Development

Short Courses

- ☒ Concrete Damage and Repair, organized by the University of Pretoria / South Africa (8 October 2006 to 11 October 2006).
- ☒ Strand 7 (Finite Element Analysis software) training course, organised by G+D

Computing - Sydney / Australia, course presented in Johannesburg / South Africa (September 2004).

- ☒ Design of Rigid Pavements, organised by the University of Stellenbosch, South Africa (July - August 2002).
- ☒ The Application of the Finite Element Method in Practice, organised by the MFT Computing, Johannesburg / South Africa, (July 2003).
- ☒ AUTOCAD drawing software version 10, organised by the Institute of Computer Technology, Khartoum, Sudan (February - March 1997).
- ☒ Pavement Design, Organized by the University of Cincinnati, Ohio, USA (September – December 2009).
- ☒ Computer aided Pavement Design, Organized by the University of Cincinnati, Ohio, USA (January – December 2010).

Workshops

- ☒ The Kingdom Mass Transit Summit “Shaping the Future of Mobility”, Organized by Nasseba international, Riyadh, June 2012.
- ☒ Workshop on “Improving Roadway Safety: Highway Safety Manual”, organized by prince Mohamed Bim Naif chair for traffic safety research, Riyadh, May 2012.
- ☒ Workshop on “use of Blackboard in virtual classes”, organized by the King Saud University, Riyadh, April 2012.
- ☒ Workshop on “Strategies for Saudi Highway Research Center”, organized by the KSA Ministry of Transport, Riyadh, October 2011.
- ☒ Omdurman International Airport: Plans and prospective, organized by the Sudanese Society of Engineers, Khartoum, Sudan (April 2008).
- ☒ The 3rd Young Concrete Engineers’ Practitioners’ and Technologists’ Conference. Midrand, South Africa, (May 2006).
- ☒ The 25th Southern African Transport Conference (SATC). Pretoria, CSIR, South Africa, (July 2006).
- ☒ The 24th Southern African Transport Conference (SATC). Pretoria, CSIR, South Africa, (July 2005).
- ☒ The 17th meeting of the Road Pavement Forum, organised by the Aggregate and Sand Producers Association of South Africa, (November 2005).
- ☒ Gautrain Workshop, Discussion on results from full-scale experiments, organised by Gautrain / South Africa, (October 2005).
- ☒ The RILEM Symposium on Fibre Reinforced Concrete. Lake Como, Italy, (September 2004).
- ☒ The annual meeting for the MSC. Marc (Finite Element Analysis software) users organised by MSC Africa (April 2004).

Computer Skills

- Microsoft office.
- Mathcad (For Numerical calculations).
- Mathematica (Numerical calculations)
- Corel (Drawings).
- MSC.MARC (Patran/ Mentat) - Finite element analysis.
- Strand 7 - Finite element analysis.
- ILSL2 (Pavement analysis)
- ILLI-Back (pavement analysis)
- DIPLOMAT (Pavement analysis)

Honours and Awards

- ☒ South African HSRC evaluation as South African Bachelor's degree in Civil Engineering equivalent 8th of April 1998.
- ☒ Sudanese Engineering Association certificate and prize for the best performance in final year graduation projects - January 1996.
- ☒ Sudanese Engineering Council registration 20th of March 1996.
- ☒ Reviewer to the Journal of Transportation Engineering, published by the American Society of Civil Engineers (ASCE)
- ☒ Reviewer of the Journal of the South African Institution of Civil Engineering (SAICE).

Graduate Student Supervision

Thesis-promoter (MSc.): Mr. Khaled M. A. Aldossari, Behavior of High Strength Steel Fiber Reinforced Concrete Ground Slabs, King Saud University, 2014.

Thesis-promoter (MSc.): Mr. Helmi Ali Saleh, Modelling the Behavior of High Strength Steel Fiber Reinforced Concrete Ground Slabs, King Saud University (30% finished)

Member of the adjudication committee of MSc. students: Mr. Fahad M. Al-Ajaleen, Unconventional At-Grade Intersections, and its Applicability to Riyadh City, King Saud University, 2011

Member of the adjudication committee of MSc. students: Mr. Kaled Aldossari, Behavior of High Strength Steel Fiber Reinforced Concrete Ground Slabs, King Saud University, 2014.

References

Prof. E.P. Kearsley, Department of Civil Engineering, University of Pretoria/ South Africa. Tel: +27 12 420 2176 / 2185
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Prof. A.M. Ioannides, Department of Civil and Environmental Engineering,
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Ph. D. Concise

The following information appeared in the announcement and adverts made for the PhD exam and public defence of Dr. Walied A. Elsaigh

The degree: Ph.D. in Transportation Engineering

WALIED ELSAIGH

Walied Ali Elsaigh obtained a BSC (Honours) in Civil Engineering from the University of Khartoum/ Sudan and worked with both building contractor and consultant Engineers for some years. He later completed the Honours degree in Transportation Engineering and subsequently obtained his Master degree in Transportation Engineering from the University of Pretoria.

Steel Fibre Reinforced Concrete (SFRC) is defined as concrete containing randomly oriented discrete steel fibres. Despite the distinct advantages offered by the SFRC in concrete pavements, its use is prevented by the absence of a reliable theoretical model to analyse and design these pavements. In his thesis titled: **Modelling the behaviour of steel-fibre reinforced concrete pavements**, the author challenges experimental modelling as well as computational modelling of SFRC elements including beams and pavements. The computational modelling ranges from inverse analysis to compute constitutive law for SFRC to nonlinear finite element analysis of SFRC beams and ground slabs. The thesis deals with an analytical problem of considerable complexity, and one that is currently attracting increased attention as pavement engineers move from phenomenological and statistical model to more mechanistic-based design procedures.

His valuable contribution could lead to an effective use of SFRC in concrete pavements nationally and internationally.

Supervisor : Prof E. P. Kearsley (University of Pretoria, SA)

Co-supervisor : Dr J. M. Robberts (University of Pretoria, SA)

External examiners : Prof G.P.A.G. van Zijl (Delft, Netherlands/ Stellenbosch, SA)

Prof A.M. Ioannides (University of Cincinnati, USA)

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