



UNIVERSITEIT
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WIND LOADS ON STRUCTURES



A practical seminar for structural engineers on the provisions of the latest revision of SANS 10160-3 (2018)

1 CPD **R 3500**
CREDIT EARLY BIRD

Stellenbosch
STIAS
Monday 3 June 2019

Johannesburg
Hilton Sandton
Wednesday 5 June 2019

Durban
Umhlanga Coastlands
Thursday 6 June 2019



SEMINAR OBJECTIVE

Wind loading stipulations have recently been updated and introduces substantial changes to the South African structural design paradigm. SANS 10160-3:2018 introduced an updated characteristic wind speed map. SANS 10160-1:2018 introduced an increased ultimate limit state wind load partial factor. This extends the relatively new wind load stipulations of SANS 10160-3:2011 which constituted a significant departure from the old wind loading procedures included in SANS 10160-1989 which was largely based on the 1952 guidelines of the British CP3 Standard.

This seminar is dedicated to the wind loading aspects of structural design in view of the:

- recent substantially extended wind speed data for South Africa;
- complexity of the related physical phenomena which determine the wind loading,
- their numerical interpretation and design simplifications,
- the multitude of modern design forms within the built environment, with
- structures becoming more prone wind action due to the extensive use of light-weight materials.

The seminar will provide background information and **equip the designer with a better understanding, guidance and ability to make informed design assumptions and choices.**

SEMINAR FOCAL POINTS

The focus will be on:

- An overview of **wind loading stipulations** according to SANS 10160-3
- An overview of **wind damage** in South Africa
- Recent revisions of **wind loading stipulations**,
- **Wind climate of SA** and its statistical interpretation, including the **new wind map**
- Background to the **partial factor adjustment**; and economic **implication** of changes
- **Design examples** according to the latest revision of SANS10160-3;
- Pressure and force coefficients; **Influence of terrain roughness and topography**;
- Reliability elements; **Influence on design loads**;
- Demonstration of free **software to aid in the wind load calculations** according to the latest revision of SANS10160-3, with the aim to shorten the gap between code requirements and input to other structural analysis software or hand calculations.

Furthermore, **extensive design examples** will be provided.

SEMINAR PROGRAM

TIME	TOPIC	SPEAKER
07:30 - 08:15	Registration & Refreshments	
08:15 - 08:30	Welcome & Introduction	Celeste Viljoen
08:30 - 09:00	Background to aerodynamics Physical basis, wind generation; boundary layer and turbulent flow; strong vs extreme winds, correlations, pressure vs force etc.	Adam Goliger
09:00 - 10:15	Wind action and Wind application Wind action; SANS 10160-3; limits of application & relevance of the wind climate. Factorising wind speed; Wind profile; Terrain category; Bluff body aerodynamics; Flow separation; Wind pressures; Pressure coefficients.	Adam Goliger
10:15 - 10:45	Coffee/Tea break	
10:45 - 11:45	New Wind Map SA mixed climate; Statistics of strong winds; Spatial representation; Wind speed maps: Old vs New	Johan Retief
11:45 - 12:15	Wind Damage Examples and implications of wind damage; Typical damage during strong wind events, direct and indirect cost of damage.	Adam Goliger
12:15 - 13:15	Lunch	
13:15 - 14:00	Partial factor adjustment Probabilistic wind load models; Wind load reliability assessment; Influence on design loads	Johan Retief
14:00 - 14:45	Design implications of changes Impact of wind load changes on design and economy for typical structures.	Anton van Dyk
14:45 - 15:15	Coffee/Tea break	
15:15 - 16:15	Design examples Low rise & high rise structures; Reliability elements that engineers can use to mitigate where appropriate	Celeste Viljoen
16:15 - 17:00	Demonstration of free software The new SANS 10160-3 provides greater detail and more options, but increased the calculation burden. This software will help.	Anton van Dyk

Closure | Discussion | Q&A

PRESENTERS



Dr Adam Goliger

Adam Goliger of the Council for Scientific and Industrial Research (CSIR) specialised in Wind Engineering and Building Aerodynamics for nearly 30 years.

His vast experience include numerous research investigations, consulting and wind-tunnel testing related to various building and industrial developments in South Africa, wind damage analyses, development of local and international wind design standards, presentations, lectures and participation in several international committees.

He is a member of the SABS working group for the revision of SANS 10160-3 and represents the CSIR in SABS TC98/01.



Mr Anton van Dyk

Anton van Dyk (Pr.Eng) has 20 years experience in design and analysis aspects of structural engineering in the petro-chemical and industrial environment.

A keen interest in computer programming has led him to the development of several in-house software solutions over the years. He is the author of the software "Design Tool for SANS 10160".

He is a member of SABS TC 98/01 and the SABS working group for the revision of SANS 10160-3.



Prof Johan Retief

Johan Retief is Emeritus Professor at the University of Stellenbosch. His supervision of post-graduate studies in wind engineering over the past decade led to significant advances in the development of statistical- and probabilistic wind load models for South Africa.

He is responsible for the calibration of the new wind map in collaboration with Dr. Adam Goliger of the CSIR and Dr. Andries Kruger of the South African Weather Service.

He was a driving force behind the successful revision of SANS 10160, and represented Stellenbosch University on the SABS TC98/01 WG in the latest revision of SANS 10160-3.



Prof Celeste Viljoen

Celeste Viljoen (Pr.Eng) heads the Structural Risk and Reliability research group at the University of Stellenbosch. The group specialises in the assessment of the reliability of various structural standard provisions, including wind loads.

She is widely involved in structural standardisation, being a member of the SABS Technical Committee for Concrete Structures, convenor of the SANS 10100-3 working group and a member of the International Joint Committee on Structural Safety.

CPD CREDITS

The seminar is accredited for 1 Continued Professional Development credit with the ECSA.



REGISTRATION

Please register online by clicking on the relevant city below:

[Stellenbosch](#)

[Johannesburg](#)

[Durban](#)



PAYMENT

Early Bird	R 3500.00	Payment must be received by 30 April 2019
Regular	R 4000.00	Payment must be received prior to the start of the course



PAYMENT INSTRUCTIONS

After online registration for a course you will receive an automated email with payment details. Invoices to companies will be created after successful online registration.

PLEASE EMAIL PROOF OF PAYMENT TO:

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Stellenbosch University, Department of Civil Engineering
Email: civilcourses@sun.ac.za
Enquiries: 021 808 2080



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**WE LOOK FORWARD TO
WELCOMING YOU AT THIS COURSE**