



## The Institution of Engineers, Malaysia

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### EVENING TALK ON MECHANISTIC EMPIRICAL METHOD FOR THE DESIGN OF PAVEMENT USING STIFF GEOGRIDS

(Organised by the Geotechnical Engineering Technical Division, IEM)

BEM Approved CPD/PDP Hours: 2 Ref No: IEM17/HQ/370/T

Day/Date : Tuesday, 19<sup>th</sup> September 2017

Time : 5:30 pm – 7:30 pm

Venue : Auditorium, Wisma IEM, PJ

Presenter: Mr. Piotr Mazurowski

#### Synopsis

Mechanistic-Empirical methods present an elegant approach to pavement design, incorporating sound theoretical knowledge combined with empirical testing of pavement materials under traffic loading. The sophistication of the technique in calculating the stresses, strains and deflection in the pavement layers presents an attractive solution to designers looking for the additional edge in their design services. However, at present, the M-E design methods do not incorporate the benefits of geogrids in pavement performance improvement or granular/asphaltic layer thickness reduction. Stiff hexagonal geogrids stabilise unbound aggregate layers through particle confinement and interlocking with geogrid apertures, creating a Mechanically Stabilised Layer (MSL). This results in an increase of stiffness of unbound aggregate layers and its bearing capacity. For many years, this mechanism has been used for soft soil improvement. Today, this mechanism is used virtually in all soil conditions, and not only in lower pavement layers, but also within the aggregate base. The use of MSL in pavements allows for the optimisation of the structure, offering the possibility to reduce layers thicknesses (including asphalt layers) and/or increasing pavement life. This presentation will cover pavement design with M-E methods with and without the incorporation of geogrids. Results of trafficking tests spanning over a decade of continuous research with Heavy Vehicle Simulator equipment on pavements incorporating MSL will be presented. M-E design method will then be compared with full-scale trafficking test results.

#### Biodata

Piotr Mazurowski is a Professional Civil Engineer specialized in road technology. In 1999, he graduated from Technical University of Gdańsk, Poland, gaining a degree of M. Sc. Eng. in Highway Engineering specialty. For 17 years, he worked for DROTEST Road Engineering Office, a partner of Tensar International in Poland, first as an Area Civil Engineer and then as a Technical Director. Since September 2016, he works for Tensar International as an Applications Technology Manager for Pavement Optimisation for Europe, Middle-East and Africa. An experienced designer, focused in pavements, both new and existing roads, at all scales, from local roads to expressways; with the help of both empirical and mechanistic-empirical design methods. Author of several papers presented on pavement and geosynthetics conferences and of several papers presented in roads business magazines

#### ANNOUNCEMENTS TO NOTE

- **Non-IEM members** may also attend the talk but will need to pay a registration fee of **RM50** and an administrative fee of **RM15**. GST is inclusive.
- Limited seats are available on a "first come first served" basis (maximum 100 participants). **To secure your seat, kindly register online at [www.myiem.org.my](http://www.myiem.org.my).**

#### ADMINISTRATIVE FEE

- Kindly be informed that an administrative fee of **RM15** is payable for talks organized by IEM. GST is inclusive.
- IEM Student Members are however exempted.

#### PERSONAL DATA PROTECTION ACT

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**Ir. Lee Peir Tien**

**Chairman, Geotechnical Engineering Technical Division, IEM**