



Image courtesy of Able Industries Engineering and Group Technologies Australasia

## Finite Element Analysis of Steel Structures – Reducing Risk and Optimising Design

Finite Element Analysis (FEA) can be a useful tool to determine stress levels in structures and optimize design. Common challenges faced by engineers include: pressure to rely wholly on FEA results; which FEA results can be trusted for assessment; and comparing fatigue Standards details with FEA details in real structures.

This seminar provides an overview of the positives and negatives of FEA with particular emphasis on fatigue & weld design and is of specific value for structural, mechanical and forensic engineers.

### Times

12.00pm for 12.30pm start to 5.00pm finish

### Seminar Package

**Seminar Notes (PDF)**  
**Light lunch on arrival**  
**Afternoon tea**

### Seminar Content

- When your FEA is responsible for deciding: “Will it work without us testing?”
- FEA stresses for fatigue: the good, the bad, the ugly.
- The value of test models to provide better information.
- Weld details: real world vs FEA vs Standards (e.g. AS 4100 Sec 11, EC 3, BS 7608).
- Solid vs Plate vs Beam models for assessment stress: “Should I model the weld?”
- Duty cycles and stress ranges: “What do I do without the fatigue software add-on?”
- Case studies from amongst mining, railway and industrial equipment. Wind fatigue analysis of Perth Stadium speaker frames.

### Presenter

**Vernon McKenzie – Vernon is the Managing Director with EnDuraSim**

Vernon has 20 years hands-on experience in the application of FEA to real world engineering challenges. He has personally trained several hundreds of engineers in the practical application of FEA, and has conducted consulting projects - mainly associated with mining, transportation structures (planes, trains, automobiles, buses, ships, subs, trucks and tractors) and industrial equipment - on four continents.

Vernon has a First Class Honours Degree in Mechanical Engineering from the University of Technology, Sydney and a Graduate Certificate in Management Practice from the Australian Institute of Management.

### Seminar Fee (incl GST)

**\$375 ASI Member**  
**\$455 EA Member**  
**\$535 Non Member**



Vernon McKenzie

Engineers attending this seminar may gain CPD points to meet Engineers Australia requirements.

**EA Members who are not ASI members** should email [membership@steel.org.au](mailto:membership@steel.org.au) with proof of membership to obtain the promotion code to access the EA Member reduced fee.

Location	Date	Venue
<b>Brisbane</b>	Monday 11 November	Brisbane Convention & Exhibition Centre, cnr of Merivale & Glenelg Streets, South Bank
<b>Sydney</b>	Tuesday 12 November	Urban Hotel, 194 Pacific Hwy, Greenwich
<b>Melbourne</b>	Wednesday 13 November	Pullman Melbourne on the Park, 192 Wellington Parade, Melbourne
<b>Adelaide</b>	Monday 18 November	Education Development Centre, 4 Milner Street, Hindmarsh
<b>Perth</b>	Tuesday 19 November	The Geographe Room, State Library, Francis Street, Perth

Register online at: <https://www.steel.org.au/events-awards/events/>

For further details, contact: **John Gardner** – ASI National Education Manager – Technical

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