

# Structural Bolting eCourse

## Specification, Supervision and Inspection

This eCourse will address all aspects that structural engineers, supervisors and inspectors should know when it comes to bolting, including information on AS 4100, NZS 3404.1, AS/NZS 5100.6, AS/NZS 1252 and EN 14399-X as applicable to Australian and New Zealand steel construction. Expert presenters will not only review existing Standards, but also introduce new and innovative methods that save time, reduce cost, and improve the efficiency and quality of bolted connections. The eCourse will also delve into the numerous problems encountered in bolted connections and address the “hot topic” of the conformance of steel materials for structural bolting applications.

### Why is this Important?

Achieving satisfactory performance in bolted joints involves the selection and verification of bolting materials, appropriate joint design, proper installation and quality assurance. In Australia and New Zealand, steel structures are required to be fabricated and erected in accordance with AS/NZS 5131 Structural steelwork – Fabrication and erection. This Standard references a range of normative standards such as AS/NZS 1252, specifies quality requirements in accordance with the Construction Categories CC1 to CC4 and defines competency requirements for people involved in all operations including erection and bolting. While installation of bolts is performed by the technical personnel under the supervision of the Bolting Inspector or Supervisor, structural engineers responsible for the project should also be familiar with all key aspects of bolting installation and inspection.

### What You Can Expect

- Parts 1 to 5 of the eCourse are pre-recorded, on-demand webcasts, which will be released sequentially, followed by a live, online Q&A session
- The pre-recorded webcasts will be available to view at the student's own pace, with previous webcasts available until course completion. The webcasts can also be accessed anywhere—no travel and or time off work
- Comprehensive training delivered by Robert E. Shaw, a leading expert on bolted and welded connections, and support from Weld Australia, ASI and HERA experts
- A course that leads to a Certificate in Structural Steel Bolting (conditions apply and quiz must be completed)
- A personalised learning experience that maintains a structured learning approach
- Interaction with trainers via a Q&A session
- A comprehensive set of course notes for all attendees



## Register Today

Weld Australia Members

Register now: <https://bit.ly/34sAR9V>

For further information, contact:  
Michelle Bignold on 0437 106 726 or  
[m.bignold@weldaustralia.com.au](mailto:m.bignold@weldaustralia.com.au)

ASI Members

Register now: <https://bit.ly/2Qmtucd>

For further information, contact:  
John Gardner on 0418 788 870 or  
[johng@steel.org.au](mailto:johng@steel.org.au)

HERA Members

Register now: <https://bit.ly/34i64wK>

For further information, contact:  
Michail Karpenko on +64 9262 4849 or  
[mkarpenko@hera.org.nz](mailto:mkarpenko@hera.org.nz)

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## Specification, Supervision and Inspection

### Presenter: Robert E. Shaw Jr

(President, Steel Structures Technology Center)

Robert E. Shaw Jr is a registered Professional Engineer, with 47 years' experience in steel construction. Currently based at SSTC (a consulting engineering firm in the US specialising in structural steel connections, construction and quality issues), Robert has also worked for a major steel fabricator and the American Institute of Steel Construction. Robert also serves on the Specifications Committee of the Research Council on Structural Connections, which is the body that writes the bolting Standards used in America. He also is a member of the American Welding Society's Structural Welding Committee, and chairs the IIW Commission XVIII on Quality Management in Welding and Allied Processes.

### eCourse Details

- The workshop will include 5 x 2 hour pre-recorded on-demand webcasts, plus a live Q&A webcast session:
  - Part 1: Tuesday 3 November 2020
  - Part 2: Tuesday 10 November 2020
  - Part 3: Tuesday 17 November 2020
  - Part 4: Tuesday 24 November 2020
  - Part 5: Tuesday 1 December 2020
  - Q&A Session: Tuesday 8 December 2020
  - Examination (optional): 15 December 2020
- The eCourse will be hosted via the Weld Australia online training platform, with login details supplied upon registration
- Cost:
  - Members: AU/NZ\$990 (inc GST)
  - Non-Members: AU/NZ\$1,100 (inc GST)
  - Examination to achieve Certificate in Structural Steel Bolting (optional) Members and Non-Members: AU/NZ\$150 (inc GST)

### eCourse Program

#### Part 1: Bolted Connections

- Bolted connections in structural systems
- Selecting the appropriate bolted joint - bearing-type snug tightened, fully tensioned, and friction type
- Bare and coated connection surfaces
- Hole type, holing and condition

#### Part 2: Bolting Materials

- Selecting the appropriate bolting materials – AS/NZS 1252, EN 14399-X, strength, type, corrosion protection
- Manufacturer testing of bolting components
- Product identification

#### Part 3: Bolting Assembly Performance

- Techniques for shop and jobsite testing to verify suitability for use - Pre-installation verification testing and rotational-capacity testing
- The torque-tension relationship
- Protected storage

#### Part 4: Bolting Installation

- Determining the snug tight condition, and its effect upon further tensioning
- Pretensioning procedures - part-turn, direct tension indicators
- Alternative bolting products and installation methods - twist-off bolts, combined method, torque method

#### Part 5: Bolting Inspection and Problem Resolution

- Specifying and implementing inspection practices
- Resolution of disputes
- Why bolts break, and what to do about it
- Developing a bolting personnel qualification program

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