



**Australian Government**

**Assessment Requirements for MEM09224  
Detail bolts and welds for structural  
steelwork connections**

**Release: 1**

# Assessment Requirements for MEM09224 Detail bolts and welds for structural steelwork connections

## Modification History

Release 1. Supersedes and is equivalent to MSATCS302A Detail bolts and welds for structural steelwork connections.

## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- complying with requirements prescribed by legislation, awards, agreements and conditions of employment
- assessing design information for adequacy of information needed for structural steel detailing
- liaising with design engineers
- assessing scope of structural steel detailing tasks and priorities
- interpreting design drawings, sketches and schedules
- determining bolt and thread lengths
- detailing bolts to Australian Standard (AS) 1100.101 Technical drawing - General principles, on at least two occasions
- detailing welds consistent with design information, AS 4100 Steel structures, AS 1101.3 Graphical symbols for general engineering - Welding and non-destructive examination, on at least two occasions
- communicating at all levels about technical issues related to patterns and specifications.

*Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.*

## Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures
- architectural and engineering design drawings including standard symbols, terms, abbreviations and sketches
- structural steel members and connections used in structural steel construction
- difference between design and detail drawing processes
- drawing office procedures
- fabrication processes and procedures

- Australian steel structures limit state design code's (AS 4100 Steel structures) requirements and impact on steel detailing
- Australian standard bolting category identification system
- bolt and thread length considerations including:
  - shank lengths as defined in:
    - AS 1111.1 ISO metric hexagon bolts and screws - Product grade C, Part 1: Bolts
    - AS 1111.2 ISO metric hexagon bolts and screws - Product grade C, Part 2: Screws
    - AS 1252.1 High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers, Part 1: Technical requirements
    - AS 1252.2 High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers, Part 2: Verification testing for bolt assemblies
  - inclusion or exclusion of the shear plane in the thread
  - grip and ply thicknesses
  - thread projection requirements as per AS 4100
  - nut and washer requirements
- standard welding symbols as described in AS 1101.3 Graphical symbols for general engineering - Welding and non-destructive testing examination.
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## Assessment Conditions

- Assessors must:
  - have vocational competency in detailing bolts and welds for structural steelwork connections at least to the level being assessed with relevant industry knowledge and experience
  - satisfy the assessor requirements in the Standards for Registered Training Organisations 2015 or its replacement and comply with the National Vocational Education and Training Regulator Act 2011, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

## **Links**

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>