



Australian Government

Department of Education, Employment and Workplace Relations

MSATCS504A Detail ancillary steelwork

Revision Number: 1

MSATCS504A Detail ancillary steelwork

Modification History

Not applicable.

Unit Descriptor

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| Unit descriptor | This unit covers the skills and knowledge required to detail steelwork ancillary to, or separate from, the main structural elements and their connections in a steel framed building or industrial construction. |
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Application of the Unit

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| Application of the unit | <p>This unit applies to a structural steel detailer who has to detail ancillary structural steelwork including steelwork used in stairways, ladders, landings, platforms for personnel and machinery, and other ancillary steel structures such as cages, lift guide rails and crane rails. The unit can also apply to the detailing of stand alone steel constructions that are not part of or attached to plant or buildings, and which do not require additional specialist knowledge. Examples include:</p> <ul style="list-style-type: none"> • steel tankage rolled plates • chimney flumes • exhaust pipe flumes • pipe supports • conveyor structures. <p>The unit assumes that knowledge of basic technical drawing conventions and procedures such as view, dimensioning, drawing layout, and so on is already held.</p> <p>Work is conducted according to defined procedures.</p> <p>The detailing covered by this unit may be done manually or by using CAD and/or proprietary steel detailing software.</p> <p>Work may be conducted in small to large scale enterprises and may involve individual and team activities.</p> <p>This unit requires the application of skills associated with planning and organising to complete structural steel detail drawings. Communication and numeracy skills are used to refer to patterns and specifications and complete and label sketches. Self management skills are used to ensure conformance of own work to quality standards.</p> |
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

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| Prerequisite units | <i>MEM09002B</i> | <i>Interpret technical drawing</i> |
| | <i>MSATCS301A</i> | <i>Interpret architectural and engineering design</i> |

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| Prerequisite units | <i>MEM09002B</i> | <i>Interpret technical drawing</i> |
| | | <i>specifications for structural steel detailing</i> |

Employability Skills Information

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| Employability skills | This unit contains employability skills. |
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Elements and Performance Criteria Pre-Content

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| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |
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Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
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| 1. Detail stairways, platforms, ladders and landings | <p>1.1. Scheduling of detail drawings for stairways, platforms, ladders and landings are discussed with fabricator</p> <p>1.2. Design information is checked and any requests for further information (RFIs) are made</p> <p>1.3. Large scale set-out or 3D model of stairway is prepared and setting out points established</p> <p>1.4. Stairway is dimensioned and detailed consistent with design information and the Building Code of Australia and AS 1657</p> <p>1.5. Holding down bolt layout and base plate details are prepared for ground floor supports or plinths</p> |
| 2. Detail other ancillary steel structures | <p>2.1. Design information is received from client and fabrication schedule and requirements including allocation of components for shop and site fabrication confirmed</p> <p>2.2. Size limitations of any sections requiring corrosion treatment or other surface finishing processes are determined</p> <p>2.3. Transport limitations, erection procedures and limitations, and any relevant codes and regulations are determined</p> <p>2.4. Rough large scale layout and 3D model is combined with trial assembly if required</p> <p>2.5. Design information is used to directly insert or calculate and insert all dimensions, clearances, bolt layouts, weld types and dimensions, direction marks and surface finishes on shop drawings and erection diagrams</p> <p>2.6. Detail drawings are sent for approval by designer</p> |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- assess design information for adequacy of information needed for structural steel detailing
- liaise with architects and engineers
- assess scope of structural steel detailing tasks and priorities
- interpret design drawings, sketches and schedules
- produce shop detail drawings and erection drawings
- research and obtain relevant Australian Standards, codes and regulations
- work according to OHS practices of the enterprise and workplace which may include requirements prescribed by legislation, awards, agreements and conditions of employment, standard operating procedures, or oral, written or visual instructions
- communicate at all levels about technical issues related to patterns and specifications
- reading and numeracy is required to the level of interpreting workplace documents and technical information

Required knowledge

- architectural and engineering design drawings including standard symbols, terms, abbreviations and sketches
- structural members used in steel constructions
- the difference between design and detail drawing processes
- drawing office procedures
- fabrication processes and procedures
- the Australian steel structures limit state design code's (AS4100) requirements in so far as they impact on steel detailing

Evidence Guide

| EVIDENCE GUIDE | |
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| <p>The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p> | |
| Overview of assessment | |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | <p>Demonstrates skills and knowledge to:</p> <ul style="list-style-type: none"> • identify and interpret architect and engineer design specifications for structural steel components of ancillary steelwork including members and connections • relate design information to structural steel detailing processes • establish efficient administrative arrangements for liaison with designers • establish drawing and document control procedures • identify standard sizes and specifications of structural members and components from industry publications, manufacturers' catalogues and Australian or other relevant standards |
| Context of and specific resources for assessment | <p>Assessment may occur on the job or in an appropriately simulated environment</p> <p>Resource implications for this unit include:</p> <ul style="list-style-type: none"> • access to real or appropriately simulated detailing of ancillary structural steelwork including provision of suitable design information • computer with suitable CAD software or manual drafting equipment and material including work areas, materials and equipment • access to steel and component manufacturers catalogues or web sites • access to relevant standards through either hard copy or internet access. <p>Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.</p> <p>Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified</p> |

| EVIDENCE GUIDE | |
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| | for people with disabilities. |
| Method of assessment | <ul style="list-style-type: none"> • Assessment must satisfy the endorsed assessment guidelines of the Manufacturing Training Package • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge • Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application • Assessment may be applied under project related conditions (real or simulated) and require evidence of process • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances • Assessment may be in conjunction with assessment of other units of competency where structural steel detailing is involved |
| Guidance information for assessment | Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed. |

Range Statement

| RANGE STATEMENT | |
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| <p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p> | |
| Legislative/regulatory requirements | All work must comply with relevant Federal and State or Territory legislative or regulatory requirements |
| Design information | Design information is the information provided to the detailer and fabricator by the architects and consulting engineers for a project. For some projects the design information may only be provided by an engineer. The design information will usually be in the form of design drawings or sketches but may also be via material lists, written instructions and computer files |
| Other ancillary steel structures | <p>Other ancillary structures as defined in this unit are steel constructions that are not part of the structural framework or exterior of a building or part of the structural support for plant and which could be part of a steel construction detailing contract. Examples include:</p> <ul style="list-style-type: none"> • crane rails and connections • lift guide rails • cages • steel tankage rolled plates • chimney flumes • exhaust pipe flumes • pipe supports • conveyor structures |
| Direction marks | Direction marks are indicated on the shop drawings and on the beam or girder by the words 'North' or 'West' as applicable. Industry standard practice is to determine the placement of these marks by viewing and numbering the beams and girders from the bottom or right hand edge of the floor plan. Variations from this practice may occur on specific projects and should be noted on |

| RANGE STATEMENT | |
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| | the erection plan. |
| Work environment | <p>Detailing may be undertaken in a variety of work environments including commercial, home office or fabrication or construction enterprise.</p> <p>Work may be performed individually on a contracting/project basis or as part of a project team and in response to combinations of paper based and electronic instructions.</p> |

Unit Sector(s)

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| Unit sector | Structural steel detailing |
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Competency field

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| Competency field | |
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Co-requisite units

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| Co-requisite units | | |
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