



Australian Government

Department of Education, Employment and Workplace Relations

RTF3208A Install metal structures and features

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of installing metal structures and features as a component of landscape project works. These structures and features may include fences, pergolas, trellises, handrails, screens, seats, bollards, playground equipment, rubbish bins, plant surrounds, garden lights, sculptures and other ornamental features.

The installing of metal structures and features is likely to be under limited supervision from others, with checking only related to overall progress and is usually done within established routines, methods and procedures. Some discretion and judgement may be required in the assembly and securing of the metal components used in the structure or feature.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Plan and prepare work	<p>1.1 Plans and specifications are interpreted and clarified with the supervisor.</p> <p>1.2 The quantity and quality of materials are checked to ensure they conform to design drawings and specifications.</p> <p>1.3 Tools and equipment are selected and checked for serviceability according to enterprise guidelines.</p> <p>1.4 OHS hazards are identified, risks assessed and controls implemented.</p> <p>1.5 Environmental implications of installing timber structures are identified and reported to the supervisor.</p>
2 Set out the site for the structure	<p>2.1 Services are determined and located from site plans.</p> <p>2.2 The position of the structure or feature is marked out according to design drawings and specifications.</p> <p>2.3 Profiles are established to conform to the tolerances nominated within the design drawings and specifications.</p> <p>2.4 Footings are excavated and prepared according to the type of structure or feature to be installed.</p>
3 Prepare and cut metal components	<p>3.1 Components are laid out ready for assembly to the requirements contained in the design drawings and specifications.</p> <p>3.2 The length of components and the positions of joins are marked out according to designated specifications in design drawings.</p> <p>3.3 Cutting tools are selected, used and maintained according to manufacturers recommendations and OHS specifications.</p> <p>3.4 Components are cut and joined in preparation for</p>

assembly.

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| 4 Assemble and erect structure | 4.1 Metal components are assembled into position and fixed into place according to design drawings and specifications. |
| | 4.2 Remaining components are installed and fixed into position according to design drawings and specifications. |
| | 4.3 Structure is finished off to ensure all components are secure and complete. |
| | 4.4 Coatings are applied according to specifications, manufacturers recommendations and OHS guidelines . |
| 5 Check quality of work and clean up site | 5.1 Quality of finished work is inspected to ensure the standard of the finished structure or feature is in accordance with design drawings and specifications. |
| | 5.2 Debris is cleaned from structure and site according to enterprise guidelines. |
| | 5.3 Waste material is disposed of in an environmentally aware and sensitive manner. |
| | 5.4 Unused metal components are stored for future re-use according to enterprise guidelines. |
| | 5.5 Tools and equipment are cleaned and stored according to enterprise guidelines. |

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in installing metal structures and features requires evidence that the work can be planned and prepared for, that the structure site can be marked out according to design drawings and specifications, and that the structure or feature can then be assembled, installed and finished off according to the required standards.

The skills and knowledge required to install metal structures and features must be **transferable** to a different work environment. For example, this could include different metals, structures, locations and enterprises.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- surveying principles and techniques

- the correct use of hand and power tools and other OHS requirements associated with installing structures and features

- comparative environmental implications associated with excavation and construction activity.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- interpret design drawings and specifications

- measure and mark lengths of metal components accurately

- join and cut metal components using different techniques and methods

- use some surveyors instruments.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

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| 1. How can communication of ideas and information (2) be applied? | Information regarding the design of the structure to be installed may need to be discussed with suppliers, the client and other members of the work team. |
| 2. How can information be collected, analysed and organised (2) ? | The information on design drawings, specifications and site plans may need to be collected, analysed and then transposed to site. |
| 3. How are activities planned and organised (2) ? | Activities on the work site may need to be planned and organised to ensure efficient use of time and resources. |
| 4. How can team work (2) be applied? | Team work may be required when assembling and installing metal structures and features. |
| 5. How can the use of mathematical ideas and techniques (2) be applied? | Mathematical techniques may be applied when marking out the structure site and establishing profiles. |
| 6. How can problem-solving skills (2) be applied? | Problems may arise if calculations of metal component lengths are inaccurate. |
| 7. How can the use of technology (2) be applied? | The use of technology may be applied when using levelling equipment to mark out the structure site. |

Are there other competency standards that could be assessed with this one?

This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Range Statement

Range of Variables

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available

What **tools and equipment** are likely to be used when installing metal structures and features?

Tools and equipment may include levelling equipment, string lines, tape measures, marking gauges, spades, shovels, crow bars, hammers, spanners, metal files, hacksaws, angle grinders and electric saws with metal blades.

What **OHS hazards** may apply to this standard?

OHS hazards may include manual lifting, use of power tools, use of sharp hand tools, dust, and sun exposure.

What **OHS controls** may be relevant to this standard?

OHS controls may include safe lifting and transporting techniques, the appropriate use of personal protective clothing and equipment such as overalls, boots, face shield, hat, installation of safety signs and barriers, the disabling and disconnecting of soldering, thermal cutting equipment and other powered tools when not in use, the identification of site access points, the safe storage of materials on site, the drinking of fluids, and basic first aid.

What **environmental implications** are likely to be considered?

Consideration may be given to the impact of soil disturbance and the alteration to water flow during construction and after the structure or feature has been installed.

What **services** are likely to be located on site?

Services may include power, gas, water, stormwater, sewerage or septic connections, phone and optical cables.

What type of **footings** are likely to be prepared for metal structures and features?

Footings may be concrete or in some case rammed earth. The depth of footings and timing of footing installation may vary according to the type of structure or feature to be installed. Some structures (e.g. fences) need the post and footing installed at the beginning. Others may be supported by temporary bracing, and when complete, the footings are filled.

What **metal components** are likely to be included in a timber structure or feature?

Metal components may include panels, sheets, posts, bars, rails, wire, wire mesh and metal lattice.

What **cutting tools** are likely to be used?

Cutting tools may include hacksaws, angle grinders, electric saws with metal blades, and thermal cutting equipment (oxy acetylene set).

What **OHS specifications** may be included for the use of metal cutting equipment?

OHS specifications may include pre start checks of blades, torches, irons, nuts, bolts and switches, operating the equipment according to manufacturers recommendations including correct handling, the wearing of protective clothing and eye protection, and regular servicing and safe storage when not in use.

What methods are likely to be used for **joining** metal to metal?

Joining methods may include brackets, nuts and bolts, hinges, and other metal screws and fasteners.

How can metal components be **fixed** into place?

Metal fixing methods may include brackets, galvanised plates, saddles, nails, cuphead bolts, coach screws, and masonry bolts.

How can a structure or feature be **finished off** to ensure completeness and security of components?

Finishing off may include the cutting off of overhangs, burring of angles and edges, and any other cosmetic work that may be required.

What **coatings** are likely to be applied to metal structures and features?

Coatings may include primers and paint with rust inhibitors.

What **OHS guidelines** are likely to be followed when applying coatings to metal?

Guidelines may include appropriate personal protective clothing and equipment, protective ground cloths, preparing and applying the coating according to manufacturers recommendations, correct care and cleaning of application tools, the installation of "wet surface" signs and barriers, and the disposal of empty containers in an environmentally safe and sensitive manner.

For more information on contexts, environment and variables for training and assessment, refer to the Sector Booklet.

Unit Sector(s)

Not applicable.