



Australian Government

Department of Education, Employment and Workplace Relations

FPITMM4201B Construct prototypes and samples

Release: 1

FPITMM4201B Construct prototypes and samples

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to prepare and construct prototypes and samples in line with established plans, drawings or other specifications for the purpose of testing product viability and construction methods

General workplace legislative and regulatory requirements apply to this unit; however there are no specific licensing or certification requirements at the time of publication

This unit replaces FPITMM4201A Construct prototypes and samples

Application of the Unit

Application of the unit

This unit involves constructing prototypes and samples in a forest products factory setting

The skills and knowledge required for competent workplace performance are to be used within the scope of the person's job and authority

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units

Employability Skills Information

Employability skills This unit contains employability skills

Elements and Performance Criteria Pre-Content

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for construction	<p>1.1. Applicable <i>Occupational Health and Safety</i> (OHS), <i>environmental</i>, <i>legislative</i> and <i>organisational requirements</i> relevant to constructing prototypes and samples are identified and followed</p> <p>1.2. <i>Prototype</i> purpose, <i>work order</i> and construction plans are produced and checked with <i>appropriate personnel</i></p> <p>1.3. Type and quantity of <i>material</i> and <i>assembly hardware</i> to be constructed are collected</p> <p>1.4. <i>Equipment</i> is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer's recommendations</p> <p>1.5. <i>Stages</i> of the construction process are planned and documented</p> <p>1.6. <i>Communication</i> with others is established and maintained in line with OHS requirements</p>
2. Set up components	<p>2.1. <i>Set-up jigs</i> required for construction are specified and prepared</p> <p>2.2. <i>Timber components</i> are selected, checked for compatibility with the specifications and cut in line with the prototype plans</p> <p>2.3. Components are positioned and clamped in jigs ready for joining with allowable faults, joints and grain in line with construction standards and grading rules</p> <p>2.4. <i>Defective components</i> are rejected and <i>disposed of</i> in line with site procedures and environmental requirements</p> <p>2.5. Timber that is cut incorrectly and off-cuts are disposed of in line with site procedures and environmental requirements</p> <p>2.6. Components are stapled to maintain temporary alignment during construction</p>
3. Construct prototype	<p>3.1. Construction plan is followed to construct the item</p> <p>3.2. Assembly hardware is located and selected in line with the prototype construction plans and specifications</p> <p>3.3. Checks are conducted at designated points in construction</p> <p>3.4. Hardware is positioned on joints and installed,</p>

ELEMENT**PERFORMANCE CRITERIA**

- following prototype specifications
- 3.5. *Temporary bracing* is nailed or stapled to the product in line with construction standards
- 3.6. *Modifications* to designs and plans are detected and recommended within workplace procedures
- 3.7. *Construction faults* are corrected and prototype plans modified
- 3.8. Modifications to the plan are documented and followed
- 3.9. Prototype or sample is checked for effectiveness and timeliness of construction to suit the purpose
- 3.10. Prototype development processes and problems are *recorded and reported* to the appropriate personnel
- 3.11. When no longer required, temporary bracing, prototypes and samples are stored or disposed of in line with site procedures and environmental requirements

Required Skills and Knowledge**REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level required for this unit.

Required skills

- Technical skills sufficient to use and maintain relevant tools, machinery and equipment and safely construct prototypes and samples
- Communication skills and interpersonal techniques sufficient to interact appropriately with colleagues and others in the workplace
- Literacy skills sufficient to accurately record and report workplace information, and maintain documentation
- Numeracy skills sufficient to estimate, measure and calculate length and angles including basic addition and subtraction and to calculate time required to complete a task
- Problem solving skills sufficient to identify problems and equipment faults and demonstrate appropriate response procedures

Required knowledge

- Applicable Commonwealth, State or Territory legislation, regulations, standards, codes of practice and established safe practices relevant to the full range of

REQUIRED SKILLS AND KNOWLEDGE

processes for constructing prototypes and samples

- Environmental protection requirements, including the safe disposal of waste material, minimising carbon emissions and the cleaning of plant, tools and equipment
- Organisational and site standards, requirements, policies and procedures relevant to constructing prototypes and samples
- Environmental risks and hazards
- Using energy effectively and efficiently
- Using material effectively and efficiently
- Characteristics of timber and timber defects
- Products and their use
- Construction sequences and jigs
- Construction componentry and construction standards
- Industry standard cross-sections and lengths
- Established communication channels and protocols
- Problem identification and resolution strategies and fault finding techniques
- Types of tools and equipment and procedures for their safe use, operation and maintenance
- Appropriate mathematical procedures for estimating and measuring, including calculating time to complete tasks
- Procedures for recording and reporting workplace information

Evidence Guide

EVIDENCE GUIDE

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.

Overview of assessment

A person who demonstrates competency in this unit must be able to provide evidence that they can safely and efficiently construct prototypes and samples within organisational requirements

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements of this unit and include demonstration of:

- following applicable Commonwealth, State or Territory legislative and regulatory requirements and codes of practice relevant to constructing prototypes and samples
- following organisational policies and procedures relevant to constructing prototypes and samples
- effective communication and safe working practices
- constructing prototypes and samples in line with construction plans, drawings and specifications to follow construction standards
- assessing prototype success with accepted development times, organisational production procedures and product purpose

Context of and specific resources for assessment

- Competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of required knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to follow relevant regulatory or Australian Standards requirements
- The following resources should be made available:
 - workplace location or simulated workplace
 - materials and equipment relevant to undertaking work applicable to this unit
 - specifications and work instructions

EVIDENCE GUIDE

Method of assessment

- Assessment must satisfy the endorsed Assessment Guidelines of the FPI11 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 required knowledge
- Assessment must be by direct observation of tasks, with questioning on required knowledge and it must also reinforce the integration of employability skills
- Assessment methods must confirm the ability to access and correctly interpret and apply the required knowledge
- 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
- The assessment environment should not disadvantage the candidate
- Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English
- Where the participant has a disability, reasonable adjustment may be applied during assessment
- Language and literacy demands of the assessment task should not be higher than those of the work role

Range Statement

RANGE STATEMENT

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.

RANGE STATEMENT

OHS requirements:

are to be in line with applicable Commonwealth, State or Territory legislation and regulations, and organisational safety policies and procedures, and may include:

- personal protective equipment and clothing
- safety equipment
- first aid equipment
- fire fighting equipment
- hazard and risk control
- fatigue management
- elimination of hazardous materials and substances
- safe forest practices including required actions relating to forest fire
- manual handling including shifting, lifting and carrying

Environmental requirements may include:

- legislation
- organisational policies and procedures
- workplace practices

Legislative requirements:

are to be in line with applicable Commonwealth, State or Territory legislation, regulations, certification requirements and codes of practice and may include:

- award and enterprise agreements
- industrial relations
- Australian Standards
- confidentiality and privacy
- OHS
- the environment
- equal opportunity
- anti-discrimination
- relevant industry codes of practice
- duty of care

Organisational requirements may include:

- legal
- organisational and site guidelines
- policies and procedures relating to own role and responsibility
- quality assurance
- procedural manuals
- quality and continuous improvement processes

RANGE STATEMENT

and standards

- OHS, emergency and evacuation procedures
- ethical standards
- recording and reporting requirements
- equipment use and maintenance and storage requirements
- environmental management requirements (waste minimisation and disposal, recycling and re-use guidelines)

Prototypes may include:

new designs for:

- pallets
- crates
- trellises
- trusses
- stairs
- doors
- windows
- frames
- beams
- new product development

Work order is to include:

- instructions for the construction and testing of new timber products from the work site

and may include:

- construction plans or drawings
- type of product
- size
- quantity
- grade
- instructions for the environmental monitoring of work and procedures
- environmental care requirements relevant to the work

Appropriate personnel may include:

- supervisors
- suppliers
- clients
- colleagues
- managers

Material may include:

- native timber species
- imported timber species
- dressed timber

RANGE STATEMENT

- in-the-rough timber
- stress and non-stress graded timber
- preservative treated timber
- medium density fibreboard
- laminated veneer
- chipboard,
- fibreboard and other manufactured board products
- coated and/or treated timber products
- beams or laminated beams

Assembly hardware is to include:

- nailing plates

and may include:

- gang nails
- nail gun nails
- staples

Equipment may include:

- measuring equipment
- assembly jigs
- nail plate presses
- staple guns
- nail guns
- compressor or compressed air supply
- marking equipment
- strapping equipment

Stages

are the development phases of the new prototype, allowing review for each process and modification

Communication may include:

- verbal and non-verbal language
- constructive feedback
- active listening
- questioning to clarify and confirm understanding
- use of positive, confident and cooperative language
- use of language and concepts appropriate to individual social and cultural differences
- control of tone of voice and body language

Set-up jigs

- are the organisation's manufactured templates which assist in the positioning of components during the assembly process
- are usually newly developed as part of the prototype development process

RANGE STATEMENT

- Timber components** are the sections of timber or timber product which are cut in readiness for assembly and have been cut to follow the construction plans and specifications
- Defective components** may include:
- components with an unacceptable level of :
 - warp
 - wane
 - cupping
 - shakes
 - insect defects
 - knots
 - resin pockets
- Disposing of** may include:
- recycling material with defective components; timber that is cut incorrectly, off-cuts; temporary bracing, prototypes or samples no longer required
 - re-using material with defective components; timber that is cut incorrectly, off-cuts; temporary bracing, prototypes or samples no longer required
- Temporary bracing** may be fixed to secure the assembled product in alignment and square during transportation, moving and positioning on site
- Modifications** may include:
- changing aspects of the prototype plans, drawings and specifications to facilitate acceptable construction methods, standard component sizes or to rectify and overcome a construction fault
- Construction faults** may include:
- incorrectly positioned joints
 - timber splits from nailing
 - incorrectly positioned hardware
- Records and reports** may include:
- product type
 - size
 - inspection
 - grading and labelling outcomes
 - storage locations
 - quality outcomes
 - hazards
 - incidents
 - equipment malfunctions

RANGE STATEMENT

- and may be:
- manual
- using a computer-based system or another appropriate organisational communication system

Unit Sector(s)

Unit sector No sector assigned

Co-requisite units

Co-requisite units

Competency field

Competency field Timber Manufactured Products and Timber Merchandising