Australian Government

Department of Education, Employment and Workplace Relations

FPITMM5202B Develop, trial and evaluate prototypes

Release: 1

FPITMM5202B Develop, trial and evaluate prototypes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to develop specifications, specify and select materials and processes, produce and trial prototypes and complete evaluation documentation

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 FPITMM5202A Develop, trial and evaluate prototypes

Application of the Unit

Application of the unit

This unit involves developing, trialling and evaluating prototypes 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. Develop prototype specifications	1.1. Applicable ***Occupational Health and Safety*** (OHS), ***environmental***, ***legislative*** and ***organisational requirements*** relevant to developing, trialling and evaluating prototypes are identified and followed 1.2. ***Prototype*** purpose and outline requirements are specified from design concepts or customer requirements 1.3. ***Materials*** are specified following a detailed analysis of the options 1.4. Detailed prototype ***design*** specifications are prepared and documented 1.5. Construction requirements and methods are specified appropriate for the materials to be used 1.6. ***Communication*** with others is established and maintained in line with OHS requirements
2. Plan and prepare prototype for construction	2.1. ***Work order*** and ***work plans*** are produced and checked with ***appropriate personnel*** 2.2. Type and quantity of material and ***consumables*** to be constructed are collected 2.3. ***Equipment*** is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer's recommendations 2.4. ***Stages*** of the construction process are planned, documented and quality checked 2.5. Appropriate ***jigs*** and other construction aids are obtained and adjusted to suit the work
3. Produce the prototype	3.1. Work plan is followed to construct the item 3.2. Checks are conducted at designated points in construction 3.3. ***Modifications*** to designs and plans are detected and recommended within workplace procedures 3.4. Modifications to the plan are documented and followed 3.5. Prototype is checked for effectiveness and timeliness of construction to suit the purpose 3.6. Prototype development processes and problems are ***recorded and reported***
4. Trial and evaluate the prototype	4.1. ***Trial*** objectives and processes are developed, specified and documented

ELEMENT	PERFORMANCE CRITERIA
	4.2. Personnel involved in the trial and evaluation are informed of their responsibilities and functions 4.3. Trial equipment, tools and materials are prepared and certified prior to use 4.4. Prototype trials are conducted and results captured and recorded in line with the trial specification 4.5. Results of trials are evaluated and evaluation records and recommendations are processed in line with enterprise procedures 4.6. Sample prototypes are ***disposed of*** in line with site procedures and environmental requirements 4.7. Prototypes no longer required 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, safely develop, trial and evaluate prototypes
- 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 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 processes for developing, trialling and evaluating prototypes
- Environmental protection requirements, including the safe disposal of waste material and minimising carbon emissions
- Organisational and site standards, requirements, policies and procedures relevant to developing, trialling and evaluating prototypes

REQUIRED SKILLS AND KNOWLEDGE

- Environmental risks and hazards
- Using energy effectively and efficiently
- Using material effectively and efficiently
- Prototype development and purposes, prototype trialling and evaluation processes
- Characteristics of timber and timber defects
- Construction sequences and jigs
- Industry standard cross-sections and lengths
- Construction componentry and standards
- Established communication channels and protocols
- Problem identification and resolution strategies and common 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 develop, trial and evaluate prototypes 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 developing, trialling and evaluating prototypes • following organisational policies and procedures relevant to developing, trialling and evaluating prototypes • effective communication and safe working practices • developing, trialling and evaluating prototypes in line with construction plans, drawings and specifications to follow construction standards • trialling and evaluating prototype outcomes within acceptable development times, enterprise 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 essential underpinning 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 underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning 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 essential underpinning 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

RANGE STATEMENT

regional contexts) may also be included.

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
- legal

Organisational requirements may include:

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

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- quality and continuous improvement processes 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

Material may include:

- native timber species
- imported timber species
- dressed timber
- 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

Design is to include:

- the process of applying:
  - problem solving skills
  - thought processes
  - cultural and demographic awareness
  - materials technology
  - conceptual development techniques
- working with production limitations to

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	determine and produce products or 3-D functional solutions • awareness of potential environmental issues and processes to accommodate these issues • using energy and materials efficiently
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
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
Work plan is to include:	• the development sequence • use of material • labour requirements
Appropriate personnel may include:	• supervisors • suppliers • clients • colleagues • managers
Consumables are to include:	• nailing plates and may include: • gang nails • nail gun nails • staples

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	• finishing products • adhesives
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 to include:	• development phases of the new prototype • review for each process and modification
Jigs may include:	• enterprise manufactured templates which assist in the positioning of components during the assembly process • newly developed jigs as part of the prototype development process
Modifications may include:	changing aspects of the prototype plans, drawings and specifications to: • facilitate acceptable construction methods • facilitate standard component sizes • rectify and overcome a construction fault • respond to environmental issues
Records and reports may include:	• product type • size • inspection • grading and labelling outcomes • storage locations • quality outcomes • hazards • incidents or equipment malfunctions and may be: • manual • using a computer-based system or other appropriate organisational communication system
Trial is to include:	the process of testing the prototype for: • strength • durability

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	• operational effectiveness • impact of the production process on the environment
Disposing of may include:	• recycling sample prototypes or prototypes no longer required • re-using sample prototypes or prototypes no longer required

Unit Sector(s)

Unit sector No sector assigned

Co-requisite units

Co-requisite units

Competency field

Competency field Timber Manufactured Products and Timber Merchandising