



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FPISAW3205B Dry hardwood**

**Release: 1**

## **FPISAW3205B Dry hardwood**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit descriptor**

This unit describes the outcomes required to prepare timber racks for processing, load kilns, monitor and control kiln conditions to dry and recondition hardwood, unload kilns and process timber

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 FPISAW3205A Dry hardwood

### **Application of the Unit**

#### **Application of the unit**

The unit involves drying hardwood 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 drying	<p>1.1. Applicable <b>Occupational Health and Safety</b> (OHS), <b>environmental</b>, <b>legislative</b> and <b>organisational requirements</b> relevant to drying hardwood are identified and followed</p> <p>1.2. <b>Work order</b> is reviewed and checked with <b>appropriate personnel</b></p> <p>1.3. Type and quantity of <b>hardwood</b> to be <b>dried</b> are assessed and acquired from the <b>conversion process</b></p> <p>1.4. <b>Equipment</b> is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer's recommendations</p> <p>1.5. Oven sections and sample boards are selected and cut in line with standard operating procedures</p> <p>1.6. Drying process is planned in line with site procedures</p> <p>1.7. <b>Communication</b> with others is established and maintained in line with OHS requirements</p>
2. Load and control kiln conditions	<p>2.1. Racks to be dried are <b>visually assessed</b> for consistent drying characteristics and adjusted to meet site requirements</p> <p>2.2. <b>Moisture content</b> is measured and routinely compared with anticipated levels in line with standard operating procedures</p> <p>2.3. <b>Pre start-up checks</b> are carried out on equipment in line with site requirements</p> <p>2.4. <b>Emergency shut down</b> procedures are followed in case of alarm being triggered</p> <p>2.5. <b>Kiln</b> is loaded with racks selected for processing and loading completed and reported</p> <p>2.6. Sample boards are weighed during drying in line with standard operating procedures</p> <p>2.7. <b>Baffles and blankets</b> are positioned in line with standard operating procedures</p> <p>2.8. Kiln control settings are regularly adjusted and routinely checked with site <b>drying schedules</b></p>
3. Unload kiln and process hardwood	<p>3.1. <b>Drying end point</b> is identified and kiln made safe for entry</p> <p>3.2. Kiln is opened and moisture content of processed hardwood checked in line with anticipated</p>

**ELEMENT****PERFORMANCE CRITERIA***equilibrium moisture content (EMC)*

- 3.3. *Moisture probes* and baffles are removed from timber in line with standard operating procedures
- 3.4. Kiln change is monitored and reconditioning or high humidity treatment conducted as required
- 3.5. Hardwood is directed and *moved* to *storage* or processing operations in line with site requirements
- 3.6. Sub-standard material is rejected and *disposed of* in line with site procedures and environmental requirements
- 3.7. Work area is cleaned in line with site requirements
- 3.8. Drying process and equipment faults are *recorded and reported* to the appropriate personnel

**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; efficiently and safely dry hardwood
- 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 measure moisture levels, and 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 drying hardwood
- 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 for dry hardwood

**REQUIRED SKILLS AND KNOWLEDGE**

- Environmental risks and hazards
- Using energy effectively and efficiently
- Drying techniques
- Kiln operations
- Basic knowledge of how wood dries
- Methods of visual inspection
- Characteristics of hardwood
- Distribution processes
- Storage systems and labelling
- 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 and efficiently dry hardwood to target end moisture content in line with 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 drying hardwood
- following organisational policies and procedures relevant to drying hardwood
- drying hardwood to target end moisture content in readiness for storage and/or processing
- conducting kiln operations
- correctly calculating moisture content from weighing sample boards

### 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

### 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

## EVIDENCE GUIDE

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.

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



## RANGE STATEMENT

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
- machine isolating and guarding
- legislation
- organisational policies and procedures
- workplace practices

**Environmental requirements**  
may include:

**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 and standards
- OHS, emergency and evacuation procedures

## RANGE STATEMENT

- 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)

**Work order** is to include:

- instructions for the drying of hardwood

and may include:

- species
- colour
- type
- width
- length
- thickness
- quantity
- 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

## Hardwood

usually comes from trees with leaf foliage and has large tube like vessels or pores consisting of short stubby cells varying in size

and may include:

- native timber species
- imported timber species
- dressed timber
- in-the-rough timber
- preservative treated timber

## Drying

is the process of:

- placing hardwood in a heat controlled kiln to dry high levels of moisture from timber causing moisture loss from cells
- followed by humidity generation to

## RANGE STATEMENT

recondition timber to its former shape and desired EMC

- finally kiln drying to required moisture content

**Conversion process** is to include:

- sawing of logs into flitches
- conversion of flitches into green boards

**Equipment** may include:

- low temperature kilns up to 60 to 70 degrees Celsius with a heat source which may be solar, electricity or gas
- kilns powered by burning wood waste up to temperatures of 90 degrees Celsius
- vacuum dryers
- kilns powered by steam producing boilers

and is to include:

- procedures for equipment lock-out such as protecting operators and co-workers from accidental injury by isolating the machine from the power source

**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
- body language

**Visually assessed**

is the assessment of materials to determine finish quality and faults

and may include:

- stability
- spacing of strips
- support to minimise warping

**Moisture content**

is the amount of moisture maintained in timber or timber products after drying to avoid cracking and deforming

and may include:

**RANGE STATEMENT**

- testing for capacitance
- resistance
- oven-dry conditions

**Pre start-up checks**

are conducted to ensure:

- equipment has been set-up correctly
- systems are performing accurately
- equipment is operating to optimum performance

**Emergency shut down**

is the immediate shutting off of the equipment to prevent an accident or prevent damage to the machine or product

**Kiln**

refer to equipment

**Baffles and blankets**

assist in the drying process by controlling air flow

**Drying schedule**

is the drying times based on moisture content

**Drying end point**

is the predicted time when the drying process will be completed and the desired moisture content achieved

**Equilibrium moisture content (EMC)**

is the moisture level to be achieved by drying which will be sustainable in the environment after processing thereby retaining its shape and strength without excessive movement

**Moisture probes**

are probes pierced into random boards which provide moisture readings on the kiln gauges to assist in modifying the drying schedule

**On-site movement of material may include:**

the use of:

- conveyor belt systems
- track systems
- lifting equipment
- lifting equipment such as:
  - fork lifts
  - slings
  - trolley jacks
  - gantry cranes
  - loaders
  - cross transfer trucks

## RANGE STATEMENT

assistance with lifting such as:

- the involvement of two or more personnel to lift materials manually or to guide the movement of mechanical equipment
- storage racks
- storage bays
- bins
- stacks
- pallet boxes
- modularised storage components
- temporary stacking bays (stand, frame or ground)

**Storage** may include:

and may be divided into:

- standard product classification
- product designation
- size
- dimension
- stack number
- weight
- grade
- shelf life
- stock rotation position

**Disposing of** may include:

- recycling sub-standard material
- re-using sub-standard material

**Records and reports** may include:

- drying requirements
- product type
- size
- inspection
- grading and labelling outcomes
- storage locations
- quality outcomes
- hazards
- incidents
- equipment malfunctions

and may be:

- manual
- using a computer-based system or other appropriate organisational communication system

## **Unit Sector(s)**

**Unit sector** No sector assigned

## **Co-requisite units**

**Co-requisite units**

## **Competency field**

**Competency field** Sawmilling and Processing