



Australian Government

FWPCOT4209 Design timber structures

Release: 1

FWPCOT4209 Design timber structures

Modification History

Release	Comments
Release 1	This version released with FWP Forest and Wood Products Training Package Version 6.0.

Application

This unit of competency describes the skills and knowledge required to interpret plans, select options and detail design of timber structures including roof truss, wall frame and floor components for solid brick, brick veneer and timber frame domestic houses and free-standing or attached timber structures such as pergolas.

The unit applies to designers, customer service/sales assistants (retail or wholesale), customer service officers, sales and merchandising team leaders, sales and merchandising team leaders (timber products) and timber advisors who use specialised knowledge to complete routine and non-routine tasks, and use their own judgement to deal with predictable and sometimes unpredictable problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Common Technical (COT)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Interpret construction plans	1.1 Determine type of structure, building use and site location from construction plans and specifications 1.2 Interpret and assess construction plans, drawing views and specifications to identify loading information, dimensions and design

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	details 1.3 Obtain additional information and data from appropriate building codes, standards and regulations 1.4 Identify design or construction limitations or relaxation requirements
2. Develop and select timber structure layout options	2.1 Design a functional timber truss, frame and floor structure, and draw a pictorial image based on design requirements 2.2 Transfer fixed design details to component layout drawings 2.3 Nominate engineered or pre-assembled components in line with budgetary constraints 2.4 Define design sizes and spacing details in line with industry codes and standards 2.5 Select layouts and spacing of individual structural members progressively to meet design requirements 2.6 Fix component sizes to clarify and firm design options
3. Detail timber structure component design	3.1 Calculate, scale or extract physical dimensions for components from applicable code tables 3.2 Interpret effective lengths and spans for individual components from layout, and select cross-sections in line with applicable codes 3.3 Select material options for suitability, availability and cost effectiveness, and use consistently throughout design 3.4 Provide alternative materials and sizes for components within scope of design and production requirements 3.5 Design component placement and spacing to meet construction plans and specifications 3.6 Provide design specifications for engineered or pre-assembled components in line with manufacturer recommendations 3.7 Present detailed and accurate production information, dimensions and notes within drawing views 3.8 Complete and maintain design records and documentation in line with workplace procedures
4. Provide design and production advice	4.1 Advise production and installation personnel on design, production, assembly and installation requirements 4.2 Produce clear and detailed documents to support interpretation of

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<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	drawings and assist with production and/or installation

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Oral communication	Provide clear, unambiguous information about designs and assembly requirements
Numeracy	Interpret numerical data from code tables involving height, length, angles, shape and load

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FWPCOT4209 Design timber structures	FWPCOT4202 Design timber structures	Application clarified Elements renamed Performance Criteria, Foundation Skills and Assessment Requirements updated	Equivalent

Links

Companion Volumes, including Implementation Guides, are available at VETNet: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

Assessment Requirements for FWPCOT4209 Design timber structures

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has designed floor trusses, wall framing and roof trusses for at least one structure with a minimum of 100 square metres.

In performing this design work, there must be evidence that the individual has:

- met the design requirements of the construction plan, building codes and standards
- prepared and documented designs for timber structures in line with an individual design and set of drawing views and notes
- interpreted and calculated loading conditions from construction plans and specifications
- interpreted and applied technical information and conveyed information in written, sketch and oral form.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- workplace policies and procedures for designing and preparing drawings and documenting and communicating information relating to timber floor and wall frames and roof trusses.
- applicable building regulations, codes and standards relating to the design of timber structures:
 - AS1684 and supplementary tables
 - CSIRO supplementary tables
 - National Construction Code (NCC)
- dimensions defining geometry and loading of individual structural members
- industry standard layouts, spacing and sizing dimensions of individual members for timber floor, wall frames and roof trusses
- loads imposed on timber structures:
 - live and dead loads

- mass loads and externally applied loads (wind, surrounding structures, common/special building usage)
- construction industry terminology for all components of timber wall frames, roof and floor trusses
- characteristics, properties and limitations of timber products and components:
 - nail/connector plates
 - timber species and types
- processes and methods of:
 - producing structural layout drawings and assembly drawings
 - producing designs for timber floor, wall and roof structures
 - applying mass, wind, live and dead loads to a structure
 - determining impact of surrounding buildings
- key features of constructions plans.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a timber fabrication facility or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - AS1684 and supplementary tables
 - CSIRO supplementary tables
 - National Construction Code (NCC)
- specifications:
 - access to construction plans and specifications to design timber structures
 - access to industry and workplace policies and procedures for designing timber structures
- relationships:
 - • person to discuss design questions with.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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