**22504VIC Certificate III in Prefabrication Installation**

This course has been accredited under Parts 4.4 of the Education and Training Reform Act 2006.

**Accreditation period: 1 February 2019 to 31 July 2024**



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| --- |
| Version History |
| Version 1.1 | Accreditation period extended for six months to 31 July 2024 |

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Table of contents

Section A: Copyright and course classification information 5

1. Copyright owner of the course 5

2. Address 5

3. Type of submission 5

4. Copyright acknowledgement 5

5. Licensing and franchise 6

6. Course accrediting body 7

7. AVETMISS information 7

8. Period of accreditation 7

Section B: Course information 8

1. Nomenclature 8

1.1 Name of the qualification 8

1.2 Nominal duration of the course 8

2. Vocational or educational outcomes 8

2.1 Purpose of the course 8

3. Development of the course 8

3.1 Industry/enterprise/ community needs 8

3.2 Review for re-accreditation 12

4. Course outcomes 12

4.1 Qualification level 12

4.2 Employability skills 13

4.3 Recognition given to the course 15

4.4 Licensing/ regulatory requirements 15

5. Course rules 15

5.1 Course structure 15

5.2 Entry requirements 18

6. Assessment 18

6.1 Assessment strategy 18

6.2 Assessor competencies 19

7. Delivery 20

7.1 Delivery modes 20

7.2 Resources 20

8. Pathways and articulation 21

9. Ongoing monitoring and evaluation 21

Section C—Units of competency 22

Appendix A Skills and knowledge profile for onsite installers and assemblers 56

# Section A: Copyright and course classification information

|  |  |
| --- | --- |
| 1. Copyright owner of the course
 | Copyright of this course is held by the Department of Education and Training, Victoria© State of Victoria (Department of Education and Training) 2018. |
| 1. Address
 | Executive DirectorEngagement, Participation and Inclusion DivisionHigher Education and Skills GroupDepartment of Education and Training (DET)GPO Box 4367Melbourne Vic 3001Organisational Contact: Manager Training Products Higher Education and Skills Group Telephone: (03) 7022 1619Email: [course.enquiry@edumail.vic.gov.au](http://course.enquiry@edumail.vic.gov.au)Day-to-Day Contact:Curriculum Maintenance Manager - Building IndustriesHolmesglen Institute PO Box 42 HOLMESGLEN VIC 3148Telephone: (03) 9564 1987Email: [teresa.signorello@holmesglen.edu.au](http://teresa.signorello@holmesglen.edu.au)  |
| 1. Type of submission
 | This submission is for accreditation. |
| 1. Copyright acknowledgement
 | Copyright of the following units of competency from nationally endorsed training packages is administered by the Commonwealth of Australia and can be accessed from training.gov.au available [here](http://www.training.gov.au).© Commonwealth of AustraliaThe following units of competency:* CPCCCA2002B Use carpentry tools and equipment
* CPCCCM1013 Plan and organise work
* CPCCCM2005B Use construction tools and equipment
* CPCCCM2007 Use explosive power tools
* CPCCCM2010B Work safely at heights
* CPCCM1015 Carry out measurements and calculations
* CPCCWHS2001 Apply WHS requirements, policies and procedures in the construction industry
* CPCCSF2001A Handle steel fixing materials
* CPCCSF2002A Use steel fixing tools and equipment
* CPCCSH2003A Apply and install sealant and sealant devices
* CPCPDR2026A Install prefabricated inspection openings and enclosures

are from the *CPC08 Construction, Plumbing and Services Training Package* administered by the Commonwealth of Australia.The following unit of competency:* CPCCCM3004 Identify and apply information in construction plans, drawings and specifications
* CPCCCM3006 Carry out levelling operations
* CPCCWHS1001 Prepare to work safely in the construction industry
* CPCCCM3001 Operate elevated work platforms up to 11 metres

are from the *CPC Construction, Plumbing and Services Training Package* administered by the Commonwealth of Australia.The following units of competency:* MSMENV272 Participate in environmentally sustainable work practices
* MSMPER200 Work in accordance with an issued permit

are from the *MSM Manufacturing Training Package* administered by the Commonwealth of Australia.The following units of competency:* MSS402040 Apply 5S procedures
* MSS402051 Apply quality standards

are from the *MSS Sustainability Training Package* administered by the Commonwealth of Australia.The following unit of competency:* PMBHAN103 Shift materials safely by hand

is from the *PMB Plastic, Rubber and Cablemaking Training Package* administered by the Commonwealth of Australia.This work is licensed under a Creative Commons Attribution-NoDerivs 3.0 Australia licence (more information is available [here](http://creativecommons.org/licenses/by-nd/3.0/au/)) Attribution-NoDerivs 3.0 Australia (CC BY-ND 3.0 AU) |
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| 1. Course accrediting body
 | Victorian Registration and Qualifications Authority  |
| 1. AVETMISS information
 | ANZSCO Code - 330000 Construction Trades WorkersASCED Code – 4 digit - 0403 BuildingNational course code – 22504VIC |
| 1. Period of accreditation
 | 1 February 2019 to 31 January2024 |

# Section B: Course information

|  |  |
| --- | --- |
| 1. Nomenclature
 | Standard 1 AQTF Standards for Accredited Courses |
| * 1. Name of the qualification
 | Certificate III in Prefabrication Installation |
| * 1. Nominal duration of the course
 | 437 – 649 hours |
| 1. Vocational or educational outcomes
 | Standard 1 AQTF Standards for Accredited Courses |
| * 1. Purpose of the course
 | The skills and knowledge described in the Certificate III in Prefabrication Installation reflects the role of onsite installers and/or assemblers who install prefabricated or modular building elements on a construction site in a team and time constrained environment. The purpose of this course is to develop these skills and knowledge for new entrants to the prefabrication construction industry or provide pathways for those who have backgrounds in manufacturing or other related industries and wish to transfer their existing skills to the construction industry.  |
| 1. Development of the course
 | Standards 1 and 2 AQTF Standards for Accredited Courses  |
| * 1. Industry/enterprise/ community needs
 | In the absence of a training package qualification, the construction industry has identified the need for the development of an accredited course for the installation of prefabricated/modular building elements on a construction site.Prefabrication, or “prefab” in short, refers to a range of building elements that are manufactured at a place other than their final location. It includes panelised, modular and service components such as bathroom or kitchen pods.Prefabricated construction offers benefits to industry and consumers in the form of efficiency and profitability. While the prefab model encompasses all phases of construction, from design, manufacture and installation, industry sources note that project blow outs and cost over runs are more likely to occur at the installation stage, when putting the elements together. Attention to detail and knowledge of the manufacturing process is therefore critical to project productivity.Research sponsored by the previous Construction and Property Services Industry Skills Council (CPSISC) in November 2015, argued that “for the prefab industry to mature in Australia, exiting manufacturing workers will need to increase their knowledge of construction processes and those in construction need to understand the concepts around lean manufacturing.”**[[1]](#footnote-1)**Presently, construction in prefabricated housing in Australia is a small, but growing market, accounting for 3% of construction work. This is low by international standards, where it is an established building practice responsible for 80% of homes in Sweden and 15% in Japan. The industry body, PrefabAus, expects the use of prefabricated housing in Australia to rise to 10% by 2027, other forecasts are more optimistic at between 15%-25%.**[[2]](#footnote-2)**The current housing affordability crisis in Melbourne and Sydney is having a strong influence on the uptake of this construction methodology, particularly in regard to multi-dwelling development. The building of high rise apartments with duplicate floor plans logically allows for the streamlined offsite production of construction elements, including custom designed modular kitchen and bathroom fit out. With the Housing Industry Association (HIA) reporting a record supply of new apartments within Australia in June 2016, and the Victorian Government’s Plan Melbourne 2017-2050 strategy projecting the need for an extra 1.6 million homes over the thirty years to 2050, it is reasonable to expect the use of prefabrication construction (and demand for prefab installation skills) to expand into the future.Initial scoping for the skills needs of the course identified that reading and interpreting plans, an appreciation for cause/effect actions, and applying a quality systems approach were critical to the role. Generally, trades have made modifications to prefabricated product to impose a “fit” between prefabricated elements, thereby ensuring completion of the installation. This approach would have serious consequences in the current (precision manufactured) prefabricated construction environment. Products are considered part of building systems where all parts interface seamlessly to create a whole. Whilst the *CPC08* and *CPC* *Construction, Plumbing and Services* training packages contain a number of units of competency relating to installation, these units are restricted to specific trade areas such as, shop fitting and stair building and have gaps in the level of preparatory work or installation adjustment that is required for installation in the prefabrication construction and that underpins project success.The course is based on the development of units of competency that provide a blend of manufacturing and construction skills and knowledge required to install a range of prefabricated product types according to design specification, and a work methodology where quality and systems thinking is central to all practice. Established building operations usually employ trades, such as carpenters, shopfitters and joiners to install prefabricated product during the construction process using conventional means such as screws and fixings. Improved technology has impacted the industry to innovate new materials and fixings never before used, as well as design processes that allow for customisation and mass production in manufacture. Advances in materials and precision manufacture demands a different approach to the installation of prefabricated end product. Onsite prefabrication installers/assemblers are required to work speedily to scheduled timeframes, have knowledge of logistics and construction systems and work successfully as part of a team. The course is based on practical application to ensure that these skills are developed in a realistic construction environment.Given the support for the development of this course, it is anticipated there will be significant uptake once it is accredited. The intended target audience for this course is broad and includes school leavers, new entrants and individuals up-skilling from within the manufacturing and/or engineering sectors, and those re-skilling from other industry sectors. The development of the Certificate III in Prefabrication Installation was overseen by a steering committee comprising of the following industry and Registered Training Organisation representatives:

|  |  |
| --- | --- |
| Damien Crough (Chair) | PrefabAus Chair/Technical Leader - Advanced Building Manufacturing (Modular & Prefab Building Division), Schiavello Group |
| Tim Newman | General Manager, Timber Building Systems |
| David Christy | Senior Educator, Chisholm Institute |
| Paul Kremer | Research Fellow, University of Melbourne |
| Adam Shannon | Group General Manager Marketing & Development, Askin Performance Panels |
| **In attendance:** |  |
| Teresa Signorello | Executive Officer, Curriculum Maintenance Manager, Building Industries |
| Jenny Lehman | Curriculum Maintenance Manager Administrator |
| Lina Robinson | Course Writer. |

As well as other email consultations, the consultation and validation processes included members of the steering committee who met formally on three occasions to review and confirm the required skills and knowledge profile (included as Appendix A), course structure and final accreditation submission as reflecting the current work practices for onsite installers and/or assemblers in the prefabrication construction industry.The members of the project steering committee confirm that the proposed course:* does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification
* is not a subset of a single training package qualification that could be recognised through one or more statements of attainment or a skill set
* does not include units of competency additional to those in a training package qualification that could be recognised through statements of attainment in addition to the qualification
* does not comprise units that duplicate units of competency of a training package qualification.
 |
| * 1. Review for re-accreditation
 | Not applicable |
| 1. Course outcomes
 | Standards 1, 2, 3 and 4 AQTF Standards for Accredited Courses |
| * 1. Qualification level
 | The course outcomes of the *22504VIC Certificate III in Prefabrication Installation* are consistent with the Australian Qualifications Framework specifications for Certificate III. This qualification provides individuals with a broad range of knowledge and skills to undertake installation of prefabricated components across differing construction industry contexts.Graduates of the Certificate III in Prefabrication Installation will have factual, technical, procedural and theoretical knowledge related to working in the prefabrication construction industry. For example, applying knowledge of prefabricated construction principles to installation processes.Graduates of the Certificate III in Prefabrication Installation will have: * cognitive, technical and communication skills to interpret and act on available information. For example, in interpreting construction plans, drawings and specifications.
* cognitive and communication skills to apply and communicate known solutions to a variety of predictable problems and to deal with unforeseen contingencies using known solutions. For example, in working with the construction team to schedule installation tasks and taking corrective action for unexpected situations
* technical and communication skills to provide technical information to a variety of specialist and non-specialist audiences. For example, in briefing and coordinating service providers and suppliers participating in the installation of individual responsibilities.

Graduates of a Certificate III will demonstrate the application of knowledge and skills: * with discretion and judgement in the selection of equipment, services or contingency measures. For example, in setting out and marking out components and taking corrective measures against irregularities in levels, dimensions and tolerances.
* to adapt and transfer skills and knowledge within known routines, methods, procedures and time constraints. For example, applying and adapting setting out and quality check processes to a range of prefabricated construction components (panelised, modular and pod)
* in contexts that include taking responsibility for own outputs in work and learning including participation in teams and taking limited responsibility for the output of others within established parameters. For example, continuously applying quality checks against installation stages and planning order of sequences with other construction team.

The volume of learning for this qualification is typically 1 to 2 years and incorporates a range of learning activities such as:* structured activities to develop the technical skills and the theoretical knowledge that underpins performance. Structured activities may include reading text material, completing projects and assignments.
* unstructured activities to reinforce and practice skills. Unstructured activities may include research, discussion with trainers and peers and investigating pathway options to independently develop and implement a learning plan appropriate to the achievement of desired learning goals.
 |
| * 1. Employability skills
 | The following table contains a summary of the employability skills for the *22504VIC Certificate III in Prefabrication Installation*. This table should be interpreted in conjunction with the detailed requirements of each unit of competency packaged in this course. The outcomes described here are broad industry requirements and will vary according to electives undertaken.This table is a summary of employability skills that are typical of the outcomes of this course and should not be interpreted as definitive. |

| **Employability Skill** | **Industry/enterprise requirements for this qualification include the following facets. On successful completion of the course a graduate should be able to:** |
| --- | --- |
| **Communication** that contributes to productive and harmonious relations across employees and customers | * complete workplace documentation relating to construction arrangements and requirements
* develop effective working relationships
* interact effectively with team members and other personnel
* interpret information and documentation from a range of sources
* listen carefully to instructions and follow them
* read and interpret documentation, drawings, specifications and instructions
* record information on prefabricated construction and report on quality faults
* report identified issues and deviations from specifications and standards
* use appropriate terminology in task related communication
* use negotiation skills to resolve issues and solutions to arising challenges
* use questioning to identify and confirm individual and team responsibilities and construction arrangements.
 |
| **Teamwork** that contributes to productive working relationships and outcomes | * work as a team to complete assembly and installation to quality standards and timeframes
* work with others to ensure a safe working environment.
 |
| **Problem solving** that contributes to productive outcomes | * apply measurements and calculations to identify anomalies in straightness or dimensions of installation positions or of delivered components
* establish accuracy checks related to project tasks
* identify and obtain required tools and equipment with materials required for tasks
* identify potential hazards and complete risk assessments
* plan and complete tasks in appropriate sequence to avoid backtracking and rework
* respond to challenges, including challenging timeframes, delivery delays or anomalies in installation position
* respond to communication issues and unexpected situations.
 |
| **Initiative and enterprise** that contribute to innovative outcomes | * adapt to changing work conditions and different worksites
* identify and assess risks in the workplace
* identify potential improvements to sustainable working practices
* keep up to date with knowledge on prefabrication construction, industry standards and codes of practice within own area of responsibility.
 |
| **Planning and organising** that contribute to long and short-term strategic planning | * manage time and priorities by scheduling the use of equipment, materials and tools and checking delivery and storage of prefabricated components
* identify individual responsibilities, prioritise and sequence work and complete tasks in appropriate sequence.
 |
| **Self-management** that contributes to employee satisfaction and growth | * contribute to safety and sustainable practices during the preparation, application and clean up of work area.
* manage own workspace, speed, timing, and productivity and maintain ongoing compliance with regulatory and quality requirements
* monitor own performance to ensure work will be completed to the required standard and on time
* take responsibility for planning and organising own work priorities and completing assigned tasks within team work schedule.
 |
| **Learning** that contributes to ongoing improvement and expansion in employee and company operations and outcomes | * actively seek new and unfamiliar situations and learning opportunities
* be open to learning new ideas, technologies and work processes.
 |
| **Technology** that contributes to the effective carrying out of tasks | * safety check, maintain and operate tools and equipment
* use technology to calculate basic weights, distances, areas and volumes
* use the appropriate communication technologies to communicate with relevant personnel appropriate to the workplace
* use the Internet and web-based resources to source information.
 |

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| * 1. Recognition given to the course
 | **Not** applicable |
| * 1. Licensing/ regulatory requirements
 | There are no licensing or regulatory requirements for this course however WorkSafe Victoria require all people who work on a construction site to have proof of having completed a general occupational health and safety (OHS) construction induction for the industry. The unit *CPCCWHS1001 Prepare to work safely in the construction industry* is recognised by WorkSafe Victoria for the registration of construction workers for Occupational Health and Safety induction. |
| 1. Course rules
 | Standards 2, 6, 7 and 9 AQTF Standards for Accredited Courses |
| * 1. Course structure

To be eligible for the award of 22504VIC Certificate III in Prefabrication Installation, learners must successfully complete a total of 18 units comprising:* 13 core units
* 5 elective units consisting of:
* A minimum of 1 unit selected from Group A
* 4 units selected from Group A and/or B or any currently endorsed units that appear within a training package qualification or accredited course.

All electives chosen must contribute to a valid, industry-supported vocational outcome and must support the job role and overall integrity of the AQF level of this qualification and should not duplicate the outcomes of the core units.A Statement of Attainment will be issued for each unit of competency completed if the full qualification is not completed. |

| **Unit of competency code** | **Field of Education code (six-digit)** | **Unit of competency title** | **Pre-requisite** | **Nominal hours** |
| --- | --- | --- | --- | --- |
| **Core units** |
| VU22699 | 040399 Building, n.e.c. | Work effectively in prefabricated construction |  | 20 |
| VU22700 | 040399 Building, n.e.c. | Work collaboratively with others in prefabricated construction |  | 15 |
| CPCCWHS2001 | 061301 | Apply WHS requirements, policies and procedures in the construction industry |  | 20 |
| CPCCWHS1001 | 061301 | Prepare to work safely in the construction Industry |  | 6 |
| CPCCCM2010B | 061301 | Work safely at heights | CPCCOHS2001A  | 8 |
| CPCCCM3004 | 040301 | Identify and apply information in construction plans, drawings and specifications |  | 30 |
| CPCCCM1015 | 010101 | Carry out measurements and calculations |  | 20 |
| VU22701 | 040399 Building, n.e.c. | Set out and mark out components |  | 20 |
| CPCCCM3006 | 040301 | Carry out levelling operations |  | 24 |
| CPCCCA2002B | 040311 | Use carpentry tools and equipment | CPCCOHS2001A | 96 |
| CPCCSH2003A | 040311 | Apply and install sealant and sealant devices | CPCCOHS2001A | 16 |
| CPCCCM2007  | 030717 | Use explosive power tools | CPCCWHS2001 | 16 |
| CPCCCM3001 | 030717 | Operate elevated work platforms up to 11 metres |  | 32 |
| **Group A - Prefabrication Installation Specialist elective units** |
| VU22702 | 040399 Building, n.e.c. | Assemble and install panelised components onsite |  | 50 |
| VU22703 | 040399 Building, n.e.c. | Combine and install modular components onsite |  | 50 |
| VU22704 | 040399 Building, n.e.c. | Install prefabricated pod components |  | 50 |
| **Group B General elective units** |
| CPCCCM1013 | 120505 | Plan and organise work |  | 20 |
| CPCCCM2005B | 030717 | Use construction tools and equipment | CPCCOHS2001A  | 96 |
| CPCCSF2001A | 040399 | Handle steel fixing materials | CPCCOHS2001A | 24 |
| CPCCSF2002A | 030717 | Use steel fixing tools and equipment | CPCCOHS2001A | 80 |
| CPCPDR2026A | 040327 | Install prefabricated inspection openings and enclosures |  | 4 |
| MSMENV272 | 059999 | Participate in environmentally sustainable work practices |  | 30 |
| MSMPER200 | 120505 | Work in accordance with an issued permit  |  | 20 |
| MSS402040 | 120505 | Apply 5S procedures |  | 40 |
| MSS402051 | 080317 | Apply quality standards |  | 30 |
| PMBHAN103 | 061301 | Shift materials safely by hand  |  | 20 |
| **Total nominal hours** | **437 - 649** |

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| * 1. Entry requirements
 | Learners enrolling in the Certificate III in Prefabrication Installation are best equipped to successfully undertake the qualification if they have learning, literacy, numeracy and oral communication skills equivalent to Australian Core Skills Framework (ACSF) Level 2. Full details and descriptors can be found on the Department of Education and Training website available [here](https://www.education.gov.au/download-acsf).Learners with language, literacy and numeracy skills at lower levels than those suggested will require additional support to successfully undertake the qualification. |
| 1. Assessment
 | Standards 10 and 12 AQTF Standards for Accredited Courses |
| * 1. Assessment strategy
 | All assessment, including Recognition of Prior Learning (RPL), must be compliant with the requirements of:* Standard 1 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 4.1 and 4.2 of the VRQA Guidelines for VET Providers,

or* the Standards for Registered Training Organisations 2015 (SRTOs),

or* the relevant standards and Guidelines for RTOs at the time of assessment.

Assessment strategies should be designed to:* cover the range of skills and knowledge required to demonstrate achievement of competence
* collect evidence on a number of occasions to suit a variety of contexts and situations
* be appropriate to the knowledge, skills, methods of delivery and needs and characteristics of learners
* recognise prior learning
* be equitable to all groups of learners.

Assessment strategies for the imported units from training packages should be consistent with the Assessment Requirements for the relevant training packages.The following assessment methods are appropriate for units of competency in this accredited course: * observation of demonstrated skills over time and in a range of situations
* observation of, or evidence of, interactions with team members, contractors and authorities
* portfolio of evidence such as documentation of completed work
* projects.
 |
| * 1. Assessor competencies
 | Assessment must be undertaken by a person or persons in accordance with:* Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 3 of the VRQA Guidelines for VET Providers,

or * the Standards for Registered Training Organisations 2015 (SRTOs),

or* the relevant standards and Guidelines for RTOs at the time of assessment.

All assessment of units of competency imported from training packages must comply with the requirements for assessors specified in the relevant training packages. |
| 1. Delivery
 | Standards 11 and 12 AQTF Standards for Accredited Courses |
| * 1. Delivery modes
 | The course aims to develop practical competencies within an industry setting. Practical demonstrations and opportunity for application are considered to provide the most suitable strategy to reflect the objectives of the course. Some areas of content may be common to more than one element or more than one unit, therefore integration may be appropriate. Delivery options, including grouping of learners and learning activities, should recognise the varying learning needs, educational backgrounds, preferred learning styles and constraints of the individual learner and the specific requirements of each unit. The units may be delivered singularly, or they may be integrated holistically with a number of units. As the role involves practical skill development, the practical skill component of the course must be delivered in a:• workplace, OR• simulated workplace that accurately reflects workplace conditions. Practical exercises may take the form of realistic, holistic projects to provide the learner with a ‘real work’ experience.The knowledge components of the course may be delivered using face-to-face, online or blended modes.Off the job delivery modes may include classroom delivery and practical work.  |
| * 1. Resources
 | Resources that are essential for the delivery of the Certificate III in Prefabrication Installation include:* classroom/workshop with learning resources that includes information sources relating to working in the prefabrication construction industry
* a safe prefabrication construction site or simulated environment reflective of the workplace that includes:
* industry prefabricated components, materials, tools and equipment, including personal protective and safety equipment
* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations
* team members and individuals with whom the individual can interact.

Trainers/assessors should refer to the individual units of competency for specific resource requirements.Training must be undertaken by a person or persons in accordance with:* Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers,

or * the Standards for Registered Training Organisations 2015 (SRTOs),

or* the relevant standards and Guidelines for RTOs at the time of assessment.

Units of competency imported from training packages or accredited courses must reflect the requirements for resources/trainers specified in that training package or accredited course. |
| 1. Pathways and articulation
 | Standard 8 AQTF Standards for Accredited Courses  |
|  | There are no formal articulation arrangements in place at the time of accreditation. Learners who complete units of competency from endorsed training packages or accredited courses will be eligible for credit into other qualifications that contain those units |
| 1. Ongoing monitoring and evaluation
 | Standard 13 AQTF Standards for Accredited Courses  |
|  | The Curriculum Maintenance Manager for Building Industries is responsible for the ongoing monitoring and evaluation of the Certificate III in Prefabrication Installation. Formal course evaluations will be undertaken halfway through the accreditation period and will be based on student and teacher evaluation surveys and industry stakeholder surveys/consultations. The Victorian Registration and Qualifications Authority will be notified of any changes to the course. |

# Section C—Units of competency

Following is the list of units of competency imported from training packages, which can be downloaded from the National Register (more information is available [*here*](https://training.gov.au/)):

* CPCCCA2002B Use carpentry tools and equipment
* CPCCCM1013 Plan and organise work
* CPCCCM2005B Use construction tools and equipment
* CPCPCCM2007 Use explosive power tools
* CPCCCM2010B Work safely at heights
* CPCCCM3001 Operate elevated work platforms up to 11 metres
* CPCCCM3004 Identify and apply information in construction plans, drawings and specifications
* CPCCCM3006 Carry out levelling operations
* CPCCM1015 Carry out measurements and calculations
* CPCCWHS2001 Apply WHS requirements, policies and procedures in the construction industry
* CPCCSF2001A Handle steel fixing materials
* CPCCSF2002A Use steel fixing tools and equipment
* CPCCSH2003A Apply and install sealant and sealant devices
* CPCCWHS1001 Prepare to work safely in the construction Industry
* CPCPDR2026A Install prefabricated inspection openings and enclosures
* MSMENV272 Participate in environmentally sustainable work practices
* MSMPER200 Work in accordance with an issued permit
* MSS402040 Apply 5S procedures
* MSS402051 Apply quality standards
* PMBHAN103 Shift materials safely by hand

**Following is the list of units of competency developed for the course, which comply with the current requirements from the Training Package Development Handbook and is detailed in this section of the course document:**

* VU22699 Work effectively in prefabricated construction
* VU22700 Work collaboratively with others in prefabricated construction
* VU22701 Set out and mark out components
* VU22702 Assemble and install panelised components onsite
* VU22703 Combine and install modular components onsite
* VU22704 Install prefabricated pod components

.

|  |  |
| --- | --- |
| Unit code | VU22699 |
| Unit title | Work effectively in prefabricated construction |
| Unit Descriptor | This unit describes the performance outcomes, skills and knowledge required to work within the prefabricated construction sector of the construction industry.It includes the ability to develop and apply knowledge on prefabricated construction technologies and principles, work within workplace and industry standards and legislative requirements and continuously apply check measures to ensure quality standards are met.No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. |
| Employability Skills | This unit contains Employability Skills. |
| Application of the Unit | This unit applies to individuals who work in prefabricated construction and apply knowledge of prefabrication technologies and principles, industry standards, codes of practice, legislative and safe work practices to their own work processes. They apply quality and systems thinking approaches to ensure that construction work meet specifications and is compliant with building standards. |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1 | Apply prefabricated construction technologies and principles | 1.1 | Source information on new and emerging prefabricated construction technologies |
|  |  | 1.2 | Identify the impacts of prefabricated construction on efficiency, precision, productivity and affordability |
|  |  | 1.3 | Examine environmental benefits of prefabricated construction in reducing waste and energy |
|  |  | 1.4 | Examine the relationship between offsite and onsite construction approaches |
|  |  | 1.5 | Apply knowledge of prefabricated construction technologies and principles to own work processes |
| 2 | Work within industry and workplace requirements | 2.1 | Identify responsibilities and duties of construction roles in prefabricated construction according to industry codes and practices |
|  |  | 2.2 | Identify and apply relevant industry standards and codes for prefabrication construction |
|  |  | 2.3 | Identify and apply safe work methods and practices to meet Australian government and state and territory health and safety legislative requirements. |
|  |  | 2.4 | Work within scope of role and recognise when construction work requires licenced tradespersons or relevant specialists |
| 3 | Apply quality and systems thinking approaches to onsite installation | 3.1 | Continuously check received information, components, materials and services against specifications and standards for conformance |
|  |  | 3.2 | Identify, isolate, record and report faulty information, prefabricated components, materials or services to the supervisor |
|  |  | 3.3 | Continuously check work, including tolerances, work processes, sequencing and timing against specifications and standards relevant to the installation being undertaken |
|  |  | 3.4 | Investigate causes of any identified faults and deviations from specifications and standards and take corrective action according to workplace procedures |

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| REQUIRED SKILLS AND KNOWLEDGE |
| This describes the essential skills and knowledge and their level, required for this unit. |
| **Required skills:*** reading skills to interpret information and documentation from a range of sources
* writing skills to record information on prefabricated construction and report on quality faults
* oral communication skills to report identified issues and deviations from specifications and standards
* problems solving skills to respond to identified issues and deviations from specifications and standards
* initiative and enterprise skills to keep up to date with knowledge on prefabrication construction, industry standards and codes of practice within own area of responsibility
* technology skills to use information technology to source and source information on prefabrication construction.
 |
| **Required knowledge:*** principles and purposes of prefabrication construction
* profile of Australia’s prefabrication industry
* manufacturing environment and process for prefabricated components
* workplace policies and procedures relating to work practices
* relevant state or territory legislation relating to employment rights including workplace safety requirements
* sources of information on employment rights and responsibilities including employment related laws covering rights and responsibilities of employees and employers
* relevant Australian Standards and building codes in relation prefabricated construction
* impact of how received information, components and materials or services relate to construction operations and how they contribute to the final quality of the construction
* relevant quality standards, policy and procedures
* relevant measurement techniques and quality checking and reporting procedures.
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| 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 in the Performance Criteria is detailed below. Add any 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.  |
| Prefabricated construction may include:  | * panelised
* volumetric modular
* pods.
 |
| Relevant industry standards and codes may include: | * Modular construction code (MCC)
* building codes
* design codes
* construction code of practice
* health and safety standards
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| EVIDENCE GUIDE |
| The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.  |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | There must be demonstrated evidence that the learner has worked effectively within the scope of their role during the completion of a prefabricated construction project.In doing so the learner must have:* applied principles of prefabricated construction to work processes
* applied relevant industry standards and codes of practice
* used safe work practices
* continuously applied quality check measures against specifications and standards, and taken corrective action to resolve issues and faults as required within scope of work.
 |
| Context of and specific resources for assessment | Assessment must be demonstrated in a prefabricated construction site or simulated environment reflective of the workplace that complies with standard and authorised work practices, safety requirements and environmental constraints.Assessment must ensure access to:* sources of information on prefabrication consultation and employment related laws
* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations and safety requirements.
 |
| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:* written and/or oral questioning to assess knowledge of prefabricated construction technologies and principles
* observations of performing quality checks and installation tasks in a real or simulated work environment
* portfolio of evidence of demonstrated performance in working within the scope of an installer.
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| Unit code | VU22700 |
| Unit title | Work collaboratively with others in prefabricated construction |
| Unit Descriptor | This unit describes the performance outcomes, skills and knowledge required to work effectively in teams and in collaboration with service providers and suppliers during prefabrication construction projects.It requires the ability to develop and maintain working relationships with the construction team, service providers and suppliers, identify, sequence and assist team members with work responsibilities, confirm arrangements with service providers and suppliers and deal with communications issues and unexpected situations within scope of work.No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. |
| Employability Skills | This unit contains Employability Skills. |
| Application of the Unit | This unit applies to individuals who work in prefabricated construction as on-site assemblers. In this role, they work in team and time constrained environments which requires effective communication and negotiation skills to ensure construction is completed according to legislative, quality, installation sequencing and completion requirements. |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1 | Develop and maintain effective working relationships | 1.1 | Seek input of team members and relevant persons into planning and operational tasks against job requirements and specifications |
|  |  | 1.2 | Communicate with others in a courteous and sensitive manner |
|  |  | 1.3 | Recognise and discuss issues which may lead to, or involve conflict, and refer to supervisor as required |
| 2 | Work with construction team members | 2.1 | Identify individual responsibilities within the team according to job requirements and specifications and within scope of work responsibilities |
|  |  | 2.2 | Prioritise and sequence work with others to achieve the most efficient and effective outcome against designated timeframes and quality standards |
|  |  | 2.3 | Communicate relevant information to team members in a clear and timely manner  |
|  |  | 2.4 | Assist team members and/or seek assistance as required, to ensure efficient and safe completion of work tasks |
| 3 | Collaborate with relevant authorities, service providers and suppliers | 3.1 | Confirm ***construction arrangements*** with relevant authorities, service providers and suppliers to satisfy construction schedule and installation requirements |
|  |  | 3.2 | Brief and coordinate service providers and suppliers participating in the installation of individual responsibilities as required according to construction schedule and installation requirements |
|  |  | 3.3 | Make decisions for dealing with unexpected situations with appropriate persons according to job requirements and specifications  |
|  |  | 3.4 | Resolve issues with authorised persons, service providers and suppliers within scope of work, and refer to supervisor as required |
|  |  | 3.5 | Maintain ongoing communication and reporting to relevant personnel during the installation project. |

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| REQUIRED SKILLS AND KNOWLEDGE |
| This describes the essential skills and knowledge and their level, required for this unit. |
| **Required skills:*** reading skills to interpret a range of essential workplace documentation
* writing skills to complete workplace documentation relating to construction arrangements and requirements
* oral communication skills to develop effective relationships, interact with team members and other personnel, use questioning to identify individual and team responsibilities and construction arrangements, and using negotiation skills to resolve issues and solutions to arising challenges
* problems solving skills to respond communication issues and unexpected situations
* teamwork skills to work efficiently and effectively to complete installation and in ensuring a safe working environment
* planning and organising skills to identify individual responsibilities, prioritise and sequence work
* technology skills to use the appropriate communication technologies to communicate with relevant personnel.
 |
| **Required knowledge:*** group processes and team behaviour:
* role and function of workplace teams
* team dynamics
* causes of stress or conflict in teams
* strategies for managing or reducing conflict
* principles of commonwealth, state and territory anti-discrimination legislation and regulations
* construction arrangements requiring communication and reporting
* construction installation sequencing, and implications for not planning and monitoring
* role, responsibilities and communication requirements for authorities, service providers and suppliers relevant to prefabrication construction.
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| 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 in the Performance Criteria is detailed below. Add any 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.  |
| Job requirements and specifications may include: | * access preparation
* approval for construction
* building checks
* clearance and engineer reports
* design specifications
* installation timeframes
* lifting and support materials and configurations
* logistics of delivered components from manufacturer
* manufacturer and designer specifications, drawings, plans and instructions
* quality standards and procedures
* health and safety legislative requirements
* relevant building codes and legislation
* resources and material lists
* safe work procedures
* signage
* schedules
* traffic control
* work and access permits
* water and power access.
 |
| Relevant information may relate to: | * changed work arrangements
* client needs
* handover notes or reports
* incidents
* location of team members
* positive or negative feedback
* potential risks, hazards or changing safety requirements
* resource or equipment availability and instructions
* status and scheduling of work tasks
* team goals, objectives and tasks.
 |
| Construction arrangements may include: | * formal notification of commencement
* power and water connections
* onsite delivery dates for timely supply of prefabricated materials and equipment
* rubbish removal
* site access and authorisations
* equipment hires
* work permits
* traffic control
* cane access, loading and unloading
* resources including persons, equipment, tools and personal protective equipment required for the job
* site logistics.
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| EVIDENCE GUIDE |
| The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.  |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | There must be demonstrated evidence that the learner has worked collaboratively with team members, suppliers and service providers during the completion of a prefabrication installation project.In doing so the learner must have:* identified, prioritised and sequenced work with construction team
* communicated and confirmed information and construction arrangements in a clear and courteous manner according to construction schedule and installation requirements
* assisted and/or sought assistance from team members in completing work tasks
* applied the appropriate corrective action in dealing with communication issues and unexpected situations.
 |
| Context of and specific resources for assessment | Assessment must be demonstrated in a prefabrication construction site or simulated environment reflective of the workplace that complies with standard and authorised work practices, safety requirements and environmental constraints.Assessment must ensure access to:* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations and safety requirements.
 |
| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:* written and/or oral questioning to assess knowledge of construction arrangements requiring effective communication and reporting
* observations of collaborating with service providers and suppliers in a real or simulated work environment
* portfolio of evidence of demonstrated performance in dealing with unexpected situations
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| Unit code | VU22701 |
| Unit title | Set out and mark out components  |
| Unit Descriptor | This unit describes the performance outcomes, skills and knowledge required to set out and mark out prefabricated components onsite. It requires the ability to plan and organise work, receive and check prefabricated components, indicate site boundaries and reference and offset lines and mark out prefabricated components. It includes continuously checking calculations against specifications and quality standards.No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. |
| Employability Skills | This unit contains Employability Skills. |
| Application of the Unit | This unit applies to onsite assemblers and installers who set out and mark out components prior to installation. They work in a team and time constrained environment and within the scope of their work with other construction tradespersons.  |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1 | Plan and prepare for set out | 1.1 | Obtain and confirm ***job requirements and specifications*** for the set out with relevant personnel  |
|  |  | 1.2 | Inspect worksite to determine extent of work preparation, conditions and hazards  |
|  |  | 1.3 | Confirm health and safety requirements and risk control measures according to workplace and health and safety legislative requirements |
|  |  | 1.4 | Schedule and sequence set out tasks in consultation with supervisor, team members, service providers and suppliers as required to ensure set out is completed to construction plan |
|  |  | 1.5 | Select tools and equipment, including personal protective equipment according to job requirements, check for serviceability and place ready for use |
| 2 | Check prefabricated components onsite | 2.1 | Confirm scheduled delivery of prefabricated components according to construction plan schedule and take corrective action according to workplace procedures if delivery is delayed. |
|  |  | 2.2 | Check storage for prefabricated components on the site are adequate, away from obstruction, sheltered from weather and placed in sequence for efficient transfer  |
|  |  | 2.3 | Check delivered components and materials against specifications and take correction action according to workplace procedures if delivery is incomplete or damaged |
| 3 | Set out installation | 3.1 | Identify and indicate site boundaries according to specifications |
|  |  | 3.2 | Set reference line and offset line to determine the position of the components to be installed |
|  |  | 3.3 | Perform calculations to check accuracy of the offset lines against specifications  |
| 4 | Lay out components | 4.1 | Mark out prefabricated components to comply with specified measurements. |
|  |  | 4.2 | Check dimensions for accuracy and compliance with plans and specifications. |
| 5 | Clean up worksite | 5.1 | Clear worksite, recycle or store unused material and dispose safely of waste according to workplace and environmental procedures |
|  |  | 5.2 | Clean, maintain and store tools and equipment according to workplace procedures |

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| REQUIRED SKILLS AND KNOWLEDGE |
| This describes the essential skills and knowledge and their level, required for this unit. |
| **Required skills:*** reading skills to interpret a range of essential workplace documentation, including drawings and specifications relating to setting out and marking out components
* writing skills to complete workplace documentation, including equipment fault
* oral communication skills to use questioning to identify and confirm job requirements, interact with team members and other personnel and negotiate solutions to arising challenges
* numeracy skills to apply measurements and calculations in setting out and marking out components
* problems solving skills to respond to challenges, including challenging timeframes, delivery delays or anomalies in set out
* teamwork skills to complete set out to quality standards and timeframes and contribute to safe and efficient installation
* planning and organising skills to identify and prepare components, tools and equipment and plan and complete tasks in appropriate sequence
* self-management skills to manage own workspace, speed, timing, and productivity and maintain ongoing compliance with regulatory and quality requirements
* technology skills to use check, maintain and operate tools and equipment according to manufacturer instructions.
 |
| **Required knowledge:*** principles of set out in relation to prefabrication construction
* workplace and legislative health and safety requirements and risk measures relevant to prefabricated panelised construction, including working safely at heights and emergency procedures
* off-site logistics and traffic management for deliveries onsite
* importance of task sequencing, and implications for not planning and monitoring
* basic design, offsite manufacturing process and materials used in manufactured panelised components, including damage and weather effects associated with materials
* tools, equipment and materials used for set out, including maintenance and safe operating procedures
* building codes and inspection checks relevant to prefabricated construction
* content, terms and symbols used in drawings and specifications relevant to panelised construction
* quality assurance procedures relevant to set out, including measure accuracy against tolerance acceptance, order of sequences, risk and time management
* acceptable tolerances for different materials, component structures and fixings
* processes and equipment used for levelling
* principles and methods of applying Lean 5S in relation to set out
* environmentally sustainable practices relevant to set out, including safe disposal and recycling of waste.
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| 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 in the Performance Criteria is detailed below. Add any 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.  |
| Job requirements and specifications may include: | * access preparation
* approval for construction
* building checks
* clearance and engineer reports
* design specifications
* installation timeframes
* lifting and support materials and configurations
* logistics of delivered components from manufacturer
* manufacturer and designer specifications, drawings, plans and instructions
* quality standards and procedures
* health and safety legislative requirements
* relevant building codes and legislation
* resources and material lists
* safe work procedures
* signage
* schedules
* scope of works
* traffic control
* work and access permits
* water and power access.
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| EVIDENCE GUIDE |
| The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.  |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | There must be demonstrated evidence that the learner has set out and marked out components for a small building of at least 50 square metres and which includes at least one internal and one external corner.In doing so the learner must have:* complied with relevant safety regulations, building codes, codes of practice and job requirements
* checked logistics and storage of prefabricated components
* communicated and worked effectively with others, in checking, scheduling, and sequencing set out tasks to meet quality standards and timelines
* applied the appropriate corrective action in dealing with unexpected situations
* cleaned up and stored tools, equipment and materials after set out.
 |
| Context of and specific resources for assessment | Assessment must be demonstrated in a prefabrication construction site or simulated environment reflective of the workplace that complies with standard and authorised work practices, safety requirements and environmental constraints.Assessment must ensure access to:* industry prefabricated components, materials, tools and equipment, including personal protective and safety equipment
* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations and safety requirements.
 |
| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:* written and/or oral questioning to assess knowledge of using calculations for setting out
* observations of setting out tasks in a real or simulated work environment
* portfolio of evidence of demonstrated performance of setting out for prefabricated components on a construction site.
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| Unit code | VU22702 |
| Unit title | Assemble and install panelised components onsite |
| Unit Descriptor | This unit describes the performance outcomes, skills and knowledge required to assemble and install prefabricated panelised components onsite. It requires the ability to plan and organise work, receive and check prefabricated components and measure and position components before assembling and fixing them into place. It includes continuously checking work against specifications and quality standards and responding to challenges and anomalies.No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. |
| Employability Skills | This unit contains Employability Skills. |
| Application of the Unit | This unit applies to onsite assemblers and installers who assemble and install prefabricated panelised components that are pre-cut, pre-sized, pre-moulded or pre-shaped in a factory environment onsite in a team and time constrained environment. They work within the scope of their work with other construction tradespersons.  |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1 | Plan and prepare for installation | 1.1 | Obtain and confirm ***job requirements and specifications*** for assembling and installing prefabricated panelised components from the construction plan with relevant personnel  |
|  |  | 1.2 | Inspect worksite, identify hazards and conditions to determine the extent of work preparation required |
|  |  | 1.3 | Confirm health and safety requirements and risk control measures according to health and safety legislative requirements |
|  |  | 1.4 | Schedule and sequence tasks in consultation with supervisor, team members, service providers and suppliers as required to ensure work is completed to construction plan |
|  |  | 1.4 | Select tools and equipment, including personal protective equipment according to job requirements, check for serviceability, calibrate or report faults and place ready for use |
| 2 | Check panelised components onsite | 2.1 | Confirm delivery of panelised components according to construction plan schedule and take correction action according to workplace procedures if delivery is delayed. |
|  |  | 2.2 | Check storage requirements for panelised components on the construction site are adequate, away from obstruction, sheltered from weather and placed in sequence for efficient transfer  |
|  |  | 2.3 | Check delivered panelised components and materials against specifications and take correction action according to workplace procedures if delivery is incomplete or damaged |
| 3 | Measure and position panelised components | 3.1 | Measure, check levels and connecting points of supplied components against specified measurements and accepted tolerances |
|  |  | 3.2 | Rectify or report irregularities in levels, dimensions and tolerances according to workplace procedures |
|  |  | 3.3 | Assist to lift panelised components in sequential order and position with use of propping on levelling walls and floors according to job requirements and specified measurements |
| 4 | Assemble and install components | 4.1 | Assemble components as required and place into position to commence installation |
|  |  | 4.2 | Check measurements and tolerances of completed assembly against specifications and report or rectify anomalies as required |
|  |  | 4.3 | Install fixings or braces to connect to wall, floor and other components as required |
|  |  | 4.4 | Install assembly to level, plumb off and pack to position as required |
|  |  | 4.5 | Fix assembly and apply fire rated sealants as required, to all connecting points according to relevant building codes and design specifications |
|  |  | 4.6 | Check completed installation against job specifications and schedule and report quality checks and any variances to supervisor |
| 5 | Clean up worksite | 5.1 | Clear worksite, recycle or store unused material and dispose safely of waste according to workplace and environmental procedures |
|  |  | 5.2 | Clean, maintain and store tools and equipment according to workplace procedures |

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| REQUIRED SKILLS AND KNOWLEDGE |
| This describes the essential skills and knowledge and their level, required for this unit. |
| **Required skills:*** reading skills to interpret a range of essential workplace documentation, including drawings and specifications relating to the assembly and installation of panelised components
* writing skills to complete workplace documentation, including equipment fault and variance reports
* oral communication skills to use questioning to identify and confirm job requirements, interact with team members and other personnel and negotiate solutions to arising challenges
* numeracy skills to apply measurements and calculations to identify anomalies in straightness or dimensions of installation positions or of delivered components
* problems solving skills to respond to challenges, including challenging timeframes, delivery delays or anomalies in installation position
* teamwork skills to complete assembly and installation to quality standards and timeframes and contribute to safe and efficient installation
* planning and organising skills to identify and prepare components, tools and equipment and plan and complete tasks in appropriate sequence
* self-management skills to manage own workspace, speed, timing, and productivity and maintain ongoing compliance with regulatory and quality requirements
* technology skills to use check, maintain and operate tools and equipment according to manufacturer instructions.
 |
| **Required knowledge:*** offsite and onsite construction approaches for prefabricated panelised systems
* workplace and legislative health and safety requirements and risk measures relevant to prefabricated panelised construction, including working safely at heights and emergency procedures
* off-site logistics and traffic management for deliveries onsite
* importance of onsite panelised construction assembly and installation sequence, and implications for not planning and monitoring
* basic design, offsite manufacturing process and materials used in manufactured panelised components, including damage and weather effects associated with materials
* tools, equipment and materials used in assembling and installing panelised components, including maintenance and safe operating procedures
* range of lifting and propping equipment used for different prefabricated panelised systems
* types and purposes of fixings, braces and sealants
* fire resistance rating
* building codes and inspection checks relevant to prefabricated panelised construction
* content, terms and symbols used in drawings and specifications relevant to panelised construction
* quality assurance procedures relevant to installing panelised components onsite, including measure accuracy against tolerance acceptance, order of sequences, risk and time management
* acceptable tolerances for different materials, component structures and fixings
* processes and equipment used for levelling
* principles and methods of applying Lean 5S in relation to panelised construction
* environmentally sustainable practices relevant to panelised construction, including safe disposal and recycling of waste.
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| 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 in the Performance Criteria is detailed below. Add any 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.  |
| Job requirements and specifications may include: | * access preparation
* approval for construction
* building checks
* clearance and engineer reports
* design specifications
* installation timeframes
* lifting and support materials and configurations
* logistics of delivered components from manufacturer
* manufacturer and designer specifications, drawings, plans and instructions
* quality standards and procedures
* health and safety legislative requirements
* relevant building codes and legislation
* resources and material lists
* safe work procedures
* signage
* schedules
* traffic control
* work and access permits
* water and power access.
 |
| Prefabricated panelised components may include: | * timber building systems
* timber farming
* cladding systems
* herbal walls
* cassettes
 |
| Liftmay include: | * assisting crane operators
* manual lifting
* using vacuum systems
* using load shifting equipment.
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| EVIDENCE GUIDE |
| The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.  |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | There must be demonstrated evidence that the learner has assembled and installed panelised components for a small building of at least 50 square metres and which includes at least one internal and one external corner.In doing so the learner must have:* complied with relevant safety regulations, building codes, codes of practice and job requirements
* checked logistics and storage of prefabricated panelised components
* communicated and worked effectively with others, in checking, scheduling, lifting and sequencing prefabricated panels and tasks to meet quality standards and timelines
* applied the appropriate corrective action in dealing with unexpected situations
* completed preparatory work for proper fit
* cleaned up and stored tools, equipment and materials after installation.
 |
| Context of and specific resources for assessment | Assessment must be demonstrated in a prefabrication construction site or simulated environment reflective of the workplace that complies with standard and authorised work practices, safety requirements and environmental constraints.Assessment must ensure access to:* industry prefabricated panelised components, materials, tools and equipment, including personal protective and safety equipment
* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations and safety requirements.
 |
| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:* written and/or oral questioning to assess knowledge of prefabricated panelised systems
* observations of assembly and installation tasks in a real or simulated work environment
* portfolio of evidence of demonstrated performance of installation of prefabricated panelised components on a construction site.
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| Unit code | VU22703 |
| Unit title | Combine and install modular components onsite |
| Unit Descriptor | This unit describes the performance outcomes, skills and knowledge required to combine and install modular components onsite. It requires the ability to plan and organise work, receive and check prefabricated components, measure and position components before assembling and fixing them into place. It includes continuously checking work against work specifications and quality standards and responding to arising challenges and anomalies.No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. |
| Employability Skills | This unit contains Employability Skills. |
| Application of the Unit | This unit applies to onsite assemblers and installers who combine and install modular or Prefabricated Prefinished Volumetric Construction (PPVC) components that are pre-fitted with electrics, plumbing, heating, doors, windows and internal finishes onsite in a team and time constrained environment. They work within the scope of their role with other construction tradespersons.  |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1 | Plan and prepare for installation | 1.1 | Obtain and confirm ***job requirements and specifications*** for combining and installing modular components from the construction plan with relevant personnel  |
|  |  | 1.2 | Inspect worksite, identify hazards and conditions to determine the extent of work preparation required |
|  |  | 1.3 | Confirm health and safety requirements and risk control measures according to health and safety legislative requirements |
|  |  | 1.4 | Schedule and sequence tasks in consultation with supervisor, team members, service providers and suppliers as required to ensure work is completed to construction plan |
|  |  | 1.5 | Select tools and equipment, including personal protective equipment according to job requirements, check for serviceability and place ready for use |
| 2 | Check and prepare modular components onsite | 2.1 | Confirm delivery of modular components according with construction plan schedule and take correction action according to workplace procedures if delivery is delayed. |
|  |  | 2.2 | Check storage requirements for modular components on the construction site are adequate, away from obstruction, sheltered from weather and placed in sequence for efficient transfer  |
|  |  | 2.3 | Check delivered modular components and materials against specifications and take correction action according to workplace procedures if delivery is incomplete or damaged |
| 3 | Combine and install components | 3.1 | Assist to lift modular components in sequential order and position with use of propping on levelling walls and floors according to job requirements and specified measurements |
|  |  | 3.2 | Combine components as required and place into position to commence installation |
|  |  | 3.3 | Check measurements and tolerances of combined components against specifications and report or rectify anomalies as required |
|  |  | 3.4 | Install fixings or braces to connect to wall, floor and other components as required |
|  |  | 3.5 | Install combined components to level, plumb off and pack to position as required |
|  |  | 3.6 | Fix and apply fire rated sealants as required, to all connecting points according to relevant building codes and design specifications |
|  |  | 3.7 | Check completed installation against job specifications and schedule and report quality checks and any variances to supervisor |
| 4 | Clean up worksite | 4.1 | Clear worksite, recycle or store unused material and dispose safely of waste according to workplace and environmental procedures |
|  |  | 4.2 | Clean, maintain and store tools and equipment according to workplace procedures |

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| REQUIRED SKILLS AND KNOWLEDGE |
| This describes the essential skills and knowledge and their level, required for this unit. |
| **Required skills:*** reading skills to interpret a range of essential workplace documentation, including drawings and specifications relating to the combination and installation of modular components
* writing skills to complete workplace documentation, including equipment fault and variance reports
* oral communication skills to use questioning to identify and confirm job requirements, interact with team members and other personnel and negotiate solutions to arising challenges
* numeracy skills to apply measurements and calculations to identify anomalies in straightness or dimensions of installation positions or of delivered components
* problems solving skills to respond to challenges, including challenging timeframes, delivery delays or anomalies in installation position
* teamwork skills to complete assembly and installation to quality standards and timeframes and contribute to safe and efficient installation
* planning and organising skills to identify and prepare components, tools and equipment and plan and complete tasks in appropriate sequence
* self-management skills to manage own workspace, speed, timing, and productivity and maintain ongoing compliance with regulatory and quality requirements
* technology skills to use check, maintain and operate tools and equipment according to manufacturer instructions
 |
| **Required knowledge:*** offsite and onsite construction approaches for prefabricated modular systems
* workplace and legislative health and safety requirements and risk measures relevant to prefabricated modular construction, including working safely at heights and emergency procedures
* off-site logistics and traffic management for deliveries onsite
* importance of onsite modular construction assembly and installation sequence, and implications for not planning and monitoring
* basic design, offsite manufacturing process and materials used in manufactured modular components, including damage and weather effects associated with materials
* tools, equipment and materials used in assembling and installing modular components, including maintenance and safe operating procedures
* range of lifting and propping equipment used for different prefabricated modular systems
* types and purposes of fixings, braces and sealants
* fire resistance rating
* building codes and inspection checks relevant to prefabricated modular construction
* content, terms and symbols used in drawings and specifications relevant to panelised construction
* quality assurance procedures relevant to installing panelised components onsite, including measure accuracy against tolerance acceptance, order of sequences, risk and time management
* acceptable tolerances for different materials, component structures and fixings
* processes and equipment used for levelling
* principles and methods of applying Lean 5S in relation to modular construction
* environmentally sustainable practices relevant to modular construction, including safe disposal and recycling of waste.
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| 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 in the Performance Criteria is detailed below. Add any 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.  |
| Job requirements and specifications may include: | * access preparation
* approval for construction
* building checks
* clearance and engineer reports
* design specifications
* installation timeframes
* lifting and support materials and configurations
* logistics of delivered components from manufacturer
* manufacturer and designer specifications, drawings, plans and instructions
* quality standards and procedures
* health and safety legislative requirements
* relevant building codes and legislation
* resources and material lists
* safe work procedures
* signage
* schedules
* traffic control
* work and access permits
* water and power access.
 |
| Modular components may include: | * DfMA (Design for Manufacture and Assembly)
* Prefabricated Prefinished Volumetric Construction (PPVC)
* sectional
* volumetric
 |
| Liftmay include: | * assisting crane operators
* manual lifting
* using vacuum systems
* using load shifting equipment.
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| EVIDENCE GUIDE |
| The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.  |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | There must be demonstrated evidence that the learner has combined and installed prefabricated modular components for a small building of at least 50 square metres and which includes at least one internal and one external corner.In doing so the learner must have:* complied with relevant safety regulations, building codes, codes of practice and job requirements
* checked logistics and storage of prefabricated modular components
* communicated and worked effectively with others, in checking, scheduling, lifting and sequencing prefabricated panels and tasks to meet quality standards and timelines
* applied the appropriate corrective action in dealing with unexpected situations
* completed preparatory work for proper fit
* cleaned up and stored tools, equipment and materials after installation.
 |
| Context of and specific resources for assessment | Assessment must be demonstrated in a prefabrication construction site or simulated environment reflective of the workplace that complies with standard and authorised work practices, safety requirements and environmental constraints.Assessment must ensure access to:* industry prefabricated modular components, materials, tools and equipment, including personal protective and safety equipment
* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations and safety requirements.
 |
| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:* written and/or oral questioning to assess knowledge of prefabricated modular systems
* observations of installation tasks in a real or simulated work environment
* portfolio of evidence of demonstrated performance of installation of prefabricated modular components on a construction site.
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| Unit code | VU22706 |
| Unit title | Install prefabricated pod components |
| Unit Descriptor | This unit describes the performance outcomes, skills and knowledge required to install prefabricated pod components onsite. It requires the ability to plan and organise work, receive and check pod components, measure and position pod into place. It includes continuously checking work against work specifications and quality standards and responding to arising challenges and anomalies.No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. |
| Employability Skills | This unit contains Employability Skills. |
| Application of the Unit | This unit applies to onsite installers who install fully functional pod components, such as bathroom pods onsite prior to connection to mechanical, plumbing and electrical systems. Onsite installers perform installation tasks in a team and time constrained environment and within the scope of their role with other construction tradespersons.  |
| ELEMENT | PERFORMANCE CRITERIA |
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide. |
| 1 | Plan and prepare for pod installation | 1.1 | Obtain and confirm job requirements and specifications for pod installation with relevant personnel  |
|  |  | 1.2 | Inspect worksite, identify hazards and conditions to determine the extent of work preparation required |
|  |  | 1.3 | Confirm health and safety requirements and risk control measures according to health and safety legislative requirements |
|  |  | 1.4 | Schedule and sequence installation tasks in consultation with supervisor, team members, service providers and suppliers as required to ensure work is completed to construction plan |
|  |  | 1.5 | Select tools and equipment, including personal protective equipment according to job requirements, check for serviceability, calibrate or report faults and place ready for use |
| 2 | Check and prepare pod onsite | 2.1 | Confirm delivery of pod according with construction plan schedule and take correction action according to workplace procedures if delivery is delayed. |
|  |  | 2.2 | Check storage requirements for pod on construction site are adequate, away from obstruction, sheltered from weather and placed in sequence for efficient transfer  |
|  |  | 2.3 | Check delivered pod components and materials against specifications and take correction action according to workplace procedures if delivery is incomplete or damaged |
| 3 | Measure and position pod  | 3.1 | Measure, check levels and connecting points of supplied pod components against specified measurements and accepted tolerances |
|  |  | 3.2 | Rectify or report irregularities in levels, dimensions and tolerances according to workplace procedures |
|  |  | 3.3 | Assist crane operators to guide pod components onto landing platform to be placed onto its final position |
|  |  | 3.4 | Release landing platform once in position avoiding distortion and damage to base |
|  |  | 3.5 | Check that the surface under the pod is level to avoid any distortion |
|  |  | 3.6 | Verify set out location is according to set out datum |
| 4 | Install pod | 4.1 | Slide pod into place against surrounding partition walls according to job requirements and manufacturer specifications |
|  |  | 4.2 | Fix pod and apply fire rated sealants as required, to all connecting points according to relevant building codes and design specifications |
|  |  | 4.3 | Confirm location of services connection with service trades according to scope of work |
|  |  | 4.4 | Check completed installation job specifications and schedule and report quality checks and any variances to supervisor |
| 5 | Clean up worksite | 5.1 | Clear worksite, recycle or store unused material and dispose safely of waste according to workplace and environmental procedures |
|  |  | 5.2 | Clean, maintain and store tools and equipment according to workplace procedures |

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| REQUIRED SKILLS AND KNOWLEDGE |
| This describes the essential skills and knowledge and their level, required for this unit. |
| **Required skills:*** reading skills to interpret a range of essential workplace documentation, including drawings and specifications relating to the assembly and installation of pod components
* writing skills to complete workplace documentation, including equipment fault and variance reports
* oral communication skills to use questioning to identify and confirm job requirements, interact with team members and other personnel and negotiate solutions to arising challenges
* numeracy skills to apply measurements and calculations to identify anomalies in straightness or dimensions of installation positions or of delivered components
* problems solving skills to respond to challenges, including challenging timeframes, delivery delays or anomalies in installation position
* teamwork skills to complete assembly and installation to quality standards and timeframes and contribute to safe and efficient installation
* planning and organising skills to identify and prepare components, tools and equipment and plan and complete tasks in appropriate sequence
* self-management skills to manage own workspace, speed, timing, and productivity and maintain ongoing compliance with regulatory and quality requirements
* technology skills to use check, maintain and operate tools and equipment according to manufacturer instructions.
 |
| **Required knowledge:*** offsite and onsite construction approaches for prefabricated pod systems
* workplace and legislative health and safety requirements and risk measures relevant to prefabricated pod construction, including working safely at heights and emergency procedures
* off-site logistics and traffic management for deliveries onsite
* importance of onsite installation sequencing, and implications for not planning and monitoring
* basic design, offsite manufacturing process and materials used in manufactured pod components, including damage and weather effects associated with materials
* tools, equipment and materials used in installing pod components, including maintenance and safe operating procedures
* range of lifting and landing platforms used for different prefabricated pod installations
* types and purposes of fixings and sealants
* fire resistance rating
* mechanical, electrical and plumbing systems used for pod installation
* building codes and inspection checks relevant to prefabricated pod construction
* content, terms and symbols used in drawings and specifications relevant to pod installation
* quality assurance procedures relevant to installing pods onsite, including measure accuracy against tolerance acceptance, order of sequences, risk and time management
* acceptable tolerances for different materials, component structures and fixings
* processes and equipment used for levelling
* principles and methods of applying Lean 5S in relation to pod installation
* environmentally sustainable practices relevant to pod installation, including safe disposal and recycling of waste.
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| 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 in the Performance Criteria is detailed below. Add any 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.  |
| Job requirements and specifications may include: | * access preparation
* approval for construction
* building checks
* clearance and engineer reports
* design specifications
* installation timeframes
* lifting and support materials and configurations
* logistics of delivered components from manufacturer
* manufacturer and designer specifications, drawings, plans and instructions
* quality standards and procedures
* health and safety legislative requirements
* relevant building codes and legislation
* resources and material lists
* safe work procedures
* signage
* schedules
* traffic control
* work and access permits
* water and power access.
 |
| Pod components may include: | * bathroom pods
* combi pods
* kitchen pods
* laundry pods.
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| EVIDENCE GUIDE |
| The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.  |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | There must be demonstrated evidence that the learner has installed at least one pod system for a prefabrication construction project.In doing so the learner must have:* complied with relevant safety regulations, building codes, codes of practice and job requirements
* checked logistics and storage of prefabricated pod components
* communicated and worked effectively with others, in checking, scheduling, lifting and sequencing prefabricated pod components and tasks to meet quality standards and timelines
* applied the appropriate corrective action in dealing with unexpected situations
* completed preparatory work for proper fit
* ensured connection to mechanical, electrical and plumbing systems
* cleaned up and stored tools, equipment and materials after installation.
 |
| Context of and specific resources for assessment | Assessment must be demonstrated in a prefabrication construction site or simulated environment reflective of the workplace that complies with standard and authorised work practices, safety requirements and environmental constraints.Assessment must ensure access to:* industry prefabricated pod components, materials, tools and equipment, including personal protective and safety equipment
* job requirements, including relevant plans and specifications
* relevant workplace policies and procedures which cover design specifications, industry standards, building codes and regulations and safety requirements.
 |
| Method of assessment | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:* written and/or oral questioning to assess knowledge of acceptable tolerances for pod installations
* observations of pod installation tasks in a real or simulated work environment
* portfolio of evidence of demonstrated performance of installation of pod components on a construction site..
 |

# Appendix A Skills and knowledge profile for onsite installers and assemblers

| **Skill area** | **Skills and knowledge** | **Alignment to units of competency** |
| --- | --- | --- |
| Work in Prefabrication Construction | * work within scope of onsite assembler’s role:
* referring to tradespersons where construction work requires a licence or inspection check
* understand new and emerging construction technologies and their impacts on:
* efficiency, precision, productivity and affordability
* waste and energy reduction
* environmental benefits
* the manufacturing process, including products/materials/systems and impacts for site if manufacture is at fault
* offsite and onsite construction approaches
* apply quality and systems thinking approaches, including tolerances/accuracy, order of sequences, risk/time management
 | * XXXXXX1 Work in prefabrication construction (new unit)
* MSMENV272 Participate in environmentally sustainable work practices
* MSS402040 Apply 5S procedures
* MSS402051 Apply quality standards
 |
| * work effectively in teams and in collaboration with services/suppliers
* understand off site logistics, including traffic management
 | * XXXXXX2 Work collaboratively with others in prefabrication construction (new)
 |
| Safe work | * work safely in the construction industry
 | * CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry
* CPCCWHS1001 Prepare to work safely in the construction Industry (CI card/white card)
* MSMPER200 Work in accordance with an issued permit
* PMBHAN103 Shift materials safely by hand
 |
| * work safely at heights
 | * CPCCCM2010B Work safely at heights
 |
| Installation fundamentals | * read and interpret plans, drawings and specifications
* interpret and apply building codes and regulations
 | * CPCCC3004 Identify and apply information in construction plans, drawings and specifications
 |
| * carry out measurements and calculations
 | * CPCCM1015A Carry out measurements and calculations
 |
| * carry out setting out
 | * XXXXXX3 Set out and mark out components (new unit)
 |
| * carry out levelling
 | * CPCCCM3006 Carry out levelling operations
 |
| Tools, equipment and plant | * use carpentry/construction materials, tools and equipment
 | * CPCCCA2002B Use carpentry tools and equipment
* CPCCSH2003A Apply and install sealant and sealant devices
* CPCCCM2005B Use construction tools and equipment
* CPCCSH2003A Apply and install sealant and sealant devices
 |
| * use and handle steel materials, tools and equipment
 | * CPCCSF2001A Handle steel fixing materials
* CPCCSF2002A Use steel fixing tools and equipment CPCCSH2003A Apply and install sealant and sealant devices
* CPCPDR2026A Install prefabricated inspection openings and enclosures
 |
| * use explosive power tools
 | * CPCCCM2007B Use explosive power tools
 |
| * operate elevated work platforms
 | * CPCCCM3001 Operate elevated work platforms up to 11 metres
 |
| Panelised prefabrication | * plan and organise work
* prepare materials/panels for improved workflow
* apply principles of Lean 5S
* carry out preparatory work or installation adjustment for proper fit, including the use of propping on levelling walls and floors to the panelised prefabrication
* assemble or install 2D pre-cut, pre-sized or pre-shaped components on site
* apply quality processes
 | * XXXXXXX4 Assemble or install panelised components on site (new unit)
 |
| Modular prefabrication | * plan and organise work
* prepare materials/panels for improved workflow
* apply principles of Lean 5S
* carry out preparatory work or installation adjustment for proper fit
* combine and install modular, sectional, volumetric or unitised systems on site
* apply quality processes
 | * XXXXXX5 Combine and install modular components on site (new unit)
 |
| Pod installation | * plan and organise work
* prepare materials/panels for improved workflow, including the transportation of pods through site
* apply principles of Lean 5S
* carry out preparatory work or installation adjustment for proper fit
* assemble and fit units/components
* apply quality processes
 | * XXXXXX6 Install prefabricated pod components (new unit)
 |

1. Job Skills in Prefabricated Construction, Dr P. Alviano, Nov 2015. [↑](#footnote-ref-1)
2. Vic Government backs expanding prefab construction sector, Financial Review, L. Schlesinger, 15 Sep 2015 [↑](#footnote-ref-2)