22587VIC

Course in Light Gauge Steel Detailing

This course is accredited under
Part 4.4 of the Education and Training Reform Act 2006

Accredited for the period 1 January 2022 to 31 December 2026

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Section A: Applicant and course classification information

1. Person in respect of whom the course is being accredited	Copyright of this material is reserved to the Crown in the right of the State of Victoria on behalf of the Department of Jobs, Skills, Industry and Regions (DJSIR) Victoria. © State of Victoria (DJSIR) 2024
2. Address	**Executive Director** Deputy CEO Victorian Skills Authority Department of Jobs Skills, Industry and Regions (DJSIR) GPO Box 4509 Melbourne Vic 3001 **Organisational Contact:** Manager, Training and Learning Products Unit Engagement Branch Victorian Skills Authority Email: course.enquiry@djsir.vic.gov.au **Day to day contact:** Curriculum Maintenance Manager (CMM) General Manufacturing Chisholm Institute PO Box 684, DANDENONG, Victoria, 3175 Telephone (03) 9238 8410 Email: CMMGeneralManufacturing@chisholm.edu.au
3. Type of submission	This submission is for accreditation.
4. Copyright acknowledgement	The following units of competency: MEM30031A Operate computer-aided design (CAD) system to produce basic drawing elements MEM30012A Apply mathematical techniques in a manufacturing, engineering or related environment are from the MEM05 Metal and Engineering Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia The following unit of competency: CPCCOM1014 - Conduct workplace communication is from the CPC Construction, Plumbing and Services Training Package administered by the Commonwealth of Australia. © Commonwealth of Australia

5. Licensing and franchise	
6. Course accrediting body	Victorian Registration and Qualifications Authority
7. AVETMISS information	**ANZSCO code – 6 digit** Australian and New Zealand Standard Classification of Occupations 399999 Technicians and Trades Workers nec **ASCED Code – 4 digit** Field of Education 0403 Building **National course code** 22587VIC
8. Period of accreditation	1 January 2022 to 31 December 2026

Section B: Course information

1. Nomenclature	
1.1 Name of the qualification	*Standard 4.1 AQTF 2021 Standards for Accredited Courses* Course in Light Gauge Steel Detailing
1.2 Nominal duration of the course	*Standard 5.8 AQTF 2021 Standards for Accredited Courses* The nominal duration of the course is 145 hours
2. Vocational or educational outcomes of the course	
2.1 Outcome(s) of the course	*Standard 5.1 AQTF 2021 Standards for Accredited Courses* This course provides the skills and knowledge to undertake the detailing of light gauge steel (LGS) frame components for Class 1a and Class 10 building structures.
2.2 Course description	*Standard 5.1 AQTF 2021 Standards for Accredited Courses* This course provides the skills and knowledge required by light gauge steel detailers. Learners develop their knowledge of building construction and building industry terminology. They develop the skills to use industry standard computer software to create designs for cost effective, structurally sound, technically accurate, light gauge steel building components.
3. Development of the course	
3.1 Industry, education, legislative, enterprise or community needs	*Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses* The growth in the use of prefabricated light gauge steel frames as an alternative to timber frames in residential and commercial building construction in Victoria has highlighted the critical national shortage of detailing capability within the industry. There is a lack of knowledgeable, skilled and job ready LGS detailers. 'Detailing' is the term used to describe the conversion of architectural/builder plans into computer designs. These designs are manipulated and refined by detailers using specialist Computer Aided Design (CAD) software which outputs Computer Aided Manufacturing (CAM) files to specialist roll forming machines. These machines convert rolls of flat metal strip into frame components. The frame components are dimensionally accurate, incorporate all necessary holes and openings and are shaped ready for assembly.

	The assembled frames are checked, packaged and transported to site where they are erected to form the complete building frame, including walls, floors, roof trusses etc. The quality of the detailing work has a significant impact on the build, with detailing competency influencing the end frame design, construction efficiency and cost. There are no accredited training products to provide the skills and knowledge required of detailers. This skills shortage is causing delayed builds, jobs going offshore and an added burden on frame fabrication companies, most of whom are small to medium enterprises. There are approximately 200 LGS fabrication companies operating across Australia. Typically, a fabricator will employ between 5 and 25 detailers depending on the size of the organisation. In Victoria there are approximately 30 fabrication companies. The number of LGS fabricators in the state is growing rapidly. This is a result of the surge in housing construction, the lack of timber supply due to COVID restrictions and the lower costs and efficiencies of prefabrication associated with LGS framing. Consultation with, and feedback from the LGS industry has identified • a critical shortage of detailing capability within industry, • a lack of knowledgeable, skilled and job ready LGS frame detailers, • capacity issues as current demand for the outputs of detailer's work exceeds current supply; and, • a high rate of churn of existing detailers resulting in employers having to constantly recruit and retrain. In order to address this chronic skill shortage, the National Association of Steel-framed Housing (NASH) and BlueScope Steel engaged Marketing Architecture in 2019 to analyse the issue and develop strategies to resolve the problem. One of the outcomes of this work was a request to the Victorian Skills Commissioner (VSC) in November 2020 to support the development of a Victorian accredited course. The development of the Course in Light Gauge Steel Detailing was guided by a Project Steering Committee comprising Victorian LGS fabricators and builders, representatives of the National Association of Steel Framed Housing (NASH), Marketing Architecture and software suppliers. LGS Detailers require the following skills and knowledge: • Computer literacy – Computer aided design techniques, • Building construction knowledge and terminology (building structures and site processes), • Factory construction knowledge (understanding of assembly process),

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- Ability to apply mathematical techniques to engineering design,
- Structural principles, building codes and standards requirements; and,
- Knowledge/understanding of 'detailing processes' and software.

Typically, candidates for the course will be drawn from a number of areas:

- high school graduates with technical aptitude,
- building and construction backgrounds e.g. carpenters, plumbers, builders,
- an engineering drafting background,
- manufacturing production operations or factory floor operators,
- persons branching out from other trades such as roofing and plumbing, mechanical trades – boiler maker,
- a design background - architect or architectural draftsperson; and,
- related construction roles – estimator or certifier.

Members of the Project Steering Committee

Name	Relevant qualifications, skills and experience
Ken Watson (Chair)	Executive Director, National Association of Steel-Framed Housing (NASH)
Margaret Jacobsen	Project lead, Marketing Architecture Pty Ltd
Sylvia Weber	Enduroframe Building Systems
Peter Blythe	Dynamic Steel Frame – owner/steel frame fabricator
Brett McDonaugh	Vertex Systems Australia – detailing software specialist
Simon Steer	Steer Manufacturing – owner/steel frame fabricator
Dennis Sutton	Fortitude Frames – owner/steel frame fabricator/builder

Course Developers / Writers

Teresa Signorello	TSF Partners
Susan Fechner	TSF Partners

	Project Management Paul Saunders — Executive Officer, CMM General Manufacturing, Chisholm Institute Dr Philip Davey — Administrative Coordinator, CMM General Manufacturing, Chisholm Institute This course • does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification or skill set, • 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; and, • does not comprise units that duplicate units of competency of a training package qualification.
3.2 Review for re-accreditation	*Standards 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses* Not Applicable.
4. Course outcomes	
4.1 Qualification level	*Standards 5.5 AQTF 2021 Standards for Accredited Courses* This course meets an identified industry/enterprise need, but does not have the breadth, depth or volume of learning of a qualification.
4.2 Foundation skills	*Standard 5.6 AQTF 2021 Standards for Accredited Courses* Foundation skills applicable to the course are detailed in each unit of competency.
4.3 Recognition given to the course	*Standard 5.7 AQTF 2021 Standards for Accredited Courses* Not Applicable
4.4 Licensing/regulatory requirements (if applicable)	*Standard 5.7 AQTF 2021 Standards for Accredited Courses* Not Applicable

5. Course rules

Standards 5.8 and 5.9 AQTF 2021 Standards for Accredited courses

5.1 Course structure

To achieve the award of *22587VIC Course in Light Gauge Steel Detailing* the learner must successfully complete five (5) core units listed below.

Where the full course is not completed, a VET Statement of Attainment will be issued for each unit successfully completed.

Unit of competency code	Field of Education code (six-digit)	Unit of competency title	Pre-requisite	Nominal hours
Core units				
VU23129	040399	Work effectively as a light gauge steel detailer	Nil	15
VU23130	040399	Detail light gauge steel roof trusses, wall frames and floor joists for fabrication	Nil	30
MEM30031A	039999	Operate computer-aided design (CAD) system to produce basic drawing elements	Nil	40
MEM30012A	010101	Apply mathematical techniques in a manufacturing engineering or related environment	Nil	40
CPCCOM1014	120505	Conduct workplace communication	Nil	20
			Total nominal hours	**145**

5.2 Entry requirements	*Standard 5.11 AQTF 2021 Standards for Accredited Courses* There are no entry requirements for the *22587VIC Course in Light Gauge Steel Detailing.* Learners are best equipped to achieve the course outcomes in the *22587VIC Course in Light Gauge Steel Detailing* if they have minimum language, literacy and numeracy skills that are equivalent to Level 3 of the Australian Core Skills Framework (ACSF). The ACSF can be accessed from the education department's website available *here.* Learners with language, literacy and numeracy skills at a lower level than suggested may require additional support to successfully undertake the course.

6. Assessment	
6.1 Assessment strategy	*Standard 5.12 AQTF 2021 Standards for Accredited Courses* 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. These standards ensure that the assessment strategies meet the requirement of the course. The nature of work undertaken in the light gauge steel framing industry is fast paced and involves interaction with clients and other team members. It is recommended that the assessment strategy includes assessment methods, such as: • the practical demonstration of a number of complete building detailing projects, • holistic assessment that realistically reflects the pace and complexity of the job task; and, • questioning related to underpinning knowledge. The assessment conditions for the accredited units of competency specify the conditions under which evidence for assessment must be gathered. Assessment of units of competency imported from a training package must reflect the assessment requirements specified in that training package.
6.2 Assessor competencies	*Standard 5.14 AQTF 2021 Standards for Accredited Courses* 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. Units of competency imported from training packages must reflect the requirements for assessors specified in that training package.
7. Delivery	
7.1 Delivery modes	*Standard 5.12 and 5.14 AQTF 2021 Standards for Accredited Courses* 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. As the role involves practical skill development, the practical skill component of the course must be delivered in; • a workplace, OR • a simulated workplace that accurately reflects workplace conditions. Practical exercises should 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.
7.2 Resources	*Standard 5.14 AQTF 2021 Standards for Accredited Courses* Learners must have access to • Computer hardware of sufficient capacity to run sophisticated Computer Aided Design software, • A range of specialist LGS detailing software packages. 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 must reflect the requirements for resources/trainers specified in the training package.
8. Pathways and articulation	
8.1 Pathways and articulation	*Standard 5.10 AQTF 2021 Standards for Accredited Courses* There are no formal articulation arrangements for this course. Graduates of this course will gain credit for unit/s successfully completed in any future courses containing the same unit/s; e.g: qualifications from MEM05. Refer to the AQF 2nd Edition, 2013 Pathways Policy *here*
9. Ongoing monitoring and evaluation	
9.1 Ongoing monitoring and evaluation	*Standard 5.15 AQTF 2021 Standards for Accredited Courses* The Curriculum Maintenance Manager for General Manufacturing is responsible for the ongoing monitoring and evaluation of this course. A formal review will take place once during the period of accreditation and will be informed by feedback from the users of the course and will consider at a minimum: • any changes required to meet emerging or developing needs • changes to any units of competency from nationally endorsed training packages. Any significant changes to the course will be notified to the VRQA.

Section C–Units of competency

Following are the units of competency developed for this course:	
VU23129	Work effectively as a light gauge steel detailer
VU23130	Detail light gauge steel roof trusses, wall frames and floor joists for fabrication

Following are the units of competency imported from national training packages:	
MEM30031A	Operate computer-aided design (CAD) system to produce basic drawing elements
MEM30012A	Apply mathematical techniques in a manufacturing engineering or related environment
CPCCOM1014	Conduct workplace communication

UNIT CODE		**VU23129**	
UNIT TITLE		**Work effectively as a light gauge steel detailer**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to work effectively as a light gauge steel (LGS) detailer within the construction / manufacturing industry. It includes locating information of the light gauge steel industry, contributing to productive work practices, preparing for light gauge steel detailing, and developing effective work practices. The work context relates to LGS design organisations, which may also manufacture. The unit applies to those who have no prior LGS industry knowledge or experience, i.e. an entry level 'Detailer'. This may include school leavers and / or mature age workers of allied or unrelated industries. They work autonomously with limited supervision. While work parameters are established, judgment is required to identify and communicate a variety of predictable and sometimes unpredictable problems. Responsibility for the quality of work outputs is expected. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**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. Assessment of performance is to be consistent with the evidence guide.*	
1	Locate information on the light gauge steel (LGS) industry	1.1	Source information of key features and developments in the LGS industry to establish past, present and emerging issues and trends
		1.2	Research and identify the range of LGS key stakeholders and their roles and responsibilities
2	Contribute to productive work practices	2.1	Identify responsibilities and duties of a LGS detailer according to organisational requirements
		2.2	Develop effective working relationships with LGS key stakeholders within the scope of the job role

		2.3	Identify efficient practices to support supply chain partners to maximise productivity
		2.4	Share information with colleagues of new and emerging LGS product and construction techniques that impact steel detailer tasks
3	Prepare for light gauge steel (LGS) detailing	3.1	Identify technical computer aided design (CAD) software to support effective LGS detailing work
		3.2	Identify the range and type of project design documentation applicable to building design projects
		3.3	Source and identify relevant industry standards and codes that facilitate appropriate product selection and framing design calculations
		3.4	Determine factors that may impact compliant framing design
4	Develop effective work practices	4.1	Develop communication techniques to build and maintain effective relationships with stakeholders
		4.2	Manage work load to meet required outputs within established timeframes
		4.3	Maintain currency of LGS product and process knowledge

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here.

Skill	Description
Reading skills to:	source and use information about the industry

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for **VU23129 Work effectively as a light gauge steel detailer**
PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: • use information about the LGS industry to develop effective detailing work practices. In so doing, the candidate must: ➢ identify at least four key stakeholders within the LGS supply chain and determine their roles and responsibilities, ➢ identify the principal software packages and manufacturing systems used within the LGS industry, ➢ determine at least two factors which impact each of these aspects of detailing work: ○ accuracy ○ compliance ○ efficiency
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • LGS terminology related to construction / engineering / manufacturing • evolution and innovations of the light gauge steel (LGS) industry related to: – materials – processes – applications • sources and types of compliance framework information including: – National Association of Steel-framed housing (NASH) – National Construction Code (NCC) – Australian Standards related to LGS detailing – technical bulletins from material and equipment suppliers • LGS industry stakeholders, their roles and responsibilities e.g. NASH • LGS characteristics, grades, origins, properties, uses • product transformation through the manufacturing process: – cold rolled form of LGS – framing layout and positioning – drilling and connection – package for transportation – on site installation • basic building construction process and interface with other services and trades • construction / manufacturing supply chain related to LGS fabrication • detailer role and responsibilities within the construction / manufacturing life cycle • self-management practices that improve productivity • communication principles and techniques

	• new and emerging LGS product and construction techniques, including prefabrication • software specific to LGS detailing – types used in Australia – similarities and differences • range and type of project design documentation used as input for detailing: – land survey drawings – contour drawing – soil reports – wind loading – structural engineering drawings – engineering reports – slab plans – architectural drawings • factors that typically impact framing design compliance • properties of structural steel in reference to integration with LGS framing • performance of LGS materials including: – prefabrication strength to weight ratio, consistency and dimensional stability – 'straight and true' – resistance to warping – resistance to shearing and twisting – lightweight – efficiency of installation – termite and borer resistance – Bush Fire Attack (BAL) rating thermal capabilities
ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions replicate a LGS detailing work environment. Simulated assessment environments must model the real-life working environment where these skills and knowledge would be performed, with all the relevant equipment and resources of that working environment. Students must have access to suitable facilities, equipment and resources including: • internet access • software to support access to relevant legislation and standards e.g. NCC, NASH • computer hardware Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

UNIT CODE	**VU23130**
UNIT TITLE	**Detail light gauge steel roof trusses, wall frames and floor joists for fabrication**
APPLICATION	This unit describes the performance outcomes, skills and knowledge required to detail light gauge steel (LGS) roof trusses, wall frames and floor joists for shop floor fabrication. It includes confirming project design documentation, creating digital design files, detailing framing systems and associated components, and generating final documentation for fabrication and installation. The work context relates to LGS design organisations, which may also manufacture. This unit focusses on LGS framing systems for Class 1a, 10 building structures of the National Construction Code (NCC), loosely termed 'residential buildings'. The unit applies to those with no prior LGS industry knowledge or experience, i.e. an entry level 'Detailer'. This may include school leavers and / or mature age workers of allied or unrelated industries. They work autonomously with limited supervision. While work parameters are established, judgment is required to identify and communicate a variety of predictable and sometimes unpredictable problems. Responsibility for the quality of work outputs is expected. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

ELEMENTS		**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. Assessment of performance is to be consistent with the evidence guide.*	
1	Confirm project design documentation	1.1	Obtain project design documentation and review for completeness, ensuring engineering plans correlate with architectural documentation
		1.2	Read and interpret design plans to establish scope of building project
		1.3	Identify any irregularities with project design documentation and report to appropriate person according to organisational procedures

		1.4	Obtain supervisor confirmation of final project design documentation as complete and accurate
2	Create digital design files	2.1	Confirm compatibility of externally sourced digital drawings to digital building design file types
		2.2	Apply method for importing drawings according to work instructions and software requirements
		2.3	Import files and apply illustration parameters to materials and scenery for enhancement of presentation and conceptual drawings, as required
		2.4	Check integrity of files, submit for supervisor approval and amend as necessary
		2.5	Add information to drawings and layouts according to work instructions and check transposition for accuracy and completeness according to workplace requirements
		2.6	Re-name and save digital building design files according to system requirements
3	Detail framing systems	3.1	Identify and analyse technical construction principles and material performance for compliance relevant to the project
		3.2	Analyse application of bracing requirements, tie-downs, tolerances, allowances, and fixing and installation of components for compliance with relevant Australian standards, codes and manufacturer specifications
		3.3	Consult with relevant engineer to confirm steel member dimensions (cold formed and hot rolled) and structural steel member sizes, where required
		3.4	Detail framing systems to account for specific hardware, tasks and construction requirements, including follow-on-trades in the construction process
		3.5	Detail steel member assemblies, openings and lintels, for structural and non-structural wall systems, to comply with relevant Standards and Codes
		3.6	Identify different roof shapes and establish working points and levels from design information
		3.7	Draw truss layouts using appropriate scale according to industry standards

		3.8	Calculate truss dimensions, including intermediate panel points, placement of working dimensions, reference points, and camber allowances for cambered trusses, where appropriate
		3.9	Set out connections for node points using design information and fabricator preferences
		3.10	Detail different floor types (intermediate and sub floor) with consideration of design and loading requirements
		3.11	Identify design issues and notify client / architect / engineer to resolve, according to organisational procedures
4	Detail components, elements and fastenings	4.1	Determine bracing type, amount and adequacy for the design, according to compliance requirements and adjust appropriately where necessary
		4.2	Determine setting out points, and distances between setting out points, to comply with standard and code requirements as required
		4.3	Detail braces and bracing connections, allowing for required clearances
		4.4	Determine layout and type of purlins to be used, from design information, manufacturers' catalogues and fabricator preferences
		4.5	Detail purlins consistent with design information
		4.6	Detail additional elements of the building design such as man-holes, air conditioning, attic ladders, wall niches, meter boxes, additional noggin/s, as specified, utilising software options
		4.7	Identify suitable fastening options, nominate compliant placement and detail fastening points and connections
5	Finalise documentation	5.1	Check the integrity and accuracy of the completed drawings
		5.2	Generate assembly and installation plans, installation manual and bill of materials

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here.

Skill	Description
Learning skills to:	use organisational file sharing and storage systems
	draw on prior knowledge to identify the nature and scope of new projects, allowing for contextual differences
	evaluate the reliability of an information source against a range of criteria
Initiative and enterprise skills to:	identify opportunities to improve product design efficiency and act to implement

UNIT MAPPING INFORMATION	New unit, no equivalent unit

Assessment Requirements

TITLE	Assessment Requirements for **VU23130 Detail light gauge steel roof trusses, wall frames and floor joists for fabrication**
PERFORMANCE EVIDENCE	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to develop compliant LGS fabrication drawings for two (2) Class 1a, 10 building structures, and associated manuals and installation documents: 1. One (1) must be a small - medium single storey dwelling and consist of; • a tiled roof, with truss spacing- 600 and roof pitch 22.5 degree tiled hip end roof, noting roof profiles should cover 2 of the following: hip ends, dutch, gable or skillion • 3 bedrooms • more than two common truss spans • wind N2 rating • wind bracing -k bracing, strap bracing and sheet bracing, roof to have bracing where appropriate to design plan • appropriate tie downs ie: truss to wall, wall to slab • various eaves lengths (ie: eave on garage) and a cantilever as per design requirements • loadbearing and non-load bearing walls, a raking wall, and wall heights to accommodate 2400 ceiling • various size openings for doors and windows • all trusses to include a girder option where appropriate to design plan 2. One (1) must be a small - medium single storey dwelling consisting of; • sheet roof, with truss spacing- 1200 and various roof pitches, noting roof profiles should cover 2 of the following: hip ends, dutch, gable or skillion • 4 bedrooms • more than two common truss spans • wind N3 rating • wind bracing -k bracing, strap bracing and sheet bracing, roof to have bracing where appropriate to design plan • appropriate tie downs ie: truss to wall, wall to slab • various eaves lengths (ie: no eave on garage) and a cantilever as per design requirements • loadbearing and non-load bearing walls, a raking wall, and wall heights to accommodate 2700 ceiling • different size openings for doors and windows, using different window and door manufacturer to task 1 • all trusses to include a girder option where appropriate to design plan
KNOWLEDGE EVIDENCE	The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and

	performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of: • Light gauge steel (LGS) terminology used in construction / engineering / manufacturing environments • types of externally sourced project design documentation used as input for detailing: – land survey drawings – contour drawing – soil reports – wind loading – structural engineering drawings – engineering reports – slab plans – architectural drawings • sources of project design documentation: – Engineers – Architects – Consultants – Builders • meanings of symbols and conventions used in project design documentation • common types of irregularities with project design documentation • technical computer aided design (CAD) software use, capabilities, import and transpose functions, building information modelling (BIM) integration • general software application, e.g. file integrity, file structures, file save and document control • sources of compliance information including: – National Construction Code (NCC) – Australian Standards – National Association of Steel Framed Housing (NASH) Standards • structural principles and material performance associated with LGS low rise Class 1a, 10 Building Structures • use and application of LGS technical concepts and compliance in construction including: – dissimilar metals – termite management – structural requirements – bushfire zones – fire separation – thermal breaks – insulated wall systems – moisture management

	– marine zones • quality and technical compliance requirements for LGS design • common building design compliance issues • organisational procedures relevant to building design project: – communication protocols for liaising with colleagues, external consultants and clients – approval processes – file naming, storing and saving systems and procedures – quality requirements – work health and safety requirements • (LGS) characteristics, grades, origins, properties, application • common cold form and hot rolled steel member dimensions • properties and / or profiles of structural steel in reference to integration with LGS framing • types of trusses and purlins • types of roof shapes • types of floors • features of structural and non-structural wall systems • types of bracing and tie downs and associated tolerances, allowances and clearances • detailing provisions for framing systems • detailing provisions for follow on trades and services, including: – heating / cooling / air conditioning (HVAC) – ventilation – plumbing – electrical – disabled access requirements • detailing for additional elements e.g. man-holes, attic ladders, wall niches, meter boxes, flat noggins • material storage and material availability • numeracy for LGS detailing including: – metric system of measurement, conversions – reference points – mathematical calculation methods / formula (e.g. perimeter, area, volume, dimensions, circumference, ratio, scale, allowances, load, percentage, cubic meters, lineal meters, geometry, trigonometry) • building element dissection considerations: – compliance – logistical appropriateness – on-site installation • communication principles and techniques • types of output documentation:

	– completed drawings, including layouts and fabrication sheets – site installation plans – installation manual – bill of materials and components
ASSESSMENT CONDITIONS	Skills in this unit must be demonstrated in the workplace or a simulated environment where the conditions replicate a LGS detailing work environment. Simulated assessment environments must model the real-life working environment where these skills and knowledge would be performed, with all the relevant equipment and resources of that working environment. Students must have access to suitable facilities, equipment and resources including: • architectural plans and associated input documentation • computer hardware • software to support access to relevant legislation and standards e.g. NCC, NASH • software that supports CAD applications • a person representing a client/ architect/engineer Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.