



Australian Government

Assessment Requirements for AURBTY002 Design and build bicycle frames

Release: 1

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Modification History

Release	Comment
Release 1	New unit of competency.

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- design and build two different bicycle frames to customer specifications, in which the frames must involve two of the following materials:
 - steel
 - titanium
 - composite
 - aluminium.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to building bicycle frames, including procedures for:
 - manually handling bicycle frames
 - identifying workplace hazards
 - using personal protective equipment (PPE)
- environmental requirements, including procedures for disposing of waste materials
- sources of information on bicycle frame design and components
- mechanical principles and requirements of bicycle frame systems and their relationship to braking, wheels, drivetrain and steering systems
- types of bicycle frames and their system components
- types and features of materials used in bicycle frames, including:
 - steel
 - titanium

- composite
- aluminium
- types and use of tools and equipment used to design and build bicycle frames
- procedures for sourcing bicycle parts and materials
- techniques for designing and building bicycle frames, including:
 - application of frame design principles
 - bicycle computer-aided design (CAD) drawing
 - using measurements of customer physical attributes, including:
 - height
 - body shape and weight distribution
 - length of arms and legs
 - using measurements to design a bicycle frame to meet customer requirements, including:
 - head tube length and angle
 - bottom bracket drop
 - seat tube length and angle
 - top tube length
 - saddle setback
 - chain stay length
 - fork rake or offset
 - fork trail and bicycle stability
 - frame construction procedures and techniques, including:
 - component specifications
 - painted, anodised, natural state or polished frame surface
 - welding and bonding techniques
- causes of frame failures and design alternatives to reduce failure.

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the bicycle frames they have designed and built, e.g. build orders.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- bicycle workplace or simulated workplace
- workplace instructions detailing job requirements and build instructions

- customer build requirements
- relevant technical information and bicycle frame component specifications
- PPE required to build a bicycle frame
- bicycle CAD or other design tools
- bicycle sizing measuring equipment
- bicycle parts and components to build two different bicycle frames specified in the performance evidence
- access to suppliers of bicycle parts
- tools and equipment appropriate for designing and building bicycle frames.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

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