

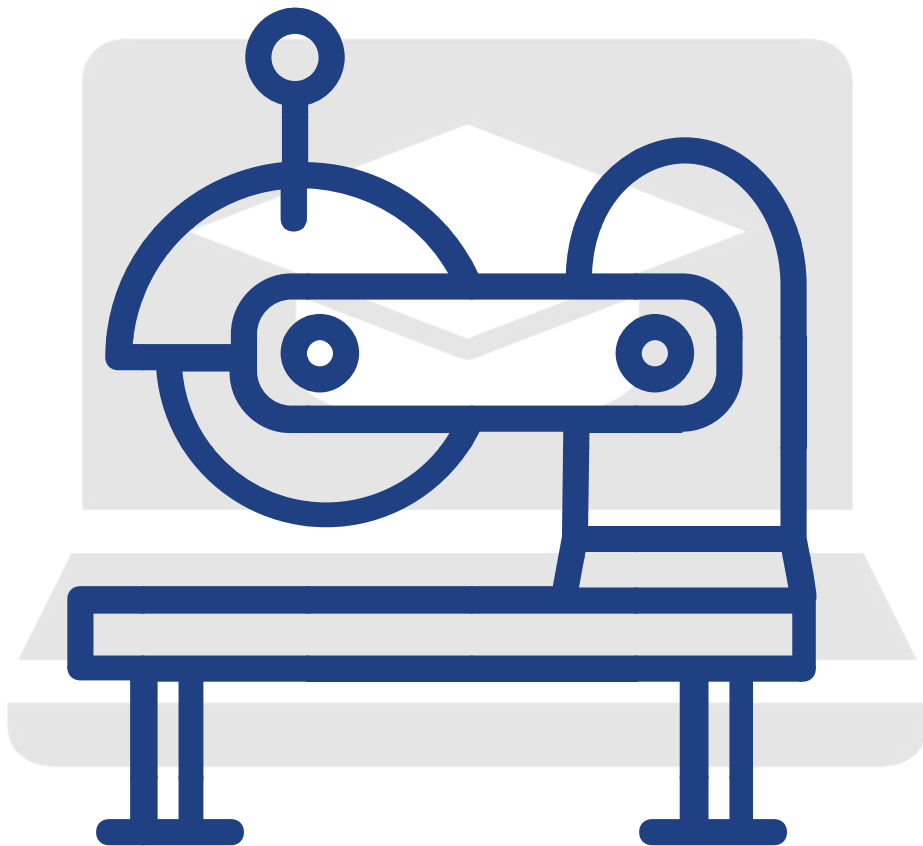


Fixed machinery

Teacher/Tutor resource

BCATS

BUILDING, CONSTRUCTION
AND ALLIED TRADE SKILLS



Unit Standard 24351 (v3), Level 2

Demonstrate knowledge of
and use fixed machinery in the
construction of BCATS projects

6 CREDITS

BCITO
buildingpeople

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(BCITO)**

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Teaching and assessment tips

Purpose

This unit standard credits a learner who is able to demonstrate knowledge of and use fixed machinery for two BCATS projects.

The examples provided in the student resource cover a range of fixed machinery. To include and describe every fixed machine used in the construction industry would make the student resource very long and tedious. Therefore, students are to take your guidance on demonstrating knowledge of and using fixed machinery appropriate for their projects.

Students need to:

- demonstrate knowledge of the setting up and safe operation of fixed machinery
- safely set up and correctly use fixed machinery for two BCATS projects
- describe how to maintain fixed machinery.

Unit Interpretation

Students must be able to demonstrate knowledge of setting up, the safe operation of, and maintenance requirements of at least **six** fixed machines for their two BCATS projects. They must provide evidence they have safely used at least four of them to complete their projects. Please see the Assessment Schedule at the end of this document for more-detailed requirements.

Fixed machinery may include - but is not limited to - thicknesser, band saw, bench grinder, drill press, horizontal borer, compound/mitre saw, lathe, surface planer, bench saw, CNC routers, laser cutters, table saw. However, this unit standard does not specify which fixed machinery must be used. This is to provide flexibility to choose fixed machinery appropriate for the two chosen projects.

Health and safety note

It is expected that teachers take into consideration *Safety in Technology Education: A Guidance Manual for New Zealand Schools 2017* and any subsequent versions of this document, available from Ministry of Education website (<https://education.govt.nz>).

There is some fixed machinery the guidance recommends are never used by school students. Learners who are assessed against this unit standard in a school may set up these machines ready for operation, and talk the teacher through how to use it as though they were using it themselves. It is not recommended they use these machines unless the individual school has formally given permission for them to do so. It is suggested that this permission comes from the Board of Trustees, who is the Person Conducting a Business or Undertaking under the Health and Safety at Work Act 2015.

You may wish to give your students a work diary to help them record the processes and problem solving that occurs throughout their projects. A work diary template is available in the 'Level 2 generic resources' folder on www.bconstructive.org.nz and in the teacher resources on www.myBCITO.nz. You can alternatively source or design your own.

The completed Knowledge Assessment Sheet and photographic or other evidence to show that two BCATS projects have been completed must be attached to the Assessor Observation Sheet.

Assessment

Information to support assessment decisions should, wherever possible, be collected naturally as the BCATS project progresses.

Assessment of this unit standard consists of:

- completion of the Knowledge Assessment Sheet and
- completion of two BCATS projects using fixed machinery and
- completion of the Assessor Observation Sheet.

Alignment with other unit standards

Developing programmes that integrate teaching and learning helps to provide students with meaningful and manageable learning opportunities. The following unit standards are not an exhaustive list of which you could include in your programme and nor should one feel obligated to offer all as linked units. Other unit standards you include will depend on your overall programme of study and what best meets your learners' needs.

Examples of other standards that could be offered concurrently are:

- 12932:** *Construct timber garden furniture as BCATS projects*
- 12935:** *Construct a spaced residential timber deck up to one metre high as a BCATS project*
- 12938:** *Lay paving blocks as a BCATS project*
- 12939:** *Construct a basic retaining wall as a BCATS project*
- 25921:** *Make a cupboard with a drawer as a BCATS project*
- 31812:** *Complete a BCATS project*

The projects specified in the unit standards above could all be appropriate for students' fixed machinery projects.

- 22607:** *Read and interpret plans, working drawings and specifications for BCATS projects*

Students need to select appropriate fixed machinery for their projects. Knowledge of how to read and interpret plans, working drawings, and specifications will help them determine which ones are needed.

- 24354:** *Demonstrate knowledge of health and safety legislation and apply safe working practices in the construction of a BCATS project*

Using fixed machinery safely and being safe while they complete their projects can contribute to this unit standard's requirements to apply safe working practices. In addition, none of the project-specific unit standards can be achieved without applying safe working practices.

- 12927:** *Demonstrate knowledge of, select, maintain, and use hand tools for BCATS projects*
- 24350:** *Identify, select, maintain and use power tools in the construction of BCATS projects*

Depending on the projects chosen, hand tools and/or power tools may be needed in addition to fixed machinery. While students may not necessarily complete the theory aspects of the above unit standards while focusing on their fixed machinery standard, they should be encouraged to document evidence of the hand and power tools they selected and used.

Assessment Schedule

US 24351 (v3) - Demonstrate knowledge of and use fixed machinery in the construction of BCATS projects (Level 2, Credit 6)

Fixed machinery may include but is not limited to: thicknesser, band saw, bench grinder, drill press, horizontal borer, compound/mitre saw, lathe, surface planer, bench saw, CNC routers, laser cutters, table saw.

Outcome 1	Demonstrate knowledge of the setting up and operation of fixed machinery. <i>Range – at least six fixed machines.</i>	Assessment evidence and judgement
PC 1.1	The machine's purpose, advantages and limitations are identified and described in terms of the manufacturer's instructions for use.	Evidence gathered from the Knowledge Assessment Sheet showing: <ul style="list-style-type: none"> the machinery's purpose, advantages and disadvantages were described accurate description of the correct set up and safe guarding of the machinery was described accurate description of the safe operation of the machinery was described appropriate PPE for the six fixed machines was identified and described. (PPE may include but is not limited to: eye protection, hearing protection, footwear, respiratory protection.)
PC 1.2	The correct set up and safe guarding of the machine are described.	
PC 1.3	The safe operation of the machine is described.	
PC 1.4	Items of personal protective equipment for use with fixed machines are identified and described.	
Outcome 2	Demonstrate procedures for the setting up of fixed machines. <i>Range – at least six fixed machines.</i>	Assessment evidence and judgement
PC 2.1	Machines are isolated from power supply throughout the setup procedures.	Evidence gathered from the Assessor Observation Sheet showing: <ul style="list-style-type: none"> power supply was isolated while machinery was being set up.
PC 2.2	Machines are set up in accordance with job requirements, supervisor's instructions and workplace practice.	Evidence gathered from the Assessor Observation Sheet showing: <ul style="list-style-type: none"> machinery was set up correctly.
Outcome 3	Demonstrate the correct use of fixed machines for the construction of BCATS projects. <i>Range – at least four fixed machines.</i>	Assessment evidence and judgement
PC 3.1	Machines and personal protective equipment are used in accordance with supervisor's instructions and workplace practice.	Evidence gathered from the Assessor Observation Sheet showing: <ul style="list-style-type: none"> machinery was used correctly and with appropriate PPE.
PC 3.2	The machined material is in accordance with job specifications.	Evidence gathered from the Assessor Observation Sheet showing: <ul style="list-style-type: none"> machined material is as per the job requirements.
PC 3.3	Machines and work area are cleaned and cleared after use in accordance with workplace practice.	Evidence gathered from the Assessor Observation Sheet showing: <ul style="list-style-type: none"> machines and work area were cleaned and cleared after use.
Outcome 4	Demonstrate knowledge of maintenance requirements for fixed machines. <i>Range – at least six fixed machines.</i>	Assessment evidence and judgement
PC 4.1	Maintenance requirements for cutting edges, saw teeth or grinder wheels are described in accordance with workplace practice.	Evidence gathered from the Knowledge Assessment Sheet showing: <ul style="list-style-type: none"> correct maintenance requirements for cutting edges, saw teeth or grinder wheels were described routine maintenance requirements were described.

