



BCATS

BUILDING, CONSTRUCTION
AND ALLIED TRADE SKILLS

Paving

Teacher/Tutor resource



Unit Standard 12938 (v5), Level 2

Lay paving blocks
as a BCATS project

4 CREDITS

BCITO
buildingpeople

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(BCITO)**

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Table of contents

	Page
Teaching and assessment tips	4
Alignment with other unit standards	7
Assessment schedule	8

Teaching and assessment tips

Purpose

This unit standard credits a learner who is able to lay paving blocks. The examples in the student handbook are mainly of projects that were constructed in consultation with Kaiapoi High School's Level 2 building class and their School Principal and Board of Trustees. It is to be expected that your students' project(s) will be designed to work within your school/community environment.

Students need to use project documentation to:

- calculate the quantities of materials needed
- prepare an order for materials
- excavate the area to be paved as per the project documentation
- lay and compact base course and sand as per the project documentation
- lay, compact and finish paving as per the project documentation and manufacturer's instructions
- complete all tasks safely
- keep their work area clean and tidy
- clean and store tools, plant and equipment correctly.

Unit Interpretation

The paving project is to be no less than one square metre. Please see the Assessment Schedule at the end of this document for more-detailed requirements.

Material orders must be calculated and prepared that includes bedding sand, jointing sand, base course and paving. The completed order must be attached to the Assessor Observation Sheet.

You may wish to give your students a work diary to help them record how they did their project. Work diary and order form templates are available in the 'Level 2 generic resources' folder on www.bconstructive.org.nz and in the teacher resources on myBCITO.nz. You can alternatively source or design your own.

Photographic or other evidence to show that the paving block project has been finished must also 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 an order, including calculations of materials quantities and**
- **completion of the paving block project and**
- **completion of the Assessor Observation Sheet..**

Handy hints from a fellow teacher

- Good relationships with the community and local businesses can result in donated and significantly discounted materials.
- Use crusher dust for bedding sand. It sets firm, is already damp, and is easy for the students to work.
- Students get a huge sense of pride when they can see what they are capable of achieving and from giving to their community. Involve the whole class in the design process. You may be pleasantly surprised with the ideas they come up with. This also helps them to understand what is to be achieved and generates a lot of the evidence required for US 24357 (Communication) and 24358 (Plan and monitor).
- Running out of space? There are few schools without many concreted areas. Cut sections out of the concrete to insert paved panels. These can be any shape or size that you choose to design. These sorts of projects are great as you can have groups of 3 or 4 students working on different areas around the school so everyone is busy.
- Think about how to stage different projects and how they'll complement each other once all are completed. For example, this overall project was broken into a range of mini projects that all came together to produce the final outcome.
- The first stage was the concrete block retainer walls. Foundations were poured first, then two courses of concrete blocks were laid and plastered. Hardwood tops were then added (12939 and 12933).
- The exposed ag concrete area was next boxed up and poured with a square of boxing in the center of each circle to allow for the pavers for the chess boards (12933). The pavers were then based up and laid (12938).
- The last stages were to make gabion baskets. A local metal fabrication business rolled the 40 x40mm durogalv box section for the frames which the students welded galv reinforcing mesh to. They then filled them with boulders and finally screwed on the hardwood seating (part of 24360).



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.

Level 2

12933: *Complete minor concrete works as a BCATS project*

As demonstrated in the previous page's example, it is easy to incorporate concrete works into a paving project.

24354: *Demonstrate knowledge of health and safety legislation and apply safe working practices in a BCATS environment*

Alongside the required theory component of US 24354, the construction of the paving project provides students with the opportunity to demonstrate safe practices.

24357: *Receive instructions and communicate information in relation to BCATS projects*

Projects where students need to work together to successfully complete them provide a lot of opportunities to demonstrate they can receive instructions and communicate well. The paving project can therefore be one of the projects contributing to the achievement of US 24357.

24358: *Plan and monitor the construction of a BCATS project, and quality check the product*

As students are required to work off a plan and specifications, calculate the materials required and prepare an order for materials, they are in a position to plan and monitor the stages of construction and perform the quality checks required for US 24358.

24360 *Demonstrate knowledge of timber and other construction materials used in BCATS projects*

Alongside the required theory component of US 24360, students' paving project will use a variety of timber and other construction materials.

24361 *Apply mathematical processes to BCATS projects*

Students need to select mathematical methods to achieve project outcomes and use trigonometry and at least one of numerical calculations, measurement, and geometry to achieve US 24361. Providing trigonometry is included in addition to the calculations of measurement, quantities, volumes, and area required to achieve US 12938, the paving project can be one of the two required to achieve US 24361.

Assessment Schedule

US 12938 (v5) - Lay paving blocks as a BCATS project (Level 2, Credit 4)

Outcome 1	Calculate quantities and prepare an order for materials for a paved area.	Assessment evidence and judgement
PC 1.1	Quantities of materials are calculated from BCATS project documentation.	Evidence gathered from student's calculations and the assessor observation sheet showing: <ul style="list-style-type: none"> quantities of sand, base course and paving are calculated correctly.
PC 1.2	An order for materials is prepared in accordance with workplace practice.	Evidence gathered using order list: <ul style="list-style-type: none"> order is legible and correct measurement units are used.
Outcome 2	Excavate, compact, and lay paving blocks.	Assessment evidence and judgement (photos to be attached)
PC 2.1	Area to be paved is excavated in accordance with BCATS project documentation.	Evidence gathered from the paving area project and the assessor observation sheet showing: <ul style="list-style-type: none"> excavation is neat and accurate.
PC 2.2	Base course and sand are laid and compacted in accordance with BCATS project documentation.	Evidence gathered from the paving area project and the assessor observation sheet showing: <ul style="list-style-type: none"> base course and sand are laid and compacted correctly.
PC 2.3	Paving is laid level and to line, compacted, and finished in accordance with BCATS project documentation and manufacturers' instructions.	Evidence gathered from the paving area project and the assessor observation sheet showing: <ul style="list-style-type: none"> paving is laid level and to line, compacted, and finished correctly.
Outcome 3	Complete work operations.	Assessment evidence and judgement
PC 3.1	All operations are safely completed in accordance with workplace practice.	Evidence gathered from the paving area project and the assessor observation sheet showing: <ul style="list-style-type: none"> appropriate PPE selected and used tools used correctly and safely personal safety and safety of others observed.
PC 3.2	Workplace, tools, plant and equipment are cleaned, and tools, plant and equipment stored in accordance with workplace practice.	Evidence gathered from the paving area project and the assessor observation sheet showing: <ul style="list-style-type: none"> work area cleaned waste disposed of tools, plant and equipment cleaned and stored correctly.