Title	**Use mathematics for construction**		
Level	**4**	**Credits**	**4**

Purpose	This unit standard aligns with the New Zealand Certificate in Carpentry – Specifications, developed on behalf of the construction industry to specify the skills and knowledge required to achieve the New Zealand Certificate in Carpentry (Level 4) [Ref: 2738]. This unit standard is intended for those working in the construction industry. People credited with this unit standard are able to use mathematics for construction to the level required of a commercially competent carpenter.

Classification	Construction Trades > Carpentry

Available grade	Achieved

Guidance Information

This unit standard is one of a family of standards that align with the *New Zealand Certificate in Carpentry – Specifications* and should be read, interpreted and assessed in the context of those *Specifications* and the New Zealand Certificate in Carpentry (Level 4) [Ref: 2738].

The overarching level of performance for the family of unit standards is commercial competence.

Commercial competence requires a candidate to be capable of consistently performing the requirements of the skill specification:

- to current regulatory, industry and commercial standards;
- within a commercially viable timeframe;
- in commercial environments;
- without supervision;
- in different and unfamiliar contexts.

The sufficiency of evidence required to demonstrate commercial competence against this unit standard is determined within the context of the family of unit standards aligned to the *Specifications*.

The assessor must be confident that the candidate is capable of applying the skills and knowledge included in this skill specification to the level, scope and complexity required to support the achievement of related skills included in the *Specifications*.

Commercial competence can only be demonstrated, and must be assessed, in the workplace.

The assessment of commercial competence must be corroborated and confirmed by a person who has current expertise in the carpentry trade and has had the opportunity to regularly observe the candidate in the workplace.

Reference
New Zealand Certificate in Carpentry – Specifications, BCITO, April 2018, available from www.waihangaararau.nz.

Skill specification and performance level guidance

Skill specification

Use mathematics for construction.

Know The different units of measurement and how they are used.

Conventions associated with the use of centres and spacings.

How to calculate area and volume.

Pythagoras' theorem and its practical application when building.

Trigonometric calculations to determine lengths and pitches.

How to use and apply percentages and ratios to building calculations.

Do Undertake measurements and calculations in one, two and three dimensions.

Use the mathematical principles associated with right-angled triangles to check for square and to calculate lengths and pitches.

Calculate physical quantities of materials.

Performance level guidance

Units of measurement include those used for length, weight, volume, time and temperature.

Calculations for area and volume include a variety of different shapes including rectangular, triangular and circular.

Measurements and calculations include using accepted conventions and making applicable allowances.

Physical quantities required to be calculated are those for specific components or building tasks rather than the list of materials required to construct an entire building.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	1 March 2018	31 December 2027
Rollover and Revision	2	15 December 2022	31 December 2027
Review	3	28 November 2024	31 December 2027

Consent and Moderation Requirements (CMR) reference	0048

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.