Title	**Demonstrate knowledge of construction requirements to provide detailing for lightweight timber-framed buildings**		
Level	**5**	**Credits**	**15**

Purpose	This unit standard is intended for those working in timber structure detailing. People credited with this standard are able to demonstrate knowledge of construction requirements to provide detailing for lightweight timber-framed buildings to the level of performance required of a professionally competent detailer.

Classification	Construction Trades > Carpentry

Available grade	Achieved

Guidance Information

1 Scope
The context of this unit standard is detailing in a manufacturing environment for the production of pre-nailed timber structures used for the construction of small buildings.

2 Assessment
This unit standard is intended to align with the *New Zealand Diploma in Timber Structure Detailing – Specifications* and the New Zealand Diploma in Timber Structure Detailing (Level 5) [Ref: 4377].

Evidence for this standard must reflect professional competence.

Professional competence refers to the ability to work independently in order to meet the ethical and professional expectations of industry and clients on dynamic and varied projects operating in a commercial environment.

Professional competence must be confirmed by a person with current expertise in the timber structure detailing trade.

3 Definitions
The *Legislative framework* refers to the hierarchy of Acts of Parliament, Regulations, Rules, local by-laws, Codes, Standards, approved codes of practice, and best practice guidelines.
Loads are a weight or force put on a building. There are two types of loads, a static load which is constant/permanent, or a variable load which comes and goes.
Load paths describes the direction of load transfer.
Small building is of residential scale with lightweight timber-framing and/or concrete or concrete masonry construction, and generally of non-specific design.

4 Legislation, standards and guidance information relevant to this standard includes the following; and any subsequent amendments and replacements.

New Zealand Diploma in Timber Structure Detailing – Specifications, BCITO, August 2021, available from www.waihanga.nz.

Legislation accessed at www.legislation.govt.nz
- Building Act 2004
- The New Zealand Building Code.

Standards accessed at www.standards.govt.nz
- NZS 3602:2003 *Timber and wood-based products for use in buildings*
- NZS 3604:2011 *Timber Framed Buildings.*

Skill specification and performance level guidance

Skill specification

Demonstrate knowledge of construction requirements to provide detailing for lightweight timber-framed buildings.

Knowledge

The construction principles, features, and methods required to form the envelope of residential scale light timber-framed buildings.

The requirements of, and how loads and load path distribution work on and within buildings to be structurally sound.

The ways construction methods are used to compensate for loads, and additional loads on a building.

Range size and configuration of foundations, framing members, fixing elements, bracing elements;
bracing elements must include – structural requirements, and stresses that occur in wall frames and roof trusses;
additional loads may include – snow, wind load, solar unit, hot water tank, air conditioning, spa, ceramic tiles.

The ways to identify the impact of, and how to meet the different zone requirements in New Zealand.

Range earthquake zone, corrosion zone, climate zone, wind region, and lee zone, wind zone, rainfall intensity.

The types, purpose and methods to construct different roof styles.

Range at least – truss roofs, pitch roofs, integration with other roof types.
methods include – fixing method, roof trusses used, roof orientation, fixing of roofing cladding.

The water penetration principles for construction of small buildings and how deflection, drying, drainage and durability of materials are used to manage water ingress.

Range capillary action, hydrostatic pressure, gravity, wind pressure, surface tension.

The construction requirements to meet ventilation, accessibility, and fire control obligations of small buildings.

The construction requirements of foundations, wall frames, bracing elements, and beams to meet the building legislative framework requirements of small buildings.

The ways in which the building design impacts energy efficiency in small buildings.

Range placement, heat transfer, thermal mass, insulation.

The ways in which the building design impacts sound control in small buildings.

Range material selection, sound control systems.

The relationship between two or more small building floors, and construction methods required to meet legislative requirements.

The purpose and properties of lintel fixings, stud plates, doors and windows in the design of small buildings.

The impact of sub-strata and subterranean conditions on the structural and construction requirements of buildings.

Range soil composition and compaction, proximity of the water table, potential for earthquake and geothermal activity.

How pre-nailed timber structures meet loading code requirements.

Range reactions, tension and compression, frequencies of vibration, loadings.

Performance level guidance

Performance must reflect a level of knowledge of lightweight-framed timber buildings to understand the background and determinations to provide detailing solutions for commercially viable structures in accordance with the New Zealand building legislative framework.

Planned review date	31 December 2026

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	16 December 2021	N/A

Consent and Moderation Requirements (CMR) reference	0048

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

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@waihanga.nz if you wish to suggest changes to the content of this unit standard.