Title	**Demonstrate knowledge of stair and ramp construction**		
Level	**4**	**Credits**	**4**

Purpose	People credited with this unit standard are able to describe requirements relevant to the construction of: timber stairs, formwork for in situ concrete stairs, timber ramps, and formwork for in situ concrete ramps; and describe procedures for maintaining health and safety requirements when constructing stairs and ramps.

Classification	Construction Trades > Carpentry Theory

Available grade	Achieved

Guidance Information

1 Definition
Specific design is a design that ensures compliance with the Building Act 2004 when the construction requirements of a building deviates from, or is beyond the scope of recognised industry standards (New Zealand Standards, Australia/New Zealand Standards, British Standards and other published standards that govern the construction industry).

2 For the purpose of this unit standard, a ramp means an inclined surface connecting different levels. This may be a ramp on the ground or a suspended ramp, but may not be a sloping footpath. Descriptions of stairs and ramps built on the ground must include the support structure for the stairs or ramp, and not rely on the contour of the ground.

3 Credit for this unit standard indicates compliance with industry practice. *Industry practice* refers to the ability to demonstrate knowledge that reflects the uniformity, finish quality and material economies currently accepted within industry.

4 Legislation relevant to this unit standard includes:
Health and Safety in Employment Act 1992 and Health and Safety in Employment Regulations 1995;
Building Act 2004;
Resource Management Act 1991;
New Zealand Building Code;
NZS 3604:1999 *Timber Framed Buildings* and NZS 3109:1997 *Concrete construction*, available from Standards NZ (http://www.standards.co.nz).

Outcomes and performance criteria

Outcome 1

Describe requirements relevant to the construction of timber stairs.

Performance criteria

1.1 Types of stairs are identified and described in terms of their features and uses.

Range straight flights, quarter turn, dog-leg, three-quarter turn, geometrical, spiral, open riser, tread and riser.

1.2 Technical terms are explained as they relate to the construction of stairs.

Range stringers (strings), risers, treads, pitch, going, nosing, headroom, landing, wedges and blocks, machining of stair components, balustrades, handrails, winders, newel posts, accessible stairs.

1.3 Construction of timber stairs is described in terms of the requirements of the Building Code.

1.4 Methods of calculating quantities of materials for stair construction are described, and accurate sample calculations performed in accordance with industry practice.

Outcome 2

Describe requirements relevant to the construction of formwork for in situ concrete stairs.

Range stairs on ground, suspended stairs.

Performance criteria

2.1 Technical terms are identified as they relate to the construction of formwork for concrete stairs.

Range stairs on ground – risers, waist, reinforcing, footings, required going, finish, bracing, hardfill;
suspended stairs – soffits, bracing, bearers, falsework, risers, waist, reinforcing, required going, finish.

2.2 Construction of formwork for concrete stairs is described in terms of design requirements.

2.3 Methods of calculating quantities of materials for concrete stair formwork construction are described, and accurate sample calculations performed in accordance with industry practice.

Outcome 3

Describe requirements relevant to the safe construction of timber ramps.

Performance criteria

3.1 Technical terms are explained as they relate to the construction of timber ramps.

Range gradient, footings, timber framing, decking, balustrades, handrails, landings, slip resistance, upstands, accessible ramps.

3.2 Construction of timber ramps is described in terms of the requirements of NZS 3604:1999 or specific design.

Outcome 4

Describe requirements relevant to the construction of formwork for in situ concrete ramps.

Performance criteria

4.1 Technical terms are explained as they relate to the construction of formwork for concrete ramps.

Range slip resistance, handrails, upstands;
suspended ramps only – falsework, gradient, footings, reinforcing, finish, bearers, bracing, soffits;
ramps on ground only – gradient, footings, reinforcing, finish, bracing, hardfill.

4.2 Construction of formwork for concrete ramps is described in terms of design requirements.

Outcome 5

Describe procedures for maintaining health and safety requirements when constructing stairs and ramps.

Performance criteria

5.1 Procedures for maintaining health and safety requirements when constructing stairs and ramps are described.

Range work methods, plant, equipment, identification of hazards and controls.

Replacement information	This unit standard replaced unit standard 13025.

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	25 January 2008	31 December 2023
Review	2	30 September 2021	31 December 2023

Consent and Moderation Requirements (CMR) reference	0048

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