

Achievement Standard

Subject Reference	Construction and Mechanical Technologies 3.24		
Title	Demonstrate understanding of a structural system		
Level	3	Credits	3
		Assessment	Internal
Subfield	Technology		
Domain	Construction and Mechanical Technologies		
Status	Registered	Status date	4 December 2012
Planned review date	31 December 2019	Date version published	17 November 2016

This achievement standard involves demonstrating understanding of a structural system.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of a structural system. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of a structural system. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of a structural system.

Explanatory Notes

- This achievement standard is derived from Level 8 of the Technology learning area in *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007; and is related to the material in the *Teaching and Learning Guide for Technology*, Ministry of Education at <http://seniorsecondary.tki.org.nz>.

Further information can be found at <http://www.technology.tki.org.nz/>.

Appropriate reference information is available in *Safety and Technology Education: A Guidance Manual for New Zealand Schools*, Ministry of Education at <http://technology.tki.org.nz/Curriculum-support/Safety-and-Technology-Education>, and the Health and Safety at Work Act 2015.

This standard is also derived from *Te Marautanga o Aotearoa*. For details of *Te Marautanga o Aotearoa* achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Demonstrate understanding of a structural system involves:*
- explaining the structural members and materials that are used to achieve a structural system
 - explaining how a structural system has been designed to withstand known load requirements and dynamic loads using technical language, diagrams and symbols as appropriate
 - discussing the structural integrity of a structural system and how this impacts on the selection of structural members, and construction materials and techniques.

Demonstrate in-depth understanding of a structural system involves:

- discussing how the structural members and materials work together to enable a structural system to achieve structural integrity
- evaluating the structural integrity of a structural system.

Demonstrate comprehensive understanding of a structural system involves:

- discussing and justifying possible ways of increasing the structural integrity of a structural system.

- 3 A *structural system* refers to any technological outcome where the structural integrity is of primary concern. Examples of structural systems: bicycles, cars, aircraft, buildings, bridges, cranes, marquees, bodices, sails, scaffoldings, staging, lighting and/or sound rigs.
- 4 Dynamic loads acting on a structural system may include those resulting from changes in heat, wind, velocity, g-force, tension, and earth movement.
- 5 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-aligned-standards/Technology/Level-3-Technology>.

Replacement Information

This achievement standard and AS91625 replaced AS90688 and unit standard 13413.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233