

7 Methods Describe structural component fabrication processes and on-site construction methods

Kaupae Level	4
Whiwhinga Credit	5
Whāinga Purpose	<p>This skill standard recognises the knowledge required for detailing structural component fabrication and on-site construction.</p> <p>This skill standard may contribute to the New Zealand Diploma in Detailing (Structural) (Level 5) with strands in Light steel, Structural steel, Precast concrete, and Reinforcement steel [Ref:4515].</p>

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Describe fabrication processes for common structural components.	a. Methods of structural component fabrication described meet accepted industry practice and standards.
	b. Industry guidelines for procurement and quality control of materials align with industry standards.
2. Describe handling, transportation and storage considerations for structural components.	a. Handling methods for structural components meet accepted industry practice and standards.
	b. Storage methods for structural components meet accepted industry practice and standards.
	c. Transportation methods for structural components meet accepted industry practice and standards.
3. Describe commonly used on-site construction methods for structural components.	a. Methods of on-site construction comply with accepted industry practice and standards.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

Fabrication processes for light steel, heavy steel, and reinforcement steel and precast concrete structural components.

On-site construction methods construction methods for light steel, heavy steel, and reinforcement steel and precast concrete structural components.

Handling, transportation and storage considerations for light steel, heavy steel, and reinforcement steel and precast concrete structural components.

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content**Fabrication methodology**

- Pre-fabrication considerations – procurement, quality assurance.
- Component fabrication processes.
 - Steel (hot rolled, cold formed).
 - Cutting, folding, bending.
 - Computer Numerically Controlled (CNC).
 - Welding, drilling, fixings.
- Precast concrete and its components.
- Concrete casting, formwork & falsework.

Steel Fabrication

Cutting, forming, joining and surface treatment.

Precast Concrete Manufacture

Formwork, installing and fixing steel reinforcement, placement, finishing and curing.

Quality control

- Inspection and Test Plan (ITP) - Material certifications, Concrete testing (onsite, offsite), Welding.
- Third party testing / Review.
- Shop drawing review processes.
- Workshop certification / audits.
- Coordination between structure and other disciplines.

Construction processes

- On-site processes.
- Pros and cons of off-site **verses** on-site manufacture.
- Applied Tolerances.
- In-situ - tilt panels, trusses, frames.
- Temporary works – propping.
- Safe on-site construction practice.
- Temporary state vs permanent state, construction loads and their effect.
- Stud welding

Component handling and logistics

- Lifting / Rigging and crane requirements
- Storage.
- Transport.
- Loading & unloading.
- Paint protection.
- Centre of gravity calculation.
- Hazards and safety practices.

Rauemi | ResourcesProgramme guidance available from qualifications@waihangaararau.nz**Pārongo Whakaū Kounga | Quality assurance information**

Ngā rōpū whakatau-paerewa |
Standard Setting Body

Waihanga Ara Rau Construction and
Infrastructure Workforce Development
Council.

Commented [MM1]: versus

Whakaritenga Rārangī Paetae Aromatawai DASS classification	Planning and Construction > Construction
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0048

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	<type here>	[dd mm yyyy]	[dd mm yyyy]
Arotakenga Review	<type here>	[dd mm yyyy]	[dd mm yyyy]
Kōrero whakakapinga Replacement information	<type here>		
Rā arotake Planned review date	[dd mm yyyy]		

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@waihangaararau.nz to suggest changes to the content of this skill standard.