

40578 Produce a drawing set for a structural system using computer-aided design software

Kaupae Level	5
Whiwhinga Credit	10
Whāinga Purpose	This skill standard is for people intending to complete qualifications and credentials in structural detailing. This skill standard recognises the skills required to produce a drawing set for fabrication and construction of a structural system using computer-aided design (CAD) software. This skill standard aligns with the New Zealand Diploma in Detailing (Structural) (Level 5) with strands in Light Steel Frame, Reinforcing Steel, Structural Steel, and Precast Concrete [Ref: 4515].

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

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Produce a fabrication drawing set for structural components using computer-aided design software.	a. Contract conditions are interpreted to produce a fabrication drawing set which enables the fabrication of designed components to specification.
	b. Drawing sets are produced to optimise fabrication sequencing and material use.
2. Produce an on-site drawing set for construction of a structural system using computer-aided design software.	a. Drawing sets are produced to optimise sequencing of on-site construction.
	b. Drawing sets are produced to comply with industry standards.

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

Assessment specifications:

A complete drawing set will include general notes, plan drawings, elevation drawings, section drawings, detail drawings, assembly drawings, fabrication drawings, connection details, annotation and dimensioning, and a revision history, and title block, and may include specifications, reinforcement drawings (for concrete structures), reports and bill of materials (BOM).

Evidence must include printed, PDF and CAD file copies of the common drawing set of a structure comprising one or more of the following: concrete with steel reinforcement, heavy steel, or light steel framing components.

On-site construction refers to the construction of structural components that have been pre-manufactured off-site.

Fabrication refers to manufacture or production of structural components off-site.

A complete structural drawing set contains parts, assemblies and layout drawings that enable part production and assembly of the parts aligned to design documentation.

- A **heavy steel** shop drawing would show sizes, dimensions, locations, materials, finishes, cleats, stiffeners, welds, bolts, studs, weights, marks, title block, quality check.
- A precast **concrete** shop drawing would show cut and bent reinforcement steel, reinforced concrete elements, cast in weld plates, anchors, rebates, bolts, inserts, penetrations, surface finishes, strongbacks, tendons, propping, marks, title block, quality checks.
- A **light steel** shop drawing would show sizes, dimensions, locations, materials, finishes, plates, screws, bolts, weights, marks, site instructions, title block, quality checks.
- A **reinforcement steel** detail sheet would show cut and bend schedules, bar size, length and grades, coatings.

Ngā momo whiwhinga | Grades available.

Achieved

Ihirangi waitohu | Indicative content

Drawing set

- Fabrication drawing set requirements.
- On-site construction drawing set requirements.
- Conforming with design documentation.
- Fabrication/shop drawings based on 3D model.
- Assembly/erection drawings based on 3D model.
- Component lists/take-offs for procurement, fabrication, and construction process.
- Material lists, schedules, concrete reinforcement and cutting schedules, material specification, quality checking.
- Reports – BOM, Assembly, parts, fixings.
- Drawing file format and presentation – PDF, DWF, DWG.
- Industry relevant software systems –. AutoCAD, Revit, Forma, Advance Steel, Tekla, Prosteel, E3D, BIMDex, BoCAD.

Sequencing considerations

- Transport constraints and limitations.
- Sequencing for fabrication.
- Handling and movement within plant.
- Movement to site, unloading and erection.
- Loading and slinging, rigging.
- Plant and labour considerations.
- Treatment considerations.

Rauemi | Resources

Programme guidance available from qualifications@waihangaararau.nz.

Pārongo Whakaū Kouna | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Waihanga Ara Rau Construction and Infrastructure Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Planning and Construction > Construction > Core Planning and Construction
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0120

Hātepe Process	Putanga Version	Rā whakaputa Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	25 September 2025	N/A
Kōrero whakakapinga Replacement information	N/A		
Rā arotake Planned review date	31 December 2030		

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.