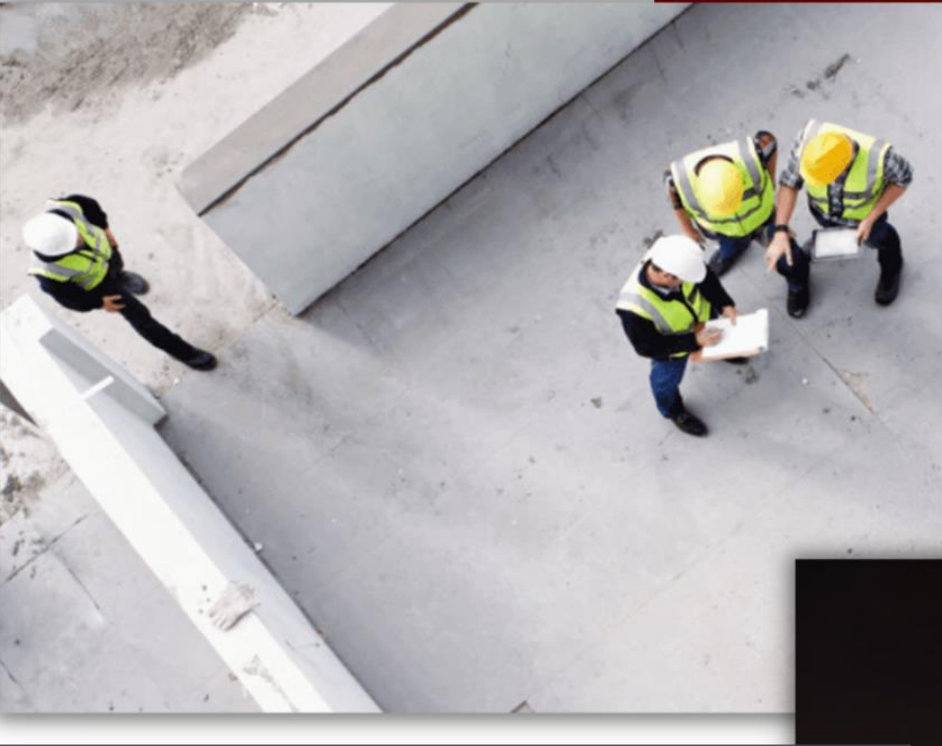


Australian Standard for Structural Steel Work Construction Categories (CC1)-(CC4)



Newsletter

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CRISP
LAW

In this Newsletter, we introduce the Australian standard for structural steel Construction Categories (CC1) -(CC4) compliance requirements.

A focus of the construction industry for many years now has been the certification of building elements and systems. Building practitioners must be aware of the certification regime required for “structure construction categories” (CC) to be able to assess the design requirements sufficiency of its specifications and certification requirements.

A recent Crisp newsletter has explored the safety in design requirements for building elements of structures, particularly in light of the due diligence obligations imposed on directors and officers of a building company.

In this related Crisp newsletter, we look at the certification regime for structural steelwork. It is worth repeating that all directors’ and officers’ due diligence obligations must include the certification described below as part of satisfying those safety in design obligations.

Steelwork Compliance Australia (SCA) provides a Certificate of Compliance for Structural Steelwork, for the supply, fabrication, and erection of structural steelwork in Australia. SCA provides customers with the ability to choose steelwork fabricators that have been independently assessed as achieving compliance with the Australian Standards required to complete the CC for their project.¹

The current standard which has applied since August 2020 is the AS/NZS 5131 Structural Steelwork Fabrication and Erection replacing the Code of Practice (CoP),² for the purposes of Certification under the **ASI National Structural Steelwork Certification Scheme (NSSCs)** (published on 8 December 2016).³

This standard required engineers to specify the steel fabrication Construction Category (CC) in their project specifications. The Construction Category specify on the correct level of quality and security controls to be in place to secure the structure meets the engineer’s design assumptions and the level of risk mitigation under obligations imposed in the Workplace Health & Safety Act.

The **Australian Steel Institute (ASI)**, the main body for the steel industry established the Scheme in reply to government, industry, fabricator, and stakeholder complaints regarding non-compliant products in the construction industry, imported materials and products.⁴

¹ <https://www.precisionmetalgrou.com/congrats-on-certificate-of-compliance-for-structural-steel-work-fabrication-and-erection-as-5131-cc3/>

² Changes to AS 4100 and AS/NZs 5131, at: <https://content.hobson.com.au/documents/article-changes-to-as4100-2011231.pdf>

³ AS/NZS 5131 Structural Steelwork – Fabrication and Erection replacing the Code of Practice (CoP) p.2.

⁴ Steel compliance Australia, “certification and introduction of AS/NZS 5131 essential changes”, <http://www.scacompliance.com.au/wp-content/uploads/2014/06/Summary-of-Main-Changes-to-NSSCS-via-Introduction-of-AS-NZS-5131.pdf>

The applicable law

In August 2020 Standard Australia released an amendment to AS/NZS 5131 and revised AS 4100 to reference AS/NZS 5131. Both standards work together to set up detailed guidance for the design, fabrication, and erection of steel structures in Australia.⁵ The New National Construction Code (NCC) was updated in 2022 with the AS 4100:2020 referenced, formatting AS/NZS 5131 as a secondary reference under the NCC.⁶ Fabrication and Erection now directly reference as AS/NZS 5131:2016 making its use mandatory.⁷

The new National Construction Code (NCC) 2022 Volumes 1 & 2 will reference the new version of AS 4100: 2020 Steel Structures, requiring all material to be fabricated in accordance with AS/NZ 5131: 2016 Structural Steelwork Fabrication and Erection.

➤ Engineering Responsibilities under AS/NZS 5131

The design engineer's responsibilities under AS/NZS 5131 contract and the recent revision of AS 4100 include the following:

1. Nominating 'Construction Category' for a particular structure or component therein.
2. Ensuring the construction specification has suitable wording to reference the Standard and the necessary project-specific detail selections.
3. Check the submittals for materials and fabrication to confirm conformity (if contracted to do so). If the fabricator is certified, the documentation provided will be available, complete, and verifiable.
4. Providing project-specific certification as required.⁸

➤ Responsibilities of other stakeholders

Compliance requires all stakeholders in the supply chain to meet requirements, to assure the timeliness and veracity of information and adjust the performance expectations implicit in AS 4100 and AS/NZS 5131.

➤ The Builder's Responsibilities

- meeting the requirements of the Construction Category nominated by the engineer.
- Employs fabricators that have the demonstrated capability of producing to the required construction category.

⁵ Changes to AS 4100 and AS/NZs 5131, at: <https://content.hobson.com.au/documents/article-changes-to-as4100-2011231.pdf>

⁶ Changes to AS 4100 and AS/NZs 5131.

⁷ Changes to AS 4100 and AS/NZs 5131.

⁸ AS/NZS 5131 - Structural Steelwork Fabrication and Erection Implementation Guide For Engineers, Specifiers And Procurer, at: p3.

- Directs that the requisite project-specific compliance documentation is to be assembled, packaged, and submitted to regulatory authorities (usually building certifiers).
- Achieve compliance with the Work Health Safety (WHS) Act, in particular, the duty of care for product compliance.

Construction categories

Construction categories comprise all structural steelwork design and fabrication standards, these categories are risk-based -fit for all purposes approach for assessing the design requirements and specifications of the structure.⁹ The risk matrix was introduced with the AS/NZS 2131 and is now included in the AS 4100.

A baseline of a lot of traceability has been set for CC2- CC4, there is no specified traceability requirement for CC1. The New amendment provides the specifier more control over the traceability requirements with a choice to specify increased requirements for the required design category.¹⁰ Amended so that simple structures of importance level 3 under the NCC may be classified as either CC2 or CC3 rather than only CC3.

Assessing the Construction Category

The assessment of the Construction Category for the project or components of the project utilises is a risk matrix with three factors, introducing the structure importance level from the National Construction Code (NCC).

There has been a small but important change to the risk matrix used to assess the Construction Categories. For structures that are Importance Level 3 under the NCC, and with simple construction, the recommendation has changed from “CC3” to “CC2/CC3” with a note to allow engineers to specify CC2 where the construction is simple (reference made to **schedule A**). This change will have a significant impact on increasing the range of structures that CC2 fabricators can rightly work with.¹¹

Generic classification of structure types

Each structure should be classified into a construction category based on the project-specific aspects and how they affect the three input factors used to calculate the Construction Category.¹² The Construction Category specifies the correct level of quality and assurance

⁹ Changes to AS 4100 and AS/NZs 5131.

¹⁰ Changes to AS 4100 and AS/NZs 5131.

¹¹ 5131-4100-2020-Update-Final.pdf <https://www.steel.org.au/ASI/media/Australian-Steel-Institute/PDFs/5131-4100-2020-Update-Final.pdf>

¹² AS/NZS 5131 - Structural Steelwork Fabrication and Erection Implementation Guide For Engineers, Specifiers And Procurer.

controls to be in place to ensure the structure meets the engineer's design assumptions and the level of risk mitigation under obligations implicit in the Workplace Health & Safety Act. The AS/NZS 5131 2016-contract defines the construction categories (reference made to **Schedule A** to the newsletter).

Qualification for Certification

Construction Category 1, certification is available to Licensees who can demonstrate to the satisfaction of the SCA Manager that:

- a) The management system and experience of the business can comply with the requirements of the Structural Steelwork Fabrication and Erection Code of Practice and the relevant Australian Standards to the level required.
- b) The fabricator has successfully completed the Stage 1(Desktop) Audit Phase of the Scheme to achieve initial Certification and has subsequently completed any further Surveillance, Special or Re-Certification Audits.
- c) It complies with the conditions of these Rules.
- d) Relevant fees have been received by the SCA.¹³

Construction Categories 2, 3 and 4, certification is available to Licensees who can demonstrate to the satisfaction of the SCA Manager and the Governing Committee, that:

- a) The management system and experience/capability of the business can support the requirements of the Structural Steelwork Fabrication and Erection Code of Practice and the relevant Australian Standards.
- b) The fabricator has successfully completed the Stage 1 (Desktop) and Stage 2 (Site) Audit Phase of the Scheme to achieve initial Certification and has subsequently completed any further Surveillance, Special or Re-Certification Audits
- c) It can achieve and sustain the quality of the product and service to consistently meet the employer / Licensee's specified contractual requirements.
- d) It complies with the conditions of these Rules.
- e) Relevant fees have been received by the SCA.¹⁴

¹³ SCA-MAN-002-Rev-1-3-Rules-of-Steelwork-Compliance-Scheme.pdf, p.6.

¹⁴ Ibid.

Schedule A

The classification of typical structures

Construction Category	Typical structures
1.	<ul style="list-style-type: none"> • Gates, handrails, agricultural buildings (no people congregating), greenhouses
2.	<ul style="list-style-type: none"> • Commercial, residential, and educational buildings, not exceeding 15 storeys • Hospitals and healthcare facilities with a capacity of less than 50 residents and not having surgery or emergency treatment facilities • Warehouses • Industrial buildings
3.	<ul style="list-style-type: none"> • Bridges • Structures or sub-structures designed for fatigue actions • Commercial, residential, and educational buildings of 15 storeys or greater • Hospitals with surgery or emergency treatment facilities • Healthcare facilities having a capacity of more than 50 residents • As specifically required in authority construction specifications
4.	<ul style="list-style-type: none"> • Structures with extreme consequences of structural failure • As required by national or project-specific provisions • Special structures (long-span bridges, power stations etc.)

AS/NZS 5131 2016 defines construction categories as follows:

3.1.7 Construction category

Classified set or requirements specified for the construction of the works as a whole, of an individual component or detail of component.

NOTE: Both ISO 239 and European Standard use the term 'execution' to describe all activities performed for the physical completion of the works (i.e. procurement, fabrication, welding, mechanical

fastening, transportation, erection, surface treatment and the inspection and documentation) and this term may be considered equivalent to 'fabrication and erection'.

'Execution Class' (EXC) is the term used in European Standards to refer to a risk-based categorization of a structure, similar in intent to the construction category adopted in this Standard. It should be noted, however, that the two categorizations are not based on the same risk matrix assessment and cannot be used interchangeably".

4.1.2 Construction category

Four construction categories denoted CC1, CC2, CC3, and CC4 are nominated in this Standard, for which requirements increase in strictness from CC1 to CC4.

NOTE: the requirement for CC4 are additional for CC3. The additional requirement for CC4 are not fully defined in this standard. CC4 applies to unusual or special structures for which it is expected that requirements additional to those for CC3 will be defined at a project specific level or by a particular organisation, agency or business.

A construction category shall apply to either the whole structure or to parts of the structure or specific details. A structure may therefore have multiple construction categories, provided that all parts of the structure are categorized. A detail or group of details will normally be described one construction category. The choice of construction category does not necessarily have to be the same for all components.

The construction category shall be nominated in the construction specification. If no construction category is specified, then CC2 shall apply.

The list of requirements related to construction categories is specified in Appendix B, paragraph B4.

NOTE: Guidance on the selection of construction category is given in Appendix C. The choice of construction category is related to the importance factor, the service category and the fabrication category as set out in Appendix C.