

AS/NZS 4671:2019

# STEEL FOR THE REINFORCEMENT OF CONCRETE

## WHAT BUILDING PRACTITIONERS NEED TO KNOW?

### GUIDANCE NOTE



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ISBN: 978-0-908956-88-3 (print)

ISBN: 978-0-908956-89-0 (online)

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## PURPOSE OF THIS GUIDANCE NOTE

To provide a summary of the key changes from the previous version of *AS/NZS 4671:2001 Steel reinforcing materials* and what building practitioners need to know as the new version of *AS/NZS 4671:2019 Steel for the reinforcement of concrete* is now referenced in the *New Zealand Building Code* system.

## WHO IS THIS GUIDANCE NOTE FOR?

This guidance note is for reinforcing suppliers, reinforcing processors, structural engineers, building officials and contractors.

## INTRODUCTION AND BUILDING CODE SYSTEM STATUS

AS/NZS 4671 is a Standard that specifies the requirements for the chemical composition, mechanical properties and geometric properties of steel used for reinforcing concrete.

The Standard is cited in *NZS 3101 Concrete structure* and *NZS 3109 Concrete construction* and provides a means of demonstrating compliance with the *New Zealand building code*.

A revision of the previous version of the 2001 version commenced in 2017 and the new version of AS/NZS 4671:2019 was published in December 2019.

In April 2021 the building regulator undertook its annual *Building Code* system update consultation. This consultation included the proposal to reference the new version of AS/NZS 4671 in the building code system.

At the time of writing the reference of AS/NZS4671 in the *Building Code* system is expected to be effective from 29 November 2021 with a one-year transition where either the 2001 or the 2019 version of AS/NZS 4671 can be used as a means of demonstrating compliance.

# KEY CHANGES FROM THE PREVIOUS VERSION OF AS/NZS 4671

- The changes are generally minor with a focus on clarification and editorial improvements from the previous 2001 version. There is still general alignment with other international Standards such as *ISO 6935-1:2007 Steel for the reinforcement of concrete — Part 1: Plain bars* and *ISO 6935-2:2019 Steel for the reinforcement of concrete — Part 2: Ribbed bars*, but is not classed as an equivalent due to:
  - other international Standards not containing specific requirements appropriate for earthquakes; and
  - numerous differences in text and numerical values.
- The title of the Standard has changed – the 2001 version was *AS/NZS 4671:2001 Steel reinforcing materials*.
- The document has incorporated most of the provisions for structural mesh developed by MBIE and included in their *B1/VM1 Verification method amendment 14* document that was issued in November 2016. These modifications will be removed from the B1/VM1 document.
- The use of long-term quality (LTQ) as the preferred method of demonstrating product conformance has been emphasized. To support the adoption of LTQ, requirements have been redefined to include:
  - Sampling and testing detailed by product group,
  - type testing; and
  - batch testing – allows slightly increased batch result variation as long as LTQ levels are achieved.
- AS/NZS 4671:2019 requires that testing is performed by laboratories in accordance with *ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories*. Laboratories with accreditation by International Accreditation New Zealand (IANZ) or other internationally recognised accreditation bodies verifies that this is being done.
- Reinforcement that is supplied in coil to a reinforcing processor shall be straightened and aged before testing for conformance with AS/NZS 4671:2019.
- A 50 mm bar size for New Zealand application (500E) is included in the new version.
- For New Zealand reinforcing (Class E) an alternative measure of proof stress has been selected to ensure that the reported results better represent the true material properties when no lower yield stress is able to be determined.
- Minimum elongation requirements for plain 300E reinforcing steel have changed from 15 percent  $A_{gt}$  to 12 percent  $A_{gt}$ .
- An optional manufacturer's conformity report has been introduced to relate LTQ parameters and state conformity, replacing the batch test report (test certificate). Minimum requirements on the conformity reports also include characteristic values (i.e. LTQ based data), mill identification marks, grade identification marks, form of product i.e. bar, coil, mesh, decoiled, weld shear strength (for mesh only), laboratory accreditation, the party assessing conformity (first party or third party).

For more details on the changes contained in the new version of AS/NZS 4671 refer to [Palmer \(2019\)](#).

# KEY MESSAGES

- It is important to note that from 29 November 2021 to 28 November 2022 that either the 2001 version or the 2019 version of AS/NZS 4671 can be used as a means of demonstrating compliance.

This is to allow for existing reinforcement steel stock assessed for conformity to the previous version to be used up and allow reinforcement suppliers and reinforcing processors to adapt their manufacturing processes to the requirements of the 2019 version.

- A key message for structural engineers and other designers is to update their specifications to reference the new version of AS/NZS 4671:2019.
- It will be important for main contractors to understand the LTQ plans that reinforcing suppliers and processors have in place when engaging them for the supply of reinforcing steel.

This will ensure that their processes align with the 2019 requirements when the 2019 requirements are specified for a project.

Verifying that testing is performed by the reinforcing supplier in accordance with ISO 17025:2017 is imperative.

- It may be the case that during the transition period that the contractor and its supply chain confirm that the reinforcing supplied for a project complies with the previous version of AS/NZS 4671 when the project documents specify that compliance with the new 2019 version of AS/NZS 4671 is required.

Any specific compliance issues for that project should be treated on a case-by-case basis but it is expected that as long as the reinforcement steel complies with the previous version it will meet the *New Zealand building code*.



# REFERENCES

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