

Structures

Master Specification

ST-SC-S6 Steel Reinforcement

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Contents

Contents	3
ST-SC-S6 Steel Reinforcement	4
1 General	4
2 Quality Requirements	4
3 Supply and Placement of Reinforcing	4
4 Measurement	5
5 Hold Points	5
6 Verification Requirements and Records	5

ST-SC-S6 Steel Reinforcement

1 General

- 1.1 This Part specifies the requirements for the supply and placement of reinforcing steel used for the reinforcement of concrete structures. Refer to ST-SC-C1 "Pre-tensioned Concrete" and ST-SC-C2 "Post Tensioned Concrete" for requirements for steel prestressing materials.
- 1.2 Documents referenced in this Part are listed below:
- a) AS 1554.3 Structural Steel Welding - Welding of Reinforcing Steel.
 - b) AS 4671 Steel Reinforcing Materials.
 - c) AS 3600 Concrete Structures.
 - d) AS 5100 Bridge Design.
 - e) Australasian Certification Authority for Reinforcing and Structural Steels (ACRS), available from <https://www.acrs.net.au/>.

2 Quality Requirements

- 2.1 The Contractor shall prepare and implement a Quality Plan that includes detailed procedures for:
- a) verifying that the reinforcing has been fabricated and placed within the specified tolerances and providing documentary evidence of conformance.
- 2.2 If not provided beforehand, the procedures shall be submitted at least 28 days prior to the commencement of site work. Provision of the procedures listed in this Clause shall constitute a **Hold Point**.

3 Supply and Placement of Reinforcing

General

- 3.1 The reinforcing shall comply with AS 4671 and shall be fabricated and installed in accordance with AS5100.1 (highway related structures) or AS 3600 (all other structures) as appropriate. The Contractor shall provide certification that the reinforcing complies with AS 4671.
- 3.2 Manufacturers and processors of steel reinforcement shall hold a valid certificate of approval issued by the Australasian Certification Authority for Reinforcing and Structural Steels (ACRS). Refer to <https://www.acrs.net.au/>. Provision of this certification shall constitute a **Hold Point**.
- 3.3 If Bar Bending Schedules are not supplied by the Principal, the Contractor shall supply copies of the Bending Schedules at least 2 working days prior to delivery of bars to the site. Provision of the Contractor's Bending Schedules shall constitute a **Hold Point**.

Fabrication and Bending

- 3.4 Reinforcement which requires fabrication or bending to shape shall be supplied in the full length shown on the drawings. Reinforcement shall be cold bent to the specified shape. Bars shall not be bent after fabrication unless shown on the drawings.
- 3.5 Straight bars shall be supplied to the full lengths shown on the drawings. Where lapping of straight bars is unavoidable, such laps shall be staggered and a minimum of two wire ties placed at each lap.

Welding of Reinforcement

- 3.6 Welding of reinforcement shall not be used unless prior approval has been obtained. If approved, the welding shall be in accordance with AS1554.3. Any permitted tack welding shall be performed such that no loss of section of bars occurs. High strength bolts or rods cast into concrete shall not be welded.

- 3.7 Submission of a proposal for any welding of reinforcement shall constitute a **Hold Point**. Where appropriate, the proposal shall be supported by evidence that the welding will not be detrimental to the performance of the structure.

Placing and Fastening

- 3.8 Steel spacers (including plastic coated or tipped) shall not be used to maintain cover. Parallel layers of reinforcement shall be held in their correct relative positions by steel spacers only. If mortar block spacers are used to maintain cover, the blocks shall have properties at least equal to that of the surrounding concrete as specified and their colour and cement type shall be the same as that of the surrounding concrete.
- 3.9 Provision of evidence that mortar block spacers comply with this Clause shall constitute a **Hold Point**.

Cover and Tolerances

- 3.10 The cover (or "clear cover") as stated on the drawings, shall be the clear distance from the face of any reinforcement, wire ties for fixing reinforcement, formwork fixings or similar metal work to the nearest concrete surface. Tolerances on the position of reinforcement controlled by cover in bridge deck slabs shall be 5 mm. The Contractor's Quality system shall provide documented evidence that the reinforcement has been placed within the specified cover and tolerances.

4 Measurement

- 4.1 If the reinforcement mass has been provided by the Principal in the Schedule of Rates or Bill of Quantities, it has been calculated from the net lengths shown on the drawings excluding laps, hooks, bends, cogs and wastage and from the nominal bar diameters.

5 Hold Points

- 5.1 The following is a summary of Hold Points referenced in this Part:

Document Ref.	Hold Point	Response Time
2.2	Submission of Procedures	7 days
3.2	Certification of compliance with AS 4671 and ACRS	1 day
3.3	Provision of the Contractor's Bending Schedules	1 day
3.7	Proposal to weld reinforcing bars	3 days
3.9	Evidence of compliance of mortar block spacers	1 day

6 Verification Requirements and Records

- 6.1 The Contractor shall supply the following records:

Table ST-SC-S6 6-1 Verification Records

Document Ref.	Subject	Record to be Provided
3.1	Compliance with AS 4671 and ACRS	Certificate of conformance to AS 4671 and ACRS
3.10	Cover and Tolerances	Evidence of Conformance