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ERECTION OF STRUCTURAL ALUMINIUM

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IC-DC-B261

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FOREWORD

RMS COPYRIGHT AND USE OF THIS DOCUMENT

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When this document forms part of a deed

This document should be read with all the documents forming the Project Deed.

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BASE SPECIFICATION

This document is based on Specification RMS B261 Edition 3 Revision 0.
RMS SPECIFICATION D&C B261
ERECITION OF STRUCTURAL ALUMINIUM

1 GENERAL

1.1 SCOPE

This Specification sets out the requirements for the erection of structural aluminium in bridges or associated structures, including expansion joints.

1.2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

1.2.1 (Not Used)

1.2.2 (Not Used)

1.2.3 Schedules of HOLD POINTS and Identified Records

The schedules in Annexure B261/C list the HOLD POINTS that must be observed. Refer to Specification RMS D&C Q6 for the definition of HOLD POINTS.

The records listed in Annexure B261/C are Identified Records for the purposes of RMS D&C Q6 Annexure Q/E.

1.2.4 Referenced Documents

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 1234). For convenience, the full titles are given in Annexure B261/M.

1.2.5 Definitions

The terms “you” and “your” mean “the Contractor” and “the Contractor’s” respectively.

1.3 PLANNING DOCUMENTS

The PROJECT QUALITY PLAN must include each of the documents and requirements listed in Annexure B261/D and must be implemented.

Supply, as part of your PROJECT QUALITY PLAN, details of proposed erection equipment and proposed erection method which must include, but not be limited to, the following:

(a) Details of proposed erection equipment, including:

(i) Type and capacity (at operating radius) of lifting equipment;

(ii) Site set-up of lifting equipment, including plan and elevation sketches, assessment of supporting ground conditions, and minimum clearances to aerial electrical cables;
(iii) Length and slope of slings, diameter and safe working capacity of slings, and sling force;
(iv) Lifting device on member, lifting points, and measures to prevent damage to protective coatings;
(v) Welding equipment and bolting equipment;
(vi) Lighting equipment if applicable;
(vii) A certificate and calculations by an Engineer who is a Member of Engineers Australia with experience in this field to verify that the equipment nominated will be used within safe working capacities.

(b) Details of proposed erection method, including:
(i) Falsework details including design calculations and certification by an Engineer who is a Member of Engineers Australia with experience in this field verifying that the falsework has been designed in accordance with the relevant Australian Standards;
(ii) Method of stabilising or bracing members during storage, assembly and erection;
(iii) Method of positioning of bearings;
(iv) Method of determining and adjusting profile;
(v) Method of alignment of components;
(vi) Method and order of assembly including temporary fixing;
(vii) Bolting procedures including method of aligning holes, method of marking bolts, tightening and records;
(viii) Storage of components;
(ix) Record forms;
(x) Removal of falsework;
(xi) A certificate from an Engineer who is a Member of Engineers Australia with experience in this field verifying that the proposed erection methods conform to the Specification and the requirements of the Work Health and Safety Act.

2 **HANDLING AND STORAGE**

At all times, handle and store structural aluminium members so that the material, protective coatings and parts are kept clean and free from damage.

Place aluminium to be stored on supports above the ground. Place and store girders and beams upright. Prefabricated truss segments may be stored in the horizontal position. Adequately support all members and segments at points sufficiently close together to prevent damage from deflection.

Sort and store all small articles, such as bolts, loose splice plates etc above ground.

3 **POSITIONING OF BEARINGS**

To allow for the change in length of the members under dead load and temperature variations, position the bearings so that the horizontal distance between the centres of base plates is as shown on the Design Documentation drawings at the specified temperature.
Correct measurements for conditions different to that for which the measuring equipment is calibrated.

Minor variations in the bearing heights or grades must be taken up in the mortar pad.

4 EXPANSION JOINTS

The expansion joint details have been dimensioned for the mean temperature shown on the Design Documentation drawings. To allow for the changes in length caused by temperature variations, place the expansion joints so that the clear distance across the expansion gap will be as shown on the Design Documentation drawings at the specified temperature.

Set the dimension of the expansion gap within the following tolerances:

- for spans < 50 m: – 0, + 5 mm
- for spans > 50 m: – 0, +10 mm

5 TEMPORARY SUPPORTING STRUCTURES

Arrange the supports for members with provision for fine adjustment to achieve the required profile detailed on the Design Documentation drawings.

Submit a certificate by a qualified Surveyor eligible for membership of the Institution of Surveyors, Australia or the Institution of Engineering and Mining Surveyors, Australia verifying that the profile of the formwork is in accordance with the profile shown on the Design Documentation drawings. Detail allowances for settlement and joint take-up.

HOLD POINT

Process Held: Erection of structural aluminium.

Submission Details: A certificate in accordance with Clause 5.

Release of Hold Point: The Nominated Authority will examine the certificate and may carry out surveillance and audit, prior to authorising the release of the Hold Point.

6 ASSEMBLY

6.1 GENERAL REQUIREMENTS

Give the Project Verifier five working days notice of your intention to commence assembly of members.

Accurately assemble the members and/or components as shown on the Design Documentation drawings using the identification marks. Handle the material carefully so that individual parts will not be bent, twisted or damaged in any way.
Wherever necessary, fix adequate temporary bracing to the aluminium to ensure that the parts that have been erected are stable and will not be overstressed. Leave such temporary bracing in position until sufficient permanent bracing has been installed.

6.2 BOLTED CONNECTIONS

6.2.1 General Requirements

Bolts used for the erection of structural aluminium must be made from stainless steel conforming to ASTM A276 Grade 316 and must be in accordance with RMS D&C B240. Bolts must be copper free. Joints must be bearing-type joints.

6.2.2 Tightening Method

Tighten bolts to "snug tight" condition as defined in AS 5100.6.

Check the "snug-tight" condition on joints containing more than eight bolts by a second run over the bolts.

6.2.3 Certification of Bolting

Submit a certificate by an Engineer who is a Member of Engineers Australia with experience in this field to verify that the bolting was carried out in accordance with the Specification.

7 CERTIFICATION OF PROFILE

Submit a diagram certified by a qualified Surveyor eligible for membership of the Institution of Surveyors, Australia or the Institution of Engineering and Mining Surveyors, Australia that sets out the profile of the completed member(s) in relation to the profile shown on the Design Documentation drawings.

8 REMOVAL OF TEMPORARY SUPPORTING STRUCTURES

Remove all temporary structures and construction equipment before final acceptance.

Remove bed logs, temporary piles and trestles, temporary concrete bases, etc used in the construction operation.

Do not support or attach equipment for pulling piles or for removing falsework to any portion of the new structure.
ANNEXURES B261/A TO B261/B – (NOT USED)

ANNEXURE R261/C – SCHEDULES OF HOLD POINTS AND IDENTIFIED RECORDS

Refer to Clause 1.2.3.

C1 SCHEDULE OF HOLD POINTS

<table>
<thead>
<tr>
<th>Clause</th>
<th>Description</th>
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<tr>
<td>5</td>
<td>Falsework Profile</td>
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C2 SCHEDULE OF IDENTIFIED RECORDS

The records listed below are Identified Records for the purposes of RMS D&C Q6 Annexure Q/E.

<table>
<thead>
<tr>
<th>Clause</th>
<th>Description of Identified Record</th>
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<tbody>
<tr>
<td>6.2.3</td>
<td>Certificate by a qualified Engineer to verify that the bolting was carried out in accordance with the Specification</td>
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<td>Diagram certified by Surveyor that sets out the profile of the completed member(s) in relation to the profile shown on the Design Documentation drawings</td>
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ANNEXURE B261/D – PLANNING DOCUMENTS

Refer to Clause 1.3.

The following documents are a summary of documents that must be included in the PROJECT QUALITY PLAN. The requirements of this Specification and others included in the deed must be reviewed to determine documentation requirements in addition to the following:

The information to be submitted as part of the PROJECT QUALITY PLAN must include, but is not limited to, the following:

(a) Details of the proposed erection equipment and proposed erection method (Clause 1.3);
(b) Details of method of handling and storage of structural aluminium members (Clause 2);
(c) Details of temporary supporting structures (Clause 5)
ANNEXURES B261/E TO B261/L – (NOT USED)

ANNEXURE B261/M – REFERENCED DOCUMENTS

Refer to Clause 1.2.4.

RMS Specifications

RMS D&C Q6 Quality Management System (Type 6)
RMS D&C B240 Supply of Bolts Nuts Screws and Washers

Australian Standards

AS 5100 Bridge design
AS 5100.6 Steel and composite construction

ASTM Standards

ASTM A276 Standard Specification for Stainless Steel Bars and Shapes

NSW Government

Work Health and Safety Act 2011