

SECTIONS
130 - 134

**INSPECTION OF NEW STEELWORK, PRECAST
CONCRETE, TREATMENT AND WATERPROOFING
PROTECTIVE**

SECTION 130

GENERAL REQUIREMENTS FOR INSPECTION

Definitions

- 1** The following definitions shall apply:
- (i) Contractor shall mean the company or person carrying out the construction of the Works, including any fabrication or manufacturing sub-contractor,
 - (ii) Inspector shall mean the competent person who is to carry out the inspection of the Works,
 - (iii) Non compliance shall mean a deviation from the requirements of the contract for the works, including but not limited to the specification, contract drawings, agreed methods of working or procedures etc,
 - (iv) Site Management contractor shall mean the contractor employed to provide management services for the construction of the works,
 - (v) Verification shall mean the activities required to ensure that a process output meets the specification or other input requirements,
 - (vi) Works shall mean the structure, including its materials and components, to be inspected.

(130.001)

**Scope of
Inspection**

- 2** The Works to be inspected comprise :

- (i) **(INSERT),**
- (ii) **(INSERT),**
- (iii) **(INSERT).**

The Inspector shall verify that the Works have been carried out in accordance with the specification for materials and workmanship and the contract drawings for the Works. Any non compliances with the specification for materials and workmanship or the contract drawings shall be identified and reported to the Site Management contractor or the Employer's Representative as applicable.

The Inspector shall not accept or reject work on behalf of the Site Management contractor or the Employer's Representative.

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The Inspector shall provide the Site Management contractor when required with advice on matters relating to materials and workmanship, programme, method statements or any other matter relating to the Works in order that the specification for the Works may be met.

(130.002)

**Checking of
fabrication
drawings**

- 3** The Inspector shall check the fabrication drawings and report all errors, omissions, and discrepancies with the specification or contract drawings shown on the fabrication drawings or any other matter relating to the Works which might prevent compliance with the specification for the Works. The Inspector shall not approve fabrication drawings.

(130.003)

**Checking of
method
statements**

- 4** The Inspector shall check method statements for the fabrication or manufacture of the Works, and shall identify and report bad practices proposed to be used in respect of the technical aspects of the proposed method statements and any incorrect sequences of fabrication or any other matter relating to the Works which might prevent compliance with the specification for the Works. The Inspector shall not approve method statements.

(130.004)

**Competency of
Inspector(s)**

- 5** The curriculum vitae of the Inspector(s) shall be submitted with the Tender and shall include, in addition to criteria considered relevant by the Contractor, details of the Inspector's experience of:

- (i) inspection of works for railway construction,
- (ii) inspection of works of a similar nature,
- (iii) certification of competency in inspection and testing procedures,
- (iv) **(INSERT)**.
- (v) professional qualifications.

(130.005)

**Inspection
procedures and
plan**

- 6** The procedures used for the Inspection shall be approved to BS EN ISO 9002 or BS EN ISO 9003 by a body accredited by the United Kingdom Accreditation Service (UKAS) or other quality systems that can be demonstrated to the Employer's Representative to be equivalent.

The draft inspection plan shall be submitted with the Tender, and shall include:

- (i) details of Inspector(s) to be used,
- (ii) schedule of inspections and checks related to items to be inspected,
- (iii) outline checklists,
- (iv) reporting procedure,

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(v) format for inspection reports.

Within 14 days of the award of the Contract, the final inspection plan shall be issued for the consent of the Site Management contractor.

(130.006)

**Inspection
schedule**

7 Assuming a manufacturing period of **(INSERT)** weeks, the inspection schedule shall allow for the minimum number of visits shown in Table I30/I.

Table I30/I	
Item	No. of Visits
General Preliminary	
Fabrication Drawings	-
Works Inspection	1
Equipment Inspection	1
Steelwork	
Materials and Welding Procedures Audit	1
Materials Inspection	1
Preparation Audit	1
Preparation Inspection	1
Process Inspection - Welding	1
Process Inspection - Other	1
Completed Item Checks	1
Concrete	
Remedial Works	1
Materials Audit	1
Formwork Fabrication	2
Reinforcement Fixing	1
Prior to Casting	1
Casting	10
Stripping of Formwork	1
Curing	1
Completed Item Checks	1
Remedial Works	1
Protective Treatment and Waterproofing	
Materials Audit	1
Preparation Inspection	1
1st Coat Inspection	1
2nd Coat Inspection	1
3rd Coat Inspection	1
4th Coat Inspection	1
Site Coat Inspection	1
Galvanising Inspection	1
Waterproofing Membrane Inspection	1
Waterproofing Protection Inspection	1
Remedial Works	1
General Completed Item	
Trial Erection	2
Site Erection (Non-Possession)	2
Site erection (During Possession)	1

(130.007)

**Location of
Inspections**

8 The **(INSERT)** are to be manufactured at :
(INSERT).

The Works will be temporarily (trial) erected at :

(INSERT).

Protective treatment will be applied at:

(INSERT).

Waterproofing will be applied at:

(INSERT).

The Works will be permanently erected at:

(INSERT).

(130.008)

Inspection reports

9 Signed inspection reports shall be provided weekly to:

- (i) the Site Management contractor,
- (ii) the Employer's Representative.

The format for inspection reports shall be agreed with the Employer's Representative.

In default the inspection report shall be based on the model given in Appendix 130A.

(130.009)

SECTION 131

INSPECTION OF NEW STEELWORK

Materials verification

10 Checks for verification of steelwork materials to be used in the Works shall include the following:

- (i) material certificates including mill certificates shall be inspected to verify compliance with the specification,
- (ii) material dimensions including plate thickness and size shall be confirmed as delivered,
- (iii) surface condition shall be checked visually for surface lamination and shelling and evidence of repair welding shall be reported,
- (iv) internal imperfections shall be checked either by inspection of manufacturers test results or by verification of the contractor's method of testing,
- (v) marking of steelwork shall be verified against the material certificates and evidence of hard-die stamping shall be reported,

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- (vi) bolt and fastener certificates shall be inspected to verify compliance with the specification including single sourcing,
 - (vii) bolt and fastener sizes and grades shall be verified against the contract drawings for the Works,
 - (viii) bolt and fastener surface condition shall be verified against the contract drawings for the Works,
 - (ix) proprietary bearing details shall be checked for compliance with the specification,
 - (x) **(INSERT)**.
- (131.001)

**Preparation
verification
welding**

- I I** Checks to verify weld preparation shall include the following:
- (i) weld preparation shall be inspected and verified against the approved welding procedures,
 - (ii) welding consumables certification shall be verified against the approved welding procedures,
 - (iii) storage of welding consumables from receipt to time of use shall be verified against the manufacturer's recommendations,
 - (iv) **(INSERT)**.
- (131.002)

**Preparation
verification -
dimensional**

- I 2** Checks of the preparation of steelwork shall include the following:
- (i) Identical machined parts shall be inspected to verify compliance with the contract drawings for the Works and the specification:
 - up to 4 No, 100%
 - plus between 5 - 20, 50%
 - plus over 21, 10%
 - (ii) all cut areas shall be inspected visually to verify compliance with the specification,
 - (iii) cold sawn edges shall be inspected for flatness and position,
 - (iv) holes for rivets and bolts shall be inspected for size, location and condition.
 - (v) flame cut and sheared edges shall be inspected for presence of defects and preparation for further processing,
 - (vi) finish of ground edges and surfaces shall be inspected for dimensional accuracy and condition,
 - (vii) bending and pressing shall be verified against the approved procedures and checked for dimensional accuracy,

.....

(viii) **(INSERT).**

(131.003)

**Process
specification
verification**

I3 Checks to verify the specifications for the fabrication process shall include the following:

- (i) welding procedures shall be reviewed to confirm approval by an independent inspection authority acceptable to Railtrack has been obtained, and control of welding procedures shall be verified,
- (ii) welding procedures shall be reviewed by a competent welding engineer to ensure that the welding procedures to be used are applicable to the various weldments,
- (iii) welding approval tests certification shall be reviewed to ensure that tests have been satisfactorily carried out for all welding procedures,
- (iv) welding qualification shall be reviewed to verify that all welding operatives are suitably qualified,
- (v) welding equipment certification shall be inspected to verify that equipment is suitable and consistent with the various procedures,
- (vi) flame cutting and shearing procedures shall be reviewed to confirm approval by independent authority acceptable to Railtrack,
- (vii) flame cutting and shearing equipment certification shall be reviewed to verify that equipment is suitable,
- (viii) bending and pressing procedures shall be reviewed to confirm approval by an independent inspection authority acceptable to Railtrack,

(ix) **(INSERT).**

(131.004)

**Process
verification**

I4 Checks to verify the fabrication process shall include:

- (i) drawings shall be checked to verify that current issues only are being used and that fabrication drawings have been approved,
- (ii) jigs and fixtures shall be inspected to confirm suitability and adequacy,
- (iii) assembly fit up shall be inspected prior to welding to confirm compliance with approved welding procedures,
- (iv) fit of bearing stiffeners shall be checked by feeler gauge inspection prior to welding to confirm compliance with the specification,