



सत्यमेव जयते

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अनुसंधान अभिकल्प और मानक संगठन
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No. CBS/Insp/WBG

1. General Manager (Con.) N.F.Railway, Maligaon, Guwahati-781011

2.

| Railway | Principal Chief Engineers | Chief Administrative Officers/ Con. |
|--------------------|--|--|
| Central | Mumbai CST-400001 | New Administrative Building, Mumbai CST-400001 |
| Eastern | Fairlie Place, Kolkata-700 001. | 14, Strand Road, Kolkata-700001 |
| East Central | Hazipur-844 101. (Bihar) | Mahendru Ghat, Patna-800004 (Bihar) |
| East Coast | Rail Vihar, Bhubaneshwar-751 016 (Odisha). | Rail Vihar, Bhubaneshwar- 751016 (Odisha) |
| Northern | Baroda House, New Delhi- 110 001 | Kashmere Gate, Delhi- 110006 |
| North Central | Subedar Ganj, Allahabad-211 001. | Subedar Ganj, Allahabad- 211001 |
| North Eastern | Gorakhpur-273 001. | Gorakhpur-273001 (U.P.) |
| Northeast Frontier | Maligaon, Guwahati-781 011 | Maligaon, Guwahati- 781011 |
| North Western | Jaipur-302017(Rajasthan) | Jaipur-302017(Rajasthan) |
| Southern | Park Town, Chennai-600 003 | Egmore, Chennai-600008 |
| South Central | Rail Nilayam, Secunderabad-500 371 | Rail Nilayam, Secunderabad-500371 |
| South Eastern | Garden Reach, Kolkata-700 043 | Garden Reach, Kolkata-700 043. |
| South East Central | Bilaspur-495 004 | Bilaspur-495004 |
| South Western | Hubli-580023 | 18, Millers Road, Bangalore-560046 |
| Western | Churchgate, Mumbai-400020 | Churchgate Station Building, Mumbai-400020 |
| West Central | Jabalpur-482001 | Jabalpur-482001 (M.P.) |

Sub: Avoiding use of pitted/corroded steel plates and surface preparation of steel for fabrication and painting for railway bridges.

Ref: Railway Board's letter No. 2015/CE-lil/BR/RDSO Misc dt. 08.06.2016

1. Vide letter under reference, Railway Board have communicated their observation that structural steel brought to site/workshop for fabrication of steel girders is not in good condition sometimes and have desired that suitable instructions are required to be issued to all zonal railways:

- for not using corroded/pitted steel plates/members as the same may lead to undesirable consequences.
- On storage of steel
- On preparation of steel for bridge girder fabrication and painting
- On proper set of instruction/guidelines for selection, evaluation, rejection (if required), storage and preparation of steel for bridge girder fabrication and painting.

RDSO-3

2. RDSO has gone through the codal provisions, specifications, guidelines and instructions available on the matter. These are reiterated for guidance of zonal railways.
3. Fabrication of steel girder bridges for use over Indian Railways shall be done as per the provisions of IRS: B1 (Fabrication Specification) and IRS welded Bridge Code.
4. RDSO's Report No. BS-110 (Guide lines on Fabrication of Steel Girders for Construction/Field Engineers) was prepared and circulated to zonal railways in year 2011. This report has been recently reviewed and revised. Revised version of BS-110/R is available on RDSO's web site (intranet 10.100.2.19 and internet of B&S Directorate, RDSO) for necessary guidance and use of all concerned.

RDSO's opinion on Railway Board's reference

5. Use of corroded/ Pitted steel plates/ members

As per item (E), requiring attention by field/workshop engineers during fabrication of steel girders of RDSO's report No. BS-110/R (Guidelines on Fabrication of Steel Girders for Construction/Field Engineers) visual inspection of steel shall be done to ensure that steel is free from surface defects like pitting, laminations, imperfect edges, twist, other harmful defects etc. As such material free from these surface defects should only be used in fabrication of steel girders.

6. On Stacking of Material

Provisions for stacking of materials are available in para 4 of IRS-B1 Specification.

7. Preparation of steel for bridge girder fabrication

As per the A & C slip No.08 to IRS B1 specification, all girder components are required to be metalized in workshop and the provisions for surface preparation as under:

(i) Surface Preparation

- (a) Remove oil/grease from the metal surface by using petroleum hydrocarbon solvent to IS: 1745.
- (b) Prepare the surface by sand or grit blasting to Sa 2-1/2 to IS:9954 i.e. near white metallic surface.

(ii) Pictorial Standards of Cleanliness and Blast-Cleaning to Sa Standards are available in ISO: 8501-1 and this book is available with on line purchase facility.

8. Further instruction in above respect:

RDSO has studied the matter and is of the opinion that there is no confusion in field regarding conditions for supply and stacking of steel. However, there are

issues relating to storage and use of steel if some time interval is there between supply of steel and fabrication work.

In this connection, the following instructions are issued:

- (i) When a steel plate/rolled section/fabricated member is taken for further fabrication activities, it shall be inspected fresh for any defects on account of storage/corrosion etc. as per clause 4 of IRS B1-2001. This is especially important if considerable time gap is there between different activities.
- (ii) In no case, steel/members pitted due to corrosion shall be taken up for further fabrication. To ensure that such rejection does not take place, the following action is recommended:
 - (a) Proper storage shall be ensured as per para 4 of IRS B1-2001
 - (b) If the area is corrosion prone due to high moisture in atmosphere or being in coastal/industrial area etc. the steel shall be painted/coated suitably to avoid corrosion from setting in short term corrosion protection may be provided by linseed oil coating as per para 217(i) (vi) of IRBM. Longer term protection can be provided by paints only.
 - (c) For material stacked while awaiting further fabrication activities, regular inspection shall be done once in six months to check if any corrosion is setting in and suitable remedial measures shall be taken to remedy if any onset of corrosion is noticed.
 - (d) While determining if a section/member is pitted or not, visual comparison of surface shall be made with pictorial standards as per ISO8501-1 and steel as per grade A/B shall only be considered suitable for further use.



(A.K. Dadarya)
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