राजेश कुमार श्रीवास्तव
Rajesh Kumar Srivastava
कार्यकारी निदेशक/पुल एवं संरचना
Executive Director/B&S

सत्यमेव जयते

भारत सरकार रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
**Government of India-Ministry of Railways**
**Research Designs & Standards Organisation**
**Lucknow- 226011**
**Phone / Fax : 0522-2450398**
**Email : edbsrdso@gmail.com**

पत्र सं: CBS/ PBR

दिनांक : 26.12.2024

**Principal Chief Engineers:**

1. Central Railway, Mumbai CST - 400 001
2. Eastern Railway, Fairlie Place, Kolkata - 700 001
3. East Central Railway, Hazipur - 844 101
4. East Coast Railway, Bhubaneshwar - 751 016
5. Northern Railway, Baroda House, New Delhi - 110 001
6. North Central Railway, Allahabad - 211 001
7. North Eastern Railway, Gorakhpur - 273 001
8. Northeast Frontier Railway, Maligaon, Guwahati - 781 061
9. North Western Railway, Jaipur - 302 001
10. Southern Railway, Park Town, Chennai - 600 003
11. South Central Railway, Rail Nilayam, Secunderabad - 500 371
12. South East Central Railway, Bilaspur - 495 004
13. South Eastern Railway, Garden Reach, Kolkata - 700 043
14. South West Railway, Hubli - 580 023
15. Western Railway, Mumbai - 400 020
16. West Central Railway, Jabalpur - 482 001
17. Metro Railway, Jawaharlal Nehru Road, Kolkata – 700 071

विषय : RDSO Addendum & Corrigendum Slip (A&C) slip No.53 to IRS Bridge Rule.

संदर्भ : Railway Board's letter No.2024/02/CE-III/BR/Bridge Rule Correction Slip (E3469222) dated 24.12.2024.

In reference to above, Addendum & Corrigendum Slip No.53 dated 26.12.2024 to IRS Bridge Rules is being sent herewith for your information and necessary action please.

संगलक : Copy of A&C Slip No.53 to IRS Bridge Rule.

26/12/2024

(राजेश कुमार श्रीवास्तव)
(Rajesh Kumar Srivastava)
कार्यकारी निदेशक/पुल एवं संरचना
(Executive Director/B&S)

15. Western Railway, Mumbai - 400 020
16. West Central Railway, Jabalpur - 482 001
17. Metro Railway, Kolkata – 700071

**(D) Commissioner of Railway Safety:**

1. Chief Commissioner of Railway Safety, N.E. Railway Office Compound, Ashok Marg, Lucknow – 226002
2. Central Circle, 2nd Floor, Churchgate Station Building Mumbai - 400020
3. Eastern Circle, Multistoreyed Building of Eastern Railway, 12th Floor, Strand Road, Kolkata - 700001
4. Northern Circle, near Centre for Railway Information System, Safdarjung Railway Station, New Delhi - 110021
5. North Eastern Circle, DRM Compound, Northern Railway, Hazratganj, Lucknow - 226001
6. Northeast Frontier Circle, 12 Strand Road, Multistoryed Building of Eastern Railway, Kolkata - 700001
7. Southern Circle, 7 Seshadri Road, Gandhi Nagar, Bangalore - 560009
8. South Central Circle, Opp. Rail Nilayam, Sarojini Devi Road, Secunderabad - 500 071
9. South Eastern Circle, 14 Strand Road, Multistoryed Building of Eastern Railway, Kolkata-700001
10. Western Circle, 2nd Floor, Churchgate Station Building Annexe, Maharishi Karve Road, Mumbai-400020.

**(E) Railway PSUs & Others:**

1. The Managing Director, RITES LTD, RITES Bhawan, Plot No.1, Sect.29, Gurgaon (Haryana) - 122001
2. The Managing Director, IRCON, Palika Bhawan, Sector-XIII, R.K. Puram, New Delhi - 110066
3. The Chairman & Managing Director, Konkan Railway Corporation Ltd., Belapur Bhavan, Plot No. 6, Sector-II CBD Belapur, Navi Mumbai - 400 614
4. The Managing Director, Rail Vikas Nigam Ltd., Ist floor, August Kranti Bhawan, Bhikaji Coma Place, Africa Road, R.K. Puram, New Delhi - 110 016
5. The Managing Director, DFCCIL, 5th Floor, Pragati Maidan, Metro Station Building Complex New Delhi - 110001
6. The Managing Manager, Delhi Metro Rail Corporation Ltd., NBCC Place, Bhishma Pitamah Marg, Pragati Vihar, New Delhi - 110003

**प्रतिलिपि:**

**(A)**
1. Additional Member (Civil Engg.) Railway Board, Rail Bhawan, New Delhi - 110001
2. Additional Member (Works) Railway Board, Rail Bhawan, New Delhi - 110001
3. Principal Executive Director/Bridges, Railway Board, Rail Bhawan, New Delhi - 110001
4. Director General, Indian Railway Institute of Civil Engg., Pune - 411 001
5. Executive Director Civil Engg./B&S, Railway Board, Rail Bhawan, Room No.140A, New Delhi - 110001
6. General Manager (C), N. F. Railway, Maligaon, Guwahati - 781001
7. The Director General, National Academy of Indian Railways, Vadodara - 390004

**(B) The Chief Administrative Officer (Construction):**
1. Central Railway, Mumbai CST - 400 001
2. Eastern Railway, Fairlie Place, Kolkata - 700 001
3. East Central Railway, Mahendrughat, Patna (Bihar) - 800 004
4. East Coast Railway, Bhubaneswar, (Orissa) - 751 016
5. Northern Railway, Kashmere Gate, Delhi - 110 006
6. USBRL Project, Northern Railway, Satyam Complex, Trikuta Nagar Extn., Jammu 180 020
7. North Central Railway, Allahabad, (U.P.) - 211 001
8. North Eastern Railway, Gorakhpur - 273 001
9. North Western Railway, Jaipur, (Rajasthan) - 302 001
10. Southern Railway, Egmore, Chennai – 600008
11. South Central Railway, DRM/Secunderabad Office Compound, Secunderabad -500 371
12. South Eastern Railway, Garden Reach, Kolkata – 700043
13. South East Central Railway, Bilaspur - 495 004
14. South Western Railway, No. 18 Miller Road, Bangalore, (Karnataka) – 560046
15. Western Railway, Mumbai - 400 020
16. West Central Railway, Jabalpur (M.P.) - 482 001
17. CAO-I, II & III, Northeast Frontier Railway, Maligaon, Guwahati - 781011
18. CAO/ERS, Southern Railway, Ernakulam, Kerala – 682506

**(C) Chief Bridge Engineers:**
1. Central Railway, Mumbai CST- 400 001
2. Eastern Railway, Fairlie Place, Kolkata - 700 001
3. East Central Railway, Hazipur - 844 101
4. East Coast Railway, Bhubaneshwar - 751 016
5. Northern Railway, Baroda House, New Delhi - 110 001
6. North Central Railway, Allahabad - 211 001
7. North Eastern Railway, Gorakhpur - 273 001
8. Northeast Frontier Railway, Maligaon, Guwahati - 781 061
9. North Western Railway, Jaipur - 302 001
10. Southern Railway, Park Town, Chennai - 600 003
11. South Central Railway, Rail Nilayam, Secunderabad - 500 371
12. South East Central Railway, Bilaspur - 495 004
13. South Eastern Railway, Garden Reach, Kolkata-700 043
14. South West Railway, Hubli - 580 023

भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAY
(रेलवे बोर्ड RAILWAY BOARD)
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# BRIDGE RULES
(IN SI UNITS)
RULES SPECIFYING THE LOADS FOR DESIGN OF SUPER-STRUCTURE AND SUB-STRUCTURE OF BRIDGES AND FOR ASSESSEMNT OF THE STRENGTH OF EXISTING BRIDGES

Adopted – 1941
Revised – 1964
Reprinted in 2014
(Incorporating Correction Slips 1 to 46)

**Addendum and Corrigendum Slip No. 53 dated: 26.12.2024**

Clause No. 2.8.2.4.3 stands modified as follows:

**Forces and effects due to continuation of LWR/CWR** –Provisions of UIC 774-3R with up to date modifications & BS -114 with up to date modifications should be used for design and checking of Substructure, Girder, Deck, Bearings & Rail Stresses on bridges with following parameters:

(a) Actual longitudinal forces prevailing on the bridge as per loading standard / rolling stock to be operated shall be used.

(b) It shall be ensured that the additional stresses in rail as per computations done using provisions of UIC 774-3R do not exceed the values given in table below :

(b) (i) (a) **For Ballasted deck Bridges in tangent Track**: It shall be ensured that the additional stresses in rail as per computations done using provisions of UIC 774-3R & BS-114 do not exceed the values given in table below :

| Rail Section | Maximum additional Stresses in Compression | Maximum additional Stresses in Tension |
|---|---|---|
| 60 Kg 90 UTS Rail | 60 N/mm$^2$ | 75 N/mm$^2$ |
| 52 Kg 90 UTS Rail | 50 N/mm$^2$ | 60 N/mm$^2$ |

(b) (i) (b) **For Ballasted deck Bridges in curved Track**: It shall be ensured that the additional stresses in rail as per computations done using provisions of UIC 774-3R & BS-114 do not exceed the values given in table below :

| Rail Section | Radius of curve(m) | Maximum additional Stresses in Compression | Maximum additional Stresses in Tension |
|---|---|---|---|
| 60 Kg 880grade/R260 | R≥1500 | 60 N/mm$^2$ | 75 N/mm$^2$ |
| | 1500>R≥700 | 46 N/mm$^2$ | |
| | 700>R≥600 | 42 N/mm$^2$ | |

(b) (ii) **For Ballastless Track (BLT) Bridges:** For minimum radius 1500m , it shall be ensured that the additional stresses in rail as per computations done using provisions of UIC 774-3R & BS-114 do not exceed the values given in table below.

| Rail Section | Maximum additional Stresses in Compression | Maximum additional Stresses in Tension |
|---|---|---|
| 60 Kg 90 UTS Rail | 92 N/mm$^2$ | 92 N/mm$^2$ |

Note: These values of maximum additional stresses may be validated with the help of measurements/instrumentation in the field.

(c) Span and sub structure arrangement shall be such that the various checks on rotation/ deflection specified in UIC 774-3R & BS-114 are satisfied.

(d) (i) **Track Resistance in Ballasted Deck Bridges :** For track structure minimum 52 kg 90 UTS rails and PRC sleepers at sleeper density 1540 nos/KM with elastic fastenings, the value of longitudinal track resistance for computations as per UIC 774-3R & BS-114 shall be taken as 25 KN per meter of track in unloaded condition and 50 KN per meter of track in loaded condition.

(d) (ii) **Track resistance in Ballastless (BLT) Bridges** :For 60 Kg 90 UTS rails , the values of track resistance for computations as per UIC 774-3R shall be taken as 40 KN per meter of track in unloaded condition and 60 KN per meter in loaded condition

(e) The computations (RSI) can be done either using graph or simplified approach or computer program as indicated in UIC 774-3R & BS-114 (latest version) provided the condition specified for their adoption are satisfied. The computer program shall be validated with methodology given in UIC 774-3R before use. For continuation of LWR over new bridges along with the bridge work or in future, RSI analysis shall be done along with the initial design of the Bridge except for the bridges where RSI is not required as per Para 329,330 & 331 of IRPWM

(f) Ballasted deck bridges without bearings (slabs, box culverts and arches) need not be checked for forces/effects due to continuation of LWR/CWR.

(g) If rail-free fastenings are provided as per provisions of **Para 331 of IRPWM**, such that there is no interaction between the rail and the bridge, then there is no need for checking for forces/effects due to continuation of LWR/CWR.

(h) RSI study Report on ballasted deck bridges in curved track shall be approved by RDSO.

By Order,

26/12/2024

(राजेश कुमार श्रीवास्तव)
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कार्यकारी निदेशक /पुल एवं संरचना
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