

Mahendra Pratap Singh
महेन्द्र प्रताप सिंह
Director/B&S/CB-I
निदेशक /पुल एवं संरचना / सी बी-1



भारत सरकार-रेलमंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India - Ministry of Railways
Research Designs & Standards Organization
Lucknow - 226011
Rly : 032-42126 Fax : 0522-2465704
Email : dbscb1rdso@gmail.com

No. CBS/Codes/A&C

Dated 23.05.2019

Principal Chief Engineer:

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

Sub : A&C Slip No. 8 to IRS : Concrete Bridge Code.

- Ref :**
1. Railway Board letter No. 2017/37/CE-III/BR/BSC/85/Seminar, Dated 17.05.2019.
 2. Recommendation of 85th BSC/2018 on Item No. 1075.

In terms of reference 1 above an Addendum & Corrigendum Slip No: 8 to IRS Concrete Bridge Code (Reprint - 2014) regarding "properties of HDPE Sheathing, Stress-Strain Curves for Prestressing Steel, Lever Arm Formula for Moment Capacity of RCC Sections, Unit for Relative Profile Volume, Headings of Tables B-1 (Transverse load rating Test) & B-2 (Tension load Test) & Fig B1 - 2 for compression test for the loss of wall thickness of HDPE Sheathing" is enclosed for information and necessary action please.

DA: - As above. (4 page)

(Mahendra Pratap Singh) 23.05.19
Director/B&S/CB-I
For ED/structures/RDSO

Copy to:

(A)

1. OSD/ME for kind information of Member Engineering, Railway Board, Rail Bhawan, New Delhi - 110001
2. Chief Commissioner of Railway Safety, N.E. Railway Office Compound, Ashok Marg, Lucknow - 226002.
3. Additional Member (Civil Engg.) Railway Board, Rail Bhawan, New Delhi - 110001
4. Additional Member (Works) Railway Board, Rail Bhawan, New Delhi - 110001
5. Advisor (Bridges) Railway Board, Rail Bhawan, New Delhi - 110001
6. Director, Indian Railway Institute of Civil Engg., Pune - 411 001
7. Executive Director Civil Engg./B&S, Railway Board, Rail Bhawan, Room No.140A, New Delhi - 110001
8. General Manager (C), N. F. Railway, Maligaon, Guwahati - 781001
9. The Director General, National Academy of Indian Railways, Vadodara - 390004
10. Chief Engineer, Metro Railway, Jawaharlal Nehru Road, Kolkata - 700071
11. ED/B&S/RDSO, B&S Directorate, RDSO, 2nd Floor, Annexe - II Building, Manak Nagar, Lucknow, Pin - 226011 (UP)

(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/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
15. Western Railway, Mumbai - 400 020
16. West Central Railway, Jabalpur - 482 001

(D)

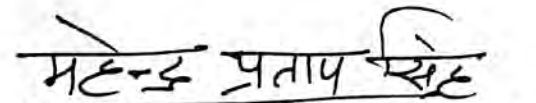
Commissioner of Railway Safety:

1. Central Circle, 2nd Floor, Churchgate Station Building Mumbai - 400020
2. Eastern Circle, Multistoreyed Building of Eastern Railway, 12th Floor, Strand Road, Kolkata - 700001
3. Northern Circle, near Centre for Railway Information System, Safdarjung Railway Station, New Delhi - 110021
4. North Eastern Circle, DRM Compound, Northern Railway, Hazratganj, Lucknow - 226001
5. Northeast Frontier Circle, 12 Strand Road, Multistoreyed Building of Eastern Railway, Kolkata - 700001
6. Southern Circle, 7 Seshadri Road, Gandhi Nagar, Bangalore - 560009
7. South Central Circle, Opp. Rail Nilayam, Sarojini Devi Road, Secunderabad - 500 071
8. South Eastern Circle, 14 Strand Road, Multistoreyed Building of Eastern Railway, Kolkata-700001
9. 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., 1st 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 General Manager, Delhi Metro Rail Corporation Ltd., NBCC Place, Bhisma Pitamah Marg, Pragati Vihar, New Delhi - 110003


(Mahendra Pratap Singh) 23.05.19
Director/B&S/CB-I
For ED/structures/RDSO

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

**INDIAN RAILWAY STANDARD CODE OF PRACTICE
FOR PLAIN, REINFORCED AND PRESTRESSED CONCRETE
FOR GENERAL BRIDGE CONSTRUCTION
(CONCRETE BRIDGE CODE)**

FIRST ADOPTED- 1936
FIRST REVISION-1962
SECOND REVISION -1997
REPRINT-SEPTEMBER-2014

ADDENDUM & CORRIGENDUM SLIP No. 8 DATED - 23.05.2019

1. Replace the Clause 7.2.6.4.2.4.1 with following Clause:

7.2.6.4.2.4.1 Unless otherwise specified, the material for the high-density polyethylene (HDPE) sheathing shall have the following properties:

Property	Unit	Applicable Standard	Temperature	Acceptance Values	
				Min	Max
Carbon content	%			2	
Density	gm/cc	IS: 2530	23 ^o C	0.94	0.96
Tensile strength at Yield	MPa	BS EN ISO 527-3		20	
Shore D Hardness		IS 13360 (Part 5 / Section 11)		a) 3 sec : 60 b) 15 sec: 58	
Elongation at Yield	%	BS EN ISO 527-3		7	
Melt Flow Index (MFI)	g/10 minutes	IS: 2530	190 ^o C under a mass of 5 kg	0.5	1.2
Environmental Stress Crack Resistance	Hrs	ASTM D-1693	70 ^o C	192	
Coefficient of Thermal Expansion for 20 ^o C - 80 ^o C	/ ^o C	DIN 53 752		1.50 x 10 ⁻⁴	
Charpy impact strength of notched specimen	kJ/m ²	BS EN ISO 179			
(i) at 23 ^o C :				10	
(ii) at -40 ^o C :				4	

2. Clause 7.2.6.4.2.4.2: Delete the existing clause and insert as under:

The minimum wall thickness of the duct as manufactured shall be 2.0 mm, 2.5 mm, 3.0 mm and 4.0 mm for ducts of internal diameter upto 50 mm, 85 mm, 100 mm and 125 mm respectively. Linear interpolation may be done for any intermediate values.

Tolerance for duct diameter is $\pm 1\%$ or ± 1 mm, whichever is greater. Tolerance for wall thickness shall be $-0/+0.5$ mm.

The minimum residual wall thickness after loss in the compression test as per clause B1-2 at Appendix B1 shall not be less than 1.5 mm for ducts upto 160 mm outer Diameter.

3. Clause 12.3.2 : Delete existing stress-strain curves (Fig.2 and Fig.3) under Clause 12.3.2 and insert as under:

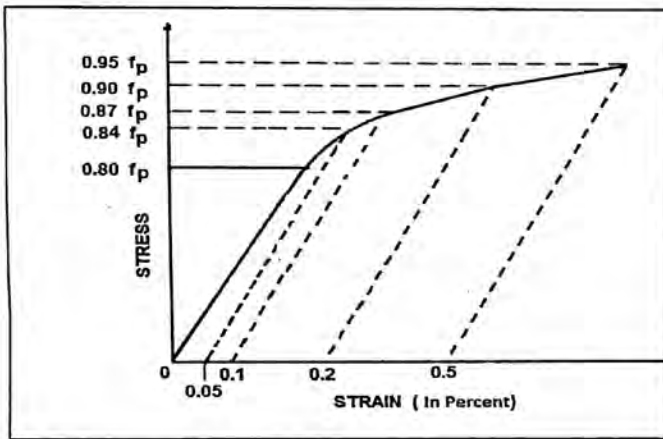


FIG 2: WIRES (STRESS RELIEVED) STRANDS & BARS.

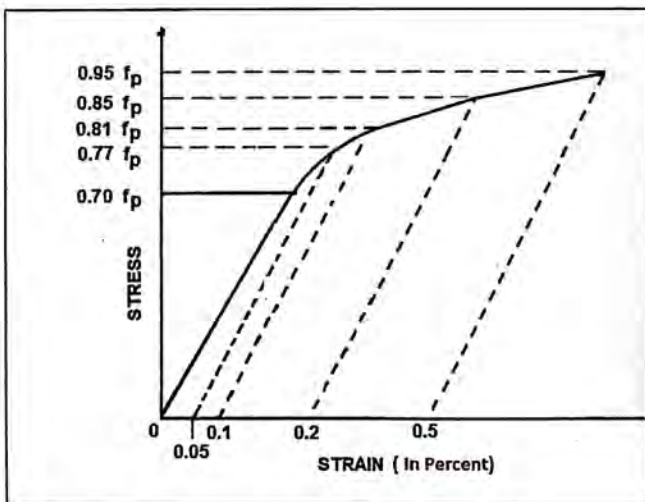


FIG 3: WIRES (AS DRAWN) REPRESENTATIVE STRESS STRAIN CURVES FOR PRE-STRESSING STEEL.

4. Clause 15.4.2.2.1: Delete the equation-5 under Clause 15.4.2.2.1 and insert as under

$$z = \left(1 - \frac{1.1f_y A_s}{f_{ck} bd}\right)d \dots\dots\dots(\text{equation 5})$$

5. Appendix-B, Table B-1: Delete the existing table B-1 and insert as under:

TABLE B-1: TRANSVERSE LOAD RATING TEST
(Clause B-5)

DIAMETER OF SHEATHING (d) (mm)	LOAD (F) (N)	
	For MS Sheathing	For HDPE Sheathing
25 < d < 35	250	600
35 < d < 45	400	750
45 < d < 55	500	750
55 < d < 65	600	950
65 < d < 75	700	950
75 < d < 85	800	950
85 < d < 90	1000	1050

6. Appendix-B, Table B-2: Delete the existing table B-2 and insert as under:

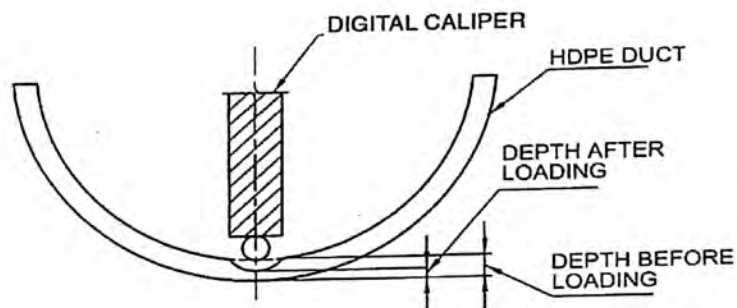
TABLE B-2: TENSION LOAD TEST
(Clause B-6)

DIAMETER OF SHEATHING (d) (mm)	LOAD (F) (N)	
	For MS Sheathing	For HDPE Sheathing
25 < d < 35	300	400
35 < d < 45	500	600
45 < d < 55	800	900
55 < d < 65	1100	1100
65 < d < 75	1400	1400
75 < d < 85	1600	1600
85 < d < 90	1800	1900

7. Appendix-B, Clause B-7.1: Delete formula of Relative Profile Volume under Clause B-7.1 and insert as under:

$$\text{Relative Profile Volume} = \frac{V_p - (\pi\phi^2L)/4}{\pi\phi L} \text{cm}^3/\text{cm}^2$$

8. Appendix-B 1, Fig B1-2: Delete The Fig B 1-2 Compression Test (Enlarged view of wear depth measurement) and insert as under:



ENLARGED VIEW OF WEAR DEPTH MEASUREMENT

Fig B 1-2 Compression Test

BY ORDER:

V. K. Srivastava
23/5/19
(V. K. Srivastava)

Executive Director/Structures
B&S Directorate R.D.S.O.

LUCKNOW

Dated: 23.05.2019