भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
रेलवे बोर्ड (Railway Board)

आज़ादी का अमृत महोत्सव

Azadi Ka Amrit Mahotsav

No. 2022/RS(G)/779/12(E3400699) Dated: 19.10.2022

The General Managers, All Indian Railways/PUs, NF(C), CORE
DG, RDSO/Lucknow, NAIR/Vadodara
PCAO, PLW/Patiala, COFMOW
CAO, WPO/Patna, RWP/ Bela

Sub: Decentralised procurement of PSC mainline Sleeper through Zonal Railway Stores department – modalities thereof

Ref: (i) Railway Board letter No. 2022/RS(G)/779/12 (E3400699) dated 12.10.2022

1.0 Vide Railway Board letter referred (i) above, procurement of PSC mainline Sleeper has been decentralised and is to be procured through Zonal Railway Stores department.

2.0 Engineering Directorate have communicated zone wise requirement for two years i.e 2023-24 & 2024-25 and the same is enclosed as **Annexure-A.** Zonal Railway Stores department to immediately process combined procurement of two years requirement as indicated in Annexure-A .

2.1 Suggestive Tender Document for the said procurement duly vetted by Finance directorate of Railway Board is enclosed as **Annexure-B** consisting of :

(i) Invitation and Instruction to Tenderers
(ii) Special Conditions of contract
(iii) IRS specifications of PSC sleepers-Pre tensioned type
(iii) Schedule of technical Requirement
(iv) Indemnity Bond format for 90% payment
(v) Indemnity Bond format for balance 10% payment
(vi) Guidelines for e-RA – with no elimination modifications

Above Guidelines are suggestive in nature to bring in efficient competitive procurement, however Zonal Railways are free to adopt tender conditions suitable to local environment.

This is issued with the approval of Member/T&RS .

(Chandan Kumar)
Director Railway Stores/IC
Railway Board

No. 2022/RS(G)/779/12(E3400699) Dated: 19.10.2022

1. PFAs, All Indian Railways& Production Units.
2. The ADAI (Railways), New Delhi.
3. The Directors of Audit, All Indian Railways.

For Member Finance
Railway Board

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Sr. Prof. (Material Management), NAIR, Vadodara, ED (Stores), RDSO, Lucknow
Chief Commissioner, Railway Safety, Lucknow
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All AMs, PEDs & Executive Directors of Railway Board.

Room No. 363, Rail Bhawan, Raisina Road, New Delhi-110001

E3400699

ANNEXURE-A

Requirement of Wider PSC Sleepers for FY 2023-24 & 2024-25

S.No.	Railway	Assessed Requirement of Wider Sleeper (RT-8746)					Total Requirement of Wider Sleeper (RT-8746)
		Open Line	Construction Organisation	IRCON	RITES	RVNL	
1	CR	531200	985357	0	0	0	1516557
2	ER	440000	43000	0	37500	0	520500
3	ECR	605340	1050000	0	43000	50000	1748340
4	ECoR	803161	865198	0	53000	0	1721359
5	NR	1200000	606500	0	8000	65000	1879500
6	NCR	650000	1075000	0	5000	20000	1750000
7	NER	226798	328200	0	0	91000	645998
8	NFR	664000	732665	0	0	0	1396665
9	NWR	520000	200000	0	40000	0	760000
10	SR	664000	576850	0	0	0	1240850
11	SCR	498000	975000	0	0	0	1473000
12	SER	600000	450000	0	23500	15000	1088500
13	SECR	531200	900000	0	40000	0	1471200
14	SWR	332000	850000	0	0	0	1182000
15	WR	500000	483895	0	0	0	983895
16	WCR	400000	788169	20000	0	0	1208169
	Total	9165699	10909834	20000	250000	241000	20586533

ANNEXURE-B

INVITATION AND INSTRUCTIONS TO TENDERERS
(----------TENDER NO.----------)

ON BEHALF OF THE PRESIDENT OF INDIA, THE ----------**(HEREINAFTER REFERRED TO AS PURCHASER WHICH INCLUDES HIS SUCCESSOR AND ASSIGNEES)** INVITES OPEN ELECTRONIC TENDERS (E-TENDERS) THROUGH REVERSE AUCTION (e-RA) FOR MANUFACTURE AND SUPPLY OF PRESTRESSED MONO-BLOCK CONCRETE LINE SLEEPERS (RT-8527) (PRE-TENSIONED TYPE) FOR BROAD GAUGE (1673 MM) FROM RDSO CERTIFIED CONCRETE SLEEPER MANUFACTURING PLANTS LOCATED IN GEOGRAPHICAL JURISDICTION OF ----------(ZONAL) RAILWAY, AS PER THE INSTRUCTIONS/REQUIREMENTS FURNISHED HEREINAFTER AND AS SETFORTH IN "NOTICE INVITING TENDER" AND "ITEM DETAILS" PAGE ATTACHED WITH EACH ELECTRONIC TENDER "FINANCIAL RATE PAGE SCREEN".

1.0 General Instructions:

BEFORE FILLING UP THE TENDER FORM, PLEASE READ THE FOLLOWING:

(A) INSTRUCTION TO TENDERES FOR E-TENDERS,

(B) SPECIAL CONDITIONS OF CONTRACT,

(C) IRS CONDITIONS OF CONTRACT.

ABOVE ARE AVAILABE ON THE IREPS WEB SITE www.ireps.gov.in THE CONTRACT AND THE SUPPLY WILL BE GOVERNED BY THESE CONDITIONS. YOUR DIGITAL SIGNATURE ON THE E-TENDER FORM WILL MEAN THAT YOU HAVE READ AND ACCEPTED ALL THE CONDITIONS AND YOU UNDERTAKE TO ABIDE BY ALL THESE CONDITIONS/INSTRUCTIONS, UNLESS SPECIFICALLY DENIED/ MENTIONED BY YOU IN YOUR OFFER.

1.1 Tentative Quantities of Pre-stressed Mono-block BG concrete line sleepers (RT-8527) of which supplies are proposed to be taken by ---------- (Zonal) Railway over a period of two years are given below : -

Railway	Quantities tendered for (in lakhs)*

1.2 **Tender Documents and Tender Cost:**

Tenderers are expected to upload their bids after downloading the tender document online as made available in IREPS website. The cost of tender document has been dispensed with for downloading the tender documents by the bidders.

1.2 E-Tender document consist of:

(i) Instructions to Tenderers for e-Tenders (ITT)
(ii) IRS Conditions of Contract (available on IREPS web portal)
(iii) IRS specification (T-39) for PSC sleepers – pre-tensioned type
(iv) Special Conditions of Contract
(v) Schedule of Technical Requirement (STR) for PSC Sleepers
(vi) Proforma for Indemnity Bond for 90% payment
(vii) Proforma for Indemnity Bond for balance 10% payment
(viii) Procedure and Guidelines for e-RA – with no elimination in e-RA participation in modification to para 2.2 (a) .

1.3 Manual offers shall NOT be accepted against e-tenders, even if they are submitted on the Firm's letterhead/ any other form acquired or downloaded, and, submitted before closing time. All such manual offers shall be considered as invalid offers and shall be rejected summarily without any consideration.

1.4 **Time for Submission of Electronic Offers:**

Time for submission of offers :Up to----------

2.0 Filling of E-Tenders

2.1 Tenders should be duly filled in (on the assigned space), duly signed with the digital signature and submitted online. All mandatory fields marked (*) have to be filled by the tenderers.

2.2 Tenderers must fill-in the techno-commercial offer form (consisting of eligibility criteria, terms and conditions, performance statement, deviation

statement, checklist & special conditions etc.), financial offer form and attach scanned copy of necessary documents.

2.3 All the mandatory fields of the Techno-commercial offer form and Financial offer form (i.e. Rate page) including basic rate, all taxes and duties (including maximum percentage of GST), or any other taxes/ duties which may become applicable during the currency of the contract and any other charges have to be filled up by the vendor. The unit of rate shall be as indicated in the tender schedule and cannot be altered by the vendor.

2.4 All-inclusive rates on station of dispatch basis (FOR Loading point) shall be automatically calculated by the system and shown to the vendor before submission of offer (Screenshot/ print screen will not be taken as proof of having submitted the same rate). Inter-se position shall be automatically generated by the system accordingly.

2.5 Any financial elements indicated in the remarks column will not be taken for ranking/ evaluation and will be summarily ignored. Tenderers are therefore advised not to enter any financial element in the remarks column available in the Financial Rate page.

2.6 Plant Location should invariably be mentioned against **'designated field' of financial rate page**. A Firm owning more than one plant, is permitted to quote for more than one plant, for which separate offer sheet needs to be filled up for each plant by using the link "Submit Alternate Bid" duly mentioning the location of plant in designated field, which will be considered as separate offer.

2.7 In case a tenderer submits two offers for the same plant, inadvertently, then the offer with lower rates shall only be considered.

2.8 The Tenderers are required to quote their rates in the space earmarked in the tender schedule. Any deviation in this regard will lead to summarily rejection of offer.

2.9 The individual(s) signing the tender or other documents connected therewith with the digital signature should satisfy the following:

(i) In case of a Proprietorship firm, the signing individual should either be the Sole Proprietor or Attorney of the Sole Proprietor. Power of attorney duly attested should be scanned and uploaded with the offer if the tender document is signed by the attorney on behalf of sole proprietor;

(ii) In case of a registered Partnership firm, the signing individual(s) should either be partner(s) or their attorney (s) as per Constitution

of Partnership Deed. A copy of partnership deed and power of attorney (whichever applicable) duly attested should be uploaded with the offer;

(iii) In case of a company, the signing individual(s) should be Director(s), Manager or Secretary of the company duly authorized by a resolution passed by the Board of Directors or in pursuance of the authority conferred by the Memorandum and Article of Association. A copy of such resolution duly attested and certified copy of Memorandum and Article of Association and certificate of incorporation of the company should be scanned and uploaded with the offer;

(iv) In the case of a firm not registered under the Indian Partnership Act, all the partners or attorney duly authorized by all of them should sign all other connected documents. The original power of attorney or other documents empowering the individual or individuals to sign should be furnished to the purchaser for verification, if required.

2.10 Offers shall be as per terms and conditions given in the tender documents. However, deviations, if any, may be brought out in a separate "deviation form" provided with e-tender, detailing clause number of the tender document, stipulation as per the clause and deviation asked for, otherwise the tenderer shall be deemed to have accepted all provisions of the tender documents. The purchaser, however reserves the right to accept or reject these deviations and Purchaser's decision thereon shall be final. Tenders with any kind of technical deviation will be summarily rejected.

2.11 The status of tenderer shall be reckoned as on the date of tender opening unless there is a case of downgrading/removal/suspension/banning.

2.12 Any offer with longer delivery period or not agreeing with the delivery schedule specified in the tender, will be summarily rejected.

2.13 Any offer with different PVC formula or quoting different base month or linkage with different indices or fixed rate etc. as compared to PVC formula provided in the tender or offers different formula/scheme for input tax credit as compared to provisions of SCC, will be summarily rejected.

3.0 Earnest Money Deposit:

3.1 As per Board's letter No..2004/RS(G)/779/11/Pt. dt.23.12.2019 , the Earnest Money is Rs.50,00,000/- (Rupees Fifty lakh only). There shall be no exemption from submission of EMD by any tenderer except exemptions as mentioned in Rly Bd letter dtd 23.12.2019. Tenderers are required to upload scanned copies of necessary documents in support of their claim for EMD exemption.

3.2 EMD should remain valid for a period of 45 days beyond the final offer validity period. EMD (without any interest) will be refunded to the successful tenderers on receipt of security money. EMD (without any interest) will also be refunded to unsuccessful tenderers after finalization of tenders. Offers without Earnest Money shall be summarily rejected, if not under valid exemptions.

3.3 **Forfeiture of Earnest Money:**

The Purchaser shall have the right to forfeit the Earnest Money Deposit if the tenderer withdraws or revises his offer within its validity period.

3.4 If the tender is cancelled by the Railway Administration before tender opening, any EMD without interest paid shall be refunded to the tenderer.

4.0 Technical Information

4.1 Clarifications, if any, regarding specifications etc. may be obtained from -
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4.2 A copy of relevant specifications and drawings can be obtained on payment by the tenderers from the Director General (Track), RDSO, Manak Nagar, Lucknow. The relevant drawings and specifications can be seen in the office of ----------
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5.0 Effect and Validity of Offer:

5.1 The submission of any offer connected with this tender document shall constitute an agreement that the tenderer shall have no cause of action or claim against the purchaser for rejection of his offer. The purchaser shall

always be at liberty to reject or accept any offer or offers for part or whole of the quantity offered at its sole discretion and any such action shall not be called into question and the tenderer shall have no claim in that regard against the purchaser.

5.2 The offer shall be deemed to be under consideration immediately after they are opened and until such time the official intimation of award is made by the Railway to the tenderer. While the offers are under consideration, tenderers and or their representatives or other interested parties are advised to refrain from contacting the purchaser by any means. If necessary, the purchaser may obtain clarifications on the offers by requesting for such information from any or all the tenderers, either in writing or through personal contact, as may be considered necessary. Tenderers will not be permitted to change the substance of their offers after the offers have been opened.

5.3 The validity of offer should be for a minimum of 180 days effective from the date of opening of tender. Offers with validity less than 180 days shall be summarily rejected.

5.4 In exceptional circumstances, the purchaser may solicit the Bidders consent for extension of the period of validity. The request and the responses thereto shall be made in writings (or by cable or mail/telex). A Bidder may refuse the request without forfeiting Bid security. A Bidder granting the request, will not be required nor permitted to modify his bid.

6.0 <u>Qualifying Requirements</u>:

The tenderer (Concrete Sleeper Plant i.e CSP) must, fulfill all the following conditions to be eligible for placement of regular/developmental orders against this tender:

6.1 Only Concrete Sleeper Plants (CSPs) located in geographical jurisdiction of ---------- (Zonal) Railway and cerified by RDSO for undertaking production of PSC Main Line sleepers for IR will be considered eligible for placement of orders (regular or developmental as per status of RDSO approval/certification) against this tender.

6.2 Existing manufacturers quoting for supply from a new location within geographical jurisdiction of ----------(Zonal) Railway after shifting their existing plant should have prior approval for supply from new location as per instructions of Railway Board vide letter No. 2004/Tk-II/22/11/5 dated 22.02.2006**.**

Plants, which have already been permitted for shifting of location but have not shifted/started production from new location within geographical jurisdiction of ---------(Zonal) Railway, even after lapse of one year or more from date of issue of permission letter, shall not be eligible to quote from old location. They will be eligible to quote from new location within geographical jurisdiction of ----------(Zonal) Railwayonly if they have already obtained the RDSO certification of Plant at new location within geographical jurisdiction of ----------(Zonal Railway) , before the date of tender opening.

6.3 Those plants will be considered "closed", which have not manufactured any type of sleepers (mainline, Turnout, special sleepers) for more than five years reckoning from the date of tender opening. Such plants will not be eligible for tender.

6.4 Minimum Quoted quantity by a tenderer for a plant should not be less than 50% of RDSO certified targeted production capacity for period of 2 years under consideration i.e minimum quantity to be quoted by a tenderer should not be less than or equal to = (2 X 0.5 X12 X monthly certified production capacity by RDSO). Offers quoting for less than specified Minimum quantity or tendered quantity (whichever is lower) will be summarily rejected.

6.5 The Firm should not be "black listed/suspended/banned" for business by Railway.

7.0 <u>Quantity distribution methodology:</u>

Placement of orders to the plants for supply of PSC BG Main Line Sleepers will be at the sole discretion of the purchaser. In view of wide geographical distribution of requirement of sleepers, capacity constraint of plants, the criticality of this safety item ,rates quoted , as well as to minimize the transportation cost of sleepers, the tendered quantity will be allocated/distributed/split as per following pre-decided quantity allocation/splitting criteriaas per the following methodology:-

(i) "Production Capability" of a plant for the two years of Delivery period as per following formula:-

"Production Capability" for two years = (2 x12 x Monthly production capacity certified by RDSO) .

(ii) Quantity allotment to a particular CSP for two year period will not exceed the "quoted quantity" or the "production capability" as defined in para 7.0(i) above , whichever is lower.

(iii) In the First round, 40% of Zonal Railway's Net procurable Quantity (NPQ) will be equally distributed amongst the all eligible CSPs (regular/developmental) located in geographical jurisdiction of -------- (Zonal) Railway. Such allotment to all developmental certified plants taken together will be limited to 20% of NPQ. If such allotment exceeds the upper limits of some plants as defined in para (ii) above or exceeds limit of 20% of NPQ for all developmental certified plants, then the excess quantity of such plants calculated as above will be taken out and redistributed with quantities to be allocated/distributed as per pre-decided quantity splitting criteria in the Second round as detailed in subsequent paras. For this quantity allocation, counter offer of regular L-1 rate will be given to all CSPs under consideration but for developmental certified CSPs lowest of developmental category CSPs rate if lower than regular L-1 will be applicable.

(iv) Quantity left over after Quantity distribution in First round as per para (iii) above , will be distributed as per following Pre-decided quantity splitting criteria :

(A) The Purchaser reserves the right to distribute the procurable quantity on one or more than one of the eligible tenderers. Zone of consideration of such eligible tenderers will be the right of the Purchaser. The zone of consideration will be a dynamic mix of inter-se position of firms, supply performance of the firms, quantity being procured, critically of and lead time of supply of the item, number of established suppliers, their capacity etc.
(B) Whenever such splitting of the procurable quantity is made, the quantity distribution will depend (in an inverse manner) upon the differential of rates quoted by the tenderers (other aspects i.e. adequate capacity-cum-capability, satisfactory past performance of the tenderers, outstanding orders load for the Railway making the procurement, quoted delivery schedule vis-à-vis the delivery schedule incorporated in the tender enquiry etc.
being same/similar) in the manner detailed in the table below:

Price differential between L1 and L2	**Quantity distribution ratio between L1 and L2**
Upto 3%	60:40
More than 3% and upto 5%	65:35
More than 5%	At least 65% on the L1 tenderer. For the quantity to be ordered on the L-2 tenderer, TC/TAA shall decide.

In the phrase 'differential rates quoted by the tenderers', the quoted rate would mean
(i) When no price negotiation has been called for, the original rates as obtained at the time of tender opening. However, the rate of the highest eligible tenderer within the zone of consideration has to be per se reasonable.
(ii) When price negotiation has been called for, the reference L-1 rate for assessment of ratio will be the original rate of L-1 firm (suitable for bulk quantity)- say firm "A" – as obtained at the time of tender opening.

If splitting of quantity is required to be done by ordering on tenderers higher than the L-2 tenderer, then the quantity distribution proportion amongst the tenderers will be decided by transparent/logical/equity based extrapolation of the model as indicated in the above Para.

In cases of pre-decided splitting, if the purchaser decides not to split the ordered quantity, the reason for the same shall be recorded in TC minutes/acceptance in direct acceptance cases.

Ordering developmental order shall not construe splitting of procurable quantity.

In the cases of inadequate capacity-cum-capability, dissatisfactory past performance, large quantity of outstanding orders (liquidation of which will take very long time) etc, the Purchaser shall have the right to distribute the procurable quantity amongst tenderers with due consideration to these constraints and in such a manner that would ensure timely supply of material in requisite quantity to meet the needs of operation, maintenance, safety etc. of the Railways, regardless of inter-se ranking of the tenderers and in a fair and transparent manner with due conformity to the Principles of Natural Justice and Equity.

For quantity distribution/allocation under this round also counter offer of regular L-1 rate will be given to all CSPs under consideration but for developmental certified CSPs lowest of developmental category CSPs rate if lower than regular L-1 will be applicable.

(v) Purchaser reserves the right to allot lesser quantity than the quantity quoted by the tenderer at the same rate, terms and conditions which shall be binding on the tenderer.

(vi) In case, full requirement of a Zonal Railway is not allotted as per distribution methodology stipulated above, then leftover quantity (un allotted quantity) of such Zonal Railway will be re-distributed

amongst the eligible CSPs located in geographical jurisdiction of ---------- (Zonal) Railway in proportion to the quantity already allotted subject to quoted quantity and production capacity.

(vii) For CSPs located within geographical location of --------(Zonal) Railway but are certified as Developmental Plant by RDSO for any category of PSC sleepers will not be eligible for regular order and may be considered for an developmental order of total maximum 20% of NPQ for all developmental certified plants taken together.

(viii) Bulk/Regular order: Minimum 80% of the Net Procurement Quantity (NPQ) shall be ordered on CSPs certified/approved as regular soucre/plant by RDSO.

8.0 Documents to be attached/ uploaded along with e-Bid:

Scanned copy of the following documents should be uploaded along with the e-Bid .

(a) Proof of authority from Firm in favour of signatory of tender for digitally signing and submitting the tender document.

(b) Valid RDSO approval/certification of CSP showing production capacity

© Year wise supply performance of CSP in last Five Years indicating closure and rejections details if any

(d) Any other document

9.0 Bid Submission:

(a) E-bid along with the relevant documents must be uploaded and digitally signed with the digital signature of the pre-authorized personnel of the tenderer already registered with the IREPS website. Digital signature used must be "Class IIIB with Company Name" obtained from G.O.I. approved Certifying Authority.

(b) Tenderers must look out for NIT for as soon as it is available in IREPS website and upload their offer well in advance without waiting for closing date and time, to avoid last minute hassles in their own computer system or communication line. Purchaser will not be responsible for non-participation of vendors due to any technical problems on the day of tender closing time.

(c) Only bids received in the Electronic tender box available on the "Goods & Services Tenders" module of Web Site www.ireps.gov.in will be considered.

(d) The e-procurement system does not permit submission of any offer after the closing date and time of that e-Tender. Hence, there is no scope of any Late/ Delayed offers in the online bidding process.

(e) This tender will be finalized according to "Guidelines for Electronic Reverse Auction for Works, Stores and Services contracts" issued vide Railway Board's letter No. 2017/TRANS/01/Policy/Pt.-S dated 28.03.2018 and amendment No. RS(M)/2011/EPS/01 Pt. dated 18.10.2019. The provisions related to the Stores tenders will be applicable as this is a Stores Tender. However in modification to para 2.2(a) of the said Guidelines , there will be no elimination of eligible bidders for participation in Reverse Auction irrespective of No. of bidders qualified for award of Contract/Bulk order i.e for cases of No. of Qualified bidders for bulk order being 3 or more , all will be eligible for participation in Reverse Auction.

10.0 Tender Opening

(a) Electronic tender boxes will be opened only after stipulated closing date and time of the tender as shown on the IREPS Website.

(b) E-Tender boxes will be opened by minimum two authorized Railway officials using their secured digital permissions, passwords and digital private keys obtained from GOI approved certifying agencies. The icon will indicate that the tenders have been opened.

(c) Through e-RA, two packet tendering system will be followed. Bidders shall be simultaneously required to electronically submit a technical and commercial bid and initial price offer. This tender will be finalized according to "Guidelines for Electronic Reverse Auction for Works, Stores and Services contracts" issued vide Railway Board's letter No. 2017/TRANS/01/Policy/Pt.-S dated 28.03.2018 and amendment No. RS(M)/2011/EPS/01 Pt. dated 18.10.2019. The provisions related to the Stores tenders will be applicable as this is a Stores Tender. However in modification to para 2.2(a) of the said Guidelines , there will be no elimination of eligible bidders for participation in Reverse Auction irrespective of No. of bidders qualified for award of Contract/Bulk order i.e for cases of No. of Qualified bidders for bulk order being 3 or more , all will be eligible for participation in Reverse Auction.

(d) Offers not complying with essential technical & commercial requirements of the tender shall be declared as ineligible.

(e) Initial Price Offer of only those bidders categorized as eligible for regular/developmental order shall be opened and tabulated by system separately.

(f) Date and time of start of e-RA shall be communicated to qualified tenderers by the convener after evaluation of the technical bids.

(g) During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.

(h) Reverse Auction among bids categorized as Qualified for regular/bulk order shall be conducted on IREPS Platform. Bidders shall be able to see the auction screens.

(i) During auction period, identities of the participating tederers will be kept hidden.

(j) Minimum admissible bid value will be last bid value minus minimum decrement as specified by the tendering authority before starting of reverse auction. Starting point for reverse auction shall be the lowest Initial Price Bid of the tenderer eligible for award of contract.

(k) After close of the RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.

(l) Bidders will not be allowed to withdraw their last offer.

(m) L-1 will be defined as the lowest bid obtained after the closure of R.A. session.

(n) Vendor shall not be required to be present in the Railway office for any e-Tender opening process. They can obtain totally transparent bid tabulation statement by logging on to the IREPS website after tender opening.

(o) All the participating vendors who have submitted valid electronic offers can view their own offer details as well as the tender tabulation statement after tender opening, from any remote location using internet access by visiting the web site www.ireps.gov.in instantly after opening of the virtual tender box, by clicking on the icon.

(p) The purchaser does not guarantee opening of the tenders immediately after the closing date and time due to reasons beyond its control and hence tenders can be opened after the due date and time also. It will however, be ensured that no offers are submitted after tender closing date and time. Vendors cannot submit/ modify any offer or attach any file to it after the closing date and time as stipulated in the tender notice. System does not permit any alteration, modification, deletion of any entry or condition, offered by the tenderer in the e-tender, after closure of the virtual tender box.

(q) The Purchaser or any officer authorized on behalf of the Purchaser does not bind himself to accept the lowest or any other offer and reserves the right to cancel, reduce or divide the contract on more than one source without assigning any reason for such action.

11.0 Acceptance of Tender:

11.1 The purchaser reserves the right to reject any or all of the tenders in part or full at his sole discretion without assigning any reasons.

11.2 Railways does not pledge itself to accept the lowest or any tender and reserves to itself the right of acceptance of the whole or any part of the quantity offered. The decision of Railways with regard to allotment of quantity so as to ensure uninterrupted supply of sleepers will be final. .

11.3 The acceptance of the tender will be communicated by letter of acceptance direct to the tenderer. In case where a counter offer is issued, the unconditional acceptance of counter offer will result in a validly concluded contract, though formal letter of acceptance may be forwarded to the contractor at a later date.

12.0 The Special Conditions of Contract are enclosed. The Special Conditions of the Contract will have precedence over the IRS conditions and instructions to tenderers.

For and on behalf of the President of

India.Enclosures:-

1. Special Conditions of Contract	***Annexure- I***
2. IRS Specifications for PSC Sleepers – Pre-tensioned Type	***Annexure-II***
3. Schedule of Technical Requirement	***Annexure-III***
4. Indemnity Bond for 90% payment	***Annexure- IV***
5. Indemnity Bond for balance 10 % payment	***Annexure- V***
6. Guidelines for e-RA – with no elimination modification	***Annexure-VI***

ANNEXURE -I

SPECIAL CONDITIONS OF CONTRACT

1. General

This contract will be governed by IRS Conditions of Contract as amended up to date as well as the Special Conditions of Contract mentioned herein. In case of conflict between the two, i.e. between IRS Conditions of Contract and Special Conditions of Contract, the provisions of Special Conditions of Contract shall prevail.

2. Rates

The supply of sleepers in accordance with the terms and conditions of this contract shall be effected at the accepted unit rate, subject to price variation in terms of Clause 13 of these conditions. . In addition to the accepted rate the contractor will also retain CENVAT credits available on input materials on the date of opening of the tender. CENVAT shall be covered under Clause 13.3 of these conditions."

2.1. The **quoted** rate shall be inclusive of the cost of all labour and all inclusive cost of input materials (including cost of input freight if any) like HTS Wire, Inserts, Cement and coarse and fine aggregates, Fuel and Power etc., including all handling charge and duties thereon.

2.2. The **quoted** rate would also include the cost of transportation of finished sleepers to loading point and loading into the wagons/road vehicles at the FOR station in accordance with the approved drawing including the cost of handling involved in the process. The Cost of wooden packing as per drawings will be borne by the contractor.

2.3. The contract will remain current and valid for a stipulated delivery period including extensions if any, with effect from the date of acceptance of tender/counter offer, as the case may be. The Purchaser also has the right to defer deliveries (i.e. slow down supplies). The purchaser shall also have the right to enhance delivery period upto 6 months on the same rates, terms and conditions at its sole discretion. Further extension, beyond 6 months may be done with mutual consent of Supplier and Purchaser.

2.4 **For purpose of determining *inter-se* position, only** the **quoted** all inclusive ex-works rate per sleeper shall be considered.

3. Taxes

3.1 The accepted rate would be exclusive of Taxes on sales of goods leviable under CGST/IGST/UTSGT/SGST Act(s), which will be paid extra as statutorily applicable on the date of supply. The purchaser will, however, not be responsible for the reimbursement of any Taxes/Levies paid by the contractor under misapprehension of law.

3.2 In addition to accepted rate, the contractor will also retain/setoff Input Tax Credits (ITC) available under CGST/IGST/UTGST/SGST Act(s).

3.3 In the event of 'GST' input credit being extended by the Government of India to more items than those already covered on date of tender opening, the firm should advise the purchaser about the additional benefits accrued or any variation thereof, through a letter containing the following certificate.

"We hereby declare that additional set-offs/Input tax credit to the tune of Rs….. has accrued and accordingly the same is being passed on to the purchaser and to that effect the payable amount may be adjusted."

4. Raw Material, Machinery and Plant:

4.1 The responsibility for procurement of all raw materials, machinery and plants required for the manufacture of goods shall rest entirely with the supplier.

4.2 53-S grade Ordinary Portland Cement confirming to BIS Specifications IS:269:2015 as amended up to date of tender opening shall be procured by the contractor at his own from the from the Cement manufacturers having valid Bureau of Indian Standards licence for manufacturing of 53-S grade Ordinary Portland Cement.

4.3 HTS Wires shall be procured from the firms who are approved for manufacture of HTS Wire by Bureau of Indian Standards and possess a current valid BIS License for manufacture of the particular type of wire i.e. 3 x 3 mm strand, 7/7.5 mm plain wire or 9.5 mm dia strand as the case may be.

4.4 SGCI Inserts shall be procured from the firms, who are approved by RDSO for the manufacture of SGCI inserts and whose approval is current and valid. SGCI Inserts can also be procured from ISO certified firms as per guidelines issued vide RDSO's letter No. QA/CT/INSP/CI/Policy dated 25.08.2008.

4.5 Aggregates shall be procured by the contractor from the RDSO approved sources. If crushed sand is being used as fine aggregate in design mix concrete, then it should not be by-product of any other manufacturing process and should be in conformity to the provisions provided for crushed sand in IRS-T-39.

4.6 The cement content in the concrete mix shall not be more than 450 Kg/cum. This may necessitate use of plasticizer, which shall be procured by contractor as per requirements laid in clause 3.2.4 of IRS-T-39. Quoted rate shall be inclusive of cost of plasticizer/admixture.

5. Octroi and Entry Tax:

(i) Octroi/Entry Tax, if statutorily leviable, on finished sleepers shall be paid by the purchaser.

6. Inspection:

6.1. Inspection of finished sleepers will be carried out by the Railway nominee of the concerned Zonal Railways at contractor's premises as per procedure and frequency decided by Railways.

6.2. Necessary office accommodation for the inspecting staff at the factory will have to be made available by the contractor free of cost. Necessary transport facilities to and from the nearby railway station and rest house accommodation shall be provided free of cost to the inspecting staff by the contractor.

6.3. The contractor shall be required to install and operate all necessary testing equipment required for testing the sleepers, test cubes, brickets etc. as stipulated in the IRS Specification for prestressed concrete sleepers (Pretension type). The testing equipment for the same must be available at factory site. In addition, the contractor shall arrange at his own cost for any further tests on materials, as may be indicated by the Engineer/Inspecting Officer, to be carried out at recognized Material Testing Centers/Institutes during the progress of manufacture of sleepers; even though, Test Certificates for such materials are available.

6.4. The passed sleepers, for which inspection certificates have duly been obtained, only shall be allowed to be taken for loading in railway wagons/road vehicles. Any damage to the sleepers in the process of loading in wagons/vehicles or carrying to the loading sites from the contractor's premises shall be to contractor's account.

6.5. PSC mono-block concrete sleepers which are treated for surface defects as provided in the 'Standard Specification of PSC Line Sleepers' as amended up to date and provided at **Annexure-II** of this tender document shall be accepted and payment made @ 92.5% of the standard sleepers.

6.6. The testing of PSC line sleepers and their subsequent acceptance should be in accordance with the Standard Specifications of PSC line sleepers (IRS T-39) as amended up to date.

6.7 The supplier shall ensure that the necessary checks on supply of raw material eg Cement, aggregate, HTS wire, SGCI insert, as well as plants, machinery, equipments, instruments such as moulds, weigh-batching plant, stressing system, mixing & vibration system, steam curing system, de-moulding and de-tensioning, water curing, product inspection and lab testing, sleeper testing and dispatch etc. are being done as per the checklists issued by Railways/Board/RDSO from time to time and record of same shall be maintained.

6.7.1 Compliance to provisions of STR(Schedule of Technical Requirement):

The production of PSC sleepers against this tender shall be permitted only when the Concrete Sleeper Plant has complied all the provisions of STR.

6.7.2 Temporary suspension of production:

During course of execution, the production of the concrete sleepers may be temporarily suspended by Railway on the advice of its inspecting officials or RDSO in serious cases of non-adherence to Specifications/Schedule of Technical Requirement or large scale rejection of sleeper (>2%) or premature failure of sleepers in track. Railway may order for temporary suspension of the production in above cases and direct the manufacturer to identify the defects in the manufacturing process and rectify the same within a reasonable period. Production will be resumed once the manufacturer identifies and removes the defects and same is verified by the Zonal Railway and/or RDSO as the case may be. While allowing resumption of production, Railway may also order for higher scale of testing, till quality of production is stabilized in terms of provisions of IRS-T-39

6.7.3 The plants, which have not done any production for past more than one year (reckoning from issue of LOA), will be permitted to resume production only after re-validation/certification of plant by RDSO.

6.7.4 In cases, where contract of a CSP under previous contract**,** had to be cancelled/terminated on account of large scale rejection(>2%)/quality issues, the production will be allowed to be resumed only after re-validation/certification of plant by RDSO and initial 10,000 sleepers will be tested and passed by RDSO.

6.8 Sleepers used for tests, including abrasion test, and found as per specifications and drawings shall be paid for by the Purchaser at accepted rates. Such sleepers paid for shall remain the property of the Purchaser and will be disposed of in the manner prescribed by the Purchaser from time to time.

6.9 The rejected sleepers shall be permanently damaged by the contractor so as to make them unusable in addition to the provisions provided in para 6 of "Indian Railway specification for pre-tensioned prestressed concrete sleepers (serial no. T-39)". A certification that all rejected sleepers of previous batches have been permanently damaged and marked as per drawing, will be given by manufacturer before offering the next batch of fresh sleepers for inspection.

6.10 Regular inspection of SGCI inserts will be done by M/s RITES Ltd. or any other nominated agency by Railways at manufacturer's premises. Inspection charges & GST as applicable towards the inspection charges by RITES/Nominated Inspection agency will be borne by Supplier CSPs. Besides regular inspection by RITES/Nominated inspection agency , Railway officials will also conduct the inspections prescribed in Railway Board's letter no. 98/TK-II/22/11/17/Pt. Policy, dtd. 11.08.2003.

6.11 Regular inspection of HTS wire will be done by Inspecting authorities of the Zonal Railways (AIE/Sr. IE/XEN of plant) at manufacturer's premises in accordance with IS: 6006. In addition to this, periodical test checks by nominated Railway officer to be stipulated by the Railway and shall also be carried out.

6,12 CSPs will ensure procurement of 53-S grade Cement to requisite specification from BIS Licensee manufacturers along with their own Manufacturers Test Certificate with each consignment. In addition to this, periodical test checks by nominated Railway officer to be stipulated by the Railway and shall also be carried out.

7. Modification to Design:

In case purchaser, at any stage, during the currency of the contract, decide to make minor modifications to the design of PSC Sleeper, the supplier shall modify the moulds, manufacturing process, etc. to suit such minor modifications. The cost of such modifications will be negotiated and mutually settled and will be paid by the purchaser.

8. Security Deposit (SD):

8.1 The Security Deposit (SD) shall be taken from all successful tenderers as per Board's letter No. 2004/RS(G)/779/11/Pt. dated 23.12.2019 (Annexure-M) or 3% of PO value as per letter No. 2020/RS(G)/779/16 dt.27.11.2020. (Annexure-N), whichever is lower.

8.2 The successful tenderers will be required to deposit Security Deposit with Paying Authority within 21 days from the communication of acceptance with respect to the purchaser. The Security Deposit may be made in any of the following manners

(a) Government Securities to be valued at 5% below the market value.
(b) Deposit receipt of any Nationalized Bank.
(c) Bank Guarantee issued by any Nationalized/Scheduled Bank.
(d) Demand Draft of any Nationalized Bank.
(e) A deposit in Post Office Savings Bank.
(f) National Savings Certificate.
(g) Defence Deposits.
(h) National Defence Bond.

Performa of BG for Security Deposit is enclosed as Annexure-X.

8.3 Deposits in the Post Office Saving Bank should be hypothecated by the depositor to the Paying Authority.

8.4 Wherever SD is submitted through a Bank Guarantee, the issuing Bank should be intimated to send the Bank Guarantee directly to the Paying Authority by the issuing Bank under registered post A.D. SD should be in the prescribed format as per Annexure-X enclosed.

8.5 When deposits are made in Government Securities, it should be seen that all accrued interest to the debit on the G.P. Notes is duly collected by depositors prior to the G.P. Notes being endorsed to the Paying Authroity, there should be at least two blank pages on the G.P. Notes after the last endorsement by the depositor. These are necessary to enable further endorsement by the Railway to the Reserve Bank of India.

8.6 The payment of Security Deposit in the form of Deposit Receipt/Pay Order/Demand Draft should be made in favour of Paying Authority.

8.7 Security deposit should remain valid for a minimum period of 60 days beyond the date of completion of all contractual obligations of supplier. After completion of all contractual obligations, SD will be returned to the successful supplier.

In case of endorsement signed "PER BEARER" "FOR" power of attorney is necessary duly registered and such endorsement need be certified by the Public Department Office of the Reserve Bank of India with their rubber stamp before G.P. Notes are delivered to the Railways.

8.8 Purchaser shall be entitled and it shall be lawful on his part to forfeit the said security deposit in whole or in part in the event of any default, failure or neglect on the part of the Contractor in the fulfillment or performance in the respect of the contract under reference or any other contract with the Purchaser or any part there to the satisfaction of the Purchaser and the Purchaser shall also be entitled to deduct from the said deposits any loss or damage which the Purchaser may suffer or be put by reason of or due to any act or other default, recoverable by the Purchaser from the Contractor in respect of the contract under reference or any other contract and in either of the events aforesaid to call upon the Contractor to maintain the said security deposit at its original limit by making further deposits, provided further that the Purchaser shall be entitled to recover any such claim from any sum then due or which at any time thereafter may become due to the Contractor under this or any other contracts with the Purchaser.

9. Dispatch

9.1. The consignee instructions and booking orders will be given by the -------- ---------- or his nominee.

9.2. On placement of railway wagons or road vehicles as arranged by the purchaser at the works siding, the contractor will load the passed sleepers at his cost within the specified loading time. The loading pattern shall be as per drawing approved by the Purchaser. Hard wood battens of 50 x 50 mm section shall have to be provided free of cost by the contractor at both rail seats of each sleeper on every successive layers loaded in wagons or road vehicles, but contractor shall be at liberty to collect the wooden packing at destination at his own cost; and no claim of shortage or damage would be entertained by the purchaser.

9.3. The contractor shall arrange loading promptly and any payment of demurrage charges on account of delay in loading shall be to the contractor's account. A dispatch certificate indicating the number of sleepers taken over, their category and **batch number,** etc. of sleepers loaded into wagons/vehicles may be obtained from the consignor authorized by the Railway ---------- ---------- or his nominee. Such certificate shall be admitted for the purpose of payments.

9.4. The responsibility for damages or losses en route will be to the account of the purchaser only for consignment booked against clear RRs or against certificates as per clause 9.3 above.

10. Delivery Scheduleand extension to Delivery Period (DP)

10.1. The production shall commence within Two months from the date of unconditional acceptance of counter offer. Thereafter, the ordered quantity shall be supplied during the delivery period (D.P) of two years maintaining a uniform schedule to be monitored over 6 month periods w.e.f. the date of commencement of supplies as per contract. The Purchaser however has the right to slow down the supplies (deferred delivery), and accordingly have the right to enhance delivery period unilaterally upto 6 months on the same rates, terms and conditions at its sole discretion.

Extension to delivery period, beyond 6 months may however be done only with mutual consent of Supplier and Purchaser.

Notwithstanding the uniform schedule of delivery, actual supplies will be regulated by the purchaser as per its actual requirement. The six monthly supply schedule can however be altered by slowing down the rate of production by the purchaser by giving 3 months notice to supplier. In case the supplies are slowed down, the delivery period will be extended accordingly. Enhancement of the supplies in the agreed six monthly supply schedule will however be done with the mutual consent. Failure to make supplies as per the six monthly schedule fixed in advance will attract Liquidated Damages as per clause 11 below.

10.2. **Liquidated damages:**

If the contractor fails to deliver the store within the delivery period as per contract or as extended or at any time repudiates the contract before the expiry of such period due to any circumstances whatsoever, save as provided in Clause 10.3, and force majeure conditions defined in Clause17, the purchaser reserves the right to cancel the contract for the balance quantity in whole or in part and recover from him the liquidated damages as per Clause 12. If, however, the stores are accepted after the expiry of the period fixed for delivery, the purchaser may grant an extension of the delivery period at its sole discretion, subject to the following conditions:

(a) That the purchaser has the right to recover from the contractor the liquidated damages in terms of clause 0702 of IRS Conditions of Contract on the stores, which the contractor has failed to deliver within the period fixed for delivery;

(b) That no increase in price on account of any statutory increase in or fresh imposition of Customs Duty, Excise Duty, Sales Tax, Freight Charges or on any account of any other tax or duty leviable in respect of the stores specified in the contract, which takes place after the date of delivery period stipulated in the said Acceptance of Tender shall be admissible on such of the said stores as are delivered after said date;

(c) That notwithstanding any stipulation in the contract for increase in price on any other grounds no such increase which takes place after the delivery date stipulated in the contract shall be admissible on such of the said as are delivered after the said date;

(d) But nevertheless the purchaser shall be entitled to the benefit of any decrease in price on account of reduction in or remission of Customs Duty, Excise Duty, Sales Tax or on account of any other ground which takes place after the expiry of the above mentioned date namely the delivery date stipulated in the contract. The contractor shall allow the said benefit in his bills or in the absence thereof shall certify that no decrease in price on account of any of these factors has taken place.

10.3. Delay in dispatch of sleepers for want of supply of BFRs/Wagons/Trucks by Railway beyond 15 days of passing by the Inspecting Authority shall be considered a valid ground for the purpose of extension of delivery period by the Railway. Stacking of the sleepers beyond the stacking capacity of the plant will also be considered as valid ground for extensions of delivery period. In cases where production has been completed within DP, but dispatch is pending on account of Railway, Railway can grant extension to delivery period, without LD for enabling dispatch of such sleepers..

10.4. **Supply Tolerance Clause**

If unsupplied quantities at the expiry of DP/extended DP are within 5% of the contracted quantity, then the same will be treated as cancelled without financial repercussion on either side".

11. **Damages for slower supplies during "Monitoring Period":**

The progress of supply will be evaluated after every six months (monitoring period).In case of failure on the part of the supplier to arrange supplies as per the schedule fixed in advance, save force majeure conditions and/or cases of delays attributable to the railways, the purchaser reserves the right to cancel the quantity in deficit at the end of monitoring periods i.e. every six month and recover from the defaulting contractor a sum equivalent to five percent of the cost of sleepers which have remained unsupplied. The recovery of five percent as detailed above will be effected only when Railway cancel the quantities in deficit at the end of monitoring period through a written order to this effect. In case, Railway do not cancel the quantities in deficit at the end of monitoring

period, the supplier will be entitled to recoup the shortfall in subsequent monitoring period(s) and in such cases LD shall be leviable.

12. Liquidated Damages (LD) for Failure to Complete Supplies within Delivery Period and Damages on Termination of Contract

The Liquidated damages in pursuance of clause 0702 of IRS Conditions of Contract along with LD specified in para 11 above will be limited to a maximum of 10% of the cost of stores which the contractor fails to deliver within the period fixed for delivery in the contract or as extended, where delivery of the store is accepted after expiry of the aforesaid period. In case, the delivery of the store is not accepted by the purchaser after expiry of the period fixed for delivery in the contract or as extended or the contract is terminated before expiry of the contract due to failure of the contractor to execute the contract as per the agreed terms and conditions of the contract during its currency, the damages equivalent to 5% of the cost of sleepers undelivered/cancelled would be recovered from the contractor.

13. Price Variation Clause:

13.1 The accepted rate will vary in accordance with the price variation formula as detailed below in clause 13.2 to take into consideration variation in prices during execution of contract. Price variation will be worked out by taking into consideration the Indices/basic rates for the month of production.

13.2 Price Variation Formula

$$P_1 = (P_0/100)\,(10 + 23\, l_1/l_o + 11\, L_1/L_o + 21\, S_1/S_o + 26\, C_1/C_o + 9\, W_1/W_o)$$

Where

P_1	:	Updated Basic Rate of sleeper
P_o	:	Accepted Basic Rate of sleeper
I_1	:	WPI for Pig Iron during production Month as per Economic Advisor, Ministry of Industry web site http:// eaindustry.nic.in
l_o	:	WPI of Pig Iron for one month before tender opening month as per Economic Advisor, Ministry of Industry Web site http://eaindustry.nic.in
L_1	:	All India Consumer Price Index of Industrial Labour during production Month, as per Labour Bureau, Ministry of Labour web site http://labourbureau.nic.in
Lo	:	All India Consumer Price Index for Industrial Labourfor one month before tender opening month as per Labour Bureau, Ministry of Labour web site http://labourbureau.nic.in
S_1	:	WPI for alloy steel wire rods during Production Month as per Economic Advisor, Ministry of Industry web site http:// eaindustry.nic. in
So	:	WPI for alloy steel wire rods for one month before tender opening month as per Economic Advisor, Ministry of Industry web site http:// eaindustry.nic. in
C_1	:	WPI for ”Ordinary Portland Cement” during production month as per Economic Adviser, Ministry of Industry website http://eaindustry.nic.in/
Co	:	WPI for ”Ordinary Portland Cement” one month before tender opening month as per Economic Adviser, Ministry of Industry website http://eaindustry.nic.in/
W_1	:	WPI for all commodities during production Month as per Economic Advisor, Ministry of Industry web site http:// eaindustry.nic. in
Wo	:	WPI for all commodities for one month before tender opening month, as per Economic Advisor, Ministry of Industry web site http:// eaindustry.nic. in

13.3 In order to avoid blockage of funds till final escalation is worked out and paid on the basis of indices for the month of production, the accepted price will be updated every six months as per the above formula for escalation. First updating shall be done on the basis of indices for the month of acceptance of tender as soon as confirmed indices for the month of acceptance are available. Payment for the supplies made shall be done at the latest updated price.

14. Purchase preference for Make in India:

14.1 The purchaser shall take due consideration of Public Procurement (Preference to Make in India) Order, dated 15.06.2017. In this regard, Railway Board letter No. 2015/RS(G)/779/5 dated 03.08.2017 which is revised vide Railway Board letter No. 2020/RS(G)/779/5 dated 12.06.2020, which is further revised vide Public Procurement (Preference to Make in India) Order, dated 16.09.2020 circulated vide Railway Board letter No. 2015/RS(G)/779/5 (Vol. III) dated 25.09.2020 (Annexure-A1) may be downloaded from Railway Board's website under the link of circulars of Stores Dte.

14.2 Local content: For the purpose of above policy, the minimum local content for Class I supplier shall be 50% and 'margin of purchase preference' shall be 20%.

14.3 As para 9(b) of Make in Indian Policy letter dt.16.09.2020, as procurement value is in excess of Rs. 10 Crore. The Class-I local supplier/Class-II local supplier are required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accounts (in respect of suppliers other than companies) giving the percentage of local content.

14.4 Procurement under this tender shall comply with the Clause 10(d) (ii) of Public Procurement (Preference to Make in India) Order, dated 16.09.2020 which states "Entities of countries which have been identified by the nodal ministry/department as not allowing Indian Companies to participate in their Government procurement for any item related to that nodal ministry shall not be allowed in Government procurement in India for all item related to that nodal Ministry, except for the list of the item published by the permitting their participation.

14.5 In pursuance of the public procurement policy on MSE(Micro & Small Enterprises) vide notification of Government of India dated 23.03.2012 (as notified in the Gazetted of India Notification No. 503 dated 26.03.2012 (clarified vide Office of Development (Commissioner), MSME's OM dated 15.02.2016 as amended on 04.10.2019 by Ministry of MSME), the following conditions are applicable for eligible MSEs :

(a) Participating MSEs quoting a price within price band of L1 +15% shall be allowed to supply a portion of the requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSEs can be together ordered up to 25% of the total tendered value.

(b) The sub-target for procurement from MSEs owned by SC/ST shall remain at 4% and MSEs owned by women the sub-target shall be 3%, out of the total 25%.

(c) MSEs who are interested in availing themselves of the above benefits will enclose with their offer the proof of their being MSE registered for tendered item or similar items registered with any of the agencies mentioned in the notification of Ministry of MSME indicated below :

(i) District Industries Centers.
(ii) Khadi and Village Industries Commission.

(iii) Khadi and Village Industries Board.

(iv) Coir Board.

(v) National Small Industries Corporation.

(vi) Directorate of Handicraft and Handloom.

(vii) Any other body specified by Ministry of MSME.

Under above Para (c)(vii), as per OM dated 15.02.2016 of the Office of Development Commissioner, all the micro & small Enterprises (MSEs) who are having Udyog Aadhaar should be given all benefits available under Public Procurement policy for MSEs Order 2012. Office of Development Commissioner, MSME vide office memorandum dated 24.10.2016 has issued FAQs on MSEs order 2012 may be referred at http://dcmsme.gov.in/faq.pdf.

(d) The MSEs certificate/document submitted by bidders must also indicate the terminal validity date of their registration. The registration should be valid on the date of opening of tender.

(e) All MSE's shall be eligible for benefits of public procurement policy irrespective of product category under with MSEs are registered.

(f) Failing (a) to (d) above, such offers will not be eligible for consideration of benefits detailed in MSE notification of Government of India dated 23.03.2012 (as amended by the Ministry of MSME on 04.10.2019).

15. Payments:

15.1 The time to time interim payment towards supply of finished goods shall be made at the updated rate. The final payment would be made as per Escalated/De-escalated rate worked out on the basis of Price Variation Clause (Clause 13). All payments will be made by the FA& CAO of the Zonal Railway on submission of bills in accordance with the procedure as detailed below:

15.2 90% of the price of each consignment will be paid after the PSC sleepers are inspected and passed by the Purchaser on execution of Indemnity Bond (as per enclosed proforma) (AnnexureIV) for an equivalent amount by the contractor. In such cases of 90% advance payments, a copy of the Inspection Certificate shall be enclosed with the bills. The contractor may submit the Indemnity Bond for 90% of the contract value in one go in lieu of submitting several Indemnity Bonds for 90% of value of each inspected consignment.

15.3 Balance 10% of the price of each consignment will be paid on proof of dispatch and on submission of Indemnity Bond (as per enclosed proforma) (Annexure V) for 25% of the value of stores supplied covering the warranty period as per warranty clause. The contractor may submit the Indemnity Bond for 25% value of the entire value of the contract in one go in lieu of submitting several Indemnity Bonds for 25% of each consignment. Consignor's Certificate shall be enclosed with 10% bills. In case, 90% payment as laid down in clause 15.2 above is not sought, 100% of the price of each consignment will be paid on proof of dispatch of stores and on submission of Indemnity Bond.

15.4 PSC mono-block concrete sleepers which are treated for surface defects as provided under Clause 4.7.3 of the 'Standard IRS Specification of PSC Line Sleepers' as amended up to date and provided at Annexure-II of this tender document shall be accepted and payment made @ 92.5% of the standard sleepers.

15.5 All payments shall be subject to the deduction of any amount for which the Contractor is liable under this contract or any other contract in respect

of which the President of India is the Purchaser and any other deductions as are legally leviable as per Indian laws.

15.6 If the contractor opts for "Letter of Credit" option during bidding at IREPS, then payment will be released through a letter of credit (LC) arrangement as per guidelines issued vide RBA No. 10/2018 and RBA No. 48/2018.

16. Progress Report

The Contractor shall submit monthly progress report on production, supply, inspection, rejection and on stocks of principal raw materials to the Paying Railway as per proforma prescribed by Railway by 1st of the following month and also furnish stock position of principal raw materials and any other particulars relating to the contract when called for.

17. Force Majeure

In the event of any unforeseen event directly interfering with the supply of stores arising during the currency of the contract, such as war, insurrection, restraint imposed by the Government, act of legislature or other authority, explosion, accident, riots, strike, lockout, acts of public enemy, acts of God, the contractor shall within a week from the commencement thereof notify the same in writing to the purchaser with reasonable evidence thereof.

If the force majeure condition(s) mentioned above be in force for a period of 90 days or more at any time, the purchaser shall have the option to terminate the contract on expiry of 90 days of commencement of such force majeure by giving 14 days notice to the contractor in writing. In case of such termination, no damages shall be claimed by either party against the other save and except those which had accrued under any other clause of this agreement prior to such termination.

18. Option for the variation of quantity of order

18.1 Without prejudice to purchaser's right as laid down in clause 10.3 and 11 above, the purchaser, at its sole discretion, reserves the right to vary the contract quantity by ± 30% without assigning any reason at price, terms and conditions of the initial orders during the currency of the contract.

18.2 Quantity variation beyond (+) 30%:

Any increase in quantity beyond (+) 30% shall only be with the mutual consent of the supplier and purchaser. In case of default by any other contractor in the form of shortfall in supplies by defaulting CSP/s, Railway, at its sole discretion may cancel the quantity of defaulting CSP/s and may approve commensurate increase in the contract quantity of

performing CSPs (i.e. those performing satisfactorily in contract)at price, terms and conditions of the initial orders during the currency of the contract. This clause shall be operated with the concurrence of associate finance. This increase would be in addition to 30% quantity referred to in clause 18.1 and would be limited to further 30% of the ordered quantity.

19. Guarantee

19.1 The contractor guarantees that the PSC Sleepers which he supplies shall be manufactured fully in accordance with specifications. In all cases, the contractor guarantees that its design shall strictly follow the "as made" detailed drawing with such modifications as are notified in respect of each type.

19.2 The contractor further guarantees that the PSC sleepers shall be free from defects in material and workmanship. The contractor shall be liable to arrange the necessary replacements of the defective sleepers free of any charge only to the extent that such replacements are attributable to or arise from faulty workmanship or material or design in the manufacture of the sleepers. All replacements shall be made free of cost at destination. If the contractor so desires, the replaced sleepers can be taken over by him for disposal as he deems fit, within a period of three months from the date of receipt of the replacement of defective sleepers by the purchaser. At the expiry of this period, no claim in this respect shall lie on the purchaser.

19.3 The guarantee herein contained shall not apply to any material which shall have been repaired or altered by the Purchaser, or on his behalf in any way so as to effect its strength, performance or reliability, or to any defect to any part due to misuse, negligence or accident.

19.4 The guarantee herein contained shall expire in respect of each sleeper on the expiry of five years from the date of the manufacturing / three years from date of placement in service, whichever is earlier, except in respect of defects notified to the contractor prior to the expiry of such date. Provisions of IRS T-39 in this regard shall also be applied.

19.5 All replacements that the purchaser shall call upon the contractor to deliver under this guarantee shall be delivered by the contractor within 60 days from the date of intimation of such rejection of defective sleepers. If the contractor fails to replace the defective sleepers within the said period, the cost of the said sleepers at the rate stipulated in the contract shall be recovered from the payments due to the contractor.

19.6 Any approval of acceptance by the purchaser of the sleepers or of the materials, incorporated therein shall not in any way limit the contractor's liability hereunder.

19.7 The decision of the purchaser in regard to contractor's liability under this guarantee shall be final and conclusive.

20. Book Examination

The book examination as per IRS condition shall apply in toto. The purchaser reserves the right to carry out the book examination at its discretion at any stage during the currency of the contract. In case book examination clause is invoked, required facilities to the team conducting book examination will be provided by the contractor in his premises.

21. Licensing of Railway Land

21.1 Licensing of Railway land required either for setting up a factory or stacking of sleepers near to the siding to the extent available and surplus to Railway's requirement will be dealt with under normal Railway rules prevalent from time to time.

21.2 The land so licensed out to the contractor shall remain in his possession during the currency/extended currency of the contract. The contractor will not have the right to subject, assign or mortgage the land licensed to him.

22. Loading

Loading of concrete sleeper in railway wagon shall be permitted in goods sheds or other available sidings at works station. Wherever siding facilities are available, the same should be utilized for the purpose of loading of the sleepers by the contractor. If the siding facilities are not existing, the same would be provided by the Railways unless ordered otherwise to facilitate loading of sleepers to the extant considered necessary by the Railways. No placement for siding charges shall be leviable for such siding facilities in both the cases. Necessary permission for erecting gentries adjacent to the sidings (other than good sheds) shall also be accorded by the Railways. Loading shall be arranged by the contractors at his own cost. Till siding is provided, contractor, at his own cost, shall arrange to load sleepers in road vehicles arranged by the purchaser as detailed in clause 9.2.

23. Cartel Formation

(a) The Tenderers are expected to quote most competitive prices freely.

(b) Wherever all or most of approved firms quote equal rates and cartel formation is suspected, the purchaser reserves the right to place order on one or more firms with exclusion of the rest, without assigning any reasons thereof. The selection of one or more firms may be on the basis of past performance records, capability, capacity, quality performance, after sales service response etc. subject to rates being considered reasonable.

(c) The firms who quote in cartel are warned that their names may be deleted from list of approved sources.

(d) Firms are expected to quote for a quantity not less than 25% of the tendered quantity. Offers for quantity less than 25% of tendered quantity will be considered unresponsive and liable to be rejected in case Cartel Formation is suspected. Railways, however, reserve the right to order on one or more firms for any quantity.

(e) Whenever tender is floated with Purchase restriction from sources approved by nominated authorities and there exists a suspected cartel situation by approved sources or the rates available from approved source/ sources are adjudged unreasonably high, despite fair efforts as permissible, the purchaser reserves the right to place order on firms outside vendors list, without any restrictions.

24. Laws Governing The Contract

24.1 This Contract shall be governed by the Laws of India being in force.

24.2 Irrespective of the place of delivery, the place of performance or the place of payment under the order, the order shall be deemed to have been made at the place from where the acceptance of tender has been issued.

25. Jurisdiction of Courts

The Courts of the place where the contract agreement has been signed shall have the jurisdiction to decide any disputes arising out of or in respect of the order.

26. Indian Railways Standard Conditions of Contract as amended up-to-date, Indemnity Bond Proforma, Special Indemnity Bond proforma, Indian Railways Specifications T-39 for Prestressed Concrete Sleepers pre-tensioned type (Broad Gauge) as amended from time to time, Schedule of Technical Requirement as applicable from time to time, Drawings for wagon loading arrangements, IRS Specifications, IS:12269/1987 as amended from time to time for Special Cement and IS-1785 Pt.I, IS 6006/1983 for HTS Wire plain and strand and T-46/1996 for SGCI Inserts as amended up-to-date respectively will form part of the tender document to the extent they are not superseded by the above provisions.

27. Determination of Contract Owing To Default of supplier: If the supplier:

(i) Fails to start production even after lapse of 12 months from the date of issue of LOA, or

(ii) Repeatedly fails to maintain the stipulated quality standards adequately, thereby resulting in large scale rejection of sleepers (>2%)/large scale pre-mature failure of sleepers in service, or

(iii) Contravene any provision of the contract and fail to rectify/make good the same despite notice,

Then, the contract signing authority on behalf of the Railway may serve the supplier with a notice in writing highlighting the incidences of breach of contract/default(s), and if the Contractor does not within 15 days after the delivery to him of such notice proceed to make good his default in so far as the same is capable of being made good and fails to carry on the work or comply with such directions as aforesaid tothe entire satisfaction of the Railway.

Then, the Railway shall be entitled to rescind/cancel the contract as a whole or in part (as may be specified) after expiry of notice period. A final termination/cancellation notice will be issued to this effect detailing there in the Damages levied.

* * *

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

INDIAN RAILWAY

STANDARD SPECIFICATION

FOR PRE-TENSIONED PRESTRESSED CONCRETE SLEEPERS

FOR

BROAD GAUGE AND METRE GAUGE

SERIAL NO. T-39

(FIFTH REVISION –February 2016)

RESEARCH DESIGNS AND STANDARDS ORGANISATION
LUCKNOW – 226011

CONTENTS

INDIAN RAILWAY SPECIFICATION FOR FOR PRE-TENSIONED PRESTRESSED CONCRETE SLEEPERS (BROAD GAUGE AND METRE GAUGE)

SERIAL NO. T-39
(FIFTH REVISION –February 2016)

0. FOREWORD

0.1 This standard specification (First revision) was adopted by the Indian Railways in May 1985 after the draft was finalized by the Sub-committee of Track Standards Committee.

0.2 The last revision (Fourth Revision) was adopted by the Indian Railways in August 2011.

0.3 The present revision (Fifth Revision) has been taken up with a view to incorporate modifications found necessary as a result of use of the specification both by the manufacturer and user.

0.4 The significant modifications incorporated in this revision are as follows :-

0.4.1 Clauses for mix design as per relevant IS code has been added for both the cases of new mix design and revised mix design due to change of materials.

0.4.2 Additional relevant tests on aggregates have been added for use of crushed stone sand as fine aggregate.

0.4.3 All Correction slips /Corrigendum (upto Corrigendum no. 1) issued till date have been incorporated.

0.4.4 Typical steam curing cycle has been added for guidance.

0.4.5 Guarantee Clause has been revised as per Corrigendum no. 1 dated 22.04.2013.

0.4.6 Clauses for sleeper testing SBT & MF have been modified.

0.4.7 Clause on rejected sleepers has been revised for destroying these permanently.

0.4.8 List of specifications needed for daily use and referred to in this specification has been updated in Annexure-VI.

1. SCOPE

1.0 This specification covers the manufacture and supply of pre-tensioned pre-stressed concrete sleepers for broad gauge and meter gauge. For production of PSC sleepers through long line method, some of the provisions of this Specification may not be implementable. In such cases, manufacturer shall approach RDSO for specific dispensations, wherever required and these dispensations will be considered by Track and Quality Assurance Directorate of RDSO.

2. GENERAL

2.1 The manufacture of sleepers shall be to the Purchaser's drawing or to drawings approved by the Purchaser and the production shall commence with the prior approval of the Inspecting Officer. Any subsequent change in material or production technique shall require prior approval of Inspecting Officer.

2.2 The reference to IRS specifications and drawings in this specification relates to the latest version of these standards as amended from time to time. The provisions of this specification shall override the corresponding provisions of IS: Specifications. Any special requirements given in the drawings of the sleepers will override the relevant provisions of the specification. Annexure-I shows the list of specifications required for manufacturing of sleepers.

3. MATERIALS

3.1 High Tensile Steel

3.1.1 High tensile steel in the form of plain wire or strand shall conform to IS: 1785 Part-I and IS: 6006 respectively. It shall be procured only from BIS approved manufacturers who shall furnish the proof of approval by BIS with the first consignment during the currency of approval and for each fresh approval. Each consignment of high tensile steel must be accompanied by a test certificate showing the serial no. of coils. Each coil shall carry a tag in accordance with the IS specifications mentioned above. In addition to the normal tests stipulated in the IS specifications for every consignment, results of "relaxation test" shall also be furnished once in six months. In case of change of source the first test certificate shall include "relaxation test" results also.

The steel shall be used for production only after ascertaining that it meets the provisions of relevant specifications.

3.1.2 Whenever directed by the Inspecting Officer, the manufacturer shall get the steel in stock tested at his own cost.

3.2 **Cement**

3.2.1 Cement shall conform to IS: 12269 -1987 with amendment No.6 of June 2000.

3.2.2 Each consignment of cement shall be covered by a test certificate. Each consignment shall be stocked separately, tested in the laboratory of the plant immediately for all relevant properties and shall be clearly identified. Cement more than 3 months old, if free from lumps, shall be tested for physical properties by an independent government approved laboratory or as directed by the Inspecting Officer and may be used after his approval.

3.2.2.1 The Inspecting Officer has the right to have the cement in stock tested at any time at the cost of manufacturer.

3.2.2.2 In case the source of supply of cement is changed, the mix design shall be reviewed and modified, if necessary, as per instructions given in para 3.6.3.1.

3.2.3 The cement content of the mix shall not be less than 350 kg/cu. m. and not more than 480 kg/cu.m. for M55 & 500 kg/cu.m. for M60.

3.3 **Admixture**

3.3.1 Super Plasticizer conforming to IS: 9103 may be used with the prior approval of RDSO. At this stage the revised concrete mix design shall also be submitted to RDSO for approval. However, following shall be observed:

3.3.2 Use of any admixture containing chloride in any form is prohibited.

3.3.3 Generally one admixture at a time should be used.

3.3.4 The admixture should be stored as per specified conditions by its manufacturer and its shelf life should be monitored continuously.

3.3.5 All containers should be correctly leveled. Reliable liquid dispenser for liquid admixtures should be used and calibrated.

3.3.6 The admixture containing Cl and SO_3 ions shall not be used. Admixtures containing nitrates shall also not be used. Admixture based on thiocynate shall be prohibited.

3.4 **Aggregates**

3.4.1 The aggregates shall conform to IS: 383 and shall, before use, be got tested through an approved testing institute, and results submitted in accordance with Appendix 'A' of IS: 383 to the Inspecting Officer for approval. These tests shall be got done at the manufacturer's cost once in a year or at the time of approval/review of mix design or as desired by inspecting official. The aggregates shall have maximum 30% abrasion and maximum 30% impact value suitable for wearing surfaces when tested in accordance with IS:2386 (Part-IV). The flakiness index and elongation index shall not exceed 30% when tested in accordance with IS: 2386 (Part-I).

3.4.2 Coarse and fine aggregates shall pass sodium or magnesium sulphate accelerated soundness test specified in IS: 2386 (part V)-1963.

3.4.3 Aggregates shall not contain harmful material such as pyrites, coal, lignite, mica shale or similar laminated material clay, alkali soft fragments, sea shells and organic impurities in such quantity as to affect the strength for reinforced concrete shall not contain any material liable to attack steel reinforcement. Maximum limit of deleterious material in aggregates should conform IS: 383 when tested in accordance with IS: 2386(Part-II) -1963.

3.4.4 Aggregates which are reactive with alkalies of cement are harmful as cracking of concrete may take place. Potential reactiveness of aggregates shall be tested as per IS:2386 (part VII)-1963.

3.4.5 Coarse aggregates shall be crushed stone, angular in shape and gravel shall not be used.

3.4.6 Different sizes of aggregates shall be stacked in different storage bins or stock piles on proper hard floor surface. The bins near batching plant must be located under a covered shed to avoid any chance of raw material getting wet due to rains. Alternatively, auto sensors may be used to record the moisture content in the aggregate along with auto mechanism for adjusting water to be added to concrete in the weigh batcher.

3.4.7 If crushed stone sand is being used as fine aggregates then bond strength (pull out test) of concrete shall be tested as per IS: 2770 (Part I)-1967 (Re-affirmed 2012) during mix design approval and after production of every 5000 sleepers during regular production.

3.5 **Water**

3.5.1 Water to be used in making and for curing concrete shall conform to IS: 456. However use of sea water is prohibited.

3.5.2 If water needs any treatment before use, adequate storage of treated water for daily requirement shall be made. Facilities for testing treated water shall be provided in the plant. Treated water shall be tested daily or as directed by the Inspecting Officer.

3.5.3 The total water content per batch shall be regulated with conform with the ratio by weight of free water to cement required for the particular design mix as established by preliminary tests. The total water content of a batch includes :

(a) Absorbed water in the aggregates;
(b) Free water in the aggregates; and
(c) Free water added to the mix.

3.5.3.1 The water to be mixed at the mixer shall be free water content required per batch less the amount of free water in the aggregates, if wet, or plus the amount of water the aggregates will absorb, if dry. Free moisture content shall be determined at least once a day.

3.6 **Concrete**

3.6.1 The concrete shall be of controlled quality with the nominal maximum size of aggregates limited to 20mm. Where wire spacing permits, aggregates upto 25mm may be used. The manufacturer shall get the concrete mix design along with the upper and lower limits of granulometric curves approved by the Inspecting Officer.

3.6.1.1 The granulometric curves shall be plotted on semilog graph once in a week and shall be between the approved limits.

3.6.1.2 Coarse and fine aggregates shall be batched separately.

3.6.2 The concrete shall satisfy the following design parameters:

i)	Minimum release strength after steam curing	40 N/sq.mm (For Mix M-55) 40N/sq.mm (For Mix M-60)
ii)	15 days characteristic strength after water curing	55 N/sq.mm (For Mix M-55) 60 N/sq.mm (For Mix M-60)
iii)	Percentage of cubes with strength less than the characteristic strength as per mix design/statistical analysis	Not more than 2.5%
iv)	Co-efficient of variation	Less than 7%

3.6.3 Concrete mix shall be designed as per guidelines in IS:10262-2009 (or latest version) and complying design parameters as per para 3.6.2 by the sleeper plant, checked by zonal railways and got approved from RDSO before start of the sleeper production. RDSO will check and verify the new mix design at the sleeper plant by testing of trial cubes as per para 3.6.4 and complying design parameters as per para 3.6.2.

3.6.3.1 Zonal railways shall review the concrete mix design themselves whenever the source of cement or water or admixture is changed as per guidelines in IS: 10262:2009 (or latest version) provided the quantity of cement is not reduced. All new ingredients must be got tested before hand from reputed laboratory to ascertain whether they are suitable to be used as per relevant standards/ specifications. The copy of test report of all ingredients, mix design calculations, record of trial cube testing and records of modification should be communicated to RDSO for information and should be available with zonal railway as well as with CSP, so that the same can be inspected during oversight inspection by RDSO official. However, if the source of aggregate changes, RDSO should be approached by the zonal railways for approval of the source and also for reviewing/revising the mix design.

Zonal Railway or RDSO will check and verify the revised mix design at the sleeper plant by testing of trial cubes as per para 3.6.4 and complying design parameters as per para 3.6.2.

3.6.4 At the time of approval/review of mix design, 80 cubes shall be cast, using materials proposed for regular manufacture, in 10 batches of 8 cubes each, 4 for steam curing and 4 for water curing.

3.6.4.1 All the 40 cubes cured according to the proposed steam curing cycle shall attain the specified minimum release strength.

3.6.4.2 The statistical analysis of the compressive strength values of the 40 water cured cubes shall satisfy the design parameters of clause 3. 6.2 (ii), (iii) & (iv).

3.7 **SGCI Inserts**

3.7.1 SGCI inserts shall conform to IRS Specification No.T-46-1996 as amended up-to-date and will be procured only from RDSO approved manufacturers. Each consignment of SGCI inserts shall be accompanied by a test certificate from inspecting agency for inspection conducted prior to dispatch of consignment from supplier's premises.

3.7.2 Whenever directed by the inspecting official, the sleeper manufacturer shall get the SGCI inserts in stock tested at his own cost.

4. MANUFACTURE

4.1 Moulds

Moulds shall be of steel with minimum plate thickness of 10 mm in Rail seat area as well as for end plates. For other locations minimum plate thickness is to be 6 to 8 mm. Moulds shall be of rigid construction so as to prevent any in-service distortions. Moulds shall not allow any appreciable leakage of cement mortar in casting. The holes in the end plates shall be accurately drilled for correct placement of prestressing wires.

4.2 Stretching of wires

The prestressing wire shall be stretched either individually or collectively by an approved method. The tensioning force shall be as shown on the sleeper drawing. The final force to be adopted, duly considering the losses while stretching shall be approved by the Inspecting Officer. However, the stretching force shall in no case exceed 75% of the minimum specified UTS of the wire. The pre-tensioning force in the wire shall be applied by a tensioning device equipped with automatic load cut off unit along with measuring gauge. The final force shall also be verified by measuring the extension of the wire.

4.3 Mixing and consolidation of concrete

4.3.1 Manufacture of sleepers shall be done under a shed.

4.3.2 Batching of different ingredients shall be done by weight only. A modern, mechanized, or automatic weigh batcher shall be used for weighing aggregates and cement. The weigh batcher shall have an accuracy of +/- 3%.

4.3.3 Modern high speed mixer, pan, turbine or any other suitable type, approved by the Inspecting Officer shall be used for mixing concrete. Concreting shall commence within 2 hours of stressing of wires, failing which the HTS wires shall be checked and re-tensioned, if necessary.

4.3.4 Concrete shall be thoroughly mixed and consolidated by means of vibrators of at least 9000$\pm$4% revolutions/minute. The vibrator should normally be fixed at the bottom of the mould, at least at two different locations for a sleeper. Any other vibration system should have prior approval of RDSO.

4.3.5 Freshly cast sleepers shall be protected during the first stage of hardening from adverse weather conditions.

4.4 De-tensioning of wires

Anchoring system shall provide a device for gradual de-tensioning of the wires. Back pulling of wires for releasing any wedge shall be strictly prohibited. De-tensioning of wires shall be undertaken only after the concrete has attained a compressive strength of 40 N/sq.mm.

4.5 Curing

4.5.1 Initial curing of concrete sleeper shall be done by steam at atmospheric pressure till the concrete attains a compressive strength of 40 N/sq.mm. Pre-steaming period shall not be less than the initial setting time of cement.

Typical steam curing cycle as per existing practice shall be of duration from 11 to 11.5 hours as under for guidance:

i) Pre steaming period of 1.5 - 2.0 hrs but shall not be less than initial setting time of cement.
ii) Rate of rise in temperature shall not be more than 20°C per hour. Normally duration is 2.5-3.0 hrs depending upon ambient temperature.
iii) Maximum temperature shall be kept within 70 – 75 °C for atleast 4 hours.
iv) Cooling of sleepers shall be gradual upto 10 - 15°C above the ambient temperature. Typical duration is 3 - 3.5 hrs.

The steam curing cycle which is proposed to be adopted shall have prior approval of the inspecting official.

4.5.2 After de-tensioning, the sleepers shall be cured for a further period of not less than 14 days (as per mix design) by submerging in water. Water used for curing should conform to the quality prescribed for water to be used for concrete mix.

4.5.3 Each steam chamber in stress bench method or production line in long line method shall be attached with a separate digital thermal sensor, temperature shall be recorded continuously and record shall be maintained.

4.6 Supervision

4.6.1 Suitably qualified persons as per Schedule of Technical Requirement shall be engaged by the manufacturer for supervising the following items at the works:

i) Placing and stressing of prestressing wire;

ii) Batching, mixing, placement and compaction of concrete. Checking of the steam curing arrangement for its adequacy.

iii) De-moulding of sleepers, water curing, stacking/ loading etc.

iv) Inserts shall be checked by suitable jigs before use by the manufacturer.

v) Testing of cement, cement mortar cubes, concrete cubes, concrete beams;

vi) Calibration of testing and measuring equipment and different gauges;

vii) Checking electrical resistance of sleepers.

4.6.2 Supervisor so engaged shall maintain records as directed by the Inspecting Officer and shall present them for scrutiny when demanded.

i) A site register shall be maintained in which inspecting officer shall record observations against which compliance will be recorded by the supervisor.

ii) Suitable records as per Schedule of Technical Requirement shall be maintained in such a manner that it can be correlated at a later date to the sleeper laid in field.

4.7 **Finish**

4.7.1 All sleepers shall be free from surface defects such as water retaining pockets, air holes or honey combed formations. The underside of the sleeper coming in contact with ballast shall be left rough but the unevenness shall not exceed 5mm. The ends of the prestressing wires shall be cut close to the surface of the sleeper in such a way that there is minimum damage to end plate and the wire in no case shall project more than 3 mm from the concrete surface. Two coats of suitable ISI mark anti corrosive paint, approved by Inspecting Officer, shall be applied at the ends of the sleepers in the following manner:

i) First coat of paint, sufficient thick to form impervious film of paint covering full surface of either ends of a sleeper shall be applied just after de-moulding from sleepers mould, and

ii) Second coat after taking out the sleepers from submerged water curing tank in the above manner, ensuring that surface to be painted is completely dry and clean of dirt etc.

4.7.2 No touching up or finishing by cement mortar etc. shall be permitted on concrete sleeper, after it is de-moulded, except as provided in clause 4.7.3.

4.7.3 Such sleepers which are not found acceptable due to surface defects, shall be accepted up to a ceiling of 1% of the supplies made any time during the currency of the contract provided such sleepers are adequately treated with epoxy compounds to the satisfaction of the Inspecting Officer. However, epoxy treatment of rail seat area is not acceptable. These sleepers shall be marked as shown in Drawing No.RDSO/T-2466 before dispatch. The rectified sleepers shall be paid for at the rates fixed by the Purchaser.

4.8 **Stacking**

After the sleepers have been cured in terms of clause 4.5.2 and checked both dimensionally and visually they shall be stacked at convenient place in lots. The stacking of sleepers shall be done on leveled and consolidated ground, one over another up to 25 layers. Each layer shall be separated by wooden/concrete battens of 50mm x 50mm size of suitable lengths to avoid any damage.

4.9 **Lots**

All sleepers cast in one shift shall form one lot.

5. INSPECTION AND TESTING

5.1 The manufacturer shall supply at his expense, all the sleepers required for tests and retests, samples of materials, labour, machine, tools, gauges, apparatus, forms of test reports etc. and any other item which may be necessary or required by the Inspecting Officer for carrying out any or all of the checks and tests mentioned in these specifications and shall render all reasonable assistance in conducting such checks and tests. All measuring and testing appliances shall be got checked and calibrated according to the schedule given in Annexure-I, through government approved agency or as directed by the Inspecting Officer. The calibration certificate shall be furnished to the Inspecting Officer. The cost of all such checks and calibrations shall be borne by the manufacturer.

5.2 Inspecting Officer and the Purchaser shall have free access at all reasonable times to the works in which the sleepers are

manufactured. They shall be at liberty to inspect the manufacture of sleepers at any stage and to reject any material supplies not conforming to the terms of the specifications and to reject sleepers not manufactured according to approved manufacturing process. They shall be provided with necessary assistance for inspection by the manufacturer.

5.3 **Checks and tests**

5.3.1 In addition to the control checks exercised on the materials and manufacturing process specified above, the concrete and the finished sleepers shall be subjected to regular checks and tests, after 14 days submerged water curing, as detailed in clause 5.3.1.1.

5.3.1.1 Visual and Dimensional Check

Every sleeper shall be visually inspected for surface finish. No sleeper shall have surface defects except as provided in para 4.7.3.

Sleeper dimensions to be checked are listed below:

(i) Critical dimensions are toe gap, location of inserts, distance between inserts at rail seat, distance between outer most inserts and slope at rail seat.

(ii) General dimensions are depth of sleeper at centre, rail seat and end of sleeper; width of sleeper at top and bottom; length of sleeper, camber and wind at rail seat and position of high tensile steel wires at ends.

The sketch at Annexure-II shows the dimension checking arrangement. The dimensions, shown on the sleeper drawing, shall be checked by means of approved gauges, procured by the manufacturer. (Annexure II/A shows the gauge for measuring toe gap of rail seat).

(iii) Scale of check

a) Prior to stabilization of production technique*:- Scale of check per lot for critical dimension is 100% (hundred percent) and for general dimensions 10% (ten percent) of sleepers produced.

b) After stabilization of production technique* :- Scale of check per lot for critical dimensions is 10% (ten per cent) and for general dimension 1% (one percent), but the dimensions between outer inserts shall be checked 100%.

c) Notwithstanding the provisions in (a) & (b) above the Inspecting Officer may decide to check the dimensions at scale higher than mentioned in para (a) & (b) above.

* Acceptance of minimum 10000 sleepers and achieving rejection rate less than 2% consistently, whichever is later, shall be one of the major criteria for deciding the stabilization of the manufacturing technique. After stabilization, the rejection rate shall be assessed after every 30000 numbers sleeper production and if it is found beyond 2%, then all the testing have to be done as per the frequency prescribed for pre-stabilized production. The additional cost of sleepers required for testing shall be borne by the firm.

5.3.2 **Casting of cubes**

15 cm size cubes shall be cast on a vibrating table conforming to IS:2514 (1963) from random samples spread over the entire lot, out of concrete used for casting sleepers for testing prior to transfer of prestress and 15 days.

5.3.3 **Method of testing**

The cubes shall be surface dry at the time of testing. The rate of loading shall be about 400 KN/minute.

5.3.4 **Compressive strength of concrete at transfer (release) of prestress**

These cubes shall be steam cured along with sleepers in the same manner and tested for transfer of prestress to concrete (at least one cube for every steam chamber/3 for each long line but not less than a total of 3 in any case).

5.3.5 **Test for 15 day compressive strength of concrete**

These cubes shall not be steamed but shall be water cured for 14 days after de-moulding. Three cubes per lot shall be tested for 15 days compressive strength of concrete. In case, average strength of concrete in three cubes is less than 48 N/mm^2 for M55 Grade of concrete and 55 N/mm^2 for M60 Grade of concrete, the lot shall be rejected and the mix design shall be reviewed.

5.3.6 **Test for 15 day modulus of rupture of concrete**

The test for 15 day modulus of rupture of concrete shall be carried out on concrete beams of 10 x 10 x 50 cm size as specified in IS:516. One specimen shall be tested daily prior to

the stabilization of production technique, and once a week thereafter. If any value falls below 5.2 N/mm^2 for M55 and 5.5 N/mm^2 for M60, the mix design shall be reviewed.

5.3.7 **Tests for static bending strength of sleepers**

5.3.7.1 **Method of testing**

5.3.7.1.1 The tests shall be conducted in accordance with the arrangement shown in Annexure-III.

5.3.7.1.2 The sleepers shall be loaded gradually (30-40 KN/min) upto the specified load, which will be retained at this level for three minutes for observing cracks, if any. For the purpose, a crack is defined as one which is barely visible to the naked eye and is at least 15mm long from the tension edge of the sleeper. However, if crack appears at a load smaller than the specified load, that value shall be recorded.

5.3.7.1.3 In case of 'Moment of Resistance' (MR) test, the sleeper shall be deemed to have passed the test if it sustains the loads specified in Annexure-III or in relevant sleeper drawing without cracking. While loading, load can be applied upto 5KN in excess of specified load.

5.3.7.1.4 In case of 'Moment of failure' (MF) test, the sleeper shall be deemed to have passed the test if it is able to take load beyond the specified test load. The initial cracking loads shall also be recorded for rail seat bottom, centre top and / or centre bottom (as the case be) for further statistical analysis of data during MF test.

5.3.7.1.5 Sleepers for test shall be selected randomly by the inspecting officer.

5.3.7.2 **Acceptance tests**

5.3.7.2.1 **Moment of failure (MF) test (for rail seat bottom)**

Prior to stabilization of production technique, one sleeper for every 250 sleepers manufactured shall be tested. After the production technique gets stabilized the testing scale shall be reduced to one sleeper for every 2500 sleepers produced.

5.3.7.2.2 **Moment of resistance (MR) test (Rail seat bottom, centre top, centre bottom)**

Depending on 15 day cube strength of the lot as mentioned in para 5.3.5. The scale of testing for the lot shall be as follows :

i) Wherever minimum strength of the three cubes is 55 N/sq.mm and above for M55 & 60 N/sq.mm and above for M60 – one sleeper per lot

ii) For Mix M-55:- Wherever average strength of the three cubes is less than 55 N/sq.mm but up to 48 N/sq. mm – two sleepers per lot.

For Mix M-60:- Wherever average strength of the three cubes is less than 60 N/sq.mm but up to 55 N/sq. mm – two sleepers per lot.

a) Prior to stabilization of production technique: Sleeper to be tested shall be subjected to rail seat bottom, centre top and centre bottom tests.

b) After stabilization of production technique: Sleeper to be tested shall be subjected to rail seat bottom and centre top tests only.

iii) In case, 15 days average strength of concrete in three cubes for a lot is less than 48 N/mm^2 for M55 Grade and 55 N/mm^2 for M60 Grade, the lot shall be rejected and no testing for moment of resistance or moment of failure will be conducted.

NOTE:

(i) Test procedure has also been shown as a flow chart in Annexure IV.

(ii) Wherever MF test is to be conducted, it shall be performed on the first sleeper selected for testing under clause 5.3.7.2.2.

5.3.7.3 **Acceptance of 'lots'**

5.3.7.3.1 All sleepers tested in accordance with clause 5.3.7.1 should pass all the acceptance tests provided in clause 5.3.7.2 for the lot to be accepted. The specified values of Load for Centre Top, Centre bottom, Rails Seat cracking and MF test are as under :-

SLEEPER	CENTER TOP (KN)	CENTER BOTTOM (KN)	RAIL SEAT BOTTOM	
			CRACKING (KN)	FAILURE (KN)
BG	60	52.5	230	370
MG	25	40	150	250

5.3.7.3.2 If the sleeper fail in any of the tests conducted as per clause 5.3.7.2.2 (i), the lot shall be subjected to 'retest' as per clause 5.3.7.4.

5.3.7.4 **RETEST**

5.3.7.4.1 **MR**

For every sleeper failed in acceptance tests as per clause 5.3.7.2.2 (i), two more sleepers from the same lot shall be retested as per clause 5.3.7.2.2.

However, in case of testing of two sleepers as per clause 5.3.7.2.2(ii), if any of the sleepers fail, the lot shall be rejected.

5.3.7.4.2 **MF**

In case of failure of the sleeper in MF test as per clause 5.3.7.2.1, 2 more sleepers from the same lot shall be selected for testing in MF as per clause 5.3.7.2.1 and 5.3.7.2.2 and subjected to all relevant tests. However, if the sleeper has passed MF test and failed in some other test MF test need not be repeated on subsequent sleepers subjected to testing.

5.3.7.4.3 For acceptance of the lot, all the sleepers tested in 'retest' must pass all the tests conducted. However, sleepers failing in any static bending tests shall not be paid for.

Also final passing of the lot is a prerequisite condition for payment for any sleeper having passed all the relevant tests conducted on that sleepers.

Sleeper/sleepers tested for rail seat bottom failure test and passes the test, shall be paid by the purchaser, if that particular lot passes all the relevant retests.

NOTE:

In case where more than one test value is obtained in retests. The lowest value obtained will be taken as strength of the lot for deciding the result of the lot.

5.3.8 **Measurement of electrical resistance**

5.3.8.1 All sleepers shall be tested as per Annexure-V for electrical resistance for their fitness for use in track circuited area.

5.3.8.2 For inspection of concrete sleepers, officials having competency certificate issued after due test by RDSO/Chief Track Engineer only shall be posted.

6. STAMPING AND MARKING

6.1 All the sleepers shall have legible permanently inscribed and painted markings on the top as per drawing No.RDSO/T-2466.

6.2 The accepted sleepers shall bear the passing marks of the Inspecting Officer in indelible paints. Sleepers which have been subjected to static bending strength test up to cracking and accepted, shall in addition be marked on the top in indelible paint with the letter 'T'. MF tested and accepted sleepers shall bear the marking 'MF' in paint with yellow bands at ends.

6.3 All sleepers fit for use in track circuited area shall bear the mark 'FTC' at the center of the sleeper.

6.4 Rejected sleepers shall be stacked separately by the manufacturer so as to avoid their mixing with the accepted sleepers. Such rejected sleepers shall be marked in the way specified in drawing No.RDSO/T-2466.

The rejected sleepers shall be permanently damaged so as to render them un-useable and a certification that all rejected sleepers of previous batches have been permanently damaged will be given by manufacturer before offering next batch for inspection. The same shall be verified and ensured by inspecting officials/ SSE's and AIE before issuing the IC.

6.5 All markings mentioned in para 6.1 to 6.3 shall be done with enamel paint of ISI mark and shall be such as to last for at least 3 years under normal weather conditions. Colour and quality of the paint used shall be got approved by the Inspecting Officer. All such markings shall be done by the manufacturer at his cost.

7. LOADING AND DESPATCH

7.1 Only those sleepers which have been passed, properly marked and accepted by the Inspecting Officer shall be loaded for despatch.

7.2 The loading of the passed sleepers in wagon shall be done by the manufacturer at his cost as per the loading arrangement approved by the purchaser. The sleepers shall be properly secured to avoid movement and displacement during transit. The manufacturer shall be responsible to replace, free of cost, all the sleepers which are found damaged in transit on account of defective loading.

8. GUARANTEE

8.1 The sleepers as per RDSO Drawing no. T-2496 shall be guaranteed by the manufacturer for a period of five years from the date of manufacturing / 3 years from the date of placement in service (whichever is earlier). If during the guarantee period, sleepers in general are found to develop defects attributable to bad material and workmanship as established during investigation, leading to large scale withdrawal from service, the cost of sleepers and their replacement shall be borne by the manufacturer. The defective sleepers withdrawn from service can be taken over at site by the manufacturer for their disposal. The manufacturer shall make good the cost due within 60 days of advice of defects. The sleeper manufacturer will also be involved during inspection / investigation and his view will be considered by the Purchaser before taking decision. The decision of the purchaser shall be final and binding in this regard.

ANNEXURE-I

SCHEDULE FOR CALIBRATION OF VARIOUS GAUGES AND TESTING EQUIPMENTS IN THE CONCRETE SLEEPER PLANT

S.No.	Equipment	Frequency
1	15 cm concrete cube testing machine (2000 KN capacity)	Once in 3 months
2	Cement mortar cube testing machine (500 KN capacity)	Once in 6 months
3	Sleeper Static Bend Test Machine (500 KN capacity)	Once in 3 months or after testing 250 sleepers, whichever is earlier.
4	Pre tensioning Jacks (500 KN capacity)	Once a month or after casting 5000 sleepers whichever is earlier.
5	Pre-tensioning load cell	-do-
6	Concrete Beam Testing Machine (100 KN capacity)	Once in 6 months
7	Aggregate weight batcher	Once every week or after casting 2000 sleepers, whichever is earlier.
8	Cement weighing equipment	-do-
9	Water Meter	-do-
10	Master gauges for checking correctness of dimension measuring gauges	Once in 6 months
11	Dimension checking gauges	Once every 15 days or after inspecting 5000 sleepers, whichever is earlier.
12	Proving rings (2000 KN, 500 KN and 100 KN capacity)	Once in 18 months
13	Weights & Measures	By Weights & Measures Department as per extant rules.
14	Tachometer	Once a year

ANNEXURE-I (CONTD.)

Note:

1. The items referred at S.No.1 to 6 above should be calibrated by proving rings in the sleeper plant itself.

2. The items referred at S.No.7 & 8 should be calibrated by dead weights and item at S.No.9 by measuring cans which should be available in the plant.

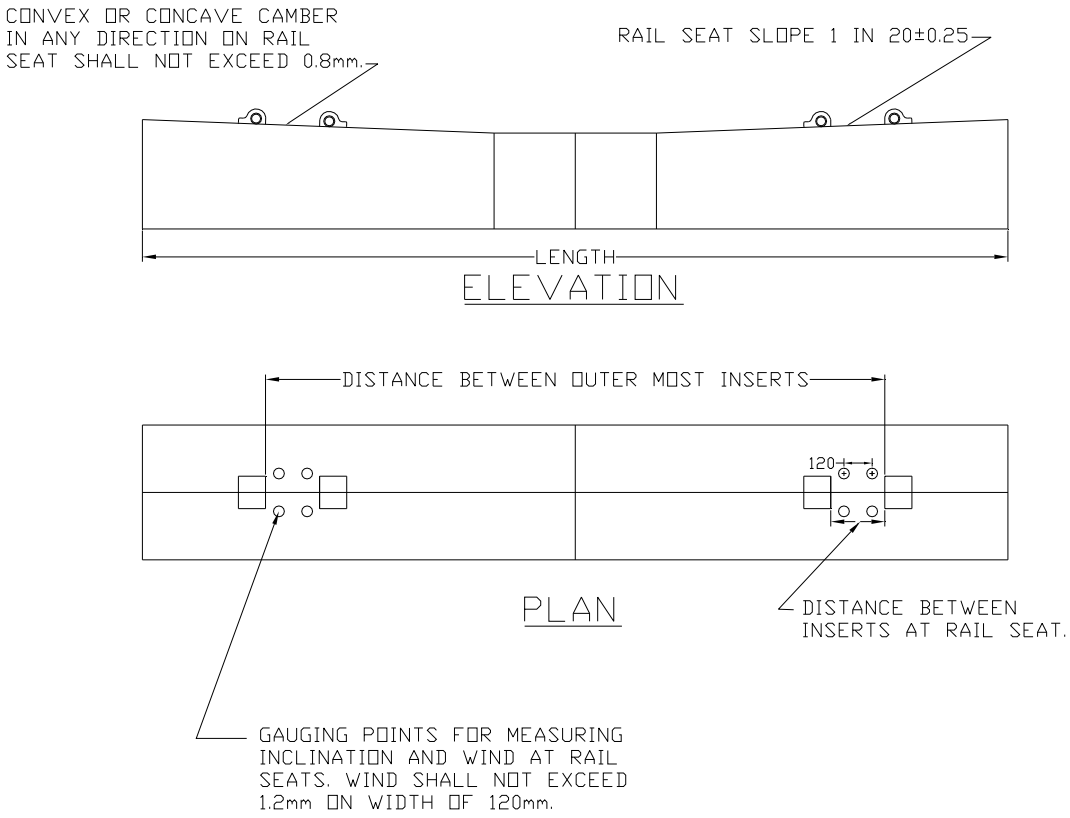
3. The proving rings should be got calibrated from a reputed organization like the IITs, NCCBM or NPL etc.

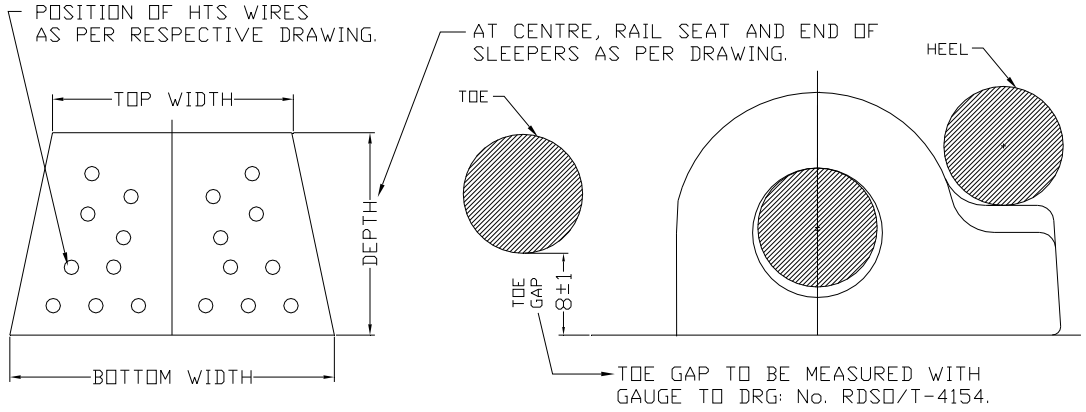
4. The record of calibration of all the above equipments should be maintained in a manner that previous records can be easily connected.

5. The calibration can be done more frequently at the discretion of the Inspecting Official.

ANNEXURE-II

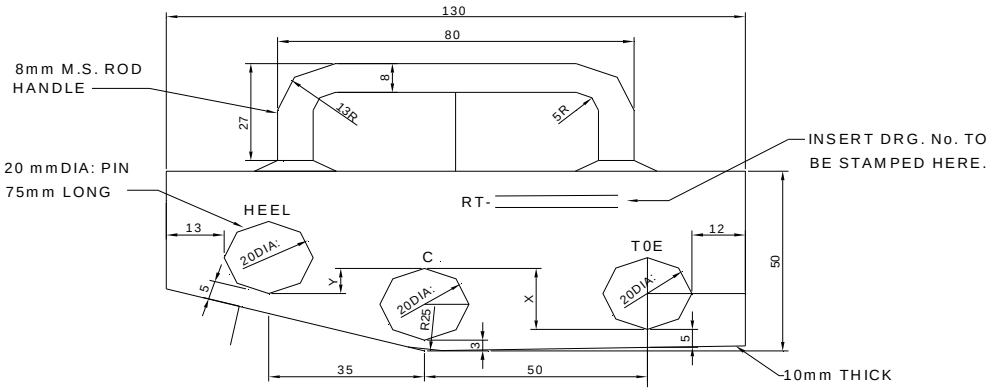
DIMENSIONS CHECKING ON PSC SLEEPER



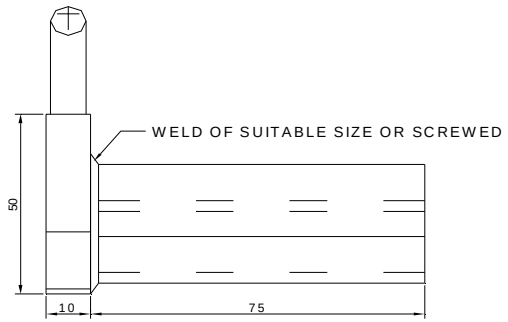


NOT TO SCALE

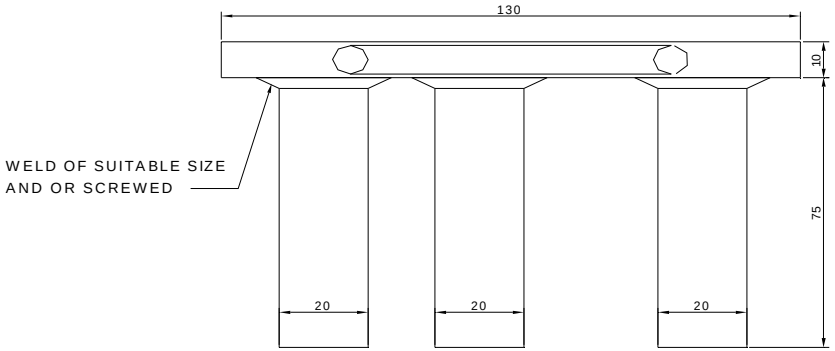
Annexure – IIA (Contd.)



ELEVATION



SIDE ELEVATION



PLAN

TABLE

INSERT TO DRG. No.	DIMENSIONS mm	
	X	y
RDSO/T-381	17	7
RDSO/T-4847	9.5	7
RDSO/T-4848	8.2	7
RDSO/T-2479	17.75	7.75
RDSO/T-3705	21,70	7.00
RDSO/T-3087	22.40	9.50

R. D. S. O.

GAUGE TO MEASURE TOE GAP

AT RAIL SEAT ON PRC SLEEPERS.

3. LATEST ALTERATION NUMBER SHALL BE CHECKED BEFORE PLACING ORDERS.
2. STEP GAUGE SHALL BE USED TO MEASURE TOE GAP OF 8±1 AT RAIL SEAT.
1. ALL DIMENSIONS ARE IN MILIMETRES.

NOTE	SPECIFICATION	SCALE	ALT:	DESCRIPTION	DATE
			1.	REVISED AND REDROWN	

STAN
CANC
REV

ADVANCE
25-11-92

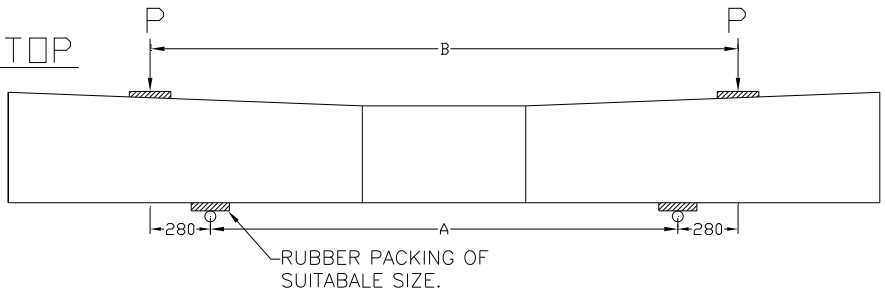
(T)

RDSO / T- 4154

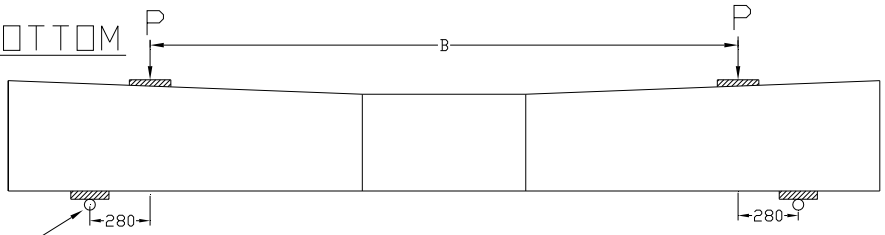
ANNEXURE-III

TESTING AARRANGEMENT FOR STATIC BENDING STRENGTH TEST FOR PRESTRESSED MONOBLOCK CONCRETE SLEEPERS FOR B.G. & M.G.

CENTER TOP



CENTER BOTTOM



RAIL SEAT BOTTOM

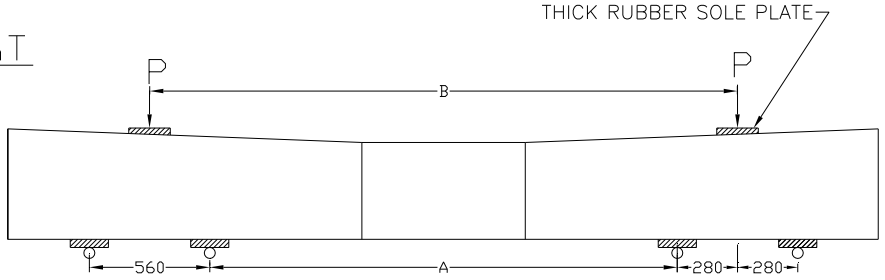


TABLE-1

DIMENSION	52 Kg.(BG)	60 Kg.(BG)	90R(MG)
A	1195	1201	520
B	1755	1761	1080

TEST LOAD FOR ACCEPTANCE("P" IN kN)

TABLE-2

CENTER TOP		CENTER BOTTOM	RAIL SEAT–BOTTOM	
			CRACKING	FAILURE
1	2	3	4	5
BG	60.00	52.50	230.00	370.00
M.G.	25.00	40.00	150.00	250.00

NOTE:– THE VALUES MENTIONED IN ABOVE TESTING ARRANGEMENT,TABLE–1 & TABLE–2 ARE FOR DRAWING NO.RDSO/T–2495 & 2496 ONLY FOR OTHER DRGS. CORRESPONDING DRAWING SHALL BE REFFERED.

ANNEXURE-III (Contd.)

NOTE:

1. All dimensions are in millimeters.

2. The load 'P' will be applied at centre line of Rail Seat through pressure distributing M.S. Plate with 1 in 20 slope and size 130X25mm for 52kg rail and 145x25mm for 60kg rail, covering the full width of sleeper.

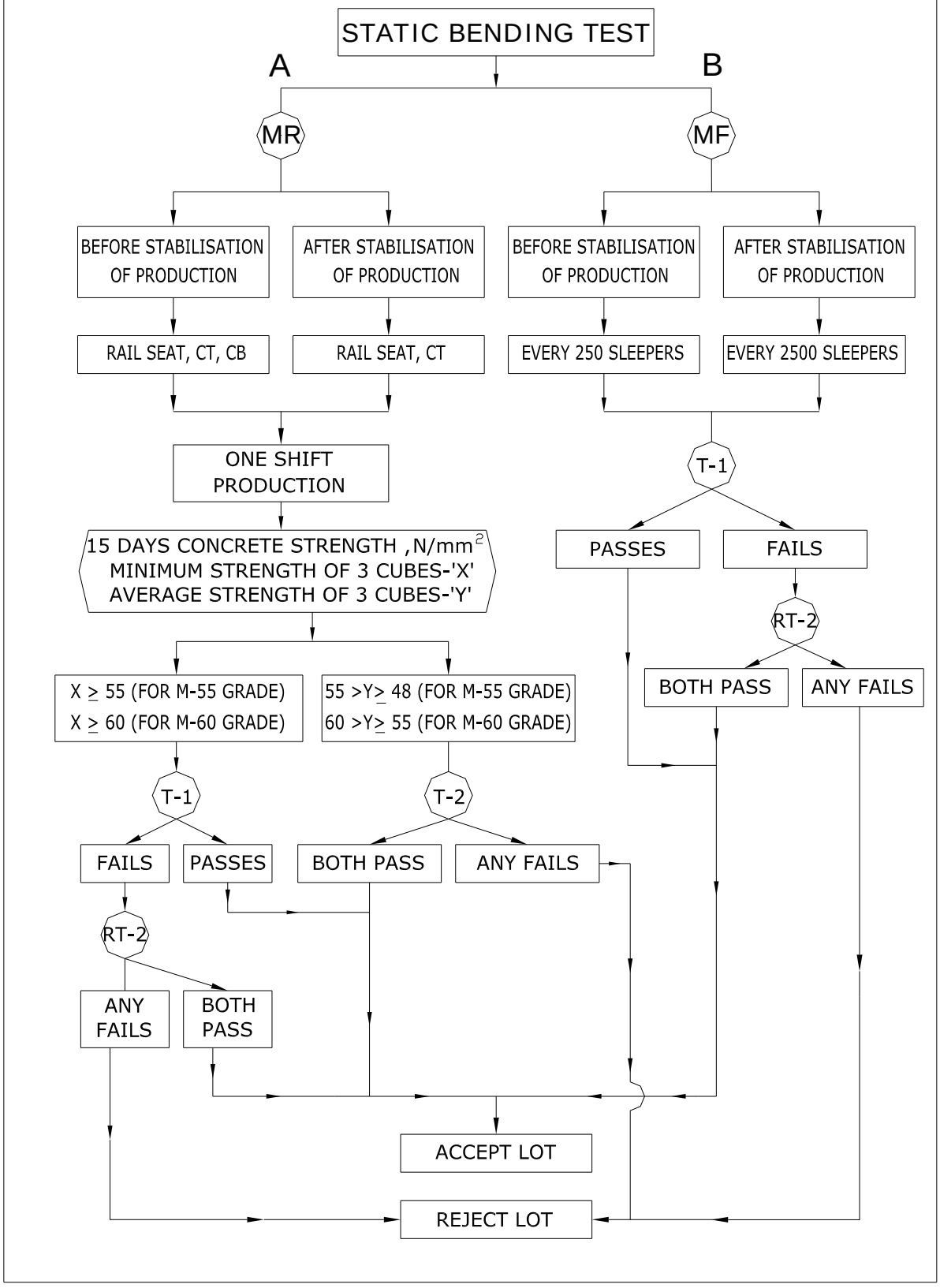
3. One rail seat bottom shall be tested at a time. It shall be ensured that the other end is not restrained in upward direction. The rate of loading is 30-40KN per minute.

4. Cracks shall not appear up to the load mentioned in column 2, 3 & 4 of table II when retained for one minute.

5. A coat of lime wash shall be applied on the sleeper surface before testing.

ANNEXURE-IV

FLOW CHART FOR TESTING OF SLEEPER



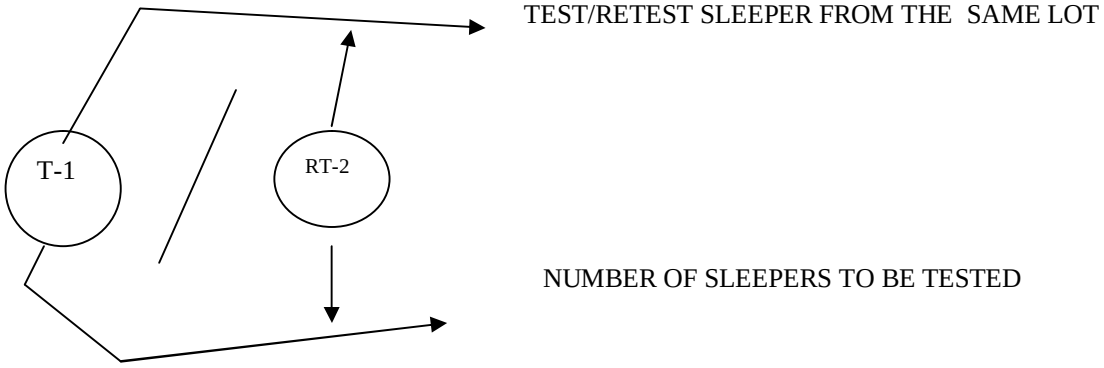
ANNEXURE-IV (Contd.)

NOTATIONS & EXPLAINATORY NOTES:

MR: MOMENT OF RESISTANCE TEST:

- RAIL SEAT BOTTOM, CENTRE TOP & CENTRE BOTTOM (PRIOR TO STABILISATION)
- RAIL SEAT BOTTOM & CENTRE TOP (AFTER STABILIZATION)

MF: MOMENT OF FAILURE TEST FOR RAIL SEAT BOTTOM



PASSES : SLEEPER PASSES RELEVANT TEST SUCCESSFULLY

FAILS : SLEEPER FAILS IN ANY OF THE RELEVANT TEST

NOTE : (1) WHEN DUE, MF TEST SHALL BE CONDUCTED ON THE FIRST SLEEPER SELECTED FOR TESTING UNDER MR

(2) WHENEVER MF IS DONE, PASSING THIS TEST IS A PREREQUISITE FOR ACCEPTANCE OF THAT LOT UNDER 'A' OF FLOW CHART.

(3) IF THE FIRST SLEEPER HAS PASSED MF TEST BUT FAILED IN ANY OTHER TEST, MF TEST NEED NOT BE REPEATED ON SUBSEQUENT SLEEPERS SUBJECTED TO RE-TESTING.

ANNEXURE-V

PROCEDURE FOR CHECKING FITNESS OF CONCRETE SLEEPERS ON TRACK CIRCUITED STRENGTH (AT THE TIME OF INSPECTION IN THE CONCRETE SLEEPER MANUFACTURER'S PREMISES

1. All the sleepers shall be tested.

2. The sleeper shall be checked for electrical resistance at 230 volts AC supply. The circuitry to be followed will be shown in sketch at Annexure-V (Contd.).

3. The 230 volts AC supply will be passed through a not less than 300 W test lamp in series with the pairs of inserts being tested. For the sake of comparison, another comparator bulb of the same wattage directly connected to the 230 volts AC supply will be fitted along side.

4. Since the testing is being done at a higher voltage, removal of the rust layer by grinding shall not be necessary.

5. Resistance will be checked against 2 rail seats.

6. If the test lamp emits light dimmer than the comparator lamp in the sleeper, the sleeper shall be accepted and marked 'FTC' (Fit for Track circuit). If it emits light with the same brightness as the comparator lamp, the sleeper will be rejected and marked 'NFTC' (Not fit for track circuit). In case the test lamp does not emit light at all, it indicates that the circuitry is defective and should be rechecked.

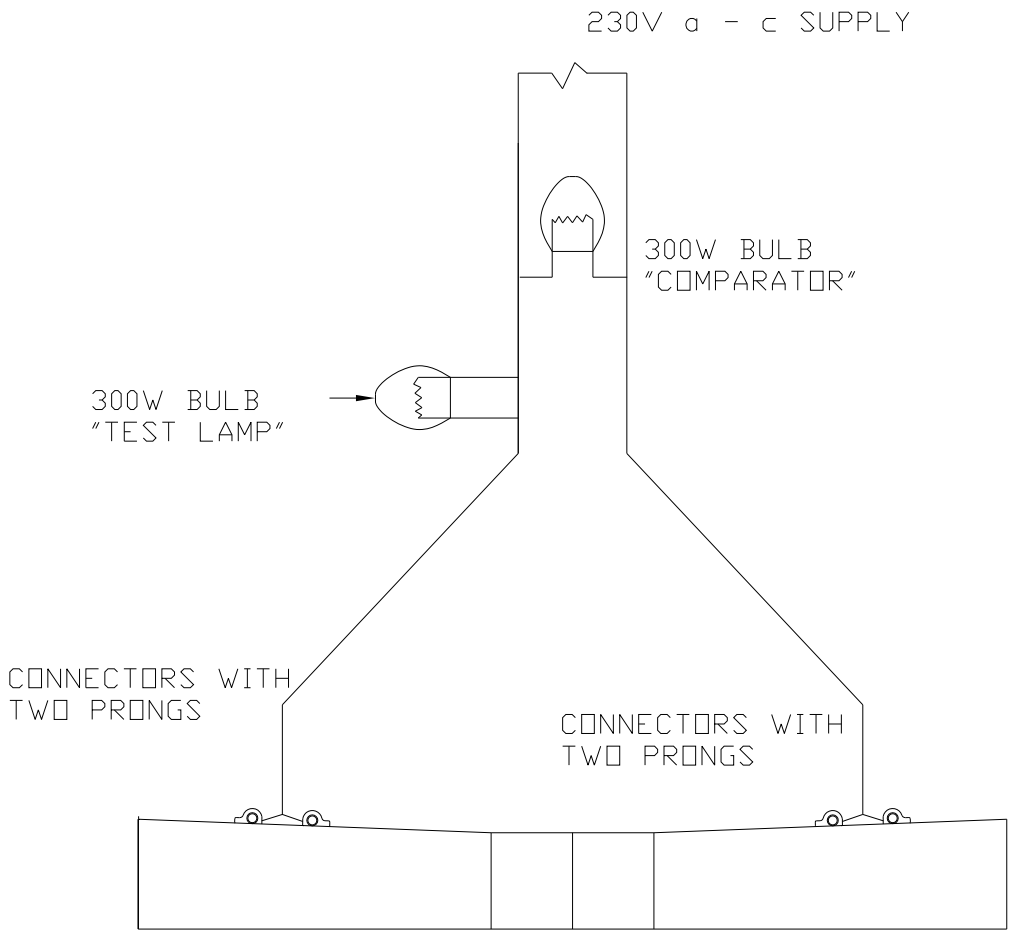
7. In the event of doubts regarding comparison of brightness, such sleepers will not be marked. They will be retested with 1.5 V Avometer and marked for fitness, if found fit with 200 ohms resistance.

8. The 'NFTC' marked sleepers should be stacked separately. The FTC/NFTC marking shall be done on top of sleepers in middle portion, as shown on Drawing No.RDSO/T-2466.

9. As the testing is done at higher voltage, all precautions such as use of gloves in the hands, insulated boots and insulated chairs for operator and other necessary precautions shall be taken for the safety purpose.

ANNEXURE-V (CONTD.)

ELECTRICAL CIRCUIT FOR TESTING CONCRETE SLEEPER IN PLANT



NOTE:

1. THE CONNECTORS SHALL HAVE TWO PRONGS EACH SO THAT BOTH INSERTS AT A RAILSEAT ARE TESTED AT A TIME.
2. NECESSARY PRECAUTIONS FOR WORKERS SAFETY SHALL BE TAKEN.

ANNEXURE-VI

LIST OF IRS & BIS CODES REFERRED TO

(Up-to-date version of Codes/Specifications with latest amendments/correction slips shall be followed)

S.No.	IRS/BIS No. & Year	Description
1	IS: 12269 - 1987 with amendment No.6 of June 2000	Specification for 53-S grade cement for manufacture of concrete sleepers
2	IS: 1343 - 1980	Code of Practice for Pre-stressed Concrete
3	IS:383 - 1999	Specification for coarse and fine aggregates from natural sources for concrete (Second Revision)
4	IS:456 - 2000	Code of practice for plain and reinforced concrete (Fourth Revision)
5	IS:516 - 1959	Method of test for strength of concrete with amendment No.2
6	IS: 650 - 1991	Specification for standard sand for testing of cement (First Revision with amendment No.3)
7	IS:1785 - 1983 Pt.I	Specification for plain hard drawn steel wire for prestressed concrete Part.I Cold drawn stress relieved wire (Second Revision with amendment No.1)
8	IS: 2386 - 1963 Pt. I – VIII	Methods of tests for aggregate for concrete
9	IS: 2430 - 1996	Methods for sampling of aggregate for concrete
10	IS:2514 - 1963	Specification for concrete vibrating table
11	IS:3536 - 1999	Methods of sampling hydraulic cements (First Revision)
12	IS:4031 - 1999 Pt.I-XVI	Methods of physical tests for hydraulic cement
13	Part II - 1999	Determination of fineness by specific surface by blaine air permeability method (First Revision)
14	Part III - 1988	Determination of soundness (First Revision)
15	Part IV - 1988	Determination of consistency of standard cement paste (First Revision)
16	Part V - 1988	Determination of initial and final setting times (First Revision)
17	Part VI - 1988	Determination of compressive strength of hydraulic cement (other than masonry cement) (First Revision)
18	Part XIV - 1989	Determination of false set
19	IS:4032 - 1985	Methods of chemical analysis of hydraulic cement (First Revision)
20	IS:6006 - 1983	Specification for uncoated stress relieved strand for pre-stressed concrete (First Revision) with amendment No.2
21	IS:9103 - 1999	Specification for Admixtures for concrete
22	IS: 10262 - 2009	Concrete Mix Proportioning - Guidelines
23	IRS: T-46 1996	Specification for Spheroidal Graphite Cast Iron inserts
24	STR	Schedule of Technical Requirement for manufacture of PSC Sleepers as applicable from time to time.

GOVERNMENT OF INDIA

(MINISTRY OF RAILWAY)

R.D.S.O. LUCKNOW

Corrigendum no. 1

to

"Specification for Pre-tensioned Pre-stressed concrete sleepers for BG and MG"

IRS-T-39 (Fifth Revision – Feb., 2016)

(RDSO Letter No. CT/SRC/Insp/Tender Dated 12.08.2016)

The existing clause 3.2.3 shall be replaced as under:

3.2.3 The cement content of the mix shall not be less than 350 kg/cu. m. and not more than 450 kg/cu.m.

The new clause 3.6.3.2 (in between 3.6.3.1 & 3.6.4) shall be added as under :

3.6.3.2 Workability of mix should be kept low i.e. compacting factor in range of 0.75-0.80 for stress bench method. For long line method, workability should be kept slightly higher with slump up to 25mm if required, for proper compaction of concrete, but not leading to segregation to constituents of concrete mix under vibrations.

GOVERNMENT OF INDIA

(MINISTRY OF RAILWAY)

R.D.S.O. LUCKNOW

Corrigendum no. 2

to

"Specification for Pre-tensioned Pre-stressed concrete sleepers for BG and MG"

IRS-T-39 (Fifth Revision – Feb., 2016)

(RDSO Letter No. CT/SRC/Insp/Tender Dated 23.05.2017)

1. The existing **clause 3.2.1** shall be replaced as under:

3.2.1 Cement shall be OPC 53S Grade confirming to IS:269 – 2015 (as amended upto date).

2. The existing **clause 3.4.7** shall be replaced as under:

3.4.7 If crushed stone sand is being used as fine aggregates then bond strength (pull out test) of concrete shall be tested as per IS: 2770 (Part I)-1967 (Re-affirmed 2012) during mix design approval and after production of every 5000 sleepers during regular production. Crushed stone sand being used should not be by-product of any other manufacturing process.

3. The existing Note No. 4 of Annexure-III shall be replaced as under:

3.2.1 Cracks shall not appear up to the load mentioned in column 2, 3 & 4 of Table-II when retained for three minute.

4. The existing list of IRS & BIS Codes as given in **Annexure-VI** is updated with change in S.No. 1,2,3 & 20 as under::

S.No.	IRS/BIS No. & Year	Description
1	IS:269 - 2015	Ordinary Portland Cement – Specification *(including Specification for 53-S grade cement for manufacturing of concrete sleepers)*
2	IS:1343 - 2012	Code of Practice for Pre-stressed Concrete
3	IS:383 - 2016	Specification for coarse and fine aggregates from natural resources for concrete (Third Revision)
4	IS:6006 - 2014	Specification for uncoated stress relieved strand for prestressed concrete (Second Revision)

GOVERNMENT OF INDIA
(MINISTRY OF RAILWAY)
R.D.S.O. LUCKNOW

Corrigendum no. 3
to
"Specification for Pre-tensioned Pre-stressed concrete sleepers for BG and MG"
IRS-T-39 (Fifth Revision – Feb., 2016)
(RDSO Letter No. CT/SRC/Insp/Tender Dated 20.11.2017)

1. The existing clause 3.2.1 shall be replaced as under :

   3.2.2 Cement shall be OPC 53-S conforming to IS:269-2015 (as amended upto date). However, upper limit of SO_3 and C_3A content in 53-S grade cement is revised as 3.3% & 9.0% respectively for improvement in quality of PSC sleepers on IR. Upper limit of initial setting time (IST) of 53-S grade cement is specified as 120 minutes preferably but not more than 150 minutes.

2. The existing clause 4.5.1 shall be replaced as under :

   4.5.1 Initial curing of concrete sleeper shall be done by steam at atmospheric pressure till the concrete attains a compressive strength of 40 N/sq.mm. Pre-steaming period shall not be less than the initial setting time of cement.
   Total steam curing cycle duration can vary from 10 to 12 hours depending on time taken in the steam curing stages e.g. presteaming, temperature rising (heating), constant temperature duration, cooling etc. Total cycle time depends on ambient temperature.

   i) Normal pre-steaming period is recommended as 2 hours or initial setting time (IST) of cement whichever is greater.

   ii) Temperature rising time is recommended as 2.0 to 2.5 hours keeping maximum rate of rise of temperature as 15°C per hour.

   iii) Maximum steam curing temperature shall be not more than 60°C keeping constant temperature in range of 55 – 60°C. Constant temperature duration can be kept between 3.5 to 5.0 hours.

   iv) Cooling of sleepers shall be gradual and cooling period is recommended in range of 2 to 3 hours with cooling rate not exceeding15°C per hour.

   Extra one hour cooling of sleepers at ambient temperature before demoulding is desirable/recommended, if feasible keeping the total cycle time upto 12 hours to minimize difference in external and internal (inside) temperature of sleepers.

   Mix design shall be revised, if minimum strength of 40 steam cured cubes is less than 40 N/mm^2 following the above mentioned stipulations on steam curing cycle. The steam curing cycle which is proposed to be adopted shall have prior approval of the inspecting official.

GOVERNMENT OF INDIA
(MINISTRY OF RAILWAY)
R.D.S.O. LUCKNOW

Corrigendum no. 4
to
"Specification for Pre-tensioned Pre-stressed concrete sleepers for BG and MG"
IRS-T-39 (Fifth Revision – Feb., 2016)
(RDSO Letter No. CT/SRC/Insp/Tender Dated 03.04.2018)

3. The existing clause 5.3.5 shall be replaced as under :

5.3.5 Test for 15 day compressive strength of concrete

These cubes shall not be steamed but shall be water cured for 14 days after de-moulding. Two number of samples per lot (one sample comprises of 3 cubes) shall be taken.

The samples should be spread over the entire period of concreting in a lot. Cubes of these samples shall be tested for 15 days compressive strength of concrete. The test result of a sample shall be the average of the strength of three cubes. Individual variation in cube strength in a sample should not be more than ±15% of the average. If variation is more than ±15%, the test results of the sample is invalid and the lot shall be rejected.

Further, if mean of two test results of two samples is $< f_{ck}$ and / or minimum of the two test results of two samples is $<$ fck – 5 N/mm^2, the lot shall also be rejected. Where, f_{ck} is characteristic strength of concrete i.e. 55 N/mm^2 for M55 and 60 N/mm^2 for M60 grade of concrete.

Otherwise, the concrete is accepted for further testing of sleeper/s as per para 5.3.7.2.2.

4. The existing clause 5.3.7.2.2 shall be replaced as under :

5.3.7.2.2 Moment of resistance (MR) test (Rail seat bottom, centre top, centre bottom)

Depending on 15th day test results of samples of the lot as mentioned in para 5.3.5, the scale of testing of sleepers for the lot shall be as follows (as explained in Table -1):

i) Wherever mean of the two test results of two samples is $\geq f_{ck}$ + 3 N/mm^2 or f_{ck} + 0.825 x established standard deviation whichever is greater and minimum of the two test results of two samples is $\geq f_{ck}$ - 3 N/mm^2 and the lot is not rejected as per the criteria given in para 5.3.5– one sleeper per lot

ii) Wherever mean of two test results of two samples is < f_{ck} + 3 N/mm^2 or f_{ck} + 0.825 x established standard deviation whichever is greater but ≥ f_{ck} or minimum of the of the two test results is < f_{ck} - 3 N/mm^2 but ≥ f_{ck} - 5 N/mm^2 or both and the lot is not rejected as per the criteria given in para 5.3.5 – two sleeper per lot

iii) In case, mean of two test results of two samples is < f_{ck} and /or minimum of the two test results of two samples is < f_{ck} – 5 N/mm^2, the lot shall be rejected and no testing for moment of resistance or moment of failure will be conducted.

Note:

c) Prior to stabilization of production technique: Sleeper to be tested shall be subjected to rail seat bottom, centre top and centre bottom tests.

d) After stabilization of production technique: Sleeper to be tested shall be subjected to rail seat bottom and centre top tests only.

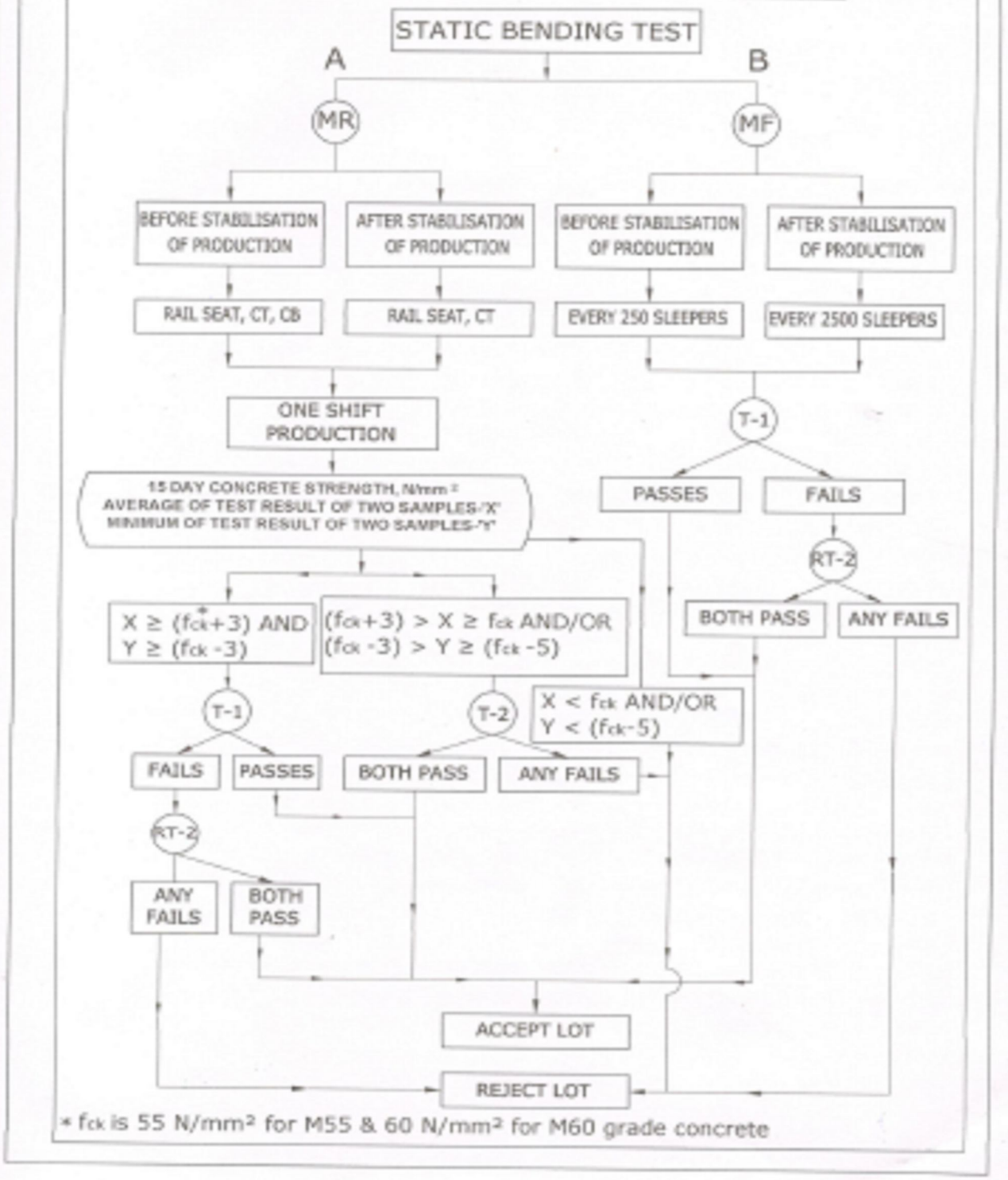
Table -1: Acceptance / Rejection Criteria of Concrete and No. of Sleepers for SBT Test per Lot

SN	First condition	Second Condition	Conditions to be complied	No. of sleeper per lot for test
Case 1	If average of test results of two samples is ≥ f_{ck}+ 3 N/mm^2 or ≥ f_{ck} + 0.825 x established standard deviation, N/mm^2 whichever is greater	If minimum of test results of two samples is ≥ f_{ck}– 3 N/mm^2	Both conditions are to be fulfilled and the lot is not rejected as per the criteria given in para 5.3.5.	Concrete is accepted and one sleeper will tested for SBT from the lot.
Case 2	If average of test results of two samples is < fck + 3 N/mm^2 or < f_{ck} + 0.825 x established standard deviation, N/mm^2 whichever is greater but ≥ f_{ck} N/mm^2	If minimum of test results of two samples is < f_{ck} – 3 N/mm^2 but ≥ f_{ck} – 5 N/mm^2	Any one of them or both conditions are fulfilled and the lot is not rejected as per the criteria given in para 5.3.5	Concrete is accepted but two sleepers will be tested for SBT from the lot.
Case 3	If average of test results of the two samples is < f_{ck} N/mm^2	If minimum of test results of two samples is < f_{ck} – 5 N/mm^2	Any one of them or both condition are fulfilled.	Lot rejected without any further testing on sleepers of the lot.

5. The existing Annexure-IV on 'Flow chart for testing of Sleeper' shall be replaced as under:

ANNEXURE-IV

FLOW CHART FOR TESTING OF SLEEPER



GOVERNMENT OF INDIA
(MINISTRY OF RAILWAY)
R.D.S.O. LUCKNOW

Corrigendum no.5
to
"Specification for Pre-tensioned Pre-stressed concrete sleepers for BG and MG"
IRS-T-39 (Fifth Revision – Feb., 2016)
(RDSO Letter No. CT/SRC/Insp/Tender Dated 11.06.2018)

1. The existing Annexure-I on 'SCHEDULE FOR CALIBRATION OF VARIOUS GAUGES AND TESTING EQUIPMENTS IN THE CONCRETE SLEEPER PLANT' shall be replaced as under:

SCHEDULE FOR CALIBRATION OF VARIOUS GAUGES AND TESTING EQUIPMENTS IN THE CONCRETE SLEEPER PLANT

S.No.	Equipment	Frequency
1	15 cm concrete cube testing machine (2000 KN capacity)	Once in 3 months
2	Cement mortar cube testing machine (500 KN capacity)	Once in 6 months
3	Sleeper Static Bend Test Machine (500 KN capacity for BG sleeper (RDSO/T-2496) & 1000 KN for wider sleeper (RDSO/T-8527))	Once in 3 months or after testing 250 sleepers, whichever is earlier.
4	Pre tensioning Jacks (500 KN capacity)	Once a month or after casting 5000 sleepers whichever is earlier.
5	Pre-tensioning load cell	-do-
6	Concrete Beam Testing Machine (100 KN capacity)	Once in 6 months
7	Aggregate weight batcher	Once every week or after casting 2000 sleepers, whichever is earlier.
8	Cement weighing equipment	-do-
9	Water Meter	-do-
10	Master gauges for checking correctness of dimension measuring gauges	Once in 6 months
11	Dimension checking gauges	Once every 15 days or after inspecting 5000 sleepers, whichever is earlier.
12	Proving rings (2000 KN, 500 KN, 1000 KN and 100 KN capacity)	Once in 18 months
13	Weights & Measures	By Weights & Measures Department as per extant rules.
14	Tachometer	Once a year

SCHEDULE OF TECHNICAL REQUIREMENT (2018) FOR MANUFACTFURE OF PSC SLEEPER

DETAILED INFORMATION

1. Name of Sleeper Plant :

a) Location :
b) Railway :
c) Nearby Railway Station :
d) Nearby Main Station :
e) Distance from Main & Nearby Station :
f) Telephone / Fax No. & Address :
   i) Office:
   ii) Factory :
g) Details of Production :
   i) Main Line Sleepers
   ii) 1 in 8½, Turnout Sleepers
   iii) 1 in 12, Turnout Sleepers
   iv) Wider Sleeper
h) Whether Plant is approved for manufacturing any other type of sleeper:

2. Method of manufacture (Long line, Stress bench etc.)

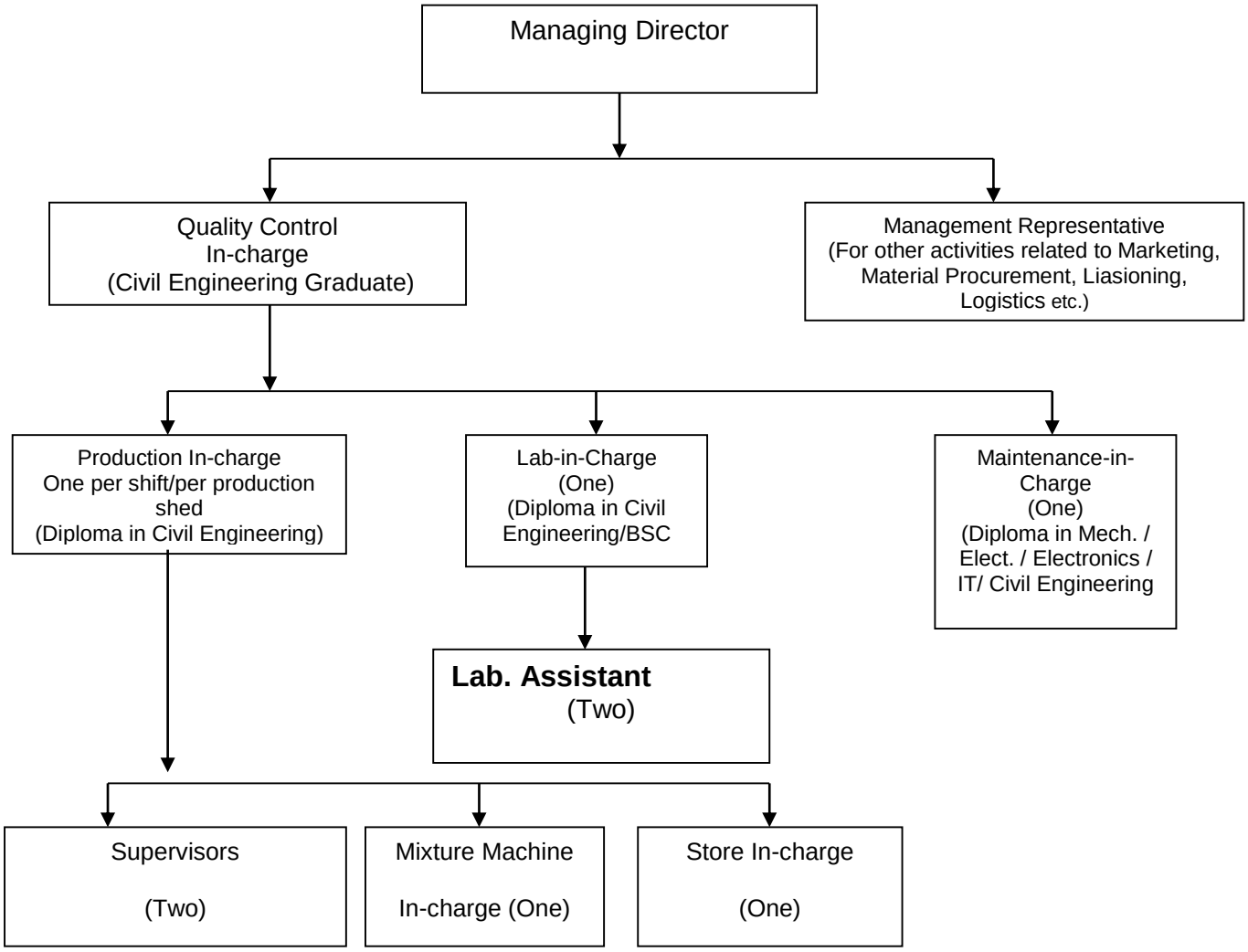
3. Contract details :

S.No.	C. A. No.	Railway	Type of sleepers	Quantity	Delivery date

4	**QUALITY ASSURANCE PLAN & ISO CERTIFICATION**	
4.1.1	QAP Approved by RDSO (Yes / No)	
4.1.2	Date of approval of QAP by RDSO	
4.1..3	Remarks about implementation of QAP	
4.1.4	Whether Plant is having ISO: 9001-2008 (Yes / No)	
4.1.5	ISO Certifying agency & Date of validity of ISO certificate	
4.1.6	Whether Internal Quality Audit of plant is done by firm at frequency at least once a year.	

5.0 ORGANISATION STRUCTURE

Typical organization structure chart of a Concrete Sleeper Plant is as given below -



5.1 Minimum Level of Technical Supervision

1. Overall Quality Control In-charge: At least One Graduate Engineer with Civil Engineering degree.
2. Shift In-charge for Production:

   (a) Minimum one supervisors with diploma in civil engineering for each shift per each casting shed.
   (b) Minimum one diploma engineer of mechanical/ electrical / electronic / IT /civil for maintenance of equipments.

3. Quality Control Supervisor for Laboratory and testing: Minimum one supervisor with Diploma in Civil Engg./ BSc .

4. Supervisors & Mixture Machine In-charge should be suitably qualified and their competency shall be certified by the overall Quality Control In-charge of the plant.

5.2	**DETAILS FOR LEVEL OF SUPERVISION**			
SR NO	Item	Name	Qualification	Experience
5.2.1	Nos. of Engineers			
5.2.2	Nos. of Technical Supervisors			
5.2.3	Name of separate Quality Control Supervisor for Laboratory			
5.2.4	Reason for any deficiency in manpower and planning of compliance.			

6.0	**LAYOUT PLAN**	
6.1.1	Owner Ship of land/ Lease Agreement with Railway.	
6.1.2	Notarized copy of agreement	
6.1.3	Remarks about deficiency , if any	
6.1.4	Whether Layout plan is fully with in land owned by plant and there is no unauthorized construction on railway property.	
6.1.5	Whether Layout plan is approved if yes then details of approving authority & reference	

6.2	**LAYOUT REQUIREMENT**			
S.No.	**Item**	Minimum Requirement	Existing	Remarks
6.2.1	Cement Godown	Min. covered godown area = 400 sq.m. (Storage as per IS:4082- 1967)		
6.2.2	HTS Storage	Minimum area of covered godown with EOT for handling of HTS wire coils= 100 Sqm.		
6.2.3	Insert Godown	Minimum Area of covered godown = 100 sqm.		
6.2.4	Steam curing chambers	Minimum no. of chamber = (0.65*N/32)rounded off to next whole number, where 'N' is the proposed daily production capacity. Chambers shall be vertical type with continuous digital temperature recording facility connected with storage of data with servo control automatic steam control arrangement. CSPs having present arrangement of Horizontal steam chamber may continue with existing arrangement.		
6.2.5	Submerged water curing tanks	Minimum Submerged water curing capacity required (In no of sleeper) = (0.65 to 0.75)*N Where, 'N' is monthly production capacity. Capacity of one tank should be maximum 3 days production. Tank should have minimum 30 cm free board.		
6.2.6	Stacking Area for finished sleeper	Minimum 2 month capacity. Maximum layers of sleepers in one stack should be 25 . Minimum area=0.08*N sqm. Where N is monthly production capacity.		
6.2.7	Laboratory	**General :** Approximately 40 sqm **Sleeper testing area:** Approx. 30 sqm. The laboratory and sleeper testing area should be illuminated should have 100% power backup. The laboratory shall be provided with adequate air conditioners for temperature and humidity control.		
6.2.8	Inspecting Officials office	Minimum 14 sqm. Fully furnished with adequate communication facilities (Fax, Telephone etc)		
6.2.9	Rest House	Minimum two room sets fully furnished with attached toilet and other amenities including cooking facility. Min. area 25 sqm.		
6.2.10	Platform for turnout sleepers	At least two platforms of 70mx6m with gantry arrangement for handling for inspection of two sets at a time.		

7.0 Minimum requirement of Plant and Machinery for Concrete Sleeper Plant: Production Line

S.N.	Particulars	Qty.
1.	Concrete mixer along with Automatic Batching Plant using Microprocessor based Weigh Batcher, Pneumatically operated Aggregate Bins, Water meter and automatic Cement feeding, Capacity of Concrete 5m^3/hr. It should be capable of keeping digital record of ingredients used batch wise & data storage capability for one year production and should be capability of output in hard copy also.	1 no.
2.	Standard weights of 50 Kg or highest permissible denomination totaling 50kg & Small denominations capable of measurement to the least count of 1 kg for calibration of weigh batcher	1000 Kg
3.	Water measuring cans or automatic water meter for calibration of water meter	1,2,5,10&20 liters
4.	Concrete sleeper Mould should be made with plate thickness 6/8mm with suitable stiffening arrangement to avoid in service distortion of moulds. Rail seat area & end plates are to be made with 10 mm thick Steel plate. Rail seat area should also be made with adequate measures to ensure proper rail seat slope and surface finish. *Minimum for a monthly production capacity of 5000 nos assuming one shift per day (For higher production capacity no of mould required for daily production plus 20 % for maintenance purpose.)	240 nos.*
5.	**For Production by Stress Bench Method**	
5.1	Steel Stress Benches made of channel and with Jack Anchoring Pockets, for holding 4 sleeper moulds. Design of stress bench should be such so as to have minimum distortion on account of service stresses. *For a monthly production capacity of 5000 nos BG Line sleepers assuming one shift per day however it may be increased in the multiples of the required production capacity.	60 nos.*
5.2	Hydraulically operated Pre-Stress Equipment with motorized unit, for 500KN jacks along with Pressure Gauges / pressure transducer with digital display and auto cut arrangement. The data should be displayed on monitor and should be stored for future analysis of past six months data.	2 Sets
5.3	Roller and Roller Stand	As per requirement
5.4	Trolleys for Transportation of stress benches	6 nos.
5.5	Steam curing chamber of adequate size and capacity to hold not more than eight benches containing four mould each. The steam curing should be with servo	

	controlled valve with steam regulation with auto cut off arrangement following the steam curing cycle. The data of time vs temperature in each chamber should be digitally displayed and stored on and system should have sufficient memory to store at least on year's data with facility to take out print shift wise.	
6	**For Production by long line method**	
6.1	End support embedded in ground with device permitting transfer of pre stress	As per design
6.2	Tensioning gun with digital pressure gauge, automatic cut off device and automatic elongation & force recording arrangement along with digital display and logging of data on computer with data storage & retrieval for at least six month.	02 nos
6.3	Casting bed with moulds. No of mould should be 10 % more than required for daily production capacity.	As per design
6.4	Tarpaulin hoods for covering casting beds for steam curing. With proper drainage arrangement.	For each casting line
6.5	The steam curing should be regulated through servo controlled valve with auto cut off arrangement and regulation of steam to maintain the temperature as per steam curing cycle. The data of time vs temperature covering complete casting line should be digitally displayed and stored. The system should have sufficient memory to store at least on year's data with facility to take out print shift wise.	For each casting line
7.	Steam Boiler, Coal /oil fired/electrically operated capacity 1000 kg/hr, complete with Valves, mountings and Chimney. The key parameters of boiler such as steam pressure should be displayed. The boiler & its operators certification from statutory authority should be ensured	1 no.
8.	Double Acting Hydraulic Jacks 1000KN Capacity	4 nos.
9.	Concrete Bucket for carrying and pouring concrete in moulds by bottom controlled discharge on Monorail Hoist, Movement should be motorized and operator controlled.	1 no.
10.	High Frequency 9000 RPM (+/-4%) Vibrator bottom fixing type. For PSC line sleepers and Turnout sleepers, vibrators of min 1.0 KW and 1.5KW capacity are to be used. The vibrator should have recording facility for recording date and time of each operation.RPM should be digitally displayed during operation.	16 nos.
11.	Tachometer 10000 RPM capacity	2nos
12.	High Frequency Converter for Vibrators	2 nos.
13.	Vibrating Table for Cubes 15X 15 X 15, table 1mX 1m	1 no.
14.	Electric Welding Arc Cutting M/c for HTS cutting at de-molding/ Abrasive disc cutter.	2 nos.

15.	Trolley for transportation of Finished Sleeper	10 nos.
16.	Overhead Wire Rope Hoist 2 T capacity, Electrically driven, traveling on I Beam Section, One each for demoulding and curing tank	2 nos.
17.	Overhead Wire Rope Hoist for Steam Curing Chambers 3 T capacity, traveling on I Beam Section (Excluding the structure)	2 nos.
18.	MS Gantry Crane electrically driven with Overhead Wire Rope Hoist 4/5 T capacity for Loading of sleepers and for putting sleepers in water curing tanks.	2 nos.
19.	Diesel Generating Set for 125KVA	1 no.
20.	Workshop Equipments • Lathe Machine • Tower Drilling Machine • AG-7 Angle Grinder • Electric Welding Set • Gas cutting Set • Misc. tools and dies • Misc. measuring tapes, scales	At least one each.

8.0 Laboratory Equipments:

S. No	Equipment	Quantity
1	Compression Testing Machine, 2000KN capacity, motorized with 2 nos. of pressure gauges (2000KN & 500KN) with digital interface for real time recording of testing results. The system should have sufficient memory to store data of one year production with reporting facility in hard copy as per format mutually agreed.	1
2	Flexural Beam (Tension) Testing Machine with loading Jacks, 30 KN capacity . The machine should be capable of digital display and recording of data during testing with auto logging of time & date of testing. Data storage & retrieval capability should be for one year production .	1 no.
3	Motorized pumping unit with 1000KN capacity jacks, pressure gauge, rubber tubes and test frame complete for sleeper testing. The digital display of the load applied should be visible to observer simultaneously along with observation of crack. The data shall be recorded in computer with automatic date and time record with Batch no. and other detail for traceability of record.	1
4	15 cm cubes moulds confirming to IS:516	50
5	Beam moulds 10 x 10 x 50 cm size	2nos
6	Slump Tester/Vee Bee Testing Machine	1 no.
7	Electronic balance with 1gm least count (10 / 20 Kg. capacity) including weights.	1

8	Blain's air permeability apparatus	1
9	Vicat apparatus with dash pot and various needles	1
10	Stop watch	1
11	Le Chatelier mould for soundness test of cement	1
12	Steel trowels for mixing cement paste	2nos.
13	Cement mortar cube casting machine with motor and time switch complete	1
14	7.06 cm (50 cm^2)mortar cube moulds	
15	Metallic scoop, pan type container and china tray etc.	2 sets
16	Aggregate Impact testing machine	1
17	Aggregate crushing testing machine	1
18	Aggregate Abrasion testing machine	1
19	Electric thermostatic oven with display of temperature	1
20	Set of IS Sieves 40 mm and below up to 75 micron	1
21	Automatic electric sieve shaker	1
22	Proving rings of 2000 KN,1000 KN, 500 KN, and 100 KN capacity	1 each
23	1.5 Volt AVO meter	1
24	Glass cylinders and Beakers 50 - 500 cc capacity	1 set
25	Miscellaneous measuring gadgets like steel tape, Vernier, filler gauge etc.	2 sets
26	Inspection gauges for dimension checking of sleepers with digital display of parameters as approved by RDSO. (Optional)	2 sets
27	Master gauges for checking inspection gauges	1 set
28	Magnifying glass	1
29	Level table steel for checking gauges	1
30	pH meter & TDS meter (Digital)	1

1. This to certify that the information submitted above is correct.
2. Testing of raw material shall be carried out as per relevant specifications, the details of raw material used is as given in as Annexure-I.
3. Record shall be maintained as per periodicity mentioned in annexure-II and on formats mentioned therein.

SIGNATURE OF PROPRIETER

NAME & SEAL

Annexure-I

Raw material details

1.0	**Source of raw materials**		
1.1	Cement (Brand name)		
	Location of cement plant		
1.2	HTS wire (BIS approved source)		
	Validity of BIS approval		
1.3	6 mm MS Bar (confirming to IS: 2265)		
1.4	Quarry name for CA_1		
	Distance of quarry from the plant		
1.5	Quarry name for CA_2		
	Distance of quarry from the plant		
1.6	Source name of Fine aggregates,		
	Distance of source from the plant		
1.7	SGCI Inserts Source		
	Validity of RDSO / ISO approval		
1.8	HDPE Dowel Source		
	Validity of RDSO approval		
1.9	Water source		
	Quality and quantity		
1.10	Details of Admixture being used		

2.0 Characteristics of raw materials :

	Coarse aggregate (as per Test report submitted at the time of approval of Mix design)	Coarse aggregates, CA_1	Coarse aggregates, CA_2
2.1	Specific gravity		
2.2	Impact Value		

2.3	Abrasion Value		
2.4	Crushing Value		
2.5	Flakiness Index		
2.6	Elongation Index		
2.7	Water absorption		

	Fine aggregate (as per Test report submitted at the time of approval of Mix design)	Fine aggregate river sand
2.8	Specific gravity	
2.9	Silt content	
2.10	Deleterious materials	
2.11	Zone	
2.12	Water absorption	

	High Tensile Steel	
2.13	Conforming to IS: 6006 specification	
	Type (Plain, Strand): Nominal diameter	
	Breaking Load & Elongation	
	0.2% Proof Stress	
	Young Modulus	

	Water	
2.14	Testing agency (Copy to be enclosed)	
	pH value =	
	Chloride content (mg/lit) =	
	Sulphate content (mg/lit) =	

	Inorganic Solids (mg/lit) =	
	Organic Solids (mg/lit) =	
	Suspended Solids (mg/lit) =	
	SGCI Inserts	
2.15	Name of Suppliers/ Whether supplier is borne on List of Approved vendors & the validity date of approval	
	Crosscheck Heat nos. with IC issued by Inspection authority (RITES)	
	BHN value =	
	Phosphorous content (%) =	
	Condition of storage in general	

	6 mm M S Bar	
2.16	Conforming to IS: 226	
	Nominal diameter	
	Breaking Load & Elongation	
	Yielding stress	

	Admixture	
2.17	Conforming to IS:	
	Properties	

Annexure-II

MAINTENANCE OF RECORDS AND DOCUMENTATION :

Following records shall be maintained for scrutiny at future dates.

1.0 Inventory of Raw materials:

1.1 Aggregates:

a) Coarse Aggregate (CA_1) 20 to 10 mm
b) Coarse Aggregate (CA_2) 10 mm and down.
c) Fine Aggregate (Sand)

Details of Receipt, Source, Date of receipt, Truck Nos., Quantity, Balance, Remarks about quality and signature.

1.2 H.T.S. (IS: 6006) :

Date of Receipt, Truck No., Nos. of Coils, Serial No. of each coil, Source (Name of the firm), Details of test certificate, quantity, shift-wise consumption, balance and remarks whether test certificate is OK. Each lot shall bear a lot number and it should be mentioned in the production register to correlate, which HTS used in which sleeper.

1.3 Special Cement (IRS:T-40):

Date of receipt, Source, quantity, Shift-wise consumption, balance, whether Test Certificate received, Details of Lab Tests done at site, Consistency, Initial & Final setting time, Fineness and 7 days mortar cube strength. Each lot shall bear a lot number and it should be mentioned in the production register to correlate which cement used in which sleeper.

1.4 Inserts (IRS: T- 46) :

Date of Receipt, Truck No., Quantity, Source (Name of manufacturer), Consumption, Balance etc shall be recorded. Each lot shall bear a lot number and it should be mentioned in the production register to correlate which insert used in which sleeper.

1.5 Admixture:

Date of receipt, Source & conformance to IS codes, approval by RDSO, quantity, Shift-wise consumption, balance, whether Test Certificate received shall be recorded. Each lot shall bear a lot number and it should be mentioned in the production register to correlate with production of PSC sleepers.

2.0 Production Records:

2.1 Production Register: Batch Nos., Nos. Cast in each shift, cumulative production, Bench Nos., Cubes and sleeper testing details, Summary of Rejected and Usable sleepers shall be recorded in the printed register Daily production register shall be maintained for each design of sleepers separately (As per format no. XIV).

2.2 Tension Register: (As per format no. XII).

2.3 Steam Curing Records: (As per format no. XIII).

3.0 Testing Records:

a) Sieve analysis with combined granulometric analysis of aggregates. (As per format no. VI).
b) Elongation and Flakiness indices test. (As per format no. VII).
c) Moisture content and modified (adjusted) quantities. (As per format no. V).
d) Records of Moulds and Benches and repairs.

e) Details of Pressure Gauges, Proving Rings and calibration of Pressure gauges.
f) Steam curing and Release cube testing.
g) Dimensional checking. (As per format no. XV).
h) Proforma for individual batch production records.
i) Proforma for monthly progress Report.
j) Standard deviation and characteristic strength of
ii) Release cubes.
iii) 15 days water cured cubes.
iv) Sleeper cracking loads / Rail Seat bottom and center top.
k) Dispatch Register.

4.0 Statistical Analysis & Report to RDSO:

Statistical analysis along with calculations shall be submitted to RDSO every month in Format-XVII. The statistical analysis should be carried out for following parameters –

i) Release cube strength
ii) 15 days water cured cube strength
iii) Flexural Beam strength
iv) SBT results

Similar analysis shall be carried out for each month and a consolidated report shall be submitted for a given financial year.

5.0 Calibration records:

The record shall be maintained as per Format-IX, X & XI for calibration of weigh batcher, Water meter, SBT machine, Concrete cube test machine, cement mortar cube testing machine, Beam testing machine and tensioning jacks. The schedule is given in Para 10.6 below.

6.0 CALIBRATION SCHEDULE:

Calibration of all the pressure gauges shall be done in the plant itself. Calibration of proving ring should be got done from a Govt. approved test house or a National Test House. The frequencies of all the pressure gauges and equipments are as follows:-

S. N.	Equipment	Frequency
1	15 cm concrete cube testing machine (2000 KN Capacity)	Once in 3 months
2	Cement mortar cube testing machine (500 KN Capacity)	Once in 6 months
3	Sleeper static Bend Test machine sleepers (1000 KN Capacity)	Once in 3 months or after testing 250 sleepers whichever is earlier.
4	Pre- tensioning Jacks (500 KN Capacity)	Once in a month or after casting 5000 sleepers, whichever is earlier.
5	Pre- tensioning Load cell	Once in a month or after casting 5000 sleepers, whichever is earlier.
6	Concrete beam testing machine (100 KN Capacity)	Once in 6 months
7	Aggregate weigh batcher	Once every week or after casting 2000 sleepers, whichever is earlier.
8	Cement Weighing Equipment	Once every week or after casting 2000 sleepers, whichever is earlier
9	Water Meter	Once every week or after casting 2000 sleepers, whichever is earlier
10	Master gauges for checking correctness of dimensions measuring gauges.	Once in 6 months
11	Dimension checking gauges.	Once every 15 days or after inspecting 5000 sleepers, whichever is earlier.
12	Proving Rings (All the Four-2000 KN, 1000 KN, 500 KN, 100 KN)	Once in 18 months.

13	Weights & Measures	Once every year by weights & measures department.
14	Tachometer	Once a year

Note :-

1) The items referred at S. Nos. 1 to 6 above should be calibrated by proving ring the sleeper plant itself.
2) The items referred at S. Nos. 7 & 8 should be calibrated by the dead weights and item at S. No. 9 by measuring cans that should be available in the plant.
3) The proving ring should be calibrated from a reputed organization like the IITs, NCCBM or NPL etc.
4) The record of calibration of the all the above equipments should be maintained in a manner that previous record can be easily connected.
5) The calibration can be done more frequently at the discretion of the inspecting Official.

This is to certify that the information given as above is correct and If the information is found to be false than firm will accept the action taken by Railway.

SIGNATURE OF PROPRIETER

NAME

SEAL

Annexure III

FORMATS

This section contains different formats of recording results of various testing /measurements prescribed. The firm should have sufficient no of serially no Registers printed for each format at all times. The formats should only be filled up by the minimum authority mentioned in QAP. The relevant pages of registers pertaining to production of sleepers being inspected must be scrutinized and signed by Railway official responsible for inspecting the sleepers. In addition to following formats Registers required as per contract condition including Site order register, Officer's Inspection Register and Over Sight Inspection compliance Register should be promptly filled up and presented to Railway Officials during inspection.

Format -I

Date:

SPECIFIC SURFACE OF SPECIAL CEMENT

WITH THE HELP OF BLAINE'S AIR PERMEABILITY APPARATUS

[IS: 4031 (Part-II) -1999]

Consignment of Cement = _____

Room Temperature = _____ ^{0}C

Weight of Sample taken = _____ gms.

Liquid falling time of standard cement (Ts) = _____ Seconds

Specific surface of the standard cement (Fs) = _____ cm^2 /gm

S. No.	Liquid falling time of sample cement	Average Time (T)	Remarks
1.			
2.			
3.			

Specific Surface of sample Cement (Fm) = Fs x $\sqrt{\frac{T}{Ts}}$ cm^2 / gm

= _____ cm^2/gm

∴ Specific Surface = _____ cm^2/gm

> 3700 cm^2 / gm. OK / < 3700 cm^2 / gm. NOT OK

Signature of Railway Inspector
Name
Designation

Signature of Lab In c
Name

Countersigned by AEN/XEN/CSP
Name

Designation

Format -II

Date:

NORMAL CONSISTENCY OF
SPECIAL CEMENT FOR INITIAL AND FINAL SETTING TIME

[IS: 4031(Part-III & Part-IV) -1988]

Consignment of Cement : _____

Room Temperature : _____ ^{o}C

Weight of Sample taken = _____ gms

S. No.	% of Water added	Volume of Water added in ml.	Time of adding water	Reading Time	Needle reading in mm from bottom of the mould	Normal consistency % (Minimum)	Remarks
1.							Needle reading between 5 to 7 mm from bottom of the mould indicates Normal Consistency.
2.							
3.							
4.							

∴ Normal Consistency = _____ %

Quantity of water to be added for making paste of special cement for determination of initial and final setting time is 85 % of the normal consistency.

∴ Quantity of water to be added = 85 % of _____ ml = _____ ml.

Signature of Railway Inspector
Name
Designation

Signature of Lab In charge
Name

Countersigned by AEN/XEN/CSP
Name
Designation

Format -III

Date:

INITIAL AND FINAL SETTING OF SPECIAL CEMENT

[IS: 4031 (Part-V) -1999]

Consignment of Cement **=** _____

Room Temperature **=** _____ ^{o}C

i. Weight of sample taken = _____ gms

Normal consistency = _____ %

Quantity of water added = _____ ml

Time of adding water = _____ minutes

Mould ready for needling at = _____

S. No.	Reading Time at	Reading of needle from bottom of the mould in mm	Spot of needle for final setting time	Remarks
1.				Initial Setting Time
2.				
3.				is _____ minutes.
4.				
5.				> 60 minutes OK
6.				
7.				< 60 minutes NOT OK
8.				

9.				
10				Final Setting Time
11				
12				is _____ minutes.
13				
14				< 600 minutes OK
15				
16				> 600 minutes NOT OK
17				
18				
19				
20				

Initial Setting Time = _____ minutes

Final Setting Time = _____ minutes

Signature of Railway Inspector
Name
Designation

Signature of Lab In charge
Name

Countersigned by AEN/XEN/CSP
Name
Designation

Format -IV

Date:

7 DAYS COMPRESSIVE STRENGTH OF

CEMENT MORTAR CUBES WITH STANDARD SAND

[IS: 4031(Part - VI) -1999]

&

SOUND NESS OF CEMENT [IS: 4031-1968]

A: 7 Days Compressive Strength of Cement Mortar Cubes with Standard Cement

Consignment of Cement: _____

Room Temperature : _____^{o}C

ii.
Normal Consistency (P) : _____ % (See Normal Consistency test)

(i) Standard sand = 600 gms.
(3 parts, one part of each grade)

(ii) Cement 1 part = _____ 200 gms.

Total = _____ 800 gms.

∴ Water required for the preparation of mortar cubes in ml.

$$= \frac{(P + 3) \times \text{total weight of sample}}{4}$$

$$= \frac{(P + 3) \times 800}{4}$$

= _____ ml

S. No.	Mortar cube casting		Mortar cube testing		Load In KN	Strength in N/mm^2	Minimum Strength in N/mm^2	Remarks
	Date	Time	Date	Time				
1								
2								< 37.5 N/mm^2 NOT OK
3								> 37.5 N/mm^2 OK.
4								

B: Soundness of cement

Expansion of Le Chatelier apparatus needles:---------- (not more than 5 mm)

Signature of Railway Inspector
Name
Designation

Signature of Lab In charge
Name

Countersigned by AEN/XEN/CSP
Name
Designation

FORMAT -V

MOISTURE ANALYSIS [IS: 383-1970]

Date **Shift**

S. No.	Description	Units	CA_1	CA_2	FA	Remarks
A.	Wt. of wet Sample	Gms.				
B.	Wt. of dried Sample	Gms.				
C.	Wt. of Moisture Sample (A - B)	%				
D.	Moisture = C x 100/B	%				
E.	Absorption	%				
F.	Free Moisture = (D - E)	%				
G.	Batch wt. (Dry)	Kgs.				
H.	Free Moisture = G x F/100	Kgs.				
	Adjusted wt. = (G + H)	Kgs.				
	Wt. Adopted	Kgs.				

W/C Ratio =

A/C Ratio =

If aggregates are wet, moisture content in coarse and fine aggregate is to be accounted for, so as to have total water as per approved mix design.

Signature of Railway Inspector
Name
Designation

Signature of Lab In charge
Name

Countersigned by AEN/XEN/CSP
Name
Designation

FORMAT -VI

COMBINED GRANULOMETRIC CURVE (M55/M60) [IS: 383-1970]

Date **Time** **Next Due on**

	Wt. of CA_1 (20 mm) = gms.				Wt. of CA_2 (10 mm) = gms.				Wt. of FA (Sand) = gms.				Combined Passing			Combined Passing %	Grading Range
Sieve Size	Wt. Retained grams	Cum. Wt. Retained	Cum. % retained	% Passing	Wt. Retained	Cum. Wt. Retained	Cum. % retained	% Passing	Wt. Retained	Cum. Wt. Retained	Cum. % retained	% Passing	CA_1 %	CA_2 %	FA %		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
20 mm																	
10 mm																	
4.75 mm																	
2.36 mm																	
1.18 mm																	
600 µ																	
300 µ																	
150 µ																	

Signature of Railway Inspector **Name** **Designation**	**Signature of Lab In charge** **Name**
Countersigned by AEN/XEN/CSP **Name** **Designation**	

x

Format –VII

A: DETERMINATION OF FLAKINESS INDEX [IS: 2386 (Part-I) – 1963)
SAMPLE TAKEN : COARSE AGGREGATE

Retained on I.S. Sieve in (mm)	Weight of aggregate (consisting at least 200 Nos.) (gm)	Gauge Width (mm)	Weight of aggregate in each fraction in passing through thickness gauge (gm)	Remarks
1	2	3	4	5
20	W_1=	13.50	w_1=	
16	W_2=	10.80	w_2=	
12.5	W_3=	8.55	w_3=	
10	W_4=	6.75	w_4=	
6.3	W_5=		w_5	
	Total W=		w=	

Flakiness Index= w/Wx100= x100= %

As per IRS:T-39 the above result of flakiness index is less than 30%.

B: DETERMINATION OF ELONGATION INDEX

Retained on I.S. Sieve in (mm)	Weight of aggregate (consisting at least 200 Nos.) (gm)	Gauge length size (mm)	Weight of aggregate in each fraction retained on corresponding Gauge length (mm)	Remarks
1	2	3	4	5
20	W_1=	40.50	w_1=	
16	W_2=	32.4	w_2=	
12.5	W_3=	25.6	w_3=	
10	W_4=	20.2	w_4=	
6.3	W_5=	14.7	w_5	
	Total W=		w=	

Elongation Index= w/Wx100= x100= %

As per IRS:T-39 the above result of Elongation index is less than 30%.

Signature of Railway Inspector
Name
Designation

Signature of Lab In charge
Name

Countersigned by AEN/XEN/CSP
Name
Designation

FORMAT –VIII

A: DETERMINATION OF CRUSHING VALUE [IS :2386 (Part –IV) – 1963]

Aggregate crushing value = (B/A) x 100

Where B= Weight of fraction passing appropriate sieve,

A= Weight of surface dry sample, when carried out as per provision of para : 2.4 IS 2386 (pt.IV)

Note: 1. For aggregates passing through 20mm sieve, 3.35mm sieve size for separating finer to be used.

2. For aggregates passing through 10mm sieve, 1.70mm sieve size for separating finer to be used.

B: DETERMINATION OF IMPACT VALUE [IS: 2386 (Part-IV) -1970]

Aggregate crushing value= (B/A) x100

Where, B= Weight of fraction passing 2.36mm IS sieve,

A= Weight of oven dry sample, when carried out as per provision of para: 4.4 IS:2386(Pt. IV)

C: DETERMINATION OF ABRASION VALUE [IS: 2386 (Part-IV) -1970]

Aggregate crushing value= (B/A) x100

Where, B= Weight of fraction passing 1.7mm IS sieve,

A= Weight of oven dry sample, when carried out as per provision of para: 5.2 of IS:2386(Pt. IV)

Signature of Railway Inspector
Name
Designation

Signature of Lab In charge
Name

Signature by AEN/XEN/CSP
Name
Designation

xii

FORMAT - IX

PROFORMA FOR CALIBRATION OF MACHINES / EQUIPMENTS AT CONCRETE SLEEPER PLANT [IS: 516]

Calibration – I

Calibration of Weigh batcher by Standard Dead Weight

Date Time Next due on

S. No.	Dead load (Kg)	Observed load			Average observed load	Error	% Variation	Remarks
		1	2	3				
1	50							
2	100							
3	150							
4	200							
5	250							
6	300							
7	350							
8	400							
9	450							
10	500							

Signature of Railway Inspector
Name
Designation

Signature of Quality control In charge
Name

Signature of AEN/XEN/CSP
Name
Designation

xiii

FORMAT - X

Calibration – II

Calibration of Water meter

Date Time Next Due on

S. No.	Actual water content (in liters)	Observed water content (in liters)			Average Observed water content (in liters)	Error	% Variation	Remarks
		1	2	3				
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Signature of Railway Inspector
Name
Designation

Signature of Quality control In charge
Name

Signature of AEN/XEN/CSP
Name
Designation

xiv

FORMAT - XI

Calibration – III to VIII

Calibration of Static Bend Testing Machine, Concrete Cube Testing Machine,

Tensioning Jacks and Cement Mortar Cube Testing Machine

PROVING RING NO Date of Calibration Valid up to

Calibration of M/c Date & Time Next Due

Name of machine / equipment :									
S. No.	Proving Ring Deflection Reading	Actual load	Observed load			Average observed load	Error	% Variation	Remarks
			1	2	3				
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Signature of Railway Inspector
Name
Designation

Signature of Quality control In charge
Name

Signature of AEN/XEN/CSP
Name
Designation

TENSION REGISTER ***Format –XII (A)***

[IS: 6006 - 1983]
For Stress Bench method

Batch No. : Shift: Date of Cast: No. of Cast:

S. No.	Bench No.	Length of Wire (Bench) mm	Total cross section al area of HTS wire mm2	Young's Modulus of the Lot KN/ mm2	Initial Reading (KN)	Elongation in mm								Measured Elongation (B-A) (mm)	Pre-stressing force based on measured elongation from 50KN *P=E{(B-A)*a}/L	Total prestress force= (P+50)KN (Not less than486KN)	Remarks
						Reading at 2x25 KN (A) (mm)				Final reading at 2 x 243 KN (B) (mm)							
						Left Side		Right Side		Left Side		Right Side					
						U	L	U	L	U	L	U	L				

*P=E{(B-A)*a}/L,
where P(KN), = pre stressing force (from 50KN to final pre stressing value),
(B-A)(mm),=measured elongation
a(mm2), = total cross sectional area of HTW wires
L (mm) = effective wire length (from wedge to wedge clear length),
E(KN/mm2)= Young's modulus (lot wise/IC wise)

Note: Breakage or slippage of HTS wire, if any shall be recorded.

Signature of Railway Inspector
Name
Designation

Signature of Shift Production In charge
Name

Counter signed by AEN/XEN/CSP
Name
Designation

TENSION REGISTER ***Format –XII (B)***

[IS: 6006 - 1983]
For Long Line Method

No. of Cast:

Line no.	HTS wire no.	Length of Wire (Bed) mm	Cross sectional area of HTS wire mm2	Young's Modulus of the Lot KN/ mm2	Initial Reading (KN)	Elongation in mm		Measured Elongation (mm) (B-A)	Pre-stressing force based on measured elongation *P=E{(B-A)*a}/L	Total prestress force= (P+3)KN (Not less than27KN)	Remarks
						Reading at 3 KN (A) (mm)	Final reading at 27 KN (B) (cm)				

Batch No. : Shift: Date of Cast:

*P=E{(B-A)*a}/L, where, P= pre stressing force(KN), (B-A)=measured elongation (mm),
a= total cross sectional area of HTW wires(mm2),
L= effective wire length for entire length of bed(from wedge to wedge clear length)(Meter.)
E= Young's modulus (lot wise/IC wise)

Note: Breakage or slippage of HTS wire, if any shall be recorded.

Signature of Railway Inspector
Name
Designation

Signature of Shift Production In charge
Name

Counter signed by AEN/XEN/CSP
Name
Designation

STEAM CURING REGISTER **Format -XIII**

Name of Plant: **Name of Boiler Attendant :** _____ **Batch No.** _____

Shift : 1 _____ Date: _____

Shift : 2 _____

Shift : 3 _____ Shift: Day / Night

Chamber No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of Bench												
Last Bench Cast at												
Cube No.												
Time	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature	Temperature
07.00												
07.30												
08.00												
08.30												
09.00												
09.30												
10.00												

10.30												
11.00												
11.30												
12.00												
12.30												
13.00												
13.30												
14.00												
14.30												
15.00												
15.30												
16.00												
16.30												

Signature of Railway Inspector
Name
Designation

Signature of Shift Production In charge
Name

Counter signed by AEN/XEN/CSP
Name
Designation

xviii

Format-XIV

PRODUCTION REGISTER

On Date	
Monthly Production	
Cumulative	

Batch No. : **Date of Casting :** **Shift :**

Steam Chamber No.	{1}	{2}	{3}	{4}	{5}	{6}	{7}	{8}	{9}	{10}
Bench No.										
Time of L.B.C										

RELEASE CUBE STRENGTH (STEAM CURED) to be tested by Lab in charge and Railway Supervisor.

Cube No.	Date of Testing	Time (in Hrs.)	Age (in Hrs.)	Weight (in Kgs)	Load (in KN)	N/mm^2	Remarks

WATER CUBE STRENGTH (WATER CURING)

Cube No.	Date of Testing	Time (in Hrs.)	Age (in days)	Weight (in Kgs)	Load (in KN)	N/mm^2	Remarks

FLEXURAL STRENGTH

Beam No.	Date of Testing	Age (in days)	Load (in KN)	Strength (in N/mm^2)	Remarks

xix

STATIC BENDING TEST

Sleeper No.	Date of Testing	CENTRE		MR		MF		Remarks	Initial
		Top	Bottom	I	II	I	II		
		(KN)	(KN)	(KN)	(KN)	(KN)	(KN)		

Cement Source IC NO week no

HTS Source IC NO Heat No/s

SGCI Insert Source IC NO Heat Nos

HDPE Dowel Source IC NO Batch no

REJECTION DETAILS OF SLEEPERS I.C. No. : DATE OF ISSUE :

Total Rejected

No of sleepers passed as usables

Signature of Railway Inspector
Name
Designation

Signature of Shift Production In charge
Name

Signature of AEN/XEN/CSP
Name
Designation

Signature of Quality Control In charge
Designation

xx

Format -XV

DIMENSION REGISTER

Date of Casting : _____ No. of Cast : _____

Batch No. : _____ Offered for inspection : _____

Nos. of useable sleepers : _____ Date for inspection : _____

Sleeper No.	Outer Gauge	Rail Seat		Toe Gap				Surface defects	Height Gauge			Slope		Wind Gauge		FTC	Remarks
		Firm side	RT side	Firm side		RT side			End	Rail Seat	Centre	Firm side	RT side	Firm side	RT side		
				Outer	Inner	Outer	Inner										
1A																	
1B																	
1C																	
1D																	
2A																	
2B																	
2C																	
2D																	
3A																	
3B																	
3C																	

Nos. of Rejected = _____ , Nos. of Usable = _____ , Nos. of MF tested =_____

Note: 1. It should be ensured that the rejected (Red Marked) and MF tested (Yellow Marked) sleepers should not be dispatched.

2. AEN/XEN to do Dimension check as and when possible.

Signature of Railway Inspector
Name
Designation

Signature of Shift Production In charge
Name

Signature of AEN/XEN/CSP
NameDesignation

Signature of Quality Control In charge
Designation

xxi

Format -XVI

SGCI Insert : DIMENSIONAL & WEIGHT CHECK LIST

Description: SGCI insert to RDSO/T-381 Alt.8 & specification IRS/T-46 (1996)

SGCI Supplier: _____ RDSO Approval of supplier valid up to: _____

Gauge Employed: Gauge and fixtures conforming to RDSO/T-454 Alt.9

IC no. and date (As issued by RITES/Inspecting authority)

S. No.	Heat No.	Pattern No.	Jig			Length of head 75±1	Thickness of stem 20/25±2/1	Hole dia 22±1/0	Width of head 67±1/0.5	Top radius	Gating position	Square gauge	Wt in Kg. 1.55-3%	Soundness through hammer test
			G	G1	G2									

No. of inserts Checked _____, No. of inserts passed_____ ,

No. of inserts rejected _____, Rejection Rate :

Note:

1. Railway Inspector will check 1% inserts on random basis.
2. AEN/XEN will check at least 20 inserts, once in 2 weeks on random basis. He will also ensure that tests prescribed for Rly Inspectors are being conducted.
3. Other Instructions contained in Board's letter no. 98/TK-II/22/11/17/Pt. Policy, dtd. 11.08.2003 are to be adhered to.

Signature of Railway Inspector
Name
Designation

Signature of Quality Control In charge
Designation

Signature of AEN/XEN/CSP
Name
Designation

Format -XVII

STATISTICAL ANALYSIS OF CONCRETE STRENGTH AND STATIC BENDING ON PSC SLEEPERS

SLEEPERS FOR THE PERIOD: FROM_____ TO _____

i) NAME OF THE FIRM_____ LOCATION OF PLANT _____ RAILWAY_____

ii) TYPE OF SLEEPERS (MBC, TURNOUT & OTHER) TO DRG. NO RDSO/T – 2496 OR Drg. No. _____

ii. Mix design approved by RDSO Vide letter----------
iii. Compliance of last Over site inspection pending if any----------
iv. Last inspection of Railway official on----------

A. CUBE STRENGTH :

Batch No. From _____ To_____ ___	No. of Cubes	Range N/mm^2		Mean Value N/mm^2	Standard Deviation SD (N/mm^2)	Characteristic value (N/mm^2)	Coefficient of variation CV (%)	No. of observations below the minimum specified values i.e. 55/ 60 (N/mm^2)	No. of batches		Remarks
		Max	Min						Double Testing	More than double testing	
Steam cube (Release strength)											
Water cube (15 days strength)											

B. FLEXURAL STRENGTH OF CONCRETE BEAM:

S. No.	Batch No.	Load (P) (KN)	Flexural strength (N/ mm^2)

Format – XVII Contd..

C. STATIC BEND RESULTS UPTO CRACKING LOAD OF MBC, TURNOUT, OTHER SLEEPER. :

Description	Batch No.	No. of sleepers tested	Range (KN)	Mean value (KN)	Standard Deviation (KN)	Characteristic Strength (KN)	Coefficient of variation %	No. of observations below the min. specified values	No. of sleepers & No. of batches		Up to date No. of sleepers	
			Min	Max					Sleeper	Batch	Sleeper	Batch
Center top												
Rail Seat Bottom												

D. CONCRETE MIX DESIGN USED DURING THE PERIOD: FROM_____ To_____

(A) A/C Ratio _____ (B) W/C ratio _____ (C) Mix Proportion CA-I: ___ % CA-II ____ %, FA ____ %

E. SOURCE OF CEMENT USED DURING THE PERIOD:

F**. MEASURES TAKEN TO IMPROVE UPON THE DEFICIENCIES OBSERVED IN ABOVE TEST:**

Note: 1. Separate analysis shall be submitted for MBC, Turnout and other sleepers.

2. The analysis should be for one calendar month.

3. Indicate change of source of raw materials, water etc, if any furnish a photocopy of their test report (s)

Signature of Railway Inspector
Name
Designation

Signature of Quality Control In charge
Designation

Signature of AEN/XEN/CSP
Name
Designation

Counter Signature of Dy.CE/CSP/HQ
Name

Format -XVIII

YEARLY STATISTICAL ANALYSIS
OF
CONCRETE STRENGTH AND STATIC BENDING STRENGTH OF PSC SLEEPERS

SLEEPERS FOR THE PERIOD: FROM_____ **TO** _____

a) Name of The Firm : _____
b) Location of Plant : _____
c) Railway : _____
d) Type of Sleepers (MBC, Turnout & Other) To Drg. No RDSO/T -2496 or Drg. No. _____

Month	**Concrete Strength Water cured**					**SBT(Rail Seat)**				**MF**			
	Nos. of cubes	**Max**	**Min**	**CS**	**CV**	**Max**	**Min**	**CS**	**CV**	**Max**	**Min**	**CS**	**CV**
April													
May													
June													
July													
Aug													
Sep													
Oct													
Nov													
Dec													
Jan													
Feb													
Mar													

Signature of Railway Inspector
Name
Designation

Signature of Quality Control In charge
Designation

Signature of AEN/XEN/CSP
Name
Designation

Counter Signature of Dy.CE/CSP/HQ
Name

Format -XIX

HTS Inspection Summary

Source: **BIS approval validity:**

IC No. **Date of supply:**

Sl. No.	Description	
1	Lay length	
2	Weight/meter	
3	Breaking load	
4	% elongation	
5	0.2% proof stress	
6	Sulphur & phosphorus content	
7	Coil dia	
8	Packing condition	
9	Sealing of coils	
10.	Any sign of rusting of HTS wires	

Note

1. Item 1-5 are to be recorded from the Tests conducted at HTS factory and recorded in Original IC.
2. Item 6 is to be recorded from the Manufacturer's test certificate.
3. Item 7-10 are to be tested at CSP.

Signature of Railway Inspector
Name
Designation

Signature of Quality Control In charge
Designation

Signature of AEN/XEN/CSP
Name
Designation

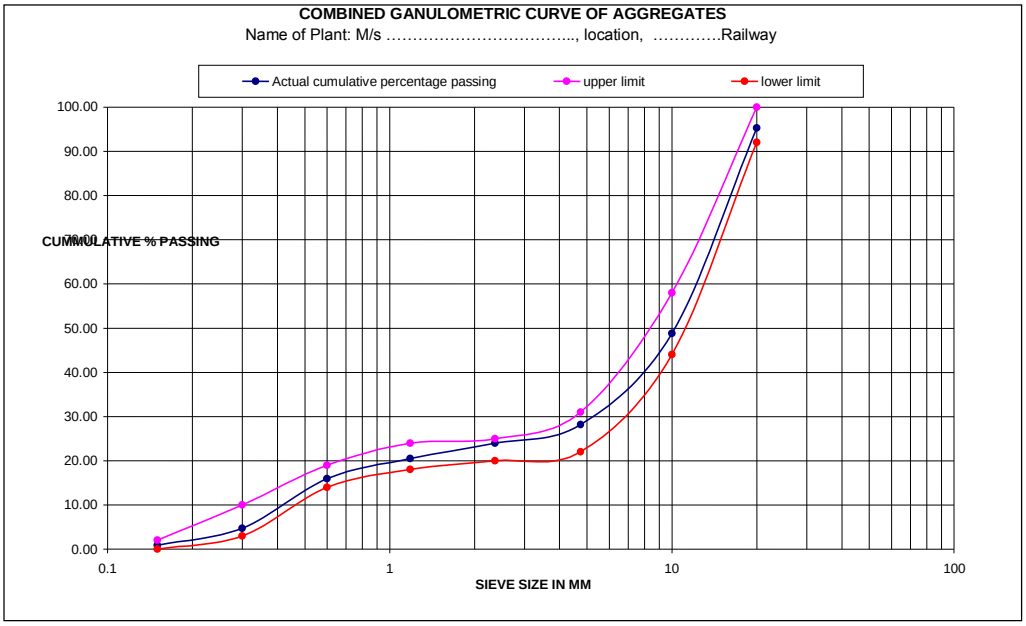
Format -XX

Details of Mix Design

	Mix Design parameters :		
1	Mix Design ⟶	M-55	M-60
	RDSO Authority of approval		
	Date of approval		
	Cement	Kg	Kg
	Coarse aggregates, CA_1	Kg	Kg
	Coarse aggregates, CA_2	Kg	Kg
	Fine aggregates	Kg	Kg
	Water	Liters	Liters
	A/C Ratio		
	W/C Ratio		
	Sand : CA_1 : CA_2 ratio		

11.0 Granulometric limits for combined aggregates:
To be prepared for each Design mix separately as below:

Sieve Size	%Limits (lower – higher)	Limits % passing.
20 mm	…. - …..	…..
10 mm	…. - …..	…..
4.75 mm	…. - …..	…..
2.36 mm	…. - …..	…..
1.18 mm	…. - …..	…..
0.60 mm	…. - …..	…..
0.30 mm	…. - …..	…..
0.15 mm	…. - …..	…..



12.0 **Steam Curing Cycle**: The steam curing cycle for winter season and summer seasons, if varies may be given separately.

The following cycle is approved as follows:

1.	Pre steaming	=	…. hrs. [> IST of cement]
2.	Rise in temperature	=	…. hrs.
3.	Constant Temp.	=	…. hrs.
4.	Cooling time	=	…. hrs.

	Total	=	….. hrs.

13.0 **Submerged water curing:** …. days.

14 / 21 days compressive strength on the basis of 40 nos. of submerged water cubes & 40 nos. of steam cured cube analysis is found …… N/mm^2 and ……. N/mm^2 respectively.

14.0 **Statistical Analysis of Steam cured and water cured cubes:** following details shall be submitted -

S. No.	R	M	SD	CS	CV	Remarks
1	Steam cured cubes					
2	Submerged water cured cubes					

Statistical analysis is done to assess the variation in test results. This analysis contains standard deviation, range of maximum & minimum, coefficient of variation (Cv). By knowing the standard deviation, one can obtain characteristic value of corresponding item. Statistical analysis brings out overall health of the concrete sleeper plants. If the testing for working out statistical analysis is not done correctly the basic purpose of doing this whole exercise would be defeated.

Formulae are given below to calculate the mean value, standard deviation & coefficient of variation.

SAMPLE CALCULATION OF STATISTICAL ANALYSIS

S. No.	Compressive Strength (x) in N/mm^2	Frequency (f)		F*x	ABS(X- X_{mean})	f * ABS(x-x_{mean})^2	Remarks
1	52.00	1	I	52.00	5.82	33.87	
2	53.33	2	II	106.66	4.49	40.32	1) Nos. of observations,
3	55.56	2	II	111.12	2.26	10.22	N = 40 nos.
4	56.00	3	III	168.00	1.82	9.94	
5	56.89	2	II	113.78	0.93	1.73	2) Mean, X_{mean} = f*x / N
6	57.33	5	IIIII	286.65	0.49	1.20	= 2312.91 / 40
7	57.78	6	IIIIII	346.68	0.04	0.00	= 57.82 N/mm^2
8	58.22	2	II	116.44	0.40	0.32	3) Standard Deviation
9	58.67	6	IIIIII	352.02	0.85	4.34	SD = SQRT{f * ABS(x-x_{mean})^2 /N}
10	59.56	4	IIII	238.24	1.74	12.11	=1.9598
11	60.00	4	IIII	140.00	2.18	19.00	
12	60.44	3	III	181.32	2.62	20.59	4) Characteristic Strength, CS
13							F_{ck} = (X_{mean} – 1.96 * SD)
14							5) Coefficient of Variation,
15							Cv = (SD x 100) / X_{mean}
16							
17							6) Range = 8.44 N/mm^2
18							(from 52.00 to 60.44)
19							
20							
21							

22							
23							
24							
25							
..							
..							
	Total	40		2312.91		153.64	

Signature of Railway Inspector
Name
Designation

Signature of Quality Control In charge
Designation

Signature of AEN/XEN/CSP
Name
Designation

ANNEXURE-IV OF TENDER DOCUMENT

INDEMNITY BOND

The President of India
Through
_____

THIS INDENTURE made on this day_____by M/s. (Duly registered under the Indian Co. Act. 1956) and having its registered office at _____, hereinafter called the contractor (which expression shall include its successors) in favour of the President of India acting through---------- _____Railway, hereinafter called the Purchaser (which expression shall include his successors and assignees).

WHERE AS under the formal order/contract specified in schedule, I/We have agreed to supply mono block concrete sleepers to the President of India (hereinafter called the Purchaser) at the time and place and in the manner detailed there in.

WHERE AS purchaser agreed to accommodate the contractor in case in which the purchaser thinks fit by making 90% payment of value of Mono block PSC Concrete Sleepers which have been inspected and passed by the Purchaser or his nominee.

In consideration of such payment I/We am/are hereby is/are expressly prepared to accept certain liabilities as herein after set out but such liabilities shall not affect the passing of the sleepers concerned to the purchaser.

NOW, I/We hereby agree, declare and undertake as follows:

(i) I/We shall remain absolutely responsible for the safe custody and protection of _____ sleepers, which were inspected and passed by the Railway Authority by IC No. _____ dated_____, but could not be dispatched due to non availability of wagons against all risk whatsoever, till those are dispatched under the above mentioned contract and duly delivered. The President of India, however, shall be kept indemnified against any losses and/or damage to the said sleepers. The said sleepers shall however, be at all time open to the inspection by officer who may be authorized on behalf, by the purchaser or his nominee.

(ii) Details of quantity which will be loaded in my/our siding as per challan will be submitted by me/us to the consignee direct and if any discrepancy is noticed on receipt of Mono block Concrete Sleepers at the destination, the cost of quantity in deficit will be realized from my/our 10% bills.

(iii) The said number of sleepers shall be loaded and dispatched correctly as per the inspection note and that no broken or un-passed sleepers, not conforming to the specification/drawings mentioned in the formal contract shall be dispatched and then in such case we shall be liable for the entire loss or damage that purchaser may sustain due to the dispatch of such broken/un-passed sleepers and I/We undertake to indemnify the purchaser against all such loss and damage and shall replace at my/our cost any of such broken/un-passed sleepers as may be dispatched by us aforesaid.

(iv) In the event of any loss or damage as aforesaid the assessment of such loss or damage and assessment of the compensation therefore would be made by the General Manager,_____Railway or his authorized nominee from our 10% bills and the said assessment shall be final and binding upon us.

(v) Provided always that notwithstanding anything contained in the formal, order/contract, the President of India will be fully entitled to realize all dues against me/ us under orders/contracts specified in the schedule or other contracts between myself/ourselves and the President of India without prejudice due by any other lawful means.

THE SCHEDULE

Railway Board's acceptance letter No. _____ dated _____ and _____ Railway contract Agreement No._____dated_____for manufacture and supply of Mono block PSC Concrete Sleepers.

Witness: *Signature of the Contractor /supplier:

Address:

Dated:

Name:

Address:

Dated:

accepted

For and on behalf of the President of India.

Acceptance on behalf of the President of India should be by an officer authorized under Article 299 of the Constitution.

ANNEXURE -V OF TENDER DOCUMENT

INDEMNITY BOND

BY THE PRESENT INDEMNITY BOND executed by M/s ----------
---
on this ..... day of ----------20---- (hereinafter called contractor) in favour of President of India/(Name of the person who has signed the agreement) ---------- (hereinafter called the purchaser).

2. WHEREAS – The Contractor has agreed with the purchaser to manufacture and supply PSC mono block Line Sleepers to the Railway Administration in pursuant to and in terms of a contract evidenced by the ----------==========.

3. AND WHEREAS pursuant to the said contract, the contractor(s) commenced dispatches of sleepers on ..... and completed dispatches by .....--.

4. AND WHEREAS under **----------** of the said contract for the supply of PSC monoblock Line Sleepers payment for the delivery of stores was/is to be made as follows:

Balance 10% of the price of each consignment will be paid on proof of dispatch and on submission of a Bond for 25% of the value of Stores supplied covering the warranty period as per warranty clause. Consigner's certificate shall be enclosed with 10% bills. In case 90% payment as laid down in **clause - - - - - - -** above is not sought, 100% of price of each consignment will be paid on proof of dispatch of Stores and on submission of Indemnity Bond.

5. AND WHEREAS 90% payment in respect of the Stores inspected has already been paid by the ----------Railway to the contractor, vide Cheque No.---------- dated Rs. .

6. AND WHEREAS the contractor submitted one of his bills being bill No. ---------- of Rs. for the 10% (i.e. balance amount) of the value in respect of stores dispatched by him through Railway Wagon No. ---------- booking under RR No. ---------- to the consignee thereof namely the .

7. AND WHEREAS the Purchaser has agreed to pay the amount of Rs ---------- (in words) being the 10%/100% of the said bill No.---------- upon the Contractor subject to execute an indemnity bond in the manner hereafter provided in the **para -------** of the contract.

8. NOW THEREFORE through this indenture, the Contractor hereby covenants with the Purchaser that the Contractor shall at all times hereinafter well and sufficiently indemnify and keep indemnified the Purchaser, his successors and assignee for an amount ---------- ----------(25% of the value of stores supplied) from and against such damages, loss and costs, charges and expenses, whatsoever that may be caused and incurred by the said Railway Administration on account of the short or non-receipt of the said stores said to have been dispatched by the said wagon No. ----------under the said RR No.---------- ---------- to the said consignee or on account of the said goods if delivered in whole or in part not being according to the specification and requirements of the said contract and in the event of such short or non-delivery or delivery of the goods in whole or in the part being not in accordance with the specifications and requirements of the contract, the Contractor shall pay to the purchaser on intimation to the amount as may be equal to the price of the said goods so short received or not being according to the specifications or requirements as aforesaid and also all other loss that the Purchaser may incur or suffer on account thereof the decision of ---------- ---------- Railway as to the exact amount of such loss including the price of the goods short delivered or of the goods but not in accordance with the specifications or requirements of the said contract as aforesaid being final and binding on the Contractor together with all costs, charges and expenses that the Purchaser may incur for the recovery of the said amount and loss.

AND IT IS HEREBY guaranteed by the contractor that PSC Sleepers which the contractor has supplied have been manufactured fully in accordance with the specifications and its design shall strictly follow the “as made” detailed drawing with such specifications as are notified in respect of each type. The contractor further guarantees that the PSC Sleeper shall be

free from defects in material and workmanship. The contractor shall be liable to arrange the necessary replacements of the defective sleepers free of any charge only to the extent that such replacements are attributable to or arise from faulty workmanship or material or design in the manufacture of the sleepers. All replacements shall be made free of cost at destination. If the contractor so desires, the replaced sleepers can be taken over by him for disposal as he deems fit, within a period of three months from the date of receipt of the replacement of defective sleepers by the purchaser. At the expiry of this period, no claim in this respect shall lie on the purchaser.

IT IS AGREED that any approval or acceptance by the purchaser of the sleepers or of the materials incorporated therein shall not in any way limit the contractor's liability hereunder. The decision of the purchaser in regard to contractor's liability under this guarantee shall be final and conclusive. All replacements that the purchaser shall call upon the contractor to deliver under this guarantee shall be delivered by the contractor within three months from the date of intimation of such rejection of defective sleepers. If the contractor fails to replace the defective sleepers within the said period, the cost of the said sleepers at the rate stipulated in the contract shall be recovered from the payments due to the contractor.

WHEREAS IT IS AGREED that the guarantee herein contains shall expire in respect of each sleeper on the expiry of 5 years from the date of the delivery or 3 years from the date of its placing in service whichever is earlier except in respect of defects notified to the contractor prior to the expiry of such date.

9. AND IT IS HEREBY agreed between the parties hereto that the Purchaser shall be entitled to recover or adjust the cost of such replacements as aforesaid or the guaranteed amount ---------- (25% of the price of stores supplied) whichever is less out of or from the moneys, if any, payable to the Contractor in respect of the said Contract or any other contracts subsisting between the Contractor and the purchaser.

10. IN WITNESS WHEREOF the contractor has put his seal on ----------.

IS HEREINTO affixed pursuant to a resolution, dated ----------passed by the Board of Directors of the said Company in the presence of:

1. Shri .....

2. Shri .....

Signature of the Contractor

Firm's Name: M/s. _____

(Stamp)

Witness:

1)

2)

---------- Railway

FOR AND ON BEHALF OF THE PRESIDENT OF INDIA

भारत सरकार **GOVERNMENT OF INDIA**
रेल मंत्रालय **MINISTRY OF RAILWAYS**
रेलवे बोर्ड **RAILWAY BOARD**

No. 2017/Trans/01/Policy/Pt-S **New Delhi, dated: 28-03-2018**

The General Manager, All Indian Railways/PUs, NF(C), CORE
The DG/RDSO/Lucknow, DG/NAIR/Vadodara
CAOs, DMW/Patiala, WPO/Patna, COFMOW/NDLS, RWP/Bela

Sub: Guidelines for Electronic Reverse Auction for Works, Stores and Service Contracts.
Ref: RB letter No. RS(M)/2011/EPS/01 Pt. dt. 18.01.2018

Vide letter under reference, Board had issued detailed guidelines / procedure to be followed for Reverse Auction for procurement of Stores. With the approval of Board (ME, FC, CRB) it has been decided to follow similar practice of Auction/Reverse Auction for Works, Services and Earnings tenders also. In supersession of all earlier guidelines for procurement of Stores through RA, following revised guidelines are accordingly issued for implementation.

A. **Tenders for Works, Services and Stores Contracts**

1.0 Selection criteria for tender cases of Works, Stores and Services proposed through Reverse Auction (e-RA) route:

a) In the first phase, following method of purchase through Reverse Auction shall be the preferred method for procurement for Stores tenders valued more than Rs. 10 Cr. in each case and for Works and Services for tenders valued more than Rs. 50 Cr, in each case.

b) The process of procurement through Reverse Auction shall be followed only in case of tenders where there are at least three approved vendors (where work to be executed/service to be provided/ bulk procurement is to be from vendors approved by RDSO/CORE/ PUs etc.) or at least three proven/likely competitive sources, prima facie competent for execution of work/provision of service/bulk ordering.

c) Financial Bids in single currency/parameter only shall be allowed.

d) For cases on Zonal Railways/ PUs, personal approval of the PHOD/CHOD duly vetted by associate finance shall be required for any exception in tendering method for cases otherwise eligible to be processed through the method of procurement detailed herein.

e) Even for cases which do not satisfy the selection criteria as detailed above, Railways may follow the process of Reverse Auction, as detailed herein if they so desire, with vetting of associate finance and approval of competent authority.

2.0 Procedure for award of contracts through Reverse Auction:

a) The procedure discussed herein shall be fully implemented through IREPS. Any reference to Reverse Auction in these instructions shall imply e-RA.

b) Conduct and reporting of Reverse Auction shall be as per Annexure I to this letter.

c) Each tender should clearly specify essential technical and commercial parameters in a transparent manner. No deviation to such essential Technical & Commercial conditions shall be permitted to the vendors in the electronic bid form.

Sanjeeb Kumar

2.1 **Technical Bid and Initial Price Offer:**

a) (i) In case of Works and Services related tenders E-RA shall be adopted only for those cases where evaluation is on the basis of single parameter/currency.

(ii) In case of Stores Tenders procuring authority shall decide the bid evaluation criteria in the tender itself, i.e. whether the evaluation shall be item wise, consignee wise or overall tender value wise.

b) Bidder shall be simultaneously required to electronically submit a Technical & Commercial Bid and Initial Price Offer.

i. In case of Works and Services tenders, offers found eligible for award of contract/meeting eligibility criteria shall be categorized as Qualified for Award of Contract for the purpose of e-RA.

ii. In case of Stores tenders, offers found eligible for bulk order shall be categorised as Qualified for Bulk Order for the purpose of RA and offers found eligible for Developmental order shall be categorised as Qualified for Development Order for the purpose of RA.

c) Offers not complying with essential technical & commercial requirements of the tender shall be declared as Ineligible for award of contract.

d) Technical & Commercial evaluation of bids shall be done by a Tender Committee, as per extant guidelines, delegation and the estimated value of tender. Recommendations of Tender Committee shall be considered by Tender Accepting Authority, as per existing guidelines.

e) Initial Price Offer of only those bidders categorized as Qualified for Award of contract in case of Works and Services Tenders shall be opened and tabulated by system separately. In case of Stores tenders Initial Price Offer of only those bidders categorized as Qualified for Developmental Order or Qualified for Bulk Order, shall be opened and tabulated by system separately, category wise. Extant instructions for electronic tabulation shall apply for tabulation of Initial Price Offers.

2.2 **Financial Bid:**

Financial Bid shall comprise of Final Price Offer obtained through Reverse Auction. Following conditions and procedure shall be followed in selection of bidders for conduct of Reverse Auction:

a. **Selection of vendors for Reverse Auction for award of Contract in Works and Services tenders and bulk ordering in Stores tenders :**

Number of tenderers Qualified for Award of contract/ Bulk Order	Number of tenderers to be selected for Reverse Auction	Remarks
< 3	NIL*	The bids disallowed from participating in the Reverse Auction shall be the highest bidder(s) in the tabulation of Initial Price Offer. In case the highest bidders quote the same rate, the Initial Price Offer received last, as per time log of IREPS, shall be removed first, on the principle of last in first out, by IREPS system itself.
3 to 6	3	
More than 6	50% of Vendors Qualified for Bulk Order/award of contract (rounded off to next higher integer).	

Sanjeev Kumar

Note:

i. * If the number of tenderers qualified for Bulk Order / Award of Contract is less than 3, RA shall not be done and tender may be decided on the basis of Initial Price Offer(s).

ii. In case of Stores tenders, selection of vendors for Reverse Auction for developmental ordering: All bids found Qualified for Developmental Order shall participate in Reverse Auction for developmental orders.

iii. **MSE Criteria (Not applicable for Works):** All MSEs (Micro & Small Enterprises) found Qualified for Bulk Order/Award of Contract but could not be selected for Reverse Auction as per criteria stipulated in para 2.2 a. above, but are within the range of 15% of lowest Initial Price Bid shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of Initial Price Bid. Such MSEs shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 a. In case of Stores tenders, lowest initial price bid shall mean lowest initial price bid of vendor qualified for bulk order.

iv. **Make in India criteria:** All bidders eligible for benefits under Public Procurement (Preference to Make in India) Order – 2017, found Qualified for Bulk Order/Award of Contract and are within the specified range of price preference of lowest Initial Price Bid shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of Initial Price Bid. Such bidders shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 a.

b. During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.

2.3 (i) Reverse Auction among bids categorized as Qualified for award of contract in case of Works and services tenders shall be conducted on IREPS/Suitable Platform. Bidders shall be able to see the auction screens.

(ii) Reverse Auction among bids categorized as Qualified for Developmental Order and Qualified for Bulk Order shall be conducted concurrently on IREPS/Suitable Platform in Stores tenders. Bidders shall only be able to see the auction screens relevant to them for each category. Purchaser shall be permitted to see all the auction screens for both categories on line.

2.4 In case of Stores Tenders, quantity to be covered on developmental orders shall be limited to 20% of the net procurable quantity. Developmental orders shall be placed in terms of Railway Board letter no. 99/RS(G)/709/1/Pt. Dated 13/01/2015. The quantity covered on developmental orders may be within or outside NPQ, which may be decided by TC/TAA, before conduct of Reverse Auction.

2.5 After obtaining the final bids of the Reverse Auction, tenders shall be finalized as per existing policy (including price preference to MSEs and Make in India Order, 2017, (wherever applicable) and in case of Stores tenders, procedures based on the eligibility and quantity distribution criteria, as pre-defined in the tender document. All the relevant policies of Government of India at the relevant time shall be applicable.

2.6 The level of Tender Committee to consider the Final Price Offers shall be determined on the basis of lowest Initial Price Offer of bid Qualified for award of contract in case of Works and services tenders and qualified for Bulk Order in case of Stores tenders, as opened prior to Reverse Auction. In case the level of Tender Committee which evaluated technical & commercial bids as per para 2.1(d) was higher than the level of TC competent to consider

lowest Initial Price Offer of bid Qualified for award of contract/Bulk Order, the higher level TC shall continue to finalize such tender cases.

2.7 For specific high value cases centralized at Railway Board such as procurement of Wagons, HSD oil, Track Machines, Steel, Rail and such other works/services/procurements, specific e-RA conditions, may be formulated and incorporated in the tender conditions duly vetted by Associate Finance and approved by competent authority.

3.0 Considering the fact that execution of works, delivery of services and availability of items is of paramount importance, Zonal Railways should resort to tendering through other appropriate methods to meet any exigency.

4.0 The above guidelines will apply prospectively, i.e. for tenders published subsequent to roll out of Reverse Auction module, incorporating above policy, by CRIS.

5.0 Zonal Railways/ PUs/ PSUs/Other Bodies shall incorporate appropriate conditions in the tender document.

B. **Tenders for Earning Contracts**

Competent authority has decided that all earnings tenders shall henceforth be done using electronic mode only (E-Tendering) and manual tendering may be discontinued. Further, for all Earning Tenders, e-auction method may be followed. This shall however apply only after successful proving out of appropriate module for Earning Contracts by CRIS. Any Earning Tender to be done manually after roll out of Earning Tender module by CRIS shall require personal approval of PHOD/CHOD.

C. **For PSUs and Other Bodies/Organizations of Railways**

These instructions are also applicable to all Railway PSUs like IRCON, RVNL, RAILTEL, RITES, IRCTC, MRVC and their subsidiaries and other bodies like CRIS. It is however, not mandatory for them to use IREPS module for this purpose. They may choose any proven software tool for this purpose which is suitable to function in compliance with these guidelines for Zonal Railways/PUs.

D. **Other Instructions**

1. E-Tendering is to be followed for all types of tenders on Indian Railways, PUs and Railway PSUs.

2. Two Packet Single Stage system of tendering is to be followed for:

   a. Stores – Through e-R.A. tenders above Rs 10 Crore.
   b. Works – For all tenders above Rs 10 Crore.
   c. Services – For tenders above Rs 50 lakh.
   d. Earnings – For all tenders.

3. MSME criteria of considering offers from MSEs quoting within L-1 + 15% for 20% of NPQ is to be followed for all Goods and Services tenders.

4. Make in India Preference order is to be followed for all Goods, Services and Works tenders wherever applicable as per guidelines. Copies of the Order No. P-45021/2/2017-B.E.-II dated

15-06-2017 and RB letter no. 2015/RS(G)/779/5 dt. 27.12.2017 are enclosed as Annexure-II & III for ready reference.

5. Withdrawal of L-1 Offer: In case of withdrawal of offer of L-1 bidder, the tender need not necessarily be discharged in case of tenders for procurement of Goods and Services (Other than Consultancy) subject to the conditions mentioned in RB letter no. 2017/Trans/01/Policy dt. 17-11-2017 being fulfilled.

   This issues with the concurrence of Associate Finance of Transformation Cell of Railway Board.

(V. Arun Kumar)
Director / Transformation Cell

No. 2017/Trans/01/Policy/Pt-S **New Delhi, dated: 28-03-2018**

1. PFAs, All Indian Railways & Production Units
2. The ADAI (Railways), New Delhi
3. The Director of Audit, All Indian Railways

(Sanjeeb Kumar)
Executive Director Accounts
Transformation Cell

Copy for information to

1. The CMDs, All IR PSUs.
2. The Director, Indian Railway Institute of Civil Engineering, Pune.
3. The Director, Indian Railway Institute of Mechanical and Electrical Engineering, Jamalpur.
4. The Director, Indian Railway Institute of Signal Engineering and Telecommunications, Secunderabad.
5. The Director, Indian Railway Institute of Electrical Engineering, Nasik.
6. The Executive Director, Indian Railways Centre for Advanced Maintenance Technology, Gwalior.
7. The Director, Indian Railway Institute of Transport Management, Lucknow.
8. The Registrar, Railway Claims Tribunal, Delhi.
9. The General Secretary, IRCA, New Delhi.
10. The Chief Commissioner of Railway Safety, Lucknow.
11. The Secretary, Railway Rates Tribunal, Chennai.

Copy to:
1. The Genl. Secy., AIRF, Room No. 248, & NFIR Room No. 256-C, Rail Bhavan
2. The Secy. Genl., IRPOF, Room No. 268, FROA, Room No. 256-D & AIRPFA, Room No. 256-D Rail Bhavan

Copy to:
1. PS to MR, MOS(S), MOS(G)
2. CRB, FC, ME, MTR, MRS, MS, MT, SECY, DG (RHS), DG (RPF), DG (Stores), DG(Pers), DG(S&T)
3. All AMs, PEDs & Executive Directors of Railway Board

(V. Arun Kumar)
Director / Transformation Cell

Annexure I

Procedure for Conduct and Reporting of R.A.

1. The tendering authority shall solicit bids through an invitation to the electronic Reverse Auction to be published or communicated in accordance with the provisions similar to e-procurement.
2. Convener of the tender committee shall fix the following, on case to case basis, depending upon the nature of item/work/service and complexity of case on hand. **These shall be indicated in the tender for e-RA itself.**
   a. Initial e-RA period: This shall be the initial time interval for e-RA. e-RA shall be open for this duration.
   b. Auto extension period: In case any offer is received in the time period equal to auto extension period before close of initial e-RA period, the e-RA shall be extended for time equal to auto extension period from the time of last bid. There shall be no upper limit on number of auto extensions. When no offer is received in the last auto extension period, e-RA shall close.
   c. Minimum decrement in percentage of value of the last successful bid.
3. Date and time for start of e-RA shall be communicated to qualified tenderers by the convener after evaluation of the Technical Bids.
4. After submission of Initial Price Bid, tenderers will not be allowed to revise the taxes and other levies.
5. During auction period, identities of the participating tenderers will be kept hidden.
6. Minimum admissible bid value will be last bid value minus minimum decrement as specified by the tendering authority before starting of reverse auction. Starting point for reverse auction shall be the lowest Initial Price Bid of the tenderer eligible for award of contract.
7. After close of the RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.
8. Railway users can also view the bidding history in chronological order.
9. Bidders not be allowed to withdraw their last offer.
10. L-1 will be defined as the lowest bid obtained after the closure of R.A. session for Goods, Works and Services tenders.

(Ref: RB Letter no. 2017/Trans/01/Policy/Pt-S dated 28-03-2018)

Sanjeeb Kumar

Annexure II

No. P-45021/2/2017-B.E.-II
Government of India
Ministry of Commerce and Industry
Department of Industrial Policy and Promotion
****

Dated 15th June, 2017
Udyog Bhawan, New Delhi

To

All Central Ministries/Departments/CPSUs/All concerned

ORDER

Subject: Public Procurement (Preference to Make in India), Order 2017

Whereas it is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of goods and services in India with a view to enhancing income and employment, and

Whereas procurement by the Government is substantial in amount and can contribute towards this policy objective, and

Whereas local content can be increased through partnerships, cooperation with local companies, establishing production units in India or Joint Ventures (JV) with Indian suppliers, increasing the participation of local employees in services and training them,

Now therefore the following Order is issued :

1. This Order is issued pursuant to Rule 153 (iii) of the General Financial Rules 2017.
2. **Definitions**: For the purposes of this Order:

   'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

   'Local supplier' means a supplier or service provider whose product or service offered for procurement meets the minimum local content as prescribed under this Order or by the competent Ministries / Departments in pursuance of this order.

   'L1' means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

   'margin of purchase preference' means the maximum extent to which the price quoted by a local supplier may be above the L1 for the purpose of purchase preference.

   'Nodal Ministry' means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services.

.....Contd. p.2/-

'Procuring entity' means a Ministry or department or attached or subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

3. **Requirement of Purchase Preference**: Subject to the provisions of this Order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order, purchase preference shall be given to local suppliers in all procurements undertaken by procuring entities in the manner specified hereunder:

   a. In procurement of goods in respect of which the Nodal Ministry has communicated that there is sufficient local capacity and local competition, and where the estimated value of procurement is Rs. 50 lakhs or less, only local suppliers shall be eligible. If the estimated value of procurement of such goods is more than Rs. 50 lakhs, the provisions of sub-paragraph b or c, as the case may be, shall apply.

   b. In the procurements of goods which are not covered by paragraph 3a and which are divisible in nature, the following procedure shall be followed:

      i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a local supplier, the contract for full quantity will be awarded to L1.

      ii. If L1 bid is not from a local supplier, 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the local suppliers, will be invited to match the L1 price for the remaining 50% quantity subject to the local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such local supplier subject to matching the L1 price. In case such lowest eligible local supplier fails to match the L1 price or accepts less than the offered quantity, the next higher local supplier within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on local suppliers, then such balance quantity may also be ordered on the L1 bidder.

   c. In procurements of goods not covered by sub-paragraph 3a and which are not divisible, and in procurement of services where the bid is evaluated on price alone, the following procedure shall be followed:

      i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a local supplier, the contract will be awarded to L1.

      ii. If L1 is not from a local supplier, the lowest bidder among the local suppliers, will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such local supplier subject to matching the L1 price.

      iii. In case such lowest eligible local supplier fails to match the L1 price, the local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the local suppliers within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder.

.....Contd. p.3/-

4. **Exemption of small purchases**: Notwithstanding anything contained in paragraph 3, procurements where the estimated value to be procured is less than Rs. 5 lakhs shall be exempt from this Order. However, it shall be ensured by procuring entities that procurement is not split for the purpose of avoiding the provisions of this Order.

5. **Minimum local content**: The minimum local content shall ordinarily be 50%. The Nodal Ministry may prescribe a higher or lower percentage in respect of any particular item and may also prescribe the manner of calculation of local content.

6. **Margin of Purchase Preference**: The margin of purchase preference shall be 20% .

7. **Requirement for specification in advance**: The minimum local content, the margin of purchase preference and the procedure for preference to Make in India shall be specified in the notice inviting tenders or other form of procurement solicitation and shall not be varied during a particular procurement transaction.

8. **Government E-marketplace**: In respect of procurement through the Government E-marketplace (GeM) shall, as far as possible, specifically mark the items which meet the minimum local content while registering the item for display, and shall, wherever feasible, make provision for automated comparison with purchase preference and without purchase preference and for obtaining consent of the local supplier in those cases where purchase preference is to be exercised.

9. **Verification of local content**:

   a. The local supplier at the time of tender, bidding or solicitation shall be required to provide self-certification that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made.

   b. In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

   c. Decisions on complaints relating to implementation of this Order shall be taken by the competent authority which is empowered to look into procurement-related complaints relating to the procuring entity.

   d. Nodal Ministries may constitute committees with internal and external experts for independent verification of self-declarations and auditor's/ accountant's certificates on random basis and in the case of complaints.

   e. Nodal Ministries and procuring entities may prescribe fees for such complaints.

   f. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

   g. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under this Order for procurement by any other procuring entity for the

.....Contd.p.4/-

duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, in the manner prescribed under paragraph 9h below.

h. The Department of Expenditure shall issue suitable instructions for the effective and smooth operation of this process, so that:

   i. The fact and duration of debarment for violation of this Order by any procuring entity are promptly brought to the notice of the Member-Convenor of the Standing Committee and the Department of Expenditure through the concerned Ministry /Department or in some other manner;

   ii. on a periodical basis such cases are consolidated and a centralized list or decentralized lists of such suppliers with the period of debarment is maintained and displayed on website(s);

   iii. in respect of procuring entities other than the one which has carried out the debarment, the debarment takes effect prospectively from the date of uploading on the website(s) in the such a manner that ongoing procurements are not disrupted.

10. **Specifications in Tenders and other procurement solicitations**:

a. Every procuring entity shall ensure that the eligibility conditions in respect of previous experience fixed in any tender or solicitation do not require proof of supply in other countries or proof of exports.

b. Procuring entities shall endeavour to see that eligibility conditions, including on matters like turnover, production capability and financial strength do not result in unreasonable exclusion of local suppliers who would otherwise be eligible, beyond what is essential for ensuring quality or creditworthiness of the supplier.

c. Procuring entities shall, within 2 months of the issue of this Order review all existing eligibility norms and conditions with reference to sub-paragraphs 'a' and 'b' above.

d. If a Nodal Ministry is satisfied that Indian suppliers of an item are not allowed to participate and/ or compete in procurement by any foreign government, it may, if it deems appropriate, restrict or exclude bidders from that country from eligibility for procurement of that item and/ or other items relating to that Nodal Ministry. A copy of every instruction or decision taken in this regard shall be sent to the Chairman of the Standing Committee.

e. For the purpose of sub-paragraph 10 d above, a supplier or bidder shall be considered to be from a country if (i) the entity is incorporated in that country, or ii) a majority of its shareholding or effective control of the entity is exercised from that country; or (iii) more that 50% of the value of the item being supplied has been added in that country. Indian suppliers shall mean those entities which meet any of these tests with respect to India."

.....Contd.p.5/-

11. **Assessment of supply base by Nodal Ministries**: The Nodal Ministry shall keep in view the domestic manufacturing / supply base and assess the available capacity and the extent of local competition while identifying items and prescribing minimum local content or the manner of its calculation, with a view to avoiding cost increase from the operation of this Order.

12. **Increase in minimum local content**: The Nodal Ministry may annually review the local content requirements with a view to increasing them, subject to availability of sufficient local competition with adequate quality.

13. **Manufacture under license/ technology collaboration agreements with phased indigenization**: While notifying the minimum local content, Nodal Ministries may make special provisions for exempting suppliers from meeting the stipulated local content if the product is being manufactured in India under a license from a foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phasing of increase in local content.

14. **Powers to grant exemption and to reduce minimum local content**: Ministries /Departments of Government of India and the Boards of Directors of Government companies or autonomous bodies may, by written order,

    a. reduce the minimum local content below the prescribed level;

    b. reduce the margin of purchase preference below 20% ;

    c. exempt any particular item or procuring or supplying entities or class or classes of items or procuring or supplying entities from the operation of this Order or any part of the Order.

    A copy of every such order shall be marked to the Member-Convenor of the Standing Committee constituted under this Order.

15. **Directions to Government companies**: In respect of Government companies and other procuring entities not governed by the General Financial Rules, the administrative Ministry or Department shall issue policy directions requiring compliance with this Order.

16. **Standing Committee**: A standing committee is hereby constituted with the following membership:

    Secretary, Department of Industrial Policy and Promotion—Chairman
    Secretary, Commerce—Member
    Secretary, Ministry of Electronics and Information Technology—Member
    Joint Secretary (Public Procurement), Department of Expenditure—Member
    Joint Secretary (DIPP)—Member-Convenor

    The Secretary of the Department concerned with a particular item shall be a member in respect of issues relating to such item. The Chairman of the Committee may co-opt technical experts as relevant to any issue or class of issues under its consideration.

.....Contd.p.6/-

17. **Functions of the Standing Committee**: The Standing Committee shall meet as often as necessary but not less than once in six months. The Committee

    a. shall oversee the implementation of this order and issues arising therefrom, and make recommendations to Nodal Ministries and procuring entities.

    b. shall annually assess and periodically monitor compliance with this Order

    c. shall identify Nodal Ministries and the allocation of items among them for issue of notifications on minimum local content

    d. may require furnishing of details or returns regarding compliance with this Order and related matters

    e. may, during the annual review or otherwise, assess issues, if any, where it is felt that the manner of implementation of the order results in any restrictive practices, cartelization or increase in public expenditure and suggest remedial measures

    f. may examine cases covered by paragraph 13 above relating to manufacture under license/ technology transfer agreements with a view to satisfying itself that adequate mechanisms exist for enforcement of such agreements and for attaining the underlying objective of progressive indigenization

    g. may consider any other issue relating to this Order which may arise.

18. **Removal of difficulties**: Ministries /Departments and the Boards of Directors of Government companies may issue such clarifications and instructions as may be necessary for the removal of any difficulties arising in the implementation of this Order.

19. **Ministries having existing policies**: Where any Ministry or Department has its own policy for preference to local content approved by the Cabinet after 1st January 2015, such policies will prevail over the provisions of this Order. All other existing orders on preference to local content shall be reviewed by the Nodal Ministries and revised as needed to conform to this Order, within two months of the issue of this Order.

20. **Transitional provision**: This Order shall not apply to any tender or procurement for which notice inviting tender or other form of procurement solicitation has been issued before the issue of this Order.

(B. S. Nayak)
Under Secretary to Government of India
Ph. 23061257

Annexure III

भारत सरकार **BHARAT SARKAR**
रेल मंत्रालय **MINISTRY OF RAILWAYS**
रेलवे बोर्ड **RAILWAY BOARD**
नई दिल्ली **New Delhi**

No. 2015/RS(G)/779/5 **Dated: 27.12.2017**

The General Manager, All Indian Railways/PUs, NF(C), CORE
The DG/RDSO/Lucknow & NAIR/Vadodara
CAOs, DMW/Patiala, WPO/Patna, COFMOW/NDLS, RCF/RBL/NDLS
CMDs of PSUs, RVNL, KRCL

Sub.: Public Procurement (Preference to Make in India) Order 2017
Ref.: (i) Rly Bd. Letter No. 2015/RS(G)/779/5, dt 03.08.2017
(ii) Rly Bd. Letter No.2011/RS(G)/779/9, dt 06.12.2017

***

1.0 Vide letter referred at (i) above, instructions for implementation of Public Procurement (Preference to Make in India) Order 2017, were issued for compliance. Some of the Railways/ PUs have submitted the compliance also.

2.0 The subject order provides for constitution of a Standing Committee to oversee its implementation. The Standing Committee, while reviewing implementation of the order, during its meeting held on 6th December, 2017, observed that *"some of the government institutions/ autonomous bodies/ PSUs/ JVs/ companies etc. had included certain restrictive conditions in the bid documents, which were highly discriminatory against the domestic manufacturers."*

3.0 Secretary, Department of Industrial Policy and Promotion, has conveyed the following message from the Office of Prime Minister:
"It is very disturbing that the broad message has not been appreciated by various Departments. It should be the responsibility at the highest level in each Department to ensure that the tender conditions are strictly in sync with the public procurement order and each tender must be examined from the point of view of the interest of Indian manufacturers. "

4.0 The Standing Committee has further clarified the following:
"It is clarified that Public Procurement (Preference to Make in India) Order 2017 is not limited in its scope to mere supply of either goods or services alone, and that the contracts for ***procurement of works*** *are also covered by this order as construction contracts entail rendering of both goods and services during course of execution."*

5.0 Regarding restrictive and discriminating terms and conditions against domestic manufacturers, attention is drawn to para 3.9.1(c) of Standing Committee minutes which is reproduced below:
"3.9.1 *c) Evolve an internal system of vetting the restrictive and discriminating terms & conditions against domestic manufacturers especially included in tenders or pre-qualification bids or expressions of interest floated by them or their Attached/ Subordinate Offices, Autonomous Bodies, PSUs, JVs with State Governments and JVs formed among Central PSUs."*

6.0 In the light of above, it is reiterated that the instructions as contained in the subject order, as circulated by Railway Board, may be followed in letter and spirit, duly modifying tender conditions, where considered necessary. Compliance should be reported to Railway Board.

Kanwalpreet
(Kanwalpreet)
DRS/IC
Railway Board

No. 2015/RS(G)/779/5 **Dated: 27.12.2017**

1. PFAs, All Indian Railways & Production Units
2. The ADAI(Railways), New Delhi
3. The Directors of Audit, All Indian Railways

Kanwalpreet
(Kanwalpreet)
DRS/IC
Railway Board

No. 2015/RS(G)/779/5 **Dated: 27.12.2017**

1. PCMMs, PCEs, CMEs, CEEs, CSTEs, All Indian Railways & PUs, RCF/RBL/NDLS, COFMOW, CORE, WPO and RWP/Bela
2. The Directors–
   a. Indian Railway Institute of Sig. Engg. & Telecom, Secunderabad
   b. Indian Railway Institute of Mech. & Elec. Engg., Jamalpur
   c. Indian Railway Institute of Elect. Engg., Nasik
   d. Sr. Prof. (Material Management), NAIR, Vadodara
   e. Indian Railway Institute of Civil Engg., Pune
   f. Indian Railway Institute of Traffic Management, Lucknow
3. MD, CRIS, Chanakya Puri, New Delhi
4. MD, RITES, RITES Bhavan, Sector-29, Gurugram
5. Director, Iron & Steel, 3, KoilaGhat Street, Kolkat
6. Executive Director (Stores), RDSO, Lucknow
7. Chief Commissioner, Railway Safety, Lucknow
8. Zonal Railway Training Institute, Sukadia Circle, Udaipur

Kanwalpreet

(Kanwalpreet)
DRS/IC
Railway Board

No. 2015/RS(G)/779/5 **Dated: 27.12.2017**

Copy to :

1. The Genl. Secy., AIRF, Room No. 248, & NFIR Room No. 256-C, Rail Bhavan
2. The Secy. Genl., IRPOF, Room No. 268, FROA, Room No. 256-D & AIRPFA, Room No. 256-D Rail Bhavan

Kanwalpreet

(Kanwalpreet)
DRS/IC
Railway Board

Copy to:- Sr. PPSs / PPS / PS to :

1. MR, MoS(S), MoS(G)
2. CRB, FC, ME, MTR, MRS, MS, MT, SECY., DG(RS), DG(S&T),DG(Personnel),DG (RHS), DG (RPF)
3. All AMs, PEDs & Executive Directors of Railway Board

भारत सरकारGOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड/ RAILWAY BOARD)

No. RS(M)/2011/EPS/01 Pt. **Dated:18.10.2019**

The General Manager, All Indian Railways/PUs, NF(C), CORE
The DG/RDSO/Lucknow & DG/NAIR/Vadodara,
CAOs, DMW/Patiala, WPO/Patna, COFMOW/NDLS, RWP/Bela

Sub.: Guidelines for Electronic Reverse Auction.
Ref.: Railway Board letter No. 2017/Trans/01/Policy/Pt-S dated 28/03/2018.

***

Railway Board had issued instructions for implementation of e-Reverse Auction vide above referred letter. References have been received by Railway Board regarding need to review the elimination process, highlighting the need to have more competitive initial price offers.

The matter has been deliberated and following amendments to the existing policy are issued:

Para No.	Existing	Amended
2.2 a Note ii	In case of Stores tenders, selection of vendors for Reverse Auction for developmental ordering: All bids found Qualified for Developmental Order shall participate in Reverse Auction for developmental orders	In case of Stores tenders, selection of vendors for Reverse Auction for developmental ordering: Offers Qualified for Development Order, with initial price offer lower than the highest initial price offer of a vendor Qualified for Bulk Order and selected for Reverse Auction after elimination, shall be allowed to participate in RA.
2.2 a Note iii	MSE Criteria (Not applicable for Works): All MSEs (Micro & Small Enterprises) found Qualified for Bulk Orders/Award of Contract but could not be selected for Reverse Auction as per criteria stipulated in para 2.2 a. above, but are within the range of 15% of lowest Initial Price Bid shall be permitted to participate in the Reverse Auction, irrespective of their inter se ranking on the basis of Initial Price Bid. Such MSEs shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 a. In case of Stores tenders, lowest initial price bid shall mean lowest initial price bid of vendor qualified for bulk order.	MSE Criteria (Not applicable for Works): All MSEs (Micro & Small Enterprises) found Qualified for Bulk/Development Orders/Award of Contract but could not be selected for Reverse Auction as per criteria stipulated in para 2.2 (a) and 2.2 (a) Note (ii) above, but are within the range of 15% of lowest Initial Price Offer of the bidder qualified for bulk order shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of Initial Price Offer. Such MSEs shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 (a) and 2.2 (a) Note (ii) above. In case of Stores tenders, lowest initial price bid shall mean lowest initial price bid of vendor qualified for bulk order. However, in case all the bidders qualifying for bulk as well as for

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		developmental order (before applying elimination criteria) are within MSE category, this clause shall not apply.
2.2 a Note iv	Make in India criteria: All bidders eligible for benefits under Public Procurement (Preference to Make in India) Order – 2017, found qualified for Bulk Order/Award of Contract and are within the specified range of price preferences of lowest Initial Price Bid shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of Initial Price Bid. Such bidders shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 a.	Make in India criteria: All bidders eligible for benefits under Public Procurement (Preference to Make in India) Order – 2017, found qualified for Bulk/Developmental Order/Award of Contract and are within the specified range of price preference, under the Make in India Policy, of lowest Initial Price offer of the vendor qualified for bulk order shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of Initial Price offer. Such bidders shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 (a) and 2.2 (a) Note (ii) above. However, if all the bids qualified for bulk order as well as for developmental order (before applying elimination criteria) also qualify under "Make in India Order, 2017" criteria, this clause shall not apply.
2.3 (ii)	Reverse Auction among bids categorised as Qualified for Developmental Order and Qualified for Bulk Order shall be conducted concurrently on IREPS/Suitable Platform in Stores tenders. Bidders shall only be able to see the auction screens relevant to them for each category. Purchaser shall be permitted to see all the auction screens for both categories on line.	Reverse Auction among bidders categorised as Qualified for Developmental Order and Qualified for Bulk Order shall be conducted concurrently on IREPS/Suitable Platform in Stores tenders. Qualified Bidders shall be able to see both the auction screens i.e. auction screen of Reverse Auction amongst bidders qualified for bulk order and auction screen of Reverse Auction amongst bidders qualified for developmental order. However, bidders shall only be permitted to bid on the respective screens relevant to them as per their qualification. Purchaser shall not be permitted to see any of the auction screens. Purchaser should only be intimated on website about the status of Reverse Auction, i.e. when the auction will start/ had started, whether the auction is live or whether the auction has closed.
2.5	After obtaining the final bids of the Reverse Auction, tenders shall be finalised as per existing policy (including price preference to MSEs and Make in India Order, 2017, (wherever applicable) and in case of Stores tenders, procedures based on the eligibility and quantity	After obtaining the final price offers through Reverse Auction, the lowest bid of only those bidders who had participated in the Reverse Auction shall be tabulated and considered for ordering. The offers of bidders which were eliminated from Reverse Auction in terms of Para 2.2 shall be tabulated separately and shall not be considered for any ordering. All the

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	distribution criteria, as pre-defined in the tender document. All the relevant policies of Government of India at the relevant time shall be applicable.	relevant policies of Government of India at the relevant time shall be applicable.

This is issued with the concurrence of Finance Directorate of Ministry of Railways.

(Anurag Grover)
Dy. Dir. Rly Stores (G)
Railway Board

1. PFAs, All Indian Railways & Production Units
2. The ADAI (Railways), New Delhi
3. The Directors of Audit, All Indian Railways

for Financial Commissioner / Railways

No. RS(M)/2011/EPS/01 Pt. **Dated:18.10.2019**

1. The PCMMs, PCEs, PCMEs, PCEEs, PCSTEs, All Indian Railways & PUs, RCF/RBL/NDLS, COFMOW, CORE, WPO and RWP/Bela
2. The Directors –
    a) Indian Railways Institute of Sig. Engg. & Telecom, Secunderabad
    b) Indian Railways Institute of Mech. & Elec. Engg., Jamalpur
    c) Indian Railways Institute of Elect. Engg., Nasik
    d) Indian Railways Institute of Civil Engg., Pune
    e) Indian Railways Institute of Traffic Management, Lucknow
3. Sr. Prof. (Materials Management), NAIR, Vadodara
4. MD, CRIS, Chanakya Puri, New Delhi
5. MD, RITES, RITES Bhawan, Sector-29, Gurugram
6. Director, Iron & Steel, 3, Koila Ghat Street, Kolkata
7. Executive Director (Stores), RDSO, Manak Nagar, Lucknow
8. Chief Commissioner of Railway Safety, Lucknow
9. Zonal Railway Training Institute, Sukadia Circle, Udaipur

(Anurag Grover)
Dy. Dir. Rly Stores (G)
Railway Board

Copy to :- PSOs / Sr. PPSs / PPS / PS to

1. MR, MoS(R)
2. CRB, FC, ME, MMM, MTR, MRS, MS, MST MT, SECY., DG/RHS, DG/RPF
3. All AMs and PEDs & All Executive Directors of Railway Board
4. DDF(S)I