



**GOVERNMENT OF INDIA: MINISTRY OF RAILWAYS
RESEARCH DESIGNS & STANDARDS ORGANISATION
MINISTRY OF RAILWAYS
MANAK NAGAR, LUCKNOW – 226 011.**

EXPRESSION OF INTEREST (EOI) No. CARR-SS-03-2014

RDSO is the sole Research Design and Standards Organization of Indian Railways, dedicated to create & adopt technology solutions for Indian Railways. Carriage Directorate of RDSO is dealing with design and development of coach items.

RDSO is interested in developing Specification for “coach flooring material” as an alternate to existing Homogeneous single layer Flexible Poly Vinyl Chloride (PVC) Flooring to RDSO Specification No. RDSO/2006/CG-12 (Rev.1) used in Indian Railways. The functional requirements of the desired product and Proforma for response have been enclosed.

Firms/Organizations who have enough experience and capabilities in the field and have ISO certificate and are interested in developing and supply of said item are requested to see the details on the RDSO website <http://www.rds.indianrailways.gov.in> → Tender → EOI or contact Director/SS/Carriage/RDSO/Lucknow during office hours on any working day for further details.

The interested firms/organizations are requested to submit details in the prescribed format attached herewith on or before 10-07-2014 to the address mentioned below.

Contact Address:

Director (SS),
Room No: 14, Carriage Directorate, Annexe I Building,
Research Designs & Standards Organization (RDSO), Ministry of Railways,
Manak Nagar, Lucknow – 226 011, Uttar Pradesh, India
BSNL Ph. No. 0522 – 2465708, BSNL Fax No. 0522 – 2450679, 0522 – 2465708
Email address: dirssrds@gmail.com

Enclosure: 1. Proforma for response
2. Functional Requirements.

FORMAT FOR LETTER OF RESPONSE

Respondents Ref No.:

Date:

Executive Director (Carriage)
Room No: 2
Carriage Directorate, Annexe I Building
Research Designs & Standards Organization
Ministry of Railways
Manak Nagar
Lucknow – 226 011
Uttar Pradesh, India

Dear Sir,

Subject: RESPONSE TO – EOI FOR PARTICIPATION _____

1. We, the undersigned, offer the following information in response to the Expression of Interest sought by you vide your Notification No._____, dated _____.
2. We are duly authorized to represent and act on behalf of _____ (herein after the “respondent”)
3. We have examined and have no reservations to the EOI Document including Addenda No(s)_____.
4. We are attaching with this letter, the copies of original documents defining: -
 - 4.1 The Respondent’s legal status;
 - 4.2 Its principal place of business;
 - 4.3 Its place of incorporation (if respondents are corporations); or its place of registration (if respondents are cooperative institutions, partnerships or individually owned firms);
 - 4.4 Self-certified financial statements of Last three years, clearly indicating the financial turn over and net worth.
 - 4.5 Copies of any market research, business studies, feasibility reports and the like sponsored by the respondent, relevant to the project under consideration
5. We shall assist MoR and/or its authorized representatives to obtain further clarification from us, if needed.
- 5.1 RDSO and/or its authorized representatives may contact the following nodal persons for further information on any aspects of the Response:

S. No.	Contact Name	Address	Telephone	EMail
1				
2				

6. This application is made in the full understanding that:

- 6.1 Information furnished in response to EOI shall be used confidentially by RDSO for the purpose of development of the specification.
- 6.2 RDSO reserves the right to reject or accept any or all applications, cancel the EOI and subsequent bidding process without any obligation to inform the respondent about the grounds of same.
- 6.3 We confirm that we are interested in participating in development of the specification.

7. We certify that our turnover and net worth in the last three years is as under:

Financial Year	Turnover	Net worth

8. In response to the EOI we hereby submit the following additional details annexed to this application.

- 8.1 Clause wise compliance to RDSO Specification ----- Not applicable...
- 8.2 Details of various items being manufactured/consultancy undertaken.
- 8.3 Details of customer(s) and supplies made in the field of item under EOI.
- 8.4 Experience and expertise for the items proposed in EOI.
- 8.5 Details of man-power with their qualification and experience.
- 8.6 Details of M&P and testing equipments required for manufacturing & testing of the product under EOI.
- 8.7 Quality Control Requirements for the product.
- 8.8 Detailed proposal for items proposed in EOI including alternative proposal, if any.
- 8.9 Details of Intellectual Property Rights (IPR) held, patent filed/held and MOU/agreement signed.
- 8.10 Details of ISO certification

9. The following undertakings are hereby given:

- 9.1. In regard to matters relating to the security and integrity of the country, no charge sheet has been filed by an agency of the Government / conviction by a Court of Law for an offence committed by the ----- (name of the entity) or by any sister concern of the ----- (name of the entity) would result in disqualification.
 - 9.2. In regard to matters other than the security and integrity of the country, ----- (name of the entity) has not been convicted by a Court of Law or indicted / passed any adverse order by a regulatory authority against it or it's against any sister concern which relates to a grave offence, or would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community.
10. The undersigned declare that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail. We also understand that in the event of any information furnished by us being found later on to be incorrect or any material information having been suppressed, RDSO may delete our name from the list of qualified Respondents. We further understand that RDSO will give first preference to the applicants considered relevant for the purpose.
11. Our response is valid till (date in figures and words): _____

Yours sincerely,

(Sign)

NAME

In the Capacity of

Duly authorized to sign the

Response for and on behalf of

Date

FUNCTIONAL REQUIREMENTS OF FLOORING MATERIAL ALTERNATE TO EXISTING HOMOGENEOUS SINGLE LAYER FLEXIBLE POLY VINYL CHLORIDE (PVC) FLOORING TO RDSO SPECIFICATION NO. RDSO/2006/CG-12 (REV.1) USED IN INDIAN RAILWAYS COACHES.

1. FUNCTIONAL REQUIREMENTS:

The flooring material alternate to existing homogeneous single layer flexible poly vinyl chloride (PVC) flooring to RDSO specification no. RDSO/2006/CG-12 (Rev.1) used in Indian Railways coaches should work satisfactorily under the following operating conditions of IR coaches:

1.1 Coach Dynamics:

Flooring material should provide adequate adhesion during the vibrations and shocks normally encountered in service as indicated below:

- | | | |
|------|-----------------------------------|------|
| i) | Maximum vertical acceleration | 1.0g |
| ii) | Maximum longitudinal acceleration | 3.0g |
| iii) | Maximum transverse acceleration | 2.0g |

The vibrations are of sine wave form and the frequency vibration is between 1 Hz to 50 Hz.

The amplitude 'a' expressed in millimeters is given as a function of f, by equations
 $a = 25/f$ for values of f from 1 Hz to 10 Hz.

$a = 250/f^2$ for values of f exceeding 10Hz and up to 50 Hz.

- 1.2** In the direction corresponding to the longitudinal movement of the vehicle, the Flooring material is subjected for 2 min. to 50 Hz Vibrations of such a value that the maximum acceleration is equal to 3g.

1.3 Coach-body displacement encountered under dynamic conditions.

- | | | |
|------|------------------------------------|--------------|
| i) | Vertically- | ± 100 mm |
| ii) | laterally - | ± 55 mm |
| iii) | longitudinally- | ± 10 mm |
| iv) | bogie rotation about center pivot- | $\pm 4^0$ |

1.4 Ambient Conditions

- | | | | |
|-----|----------------------------|---|--------------------|
| (i) | Ambient temperature | : | -4° C to 50° C |
| | Altitude | : | Sea level to 2500m |
| | Max. temperature under Sun | : | 70° C |
| | Relative humidity | : | 40% to 95% |
- (ii) The rainfall is fairly heavy.
- (iii) During dry weather, the atmosphere is likely to be dusty.
- (iv) Temperature variations can be quite high in the same journey or short period of time.
- (v) Coaches operate in coastal areas with continued exposure to salt laden air.

1.5 Coach Inside Condition:

Inside condition of the coach may consider as under:

The ambient conditions may be similar as mentioned under para 1.4 above for Non-air-conditioned coaches. However in summer day the value of upper range of the temperature may go up. For AC coaches temperature may be maintained.

2.0 Properties of the material

Tests shall be conducted from the finished product as per the methods indicated for the respective tests and shall conform to the following requirements: -

TABLE-1

S. N.	Property		Value	Test Method (Std.)
1	Sound absorption (Minimum)			
2	Weight			
3	Total thickness			
4	Abrasion: Loss of thickness*			
5	Tensile strength at 1% elongation (Minimum)			
6	Tear strength (Minimum)			
7	Curling (Maximum)			
8	Indentation (mm) (Maximum)	a) At $27 \pm 2^{\circ}\text{C}$		
		b) At $46 \pm 2^{\circ}\text{C}$		
9	Residual Indentation (Maximum)			
10	Flexibility			
11	Heat ageing and exudation			
12	Moisture movement (%) change in linear dimensions - Maximum			
13	Dimensional stability			
14	Colour fastness to daylight			

15	Abrasion resistance (with H18 abrasion wheel, 1000 gms load and 1000 cycles with tabor equipment) (Volume loss max. in cubic cm)*		
16	Wear layer thickness (Minimum)		
17	Homogeneity		
18	Ply adhesion (KN/m) Minimum (For each layer of laminated product)		
19	Elongation at break (percentage) Minimum		
20	Slip Resistance (Minimum)		
21	Resistance to spread of flame		
22	Deterioration of visibility due to smoke (Minimum)		
23	Limiting Oxygen Index (Minimum)		
24	Toxicity		

*Abrasion resistance shall be measured in terms of mass loss. Volume loss shall be calculated by dividing mass loss by the density.

3.0 If any other parameter needs to be evaluated may also be mentioned in the form of technical specification. Flooring properties and life performance should be as per International Norms.

Sub: Development of alternate material for coach flooring.

Presently PVC sheet is being used as flooring in IR coaching stock, which has limited sources and due to new developments in this field it is proposed to develop an alternate material for coach flooring in lieu of PVC flooring.

For this purpose, it is proposed an EOI (Expression of Interest) be floated to take input from industry/experts of the field. A notice for EOI with functional requirements of the product has been prepared and placed at S. No. 07.

EDSC may like to approve the notice of EOI for uploading on RDSO website and also to publish in leading Newspapers.

(Rakesh Kumar)
Dy. Director(SS)/Carriage

Director (SS)

EDSC