



**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-04-2016

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 “Rubberized flooring for use in Indian Coaching stock” similar to being used in Metros as an alternative to Flexible Poly Vinyl Chloride (PVC) flooring to RDSO Specification no. RDSO/2006/CG-12 (Rev-1). 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.rdsso.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 20-10-2016 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: dirssrdsso@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 _____ (hereinafter 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: -
 - a) the respondent’s legal status;
 - b) its principal place of business;
 - c) its place of incorporation (if respondents are corporations); or its place of registration (if respondents are cooperative institutions, partnerships or individually owned firms);
 - d) Self certified financial statements of Last three years, clearly indicating the financial turn over and net worth.
 - e) 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.
 - a) 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	E Mail
1				
2				

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

- a) Information furnished in response to EOI shall be used confidentially by RDSO for the purpose of development of the project.
- b) 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.
- c) We confirm that we are interested in participating in development of the project.

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

Financial Year	Turn over	Net worth

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

- 8.1. Details of various items being manufactured/consultancy undertaken.
- 8.2. Details of customer(s) and supplies made in the field of item under EOI.
- 8.3. Experience and expertise for the items proposed in EOI.
- 8.4. Details of man-power with their qualification and experience.
- 8.5. Detailed proposal for items proposed in EOI including alternative proposal, if any.
- 8.6. Details of Intellectual Property Rights (IPR) held, patent filed/held and MoU/agreement signed.
- 8.7. Details of ISO certification
- 8.8. undertakings as per Annexure – A

9. 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.

10. 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

Annexure – A

(To be taken on non-judicial stamp paper of appropriate value as applicable in the respective state and duly notarised & witnessed)

UNDERTAKING

I, son of aged about Years resident of do hereby solemnly affirm as under:-

1. That the deponent is the Authorised signatory of *(Name of the Sole Proprietorship Concern/ Partnership Firm/ Registered Company/ Joint Venture)*.
2. That the deponent declares on behalf of *(Name of the Sole Proprietorship Concern/ Partnership Firm/ Registered Company/ Joint Venture)* that:
 - a) 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.
 - b) 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 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.

DEPONENT

VERIFICATION

I declare that the contents of para 1 to 2 above are true as per my knowledge and nothing has been hidden.

DEPONENT

INDIAN RAILWAYS



FUNCTIONAL REQUIREMENT SPECIFICATION

FOR

RUBBERIZED FLOORING

FOR

INDIAN RAILWAY COACHING STOCK

Issued By:
Research Designs and Standards Organization
Manak Nagar, Lucknow - 226011.

FUNCTIONAL REQUIREMENT SPECIFICATION FOR RUBBERIZED FLOORING FOR INDIAN RAILWAY COACHING STOCK

1. FOREWORD

Indian Railway is intended to develop fire retardant rubberized flooring for Passenger Coaches as an alternate to existing Homogeneous single layer Flexible Poly Vinyl Chloride (PVC) flooring to RDSO Specification no. RDSO/2006/CG-12 (Rev-1).

2. SCOPE

This specification covers the functional requirement related to fire retardant rubberized flooring for Passenger Coaches under the operating conditions as given in Para 4 of this specification.

3. FUNCTIONAL REQUIREMENT

The fire retardant rubberized flooring is intended for the following functional requirements. The likely properties and its required value to be submitted by the responded shall be as per Annexure-I:

- i) It should have long lasting (preferably upto coach life) and easy installation.
- ii) It should be homogeneous single layer
- iii) It should be easy cleaning and maintenance
- iv) It should have impact & wear resistance.
- v) It should have anti slip property.
- vi) It should have vibration damping.
- vii) It should have noise isolation.
- viii) It should be UV resistance
- ix) It should be weather resistance
- x) It should be resistance to oil, grease and hydrocarbons.
- xi) It should be resistance to Bacteria
- xii) It should not reflect the light
- xiii) It should be aesthetically pleasant.
- xiv) It should have good adherent to flooring
- xv) It should not curl during service.
- xvi) There should be no unpleasant gap between two sheets while joined together.

xvii) The material should have following fire retardancy characteristics:

S. No.	Name of Test	Method of test	Specified Value
1	Resistance to spread of flame	Appendix 10 of UIC 564-2 OR	Class A
2	Limiting oxygen index	IS 13360 Part 6	Min 35
3	Deterioration of visibility due to smoke	Appendix-15 of UIC 564-2 OR	Class A
4	Toxicity	NCD- 1409	<1
5	Heat Release rate	EN- 45545-2	R1 HL-3

4. OPERATING CONDITION

4.1 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.
- (vi) The coach length over buffer is approximately 22.3 meters for ICF type coaches & for LHB type coach length over coupler is approximately 24 meters.

4.2 Coach Inside Conditions

Non-AC Coaches

The ambient conditions may be similar as mentioned under Para 4.1 above for Non-air-conditioned coaches. However in summer day the value of upper range of the temperature may go up.

AC Coaches

Air conditioned Coaches are equipped with roof mounted air conditioning system with central ducting system and side distribution branch lines. The coaches are conditioned to a nominal temperature of 23°C to 25°C, RH 55% to 60% & air flow @ 4000 cubic meter /hour. The specified speed of the coaches is 110 kmph and 160 kmph which may vary as per IR requirements.

4.3 Coach Dynamics

Equipment shall withstand satisfactorily 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.

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

4.4 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- | ±4° |

ANNEXURE – I

- 1.0 Likely Properties & its required value to be submitted by the responded of offered product shall be as under:

S. No.	Property	Required Value	Test Method
1.	Sound absorption (Minimum)		
2.	Weight (Maximum)		
3.	Total thickness		
4.	Abrasion: Loss of thickness		
5.	Tensile strength at 1% elongation (Minimum)		
6.	Tear strength (Minimum) Along the machine direction Transverse direction		
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		
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.	Fire retardant Properties	As per Clause 3 (xvii)	
22.	UV Resistance		
23.	Gloss value		
24.	Bacteria Resistance		
25.	Oil & Grease resistance		
26.	Chemical resistance		
27.	Vibration damping		
28.	Any other properties		

- 2.0 The cost per sq. meter of 2mm thick of the offered product may also be submitted.