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Government of India - Ministry of Railways
Research Designs & Standards Organisation,
Manak Nagar, Lucknow-11

RB/L&A/002/2013

Dated 16.01.13

WKS/WS/05/FS

General Manager (C), N. F. Railway, Maligaon, Guwahati,

Principal Chief Engineer/ Chief Engineer (Coord.)

CR, ER, ECR, ECOR, NR, NCR, NER, NEFR,

NWR, SR, SCR, SER, SECR, SWR, WR & WCR, Metro Kolkatta

Chief Administrative Officer/ Chief Engineer Construction (Coord.),

CR, ER, ECR, ECOR, NR, NCR, NER, NWR,

SR, SCR, SER, SECR, SWR, WR & WCR

Sub: Guidelines on WSC Agenda Item no. 004/01/05 "Standardization of specification of flooring, Roofing material for platform covering in Station Premises and Standardization of specification of workshop flooring".

Ref: (i) Railway Board letter no. 2004/LMB/01/04 dated 09.09.2009

(ii) RDSO letter no. WKS/WS/05/FS dated 22.09.09

(iii) Railway Board letter no. 2011/LMB/1/53 dated 20.09.2012

(iv) RDSO letter no. WKS/WS/05/FS dated 03.10.2012

As per above subject, guidelines have been prepared by RDSO which are based on the recommendations of the subcommittee and has been approved by Railway Board vide reference no. (i) and (iii). These guidelines is enclosed herewith for your information and necessary action please.

DA: As above


(Nand Kishore)

Executive Director/Works

Copy to:

- (1) Director/IRICEN, Pune,
- (2) Executive Director, L & A-III, Rly. Board
- (3) Chief Engineer/General/Northern Railway
- (4) Chief Engineer/Works/South Central Railway

for kind information
please.



सत्यमेव जयते

GOVERNMENT OF INDIA
भारत सरकार
MINISTRY OF RAILWAYS
रेल मंत्रालय

**Guidelines on WSC Agenda
Item No. 004/01/05**

Standardization of Specification of flooring,
Roofing material for platform covering in Station
Premises
&
Standardization of Specification of Workshop
flooring

Works Directorate

कार्य निदेशालय

Research Designs and Standards Organisation, Lucknow – 226011
अनुसंधान अभिकल्प एवं मानक संगठन, मानक नगर, लखनऊ – 226011



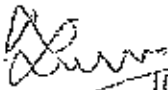
Preface

During deliberation of 1st Works Standards Committee (WSC) it was felt that there exist a large variation in flooring and roofing standards (Specifications) in Railway, which is not good. Nothing has been laid down for flooring and roofing at different category of station and workshop. Hence, there is a need to lay down requirement of different kind of flooring and roofing at different category of stations and different locations. Different Railways are using different type of flooring in Workshops also.

On the recommendations of 1st Works Standards Committee, Railway Board had constituted a subcommittee of officers for "Standardization of flooring, Roofing material for Platform covering in Station premises" & "Standardization of Workshop Flooring". Officers associated with this sub-committee for preparation of this guidelines are-

- (i) CE/Works/Northern Railway,
- (ii) CE/Works/South Central Railway and
- (iii) ED/Works/RDSO.

This guideline is based on recommendations of subcommittee which is approved by Railway Board vide their letter no. 2004/LMB/01/04 dated 09.09.2009 and vide letter no. 2011/LMB/1/53 dated 20.09.2012.


(Mand Kishore) 10/01/13.

ED/Works/RDSO & Convener Member Secretary

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1.0 Introduction:

First Works Standards Committee meeting was held on 16th-17th June 2005 at IRICEN, Pune . **"Standardization of flooring of platform, concourse & FOB and platform cover sheds based on categories of station"** and **"Standardization of workshop flooring"** was introduced as non-agenda item during deliberation of 1st WSC by the CPDE/Eastern Railway, CE/G/N.F. Railway, Adv. L&A/Railway Board, CE/G/ W. Railway and Director /IRICEN.

During discussion it was observed that there is large variation in flooring, roofing standards in Railway and nothing has been laid down for different categories of stations. At Railway workshops type of flooring is also not specified. Hence, need to standardize the different kind of flooring, roofing at different category of stations and Workshop flooring was felt.

All members of WSC agreed to constitute a Sub- committee of three members which will study the data supplied from Railways in this regard and recommend its report to railway Board on this item.

In view of above a sub-committee was formed consisting of following members:

- (i) CE/Works/Northern Railway,
- (ii) CE/Works/South Central Railway and
- (iii) ED/Works/RDSO.

2.0 BRIEF SUMMARY OF PROCEEDINGS IN WSC

- 2.1 The subcommittee had submitted its draft report in 2nd WSC on "Details of Flooring / Walling / Ceiling for Various Areas in Station Premises" & "Details of roofing materials for various areas in station building" which was discussed in detail and it was decided to be deferred to be discussed further in 3rd WSC. In 3rd WSC it was discussed in detail and recommendation were made to Railway Board for its approval. RDSO submitted guidelines on "Details of Flooring / Walling / Ceiling for Various Areas in Station Premises" & "Details of roofing materials for various areas in station building" to Railway Board vide letter no.WKS/WS/05/FS dated 03.09.2009 for approval. Railway Board has modified and approved only **"Details of Flooring / Walling / Ceiling for Various Areas in Station Premises"** vide letter no.2004/LMB/01/04 dated 09.09.2009 which was circulated to all Zonal Railway vide RDSO letter no. WKS/WS/05/FS dated 22.09.2009. (Annexure 1)
- 2.2 4th WSC discussed the "Details of roofing materials for various areas in station building" and "Workshop flooring" and after incorporating modifications as

Suggested in 4th WSC, RDSO finally submitted the "Details of roofing materials for various areas in station building" and "Workshop flooring" to Railway Board vide letter no. WKS/WS/05/FS dated 01.05.2012. "Details of roofing materials for various areas in station building" and "Workshop flooring" were approved by Railway Board vide their letter no. 2011/LMB/1/53 dated 20.09.2012 which was circulated to all Zonal railways vide RDSO letter no. WKS/WS/05/FS dated 03.10.2012. (Annexure 2)

- 2.3 Detail proceeding of all WSC is enclosed as Annexure 3 which can be referred to for detailed information.
- 3.0 "Details of Flooring / Walling / Ceiling for Various Areas in Station Premises", (Railway Board letter no. 2004/LMB/01/04 dated 09.09.2009) and "details of roofing materials for various areas in station building" and "workshop flooring" (RB letter no. 2011/LMB/1/53 dated 20.09.2012) has now been approved. The specification in tabular form as approved by Railway Board for Flooring / Walling / Ceiling for Various Areas in Station Premises is detailed below as item no 3.1, Roofing Materials for various areas in station building as item no 3.2 and Workshop Flooring as item no 3.3

3.1 Details of Flooring / Walling / Ceiling for Various Areas in Station Premises

S. No	Place	Type of flooring & Basis of station category						
		A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
1.	Platform (Covered Area)	1. Polished Granite flooring. 2. Polished Kota stone or similar stone flooring with or without stone inlays 3. *Fiber reinforced vacuum dewatered concrete flooring.	1. Polished Granite flooring. 2. Polished Kota stone or similar stone flooring with or without stone inlays 3. *Fiber reinforced vacuum dewatered concrete flooring.	1. Polished Granite flooring. 2. Polished Kota stone or similar stone flooring with or without stone inlays 3. *Fiber reinforced vacuum dewatered concrete flooring.	1. Polished Granite flooring. 2. *Fiber reinforced vacuum dewatered concrete flooring. 3. Polished Kota stone or similar stone flooring with or without stone inlays. 4. **Mastic flooring	1. *Fiber reinforced vacuum dewatered concrete flooring 2. Polished Kota stone or similar stone flooring with or without stone inlays 3. **Mastic flooring. 4. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. Rough Dressed Stones Slab flooring. 2. Brick on edge. 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. Interlocking pre-cast Cement Concrete Paver hydraulically pressed surface flooring. 2. Moorum 3. Quarry dust flooring.
		Dado upto 1500mm height or upto sill level of window whichever is lower with polished granite of matching colour with flooring.						

S. No	Place	Type of flooring & Basis of station category						
		A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
2.	Platform (Uncovered Area)	1. Polished Kota stone or similar stone flooring with or without stone inlays 2. *Fiber reinforced vacuum dewatered concrete flooring.	1. Polished Kota stone or similar stone flooring with or without stone inlays 2. *Fiber reinforced vacuum dewatered concrete flooring.	1. Polished Kota stone or similar stone flooring with or without stone inlays 2. *Fiber reinforced vacuum dewatered concrete flooring.	1. Polished Kota stone or similar stone flooring with or without stone inlays 2. *Fiber reinforced vacuum dewatered concrete flooring.	1. *Fiber reinforced vacuum dewatered concrete flooring 2. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 3. Bituminous flooring.	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. Rough Dressed Stones Slab. 3. Brick on edge. 4. Moorum surface flooring.	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. Brick on Edge. 3. Moorum surface flooring.

S. No	Place	Type of flooring & Basis of station category						
		A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
3.	*No Trolley Zone on Edges of the Platforms	1. Precast concrete studded tiles manufactured by vibro compaction process and using jointless FRP Moulds 2. Heavy duty (high strength, high abrasion resistance) precast chequered tile 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. Precast concrete studded tiles manufactured by vibro compaction process and using jointless FRP Moulds. 2. Heavy duty (high strength, high abrasion resistance) precast chequered tiles. 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. Precast concrete studded tiles manufactured by vibro compaction process and using jointless FRP Moulds 2. Heavy duty (high strength, high abrasion resistance) precast chequered tiles. 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. Precast concrete studded tiles manufactured by vibro compaction process and using jointless FRP Moulds 2. Heavy duty (high strength, high abrasion resistance) precast chequered tiles. 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. Precast concrete studded tiles manufactured by vibro compaction process and using jointless FRP Moulds 2. Heavy duty (high strength, high abrasion resistance) precast chequered tiles. 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. # CC Coping Slabs 2. Chequered CC Tiles 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds	1. #CC Coping Slabs 2. Chequered CC Tiles 3. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds

S. No	Place	Type of flooring & Basis of station category						
		A1	A	B	C	D	E	F
		Earning more than 50 crore	Earning more than 6 and upto 50 crore	Earning 3 to 6 crore	Sub urban stations	Earning between 1 & 3 crore	Earning less than 1 crore	Halt
4.	Concours e/ Booking Area	1. Polished Granite Flooring 2. Polished Kota stone or similar stone flooring with or without stone inlays	1. Polished Granite Flooring 2. Polished Kota stone or similar stone flooring with or without stone inlays	1. Polished Kota stone or similar stone flooring with or without stone inlays.	2. Polished Granite Flooring 2. Polished Kota stone or similar stone flooring with or without stone inlays	1. Polished Kota stone or similar stone flooring with or without stone inlays	1. Cement Concrete flooring	-----
		Dado upto 1500 mm height or upto window sill level whichever is lower with polished granite of matching colour with flooring.						
5.	Portico	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. *Fiber Reinforced Vacuum Dewatered Concrete Flooring 3. Mastic flooring.	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. *Fiber Reinforced Vacuum Dewatered Concrete Flooring 3. Mastic flooring.	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. *Fiber Reinforced Vacuum Dewatered Concrete Flooring. 3. Mastic flooring.	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. *Fiber Reinforced Vacuum Dewatered Concrete Flooring 3. Mastic flooring.	1. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 2. Bituminous flooring 3. *Vacuum Dewatered Concrete flooring		-----

S. No	Place	Type of flooring & Basis of station category						
		A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
6.	Circulating Area	1. *Fibre Reinforced Vacuum Dewatered concrete flooring 2. Mastic flooring.	1. *Fibre Reinforced Vacuum Dewatered Concrete Flooring. 2. Mastic flooring.	1. *Fibre Reinforced Vacuum Dewatered Concrete Flooring. 2. Mastic flooring.	1. *Fibre Reinforced Vacuum Dewatered Concrete Flooring. 2. Mastic flooring.	1. *Vacuum Dewatered Concrete Flooring. 2. Bituminous flooring	1. Bituminous flooring 2. Levelled surface with good quality soil/moorum	1. Levelled surface with good quality soil/moorum
7.	Parking Area	1. *Fibre Reinforced Vacuum Dewatered Concrete flooring. 2. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 3. Mastic flooring	1. *Fibre Reinforced Vacuum Dewatered Concrete flooring 2. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 3. Mastic flooring.	1. *Fibre Reinforced Vacuum Dewatered Concrete flooring 2. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 3. Mastic flooring.	1. *Fibre Reinforced Vacuum Dewatered Concrete flooring 2. Interlocking pre-cast Cement Concrete hydraulically pressed Paver Blocks using plastic moulds 3. Mastic flooring.	1. *Vacuum Dewatered Concrete flooring 2. Bituminous flooring.	1. Bituminous flooring. 2. Levelled surface with good quality soil/moorum	1. Levelled surface with good quality soil/moorum

S. No		Place	Type of flooring & Basis of station category						
			A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
8.		Stairs	1. Flamed Granite Flooring. 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles	1. Flamed Granite Flooring. 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles	1. Flamed Granite Flooring. 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles	1. Flamed Granite Flooring. 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles	1. Heavy duty (high strength and high abrasion resistance) Chequered Tiles	1. Heavy duty (high strength and high abrasion resistance) Chequered Tiles	
9.		FOB - Pathway	1. Flamed Granite Flooring. 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles.	1. Flamed Granite Flooring. 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles.	1. Flamed Granite Flooring 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles.	1. Flamed Granite Flooring 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles.	1. RCC slabs 2. Heavy duty (high strength and high abrasion resistance) Chequered Tiles.	1. RCC slabs	---

S. No		Place	Type of flooring & Basis of station category					
			A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore
10.	Waiting Hall	1. Polished Vitrified Tiles as per IS : 15622 2. Granite tiles flooring.	1. Polished Vitrified Tiles as per IS : 15622 2. Granite Tiles flooring. 3. Ceramic tiles as per IS:15622.	1. Polished vitrified tiles as per IS:15622. 2. Ceramic Tiles as per IS: 15622. 3. Polished Kota stone or similar stone flooring with or without stone inlays	1. Polished Vitrified Tiles as per IS : 15622 2. Ceramic Tiles as per IS:15622. 3. Polished Kota stone or similar stone flooring with or without stone inlays	1. Terrazo Tiles in white cement 2. Ceramic Tiles as per IS:15622. 3. Polished Kota stone or similar stone flooring with or without stone inlays	1. CC Floor 2. Rough Dressed Stones Slab. 3. Polished Kota stone or similar stone flooring with or without stone inlays	1. CC Floor 2. Rough Dressed Stone Slab 3. Polished Kota stone or similar stone flooring with or without stone inlays
11.	Refreshment Room	1. Polished Vitrified Tiles as per IS : 15622 2. Granite tiles flooring.	1. Polished Vitrified Tiles as per IS : 15622 2. Granite tiles flooring.	1. Polished Vitrified Tiles as per IS : 15622 2. Granite tiles flooring.	1. Polished Vitrified Tiles as per IS : 15622 2. Granite tiles flooring.	1. Ceramic floor tiles as per IS:15622 2. Polished Kota stone or similar stone flooring with or without stone inlays		

Type of flooring & Basis of station category								
S. No	Place	A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
12.	SS Office	1. Polished Vitrified Tiles as per IS : 15622	1. Polished Vitrified Tiles as per IS : 15622	1. Polished vitrified tiles as per IS:15622	1. Polished Vitrified Tiles as per IS : 15622	1. Ceramic Tiles as per IS:15622. 2. Polished Kota stone or similar stone flooring with or without stone inlays.	1. CC Floor	
13.	Waiting Room and Retiring Room	1. Polished Vitrified Tiles as per IS : 15622	1. Polished Vitrified Tiles as per IS : 15622	1. Polished Vitrified tile flooring 2. Ceramic floor Tiles as per IS:15622.	-----	1. Terrazo tiles flooring 2. Ceramic floor tiles as per IS:15622	-----	-----
14.	Cloak room	1. CC floor with hardened topping on concrete surface	1. CC floor with hardened topping on concrete surface	1. CC floor with hardened topping on concrete surface	1. CC floor with hardened topping on concrete surface	-----	-----	-----
Fiber reinforced vacuum dewatered concrete shall be provided wherever feasible.								

S. No		Place	Type of flooring & Basis of station category						
			A1 Earning more than 50 crore	A Earning more than 6 and upto 50 crore	B Earning 3 to 6 crore	C Sub urban stations	D Earning between 1 & 3 crore	E Earning less than 1 crore	F Halt
15.	Parcel Area	1. *Fiber reinforced vacuum dewatered concrete flooring 2. CC floor with hardened topping on concrete surface 3. Mastic flooring	1. *Fiber reinforced vacuum dewatered concrete flooring 2. CC floor with hardened topping on concrete surface 3. Mastic flooring	1. *Fiber reinforced vacuum dewatered concrete flooring 2. CC floor with hardened topping on concrete surface 3. Mastic flooring	1. *Fiber reinforced vacuum dewatered concrete flooring 2. CC floor with hardened topping on concrete surface 3. Mastic flooring	1. *Fiber reinforced vacuum dewatered concrete flooring 2. CC floor with hardened topping on concrete surface 3. Mastic flooring	1. *Fiber reinforced concrete flooring 2. CC floor with hardened topping on concrete surface 3. Mastic flooring		
16.	Toilet	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))	1. Anti-skid ceramic tiles in floor (Group B-II of IS-15622 and ceramic tiles on walls (Group B-III of IS-15622))
		Ceramic wall tiles upto 2100mm height of matching colour with flooring.							

Type of flooring & Basis of station category	
S. No	Place
	A1 Earning more than 50 crore
	A Earning more than 6 and upto 50 crore
	B Earning 3 to 6 crore
	C Sub urban stations
	D Earning between 1 & 3 crore
	E Earning less than 1 crore
	F Halt
17.	Wall & Ceiling Finish

¹ Only on main platform.

* To be provided for all new work. For existing work, it can be provided wherever traffic diversion/protection of surface during setting period is possible.

** Mastic flooring is not to be used for home platform.

The top surface of coping stone should be indented by XPM or some other method.

Note : i) In case existing flooring / finish are different from list above, there is no need of immediate

replacement / change unless needed to be replaced on condition basis.

ii) Vacuum dewatered concrete without reinforced with fiber can also be provided wherever considered necessary with the approval of Sr DEN / Dy Chief Engineer.

iii) Exterior finishes shall be provided by Railways as per local conditions.

3.2 DETAILS OF ROOFING MATERIALS FOR VARIOUS AREAS IN STATION BUILDING

S L	Name of item	Category of Stations						
		A1	A	B	C	D	E	F
B.	Roofing Materials (Covered Shed) -							
1.	Passenger Platforms / FOB	1. * Polycarbonate sheet roofing.	1. * Polycarbonate sheet roofing.	1. # Precoated galvalume iron profile sheet roofing 2. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871.	1. # Precoated galvalume iron profile sheet roofing 2. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871.	1. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871.	1. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871	1. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871 .
2.	Goods Platforms/ Shed	1. # Precoated galvalume iron profile sheet roofing	1. # Precoated galvalume iron profile sheet roofing.	1. # Precoated galvalume iron profile sheet roofing. 2. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871. 3. # Aluminium sheet roofing.	1. # Precoated galvalume iron profile sheet roofing. 2. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871. 3. # Aluminium sheet roofing.	1. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871. 2. # Bamboo corrugated sheet roofing as per IS: 15476.	1. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871	1. # Non- asbestos high impact polypropylene reinforced cement coloured sheets as per IS : 14871 .

Note : In case existing material is different from list above, there is no need of immediate replacement unless existing material is needed to be replaced on condition basis.

* Polycarbonate sheet roofing:

- a) Technical Details: As per Indian Railways Unified Standard Specifications- 2010 Vol. I Para 10.11.8, page 408
- b) Polycarbonated roofing shall be provided for lighting/aesthetic purposes as per local requirement with the approval of Zonal Headquarters.

Precoated galvalume iron profile sheet roofing:

- a) Item no. 109230 of USSOR-2010, Northern Railway
- b) Technical Details: As per Indian Railways Unified Standard Specifications- 2010 Vol. I para 10.44 page-446

\$ Aluminium sheet roofing:

- a) Item no. 109140 of USSOR-2010, Northern Railway
- b) Technical Details: As per Indian Railways Unified Standard Specifications- 2010 Vol. I para 10.43 page-445-446

β Non-asbestos high impact polypropylene reinforced cement coloured sheets as per IS: 14871:

- a) Item no. 103010 of USSOR-2010, Northern Railway
- b) Technical Details: As per Indian Railways Unified Standard Specifications- 2010 Vol. I, Para 10.5, Page 398 Non - Asbestos cement corrugated sheet shall be as per IS: 14871

μ Bamboo corrugated sheet roofing as per IS: 15476:

- a) Item no. 109130 of USSOR-2010, Northern Railway
- b) Technical Details: (As per Indian Railways Unified Standard Specifications- 2010 Vol. I, para 10.41 page-443-444)

3.3 Workshop Flooring

SL	Flooring Type	Type Of Use	Flooring Standards
(i)	Hard surface for heavy loads	Movement of vehicles forklifts and cranes for loading/unloading	1. Consolidated & compacted subgrade with a cross slope of 1 in 60. 2. In case of poor subgrade soils i.e. black cotton, clay, silt, marshy land etc. 150mm thick layer of coarse material i.e. granular material like sand, quarry dust etc. / moorum to be provided. 3. Overlay of 75mm thick Consolidated & compacted stone soiling using 50 mm nominal graded stone aggregate. 4. Overlay of 75mm thick PCC layer of M10 Mix/1:3:6 nominal mix, well compacted, with 20mm nominal stone aggregate. 5. The top layer will consist of 150mm thick M-30 concrete with 20mm nominal size stone aggregate, vacuum de-watered (panel size not more than 3m for construction joint), smooth finish and mixing of polypropylene fibres in the top 35mm with 10mm nominal stone aggregate. Proper cross slope should be provided to ensure that there is no stagnation of water on the surface.
(ii)	Hard surface for very heavy and impact loads	Dumping scrap etc. and in other shops where impact load comes	1. Consolidated & compacted subgrade with a cross slope of 1 in 60. 2. In case of poor subgrade soils i.e. black

			cotton, clay, silt, marshy land etc. 150mm thick layer of coarse material i.e. granular material like sand, quarry dust etc. / moorum to be provided. 3. Overlay of 150mm thick Consolidated & compacted stone soling using 50mm nominal graded stone aggregate. 4. Overlay of 75mm thick PCC layer of M10 Mix/1:3:6 nominal mix, well compacted, with 20mm nominal stone aggregate. 5. The top layer will consist of 150mm thick M-30 concrete with 20mm nominal size stone aggregate, vacuum de-watered (panel size not more than 3m for construction joint), smooth finish and use of Ironite/ Hardonate material in the top 15 mm with 6 mm nominal stone aggregate. Or Top layer to be laid with 40mm thick Mastic asphalt/Bituminous concrete with recommended preparatory laying arrangements. Proper cross slope should be provided to ensure that there is no stagnation of water on the surface.
(iii)	Acid Proof floor and walls	Battery shop	1. Consolidated & compacted subgrade with a cross slope of 1 in 60. 2. In case of poor subgrade soils i.e. black cotton, clay, silt, marshy land etc. 100mm thick layer of coarse material i.e. granular

			material like sand, quarry dust etc. / moorum to be provided. - Overlay of 150mm thick Consolidated & compacted stone soling using 50 mm nominal graded stone aggregate. - Overlay of 75mm thick PCC layer of M10 Mix/1:3:6 nominal mix well compacted, with 20mm nominal stone aggregate. - The top layer will consist of 100mm thick M-20 concrete with 20mm nominal size stone aggregate, vacuum de-watered (panel size not more than 3m for construction joint), rough finish and Acid resistant tiles conforming to IS 4457 in floor and dado. Proper cross slope should be provided to ensure that there is no stagnation of water on the surface.
(iv)	Epoxy coated floor finish for specific shops	Heavy duty Shops where floor gets dirty due to spill of oil/grease etc. and where cleaning arrangement is available.	- Consolidated & compacted subgrade with a cross slope of 1 in 60. - In case of poor subgrade soils, 100mm thick layer of coarse material/moorum to be provided. - Overlay of 150 mm thick Consolidated & compacted stone soling using 50 mm nominal graded stone aggregate. - Overlay of 75mm thick PCC layer of M10 Mix/1:3:6 nominal mix, well compacted, with 20mm stone aggregate. - The top layer will consist of 150mm thick M-30 concrete with 20mm nominal size stone

			aggregate, vacuum de-watered (panel size not more than 3m for construction joint), smooth finish and use of Ironite/ Hardonate material in the top 15mm with 6mm nominal stone aggregate over which epoxy coating be provided. Proper cross slope should be provided to ensure that there is no stagnation of water on the surface.
(v)	Approach Road	Heavy duty road for movement of loaded trucks.	1. Consolidated & compacted subgrade with a cross slope of 1 in 30 to be provided. 2. In case of poor subgrade soils, 100mm thick layer of coarse material/moorum to be provided. 3 (a) Overlaid by three layers of stone aggregate of various gradings with consolidation with roller of 8 to 10t capacity as under : i) Bottom layer - stone aggregate of size 90mm to 45mm including stone screening of 13.2mm – 230mm thick. ii) Middle layer – stone aggregate of size 63mm to 45mm including stone screening of 13.2mm – 100mm thick. iii) Upper layer – WBM layer with stone aggregate of size 53mm to 22.4mm including stone screening of 11.2mm – 75mm thick. 3 (b) Dense Bitumen Macadam (DBM) -75mm. 4. Top layer to be laid with 40mm thick Mastic asphalt/Bituminous concrete with

			recommended	preparatory	laying
			arrangements.		
			5. Edge protection by providing curb stones or by providing edges.		
			6. Proper drainage system should be designed and executed along with road construction.		
(vi)	Heavy duty floor for machinery involving vibrations in flooring like lathes etc. in workshop.	For locations where machines need to be installed.	1. Consolidated & compacted sub-grade with a cross slope of 1 in 60. 2. In case of poor sub-grade soils, 100mm thick layer of coarse material/moorum to be provided. 3. Overlay of 150 mm thick Consolidated & compacted stone soling using 50 mm nominal graded stone aggregate. 4. Overlay of 75mm thick PCC layer of M10 Mix/1:3:6 nominal mix, well compacted, with 20mm nominal stone aggregate. 5. RCC Slab M30 grade 100mm thick for small machines with normal vibrations and for heavy and high frequency machine RCC slab should be got designed by vendor according to the static and dynamic load on the floor and size of pockets required for installation of machines. 6. A top layer of 55mm thick cement concrete flooring With "Hardcrete" concrete hardener topping may be provided.		

4.0 Conclusion

An effort has been made to standardized the flooring details in passenger area which includes Platform area (both covered and uncovered), No trolley Zone area, Concourse and Booking area, Portico, Circulating Area, Parking area, Stairs, FOB pathway, waiting Hall, Refreshment rooms Office, Retiring room, Cloak room, Parcel area, Toilet, Wall and ceiling Finish and Roofing. The guidelines also include standardization of roofing material for area in station buildings like passenger platform/FOB and standardizations of flooring of various workshop areas.

Standardization will facilitate in quick decision making by Railway authorities besides it will help railways to limit non ending demands from passengers. Also it will give pan India passengers equal facilities. The standardization has given due consideration for the availability of local material like bamboo corrugated sheet etc thus environmental friendly products has been included besides it will use local material thus cost economy will be there.

Freezing of the specification will also help Expert group of USSOR to include the items in its list if any item is presently not available on it.

Acknowledgement

The Guidelines has been prepared by Shri Rajesh Agarwal, Director/Works under guidance of Shri Nand Kishore, Executive Director/Works with the assistance of Shri Ashutosh Kumar, Assistant Design Engineer/Works Shri Manish Kumar, SSE(D)/Works.

Annexure 1

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No.2004/LMB/C1/D4

New Delhi, dated 9.9.2009

Director General
RDSO
Manak Nagar
Lucknow.

Sub.: Specifications for some of passenger amenities items in stations developed by Southern Railway.

Ref.: ED/W/RDSO's letter No.WKS/WS/05/1'S dated 3.9.2009.

Specifications for passenger amenities items at stations submitted by RDSO in Railway Board office vide above referred letter has been considered. Specifications have been modified in Board's office and approved by Board (ME). Final approved specifications for the passenger amenities items at stations are enclosed as Annexure for issuing as a guideline to all zonal railways by RDSO.

DA: As above;


(J. S. Lakra)
Director / Land & Amenities
Railway Board

SN-55
1-7

टेलीफोन/टेली-फैक्स :0522-2465736



Government of India - Ministry of Railways
Research Design & Standards Organisation,
Manak Nagar, Lucknow-11

No. WKS/WS/05/FS

Dated 27.09.09

General Manager (C), N.E. Railway, Maligaon, Guwahati.
Principal Chief Engineer/ Chief Engineer (Coord.),
CR, ER, ECR, ECoR, NR, NCR, NER, NFR,
NWR, SR, SCR, SER, SECR, SWR, WR, WCR
Chief Administrative Officer/ Chief Engineer-Construction (Coord.),
CR, ER, ECR, ECoR, NR, NCR, NER, NWR, SR,
SCR, SER, SECR, SWR, WR, WCR

Sub: Standardization of flooring etc. in station premises.

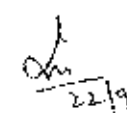
Ref: (1) This office letter No. WKS/WS/05/FS dated 21.10.08.

(2) Railway Board's letter No. 2004/R.MB/01/04 dated 09.09.09.

The specifications for passenger amenity items at stations - standardization of flooring and roofing at station have been prepared and submitted to Railway Board. Specifications have been approved by Board (MT) with some modifications. The approved specifications for the passenger amenity items - standardization of flooring is enclosed herewith.

The standards approved by the Board shall be followed for all new works/major renovation works. In case the existing floor/finish is different from the proposed one, there is no need of immediate replacement/change unless needed to be replaced on condition basis.

Encl: As above


(S. M. Maheshwari)
Executive Director/Works

Copy for kind information:-

- 1- (1) (L&A), Railway Board
- 2- Director/ IRICEN/Pune
- 3- CE/Works, Northern Railway
- 4- CE/Works, South Central Railway

Annexure-2

(19)

Recd. In R & D Div. 28/12/12
Sent to S. D. Div. 28/12/12
Recd. In S. D. Div. 28/12/12
Sent to Gen. Officer Dir. 28/12/12

6785

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

SN. 133

DO	
ADN	
RECEIVED	13-01-13
DATE	13/1/13

No.2011/LMU/1/53.

New Delhi, dated 20-09-2012.

Director General,
RDSO,
Manak Nagar,
Lucknow,

Subj:- Standardization of roofing material for platform covering
and workshop flooring.

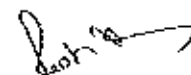
Ref:- RDSO's letter No.WKS/WS/05/FS dated 12.9.2012

The recommendations for Standardization of roofing material for platform
covering and workshop flooring submitted by RDSO in Railway Board office vide
above referred letter has been considered.

Recommendation have been approved by Board(ME) with modification
that Bamboo corrugated roofing sheet to be used in the area where that material
is easily available, at D&E category stations in place of A1, A, B & C category
stations.

Final approved recommendations for Standardization of roofing material
for platform covering and workshop flooring may be issued as guidelines by RDSO
to all Zonal Railways & Production Units under intimation to this office.

Director General
RDSO
13/01/13
13/01/13


(Ramash Kumar)
Director, Land & Amenities
Railway Board

टेलीफोन : 0522-2465736

ईमेल : edwksrdsn@gmail.com



Government of India - Ministry of Railways
Research Designs & Standards Organisation,
Manak Nagar, Lucknow-11

WKSANS/05/FS

Dated 03.10.12

Principal Chief Engineer/ Chief Engineer (Coord.)

CR, ER, ECR, EGOR, NR, NCR, NER, NEFR,
NWR, SR, SCR, SER, SECR, SWR, WR & WCR

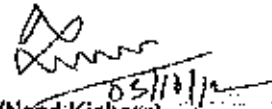
Chief Engineer (Co-ord), Metro, Kolkata

Sub: Standardization of roofing material for platform covering and workshop flooring.

Ref: Railway Board letter no. 2011/LMB/1/53 dated 20.09.2012

The specification for workshop flooring and passenger amenity items at stations- standardization of roofing material for platform covering have been prepared and submitted to Railway Board. Railway Board (ME) has approved the specifications. Specifications as approved by Board (ME) is enclosed herewith for your information and necessary action please.

OA: As above


(Nand Kishore)
Executive Director/Works

Copy to:

- (1) Director/IRICEN, Pune,
- (2) Executive Director, L & A-III, Rly. Board
- (3) Chief Engineer/General/Northern Railway
- (4) Chief Engineer/Works/South Central Railway

} for kind information
please.

- (4) GM (Cons.)/NF Rly.
- (5) CAO/All Zonal Railways.
- (6) Chief Engineer - CORE/Allahabad,
CLW/Chitranjan, DLW/Varanasi, RCP/Kapurthala,
ICF/Chennai, RWF/Bangluru, DMW/Patiala.

} for kind information
and necessary action
please.

The progress of this item from 1st to 5th WSC is given below-

1. 1st WSC Meeting Recommendations:-

Committee recommends that Northern Railway and South Central Railway will compile data in this regard and will forward to RDSO. RDSO will prepare the compiled note and will present the same in the next meeting. Other Railways may also forward their suggestions to RDSO.

Orders of Railway Board –

Committee's recommendations accepted.

2. 2nd WSC Meeting Recommendations:-

Sub-committee constituted in 1st meeting of WSC comprising of NR & SCR had given their recommendations regarding materials to be used at different locations. Committee deliberated on each item. After discussing pros and cons of issues involved as proposed by sub-committee, it is felt by the committee to have more in-depth study on the subject. Hence, committee recommends to defer this item for discussion during next WSC meeting.

Orders of Railway Board –

This is an important topic related to works in Civil Engineering. Committee should finalize the same early-RDSO should convene the meeting of sub-committee and make draft recommendations which should be circulated to railways and Board for finalization in next meeting.

3. 3rd WSC Meeting Recommendations:-

- (i) Good efforts have been made by Sub-committee in framing recommendation. However, some modifications are needed to be made in recommendations :
 - (a) Heavy duty floor terrazzo tiles mentioned by ER, CR, ER & WR can be studied for inclusion, if found suitable by Sub-Committee.
 - (b) Detailed Specifications along with IS Specs, if any along with book references, whatsoever to be reflected regarding each item in notes.
 - (c) Paver block in 'E' Class stations in proposed recommendations shall be avoided and be replaced by concrete items.

- (d) Fiber reinforcement, vacuum dewatered concrete used at SCR, seems quite good surface and can be recommended for use by Sub-committee in all categories of stations.
- (e) Marble floor recommended shall be avoided being the soft material.
- (f) On Gangways, use of ceramic tiles needs review. At 'A1', 'A' & "C Category stations, Flame Granite be recommended for steps of FOBs.
- (g) Heavy duty Chequered tiles/ Concrete Blocks with projected studs can be a good surface for edges of platform.
- (ii) At Dadar FOB, about ten years back, some tiled surface was provided which is still giving good service. CE/W/WR shall provide detailed specification of the same to RDSO for consideration of Sub-Committee.
- (iii) All Zonal Railways shall send their suggestions/remarks on proposed recommendations, again circulated during meeting within next 10 days to RDSO for consideration of Sub-Committee.
- (iv) Sub-Committee shall consider economy and life of material as well as least maintenance requirement criteria during framing recommendations. A great thought need to be put in for finalization of roofing.
- (v) RDSO should revise recommendations, as discussed above.

Order of Railway Board-

- (i) Standardization of flooring of platform, concourse & FOB has already been approved by Railway Board and instructions issued vide RDSO's letter no. WKS/WS/05/FS, dated 22.9.09 to Zonal Railways for following the same as and when replacement is done.
- (ii) RDSO should take feedback from the Zonal Railways on Item-(i) above and make presentation during next meeting of WSC.
- (iii) Recommendations submitted in regard to platform coverings should also be presented during next meeting of WSC.
- (iv) Sub-Committee (ED/W/RDSO, CE/W/WR & CE/W/SCR) shall also propose the recommendations for flooring in workshops and goods shed areas and to be presented during next meeting of WSC.

4. 4th Meeting Recommendations:-

- (1) Standards approved for flooring & finishing at station premises are satisfactory and do not require any modifications for the time being.
- (2) WSC endorsed the recommendations for roofing material for platform covering & workshop flooring with following modifications.

- (a) Polycarbonate sheets proposed as roofing material shall be limited to approx 10% area for lighting/aesthetic purposes with approval of Zonal Headquarters.
- (b) VDC in acid proof floor for workshop flooring be made 75 mm instead of 50 mm.

With the above modifications, sub-committee may submit their recommendations to Railway Board.

Railway Board's Order:

WSC's recommendations are accepted except that Polycarbonate roofing shall be provided as per local requirement and VDC flooring should be minimum 100 mm thick.

Sub-committee shall submit modified recommendations by March 2012.

5. 5th WSC Meeting Observation/Recommendations

Committee Observations: -

Recommendations have been submitted to Railway Board and the same have been approved by them on 20.09.2012.

Committee Recommendations :-

Item is proposed to be closed.