भारत सरकार Government Of India
रेल मंत्रालय Ministry Of Railways
रेलवे बोर्ड Railway Board

No. 2011/CEDO/SD/17/O **New Delhi, Dated 21.01.2013**

Addressed to :
As per List attached (Overleaf)

विषय : **Document on "Standard Schedule of Dimensions" for Dedicated Freight Corridors (Eastern & Western) of Indian Railways.**

Railway Board constituted a Committee of EDCE(G), EDCE(P), EDME(Freight), EDTT(S)/Railway Board, ED/Track-I/RDSO and Director (Infrastructure)/DFCCIL for preparing & finalising the document on "Standard Schedule of Dimensions" (SSOD) for Indian Railway's Dedicated Freight Corridors.

After studying & discussing all the related documents, approvals, thoughts and concepts on the subject, the nominated Committee drafted and finalised the SSOD document and submitted to Board for approval.

Subsequently, with careful examination and due consultation by various Directorates in Railway Board and DFCCIL; Board (ME, MT, ML & MM) have approved the "Standard Schedule of Dimensions (Broad Gauge) for Eastern and Western Dedicated Freight Corridors of Indian Railways" for uniform adoption on the respective sections. A copy of the same is enclosed herewith for information & necessary action by all concerned.

A soft copy of the document has also been uploaded on Railway Board's website. Required number of copies may be printed after downloading from the website by following the path as : "Railway Board Directorates → Civil Engineering → DFC-SOD" on the web.

Receipt of the letter may please be acknowledged.

संलग्नक / उपरोक्तानुसार

21.01.2013

(आलोक कुमार)
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भारत सरकार

Government Of India

रेल मंत्रालय

Ministry Of Railways

STANDARD SCHEDULE OF DIMENSIONS

1676mm Gauge (Broad Gauge)

FOR

Eastern And Western

Dedicated Freight Corridors

Of

Indian Railways

January 2013

Standard Schedule Of Dimensions For Dedicated Freight Corridors

{1676mm Gauge}

P R E F A C E

1. Ministry of Railways decided in 2008 for construction & development of the two Dedicated Freight Corridors, i.e. Eastern & Western Corridors.

2. Vide various references mentioned below, Railways Board after considering all details and related issues, made decisions w.r.t. all aspects of Track, Rolling Stocks, Axle Load, Maximum Moving Dimensions, Fixed Structure Gauges etc. from time to time with vertical dimension of 5.1m for Eastern Corridor and 7.1m for Western Corridor of DFC :

SL	Date	Office	Letter Reference	Issues
i.	31.03.11	Railway Board	2007/Infra/6/8/Pt.3	Track centre of 6.0m & formation design for 25t axle load
ii.	16.03.11	Railway Board	2007/Infra/6/8/Pt.3	Parameters for DFC : (i) Formation width for single line : 7.6m (ii) Slope of ballast profile : 1.5:1 (iii) Ballast depth : 30cm minimum (iv) Minimum height of formation from ground level : 1.75m (v) Bridges : Both superstructure and substructure fit for 32.5T axle load
iii.	05.10.10	RDSO	CT/DG/DFC	RDSO's details for MMD/Fixed Structure Gauge for Eastern Corridor
iv.	16.09.10	Railway Board	2008/CE-II/TS/4	Vertical MMD for Eastern and Western Corridors (5.1m & 7.1m respectively)
v.	13.09.10	Railway Board	2008/CE-II/TS/4	Board's approval on MMD/Fixed Structure Gauge for Eastern Corridor of DFC
vi.	03.06.09	Railway Board	2000/PL 19/13 Pt.4	Technical parameters w.r.t. : (i) Formation width : 13.5m (double line) (ii) Rails : 60kg, 90UTS (iii) Automatic signaling (iv) Longer loops (v) Double stack container operation will be on well wagon
vii.	29.09.08	Railway Board	2006/Infra/6/3	Technical parameters w.r.t. : (i) Turnouts : 1 in 12
viii.	23.06.08	Railway Board	2006/Infra/6/3	Technical parameters w.r.t. : (i) Loop length : 750m with provision for extension upto 1500m in future (ii) ROBs/RUBs : Norms for replacement of LCs : 50,000 TVUs (iii) Electric Traction : 2x25 kV OHE
ix.	21.11.07	RDSO	CT/DG/DFC	RDSO's details for MMD/Fixed Structure Gauge for Western Corridor
x.	14.11.06	Railway Board	2002/RE/161/11	Standard Implantation of 2.8m for OHE structures

xi.	26.10.06	Railway Board	2006/CE-II/TS/2	Technical parameters for wagons w.r.t. : (i) Axle load : 32.5T (ii) Track Loading Density (TLD) : 12t/m (iii) Width : 3.66m

3. Since no consolidated document was available for addressing various issues related to approval of plans, estimation & design of rolling stocks etc. on DFC, Railway Board in terms of letter no. 2011/CEDO/SD/17/O, dated 29.08.11, constituted the Committee of following officers for finalising the document for "Standard Schedule of Dimensions for Indian Railway's Dedicated Freight Corridors".

(i) Shri Alok Kumar, Executive Director/Civil Engg.(G), Railway Board - Convenor
(ii) Shri Surinder Pal, Executive Director/Civil Engg.(P), Railway Board - Member
(iii) Shri Ashesh Agarwal, Executive Director/Mech. Engg.(Frt.), Railway Board - Member
(iv) Shri H.D. Gujrati, Executive Director/Traffic Transp.(S), Railway Board - Member
(v) Shri Sonvir Singh, Executive Director/Track-1, RDSO - Member
(vi) Shri A.K. Dutta, Director/Infrastructure, DFFCIL - Member

4. The committee further co-opted Shri Mahesh K. Gupta, ED/B&S-I/RDSO and Shri Amitabh Sinha, ED/Wagon/RDSO in the above committee for useful contribution to the proposed document.

5. Based on interactive meetings by all the concerned Directorates (Track Design, Bridges & Structures, Motive Power, Wagon, Signal and Traction Installation Directorates) in RDSO, valuable inputs were received through ED/Track-1/RDSO.

6. These thoughts & concepts were duly deliberated by the nominated committee during its meetings in Railway Board on 06.09.11, 27.09.11, 17.10.11, 18.11.11, 07.02.12, 06.03.12, 12.03.12 and 22.03.12.

7. Based on feedback received from all concerned, the final document for "Standard Schedule of Dimensions" (SSOD) for DFCs has been formulated. It has further been examined and improved upon by the concerned Directorates in Board. Accordingly, the SSOD for DFCs is being issued for adoption with the approval of Railway Board.

8. The above SSOD is broadly based upon the template of IRSOD 2004, which was a revised version of IR's Schedule of Dimensions of 1939 and reprint of 1973.

9. Basic differences in IR's SOD 2004 and DFC's SSOD are as under :

(i) Width of stock — 3360mm instead of 3250mm in IRSOD
(ii) Height of stock in mid — 5100mm/7100mm instead of 4265mm in IRSOD

10. The dimensions prescribed in this Document are essential for safe working on Dedicated Freight Corridors and sanction of Railway Board shall be specifically required to a departure from these provisions.

11. The Standard Schedule of Dimensions for DFCs consists of only metric units.

12. The sincere efforts of all the members of the nominated committee from Railway Board, RDSO and DFCCIL in drafting and finalising the SSOD document for Dedicated Freight Corridors are duly acknowledged.

21/1/2013

(R. Ramanathan)
Additional Member / Civil Engineering
Ministry of Railways, Railway Board

21st January 2013
Rail Bhawan, New Delhi-110001

I N D E X

STANDARD SCHEDULE OF DIMENSIONS

1676mm Gauge (Broad Gauge)

FOR

Eastern Corridor

Of

Indian Railways

Dedicated Freight Corridors

Chapter – I

General

The dimensions are to be observed unless prior sanction has been obtained from the Railway Board through the Commissioner/Chief Commissioner of Railway Safety to execute the new works which would infringe this Schedule of Dimensions.

(See Diagram Nos. 1 & 2 At Page Nos. 26 & 27)

1.1 Spacing Of Tracks :

Clause	Items	Dimensions
1.1	**Minimum Distance - Centre To Centre Of Tracks**	
1.1.1	Between DFC Tracks	6000 mm
1.1.2	Between DFC Track and Existing IR Track :	
	(i) Minimum Distance	6000 mm
	(ii) Recommended Distance	7925 mm

Note : (a) See Appendix-I for extra clearance required on curves.

(b) For spacing of tracks in tunnels, through and semi through girder bridges, see item 1.9.

(c) OHE mast and Signal post shall not preferably be provided in between tracks. However, under unavoidable circumstances, the clearance mentioned in Para 1.1 shall be increased by equal to the width of such provisions/structures/foundation, as the case may be.

1.2 Curves :

Clause	Items	Dimensions
1.2	**Radius and Degree of Curves :**	
	(i) Recommended Radius & Degree	700 m (2.5 Degree)
	(ii) Minimum Radius	292 m
	(iii) Maximum Degree	6 Degree
Note :	Rolling stocks shall, however, be designed for 10° curvature with the consideration of running on IR routes also.	

1.3 Bridges :

1.3.1 Bridges must conform to the loading standards, as prescribed in IRS Bridge Rules for DFC.

1.3.2 The clear distance between the joint sleepers shall not exceed 200 mm and that between the two consecutive sleepers shall not exceed 450 mm.

1.3.3 Bridge sleepers, resting directly on longitudinal girders should be designed as per IRS Bridge Rules for DFC. However, in no case, it should be less than 150 mm deep, exclusive of any notching, which may be required to allow for cover plates, camber etc. and shall not be less than 305 mm greater in length than the distance outside to outside of girder flanges, subject to a minimum of 2440 mm.

1.3.4 The length of steel trough sleepers shall be the distance outside to outside of girder flanges, subject to a minimum of 2440 mm.

1.4 Rails :

Clause	Items	Dimension
1.4.1	Check Rails for **Curves** : Minimum Clearance	44 mm
1.4.2	Check Rails at **Level Crossings** :	
	(i) Minimum Clearance	51 mm
	(ii) Maximum Clearance	57 mm
1.4.3	Minimum **depth** of space for wheel flange from rail level	38 mm

Note : Check rails shall be provided on curves where the radius is 350 metres or less, i.e. curvature is 5° or more. They shall also be necessary in the case of flatter curves, if higher speed is contemplated.

1.5 Buildings and Structures :

Clause	Items	Dimension
1.5	Minimum Horizontal Distance from centre of track to any structure (other than platform) :	
1.5.1	From rail level to 5700 mm above rail level	2825 mm
1.5.2	From 5700 mm above rail level to 6530 mm above rail level	2825 mm gradually decreasing to 1830 mm
1.5.3	Below the rail level upto the formation level of the track on straight and curves upto radius of 875 m	2575 mm
1.5.4	Below the rail level upto the formation level of the track on curves with radius less than 875 m	2725 mm

Note : (a) Under Item 1.5, any material stacked by the side of track is to be considered a structure in the sense in which the word is used here. These items also apply to projections of rock etc. from the side of cutting.

(b) See Appendix-I for extra clearance required on curves.

1.6 Height Above Rail Level For 2x25 kV AC Traction :

Clause	Items	Dimension
1.6	Minimum height above rail level for a distance of 1830 mm on either side of the centre of track for 2x25 kV AC traction is likely to be used :	
1.6.1	Light overhead structure, such as Foot Over Bridges	6530 mm
1.6.2	Heavy overhead structure such as Road Over Bridges or Flyover Bridges	6050 mm
1.6.3	Heavy overhead structures at turnout etc.	6530 mm

Note : (a) See Appendix-I for extra clearance required on curves.

(b) In areas, where 25 kV AC traction is used or likely to be used, if any turnout or crossover is located under a heavy overhead structure or within 40m from its nearest face, irrespective of the position of level crossing gate, the minimum height of such overhead structure shall be 6530mm. Also, in case the turnout is beyond 40m, but the level crossing gate is within 520m from the nearest face of bridge, the height of such overhead structure shall be 6530mm.

(c) The height mentioned against Items 1.6.1 to 1.6.3 shall be measured from the higher or super elevated rail.

(d) Necessary provision should be made in overhead structures and overhead equipment to permit possible raising of track by 275mm in future to cater for increased height of track structure and other unforeseen factors, such as regrading etc.

1.7 Height, Clearance and Distance For Crossing A Railway :

1.7.1 **Minimum Height Above Rail Level** of the lowest portion of any conductor, crossing a railway, including guard wire, other telegraph, telephone and other such low tension wires or a traction trolley wire, under conditions of maximum sag shall be :

TABLE – A

SL	Overhead Crossing Voltage	Minimum Clearances Required From Rail Level (mm)	
		Clearances at OHE Structure	Clearances at Mid OHE Span
1	*2*	*3*	*4*
1.	Upto and including 33 kV	By Underground Cable	
2.	Above 33 kV upto and including 66 kV	14960	12384
3.	Above 66 kV upto and including 132 kV	15560	12994
4.	Above 132 kV upto and including 220 kV	16460	14524
5.	Above 220 kV upto and including 400 kV	18260	15434
6.	Above 400 kV upto and including 500 kV	19160	17884
7.	Above 500 kV upto and including 800 kV	21860	17884

Note : (a) The working of a Railway crane under an overhead line crossing shall normally be avoided. If it becomes absolutely essential for a crane to work under such a crossing, the minimum clearance required to be maintained between the highest working point of the jib and the lowest crossing conductor shall be as under :

TABLE - B

SL	Nominal System Voltage	Minimum Safe Clearance
1	Upto & including 33 kV	By Underground Cable
2	66 kV	2000 mm
3	110 kV	2250 mm
4	132 kV	2500 mm
5	220 kV	3500 mm
6	400 kV	6000 mm
7	500 kV	7250 mm
8	800 kV	11500 mm

(b) All height/clearances are in mm and under maximum sag conditions.

(c) For electrified lines, where new power line crossing is to be provided/existing crossing to be altered, clearance in Para 1.7.1 shall be applicable.

(d) Clearance at mid OHE span (Column-4, Table-A) in Para 1.7.1 can be adopted, if the OHE Structure/Fixed Structure is beyond 6000 mm of nearest conductor of overhead crossing.

(e) If the crossing is provided with a guarding, a minimum clearance of 2000 mm shall be maintained between the bottom of the guard wire and highest traction conductor.

(f) Power line crossings in yards & station areas shall be avoided.

1.7.2 **Minimum Clearance** between highest traction conductor and lowest crossing conductor :

It is desirable to provide maximum possible clearance from the highest traction conductor in case of power line. However, if these clearances are not available, then based on the clearance study, following reduced clearances may be adopted for existing power line crossings in place of Table-A in Para 1.7.1 above.

TABLE - C

SL	Voltage	Clearance
(i)	Upto and including 66 kV	2440 mm
(ii)	Above 66 kV upto and including 132 kV	3050 mm
(iii)	Above 132 kV upto and including 220 kV	4580 mm
(iv)	Above 220 kV upto and including 400 kV	5490 mm
(v)	Above 400 kV upto and including 800 kV	7940 mm

1.7.3 (i) The **Minimum Horizontal Distance** measured at right angles from the centre of nearest track to any part of a rigid and well founded post/structure, its fittings and projections carrying electrical conductors crossing a railway shall be 2825mm.

Note : Any post/structure (including transmission line tower) which is so constructed or guyed as to remain in vertical position or on falling, it continues to provide the clearances specified above, with one or all of the conductors broken or with its conductor attached, when subjected to maximum wind pressure, may be considered to be a "rigid well founded post/structure".

(ii) However, for other structures carrying electrical conductors crossing a railway and not covered in (i) above, the **Minimum Horizontal Distance** measured at right angles from the centre of nearest track, shall be equal to height of structure in metre above ground level plus 6 metre.

1.7.4 The **Minimum Horizontal Distance** of any **telegraph post** measured from the centre of and at right angles to the nearest track shall be height of the post plus 2825 mm.

Note : When the track is in cutting, a telegraph post erected outside the cutting must be at a distance from the edge of the cutting not less than the total height of the post.

1.8 Interlocking and Signal Gear :

Clause	Items	Dimension
1.8	Maximum height above rail level of any part of Interlocking or Signal gear for a width of 1830mm in the case of tunnels, through and semi-through girder bridges on either side of centre of track, subject to the restriction embodied in the note (a) below.	37 mm

Note : (a) For a distance of 229mm outside and 140mm inside the gauge faces of rail, no gear or track fittings shall project above rail level, except such parts as are required to be actuated by the wheels or wing rails and point rails of special crossings leading to snag dead ends or elevated check rails of crossing or check rails/check flats of diamond crossings.

(b) Signal wires or supports for signal wires may be allowed at not less than 1830mm in the case of tunnels or through or semi-through girder bridges {see note to item 4.5.4 of Chapter IV, item no. 5.5.5 of Chapter V and item no. 6.5.5 of Chapter VI} on either side of the centre of track, provided that they are not more than 203mm above rail level.

(c) Metal covers with ramps on both sides must be provided over all interlocking gear projecting above rail level between the rails of a track to prevent hanging couplings from damaging the gear.

1.9 Tunnels, Through And Semi-Through Girder Bridges : (See Diagram no. 1)

Clause	Items	Dimension
1.9.1	Minimum distance centre to centre of track	6000 mm*
1.9.2	Minimum horizontal distance from centre of track to any structure :	
	Height above and below rail level -	Horizontal Distance
(i)	From rail level to 5700 mm above rail level	2825 mm
(ii)	From 5700 mm above rail level to 6530 mm above rail level	2825 mm gradually decreasing to 1830 mm
(iii)	Below the rail level upto the formation level of the track on straight and curves upto radius of 875 m	2575 mm
(iv)	Below the rail level upto the formation level of the track on curves with radius less than 875 m	2725 mm

* In case of signal located between adjacent lines, this dimension will be 6250 mm.

1.10 Safety Refuges :

Clause	Items	Dimension
1.10.1	Maximum distance apart of refuges in tunnels	100 m
1.10.2	Maximum distance apart of trolley refuges :	
	(i) On bridges with main spans of less than 50 m	50 m
	(ii) On bridges with main spans of 50 m or more	A refuge over each pier

1.11 Formation Width :

Clause	Items	Dimension
1.11.1	**Single line** straight track :	
	(i) Minimum width in embankment	8100 mm*
	(ii) Minimum width in cutting (excluding side drains)	7500 mm
1.11.2	**Double Line** straight track :	
	(i) Minimum width in embankment	14100 mm**
	(ii) Minimum width in cutting (excluding side drains)	13500 mm

* It can be reduced to 7600 mm on case to case basis with the approval of Railway Board.

** It can be reduced to 13500 mm on case to case basis with the approval of Railway Board.

Note : The minimum formation width is based on :

(a) Ballast section having 1.5H : 1V side slope
(b) Cross slope on top of formation of 1 in 30
(c) Track centre in case of double line section is 6000mm
(d) Cess width is 1200mm
(e) Ballast cushion is 350mm

1.11.3 Formation Width **On Curves :**

(i) Increase due to extra ballast on outside of curves :

On curves, the actual width to be provided shall take into account 150mm extra widening of ballast shoulder (500mm in place of 350mm) required on the outer side of curves. Thus, additions in the width on this account will be 150mm for single line and 300mm for double line.

(ii) Increase on double line due to effect of super elevation :

Due to requirement of extra clearances on double line on curves, increase in track centres with corresponding increase in formation width shall be necessary to take into account the effect of super elevation.

Increase in formation width on curves shall be decided after taking into account the increase mentioned in (i) & (ii) above.

1.12 Gauge on Straight and Curves :

Clause	Items	Dimension
1.12.1	Straight track	1676 mm
1.12.2	Curves of 350 m radius or more	1676 mm
1.12.3	Curves less than 350 m radius	Upto 5 mm slack, i.e. upto 1681 mm

Chapter – II

Station Yards

(See Diagram No. 3 At Page No. 28)

Note : The expressions "in station" and "out of station" are to be interpreted in accordance with the definition of "station limits" given in Chapter I - Part I of the General Rules for Open Lines, viz. "station limits" means the portion of DFCC which is under the control of a Station Master and is situated between the outermost signals of the station.

2.1 Spacing Of Tracks And Gradient In Yards :

Clause	Items	Dimensions
2.1.1	Minimum Distance - Centre To Centre Of Tracks	6000 mm
Note : (a) See Appendix-I for extra clearance required on curves. (b) For spacing of tracks in tunnels, through and semi through girder bridges, see item 1.9. (c) OHE mast and Signal post shall not preferably be provided in between tracks. However, under unavoidable circumstances, the clearance mentioned in Para 1.1 shall be increased by equal to the width of such provisions/structures/foundation, as the case may be.		
2.1.2	Maximum gradient in station yards unless special safety devices are adopted and/or special rules enforced to prevent accidents in accordance with approved special instructions.	
	(i) Desirable / Recommended Gradient	1 in 1200
	(ii) Minimum Gradient	1 in 600
Note : (a) No station yard shall be constructed nor shall any siding join the DFC line on a steeper grade than 1 in 400, except where it is unavoidable and then only with the previous sanction of the Railway Board obtained through the Commissioner of Railway Safety when a safety arrangement is made sufficient to prevent accident. The power of condonation of gradient steeper than 1 in 600 and upto 1 in 400 shall vest with the Commissioner of Railway Safety. (b) For the purpose of the above rule, a station yard will be taken to extend : (i) On single line to a distance of 50 metres beyond outermost points at either end of the station. (ii) On double line where two aspect signalling is provided, from Home Signal to a distance of 50 metres beyond outermost points at the trailing end, or where there are no loops, to last Stop Signal of each line. (iii) On double line where multiple aspect signalling is provided, to a distance of 50 metres beyond outermost points at either end of the station or where there are no loops, from Block Section Limit Board to last Stop Signal of each line. (b) There must be no change of grades within 30 metres of any points or crossings.		

2.2 Buildings and Structures :

Clause	Items	Dimensions
2.2.1	Minimum horizontal distance of any building or longitudinal boundary from centre line of track on goods platform	7500 mm
2.2.2	Minimum horizontal distance from centre line of track to a pillar, column, lamp or similar isolated structure :	
	(i) From rail level to 725mm above rail level	3960 mm increasing uniformly to 4110 mm
	(ii) From 725mm above rail level to 5700mm above rail level	4110 mm
	(iii) From 5700mm above rail level to 6530mm above rail level	4110 mm decreasing uniformly to 3810 mm
Note : A pillar or a column which covers more than 3716 cm^2 in plan, must be classed as "building" and not as an "isolated structure".		
2.2.3	Minimum horizontal distance from centre of track to any structure :	
	(i) From rail level to 5700 mm above rail level	2825 mm
	(ii) Below the rail level upto the formation level of the track on straight and curves upto radius of 875 m	2575 mm
	(iii) Below the rail level upto the formation level of the track on curves with radius less than 875 m	2725 mm

2.3 Points and Crossings :

Clause	Items	Dimensions
2.3.1	Maximum clearances of check rail opposite the nose of crossing	48 mm
2.3.2	Minimum clearances of check rail opposite the nose of crossing	44 mm
Note : In the obtuse crossing of diamond crossings, the clearance at the throat of the obtuse crossing shall be 44mm.		
2.3.3	Maximum clearances of wing rail at nose of crossing	48 mm
2.3.4	Minimum clearances of wing rail at nose of crossing	44 mm
2.3.5	Minimum clearances between toe of open switch and stock rail	115 mm

Clause	Items	Dimensions
Note :	The Clearances can be increased upto 160 mm in curved switches in order to obtain adequate clearances between gauge face of stock rail and back face of tongue rail.	
2.3.6	Minimum radius of curvature for slip points, turnouts or crossover roads	218 m (8 Degree)
2.3.7	Minimum angle of crossing (ordinary)	1 in 16
2.3.8	Diamond crossing not to be flatter than	1 in 8.5
2.3.9	Minimum Length of tongue rail	12000 mm
2.3.10	Minimum length of train protection, point locking or fouling treadle bar	15455 mm
Note :	There must be no change of super elevation (of outer over inner rail) between points 18m outside toe of switch rail and nose of crossing respectively, except in the case of special crossings leading to snag dead ends or under circumstances as provided for in Clause 2.4.	

2.4 Curves :

Super elevation and speed in stations on curves with turnouts of contrary and similar flexure shall be as under :

2.4.1 **Main Line :** Subject to the permissible run through speed, based on the standard of interlocking, the equilibrium super elevation, calculated for the speed of the fastest train, may be reduced by a maximum amount of 75mm without reducing the speed on the mainline.

2.4.2 **Turnouts** :

(i) **Curves Of Contrary Flexure :**

The equilibrium super elevation in millimetres shall be calculated by the formula -

$$GV^2/127\ R$$

Where, R = Radius of turnout in metres

V = speed in kmph

C = Super elevation in mm

G = Gauge of track + width of rail head in mm.

The permissible negative super elevation on the turnout (which is also the actual super elevation of the main line) may then be made as (75 - C) mm.

(ii) **Curves Of Similar Flexure :**

The question of reduction or otherwise of super elevation on the mainline must necessarily be determined by the administration concerned. In the case of a reverse

curve close behind the crossing of the turnouts, the super elevation may be run out at the maximum of 1 mm in 360mm.

2.5 Length Of Sidings :

Minimum Clear Available Length of one siding at any station where it is intended to cross trains :

2.5.1 Shall be the length of longest train permitted in the section plus 35 m.

2.5.2 Although it may not be necessary till traffic develops to provide sidings for the largest possible train loads, land shall be acquired for them and no building, level crossings or other obstructions shall be permitted that may interfere with one crossing siding being lengthened to the following dimensions :

(a) 750 metre in case long haul operation is not envisaged.

(b) 1500 metre in case long haul operation is envisaged.

Note : (1) Clear Available Length denotes :

(i) Distance between the foot of the signal to the Fouling Mark in the rear on the same line in case of Main Line and Directional Loop Lines at station yards.

(ii) In case of Common Loop at the stations, Clear Available Length/Clear Standing Length shall be the distance between two Starter Signals of the opposite directions on the same line.

(2) Ruling gradient of Dedicated Freight Corridor is 1 in 200.

Chapter - III

Workshops, Running Sheds And Station Machinery

3.1 Water Tanks :

Clause	Items	Dimensions
3.1.1	Minimum height above rail level for discharge orifice of water tank	3660 mm
3.1.2	Distance from centre of track to face of tank house less than 60 metres beyond the end of a goods platform	11890 mm
3.1.3	Minimum height for bottom of tank above rail level at water column for washing engine	12190 mm

3.2 Distances :

Clause	Items	Dimensions
3.2.1	Minimum distance from centre to centre of tracks in Workshops and Running Sheds	6000 mm
	Note : Where there is a structure between tracks, the distance of centre to centre of tracks shall be increased by the amount of the width of structure, like O.H.E. post etc.	
3.2.2	Minimum clear distance from centre of track to any isolated structure such as pillar in Workshops and Running Sheds	2825 mm
3.2.2	Minimum clear distance, upto the height of 1830 mm above rail level, from centre of track to any continuous structure in Workshops and Running Sheds	2825 mm

3.3 Height And Depth :

3.3.1	Minimum height above rail level to overhead tie bars, girders etc. in Workshops and Running Sheds :	
	(i) For wagon workshops and sheds	15200 mm
	(ii) For other than wagon workshops and sheds	6530 mm
3.3.2	Minimum height above rail level of doorways for a width of 1370 mm on either side of centre of track in Workshops and Running Sheds :	
	(i) For wagon workshops and sheds	5700 mm
	(ii) For other than wagon workshops and sheds	6530 mm
3.3.3	Nominal depth for pits in Running Shed and Examination Pits	760 mm

Chapter - IV
Rolling Stock (Wagon)

4.1 Wheel :

Clause	Items	Dimensions
4.1.1	Wheel gauge, or distance apart, for all wheel flanges :	
	(i) Maximum	1602 mm
	(ii) Minimum	1599 mm
4.1.2	Diameter on the tread of new wheel :	
	(i) Maximum diameter on the tread of new wheel, measured at 63.5 mm from wheel gauge face	1092 mm
	(ii) Minimum diameter on the tread of New wheel, measured at 63.5 mm from wheel gauge face	840 mm
	(iii) Minimum diameter on the tread of Worn wheel, measured at 63.5 mm from wheel gauge face	780 mm
4.1.3	Projection for flange of wheel :	
	(i) Minimum projection for flange of New wheel, measured from tread at 63.5 mm from wheel gauge face	28.5 mm
	(ii) Minimum projection for flange of Worn wheel, measured from tread at 63.5 mm from wheel gauge face	35.0 mm
4.1.4	Thickness of flange of wheel :	
	(i) Maximum thickness of flange of wheel measured from wheel gauge face at 13mm from outer edge of flange	29.4 mm
	(ii) Minimum thickness of flange of wheel, measured from wheel gauge face at 13mm. form outer edge of flange	16 mm
4.1.5	Minimum width of wheel	127 mm
4.1.6	Incline of tread of wheel	1 in 20

4.2 Floor :

Floor height of wagons should be determined keeping in view the profile of Maximum Moving Dimension (MMD), particularly w.r.t. width of wagon at various heights.

4.3 Buffers & Couplings :

Clause	Items	Dimensions
4.3.1	Distance apart for centres of buffers	1956 mm
4.3.2	Maximum height above rail level for centres of buffers for unloaded vehicles	1105 mm
4.3.3	Minimum height above rail level for centres of buffers for fully loaded vehicles	1030 mm

4.4 Wheel Base & Length of Vehicles :

Clause	Items	Dimensions
4.4.1	Maximum rigid wheel base for four wheeled vehicles	6100 mm
4.4.2	Minimum distance apart of bogie centres for bogie vehicles	5400 mm
4.4.3	Maximum distance apart of bogie centres for bogie vehicles	17000 mm
4.4.4	Minimum rigid wheel base for bogie truck of any vehicles	1830 mm
4.4.5	Maximum length of body or roof for :	
	(i) 4-wheeled vehicle	8540 mm
	(ii) Bogie vehicle	24000 mm
Note : (i) A cornice may project beyond the maximum permissible length of the roof upto 51 mm in the case of (i) above, beyond each end of the vehicle. (ii) Fittings on the end of a vehicle, such as step iron, vacuum brake piping, electrical connections, etc. need not be kept within the prescribed maximum permissible lengths for bodies of vehicles, but may project beyond the end of body to a reasonable extent. (iii) Maximum length of bogie wagons can be upto 29000 mm subject to tapering of the ends in a manner that the Head Stock overthrow when calculated as per Appendix-I is same as that of a wagon of 24000 m length and within this Schedule of Dimensions.		
4.4.6	Maximum length over side buffers :	
	(i) 4-wheel vehicle	9810 mm
	(ii) Bogie vehicle	24960 mm
Note : In case of an option of a Bogie Wagon having a higher than 24000 mm length over headstock, the length of Bogie Vehicle over Buffers shall be incremented by the difference between the actual length over headstocks of the Bogie vehicle (over and above 24000 mm subject to a maximum of 29000) and 24000 mm.		
4.4.7	Maximum distance apart between any two adjacent axles	15000 mm

4.5 Maximum Moving Dimensions : (See Diagram No. 4 At Page No. 29)

Clause	Items	Dimensions
4.5.1	Maximum width over all projections, when fully loaded :	
4.5.1.1	At 102 mm above rail level	2600 mm
4.5.1.2	From 102 mm above rail level to 305 mm above rail level	2600 mm increasing to 3505 mm
4.5.1.3	From 305 mm above rail level to 725 mm above rail level	3505 mm
4.5.1.4	From 725 mm above rail level to 5100 mm above rail level	3660 mm
4.5.2	Maximum width over open doors, including all projections for goods vehicles upto a height of 4000 mm from rail level Note : Wagon shall be designed in such a way that open door is within the kinematic envelop of wagon and there is clearance of 225 mm between Kinematic Envelop and Fixed Structure Gauge.	4600 mm
4.5.3	Minimum height above rail level, when fully loaded at 1752.5 mm from centre of track	305 mm
4.5.4	Minimum height above rail level when fully loaded for a width of 1300 mm on either side of the centre of track with exception of wheels and attachment thereto. Note : A wheel or an attachment of a wheel (such as gear case) may project below the minimum height of 100 mm from a distance of 400mm inside to 216mm outside of the gauge face of the wheel. However, the minimum height of the attachment located at a distance beyond 51mm and upto 400mm inside the gauge face of the wheel shall be 75mm from rail level.	100 mm

Note : Wagon should be designed to operate on Feeder Routes also including their platform lines till such time the feeder routes are upgraded to the dimensions of SSOD for DFC.

Chapter - V

Rolling Stock (Electric Locomotive)

5.1 Wheels and Axles :

Clause	Items	Dimensions
5.1.1	Wheel gauge or distance apart for wheel flanges :	
	(i) Wheel with thick flanges/wear adopted wheel profile	1596 mm
	(ii) Wheels with standard flanges	1600 mm
	(iii) Wheels with thin flanges	1600 mm
	(iv) Wheels without flanges	1600 mm
5.1.2	Diameter on the tread of wheel :	
	(i) Maximum dia. on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face	1250 mm
	(ii) Minimum dia. on the tread of New locomotive carrying wheels measured at 63.5 mm from wheel gauge face	840 mm
	(iii) Minimum diameter on the tread of Worn wheel, measured at 63.5 mm from wheel gauge face	780 mm
5.1.3	Projection for flange of tyre :	
	(i) Minimum projection for flange of new tyre, measured from tread at 63.5 mm from wheel gauge face	28.5 mm
	(ii) Maximum projection for flange of worn tyre, measured from tread at 63.5 mm from wheel gauge face	35 mm
	(iii) Minimum condemning diameter on the tread of wheel, measured at 63.5 mm from wheel gauge face	780 mm
5.1.4	Maximum thickness of tyre flanges measured at 13 mm from outer edge of flange :	
	(i) Thick flanges/wear adopted wheel profile	32 mm
	(ii) Standard flanges	28 mm
	(iii) Thin flanges	18 mm
	Note : (i) The above values of flange thickness are measured from the back face of tyre. (ii) Minimum size of flange of locomotive tyre shall be determined by condemning profile gauge, which specifies minimum thickness and limits of angularity of flange on the gauge face.	

Clause	Items		Dimensions
5.1.5	Minimum width of tyres :		
	(i) Locomotive coupled wheels		133 mm
	(ii) Locomotive wheels other than coupled		127 mm
5.1.6	Incline of tread	1 in 20 for all profiles except wear adopted profile for which the tread inclination of 1 in 20 will merge with radii of the wear adopted profile.	

5.2 Buffers & Couplings :

Clause	Items	Dimensions
5.2.1	Distance apart for centres of buffers	1956 mm
5.2.2	Maximum height above rail level for centres of buffers for empty locomotive	1105 mm
5.2.3	Minimum height above rail level for centres of buffers under worst condition of lowest wheel diameter and serviceable suspension springs.	1030 mm

5.3 Floor :

Clause	Items	Dimensions
5.3.1	Maximum height above rail level for floor of any unloaded vehicle	1345 mm
5.3.2	Minimum height above rail level for floor of vehicle	725 mm

5.4 Length of Vehicles :

Clause	Items	Dimensions
5.4.1	Maximum length of body or roof for Bogie vehicle	24000 mm
5.4.2	Maximum length over side buffers for Bogie vehicle	24960 mm
5.4.3	Maximum distance apart between any two adjacent axles	15000 mm

5.5 Maximum Moving Dimensions : (See Diagram No. 4 At Page No. 29)

Clause	Items	Dimensions
5.5.1	Maximum width over all projections, when fully loaded :	

Clause	Items	Dimensions
5.5.1.1	At 102 mm above rail level	2600 mm
5.5.1.2	From 102 mm above rail level to 305mm above rail level	2600 mm increasing to 3505 mm
5.5.1.3	From 305 mm above rail level to 725 mm above rail level	3505 mm
5.5.1.4	From 725 mm above rail level to 5100 mm above rail level	3660 mm
5.5.2	Maximum height above rail level at centre of empty locomotives	5100 mm
5.5.3	Maximum height above rail level at sides of locomotives	5100 mm
5.5.4	Minimum height above rail level when fully loaded at 1752.5 mm from centre of track	305 mm
5.5.5	Minimum height above rail level when fully loaded for a width of 1300 mm on either side of the centre of track with exception of wheels and attachment thereto. Note : A wheel or an attachment of a wheel (such as gear case) may project below the minimum height of 100 mm from a distance of 400mm inside to 216mm outside of the gauge face of the wheel. However, the minimum height of the attachment located at a distance beyond 51mm and upto 400mm inside the gauge face of the wheel shall be 75mm from rail level.	100 mm

Note : Locomotives should be designed to operate on Feeder Routes also including their platform lines till such time the feeder routes are upgraded to the dimensions of SSOD for DFC.

Chapter - VI

Rolling Stock (Diesel Locomotive)

6.1 Wheels and Axles :

Clause	Items	Dimensions
6.1.1	Wheel gauge or distance apart for wheel flanges :	
	(i) Wheel with thick flanges/wear adopted wheel profile	1596 mm
	(ii) Wheels with standard flanges	1600 mm
	(iii) Wheels with thin flanges	1600 mm
	(iv) Wheels without flanges	1600 mm
6.1.2	Diameter on the tread of wheel :	
	(i) Maximum dia. on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face	1097mm
	(ii) Minimum dia. on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face	914mm
6.1.3	Projection for flange of tyre :	
	(i) Minimum projection for flange of new tyre, measured from tread at 63.5 mm from wheel gauge face	28.5 mm
	(ii) Maximum projection for flange of worn tyre, measured from tread at 63.5 mm from wheel gauge face	35 mm
6.1.4	Maximum thickness of tyre flanges measured at 13 mm from outer edge of flange :	
	(i) Thick flanges/wear adopted wheel profile	32 mm
	(ii) Standard flanges	28 mm
	(iii) Thin flanges	18 mm
	Note : (i) The above values of flange thickness are measured from the back face of tyre. (ii) Minimum size of flange of locomotive tyre shall be determined by condemning profile gauge, which specifies minimum thickness and limits of angularity of flange on the gauge face.	
6.1.5	Minimum width of tyres :	
	(i) Locomotive coupled wheels	133 mm
	(ii) Locomotive wheels other than coupled	127 mm
6.1.6	Incline of tread	1 in 20 for all profiles except wear adopted profile for which the tread inclination of 1 in 20 will merge with radii of the wear adopted profile.

6.2 Buffers & Couplings :

Clause	Items	Dimensions
6.2.1	Distance apart for centres of buffers	1956 mm
6.2.2	Maximum height above rail level for centres of buffers for empty locomotive	1105 mm
6.2.3	Minimum height above rail level for centres of buffers when fully loaded	1030 mm

6.3 Floor :

Clause	Items	Dimensions
6.3.1	Maximum height above rail level for floor of any unloaded vehicle	1850 mm
6.3.2	Minimum height above rail level for floor of fully loaded vehicle	725 mm

6.4 Length of Vehicles :

Clause	Items	Dimensions
6.4.1	Maximum length of body or roof for	
	(i) 4-wheeled vehicle	8540 mm
	(ii) Bogie vehicle	24000 mm
6.4.2	Maximum length over side buffers for Bogie vehicle	24960 mm
	(i) 4-wheeled vehicle	9810 mm
	(ii) Bogie vehicle	24960 mm
6.4.3	Maximum distance apart between any two adjacent axles	15000 mm

6.5 Maximum Moving Dimensions : (See Diagram No. 4 At Page No. 29)

Clause	Items	Dimensions
6.5.1	Maximum width over all projections, when fully loaded :	
6.5.1.1	At 102 mm above rail level	2600 mm

Clause	Items	Dimensions
6.5.1.2	From 102 mm above rail level to 305mm above rail level	2600 mm increasing to 3505 mm
6.5.1.3	From 305 mm above rail level to 725 mm above rail level	3505 mm increasing to 3660 mm
6.5.1.4	From 725 mm above rail level to 5100 mm above rail level	3660 mm
6.5.2	Maximum height above rail level at centre of empty locomotive	5100 mm
6.5.3	Maximum height above rail level at sides of locomotive	5100 mm
6.5.4	Minimum height above rail level when fully loaded at 1752.5 mm from centre of track	305 mm
6.5.5	Minimum height above rail level when fully loaded for a width of 1300 mm on either side of the centre of track with exception of wheels and attachment thereto. Note : A wheel or an attachment of a wheel (such as gear case) may project below the minimum height of 100 mm from a distance of 400mm inside to 216mm outside of the gauge face of the wheel. However, the minimum height of the attachment located at a distance beyond 51mm and upto 400mm inside the gauge face of the wheel shall be 75mm from rail level.	100 mm

Note : Locomotives should be designed to operate on Feeder Routes also including their platform lines till such time the feeder routes are upgraded to the dimensions of SSOD for DFC.

Chapter - VII

Electric Traction

2x25 kV A.C. 50 Cycles

Note : Whenever electric traction is in use, special precaution shall be taken in accordance with provisions made for all open lines of DFCC.

7.1 Electrical Clearances :

Clause	Items	Dimensions
7.1.1	Vertical and lateral distance between 25 kV live parts and earthed parts of fixed structures or moving loads shall be as large as possible. The minimum electrical clearances to be maintained under worst conditions of temperature, wind etc. between any live part of the overhead equipment of pantograph and parts of any fixed structures (earthed or otherwise) or moving loads shall be as follows :	
	(i) Long Duration	250 mm
	(ii) Short Duration	200 mm
Note :	A minimum vertical distance of 270 mm shall normally be provided between rolling stock and contact wire to allow for a 20 mm temporary raising of tracks during maintenance.	
7.1.2	Minimum height of contact wire from rail level to the underside of live conductor under bridge, in tunnels, in the open, at level crossing and in Running Sheds	5470 mm

Note : (a) The minimum height of contact wire has been derived on the assumption that standard maximum moving dimension of stock of height 5100 mm should be able to work on all sections electrified at 25 kV A.C. traction with live traction overhead equipment.

Items	Normal Clearance
• Height of the Stock	5100 mm
• Minimum clearance to contact wire	250 mm
• Allowance for track maintenance	20 mm
• Oscillation	100 mm
• Contact wire height	5470 mm

(b) Based upon minimum height of contact wire, maximum height of the Over Dimensional Consignment which can be permitted without any speed restriction is derived as under :

Minimum height of the contact wire	5470 mm
Less :	
(i) Minimum electrical clearance	200 mm
(ii) Track allowance	20 mm

(iii) Allowance for vertical oscillation of contact wire under influence of moving pantographs	100 mm
(iv) Total Clearances :	320 mm
Maximum height of Over Dimensional Consignment	5150 mm

Thus, the permissible maximum height of Over Dimensional Consignment shall be 5.15 m without any speed restriction.

(c) For movement of ODC, height of contact wire specified above in Para 7.1.2, i.e. 5470 mm shall be increased by the difference in the height of the ODC & 5100mm. In case, such an ODC is moved at a speed not exceeding 15 kmph and is also escorted by authorized railway staff, the derived height of contact wire may be reduced by 50mm.

(d) On curves, all vertical distances specified above shall be measured above the level of the inner rail, increased by half the super elevation.

(e) Suitable prescribed gradient, i.e. 3mm/m on the height of contact wire shall be provided for connecting these wires installed at different heights.

7.2 Pantograph :

Clause	Items	Dimensions
7.2	Maximum width of pantograph collector	2030 mm

Appendix-I

Note :

a) The extra vertical clearance in case of curves shall be worked out as under :

$$\text{Extra Vertical Clearance (mm)} = \frac{\text{Width (mm) as per MMD}}{\text{Dynamic Gauge (1750mm)}} \times \text{Super-elevation (mm)}$$

This extra vertical clearance would be with respect to inner rail of the curve.

b) Where there is a structure between tracks, the extra clearance to be provided must be according to Columns 5 to 10 instead of Column 11.

c) In the Table of Annexure-1 (Page 25), the maximum permissible speed and corresponding super-elevation are indicated and the required lateral clearances based on these super-elevations have been given.

Note for Extra Clearance on Curves :

1. As there is no provision of Platform for DFC, hence no clearances have been prescribed for platform at station.

2. Allowance to be made :

2.1 The additional clearance to be given on the inside of a curve must include the effect of curvature, the lean due to super elevation and an allowance for any additional sway of the vehicle over that already provided for in the clearance on straight track.

2.2 The additional clearance to be given on the outside of a curve must allow for the effect of curvature.

2.3 Additional sway or lurch due to curve can be considered as fully counteracted by the inward lean of the vehicle due to super elevation.

3. Allowance for Curvature : The allowance for curvature for a vehicle 24000 mm long, the clearance of 17000 mm between bogie centre shall be calculated as under :

At the centre of vehicle :

$$V = \frac{17.00 \times 17.00 \times 1000}{8R} = \frac{36125}{R} \text{ mm}$$

At the end of vehicle :

$$Vo = \frac{24.00 \times 24.00 \times 1000}{8R} - \frac{36125}{R} = \frac{35875}{R} \text{ mm}$$

Where, R is the radius of the curve in metres.

4. Allowance for Super-elevation : The lean due to super elevation at any point at height `h' above rail level is given by :

$$L = \frac{h}{g} \times S$$

Where, S is the super elevation and g is the gauge of the track.

5. Allowance for additional sway on curves :

The provision for additional lurch and sway on the inside of a curve has been adopted, namely one-fourth of the lean due to super-elevation. No provision has been made for additional sway due to a curve in the outward direction for reasons already given in Para 2 above.

6. The total additional clearance to be provided is :

(i) On the inside of a curve -

$$V + \frac{5}{4} L$$

Where, L is the lean in millimetres

(ii) On the outside of a curve -

Vo

7. Clearance from adjacent structure on the inside of a curve : For obtaining the figures given in Columns 5 to 9, formula (i) of Para 6 above has been used.

8. Clearance from adjacent structures on the outside of a curve : For Column 10, formula (ii) of Para 6 above has been used.

9. Extra clearance between adjacent tracks : The worst case will be when the end of a bogie carriage on the inner track is opposite the centre of a similar carriage on the outer track. Nothing is allowed for super-elevation, it being assumed that both tracks will be inclined by the same amount.

Though there are cases where a different super-elevation is provided on each track, the distance allowed between centres of tracks gives a sufficient margin of safety to permit for this being omitted from consideration.

The formula used for Column 11 is :

$$V + Vo + \frac{2L}{4}$$

And, as the height adopted for the value of h in calculating L is 5500 mm, the above, therefore, reduces to (V + Vo + S).

10. Extra clearances for the speeds specified above are shown in the Annexure-1.

Annexure-1

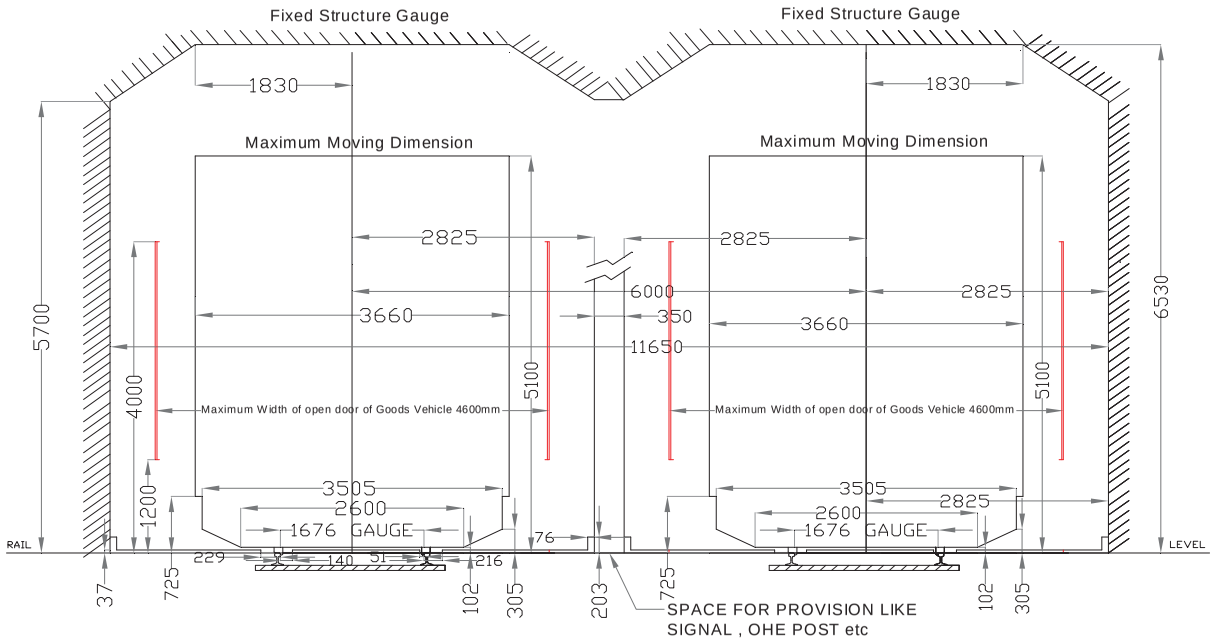
STANDARD SCHEDULE OF DIMENSIONS FOR DFC : 1676 mm GAUGE

Extra Lateral Clearances On Curves : Eastern Corridor Of DFC

Degree Of Curvature	Radius Of Curve	Maximum Permissible Speed	Super Elevation	Extra Lateral Clearance Between Structure And Adjacent Track {When There Is A Structure Between Tracks}						Extra Lateral Clearance Between Adjacent Track When There Is No Structure Between Tracks
				Inside Of Curve					Outside Of Curve {For Any Height}	
				Upto 725 mm Above Rail Level	From 725 mm To 1345 mm Above Rail Level	From 1345 mm To 5100 mm Above Rail Level	From 5100 mm To 6050 mm Above Rail Level	From 6050 mm To 6530 mm Above Rail Level		
Degree	Metre	Kmph	mm	mm	mm	mm	mm	mm	mm	mm
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1	1750	110	20	31	41	96	110	117	21	61
1.5	1167	110	67	67	98	287	334	358	31	129
2	875	110	115	103	156	478	559	600	41	197
3	583	96	140	138	202	594	694	744	62	263
4	438	83	140	158	223	615	714	764	82	304
5	350	74	140	179	244	636	735	785	103	346
6	292	68	140	199	264	656	755	806	123	387
7	250	63	140	220	285	677	776	826	144	428
8	219	59	140	241	305	697	797	847	164	469
9	194	55	140	262	327	719	818	868	185	511
10	175	52	140	282	347	739	838	888	205	551

DIAGRAM No. - 1
1676mm GAUGE

MMD AND FIXED STRUCTURE GAUGE FOR TUNNLE AND THROUGH GIRDER BRIDGES TO SUIT 2x25 Kv AC TRACTION CHAPTER - I



NOTE :-

(i) ALL DIMENSIONS ARE IN MILIMETRES EXCEPT WHERE OTHERWISE SHOWN.

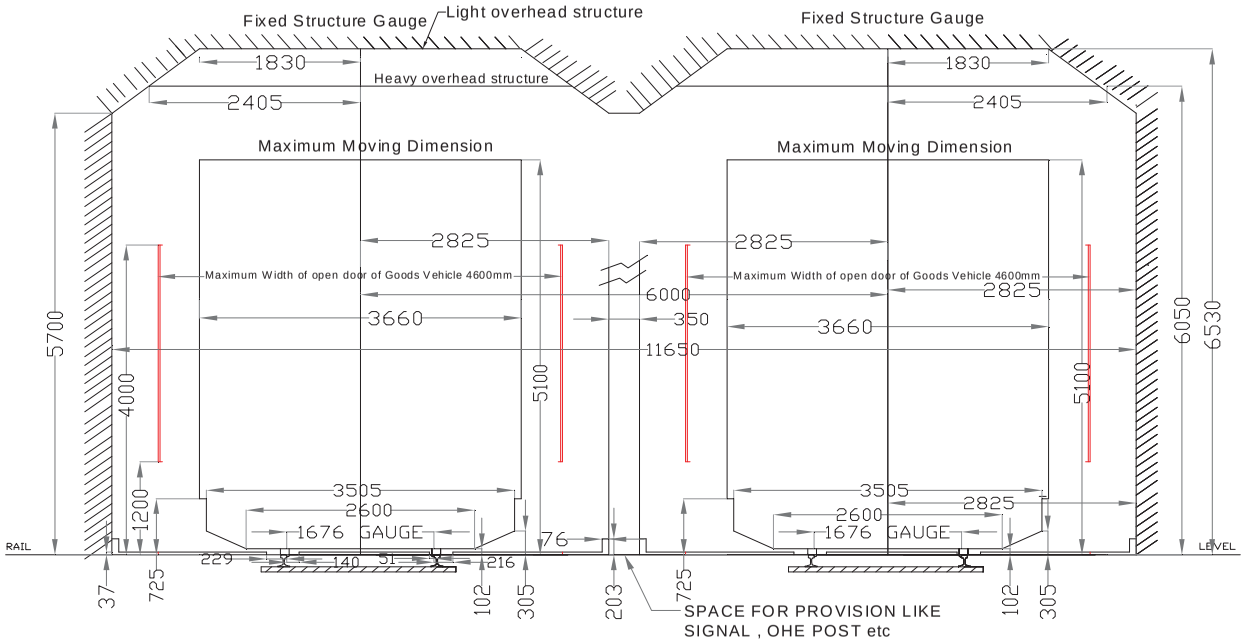
(ii) IF SPACE OF 580mm PROVIDED BETWEEN CENTRES OF TRACK FOR PLACEMENT OF SIGNAL POST THEN MINIMUM DISTANCE BETWEEN CENTRE TO CENTRE OF TRACK SHALL BE 6250mm. THEREFORE OVERALL WIDTH WILL BE 11650+250 = 11900mm

(iii) NECESSARY PROVISION SHOULD BE MADE IN OVERHEAD STRUCTURES AND OVERHEAD EQUIPMENT TO PERMIT POSSIBLE RAISING OF TRACK BY 275mm IN FUTURE TO CATER TO INCREASED HEIGHT OF TRACK STRUCTURE AND OTHER UNFORESEEN FACTORS SUCH AS RE-GRADING etc. .THEREFORE OVERALL HEIGHT ABOVE RAIL HEIGHT WILL BE 6805mm INSTEAD OF 6530mm.

(iV) WHERE THE LINE IS ON CURVE, THE HORIZONTAL DISTANCE OF ANY STRUCTURE FROM THE CENTRE OF ADJACENT TRACK AND THE DISTANCE BETWEEN CENTRES OF TRACKS ARE TO BE INCREASED ACCORDING

DIAGRAM No. - 2
1676mm GAUGE

MMD AND FIXED STRUCTURE GAUGE FOR OUT OF STATION TO SUIT 2x25 Kv AC TRACTION CHAPTER - I



NOTE :-

(i) ALL DIMENSIONS ARE IN MILIMETRES EXCEPT WHERE OTHERWISE SHOWN.

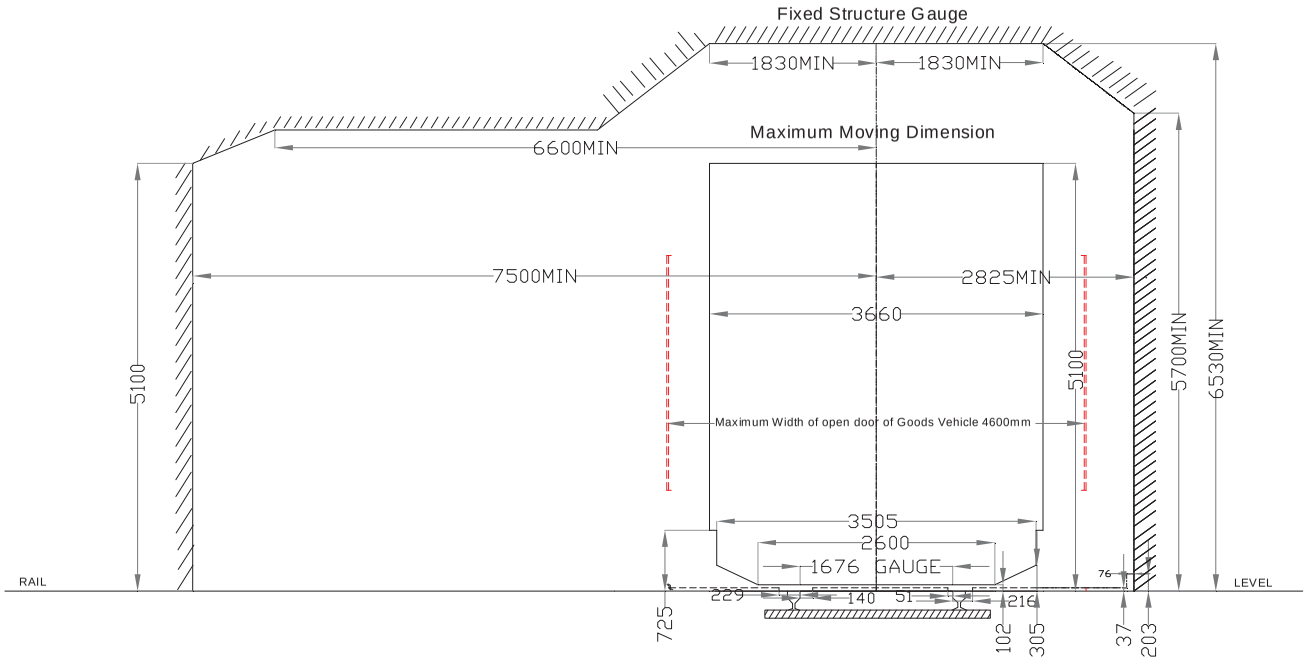
(ii) IF SPACE OF 580mm PROVIDED BETWEEN CENTRES OF TRACK FOR PLACEMENT OF SIGNAL POST THEN MINIMUM DISTANCE BETWEEN CENTRE TO CENTRE OF TRACK SHALL BE 6250mm. THEREFORE OVERALL WIDTH WILL BE 11650+250 = 11900mm.

(iii) NECESSARY PROVISION SHOULD BE MADE IN OVERHEAD STRUCTURES AND OVERHEAD EQUIPMENT TO PERMIT POSSIBLE RAISING OF TRACK BY 275mm IN FUTURE TO CATER TO INCREASED HEIGHT OF TRACK STRUCTURE AND OTHER UNFORESEEN FACTORS SUCH AS RE-GRADING etc THEREFORE OVERALL HEIGHT ABOVE RAIL LEVEL WILL BE 6325mm (at a width of 2075mm either side of center of track) INSTEAD OF 6050mm IN CASE OF HEAVY OVERHEAD STRUCTURE AND 6805mm IN STEAD OF 6530mm IN CASE OF LIGHT OVERHEAD STRUCTURE.

(iV) WHERE THE LINE IS ON CURVE, THE HORIZONTAL DISTANCE OF ANY STRUCTURE FROM THE CENTRE OF ADJACENT TRACK AND THE DISTANCE BETWEEN CENTRES OF TRACKS ARE TO BE INCREASED ACCORDING TO THE APPENDIX I

DIAGRAM No. - 3
1676mm GAUGE

STANDARD DIMENSIONS IN STATIONS TO SUIT 2x25 KV. AC. TRACTION CHAPTER II



NOTE :-

(i) ALL DIMENSIONS ARE IN MILIMETRES EXCEPT WHERE OTHERWISE SHOWN.

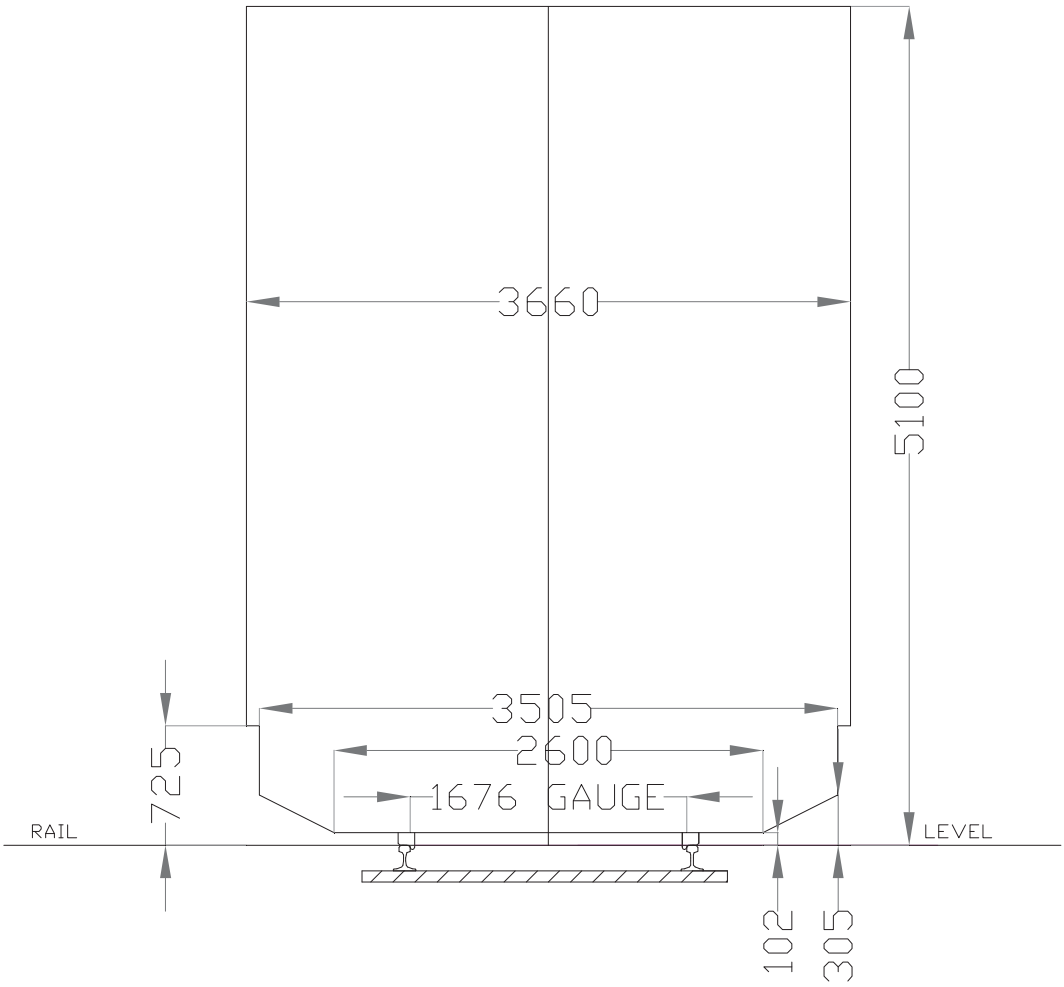
(ii) NECESSARY PROVISION SHOULD BE MADE IN OVERHEAD STRUCTURES AND OVERHEAD EQUIPMENT TO PERMIT POSSIBLE RAISING OF TRACK BY 275mm IN FUTURE TO CATER TO INCREASED HEIGHT OF TRACK STRUCTURE AND OTHER UNFORESEEN FACTORS SUCH AS RE-GRADING etc .THEREFORE OVERALL HEIGHT ABOVE RAIL HEIGHTWILL BE 6805mm IN STEAD OF 6530mm.

(iii) WHERE THE LINE IS ON CURVE, THE HORIZONTAL DISTANCE OF ANY STRUCTURE FROM THE CENTRE OF ADJACENT TRACK AND THE DISTANCE BETWEEN CENTRES OF TRACKS ARE TO BE INCREASED ACCORDING TO THE APPENDIX-I.

DIAGRAM No. - 4
1676mm GAUGE

MMD OF DFC FOR EASTERN CORRIDOR

Maximum Moving Dimension



NOTE :-

ALL DIMENSIONS ARE IN MILIMETERES
EXCEPT WHERE OTHERWISE SHOWN.

STANDARD SCHEDULE OF DIMENSIONS

1676mm Gauge (Broad Gauge)

FOR

Western Corridor

Of

Indian Railways

Dedicated Freight Corridors

Chapter – VIII

General

The dimensions are to be observed unless prior sanction has been obtained from the Railway Board through the Commissioner/Chief Commissioner of Railway Safety to execute the new works which would infringe this Schedule of Dimensions.

(See Diagram Nos. 5 & 6 At Page Nos. 56 & 57)

8.1 Spacing Of Tracks :

Clause	Items	Dimensions
8.1	**Minimum Distance - Centre To Centre Of Tracks**	
8.1.1	Between DFC Tracks	6000 mm
8.1.2	Between DFC Track and Existing IR Track :	
	(i) Minimum Distance	6000 mm
	(ii) Recommended Distance	9925 mm

Note : (a) See Appendix-II for extra clearance required on curves.

(b) For spacing of tracks in tunnels, through and semi through girder bridges, see item 8.9.

(c) OHE mast and Signal post shall not preferably be provided in between tracks. However, under unavoidable circumstances, the clearance mentioned in Para 8.1 shall be increased by equal to the width of such provisions/structures/foundation, as the case may be.

8.2 Curves :

Clause	Items	Dimensions
8.2	**Radius and Degree of Curves :**	
	(i) Recommended Radius & Degree	700 m (2.5 Degree)
	(ii) Minimum Radius	292 m
	(iii) Maximum Degree	6 Degree
Note :	Rolling stocks shall, however, be designed for 10° curvature with the consideration of running on IR routes also.	

8.3 Bridges :

8.3.1 Bridges must conform to the loading standards, as prescribed in IRS Bridge Rules for DFC.

8.3.2 The clear distance between the joint sleepers shall not exceed 200 mm and that between the two consecutive sleepers shall not exceed 450 mm.

8.3.3 Bridge sleepers, resting directly on longitudinal girders should be designed as per IRS Bridge Rules for DFC. However, in no case, it should be less than 150 mm deep, exclusive of any notching, which may be required to allow for cover plates, camber etc. and shall not be less than 305 mm greater in length than the distance outside to outside of girder flanges, subject to a minimum of 2440 mm.

8.3.4 The length of steel trough sleepers shall be the distance outside to outside of girder flanges, subject to a minimum of 2440 mm.

8.4 Rails :

Clause	Items	Dimension
8.4.1	Check Rails for **Curves** : Minimum Clearance	44 mm
8.4.2	Check Rails at **Level Crossings** :	
	(i) Minimum Clearance	51 mm
	(ii) Maximum Clearance	57 mm
8.4.3	Minimum **depth** of space for wheel flange from rail level	38 mm

Note : Check rails shall be provided on curves where the radius is 350 metres or less, i.e. curvature is 5° or more. They shall also be necessary in the case of flatter curves, if higher speed is contemplated.

8.5 Buildings and Structures :

Clause	Items	Dimension
8.5	Minimum Horizontal Distance from centre of track to any structure (other than platform) :	
8.5.1	From rail level to 6670 mm above rail level	2825 mm
8.5.2	From 6670 mm above rail level to 7100 mm above rail level	2825 mm gradually decreasing to 2710 mm
8.5.3	From 7100 mm above rail level to 7965 mm above rail level	2710 mm gradually decreasing to 1925 and further decreasing to 1600 mm
8.5.4	From 7965 mm above rail level to 8430 mm above rail level	1600 mm
8.5.5	Below the rail level upto the formation level of the track on straight and curves upto radius of 875 m	2575 mm
8.5.6	Below the rail level upto the formation level of the track on curves with radius less than 875 m	2725 mm

Note : (a) Under Item 8.5, any material stacked by the side of track is to be considered a structure in the sense in which the word is used here. These items also apply to projections of rock etc. from the side of cutting.

(b) See Appendix-II for extra clearance required on curves.

8.6 Height Above Rail Level For 2x25 kV AC Traction :

Clause	Items	Dimension
8.6	Minimum height above rail level for a distance of 1830 mm on either side of the centre of track for 2x25 kV AC traction is likely to be used :	
8.6.1	Light overhead structure, such as Foot Over Bridges	8430 mm

Clause	Items	Dimension
8.6.2	Heavy overhead structure such as Road Over Bridges or Flyover Bridges	8050 mm
8.6.3	Heavy overhead structures at turnout etc.	8430 mm

Note : (a) See Appendix-II for extra clearance required on curves.

(b) In areas, where 25 kV AC traction is used or likely to be used, if any turnout or crossover is located under a heavy overhead structure or within 40m from its nearest face, irrespective of the position of level crossing gate, the minimum height of such overhead structure shall be 8430mm. Also, in case the turnout is beyond 40m, but the level crossing gate is within 520m from the nearest face of bridge, the height of such overhead structure shall be 8430mm.

(c) The height mentioned against Items 8.6.1 to 8.6.3 shall be measured from the higher or super elevated rail.

(d) Necessary provision should be made in overhead structures and overhead equipment to permit possible raising of track by 275mm in future to cater for increased height of track structure and other unforeseen factors, such as regrading etc.

8.7 Height, Clearance and Distance For Crossing A Railway :

8.7.1 **Minimum Height Above Rail Level** of the lowest portion of any conductor, crossing a railway, including guard wire, other telegraph, telephone and other such low tension wires or a traction trolley wire, under conditions of maximum sag shall be :

TABLE – D

SL	Overhead Crossing Voltage	Minimum Clearances Required From Rail Level (mm)	
		Clearances at OHE Structure	Clearances at Mid OHE Span
1	*2*	*3*	*4*
1.	Upto and including 33 kV	By Underground Cable	
2.	Above 33 kV upto and including 66 kV	16660	14384
3.	Above 66 kV upto and including 132 kV	17260	14994
4.	Above 132 kV upto and including 220 kV	18160	16524
5.	Above 220 kV upto and including 400 kV	19960	17434
6.	Above 400 kV upto and including 500 kV	20860	19884
7.	Above 500 kV upto and including 800 kV	23560	19884

Note : (a) The working of a Railway crane under an overhead line crossing shall normally be avoided. If it becomes absolutely essential for a crane to work under such a crossing, the minimum clearance required to be maintained between the highest working point of the jib and the lowest crossing conductor shall be as under :

TABLE - E

SL	Nominal System Voltage	Minimum Safe Clearance
1.	Upto & including 33 kV	By Underground Cable
2.	66 kV	2000 mm
3.	110 kV	2250 mm
4.	132 kV	2500 mm
5.	220 kV	3500 mm
6.	400 kV	6000 mm
7.	500 kV	7250 mm
8.	800 kV	11500 mm

(b) All height/clearances are in mm and under maximum sag conditions.

(c) For electrified lines, where new power line crossing is to be provided/existing crossing to be altered, clearance in Para 8.7.1 shall be applicable.

(d) Clearance at mid OHE span (Column-4, Table-D) in Para 8.7.1 can be adopted, if the OHE Structure/Fixed Structure is beyond 6000 mm of nearest conductor of overhead crossing.

(e) If the crossing is provided with a guarding, a minimum clearance of 2000 mm shall be maintained between the bottom of the guard wire and highest traction conductor.

(f) Power line crossings in yards & station areas shall be avoided.

8.7.2 **Minimum Clearance** between highest traction conductor and lowest crossing conductor :

It is desirable to provide maximum possible clearance from the highest traction conductor in case of power line. However, if these clearances are not available, then based on the clearance study, following reduced clearances may be adopted for existing power line crossings in place of Table-D in Para 8.7.1 above.

TABLE - F

SL	Voltage	Clearance
(i)	Upto and including 66 kV	2440 mm
(ii)	Above 66 kV upto and including 132 kV	3050 mm
(iii)	Above 132 kV upto and including 220 kV	4580 mm
(iv)	Above 220 kV upto and including 400 kV	5490 mm
(v)	Above 400 kV upto and including 800 kV	7940 mm

8.7.3 (i) The **Minimum Horizontal Distance** measured at right angles from the centre of nearest track to any part of a rigid and well founded post/structure, its fittings and projections carrying electrical conductors crossing a railway shall be 2825mm.

Note : Any post/structure (including transmission line tower) which is so constructed or guyed as to remain in vertical position or on falling, it continues to provide the clearances specified above, with one or all of the conductors broken or with its conductor attached, when subjected to maximum wind pressure, may be considered to be a "rigid well founded post/structure".

(ii) However, for other structures carrying electrical conductors crossing a railway and not covered in (i) above, the **Minimum Horizontal Distance** measured at right angles from the centre of nearest track, shall be equal to height of structure in metre above ground level plus 6 metre.

8.7.4 The **Minimum Horizontal Distance** of any **telegraph post** measured from the centre of and at right angles to the nearest track shall be height of the post plus 2825 mm.

Note : When the track is in cutting, a telegraph post erected outside the cutting must be at a distance from the edge of the cutting not less than the total height of the post.

8.8 Interlocking and Signal Gear :

Clause	Items	Dimension
8.8	Maximum height above rail level of any part of Interlocking or Signal gear for a width of 1830mm in the case of tunnels, through and semi-through girder bridges on either side of centre of track, subject to the restriction embodied in the note (a) below.	37 mm

Note : (a) For a distance of 229mm outside and 140mm inside the gauge faces of rail, no gear or track fittings shall project above rail level, except such parts as are required to be actuated by the wheels or wing rails and point rails of special crossings leading to snag dead ends or elevated check rails of crossing or check rails/check flats of diamond crossings.

(b) Signal wires or supports for signal wires may be allowed at not less than 1830mm in the case of tunnels or through or semi-through girder bridges {see note to item 11.5.4 of Chapter XI, item no. 12.5.4 of Chapter XII and item no. 13.5.4 of Chapter XIII} on either side of the centre of track, provided that they are not more than 203mm above rail level.

(c) Metal covers with ramps on both sides must be provided over all interlocking gear projecting above rail level between the rails of a track to prevent hanging couplings from damaging the gear.

8.9 Tunnels, Through And Semi-Through Girder Bridges : (See Diagram no. 5)

Clause	Items	Dimension
8.9.1	Minimum distance centre to centre of track	6000 mm*
8.9.2	Minimum horizontal distance from centre of track to any structure :	
	Height above and below rail level -	**Horizontal Distance**
(i)	From rail level to 6670 mm above rail level	2825 mm
(ii)	From 6670 mm above rail level to 7100 mm above rail level	2825 mm gradually decreasing to 2710 mm
(iii)	From 7100 mm above rail level to 7965 mm above rail level	2710 mm gradually decreasing to 1925 mm and further decreasing to 1600 mm

Clause	Items	Dimension
(iv)	From 7965 mm above rail level to 8430 mm above rail level	1600 mm
(v)	Below the rail level upto the formation level of the track on straight and curves upto radius of 875 m	2575 mm
(vi)	Below the rail level upto the formation level of the track on curves with radius less than 875 m	2725 mm

***** In case of signal located between adjacent lines, this dimension will be 6250 mm.

8.10 Safety Refuges :

Clause	Items	Dimension
8.10.1	Maximum distance apart of refuges in tunnels	100 m
8.10.2	Maximum distance apart of trolley refuges :	
	(i) On bridges with main spans of less than 50 m	50 m
	(ii) On bridges with main spans of 50 m or more	A refuge over each pier

8.11 Formation Width :

Clause	Items	Dimension
8.11.1	**Single line** straight track :	
	(i) Minimum width in embankment	8100 mm
	(ii) Minimum width in cutting (excluding side drains)	7500 mm
8.11.2	**Double Line** straight track :	
	(i) Minimum width in embankment	14100 mm
	(ii) Minimum width in cutting (excluding side drains)	13500 mm

Note : The minimum formation width is based on :

(a) Ballast section having 1.5H : 1V side slope
(b) Cross slope on top of formation of 1 in 30
(c) Track centre in case of double line section is 6000 mm
(d) Cess width is 1200 mm
(e) Ballast cushion is 350 mm

8.11.3 Formation Width **On Curves :**

(i) Increase due to extra ballast on outside of curves :

On curves, the actual width to be provided shall take into account 150mm extra widening of ballast shoulder (500mm in place of 350mm) required on the outer side of curves. Thus, additions in the width on this account will be 150mm for single line and 300mm for double line.

(ii) Increase on double line due to effect of super elevation :

Due to requirement of extra clearances on double line on curves, increase in track centres with corresponding increase in formation width shall be necessary to take into account the effect of super elevation.

Increase in formation width on curves shall be decided after taking into account the increase mentioned in (i) & (ii) above.

8.12 Gauge on Straight and Curves :

Clause	Items	Dimension
8.12.1	Straight track	1676 mm
8.12.2	Curves of 350 m radius or more	1676 mm
8.12.3	Curves less than 350 m radius	Upto 5 mm slack, i.e. upto 1681 mm

Chapter – IX

Station Yards

(See Diagram No. 7 At Page No. 58)

Note : The expressions "in station" and "out of station" are to be interpreted in accordance with the definition of "station limits" given in Chapter I - Part I of the General Rules for Open Lines, viz. "station limits" means the portion of DFCC which is under the control of a Station Master and is situated between the outermost signals of the station.

9.1 Spacing Of Tracks And Gradient In Yards :

Clause	Items	Dimensions
9.1.1	Minimum Distance - Centre To Centre Of Tracks	6000 mm
Note : (a) See Appendix-I for extra clearance required on curves. (b) For spacing of tracks in tunnels, through and semi through girder bridges, see item 1.9. (c) OHE mast and Signal post shall not preferably be provided in between tracks. However, under unavoidable circumstances, the clearance mentioned in Para 1.1 shall be increased by equal to the width of such provisions/structures/foundation, as the case may be.		
2.1.2	Maximum gradient in station yards unless special safety devices are adopted and/or special rules enforced to prevent accidents in accordance with approved special instructions.	
	(i) Desirable / Recommended Gradient	1 in 1200
	(ii) Minimum Gradient	1 in 600
Note : (a) No station yard shall be constructed nor shall any siding join the DFC line on a steeper grade than 1 in 400, except where it is unavoidable and then only with the previous sanction of the Railway Board obtained through the Commissioner of Railway Safety when a safety arrangement is made sufficient to prevent accident. The power of condonation of gradient steeper than 1 in 600 and upto 1 in 400 shall vest with the Commissioner of Railway Safety. (b) For the purpose of the above rule, a station yard will be taken to extend : (i) On single line to a distance of 50 metres beyond outermost points at either end of the station. (ii) On double line where two aspect signalling is provided, from Home Signal to a distance of 50 metres beyond outermost points at the trailing end, or where there are no loops, to last Stop Signal of each line. (iii) On double line where multiple aspect signalling is provided, to a distance of 50 metres beyond outermost points at either end of the station or where there are no loops, from Block Section Limit Board to last Stop Signal of each line. (b) There must be no change of grades within 30 metres of any points or crossings.		

9.2 Buildings and Structures :

Clause	Items	Dimensions
9.2.1	Minimum horizontal distance of any building or longitudinal boundary from centre line of track on goods platform	9500 mm
9.2.2	Minimum horizontal distance from centre line of track to a pillar, column, lamp or similar isolated structure :	
	(i) From rail level to 725mm above rail level	4280 mm increasing uniformly to 4420 mm
	(ii) From 725mm above rail level to 7100mm above rail level	4420 mm
	(iii) From 7100mm above rail level to 8430mm above rail level	4420 mm decreasing uniformly to 4120 mm
Note : A pillar or a column which covers more than 3716 cm^2 in plan, must be classed as "building" and not as an "isolated structure".		
9.2.3	Minimum horizontal distance from centre of track to any structure :	
	(i) From rail level to 6670 mm above rail level	2825 mm
	(ii) From 6670 mm above rail level to 7100 mm above rail level	2825 mm gradually decreasing to 2710 mm
	(iii) From 7100 mm above rail level to 7965 mm above rail level	2710 mm gradually decreasing to 1925 mm and further decreasing to 1600 mm
	(iv) From 7965 mm above rail level to 8430 mm above rail level	1600 mm
	(v) Below the rail level upto the formation level of the track on straight and curves upto radius of 875 m	2575 mm
	(vi) Below the rail level upto the formation level of the track on curves with radius less than 875 m	2725 mm

9.3 Points and Crossings :

Clause	Items	Dimensions
9.3.1	Maximum clearances of check rail opposite the nose of crossing	48 mm
9.3.2	Minimum clearances of check rail opposite the nose of crossing	44 mm

Clause	Items	Dimensions
Note : In the obtuse crossing of diamond crossings, the clearance at the throat of the obtuse crossing shall be 44mm.		
9.3.3	Maximum clearances of wing rail at nose of crossing	48 mm
9.3.4	Minimum clearances of wing rail at nose of crossing	44 mm
9.3.5	Minimum clearances between toe of open switch and stock rail	115 mm
Note : The Clearances can be increased upto 160 mm in curved switches in order to obtain adequate clearances between gauge face of stock rail and back face of tongue rail.		
9.3.6	Minimum radius of curvature for slip points, turnouts or crossover roads	218 m (8 Degree)
9.3.7	Minimum angle of crossing (ordinary)	1 in 16
9.3.8	Diamond crossing not to be flatter than	1 in 8.5
9.3.9	Minimum Length of tongue rail	12000 mm
9.3.10	Minimum length of train protection, point locking or fouling treadle bar	15455 mm
Note : There must be no change of super elevation (of outer over inner rail) between points 18m outside toe of switch rail and nose of crossing respectively, except in the case of special crossings leading to snag dead ends or under circumstances as provided for in Clause 9.4.		

9.4 Curves :

Super elevation and speed in stations on curves with turnouts of contrary and similar flexure shall be as under :

9.4.1 **Main Line :** Subject to the permissible run through speed, based on the standard of interlocking, the equilibrium super elevation, calculated for the speed of the fastest train, may be reduced by a maximum amount of 75mm without reducing the speed on the mainline.

9.4.2 **Turnouts** :

(i) **Curves Of Contrary Flexure :**

The equilibrium super elevation in millimetres shall be calculated by the formula –

$$GV^2/127\ R$$

Where, R = Radius of turnout in metres

V = speed in kmph

C = Super elevation in mm

G = Gauge of track + width of rail head in mm.

The permissible negative super elevation on the turnout (which is also the actual super elevation of the main line) may then be made as (75 – C) mm.

(ii) **Curves Of Similar Flexure :**

The question of reduction or otherwise of super elevation on the mainline must necessarily be determined by the administration concerned. In the case of a reverse curve close behind the crossing of the turnouts, the super elevation may be run out at the maximum of 1 mm in 360mm.

9.5 Length Of Sidings :

Minimum Clear Available Length of one siding at any station where it is intended to cross trains :

9.5.1 Shall be the length of longest train permitted in the section plus 35 m.

9.5.2 Although it may not be necessary till traffic develops to provide sidings for the largest possible train loads, land shall be acquired for them and no building, level crossings or other obstructions shall be permitted that may interfere with one crossing siding being lengthened to the following dimensions :

(a) 750 metre in case long haul operation is not envisaged.

(b) 1500 metre in case long haul operation is envisaged.

Note : (1) Clear Available Length denotes :

(i) Distance between the foot of the signal to the Fouling Mark in the rear on the same line in case of Main Line and Directional Loop Lines at station yards.

(i) In case of Common Loop at the stations, Clear Available Length/Clear Standing Length shall be the distance between two Starter Signals of the opposite directions on the same line.

(2) Ruling gradient of Dedicated Freight Corridor is 1 in 200.

Chapter - X

Workshops, Running Sheds And Station Machinery

10.1 Water Tanks :

Clause	Items	Dimensions
10.1.1	Minimum height above rail level for discharge orifice of water tank	3660 mm
10.1.2	Distance from centre of track to face of tank house less than 60 metres beyond the end of a goods platform	11890 mm
10.1.3	Minimum height for bottom of tank above rail level at water column for washing engine	12190 mm

10.2 Distances :

Clause	Items	Dimensions
10.2.1	Minimum distance from centre to centre of tracks in Workshops and Running Sheds	6000 mm
	Note : Where there is a structure between tracks, the distance of centre to centre of tracks shall be increased by the amount of the width of structure, like O.H.E. post etc.	
10.2.2	Minimum clear distance from centre of track to any isolated structure such as pillar in Workshops and Running Sheds	2825 mm
10.2.3	Minimum clear distance, upto the height of 1830 mm above rail level, from centre of track to any continuous structure in Workshops and Running Sheds	2825 mm

10.3 Height And Depth :

10.3.1	Minimum height above rail level to overhead tie bars, girders etc. in Workshops and Running Sheds :	
	(i) Where electric traction is not likely to be used	15200 mm
	(ii) Where electric traction is likely to be used	6250 mm
10.3.2	Minimum height above rail level of doorways for a width of 1370 mm on either side of centre of track in Workshops and Running Sheds :	
	(i) Where electric traction is not likely to be used	7965 mm
	(ii) Where electric traction is likely to be used	8430 mm
10.3.3	Nominal depth for pits in Running Shed and Examination Pits	760 mm

Chapter - XI
Rolling Stock (Wagon)

11.1 Wheel :

Clause	Items	Dimensions
11.1.1	Wheel gauge, or distance apart, for all wheel flanges :	
	(i) Maximum	1602 mm
	(ii) Minimum	1599 mm
11.1.2	Diameter on the tread of new wheel :	
	(i) Maximum diameter on the tread of new wheel, measured at 63.5 mm from wheel gauge face	1092 mm
	(ii) Minimum diameter on the tread of New wheel, measured at 63.5 mm from wheel gauge face	840 mm
	(iii) Minimum diameter on the tread of Worn wheel, measured at 63.5 mm from wheel gauge face	780 mm
11.1.3	Projection for flange of wheel :	
	(i) Minimum projection for flange of New wheel, measured from tread at 63.5 mm from wheel gauge face	28.5 mm
	(ii) Minimum projection for flange of Worn wheel, measured from tread at 63.5 mm from wheel gauge face	35.0 mm
11.1.4	Thickness of flange of wheel :	
	(i) Maximum thickness of flange of wheel measured from wheel gauge face at 13mm from outer edge of flange	29.4 mm
	(ii) Minimum thickness of flange of wheel, measured from wheel gauge face at 13mm. form outer edge of flange	16 mm
11.1.5	Minimum width of wheel	127 mm
11.1.6	Incline of tread of wheel	1 in 20

11.2 Floor :

Floor height of wagons should be determined keeping in view the profile of Maximum Moving Dimension (MMD), particularly w.r.t. width of wagon at various heights.

11.3 Buffers & Couplings :

Clause	Items	Dimensions
11.3.1	Distance apart for centres of buffers	1956 mm
11.3.2	Maximum height above rail level for centres of buffers for unloaded vehicles	1105 mm
11.3.3	Minimum height above rail level for centres of buffers for fully loaded vehicles	1030 mm

11.4 Wheel Base & Length of Vehicles :

Clause	Items	Dimensions
11.4.1	Maximum rigid wheel base for four wheeled vehicles	6100 mm
11.4.2	Minimum distance apart of bogie centres for bogie vehicles	5400 mm
11.4.3	Maximum distance apart of bogie centres for bogie vehicles	17000 mm
11.4.4	Minimum rigid wheel base for bogie truck of any vehicles	1830 mm
11.4.5	Maximum length of body or roof for :	
	(i) 4-wheeled vehicle	8540 mm
	(ii) Bogie vehicle	24000 mm
Note : (i) A cornice may project beyond the maximum permissible length of the roof upto 51 mm in the case of (i) above, beyond each end of the vehicle. (ii) Fittings on the end of a vehicle, such as step iron, vacuum brake piping, electrical connections, etc. need not be kept within the prescribed maximum permissible lengths for bodies of vehicles, but may project beyond the end of body to a reasonable extent. (iii) Maximum length of bogie wagons can be upto 29000 mm subject to tapering of the ends in a manner that the Head Stock overthrow when calculated as per Appendix-II is same as that of a wagon of 24000 m length and within this Schedule of Dimensions.		
11.4.6	Maximum length over side buffers :	
	(i) 4-wheel vehicle	9810 mm
	(ii) Bogie vehicle	24960 mm
Note : In case of an option of a Bogie Wagon having a higher than 24000 mm length over headstock, the length of Bogie Vehicle over Buffers shall be incremented by the difference between the actual length over headstocks of the Bogie vehicle (over and above 24000 mm subject to a maximum of 29000) and 24000 mm.		
11.4.7	Maximum distance apart between any two adjacent axles	15000 mm

11.5 Maximum Moving Dimensions : (See Diagram No. 8 At Page No. 59)

Clause	Items	Dimensions
11.5.1	Maximum width over all projections, when fully loaded :	
11.5.1.1	At 102 mm above rail level	2600 mm
11.5.1.2	From 102 mm above rail level to 305 mm above rail level	2600 mm increasing to 3505 mm
11.5.1.3	From 305 mm above rail level to 725 mm above rail level	3505 mm
11.5.1.4	From 725 mm above rail level to 4880 mm above rail level	3660 mm
11.5.1.5	From 4880 mm above rail level to 6670 mm above rail level	3660 mm decreasing to 3000 mm
11.5.1.6	From 6670 mm above rail level to 7100 mm above rail level	3000 mm decreasing to 2600 mm
11.5.2	Maximum width over open doors, including all projections for goods vehicles upto a height of 4000 mm from rail level Note : Wagon shall be designed in such a way that open door is within the kinematic envelop of wagon and there is clearance of 225 mm between Kinematic Envelop and Fixed Structure Gauge.	4600 mm
11.5.3	Maximum height above rail level for a width of 1300 mm on either side of the centre of unloaded vehicle	7100 mm
11.5.4	Minimum height above rail level, when fully loaded at 1752.5 mm from centre of track	305 mm
11.5.4	Minimum height above rail level when fully loaded for a width of 1300 mm on either side of the centre of track with exception of wheels and attachment thereto. Note : A wheel or an attachment of a wheel (such as gear case) may project below the minimum height of 100 mm from a distance of 400mm inside to 216mm outside of the gauge face of the wheel. However, the minimum height of the attachment located at a distance beyond 51mm and upto 400mm inside the gauge face of the wheel shall be 75mm from rail level.	100 mm

Note :
1. MMD of Eastern Corridor (Diagram No. 4) shall also be valid & applicable on Western Corridor of Dedicated Freight Corridor, as shown in Diagram No. 9.
2. Wagon should be designed to operate on Feeder Routes also including their platform lines till such time the feeder routes are upgraded to the dimensions of SSOD for DFC.

Chapter - XII

Rolling Stock (Electric Locomotive)

12.1 Wheels and Axles :

Clause	Items	Dimensions
12.1.1	Wheel gauge or distance apart for wheel flanges :	
	(i) Wheel with thick flanges/wear adopted wheel profile	1596 mm
	(ii) Wheels with standard flanges	1600 mm
	(iii) Wheels with thin flanges	1600 mm
	(iv) Wheels without flanges	1600 mm
12.1.2	Diameter on the tread of wheel :	
	(i) Maximum dia. on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face	1250 mm
	(ii) Minimum dia. on the tread of New locomotive carrying wheels measured at 63.5 mm from wheel gauge face	840 mm
	(iii) Minimum diameter on the tread of Worn wheel, measured at 63.5 mm from wheel gauge face	780 mm
12.1.3	Projection for flange of tyre :	
	(i) Minimum projection for flange of new tyre, measured from tread at 63.5 mm from wheel gauge face	28.5 mm
	(ii) Maximum projection for flange of worn tyre, measured from tread at 63.5 mm from wheel gauge face	35 mm
12.1.4	Maximum thickness of tyre flanges measured at 13 mm from outer edge of flange :	
	(i) Thick flanges/wear adopted wheel profile	32 mm
	(ii) Standard flanges	28 mm
	(iii) Thin flanges	18 mm
12.1.5	Minimum width of tyres :	
	(i) Locomotive coupled wheels	133 mm
	(ii) Locomotive wheels other than coupled	127 mm

Clause	Items	Dimensions
12.1.6	Incline of tread	1 in 20 for all profiles except wear adopted profile for which the tread inclination of 1 in 20 will merge with radii of the wear adopted profile.

12.2 Buffers & Couplings :

Clause	Items	Dimensions
12.2.1	Distance apart for centres of buffers	1956 mm
12.2.2	Maximum height above rail level for centres of buffers for empty locomotive	1105 mm
12.2.3	Minimum height above rail level for centres of buffers under worst condition of lowest wheel diameter and serviceable suspension springs.	1030 mm

12.3 Floor :

Clause	Items	Dimensions
12.3.1	Maximum height above rail level for floor of any unloaded vehicle	1345 mm
12.3.2	Minimum height above rail level for floor of vehicle	725 mm

12.4 Length of Vehicles :

Clause	Items	Dimensions
12.4.1	Maximum length of body or roof for Bogie vehicle	24000 mm
12.4.2	Maximum length over side buffers for Bogie vehicle	24960 mm
12.4.3	Maximum distance apart between any two adjacent axles	15000 mm

12.5 Maximum Moving Dimensions : (See Diagram No. 8 At Page No. 59)

Clause	Items	Dimensions
12.5.1	Maximum width over all projections, when fully loaded :	
12.5.1.1	At 102 mm above rail level	2600 mm

Clause	Items	Dimensions
12.5.1.2	From 102 mm above rail level to 305 mm above rail level	2600 mm increasing to 3505 mm
12.5.1.3	From 305 mm above rail level to 725 mm above rail level	3505 mm
12.5.1.4	From 725 mm above rail level to 4880 mm above rail level	3660 mm
12.5.1.5	From 4880 mm above rail level to 6670 mm above rail level	3660 mm decreasing to 3000 mm
12.5.1.6	From 6670 mm above rail level to 7100 mm above rail level	3000 mm decreasing to 2600 mm
12.5.2	Maximum height above rail level for a width of 1300 mm on either side of the centre of unloaded vehicle	7100 mm
12.5.3	Minimum height above rail level, when fully loaded at 1752.5 mm from centre of track	305 mm
12.5.4	Minimum height above rail level when fully loaded for a width of 1300 mm on either side of the centre of track with exception of wheels and attachment thereto. Note : A wheel or an attachment of a wheel (such as gear case) may project below the minimum height of 100 mm from a distance of 400mm inside to 216mm outside of the gauge face of the wheel. However, the minimum height of the attachment located at a distance beyond 51mm and upto 400mm inside the gauge face of the wheel shall be 75mm from rail level.	100 mm

Note : Locomotives should be designed to operate on Feeder Routes also including their platform lines till such time the feeder routes are upgraded to the dimensions of SSOD for DFC.

Chapter - XIII

Rolling Stock (Diesel Locomotive)

13.1 Wheels and Axles :

Clause	Items	Dimensions
13.1.1	Wheel gauge or distance apart for wheel flanges :	
	(i) Wheel with thick flanges/wear adopted wheel profile	1596 mm
	(ii) Wheels with standard flanges	1600 mm
	(iii) Wheels with thin flanges	1600 mm
	(iv) Wheels without flanges	1600 mm
13.1.2	Diameter on the tread of wheel :	
	(i) Maximum dia. on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face	1097mm
	(ii) Minimum dia. on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face	914mm
13.1.3	Projection for flange of tyre :	
	(i) Minimum projection for flange of new tyre, measured from tread at 63.5 mm from wheel gauge face	28.5 mm
	(ii) Maximum projection for flange of worn tyre, measured from tread at 63.5 mm from wheel gauge face	35 mm
13.1.4	Maximum and minimum thickness of tyre flanges measured at 13 mm from outer edge of flange :	
	(i) Thick flanges/wear adopted wheel profile	32 mm
	(ii) Standard flanges	28 mm
	(iii) Thin flanges	18 mm
	Note : (i) The above values of flange thickness are measured from the back face of tyre. (ii) Minimum size of flange of locomotive tyre shall be determined by condemning profile gauge, which specifies minimum thickness and limits of angularity of flange on the gauge face.	
13.1.5	Minimum width of tyres :	
	(i) Locomotive coupled wheels	133 mm
	(ii) Locomotive wheels other than coupled	127 mm
13.1.6	Incline of tread	1 in 20 for all profiles except wear adopted profile for which the tread inclination of 1 in 20 will merge with radii of the wear adopted profile.

13.2 Buffers & Couplings :

Clause	Items	Dimensions
13.2.1	Distance apart for centres of buffers	1956 mm
13.2.2	Maximum height above rail level for centres of buffers for empty locomotive	1105 mm
13.2.3	Minimum height above rail level for centres of buffers when fully loaded	1030 mm

13.3 Floor :

Clause	Items	Dimensions
13.3.1	Maximum height above rail level for floor of any unloaded vehicle	1850 mm
13.3.2	Minimum height above rail level for floor of fully loaded vehicle	725 mm

13.4 Length of Vehicles :

Clause	Items	Dimensions
13.4.1	Maximum length of body or roof for	
	(i) 4-wheeled vehicle	8540 mm
	(ii) Bogie vehicle	24000 mm
13.4.2	Maximum length over side buffers for Bogie vehicle	24960 mm
	(i) 4-wheeled vehicle	9810 mm
	(ii) Bogie vehicle	24960 mm
13.4.3	Maximum distance apart between any two adjacent axles	15000 mm

13.5 Maximum Moving Dimensions : (See Diagram No. 8 At Page No. 59)

Clause	Items	Dimensions
13.5.1	Maximum width over all projections, when fully loaded :	
13.5.1.1	At 102 mm above rail level	2600 mm

Clause	Items	Dimensions
13.5.1.2	From 102 mm above rail level to 305 mm above rail level	2600 mm increasing to 3505 mm
13.5.1.3	From 305 mm above rail level to 725 mm above rail level	3505 mm
13.5.1.4	From 725 mm above rail level to 4880 mm above rail level	3660 mm
13.5.1.5	From 4880 mm above rail level to 6670 mm above rail level	3660 mm decreasing to 3000 mm
13.5.1.6	From 6670 mm above rail level to 7100 mm above rail level	3000 mm decreasing to 2600 mm
13.5.2	Maximum height above rail level for a width of 1300 mm on either side of the centre of unloaded vehicle	7100 mm
13.5.3	Minimum height above rail level, when fully loaded at 1752.5 mm from centre of track	305 mm
13.5.4	Minimum height above rail level when fully loaded for a width of 1300 mm on either side of the centre of track with exception of wheels and attachment thereto. Note : A wheel or an attachment of a wheel (such as gear case) may project below the minimum height of 100 mm from a distance of 400mm inside to 216mm outside of the gauge face of the wheel. However, the minimum height of the attachment located at a distance beyond 51mm and upto 400mm inside the gauge face of the wheel shall be 75mm from rail level.	100 mm

Note : Locomotives should be designed to operate on Feeder Routes also including their platform lines till such time the feeder routes are upgraded to the dimensions of SSOD for DFC.

Chapter - XIV

Electric Traction

2x25 kV A.C. 50 Cycles

Note : Whenever electric traction is in use, special precaution shall be taken in accordance with provisions made for all open lines of DFCC.

14.1 Electrical Clearances :

Clause	Items	Dimensions
14.1.1	Vertical and lateral distance between 25 kV live parts and earthed parts of fixed structures or moving loads shall be as large as possible. The minimum electrical clearances to be maintained under worst conditions of temperature, wind etc. between any live part of the overhead equipment of pantograph and parts of any fixed structures (earthed or otherwise) or moving loads shall be as follows :	
	(i) Long Duration	250 mm
	(ii) Short Duration	200 mm
Note :	A minimum vertical distance of 270 mm shall normally be provided between rolling stock and contact wire to allow for a 20 mm temporary raising of tracks during maintenance.	
14.1.2	Minimum height of contact wire from rail level to the underside of live conductor under bridge, in tunnels, in the open, at level crossing and in Running Sheds	7470 mm

Note : (a) The minimum height of contact wire has been derived on the assumption that standard maximum moving dimension of stock of height 7100 mm should be able to work on all sections electrified at 25 kV A.C. traction with live traction overhead equipment.

Items	Normal Clearance
• Height of the Stock	7100 mm
• Minimum clearance to contact wire	250 mm
• Allowance for track maintenance	20 mm
• Oscillation	100 mm
• Contact wire height	7470 mm

(b) Based upon minimum height of contact wire, maximum height of the Over Dimensional Consignment which can be permitted without any speed restriction is derived as under :

Minimum height of the contact wire	7470 mm
Less :	
(i) Minimum electrical clearance	200 mm
(ii) Track allowance	20 mm

(iii) Allowance for vertical oscillation of contact wire under influence of moving pantographs	100 mm
(iv) Total Clearances :	320 mm
Maximum height of Over Dimensional Consignment	7150 mm

Thus, permissible maximum height of Over Dimensional Consignment I shall be 7.15 m in a section, without any speed restriction.

(c) For movement of ODC, height of contact wire specified above in Para 14.1.2, i.e. 7470 mm shall be increased by the difference in the height of the ODC & 7100mm. In case, such an ODC is moved at a speed not exceeding 15 kmph and is also escorted by authorized railway staff, the derived height of contact wire may be reduced by 50mm.

(d) On curves, all vertical distances specified above shall be measured above the level of the inner rail, increased by half the super elevation.

(e) Suitable prescribed gradient, i.e. 3mm/m on the height of contact wire shall be provided for connecting these wires installed at different heights.

14.2 Pantograph :

Clause	Items	Dimensions
14.2	Maximum width of pantograph collector	2030 mm

Appendix-II

Note :

a) The extra vertical clearance in case of curves shall be worked out as under :

$$\text{Extra Vertical Clearance (mm)} = \frac{\text{Width (mm) as per MMD}}{\text{Dynamic Gauge (1750mm)}} \times \text{Super-elevation (mm)}$$

This extra vertical clearance would be with respect to inner rail of the curve.

b) Where there is a structure between tracks, the extra clearance to be provided must be according to Columns 5 to 11 instead of Column 12.

c) In the Table of Annexure-2 (Page 55), the maximum permissible speed and corresponding super-elevation are indicated and the required lateral clearances based on these super-elevations have been given.

Note for Extra Clearance on Curves :

1. As there is no provision of Platform for DFC, hence no clearances have been prescribed for platform at station.

2. Allowance to be made :

2.1 The additional clearance to be given on the inside of a curve must include the effect of curvature, the lean due to super elevation and an allowance for any additional sway of the vehicle over that already provided for in the clearance on straight track.

2.2 The additional clearance to be given on the outside of a curve must allow for the effect of curvature.

2.3 Additional sway or lurch due to curve can be considered as fully counteracted by the inward lean of the vehicle due to super elevation.

3. Allowance for Curvature : The allowance for curvature for a vehicle 24000 mm long, the clearance of 17000 mm between bogie centre shall be calculated as under :

At the centre of vehicle :

$$V = \frac{17.00 \times 17.00 \times 1000}{8R} = \frac{36125}{R} \text{ mm}$$

At the end of vehicle :

$$Vo = \frac{24.00 \times 24.00 \times 1000}{8R} - \frac{36125}{R} = \frac{35875}{R} \text{ mm}$$

Where, R is the radius of the curve in metres.

4. Allowance for Super-elevation : The lean due to super elevation at any point at height `h' above rail level is given by :

$$L = \frac{h}{g} \times S$$

Where, S is the super elevation and g is the gauge of the track.

5. Allowance for additional sway on curves :

The provision for additional lurch and sway on the inside of a curve has been adopted, namely one-fourth of the lean due to super-elevation. No provision has been made for additional sway due to a curve in the outward direction for reasons already given in Para 2 above.

6. The total additional clearance to be provided is :

(i) On the inside of a curve -

$$V + \frac{5}{4} L$$

Where, L is the lean in millimetres

(ii) On the outside of a curve -

Vo

7. Clearance from adjacent structure on the inside of a curve : For obtaining the figures given in Columns 5 to 9, formula (i) of Para 6 above has been used.

8. Clearance from adjacent structures on the outside of a curve : For Column 10, formula (ii) of Para 6 above has been used.

9. Extra clearance between adjacent tracks : The worst case will be when the end of a bogie carriage on the inner track is opposite the centre of a similar carriage on the outer track. Nothing is allowed for super-elevation, it being assumed that both tracks will be inclined by the same amount.

Though there are cases where a different super-elevation is provided on each track, the distance allowed between centres of tracks gives a sufficient margin of safety to permit for this being omitted from consideration.

The formula used for Column 11 is :

$$V + Vo + \frac{2L}{4}$$

And, as the height adopted for the value of h in calculating L is 5500 mm, the above, therefore, reduces to (V + Vo + S).

10. Extra clearances for the speeds specified above are shown in the Annexure-2.

Annexure-2

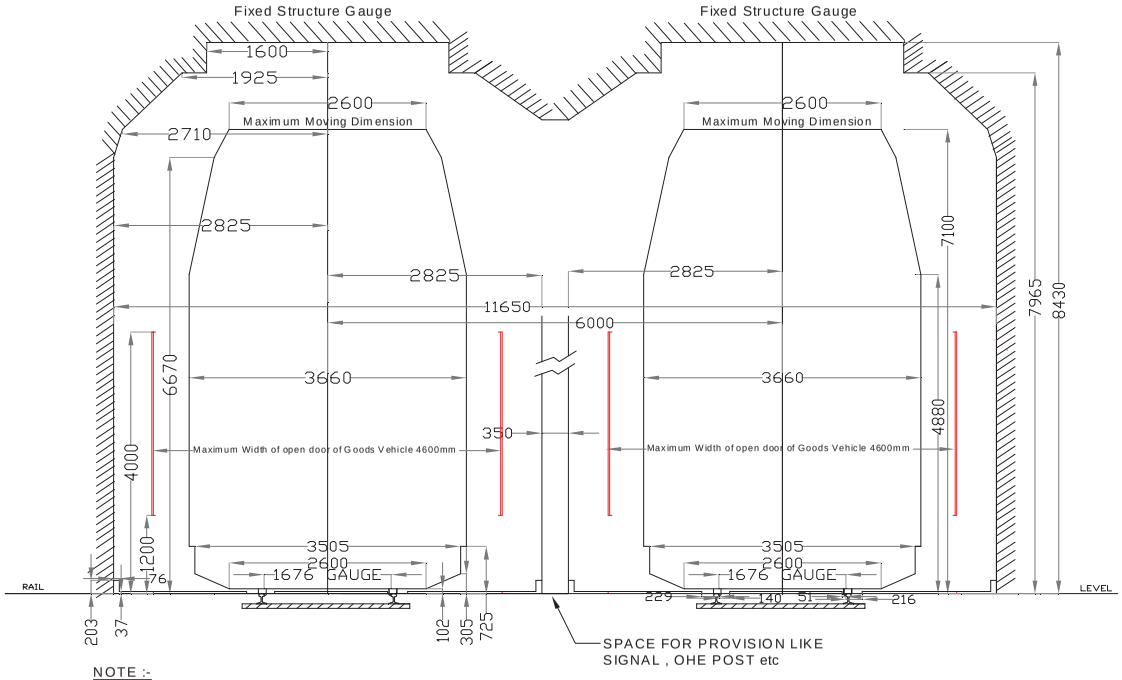
STANDARD SCHEDULE OF DIMENSIONS FOR DFC : 1676 mm GAUGE

Extra Lateral Clearances On Curves : Western Corridor Of DFC

Degree Of Curvature	Radius Of Curve	Maximum Permissible Speed	Super Elevation	Extra Lateral Clearance Between Structure And Adjacent Track {When There Is A Structure Between Tracks}							Extra Lateral Clearance Between Adjacent Track When There Is No Structure Between Tracks
				Inside Of Curve						Outside Of Curve {For Any Height}	
				Upto 725 mm above rail level	From 725 mm to 1345 mm above rail level	From 1345 mm to 4880 mm above rail level	From 4880 mm to 7100 mm above rail level	From 7100 mm to 8050 mm above rail level	From 8050 mm to 8430 mm above rail level		
Degree	Metre	Kmph	mm	mm	mm	mm	mm	mm	mm	mm	mm
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1	1750	110	20	31	41	93	126	140	145	21	61
1.5	1167	110	67	67	98	276	387	435	454	31	129
2	875	110	115	103	156	459	649	730	762	41	197
3	583	96	140	138	202	572	803	903	942	62	263
4	438	83	140	158	223	592	824	923	963	82	304
5	350	74	140	179	244	613	845	944	983	103	346
6	292	68	140	199	264	633	865	964	1004	123	387
7	250	63	140	220	285	654	886	985	1025	144	428
8	219	59	140	241	305	675	906	1005	1045	164	469
9	194	55	140	262	327	696	928	1027	1066	185	511
10	175	52	140	282	347	716	948	1047	1087	205	551

DIAGRAM No. - 5
1676mm GAUGE

MMD AND FIXED STRUCTURE GAUGE FOR TUNNLE AND THROUGH GIRDER BRIDGES TO SUIT 2x25 Kv AC TRACTION



NOTE :-

(i) ALL DIMENSIONS ARE IN MILIMETRES EXCEPT WHERE OTHERWISE SHOWN.

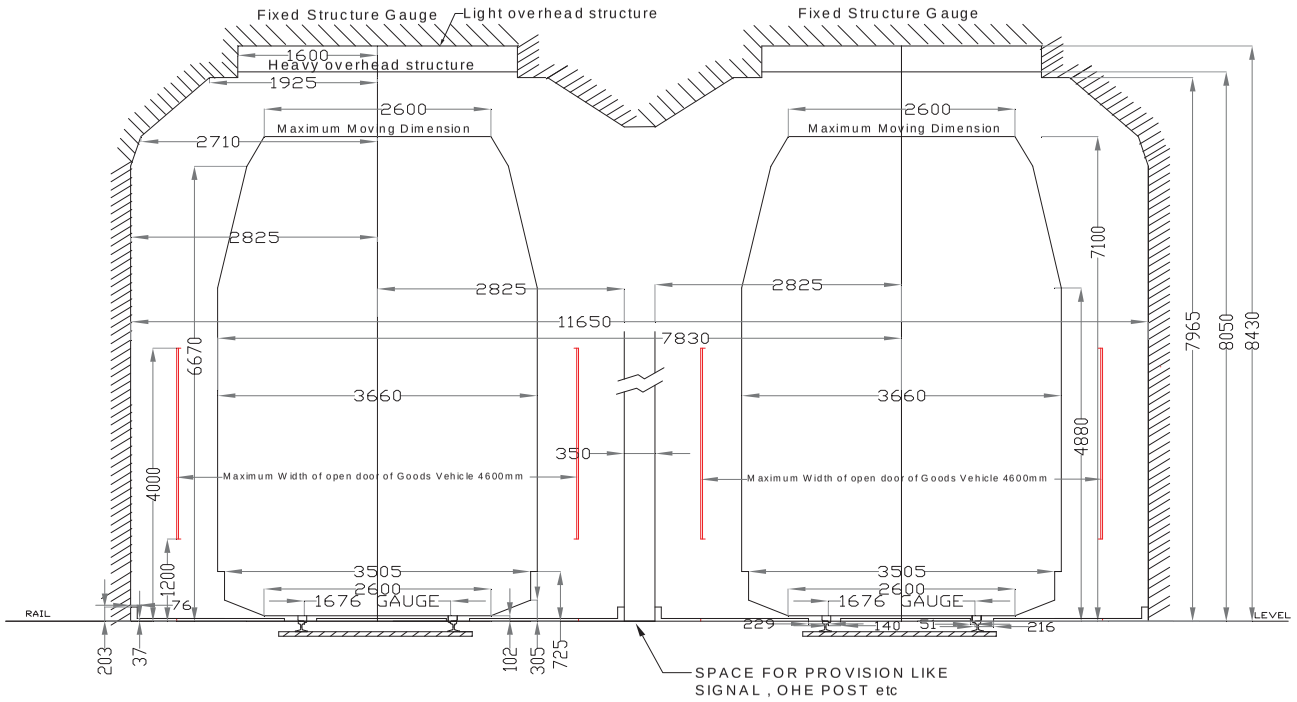
(ii) IF SPACE OF 580mm PROVIDED BETWEEN CENTRES OF TRACK FOR PLACEMENT OF SIGNAL POST THEN MINIMUM DISTANCE BETWEEN CENTRE TO CENTRE OF TRACK SHALL BE 6250mm. THEREFORE OVERALL WIDTH WILL BE 11650+250 = 11900mm.

(iii) NECESSARY PROVISION SHOULD BE MADE IN OVERHEAD STRUCTURES AND OVERHEAD EQUIPMENT TO PRMIT POSSIBLE RAISING OF TRACK BY 275mm IN FUTURE TO CATER TO INCREASED HEIGHT OF TRACK STRUCTURE AND OTHER UNFORESEEN FACTORS SUCH AS RE-GRADING etc. .THEREFORE OVERALL HEIGHT ABOVE RAIL HEIGHT WIL BE 8705mm INSTEAD OF 8430mm.

(iV) WHERE THE LINE IS ON CURVE, THE HORIZONTAL DISTANCE OF ANY STRUCTURE FROM THE CENTRE OF ADJACENT TRACK AND THE DISTANCE BETWEEN CENTRES OF TRACKS ARE TO BE INCREASED ACCORDING TO THE APPENDIX-II.

DIAGRAM No. - 6
1676mm GAUGE

MMD AND FIXED STRUCTURE GAUGE FOR OUT OF STATION TO SUIT 2x25 Kv AC TRACTION
CHAPTER - I



NOTE :-

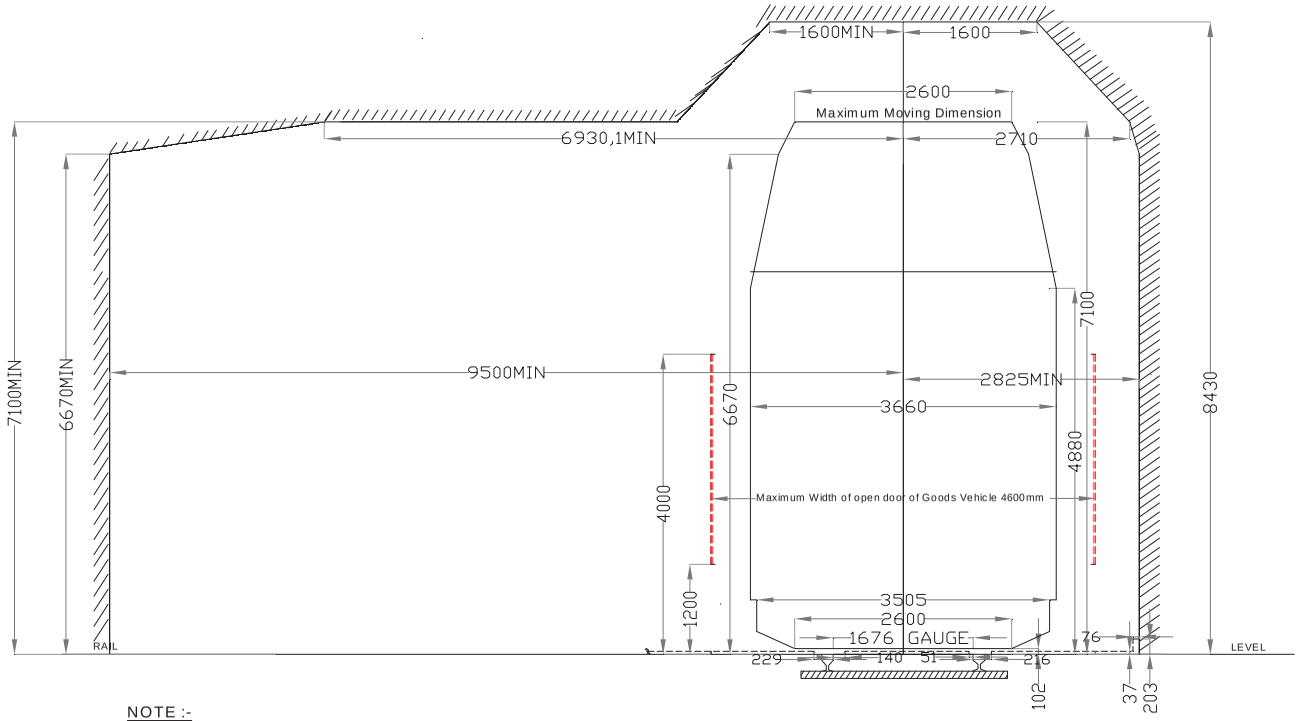
(i) ALL DIMENSIONS ARE IN MILIMETRES EXCEPT WHERE OTHERWISE SHOWN.

(ii) IF SPACE OF 580mm PROVIDED BETWEEN CENTRES OF TRACK FOR PLACEMENT OF SIGNAL POST THEN MINIMUM DISTANCE BETWEEN CENTRE TO CENTRE OF TRACK SHALL BE 6250mm. THEREFORE OVERALL WIDTH WILL BE 11650+250 = 11900mm.

(iii) NECESSARY PROVISION SHOULD BE MADE IN OVERHEAD STRUCTURES AND OVERHEAD EQUIPMENT TO PERMIT POSSIBLE RAISING OF TRACK BY 275mm IN FUTURE TO CATER TO INCREASED HEIGHT OF TRACK STRUCTURE AND OTHER UNFORESEEN FACTORS SUCH AS RE-GRADING etc.THEREFORE OVERALL HEIGHT ABOVE RAIL LEVEL WILL BE 8705mm INSTEAD OF 8430mm IN CASE OF LIGHT OVERHEAD STRUCTURE AND 8325mm INSTEAD OF 8050mm IN CASE OF HEAVY OVERHEAD STRUCTURE.

DIAGRAM No. - 7
1676mm GAUGE

STANDARD DIMENSIONS IN STATIONS
TO SUIT 25 KV. AC. TRACTION
CHAPTER IX



NOTE :-

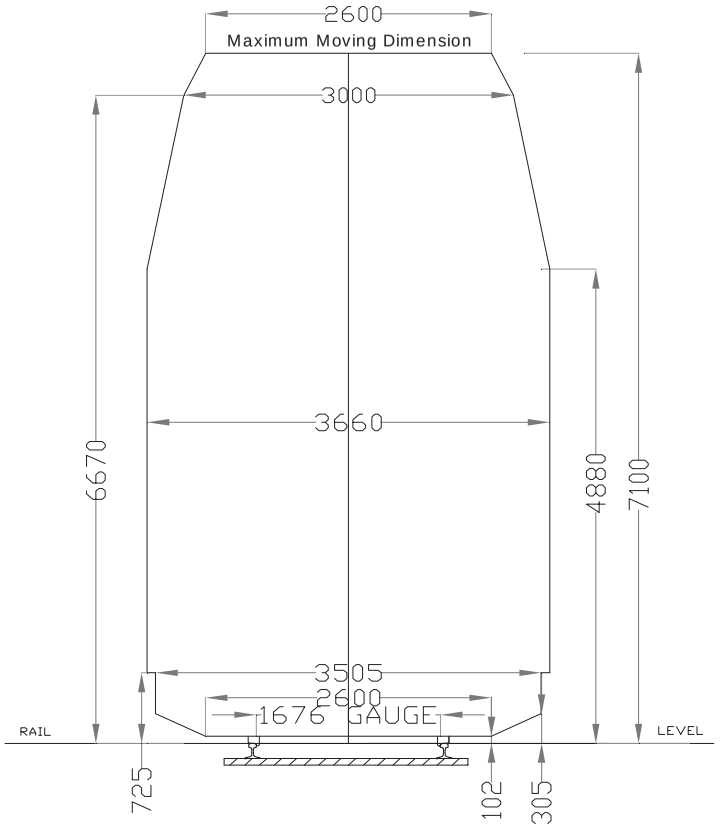
(i) ALL DIMENSIONS ARE IN MILIMETRES EXCEPT WHERE OTHERWISE SHOWN.

(ii) NECESSARY PROVISION SHOULD BE MADE IN OVERHEAD STRUCTURES AND OVERHEAD EQUIPMENT TO PRMIT POSSIBLE RAISING OF TRACK BY 275mm IN FUTURE TO CATER TO INCREASED HEIGHT OF TRACK STRUCTURE AND OTHER UNFORESEEN FACTORS SUCH AS RE-GRADING etc .THEREFORE OVERALL HEIGHT ABOVE RAIL HEIGHTWILL BE 8705mm INSTEAD OF 8430mm.

(iii) WHERE THE LINE IS ON CURVE, THE HORIZONTAL DISTANCE OF ANY STRUCTURE FROM THE CENTRE OF ADJACENT TRACK AND THE DISTANCE BETWEEN CENTRES OF TRACKS ARE TO BE INCREASED ACCORDING TO THE APPENDIX-II.

DIAGRAM No. - 8
1676mm GAUGE

MMD OF DFC FOR WESTERN CORRIDOR



NOTE :-

ALL DIMENSIONS ARE IN MILIMETERES
EXCEPT WHERE OTHERWISE SHOWN.

DIAGRAM No. - 9
1676mm GAUGE

FIXED STRUCTURE GAUGE OF WESTERN DFC TO SUIT MMD OF WESTERN AS WELL AS EASTERN DFC