

Layout of Coaching Depot

By
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Introduction

Railways are made up of complex mechanical and electrical systems and there hundreds of thousands of moving parts. If a railway service is not to be reliable, the equipment must be kept in good working order and regular maintenance is the essential ingredient to achieve this. A railway will not survive for long as a viable operation if it is allowed to deteriorate because of lack of maintenance.

Introduction

Layout shows the general arrangement of infrastructure, machines and other equipments used in the depot for maintenance and repair work. Systematic planning of space, Machinery, Tools & Plants etc. To handle the given work load and achieving optimum efficiency from available resources is the basic purpose of optimum “Layout”.

Classification of Coaching Depot

1. Depot classification is dependent upon the number of based coaches.

- Upto 100 coaches- Minor Depot
- 100 to 250 coaches- Medium Depot
- Above 250 coaches- Major Depot

2. **Base Coaches:-** It means coaches utilised in primary maintained trains. However for designing coaching depot layout, effective base holding is equal to the sum of primary based coaches plus half of the secondary coaches.

3. **Number of trains for maintenance:-** It includes primary base train, secondary maintenance and train returning from yard/platform etc.

4. **Type of Stock:-** Additional/specific facilities required for newer stock like LHB etc.

5. **Level of mechanisation required:-** Mechanised cleaning will high pressure jet cleaning machines, vacuum cleaner, scrubbers etc.
6. Statutory requirements regarding environmental conservation, pollution control, desired level of lighting etc.
7. Material handling and movement of material.
8. Safety of staff.
9. **Reduction in maintenance time-** provision of EOT cranes, jacks, construction of washing lines to encourage on line fitment.

A. No of Line:

- In Sick Line:- The design should be based on 4% of the based coaches. Max. Number of coaches to be placed per line should be limited to 4.

$$\text{No. of lines} = 4\% \text{ of based coaches} / 4$$

- Washing line:- Normally two primary & one secondary train can be planned for maintenance on washing line in 24 hrs.

$$\text{No. of washing line} = \text{No. of trains} / 3$$

B. Covered Accommodation on Sick Line:- It should be sufficient to hold 4% of the base coaches.

C. Bay Width:

- Sick Line:- Each bay should 15 metre wide & should cover two lines. The track centre should be 7.5 metre apart.
- Washing Line:- the track centre should be 6922 mm.

D. Examination Pits

- On Sick Line:- It should be provided on half of entire length of the each line. The depth should not be less than 930 mm from the rail top.
- Washing Line:- It should be provided on entire length of washing line. It should be 960 mm deep and 1223 mm wide. The width of the rail bed should be 950 mm.

The examination pit should be provided with cat walk on either side. The middle & side catwalk should be 3272 mm and 1786 mm respectively. The thickness of catwalk should be 120 mm. The gap between coach body & catwalk should be 200 mm & height of the catwalk should be 1880 mm from the ground floor. The catwalk should be RCC.

E. Access through road and rail:- An essential feature of any depot is good access, both road and rail.

F. Lighting:- The light should be sufficient to create the day like situation even in night so that the work can be handled smoothly. The overhead, side pit & trolley mounted lights should be provided.

G. Flooring

- Sick Line:- The entire covered area & pathway should be paved with minimum 150 mm thick reinforced concrete or hardonite flooring. For whit jacks 1.25 metre wide & 300 mm thick RCC slabs should be provided on either side of the track. All the heavy duty rooms should be provided 150 mm thick RCC flooring and in other cases 40 mm thick can be provided.
- On washing line:- The floor should be 40 mm thick RCC.

H. Work benches & Office Accommodation:-

Keeping the space constraints, double story building are preferable and for better supervision of work place from first floor.

I. Communication Facilities:- All modern communication facilities i.e. Rly Phone, P&T phones, fax, computers, Walkie-Talkie should be provided.

J. Material Handling Facilities:- Trucks, listers, fork lifters etc. should be provided. For this, the road connectivity is must.

K. Statutory Requirements:- The various provisions of Factory Act, pollution control, quality control etc. should be kept in view. The some of the provision are Tiffin/canteen room, rest room, toilet, garbage disposal, fire fighting arrangement, effluent treatment, proper lighting, energy conservation etc.

L. Wheel Lathe:- Major depot are equipped with a wheel profiling facility known as a wheel lathe.

M. Machinery & Plants:-List of M&P are given below.

Description	Depot		
	Minor	Medium	Major
U/floor lathe	-	-	1
Whiting Jacks (5 tones)	-	1 set	1 set
EOT crane 20 T	-	-	1
Coach Shunter	-	1	2
Welding Plant	1	2	4
Gas cutting Equipment	1	2	2
Air Compressor 350 cfm	1	2	2
Portable air compressor	-	-	1
2 t tram beam hoist	1	1	2
Sewing machine	-	1	1
Truck 10 T	-	-	1
Light Coml. Vehicle	1	1	1

Description	Depot		
	Minor	Medium	Major
Fork Lift Truck	-	-	1
Lister Truck	-	1	2
Car Washer	-	1	1
Portable Trolley Light	2	4	6
Wood Cutting saw machine	-	1	1
Hand Shearing m/c	-	1	1
Portable Furnace	1	1	2
Centre Lathe	-	-	1
Bogie Manipulator	-	-	1
Tool Post Grinder	-	1	1

Description	Depot		
	Minor	Medium	Major
Pneumatic hand tools			
Grinder	1	1	2
Drill	1	1	2
Chipper buster	-	1	2
Riveter	-	-	1
Electric Power Tools			
Pop Riveting gun	-	1	1
Drill	-	1	1
Torque Wrench	-	-	1
Hand Tools	As Required		

Description	Depot		
	Minor	Medium	Major
DV test bench	-	1	1
Air Brake Single test Rig	1	1	1
Rake Test Rig	1	1	1
Computer System	1	1	1
Plain Paper Copier	1	1	2
Telefax	-	1	1

For Washing Line- air compressor, battery charges, incinerator, lister truck, jacks, welding plants, material handling equipment should be planed.

GF Accomodation -

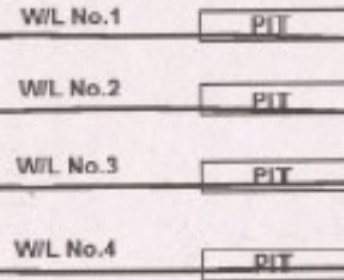
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|---|--|
| 1. M&P Repair Cell | 8. Machine Shop |
| 2. Tool Room | 9. Carp. Room |
| 3. Jack Room | 10. Trimming Section |
| 4. SiL - Sub Store | 11. Painting Section |
| 5. DV Repair Shop | 12. OHT Repair Section |
| 6. SAB Repair FF Shop | 13. Welding Transformer/Generator Room |
| 7. Bk. Cyll. & Bk. Gear Component Test Room | |

FF Accomodation :-

- | | |
|-------------------|-----------------------------|
| 1. CDO Office | 5. Establishment Cell |
| 2. Computer Cell | 6. Model Room |
| 3. SSE/SL Office | 7. Conference cum Demo Room |
| 4. Technical Cell | |

SICK LINE OFFICES & TRAINING ROOMS

SICK LINE TEST BENCHES & REPAIR CELLS



COVERED SHED

PIT WHEEL LATHE SHED

Wheel Parking Line

Shunting / Transfer Line

Double Storey W/Line Offices, Testrooms, Sub-Store & Working Station Complex

Efficient Treatment Plant cum Water Recycling Plant

- W/L No.1
- W/L No.2
- W/L No.3
- W/L No.4
- W/L No.5
- W/L No.6

Automatic Train Wash System

Automatic Train Wash System

Incinerator **Bottle Crushing Plant**

FIRE FIGHTING ARRANGEMENT

W/L Office Complex :

- GF Accomodation -**
- | | |
|----------------------|-----------------------|
| 1. Staff Tiffin Room | 6. Millwright Section |
| 2. Staff Change Room | 7. Linen Store |
| 3. Main Store | 8. Painting Section |
| 4. W/L - Sub Store | 9. Carpentry Section |
| 5. Tool Room | 10. Trimming Section |

- FF Accomodation -**
- | | |
|----------------------------|------------------|
| 1. Shift Supervisor's Room | 2. Computer Cell |
| 3. Technical Cell | 4. SSE/WL Office |

THANKS