

# **DEMU COACH BODY**

## **THE SALIENT FEATURES OF HHP DEMU COACHES:**

- A **DEMU coach** consists of **Side wall, End wall, Roof and under frame** is of corten steel just like **ICF Coach** where as trough floor is made up of stainless steel.
- Since coach body is made up of corten steel and stainless steel, they are more corrosion resistant.
- Furnishing material such as LP panels, FRP windows, Rexene, cushioning material, PVC, etc. are all have fire retardant characteristics.
- The coaches are fitted with Control Discharge Toilet system in lavatories which prevents disposal of human waste near station/yard. Now **BIO-TOILET** introduced instead of **CDTS**
- Generally two toilets are provided in a TC placed diagonally opposite side at both ends except the TC having vendor compartment, which has only one toilet. There is no toilet in DPC.
- Length over headstock: 21417 mm
- Seating capacity per coach: **DPC = 48** and **TC = 96**

## **CONSTRUCTION:**

The construction of railway coaching stock may broadly be classified into three major areas, viz.

1. Shell or the skeleton part,
2. Furnishing including Safety & amenity Fittings and
3. Bogie & running gear.

## **SALIENT FEATURES OF SHELL / BODY:**

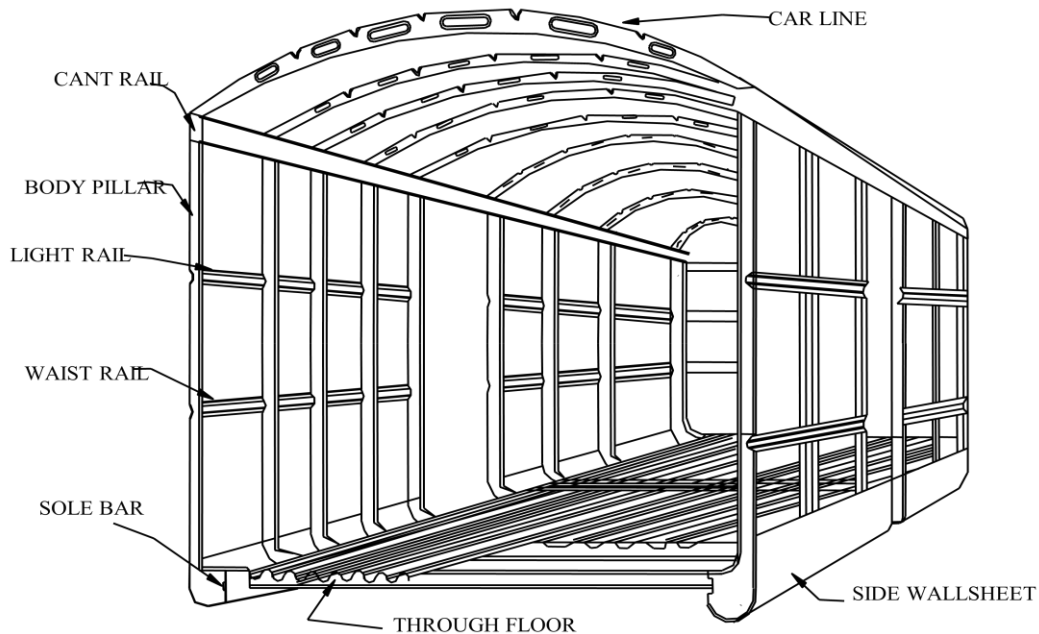
- All metal, All welded
- Integral design, skin stressed
- Light weight
- Anti-telescopic
- Better bogie design
- Reduced fire hazard

## **CONSTRUCTION OF COACH BODY SHELL:**

The integral shell is made of a framework of series of hoops, consisting of floor crossbeams, body side pillars and roof carlines located transversely at regular intervals, to suit door and window openings. These hoops are connected together by sole bars, waist rails, light rails, cant rails and carlines longitudinally. This frame work is sheathed all over by 2 mm thick Corten steel (IRS-M-41) on the side walls and 1.6 mm thick Corten steel on the roof.

At the bottom, 2-mm thick stainless steel corrugated trough floor is provided between the sole-bars and running over the length between the head stocks of underframe. The whole forms a tubular shell of integral construction in which the sides and roof panels also share the load.

The corrugated trough floor with its corrugations running longitudinally from one head stock to the other takes up the buffing loads.



**(Cross sectional view of shell)**

End wall consists of four vertical pillars of box section connected transversely by 'Z' sections and are welded to the head stock at the bottom and to the roof at the top. The head stock of integral coaches consists of outer and inner head stocks connected by two rigid centre buffer stiffeners, and accommodation for *SCHAKU* coupler which transmits all the buffing forces to the under frame structure.

## **DESIGN & CONSTRUCTIONAL FEATURES OF SHELL:**

### **ANTI TELESCOPIC–**

- End wall box structure to absorb major portion of the collision energy
- Destructive tubular structure is added between Trough floor and head stock to have a comparatively weaker section.
- Trough floor made of corrugated sheet to absorb a large portion of buffing forces.

### **INTEGRAL SHELL:**

- Tare & pay load are equally distributed over the body shell.
- Weight of the shell is distributed over the entire periphery of the shell.

- Weight of the extra flooring & payload is carried by the floor & lower portion of the side wall.
- Horizontal squeeze load at the buffer centre line taken by the trough floor & side longitudinal.
- Shell treated as **thin walled hollow girder.**

#### **FURNISHING MATERIALS:**

- Furnishing materials in a coach have changed considerably over the years. Plastics, FRP and various other synthetic materials have been introduced which are light in weight and require less maintenance and give better aesthetics.

#### **INTERIOR FITTINGS:**

- Interior fittings are the fittings inside the coach consisting of panels, seats, windows, lights, fans, sanitary fittings etc. All coaching stock shall be furnished according to the standards laid down by the Railways/RDSO for the various types and classes of vehicles in service.

#### **ROOF PANELLING SHEET:**

- 2 mm thick Limpet asbestos sheet to RDSO specification No. C 8105 (Rev. 1) is the material used for Roof panels.

#### **SIDE WALL PANELLING:**

- Thermosetting synthetic resin bonded decorative laminated plastic sheets (LP sheets) of 3 mm thickness to RDSO's specification no. C-9602 is used for side wall panelling.

**UPGRADED SPECIFICATION** - Fire Retardant Decorative Thermosetting resin Bonded LP Sheet to specification no. C-8914.

#### ***FLOOR:***

- The flooring in the coaches will consist of a 12mm Compreg floor board covered with PVC sheet.
- PVC Flooring - 2mm thick homogeneous Vinyl Flooring, preferably, in roll form to RDSO specification No. C-8515 (Rev.2).

**UPGRADED SPECIFICATION-** RDSO/2006/CG-12

#### **SEATS AND BACKREST:**

The upholstery materials used for seats and backrest is of Solid layer vinyl coated fabric.

Upgraded spec. for SeatUpholstery No. RDSO/2006/CG-16.

Upgraded specifications of Cushioning Material - Densified Thermal bonded Polyester Block (Recron) to Spec. NO. C-K607/PUfoam to specification No. C-8914.

## **Furnishings:**

The coaches are fitted with different amenities and safety fittings for the comfort and use of passenger. For the purpose of comfortable journey, each coach is equipped with many fittings for the utility of the passenger. All these fittings are called as Amenity fittings. The different amenity fittings in a coach are:

- Main Door ( hinged at one end )
- Main Door (sliding both way)
- Door handle
- Hand rails and Hand hold
- Latches to close the door
- Seat and Back rest
- Window and Window bars
- Glass and shutters with lock provision
- Alarm chain
- Luggage rack
- Light and fan
- Washbasin on one ends of the coach with mirror
- Vestibule with door and fall plate arrangement secured with pin

Provision of toilet (only in TC) with the following fittings-

- Door with turn over latch and locking arrangement
- Squatting pan
- Provision of mirror, wash basin
- Provision of CDTS (Now BIO-TOILET introduced instead of CDTS )

## **The different safety fittings are;**

- Main door turn over latch for securing the door
- Fall plate pin in the vestibule
- Alarm Chain system
- Safety bars on window openings
- Window shutters
- Latches in window shutters
- Foot steps
- Hand rails at the entrance

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