



Case Study: MRVC Coach Lighting

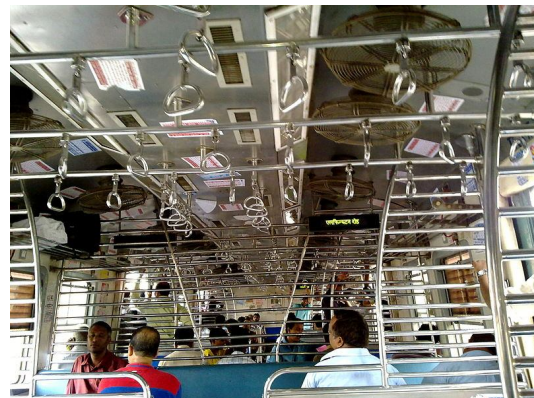
Introduction:

Mumbai suburban local trains are blood veins of Mumbai traffic infrastructure. They are the fastest, most efficient and economical mode of transport for a city whose current population is over 15 mn.

No wonder it is the special area of consideration for Indian railways with over 7 mn passengers travel through local trains.

Hence in 1956, Mumbai Railway Vikas Corporation Ltd (MRVC Ltd), a Public Sector Undertaking of Govt. of India under Ministry of Railways (MoR) was incorporated under Companies Act, 1956 on 12 July 1999 with an equity capital in the ratio of 51:49 between Ministry of Railways and Government of Maharashtra. MRVC is responsible to execute the projects under Mumbai Urban Transport Project (MUTP) as sanctioned by Ministry of Railways. The Corporation will execute a number of suburban rail improvement projects for enhancing suburban rail transportation capacity thereby reducing the over crowding and meeting future traffic requirements. The corporation will also be involved in the planning and development of Mumbai Suburban Rail system.

The **Mumbai Suburban Railway** consists of rapid transit on exclusive inner suburban railway lines augmented by commuter rail on main lines serving outlying suburbs to serve the Mumbai Metropolitan Region. Spread over 465 km, the suburban railway operates 2,342 train services and carries more than 7.24 million commuters daily. Trains run from 4 AM until 1 AM.





We are proud to associate our selves with the life line of Mumbai with lighting solution provided to new age coaches of the local trains. This is a prime example of taking a plunge into new area and successful execution.

Project Brief:

Integral Coach Factory (ICF), a Production Unit of Ministry of Railways, was manufacturing 70 stainless steel EMU trains with 12 coaches supplied by Siemens under Mumbai Urban Transport Project Phase – I.

The following changes for passenger amenities are made in these new coaches:

- ✓ Passenger Information System with double sided displays for better visibility to the commuters
- ✓ Cushioned seats with stainless steel frame in First Class and polycarbonate seats with stainless steel frames in Second Class
- ✓ Central duct with light fittings on both sides for improved aesthetics
- ✓ Improved ventilation system
- ✓ Stainless steel luggage racks with hand hold arrangement for passengers standing between seats

Project Credits:

Client	Mumbai Railway Vikas Corporation Limited
Project Type	Railway Coach Lighting
No. of Trains	70 Trains
Location	Mumbai
Contractor	Siemens Ltd
Lighting	Wipro Ltd
Customer	Mumbai Railway Vikas Corporation
Consultant	RDSO Lucknow

The project consists of illuminating different types of railway coaches as per RDSO requirements. This needs to be done by –

1. Developing specialised luminaire which can withstand stringent requirements given by RDSO.
2. Luminaire suitable for working under AC as well as DC Power supply.
3. Luminaire should withstand stringent vibration tests as per RDSO norms.
4. Luminaire should be with theft proof construction with increased safety.
5. Luminaire should be mounted in the given arrangement only and also achieve required lux levels.



Typical Lighting Layout:



**Luminaire placement shown by green outlines*

Luminaire Used:

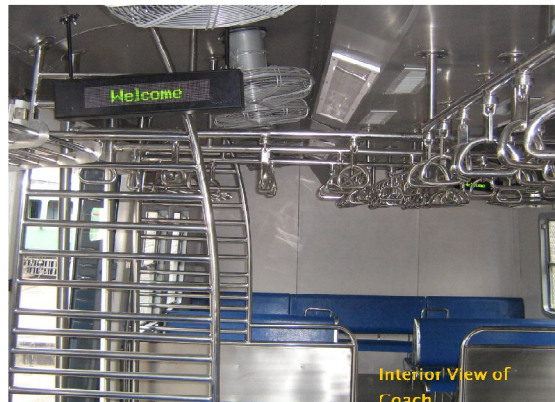
- Luminaire made up of CRCA Powder coated bottom frame and housing
- Bottom frame is fixed with specially design theft proof screws as per requirements
- Bottom frame is with polycarbonate lens to withstand high vibrations
- EPDM gasket to ensure Ingress Protection of IP65
- Specially designed Electronic Ballast prewired up to terminal block



Lighting Simulations as per requirements:



Installation Images of Luminaires inside coaches:





Results Achieved:

- ✎ Lux levels and uniformity achieved as per RDSO and MRVC Standards for the complete Coaches.
- ✎ Specially developed luminaire for vibrating environment.
- ✎ Specially developed ballast with protection and input variations delivered performance.

Benefits to Client:

- ✎ Proposed solution of Wipro helped getting good lighting for Railway Coaches.
- ✎ More footfalls because of well illuminated Railway coaches with more safety.
- ✎ Energy saving through use of tri-band Phosphor lamp with specially designed electronic ballast.
- ✎ Long life of luminaire with theft proof and vandal resistant design features.

MRVC Phase 1 is one of the first major and prestigious Railway projects done by Wipro. Since then we have added various prestigious Railway projects to our portfolio making it an established player in Railway lighting.



Wipro would like to answer any queries or questions you have on Energy Efficient lighting, stand alone and network based Lighting Control systems related topics. Please feel free to contact us on helpdesk.lighting@wipro.com. You can also visit our website www.wiprolighting.com for more information.
