

ENVIRONMENT MANAGEMENT AT RAIL COACH FACTORY

Introduction:-

Sprawling over the semi-arid soil of Kapurthala District, Rail Coach Factory is in an oasis that invokes curiosity in how it happens in such a short period of one decade only. In fact, we are manufacturing coaches in the lap of Mother Nature. Here, we take in fresh air, drink clean water and enjoy the other blessings of the Mother Nature. It is exclaimed joyfully that ours is IRIS ISO TS 22163, ISO 9001, ISO 14001, ISO 45001, ISO 50001, ISO 3834 and NABL certified organization that cares for its surroundings also. The conformity to ISO-14001 on the RCF signifies that we are eco-friendly and striving for better environment management. In consonance with global concerns we are endeavoring to maintain the standard of ISO-14001 Certification by mobilizing human resources and making all residents of RCF aware of it regularly. We stick to the ISO-14001 specifications, so much so, that vendors and contractors dealing with us are also being encouraged regularly to establish environment friendly system in their working places.



Administrative Block Rail Coach Factory



Administrative Block, Rail Coach Factory at night



Double Decker Rack, RCF Kapurthala



Tejas Rack, RCF Kapurthala



Humsafar , RCF Kapurthala



Workshop Gate, RCF Kapurthala

A Green Patch in Sandy Soil

This part of Kapurthala District is sandy and semi-arid. Soil of this region is not very fertile ever since the RCF project came in to being, ceaseless efforts have been put into making it a worth living place. RCF is planned and erected in such a way so as to be compatible to all-round development. In this pursuance, mass plantation was taken up together with the quality work of the building construction simultaneously. Planned species in the lap of Mother Nature began to grow keeping the pace with the progress of steel and concrete erections.



RCF in the beginning of scratch- Sandy & Semi-Arid



RCF Today - 51% of residential complex under green cover (Aerial view)

Gradually, they were cared to grow into trees for enfolding the jungle made up of steel and concrete. Now, the barren sandy soil laced with trees has turned into green patch, where once acacia, thorny bushes and sarkanda grass could be seen all over.

RCF as an Emerald

The concerted efforts of Civil Engineering Department manifest in the form of the lush green foliage cover of tiny blades of grass and dark tree line over the RCF. The RCF sparkles as if she is encased in an emerald and an eternal brilliance, covering her with ever green trees. Every nook and corner of total 1178 acres of the RCF land has been planned. Nearly 1.75 lakh trees are adding charm to this engineering marvel.



Aerial view of Golf Course, RCF, Kapurthala



Lake



Golf Course



Lake Complex at day



Lake complex at night

RCF golf course is aimed a beautiful landscape. Its sprawling course soothes mind, its ridges covered with evergreen trees allure tired eyes. Twittering of birds and cooing of ducks in Lake Complex fill the surroundings with liveliness. Whenever a tired workman goes to the bank of the serene lake, he gets tranquility in its fullest. The gentle breeze pats the tired workman to put him back into life. Here, the energy cycle rejuvenates and the robust workman revitalizes.



A View of RCF colony

At RCF, almost every house hold has grown fruit trees. Residents of the township are encouraged to nourish the flowers and plants and they respond enthusiastically. It is one of the unique features in RCF that people are

inspired by the natural settings that they step out to embellish their surroundings and take keen interest in horticultural activities. By-lanes are furnished with ornamental trees, dual carriage ways have various parks along the side blooming blossoms. Trees are along the ways. In flowerings seasons the blooming blossoms greet all and sundry to RCF with smile and fragrance. In spring seasons all lanes bear verdant look and RCF becomes a bride wearing wedding robes of myriad colors.

RCF has a Health Resort:-

Heavy Plantation in RCF has helped to check the evil effects of green house gases as photosynthesis process of food making by the trees utilize more carbon dioxide gas and release oxygen in abundance. Therefore, plenty of fresh air is available in atmosphere. The large number of trees in RCF also mitigates severe effect of rising mercury in summer and stimulates clouds for rain.



Swimming pool



Astro turf hockey ground

Thus, the climate of this area helps in promoting healthy surrounding and well maintained stadia add more points to it. Outsiders visit the RCF for her scenic beauty and manufacturing marvels.



ਰੇਲ ਡੱਬਾ ਕਾਰਖਾਨਾ, ਕਪੂਰਥਲਾ रेल डिब्बा कारखाना, कपूरथला RAIL COACH FACTORY, KAPURTHALA

ਏਕੀਕ੍ਰਿਤ ਪ੍ਰਬੰਧਨ ਪ੍ਰਣਾਲੀ ਨੀਤੀ

“ਅਸੀਂ ਰੇਲ ਕੋਚ ਫੈਕਟਰੀ, ਕਪੂਰਥਲਾ ਵਿੱਚ ਬਦਲਦੇ ਕਾਰੋਬਾਰ ਦੇ ਪ੍ਰਸੰਗ, ਹਿੱਸੇਦਾਰਾਂ ਦੀਆਂ ਉਮੀਦਾਂ, ਉਤਪਾਦਕਤਾ ਵਿੱਚ ਸੁਧਾਰ, ਰੇਲਵੇ ਕੋਚਾਂ ਦੀ ਕੁਆਲਟੀ ਅਤੇ ਤਕਨੀਕੀ ਸੁਰੱਖਿਆ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ ਦੇ ਅਨੁਸਾਰ ਸਾਡੀ ਏਕੀਕ੍ਰਿਤ ਪ੍ਰਬੰਧਨ ਪ੍ਰਣਾਲੀ ਵਿੱਚ ਨਿਰੰਤਰ ਸੁਧਾਰ ਲਈ ਵਚਨਬੱਧ ਹਾਂ। ਸਾਡੀ ਵਚਨਬੱਧਤਾ ਵਿੱਚ ਲਾਗੂ ਕਾਨੂੰਨੀ ਅਤੇ ਹੋਰ ਜ਼ਰੂਰਤਾਂ ਦੀ ਪਾਲਣਾ, ਕਾਰਜ ਦੌਰਾਨ ਅਸਫਲਤਾ ਦੀ ਰੋਕਥਾਮ, ਕੁਦਰਤੀ ਸਰੋਤਾਂ ਦੀ ਟਿਕਾਊ ਵਰਤੋਂ, ਵਾਤਾਵਰਣ ਦੀ ਰੱਖਿਆ, ਸੁਰੱਖਿਅਤ ਅਤੇ ਸਿਹਤਮੰਦ ਕੰਮ ਦੀਆਂ ਸਥਿਤੀਆਂ ਪ੍ਰਦਾਨ ਕਰਨਾ, ਕਿੱਤਾਮੁਖੀ ਖਤਰੇ ਨੂੰ ਦੂਰ ਕਰਨਾ ਅਤੇ ਸਿਹਤ ਅਤੇ ਸੁਰੱਖਿਆ ਦੇ ਜੋਖਮਾਂ ਨੂੰ ਵਰਕਰਾਂ ਅਤੇ ਉਨ੍ਹਾਂ ਦੇ ਪ੍ਰਤੀਨਿਧੀਆਂ ਦੀ ਭਾਗੀਦਾਰੀ ਅਤੇ ਮਸ਼ਵਰਿਆਂ ਦੁਆਰਾ ਘਟਾਉਣਾ ਵੀ ਸ਼ਾਮਲ ਹੈ।”

एकीकृत प्रबंधन प्रणाली नीति

“हम रेल कोच फैक्ट्री, कपूरथला में हमारे एकीकृत प्रबंधन प्रणाली में निरंतर सुधार, व्यावसायिक संदर्भ, हितधारकों की अपेक्षाओं, उत्पादकता में सुधार, रेलवे कोचों की गुणवत्ता और तकनीकी सुरक्षा सुविधाओं के अनुरूप सुधार के लिए प्रतिबद्ध हैं। हमारी प्रतिबद्धता में लागू कानूनी और अन्य आवश्यकताओं का अनुपालन करना, संचालन के दौरान विफलता की रोकथाम, प्राकृतिक संसाधनों का स्थायी उपयोग, पर्यावरण की रक्षा करना, सुरक्षित और स्वस्थ कार्य की स्थिति प्रदान करना, व्यावसायिक खतरों को दूर करना और स्वास्थ्य और सुरक्षा जोखिमों को श्रमिकों और उनके प्रतिनिधिओं की भागीदारी और परामर्श से कम करना शामिल है।

INTEGRATED MANAGEMENT SYSTEM POLICY

“We at Rail Coach Factory, Kapurthala are committed to continual improvement in our Integrated Management System in line with changing business context, expectations of stakeholders, improving productivity, quality & technical safety features of railway coaches. Our commitment also encompasses complying with applicable legal and other requirements, ensuring failure prevention during operation, sustainable use of natural resources, protecting the environment, providing safe and healthy working conditions, eliminating occupational hazards and reducing health and safety risks by consultations and participation of workers and their representatives.”

Modern machines for manufacturing facilities:

For manufacturing of sheet metal components and assemblies, CNC machines with robotic control systems have been introduced and some of the modern machines installed and commissioned are:



CNC Laser profile cutting M/c



CNC Robotic Spot welding M/c



CNC 5-Axis Machining Centre



Robotic Welding Manipulators



CNC Folding Machine



Laser Profile cutting

These state-of-the-art machines offer following benefits over conventional M/Cs;

- Environment friendly, generate less fumes, less heat and less scrap.
- Very accurate dimensional control can be achieved on the components.
- Flexibility of switchover from one product to another with just click of a button unlike conventional machines where tools, dies, jigs and fixtures are required to be changed for manufacturing different components.
- Minimum scrap generation; Nesting programs help in use of left over sheets for making smaller components simultaneously.
- Completion of job in one setting; Large components can be handled and many operations are done in one setting offering high geometrical accuracy.
- High availability of machine time; Programming of the machines is done offline which saves precious machine time in changeovers.
- High productivity; Work continuously for long hours without much of human intervention and deliver highest quality standards.

Modern Material Handling and Storage Systems:

For material handling, modern material handling systems are being provided;



Traverses for shifting of coaches



Road Rail Vehicle for internal movement



Automatic Storage & Retrieval System



Mechanized unloading of trucks



Movement of cylinders in pallets



18 T Crane

- Movement of semi-finished shells and coaches between shops is done with traversers.
- Rail Cum Road Vehicles are used for shunting of coaches in yard
- Loading and unloading of trucks/wagons is mechanized at most of the locations.
- Modular pallets are used for carrying gas cylinders reducing manual handling.
- Computer Controlled Automatic Storage and Retrieval System for ensuring effective use of vertical space in store wards for quick retrieval of material.
- EOT cranes for shifting of heavy sub- assemblies like Under Frame, Roof, Side Wall and End Wall and Bogies etc. inside assembly shops.

Disposal of Solid Wastes

An effective solid waste management system has been developed. Solid waste is collected, transported and disposed off in an environment friendly manner. In compliance to ISO-14001 guidelines, solid waste is collected in two ways:

- Biodegradable waste viz. kitchen waste and garden waste etc.
- Non biodegradable waste viz.-polythene bags, hard plastics, glass and rubber etc.



Non-biodegradable waste is sold off to bidders and revenue is generated by this way.

Bio-medical waste from the hospital is disposed off through a contractor authorized by MoEF.

Hazardous waste and e-waste is sold to MoEF approved recyclers.

Treatment of Effluents

Waste water is collected through network of sewers in Sewerage Treatment Plant and treated biologically. For the present, part of treated water is utilized for watering of parks, plants and trees. RCF is utilizing its effluent, thus becoming a zero discharge unit. RCF has planned scheme wherein entire treated effluents STP is utilized for irrigation in golf course and other areas.



The pollution-free RCF environment stimulates all its employees to work with greater enthusiasm and devotion so as to achieve the laid down objectives efficiently.

The periphery of RCF is well covered with the rows of trees all along. The tree strip helps check the noise and air pollution through physical and biological process. Civil Engineering Department of RCF is striving ceaselessly in maintenance of green surroundings with the maximum utilization of limited resources.

Quality Circle Activities

Best CEO award in Govt. & Public Sector category awarded to RCF during National Convention on Quality Circles 2012' at IIT, Kanpur, held under the aegis of Quality Circle Forum of India, Hyderabad



Award is being received by Sh. B Munduia, CQM/RCF on behalf of GM/RCF

Par Excellent award to RCF during National 5S Conclave-2013 at Chennai, held under the aegis of Quality Circle Forum of India, Hyderabad



Award is being received by Sh. B Munduia, CQM & Sh. G S Hira, FA&CAO/RCF

Par Excellent award to RCF during National 5S Conclave-2014 at Madurai, held under the aegis of Quality Circle Forum of India, Hyderabad.



Award is being received by Sh. Gopal Krishan, C&MS/RCF

Par Excellent award to RCF during National 5S Conclave-2015 at Varanasi, held under the aegis of Quality Circle Forum of India, Hyderabad.



Award is being received by Sh. Vijoy Kishore, ACMT/RCF

In the year 2017-18, RCF bagged very high commendations during 'National Convention on Quality Circles 2017' held at Mysore in Dec'17 under the aegis of Quality Circle Forum of India, Hyderabad. During this Convention, two Quality Circles namely 'Ujala' and 'Lakshay' participated and were placed in 'Par Excellent' and 'Excellent' category respectively by the Forum



In the year 2019-20, RCF bagged very high commendations during 'National Convention on Quality Circles 2019' held at Varanasi in Dec'19 under the aegis of Quality Circle Forum of India, Hyderabad. During this Convention, one Quality Circle namely 'Ujala' participated and placed in 'Excellent' category by the Forum





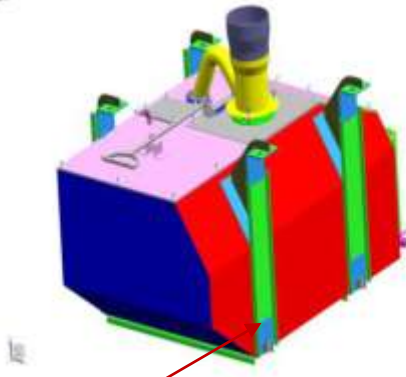
In the year 2022-23, PFA/RCF Shri G S Hira was awarded for QCFL-Leadership Award 2022. Notable to mention also that, Accounts and Bogie teams begged Par Excellence and Excellent award for their 5S and Quality circle 'Ujjala' presentation.



The 37th NCQC-2023 held in Nagpur, Maharashtra. The theme of the Convention was '*Nurture Quality Concepts for Better Future*'. Samanta Quality Circle team begged Excellent award for "**Shell Defects**" presentation.

Various initiatives taken for environment improvement by RCF

- In coach manufacture, chrome plated components have been mostly replaced by stainless steel components.
- Use of hard wood has been eliminated in coaches.
- RCF has developed indigenous bio-digester jointly with DRDO. In this system the waste is totally decomposed into water and gas using anaerobic bacteria. The water is discharged after chlorination. Hence, faecal matter is not discharged in the environment. The bacteria once charged reproduce itself and no replenishment is required thereafter. All new coaches are being provided with bio-digesters.
- Bio-digesters are being fitted in all type of coaches manufactured at RCF. Green toilet aims at Zero defecation on the ground.



Bio- Digester



Bio- Digester After Fitted

- To minimize noise level in coaches, sound insulation paint is being used in all the SS coaches.
- SS type coaches are fitted with electron beam irradiated cables which are zero halogen type low toxic gas emission in case of fire.
- In coach lighting, incandescent lamps have been replaced with energy efficient fluorescent lamps
- Bio-medical waste of hospital is segregated at the source of generation in color coded dust bins and disposed off as per PPCB guidelines.



color coded dust bins in hospital

- As a part of CDM project initiated by Railway Board, 10,000 Nos. of 20W and 14W CFL's have been distributed in RCF quarters as replacement of incandescent bulbs of 100 W and 60 W.
- 5 Nos. (1500 litres), 1 No. (1000 litres) & 6 Nos. (500 litres) solar water heaters have been provided in Rest houses, Hospital, RPF barrack and Technical Training Center.
- Replacement of package type Air-conditioning unit with Energy Efficient Ductable Split Air conditioning units along with heating arrangement in Admin Block.
- Provision of Solar light in lake premises and other places.



Harnessing Solar Energy



Solar water heaters

- 100.8 kWp Solar Rooftop SPV plant commissioned on 18.03.2016 & 151.38 kWp Solar Rooftop Plant has been installed in June' 2021 on rooftop of Admn bldg and another 141.81 kWp Solar Plant commissioned on TTC Bldg & GSS School during the year 2021.



100 KWP capacity solar plant



Solar lights



Solar lights



Solar lights

- 30115 nos of 7 W LED bulbs each under Domestic Efficient Lighting Programme (DELP) have been distributed among RCF employees.
- RCF is very significantly harnessing the potential of Rainwater harvesting. 91 bore wells of rain water harvesting pits have been constructed and connected with the storm water drainage system for recharging of ground water.



Rain water harvesting Pits

- RCF is “Zero Discharge” unit. Only Storm water is discharged into main stream. Treated effluent meets all the requirements of PPCB and various parameters are much lower than those specified by PPCB.



Sewerage Treatment Plant

- To discourage the use of polythene bags in RCF colony around 2400 Nos of cotton bags have been distributed at nominal prices among RCF residents.



Sale of cotton bags to discourage the use of polythene by Quality deptt.

- All CRT monitors replaced with TFT.

- 64 Occupancy sensors provided in offices to switch 'ON' and 'OFF' the lights automatically



- Timers provided for automatically switching 'ON' and 'OFF' street lighting system.
- In the drying ovens, LPG is used in lieu of HSD which is comparatively a cleaner fuel.
- For painting of coaches paint booths are used which are fitted with air suction units for suction of paint fumes and water beds for settling of paint spray.
- Small components are being painted in conveyerised paint booths thereby resulting in less paint wastages.
- 2K painting machines, which consume less paint per m² have been introduced. Moreover, since Base and Hardener are not required to be premixed, it saves on paint wastages due to nil residues.
- 60 nos. of solar powered LED warning lights are provided in circulating area between Furnishing and Finishing shop for safety of personnel during night time working.
- In the design and development of electrical equipment and fittings continuous inputs are being given to make them more energy efficient. In coaches manufactured at RCF, all incandescent light fittings have been replaced by low watt florescent light fittings
- In coach manufacturing, roof mounted air conditioning units are being charged with R-407C which is a non-ozone depleting blend of three HFC refrigerants (R32, R125, R134A) and was designed to match as closely as possible R22 pressure and performance to allow a smooth transition from R22 to R407C
- Oil trap has been fitted in transport Shop, which maintains all vehicles of RCF to minimize oil contamination of water during washing of vehicle.
- Design office has achieved 30% reduction in paper consumption by issuing drawings on electronic storage devices instead of paper.
- Digitation of X-ray has reduced generation of developer, fixer and X-ray film.
- Plantation under taken in RCF during Van Mahotsav Celebration & Environment day.

Environment day Rally and Tree Plantation

Van Mahotsav 2010



Tree Plantation by GM/RCF & CME/RCF



Tree Plantation by FA&CAO /RCF & CQM/RCF

Environment Day 2011



Tree Plantation by AM (PU), Rly. Board & GM/RCF



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2012



Tree Plantation by GM/RCF & CME/RCF



Tree Plantation by FA&CAO /RCF & CQM/RCF



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2013



Tree Plantation by GM/RCF & CME/RCF



Tree Plantation by FA&CAO /RCF & CQM/RCF



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2014



Tree Plantation by GM /RCF & CQM/RCF





Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2015



Tree Plantation by CME /RCF & CPO/RCF



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2016



Tree Plantation by GM /RCF and CWE/Fur



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2017



Tree Plantation by CME /RCF & CQM/RCF



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2018



Tree Plantation by GM /RCF



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2019



Tree Plantation by CME /RCF & officers/ staff



Awareness Rally held by Quality deptt. and scouts & guides

Environment Day 2020



Tree Plantation by GM/RCF, PCME/RCF & CQM/RCF

Environment Day 2021



Tree Plantation by GM/RCF, Madam GM/RCF, PCME/RCF & CQM/RCF

Environment Day 2022



Sale of Jute bags



Awareness Rally held by Quality deptt. and scouts & guides



Nukkad Natak



Tree Plantation by GM/RCF and officers

Environment Day 2023



Environment quiz for RCF employees



Awareness Rally held by Quality deptt. and scouts & guides



Tree Plantation by GM/RCF and officers



Nukkad Natak

Environment Day 2024



Awareness Rally organized by Quality department and scouts & guides





Tree Plantation by GM/RCF and officers

Environment Management Awards

RCF has received following prestigious awards related to environment management:

- Golden Peacock award for Eco-Innovation-2006
- Golden Peacock award for Environment Management 2008
- Greentech Environment Excellence Gold Award : 2008
- Golden Peacock award for Environment Management 2009
- Greentech Environment Excellence Gold Award : 2009
- Golden Peacock award for Environment Management 2011
- Greentech Environment Excellence Silver Award : 2012
- Greentech Environment Management Award : 2013 - Silver
- Golden Peacock award for Environment Management 2014
- Greentech Environment Management Award : 2014 – Gold
- Greentech Environment Management Award : 2015 – Gold
- Golden Peacock award for Environment Management 2016
- Greentech Environment Management Award : 2017 – Gold
- Greentech Environment Management Award : 2018 – Platinum
- Greentech Environment Management Award : 2021 – Winner
- Greentech Environment Management Award : 2022 – Winner



Golden peacock award for Environment Management Award 2009



Greentech Environment Excellence Gold Award 2009



Golden peacock award for Environment Management Award 2011



Greentech Environment Excellence Silver Award 2012



Greentech Environment Management Award 2013 - Silver



Golden peacock award for Environment Management Award 2014



Greentech Environment Management Award 2014 - Gold



Greentech Environment Management Award 2015 - Gold



Golden peacock award for Environment Management Award 2016



Greentech Environment Management Award 2017 - Gold



Greentech Environment Management
Award 2018 - Platinum