



**Rolling  
Stock**



**Transit**

**Freight and  
Mining**



## ROLLING STOCK Expertise

SYSTRA Canada (formerly CANARAIL) is a leading Canadian engineering and consulting company specialized in railway transportation. SYSTRA Canada offers its expertise in freight and heavy haul operations to over 70 countries worldwide in Africa, Asia, Australia, Europe, Latin America and North America. SYSTRA Canada provides services in nearly all of the major railway disciplines such as engineering, mechanical, operations, financial, economic, marketing, institutional and environmental services.

SYSTRA Canada's reputation and experience in rolling stock projects have been developed from having carried out over 200 projects since 1990, including studies, maintenance, rehabilitation and training programs geared to locomotive improvements and fleet operational efficiency.

SYSTRA Canada's rolling stock specialists have developed an excellent reputation based on their extensive experience working within major heavy haul railways in Canada and internationally. While some projects require a review of existing rolling stock in terms of their reliability and performance, others involve basic requirements of transporting a product from preparation of specifications; tendering; analysis of offers; contract negotiations and awards; manufacturing supervision; site delivery to complete testing and commissioning. SYSTRA Canada provides the complete procurement cycle and all technical, engineering and commercial / financial aspects as well as project execution.

SYSTRA Canada offers "One Stop Shop" services to meet all railway vehicle design needs such as custom vehicle design, acquisition, operations and execution of works.

### TURNKEY PROJECTS

- ❖ Passenger cars refurbishing.
- ❖ Locomotive overhaul.
- ❖ Rehabilitation of wagons.

### ROLLING STOCK MAINTENANCE SERVICES

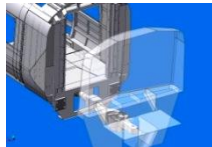
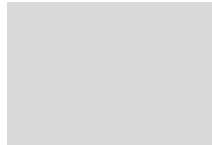
- ❖ Inspection, rehabilitation and remanufacturing programs for major components.
- ❖ Work standards.
- ❖ Verification of workshop practises and audits.
- ❖ Planning of maintenance works, including work orders, inventory control, forecast of material needs and planning systems for maintenance works.
- ❖ Technical assistance in maintenance planning.

### LOCOMOTIVES AND VEHICLE DESIGN SERVICES

- ❖ Complete equipment rehabilitation design.
- ❖ Minor and major modifications.
- ❖ Engineering project management.
- ❖ Design and engineering work for major vehicles components.
- ❖ Computer assisted design (CAD).
- ❖ Writing and revision of vehicles specifications.



## Rolling Stock



### WORKSHOP DESIGN SERVICES

- ❖ Evaluation of needs.
- ❖ Definition of workshop requirements.
- ❖ Schematic and functional plans and quotes.
- ❖ Preliminary and detailed engineering.
- ❖ Supervision and management of construction work.
- ❖ Workshop equipment specifications.

### PROJECT MANAGEMENT SERVICES

- ❖ Planning of maintenance workshops and their operations.
- ❖ Establishment of work schedules.
- ❖ Cost estimation.
- ❖ Budgeting for workshop operations.
- ❖ Planning for long-term assets.

### GENERAL SERVICES

- ❖ Procurement.
- ❖ Preparation and evaluation of bid tenders and contract awards.
- ❖ Quality assurance.
- ❖ Training and preparation of manuals.
- ❖ Technical assistance.
- ❖ Commissioning of rolling stock.
- ❖ Inspection and quality control.
- ❖ Administrative and organizational planning.
- ❖ Definition of staff requirements.
- ❖ Special studies.

### FLAGSHIP PROJECT

- Structural design of a multi-level passenger railcar crash energy management (CEM) zone in support of **Hyundai-Rotem**, USA.
- Feet Procurement for **VIA Rail Canada**, Canada.
- Refurbishing of "Goldleaf" fleet for **Rocky Mountaineer**, Canada.
- Technical specifications for the overhaul and upgrading of MR90 series EMU's. **Agence métropolitaine de transport (AMT)**, Canada.
- Standard Passenger Car Interior Design. **Ontario Northland (ONR)**, Canada.
- Detailed design of facilities for the North-South Railway project (development of technical & functional requirements) and procurement of new rolling stock. **Public Investment Fund – Ministry of Finance**, Saudi Arabia.
- Preliminary design studies to improve the capacity of freight cars. **Office national des chemins de fer du Maroc (ONCF)**, Morocco.
- Technical assistance in the procurement of iron ore product wagons. **IOC**, Canada.
- Spare parts procurement services, supervision and execution of the rehabilitation and modernization of locomotives and workshops. **Egyptian National Railways (ENR)**, Egypt.
- Management of the TRC maintenance facilities. **Tanzanian Railways Corporation (TRC)**, Tanzania.
- Overhaul of SITARAIL's fleet of locomotives consisting of 20 GM locomotives. **SITARAIL** (Winning Concessionaire ex-RAN Côte d'Ivoire led by the SAGA Group), Ivory Coast.
- Preliminary design studies to improve capacity of freight cars over 80 tonnes on phosphate line. **Office national des chemins de fer du Maroc (ONCF)**, Morocco.
- Vehicle dynamic testing study. **Société nationale industrielle et minière (SNIM)**, Mauritania.
- Reliability analysis of three systems for MR73 subway cars. **Montreal Urban Community Transportation Corporation (MUCTC)**, Canada.
- Preventive and regular maintenance of the mainline locomotive fleet, procurement services for spare parts and factory inspection of locomotives during manufacturing in Canada. **Société Nationale des Chemins de fer du Sénégal (SNCS)**, Senegal.
- Preparation of Alstom Canada's business plan for all of its commuter rolling stock maintenance activities in Montreal, **Alstom Canada Inc.**, Canada.
- Study of the railway rolling stock maintenance and repair industry in QuEbec. **Alstom Canada Inc.**, Canada.
- Execution of the rehabilitation of 540 bauxite wagons for **CBG**, Guinea.
- Supervision of the maintenance and rehabilitation of **CBG's** locomotives, Guinea.