Rail vehicle and track optimization

50 years of rail research

In 1965, NRC established a dedicated Railway Laboratory to help advance research into issues that are common across railways around the world.

For over 50 years, NRC has continued to focus its research, engineering, and testing knowledge on industry-specific rail issues, and has become a world leading center of expertise in rail vehicle and track optimization.

NRC works with leading railway owners, operators, suppliers, academic institutions, and governments to advance the rail industry toward long-term benefit.

Rail engineering expertise

NRC's Rail Vehicle and Track Optimization research supports the rail industry by working with clients and collaborative partners to advance, develop, adapt and validate their technologies to address current industry needs.

NRC focuses on 4 main areas of rail engineering

1. Rail Vehicle Engineering: Focuses on physical testing, engineering and dynamic simulation to enable rail car manufacturers and suppliers to produce better, safer, more durable and more reliable rail cars and rail/track components;

2. Vehicle/Track Interaction and Optimization: World-leading expertise and services focused on improving the performance, efficiency and safety of the vehicle-track system.

a. Wheel / Rail profile design and analysis;

b. Rail grinding, lubrication and friction management program development and best practices;

c. Root-cause analysis and mitigation of rolling contact fatigue, wear and noise issues.

3. Track Maintenance Planning: Integration of technology, tools and data analytics to enable vehicle/track performance trending, assessment

of track condition and degradation rates, identification and prediction of unsafe track conditions, minimization of unplanned track maintenance, and the reduction of capacity losses associated with service disruptions.

National Research Council Canada

Conseil national de recherches Canada

Canada
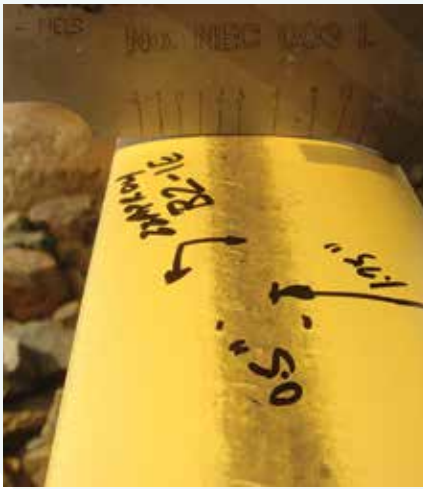
4. High Performance Rail: Leverages NRC's combined experience to focus on the broader issues of rail efficiency and safety to work collaboratively with industry to solve current and future rail industry challenges.

Benefits of working with NRC

NRC is recognized world-wide as a leader in the field of rail vehicle and track optimization. This reputation is based in deep academic roots, and coupled with extensive practical experience garnered on freight, passenger and transit railways around the world.

NRC offers this unique combination of skills, facilities and experience to our clients and collaborative partners, enabling them to address current industry issues, and produce unique product advancements and technology solutions for the rail industry.

Technical Services

NRC's Instrumented Wheelsets (IWS) offers unmatched accuracy, reliability and durability with a unique ability to turn complex data into useful information for the end-user.

Our expertise

› Instrumented Wheelsets (IWS)

› Wheel/rail interface optimization

› Physical testing and evaluation of rolling stock

› Multibody dynamic simulation and modeling

› Technology evaluation and integration

Research facilities

We offer state-of-the-art research and testing facilities, located in Ottawa, Ontario.

› **Structural Dynamics Laboratory**

› **Climatic testing facility**

› **Rail vehicle impact facility**

› **Squeeze and tension frame facility**

› **Wheel bearing and brake facility**

Testing effects and prevention of tank car rollover derailments at NRC facilities in Ottawa, ON.

CONTACT

Jason Pierosara
Client Relationship Leader
Tel.: 613-998-9378
Jason.Pierosara@
nrc-cnrc.gc.ca

**www.nrc-cnrc.gc.ca/
eng/rd/ast**