

NRC-CNRC

THE CENTRE FOR AIR TRAVEL RESEARCH

● ● ● A unique centre to address next-generation challenges and opportunities to improve the air travel experience



National Research
Council Canada

Conseil national de
recherches Canada

Canada



●●● The Centre for Air Travel Research (CATR) at the National Research Council of Canada is the only facility in the world designed to study the air travel experience from start-to-finish, so that airlines and manufacturers can develop and evaluate new technologies and concepts that explore trade-offs between cabin attributes and identify cost-effective designs that improve the air travel experience.



Exclusive access to novel technologies that reduce costs and create new revenue streams through increased cabin comfort. NRC's Centre for Air Travel Research supports the airline industry's strategic goals by developing and testing the most advanced air travel experience technologies. Our world-class researchers apply their expertise to evaluate new product designs and cabin layouts in a realistic and flexible cabin environment.

AIRPORT TERMINAL LABORATORY (ATL)

Investigate new boarding techniques or the extension of personal entertainment services outside the aircraft to expand the passenger travel experience beyond the aircraft cabin. This area also serves as a space where passengers will 'wait' for their flight during a test.

THE FLEXIBLE CABIN LABORATORY (FCL)

Recreate the cabin environment with dimensions ranging in size from a small regional aircraft to a wide-body cabin like the Boeing 777. The FCL includes a flight environment with a functional aircraft interior, realistic cabin noise and vibration, interior and exterior lighting, electrical power, ventilation systems, food and beverage service, in-flight entertainment (IFE), and real life crew interactions. Human physiology, 2D/3D cameras and environment sensors are available for use.

THE FUSELAGE LABORATORY (FL)

The FL consists of Boeing B737-500 fuselage fitted with a powered cabin complete with seats, passenger service units (PSUs), lighting and overhead bins. The laboratory also has functioning galleys, lavatories, and environment control systems. The laboratory is suitable for human subject studies, including passenger evacuation trials. In addition to serving as a large scale mock-up, the laboratory may also be fitted with a motion platform in the future.

THE HUMAN VIBRATION LABORATORY (HVL)

The HVL features a human-rated vibration rig, a climate-controlled environment and aircraft-grade electrical power to enhance the rig's capabilities. The HVL enables airlines to investigate cabin and seat vibrations in helicopters, turboprop and jet aircraft during normal or abnormal operations, and their physiological, psychological and performance effects on aircrew and passengers.



A REAL LIFE TRAVEL EXPERIENCE!



CABIN AND AIRPORT

- Develop technologies that improve passenger comfort and address global integration of cabin systems
- Optimize aircrew effectiveness and well-being in challenging work environments
- Accelerate the development of new cabins, environmental controls and avionics along the path to commercialization and market acceptance



SAFETY ON AIRCRAFT

- Assess new in-flight healthcare capabilities (e.g. virtual doctor), medical training and mitigation of the effects of allergens
- De-risk new cabin designs and layouts for a safer journey
- Evaluate physiological and performance effects in long duration exposure to aircraft environmental factors such as vibration, noise, lighting and inactivity

PASSENGER AND CREW EXPERIENCE

- Improve passenger comfort and productivity through innovative capabilities to control the cabin environment
- Change cabin luggage handling and storage strategies to improve turnaround times
- Enhance the passenger travel experience from gate-to-gate
- Explore new ways to accommodate an aging population and reduced-mobility passengers

ADVANCING AEROSPACE RESEARCH AND TECHNOLOGY DEVELOPMENT

The National Research Council Canada (NRC) is the Government of Canada's premier organization for research and development. Collaborating with industry, NRC's Working and Travelling on Aircraft research program develops and delivers innovative technologies to improve the air travel experience. The new Centre for Air Travel Research (CATR), a leading edge flexible cabin demonstrator platform in North America, will allow the airline industry to explore the most cost-effective and beneficial designs to improve passenger comfort and flight safety.

CONTACT

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