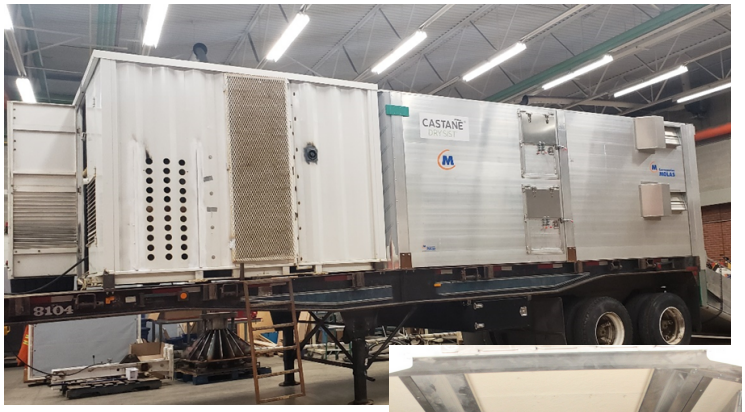
Canadian AgriSafety Applied Science Program

CANFARMSAFE™

003-1-1

Completed Prototype Trailer

The risk of infection through transmission of microorganisms and airborne contagious diseases during the transport of animals can be significant despite biosecurity measures in place. The *Improving the Biosecurity and Welfare of Animals During Transportation* project was formulated to develop an improved prototype trailer which will address emerging biosecurity risks and enhance animal welfare during transport. Modifications to the existing prototype trailer have recently been completed (Figure 1) with regards to two specific areas: 1) the instrumentation systems and 2) the physical and structural modifications of the trailer.



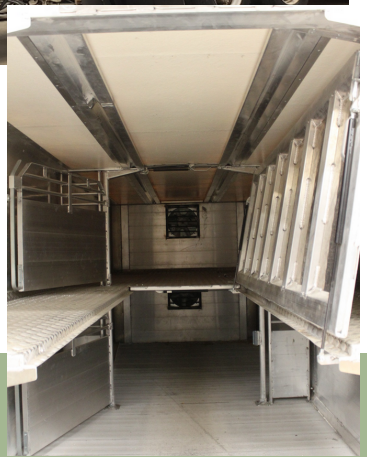
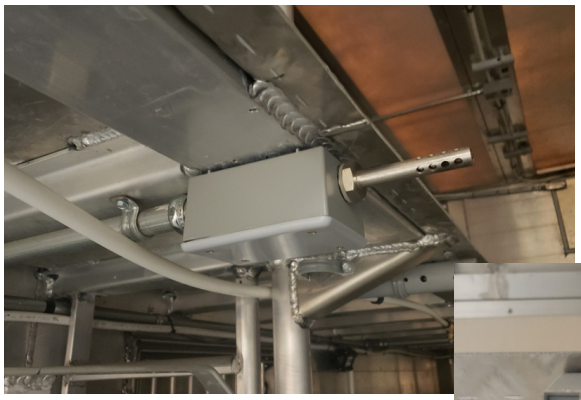
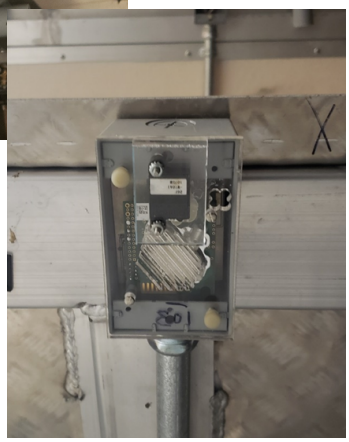


Figure 1. Completed Prototype Trailer

Instrumentation





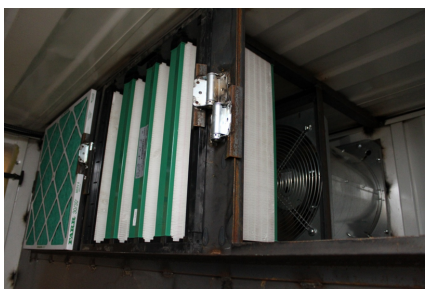


Figure 2. Sensors and Air Filtration System

Enhancements were made to the environmental control and datalogging systems to ensure animal welfare and optimal comfort. For example, the newly installed environmental control system is more versatile and equipped with a reliable datalogging system capable of displaying data in real-time, allowing access to the data while in transit and being bypassed by the truck driver if the need arises. In addition, more reliable and robust models of sensors (Figure 2) for temperature, relative humidity, carbon dioxide (CO_2) and air flow have been installed to withstand the wide range of environmental conditions inside the trailer.

Physical and Structural Modifications

With help from collaborators and subcontractors, the research team have put the final touches on the physical and structural improvements to the trailer:

- Water supply system (tanks, drinkers and misters – Figure 3),
- Supplemental heaters (Figure 4),
- CCTV Cameras and LED lights (Figure 5) and
- Hatches for animal inspection and emergency ventilation (Figure 6).

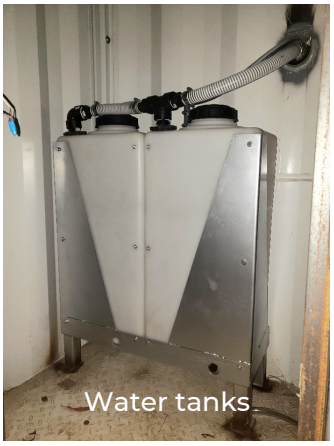


Figure 3. Water Supply System

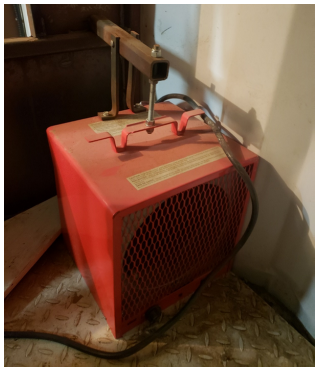


Figure 4.
Portable Heaters

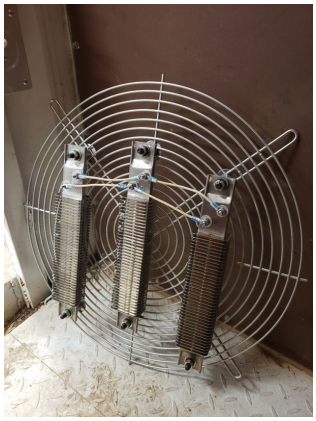
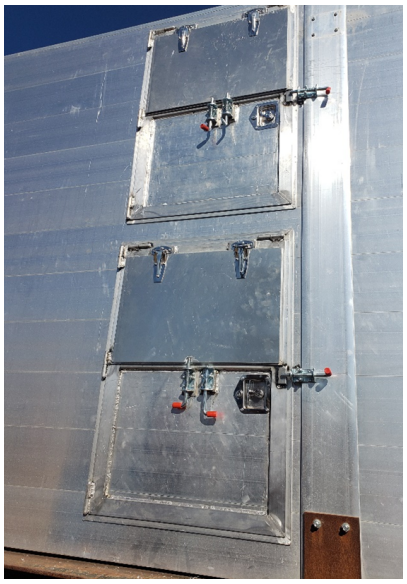
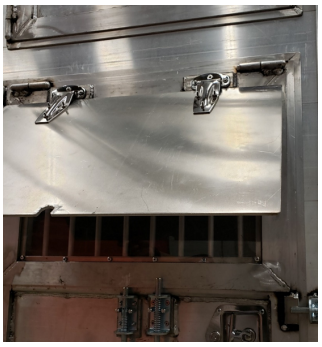


Figure 5. CCTV Cameras and LED Lights





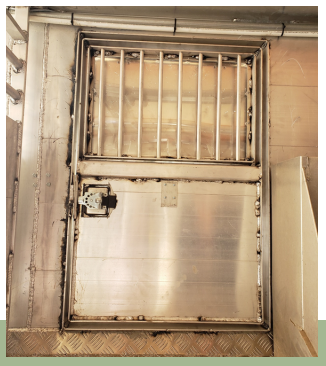


Figure 6. Inspection/Emergency Hatches

What's Next?

Now that the modifications to the prototype trailer are complete, the next step in the project is to evaluate the trailer in road and disease-challenge tests to determine its performance in maintaining a pathogen-free and welfare-friendly environment for animals during transportation.

For contact information, please visit www.agrivita.ca

The Improving Biosecurity and Welfare of Animals during Transportation Project is one part of Agrivita Canada Inc.'s Canadian AgriSafety Applied Science Program, led by a team of researchers from Prairie Swine Centre (PSC), and the Canadian Centre for Health and Safety in Agriculture (CCHSA). This document has been prepared by the Canadian Centre for Health and Safety in Agriculture (CCHSA) for Agrivita Canada Inc and the Canadian AgriSafety Applied Science Program, which is supported under the Canadian Agricultural Strategic Priorities Program (CASPP).