

SAFETY GROOVING FOR SAFER RUNWAYS



Five Airports in Canada Adopt Runway Grooving to Reduce Hydroplaning

>>> DIAMOND GRINDING AND GROOVING CONCRETE RUNWAYS

WHILE GROOVING AIRPORT RUNWAYS is common in the United States, Canada has made limited use of the technique. This is changing, due to overwhelming evidence that grooving is a proven strategy for reducing the risk of hydroplaning and improving runway safety. Grooving works by providing channels for water to escape, helping eliminate standing water and restoring tire friction coefficients on wet pavement.

A 2013 Transport Canada Advisory Circular publicized the safety benefits of grooving and disseminated technical information on the process. Around the same time, several airports conducted grooving to improve safety on wet pavement.

The airport in Port Hardy, British Columbia, was initially grooved in 1970 and again in 2012, making it the first airport in Canada to be entirely grooved.

Norman Wells Airport in the Northwest Territories grooved 67,633 square yards in 2011.

Ottawa International Airport grooved its first runway (measuring 157,000 square yards) in

2013 and its second (measuring 192,000 square yards) in 2015.

In 2017, the Billy Bishop Toronto City Airport grooved 57,000 square yards of runway.

At 14 Wing Greenwood, Canada's largest Royal Canadian Air Force (RCAF) base on the East Coast, hydroplaning was determined to be a factor when an aircraft slid from a runway at 80 knots during a high-speed abort procedure on takeoff. Subsequent testing showed that there were no issues with surface grading, coefficient of friction or pavement condition. Therefore, grooving was investigated as a potential solution.

"Although there are a number of different construction techniques that improve skid resistance and reduce the risk of hydroplaning, it was determined that grooving was the best option," said Myron Thiessen, Airfield Pavements and Standards Officer, Architecture and Engineering Services, Department of National Defence / Government of Canada.

Even though the runway asphalt at 14 Wing Greenwood was 17 years old, tests showed that the existing pavement was structurally sound and

TEAM MEMBERS

14 Wing Greenwood project:

- Mid Valley Construction (General Contractor)

would not only withstand grooving but would provide continued service life. Grooving of 134,000 square meters of runway began on Oct. 30, 2017 and was completed Nov. 8, 2017. The total project cost was 862,000 Canadian dollars.

Runway friction measurements taken the first winter after grooving were generally higher than in previous winters and initial feedback from users was very positive. The grooved runway was observed to dry more quickly after weather events and maintenance and snow clearing proved to be comparable to that of the previously ungrooved runway.

According to Wayne Watson, Chief Aerodrome Engineer, Architecture and Engineering Services Department of National Defence / Government of Canada, if the performance of the 14 Wing Greenwood runway continues to be favorable, additional runways across the RCAF will be considered as candidates for grooving.