

Churchill Airport Runway 15-33 and Taxiway A Rehabilitation with ACE XP™



*Transport Canada relies on
ACE XP Polymer Fibers™ to battle
weakening airport pavements*

LOCATION:

Manitoba, Canada

DETAILS:

Rehabilitate runway and taxiway to achieve a short-term service life with a low level of maintenance

PRODUCT:

ACE XP Polymer Fiber™

DATE:

July/August 2020

CONTRACTOR:

Nelson River Construction

CLIENT/OWNER:

Transport Canada

When Transport Canada called Associated Engineering to help with a degraded runway and taxiway at one of its northernmost airports, AE's pavement sub-consultant Englobe recommended a solution they had successfully utilized on other airfield projects — ACE XP Polymer Fiber.™



Challenge

Churchill is in Northern Manitoba on Hudson Bay and serves as a lifeline to Canada's fifth-most populous province, receiving a high number of flights annually that bring supplies, ecotourists and researchers.

The airfield's two runways, three taxiways and two aprons were originally constructed in 1942 by the US Corps and for decades have rested solidly on continuous permafrost. Climate change has weakened the permafrost in recent years, resulting in unacceptable bumps, settlement and drainage issues in Runway 3 and Taxiway A.

Solution

Transport Canada opted for a short-term repair strategy that would address the safety issues of the runway and taxiway conditions until a major reconstruction project could be undertaken. The strategy also called for a new overlay that could achieve an acceptable service life with a low level of maintenance.

The recommended option included variable depth milling of the existing pavement surface and the installation of an overlay, combined with some drainage improvements and the installation of ground temperature monitoring equipment.

Adding ACE XP Polymer Fibers™ to the asphalt mix provided the tensile strength the overlay pavement needed to withstand thaw/freeze changes in the underlying permafrost. It disperses over 10 million para-aramid fibers throughout each ton of mix to provide three-dimensional reinforcement that increases the asphalt's resistance to reflective cracking, rutting and fatigue.

The result is an extended pavement life and a decreased need for maintenance.

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Project Scope:

**7,800 tonnes of PG 52-40 asphalt
cement binder**

38mm fiber

12 working days

Portable asphalt plant



Installation

The Churchill Airport project was completed in 12 working days spanning late July and early August 2020. Surface Tech supplied 38mm ACE XP Polymer Fibers along with dosing training and certification to Nelson River Construction on the job site.

Results

With a binder of PG 52-40, no RAP was used in this project, and the final product was fantastic thanks to Associated Engineering and Nelson River.



The process of adding ACE XP was simple with the use of an airline hose inserted at the RAP collar. That ensured a steady flow of ACE XP was injected into the dry mix prior to the asphalt cement.



The Surface Tech Advantage

Surface Tech is committed to developing the most advanced reinforcement solutions for asphalt, not only adding strength and durability, but improving the sustainability. Our innovative processes, technologies and products make asphalt pavements better, stronger and longer-lasting. Extensive research and development, laboratory testing and field trials have proven the Surface Tech advantage. We're paving the way to a sustainable future.

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