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Thanks to two DCC-supervised construction projects completed in 2013, CFB Suffield now has range control and fire hall facilities suited to its size and role.

At 2,690 square kilometres, the base is Canada's largest military training area, with some 6,000 soldiers from the United Kingdom training there each year through the British Army Training Unit Suffield (BATUS). The base also handles Canadian and other NATO training, Defence Research and Development Canada facilities, 175 Canadian Forces Housing Agency homes, and industrial traffic to 12,000 oil and gas wells.

This collection of users wasn't the case in the early 1950s, when the base's fire hall was built. As the base grew, the needs of the fire department outgrew the existing facility, and could only accommodate four fire trucks, says James Summers, DCC Coordinator, Construction Services; the rest were parked outside or in separate buildings, reducing optimal response times.

Following the demolition of the existing fire hall, the new 2,133 m<sup>2</sup> fire hall was built to not only accommodate all the equipment, but its location provides ready access to the base and the nearby Trans-Canada Highway, plus an 11-second response to the heliport.

"The aim was to construct a facility that consolidates all vehicles and workshops in a new location," says Summers. "By doing that, the fire department provides optimal response times to both the base and the heliport."

He adds, the \$7.1-million facility enables firefighters to recharge fire extinguishers and maintain their self-contained breathing apparatus, and features a state-of-the-art exhaust system. Hoses connect magnetically to vehicle exhaust systems, removing fumes from the building as the trucks start up, but automatically detaching as they exit.



Located one kilometer beyond the original building, the new \$6.1-million, 1,800 m<sup>2</sup> range control facility offers greater accommodation and equipment for military staff.

Range control facilities faced similar issues to the fire hall, says DCC Team Leader Greg LaBine. “The original range control was built in 1982. It had been added onto about six times over the years as end-user needs changed, and the base infrastructure had actually grown past it.”

To reduce unnecessary base traffic through range control, the new \$6.1-million facility was located approximately one kilometre beyond the original building. At 1,800 m<sup>2</sup>, it offers office areas, accommodation for 24 military staff, along with garage space for equipment such as four water trucks for fast response to prairie fires.

LaBine notes that ensuring excellent value for investment was critical for both buildings—given the shared funding between the United Kingdom, at 78 per cent, and Canada, at 22 per cent—and that both new facilities are now meeting the needs of all of CFB Suffield’s unique end users.

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### Racing the clock and the cold for an OPFOR project at CFB Wainwright



Replacing the old British facility, the completed headquarters building is one of several renovated and new buildings to be used by the OPFOR unit at CFB Wainwright.

We caught up with Doug Barr, DCC Team Leader, Project Management, at Canadian Forces Base (CFB) Wainwright on the day a substantial completion award was being issued to contractors on a major construction project. The two-year project involved renovating five existing facilities and constructing two new buildings to house the Opposing Forces (OPFOR), a sub-unit of the Canadian Manoeuvre Training Centre.

Crews were putting final touches on the project as we spoke. It was a balmy day in March, a time when average temperatures can trend into negative double-digits. "We had weeks on this project when minus 30 was the high," said Barr.

But the cold didn't hinder the team in completing this \$15.7-million construction project. The buildings are used by OPFOR—a unit whose major function is to enhance Task Force army training. These exercises can require as many as 300 people to stay on premises for up to two months and the existing OPFOR buildings simply didn't have the room.



Exterior of the vehicle shelter during construction. The completed facility will house combat vehicles.

"The OPFOR section was living and working out of an old British facility," said Barr. "The initial scope was to renovate that building but it became apparent a new building was required." In

the end, the project created an additional 5,048 m<sup>2</sup> of space for OPFOR, including a new headquarters, a vehicle shelter for keeping combat vehicles warm in winter, and renovations to the existing buildings, repurposing them for use by the Regimental Quartermaster.

Barr was pleased the project was completed on time and under budget, despite obstacles such as pouring concrete in the winter. "Never a good idea," said Barr. It helped that local contractor, KellerDenali Construction of Edmonton, Alberta, was accustomed to working in sub-zero temperatures.

When we spoke, the challenges of cold weather were a distant memory to Barr. "I've got my clubs packed and am off on vacation to South Carolina tomorrow," he said.

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The photo shows 1 of 12 piles being driven 7 m into sound bedrock in late November 2013.

Teamwork and smarts are helping DCC put an end to the impact of the ubiquitous zebra mussels on a district cooling system at the Royal Military College of Canada (RMC) in Kingston.

The college's main academic complex comprises three buildings with a combined area of 42,000 m<sup>2</sup>. For air conditioning, each facility relies on a cooling system constructed in the 1970s that draws raw Lake Ontario water through a vast network of piping. When zebra mussels invaded the Great Lakes in the late 1980s, they colonized in the cooling system at RMC. This invasion fouled the intake pipes and disrupted operations, and has required unplanned maintenance ever since.

The current project involves creating new distribution loops that separate an open lake-water side of the system from a new closed loop on the building side, all with a new heat exchanger in the inside of a new pump house.

The DCC team has faced its share of challenges with this project, says Craig Butler, DCC Technical Specialist, Project Management, including substantial work in the water. This required scheduling in-water site work only during the cooler months when fisheries habitat wouldn't be disturbed. That led to sending divers into frigid Lake Ontario, first in December for exploratory work, and then in February to vacuum up 16 m<sup>3</sup> of contaminated sediment near the current installation, allowing further work to proceed.

When it came time to dewatering that sediment, the team supervised the set up of an elaborate system of Geotube sediment bags into which the lake water was pumped, so the

contaminated sediment remained contained. To prevent leakage of water, the bags had to be located in a plastic-lined metal container. The team searched around for ideas, and Ron Bachelder, Coordinator, Construction Services, came up with a good one—a dumpster, something easily found on a construction site.

Butler, Bachelder and colleague Andrew Mack, Team Leader, Environmental Services, have been the driving forces behind this construction project, and have worked as a team to tackle the various challenges the project has presented. “It’s a very good example of the integration of services that DCC is trying to achieve,” notes Butler. “We have had the fast and flexible expert resources at hand to move the complex site issues along.”

With winter finally receding, the team is working to have the \$2.8-million project completed and the new system up and running by late May, in time for the summer cooling season.

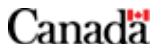


Between March 3 and 7, 2014, contract divers took the polar plunge to vacuum up approximately 16 m<sup>3</sup> of contaminated sediment from Navy Bay, using a 152-mm hose and pump.

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