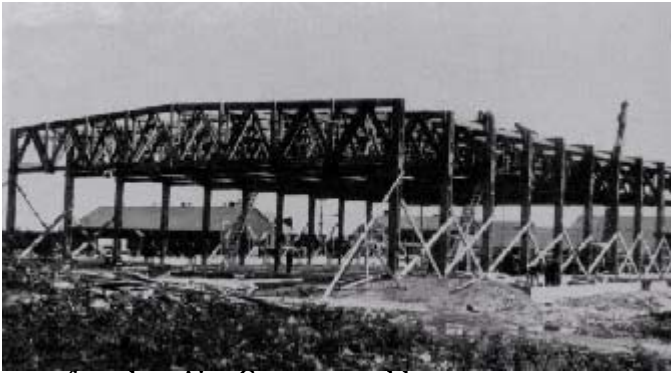


RCAF Engineer Contributions on the Homefront

Wartime expansion for the Royal Canadian Air Force took place at a pace and scale that is difficult to imagine today. At the start of the war, there were only six operational air stations to support the large number of Home War Establishment units that had to be rapidly expanded and mobilized. There was, therefore, a huge requirement to quickly complete land and seaplane hangars, runways, ammunition depots and other essential facilities on both coasts. In Eastern Area Command, for example, the only operational base was a seaplane base near Dartmouth yet, in less than three years, 133 hangars had been constructed in this area, alone.



Constructing a Hangar for the Air Commonwealth
Training Plan

No one envisioned the incredible scale of construction that was required to fulfil Canada's contribution to the British Commonwealth Air Training Plan. The initial agreement called for 74 schools that would be capable of turning out 21,500 aircrew every four weeks. These facilities were required by the end of April 1940, less than four months after the

formal signing of the agreement. From 1939 to 1944, more than 100 new airfields and 8,300 buildings were

erected. As the result of this incredible effort, the construction of entire aerodromes, including buildings and hard surfaced runways, was often completed within eight weeks of arrival at a virgin site. Due to wartime restrictions on the use of steel, many of the structures were built with non-reinforced concrete columns and wooden trusses. Considered to be temporary wartime construction with a planned life expectancy of only five years, the fact that some of these structures are still in use today is testimony to the excellent design and construction skills of the Canadian military engineers.

The new facilities also presented a tremendous demand for utilities and, due to the isolated nature of many of the stations, much of the power and water had to be produced locally. The power plants, heating systems and water and sewerage systems were operated by a combination of Air Force construction tradesmen and civilians. Seventy-five electric power plants were designed and built, more than 500 kilometres of water mains were installed and 120 water-pumping stations constructed.

The Royal Canadian Air Force Home War Establishment demand for infrastructure had to be met at the same time as those of the British Commonwealth Air Training Plan so new and innovative ways had to be found to expedite this massive construction undertaking. One of the most urgent requirements was the construction of wireless telegraph, direction finding, and radar sites in isolated communities. Civilian contractors were seldom available to build and maintain facilities in remote locations or were not able to meet security requirements, creating a need for mobile construction and maintenance units that could deploy on short notice to undertake projects in remote areas.

This led to the formation of the Construction and Maintenance Units (CMUs) that were composed of service personnel in the construction trades, heavy equipment operators, mechanics and support personnel.

By the end of the war, seven Construction and Maintenance Units were deployed across Canada and played a central role in the construction of wharves, jetties, roads, runways and hangars. They also carried out the rapid construction of radio direction finding stations in remote areas, laid communications landline, erected telephone poles and cables and constructed railway lines. In the face of the threat of Japanese raids against North America, Construction and Maintenance Units were also involved in building the joint Canada/US Northwest Staging Route from Edmonton, AB to Fairbanks, Alaska. The air route was designed to transport aircraft and supplies from the continental United States to Alaska and consisted of a chain of aerodromes with intermediate landing fields at 100-mile intervals and radio ranging stations at 200-mile intervals. The project started early in 1941 and within seven months aircraft were flying from Edmonton to Whitehorse. At about the same time, construction started on the series of radar stations on both coasts, with emphasis on the Atlantic seaboard. Construction of the coastal radar installations was extremely demanding due to the remote and difficult sites but eventually more than 40 sites were operational on both coasts. Although enemy aircraft rarely put in an appearance, the radar sites were indispensable for aircraft control and navigation. The construction experience gained in meeting the demands of these projects prepared the Air Force construction engineers for similar challenges in the future.