

Case Study

**Anchoring the Past to
Secure Our Future:****Canada's
Parliamentary Hill**
Ottawa, ON**Project Highlights**

The Parliament Hill is home to Canada's parliamentary system

Application:

Seismic and structural reinforcement of the buildings

The outcome:

Completely modernized facilities, while the heritage and character-defining elements were preserved with the utmost respect and sensitivity

Completion date:

First Cintec anchors were installed at the Parliament Buildings in 1992 - Ongoing project

**The History**

In total, the precinct includes 35 Crown-owned buildings, of which 28 are designated heritage properties, including:

The **Centre Block** which accommodated the House of Commons and the Senate. They are currently relocated while the restoration of the historic building takes place. The original building was constructed between 1860 and 1865. After the fire of February 1916, which totally destroyed the building except for the library, the building was rebuilt of Nepean Sandstone.

The **Peace Tower (Centre Block)**, featuring a clock on all four sides, serves as the centerpiece of the Parliament Buildings. Standing at 92.2 meters tall, the Tower is topped with a flagpole.

The **Library of Parliament** is the last remaining part of the original Centre Block building. It opened in 1876 and was the only section to survive the fire of 1916. Its style of architecture is High Victorian Gothic revival; its interior is circular in form and richly ornamented with carved native white pine paneling. It overlooks the bluffs of the Ottawa River and the province of Quebec.

The **West Block**, also constructed in 1860, was first intended as an office for the public service. Today the building contains the offices of the members of Parliament and staff, together with the Confederation room which is used for some state occasions.

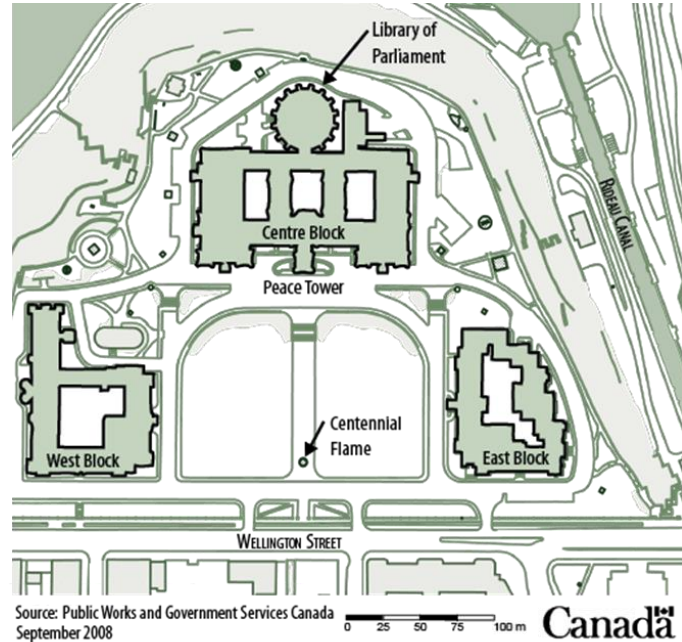
The **East Block**, was first completed in 1866, then expanded in 1910, held the offices of Sir John A. Macdonald and Georges-Étienne Cartier. It was where decisions were made that shaped the history of Canada.

The Requirement

The world has changed radically since the Parliament Buildings were completed. However, over a hundred years have passed, and **these years have taken their toll on the buildings**. The stone buildings, although repaired over the years, had begun to deteriorate.

Over the years, assessments of the buildings' conditions by Public Services and Procurement Canada showed **decaying structural integrity**, asbestos and other hazardous material on site, and tears and holes in the roofs that led to water leaks and moisture damage.

The buildings needed major repairs to bring it up to modern safety, environmental, and accessibility standards and to make them functional for parliamentarians and their staff. This project is part of a wider effort to **preserve, restore, and modernize the heritage buildings within the Parliamentary Precinct** for current and future generations.



The Solution

Major repair and restoration work has been carried out to ensure that these historic buildings continue to serve Canadians for many years to come. Cintec was involved in major repair to these buildings:

Walls of the **Senate Tower** were stabilized above the roof level using 5-meters long fully socked threaded rod anchors. Gargoyles on the four corners were stabilized with anchors drilled from the inside of the tower, into the back side of this prominent architectural element.

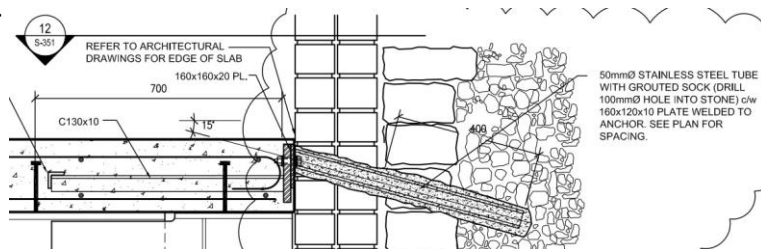
The **Library of Parliament** was completed in 2004. Cintec provided a solution for the reinforcement and stabilization of the buttress and pinnacles with 2-stage post-tensioned Cintec Anchors up to 35.5 Ft (10.8m long).

Pavilion walls on the south side of the **Centre Block** were secured to the floor diaphragms using 4-meters long anchors installed through three steel floor beams, and pairs of diagonal anchors. The anchors were modified on site to suit the condition of the floor structure. Chimneys on the south side of the Centre Block roof were secured to the roof structure using long anchors through the chimney. The Centre Block rehabilitation is in progress.

Cintec first started work on the **West Block** in 1994, when Cintec anchors were installed in the southwest tower, latest renovations were completed in 2018.

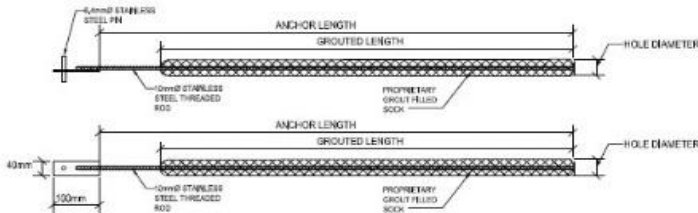
Cintec provided seismic and structural reinforcement of the building – almost 10,000 anchors were used at West Block with many more slated for the **East Block** restoration work, which was completed in 2020.

Cintec anchors were used throughout the project for wall consolidation and attaching stone façade to brick substrate. Much larger and robust anchors were used to strengthen walls and improve seismic response.

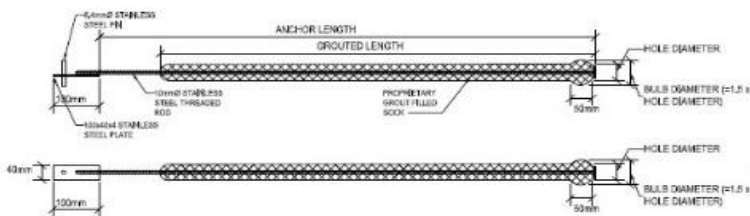


The Installation

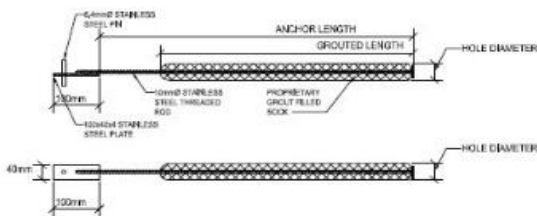
ANCHOR TYPE C1 - LOWER WATERSHED ANCHOR



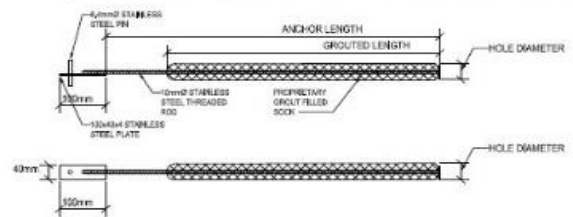
ANCHOR TYPE C2 - LOWER WATERSHED AND WINDOW HEAD COMBINATION ANCHORS



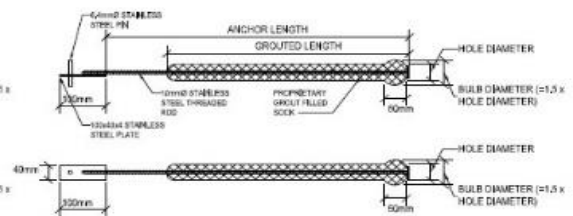
ANCHOR TYPE C3 - UPPER WATERSHED ANCHORS WHERE STONES REMAIN IN PLACE



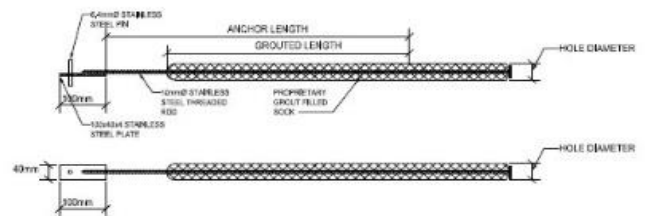
ANCHOR TYPE C4 - UPPER WATERSHED ANCHORS WHERE STONES ARE REMOVED



ANCHOR TYPE C5 - WATERSHED ANCHORS AT VENT STACKS



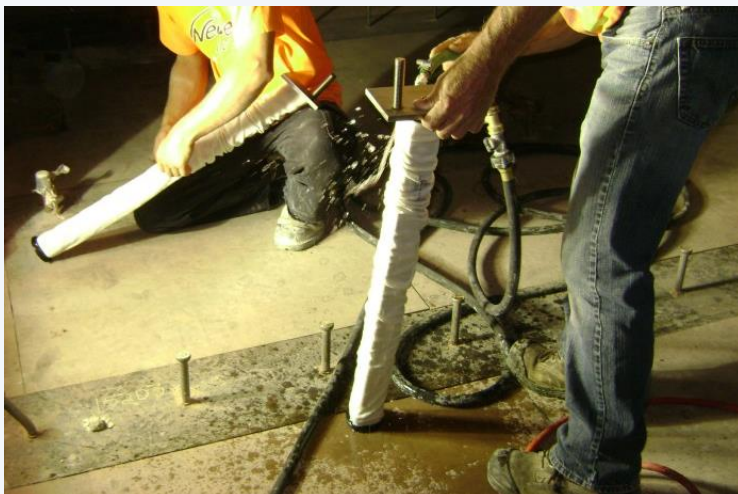
ANCHOR TYPE C6 - LOWER WATERSHED ANCHORS WHERE STONES ARE REMOVED



Credits: Public Services and Procurement Canada

Above, Cintec Anchors used throughout the Project for wall consolidation and attaching stone façade to brick substrate. To the right, installation of the Cintec anchors used to **strengthen / seismic upgrading** of the West Block. Anchors were embedded into sound masonry and mechanical couplers were provided for connection of the stainless-steel rods.

The Details



The Cintec anchors were custom-made to suit the requirements of each historical building and application

