

## Prince's Gate, Toronto, Ontario, Canada



The eastern entrance to Exhibition Place is marked by the Princes' Gates, a beautiful structure named for Edward Prince of Wales (later Edward VIII), and his brother Prince George (later The Duke of Kent). Often mistakenly called the "Princess Gates," the monumental Princes' Gates were built to celebrate Canada's 60th anniversary of Confederation (1927). The gates are made of a mix of stone and concrete. There are nine pillars to either side of the main arch, representing the nine Canadian provinces in existence at the time of construction. Flanking the central arch are various figures representing progress, industry, agriculture, arts and science. The gates were designed by Chapman & Oxley in Beaus Arts style and in 1987 the gates officially became a listed building under the Ontario Heritage Act.

Cintec had already provided anchoring solutions for other historic buildings within the vast Exhibition Place complex. Naturally, when R. O. (Rick) Coombs of Nexus Architects and Tony Serafico of Clifford Restoration Limited were tasked with the seismic issues relating to the columns, they turned to Cintec.

Each column consists of several, tapering, annular rings stacked to a height of 27 feet and sit on a concrete pile cap some 7 feet thick. The project required an anchor that would extend the full depth of the column and pile cap, mechanically and adhesively tie all components together and allow post tensioning load of 25,000 pounds per column.

The annular rings had a 3 inch centre hole precast and the centre of the pile cap was precision cored 4 inch diameter by Davis Structural with a PCD type bit to give a  $\frac{1}{8}$ " X  $\frac{1}{4}$ " groove for improved attachment. Two stage anchors, 35 feet long were fabricated by Cintec, each comprising #9 carpenter stainless steel, 4" diameter polyester Cintec sock for the 7 foot first stage and 3" diameter sock for the second stage.

The anchors were carefully lowered into place by crane and the first stage inflated using Cintec Presstec<sup>®</sup> grout. After 7 days, tension load of 25,00 lbs. was applied, bearing plate secured and the second (27 foot) stage was inflated.

