



Empress Hotel Foundation Settlement Measurements and Analyses

Geographical location

Victoria, British Columbia

When it began or was completed

Construction began in 1904. Settlement was first noted, although not recognized as such, in 1905. Regular settlement measurements began in 1912 and continued until 1970.

Why a Canadian geotechnical achievement?

The Empress Hotel was built largely on a reclaimed tidal mudflat. Most of the hotel was founded on timber piles. Crawford and Sutherland (1971) considered this to be “...one of the longest and most complete records of building settlement known to exist. Fortunately the completeness of the records and the nature of the settlements permit reliable extrapolation back to the original elevations at the time of construction and even, with apparent reliability, to the period of site preparation.”

Crawford and Sutherland (1971) estimated that at the south end of the building, where the timber piles did not reach a bearing stratum, settlement was greatest: approximately 122 cm of primary consolidation occurred between 1905 and 1915, and 15 cm of secondary consolidation occurred between 1916 and 1970. These settlements measurements allowed for changes to the original design during construction, and appropriate mitigation subsequently, to minimize settlement of this hotel and its numerous additions.

The Empress Hotel is one of the iconic hotels in Canada, and was designated a National Historic Site in 1981.

The hotel is currently owned by Nat and Flora Bosa.

Submitted by

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Key References

Crawford, CB and Sutherland, JG. 1971
The Empress Hotel, Victoria, British Columbia. Sixty-five years of foundation settlements. Canadian Geotechnical Journal, Vol 8, pp 77-93.

Crawford, CB and Sutherland, JG. 1973.
The Empress Hotel, Victoria, British Columbia. Sixty-five years of foundation settlements: Closure. Canadian Geotechnical Journal, Vol 10, pp 122-125.

Photograph



Empress Hotel nearing completion in 1907. View from the southeast overlooking a portion of the reclaimed tidal mudflat upon which much of the hotel was constructed. Image D-07275 courtesy of the Royal BC Museum and Archives.