

Experiences after 10 years of operation and maintenance of the retractable roof at BC Place

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ABSTRACT

This article highlights the experiences the teams of both the owner/operator and the inspection/maintenance crew made during an initial period of 10 years of operation of the retractable roof at BC Place.

The retractable roof at BC Place is one of the largest and most complex foldable fabric structures in the world. The structure comprises not only the tensioned and inflated membrane cushions with belts and connecting hardware but the drive system with winches and hydraulic jacks, the deflation/inflation system, the movable garage that encloses the folded fabric when the roof is open and finally the control system to operate all those features.

After a description of the different features and components of the roof, the structure and organization of the planned maintenance concept are described.

A summary of typical damage and failures is included to help understanding the difficulties the team faced as well as the requirement for regular inspection and maintenance.

The team could avoid any major damage or failures with the thorough inspections and the preventative maintenance.

One factor that was insufficiently planned in the beginning was the demand for properly skilled and trained staff to operate the roof on a daily basis.

The supply of (electric) spare parts was a larger issue than foreseen and the lockdowns during the pandemic made maintenance work not easier.

The average yearly costs of operation, inspection and maintenance are summarized and put in relation to the initial costs of the construction of the roof.

A planned inspection and forward maintenance program together with skilled operation staff and some lessons learned ensured the flawless operation of one of the most complex retractable roofs over a period of more than 10 years.