



## 2018 AWARDS FOR ENGINEERING EXCELLENCE

### Award of Merit Pachena Point Lighthouse Restoration



#### Consultant

Goal Engineering Ltd.

#### Owner/Client

Fisheries and Oceans Canada

#### Prime Consultant

WSP Canada Inc.

#### Category

Projects Under \$2.5 Million

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Now a popular landmark on Vancouver Island's famous West-Coast-Trail, the Pachena Point lighthouse once stood as a crucial link in the turn-of-the-century navigation system which revolutionized the safety of marine transport on British Columbia's coast. Goal Engineering (Goal), a materials engineering firm in Victoria BC, recently completed efforts as part of the team tasked with restoring this federally designated "Heritage Lighthouse."

As materials engineering and building envelope consultant, Goal worked alongside the structural consultant WSP Canada to first complete an onsite condition survey to prioritize remedial efforts and develop the scope for restoration. In addition to visual and tactile review, Goal employed a resistograph drill - a sophisticated tool which measures the resistance to drilling at depth in wood - to conduct a detailed assessment of the lighthouse's internal timber structure. This verified the overall fair condition of the majority of timber, necessitating the replacement of very few elements.

Based on this information, restoration primarily included temporarily jacking-up the 20 ton cast-iron lamp enclosure against the existing timber framing to permit the removal and replacement of decayed elements. Given the remote location and relative inaccessibility of the site, the replacement of the large column was performed by means of longlining via helicopter. Upgrades to the building envelope incorporating modern materials and rain screen design details as well as the installation of boron rods within the structural timber were also carried out to mitigate the risk of structural decay from moisture.

Goal is proud to have helped in extending the life of this important Canadian maritime landmark.