

DSI Canada Civil receives PTI Award of Merit for Slab on Grade Project

DSI Canada Civil is the recipient of a 2017 PTI Award of Merit for a slab on grade project: The Teck Truck Maintenance Facility. RCEO Kerry Allen received the award on behalf of the DSI subsidiary located in Surrey, BC, Canada at the annual PTI conference in Atlanta, Georgia, USA.

Teck is one of the world's leading diversified natural resource companies active in mining and mineral development. The Truck Maintenance Building, located in British Columbia, was a particularly challenging project.

The reason this project was selected was that the Post-Tensioning created a very stable, high load capacity base slab to separate all the structural components from the utility components and heating elements. This is critical in such a high load slab because the slab must accommodate the loads of the heavy haul trucks used in mining.

The Slab-on-Grade was constructed using bonded Type 9-0.6" DYWIDAG Multistrand Tendons to carry the large loads of the huge coal haul trucks while the trucks are being serviced, washed or tires replaced.

The DSI contract included supply and installation of the Post-Tensioning materials. Work was complicated because construction work also had to be carried out in the alpine mine site in the winter. The slab itself consists of an approx. 50cm (20in) thick base slab which has no other reinforcement component but the uniform, equally spaced, two-way post-tensioned grouted DYWIDAG Strand Tendons. The tendons are centered in the slab with little or no deviations to produce the maximum post-tensioning force possible.

The truck wash bay incorporates a fully integrated, approx. 6m x 30.5m (20ft x 100ft) tank to both store the water from the wash operation and also to contain some of the residue which is dislodged from the truck carriages.

This tank made use of three forms of post-tensioning. The base of the tank consisted of DYWIDAG Post-Tensioning Strand Tendons in the longitudinal direction because of their ability to follow the base contour, and 36mm Ø DYWIDAG Post-Tensioning Bars were used transversely across the base and for the vertical walls of the tank. They were particularly suitable for this purpose due to their ability to be both self-standing and to be accurately tensioned over short lengths.



Photos reprinted courtesy of Post-Tensioning Institute, USA

Horizontally, the walls were post-tensioned using 15mm Ø fully encapsulated strands placed in pairs, one each side of the vertical 36mm Ø DYWIDAG Bar Tendons.

All post-tensioned elements were grouted following the tensioning operation except for the self-encapsulated strands. All walls and the tank base are a nominal 600mm in thickness for water retention requirements. The average post-tensioned stress is equal in all three axes of the tank. The entire tank is fully integrated with the raft slab.

Owner
Teck Resources Limited, Canada
Design/Consulting
JR Spronken and Associates,
Canada

Unit
DSI Canada Civil Ltd., Canada
Scope
Production, supply, installation
Products
Type 9-0.6" DYWIDAG Strand Tendons,
36mm Ø DYWIDAG Bar Tendons,
15mm Ø fully encapsulated strands