

**Commercial Buildings****Reference Details:**

**Owner** Polytechnique Montréal,  
Québec, Canada +++ **PT**  
**Contractor** AGF Steel Inc.,  
Longueuil, Québec, Canada +++  
**Project Manager** AXOR,  
Montréal, Québec, Canada +++  
**Consulting Engineers** Dessau-  
Soprin Inc., Laval, Québec,  
Canada

**DSI Unit** DSI Canada Ltd.,  
Eastern Division, Gormley,  
Canada

**DSI Scope** Supply of multi-  
strand MA bonded system  
(7x0.6" to 19x0.6") for horizontal  
post-tensioning, 46 mm G150  
DYWIDAG bars for bonded  
vertical post-tensioning,  
DYWIDAG multi-strand rock  
anchors (12x0.6" to 19x0.6");  
rental of equipment; technical  
assistance

**World class testing facility built with DYWIDAG post-tensioning systems****New structural laboratory, Polytechnique Montréal, Québec, Canada**

Polytechnique Montréal is one of Canada's leading engineering schools and is the largest in Québec in terms of its student population and the scope of its research budgets. Founded in 1873, Polytechnique has 58 research units. Its research activities are among the most active in Canada and account for nearly one-quarter of all university research in engineering in Québec.

The Group for Research in Structural Engineering (GRS) is concerned with research on civil engineering structures including buildings, bridges and dams. It conducts art theoretical, numerical and experimental research on structures and materials. Validation of numerical models and investigation of the structural behavior of large-scale test specimens required high performance Structural testing Facility.

Important subventions granted by the Federal and provincial Governments allowed the construction of this structural facility of international caliber, considered as one of the largest and better equipped in North America.

Expanding on an existing structure, the new structural laboratory totals 1960 m<sup>2</sup>, 1140 m<sup>2</sup> of which consist of new construction. The principal technical challenge was the construction of a test slab and a reaction wall that will permit the testing of large scale structural elements.

The 1 m deep structural slab, sits on top of a raft slab 0,8 m thick, both heavily pre-stressed with grouted DYWIDAG multi-strand tendons in both directions. The L shaped reaction wall, towering 10 m over the structural slab (14 m overall length), is prestressed horizontally with layers of

grouted DYWIDAG multi-strand tendons and vertically with DYWIDAG post-tensioning bars, stressed at the top. The whole rigid structure is post-tensioned to the rock with DYWIDAG Multi-strand rock anchors.

Civil construction was completed in 2006. Once the high-performance equipment is set up, this facility will be a formidable platform for constant growth and development in the field of structural engineering.

This is another very interesting usage of DYWIDAG post-tensioning, a system that adapts most readily to the most challenging tasks, yet flexible and economic to suit even the most basic needs.

