



## Techno Metal Post Dealer Installs (148) Helical Screw Piles for a Baseball Stadium Dome in Quebec City

Winter 2016-17



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<b>Project Name &amp; Location:</b>	Baseball Stadium Dome - Quebec City - Quebec Canada
<b>Project Date:</b>	Winter 2016 - 2017
<b>Project Type:</b>	Deep Foundation Support for Concrete Foundation
<b>Helical Pile Installation Contractor:</b>	Techno Pieux Quebec Est Inc. - <a href="#">website</a>
<b>General Contractor:</b>	NMP Golf Construction - <a href="#">website</a>
<b>Engineering Firm:</b>	Consumaj Experts-Conseils - <a href="#">website</a>
<b>Helical Piles Specifications:</b>	(32) Model P4HD, 4.0" (101.6mm) Diameter Round Shaft Piles with 24" and 30" Helix Bearing Plates; (116) P3 3.5" (88.9mm) Diameter Round Shaft Piles with 20" and 24" Helix Bearing Plates; Galvanized
<b>Soils &amp; Installation Depths:</b>	Sand with Some Silt and Traces of Medium Size Gravel; Average Installation Depth of +/- 21 ft. (7.0m)
<b>Installation Timeline:</b>	(3) Weeks
<b>Helical Pile Manufacturer:</b>	Techno Metal Post - Thetford Mines, QC Canada



The Canac Baseball Stadium dome project is the largest baseball infrastructure undertaking in Canada since the construction of the Toronto Blue Jays Stadium. The inflatable structure covers the synthetic surface of the baseball stadium in Québec City, Canada, making the stadium available year-round, including during the cold winter months. The canvas is hooked with anchors located in a concrete base, under the synthetic surface, and stabilized by helical piles. A total of 14 steel cables are anchored around the dome, in order to help it keep its original shape. The dome's slope and fabric type are designed for the snow to melt or fall on the outer walls, therefore limiting accumulation.

Thanks to this new 80-feet high dome infrastructure, the hours of the stadium's use have been extended from 450 to 3000 hours per year (6.5 times more). The stadium's use now goes beyond the summer baseball season. It will be able to host recreational soccer and Ultimate Frisbee leagues, during the year, as well as being available for the general population to rent.



Helical screw piles were selected as the deep foundations because of speed of installation, reduced noise level during installation and overall costs.

Some of the project challenges included winter installation, restricted installation time line, battered piles and larger than normal helix bearing plates.

The P4HD, 4.0" (101.6mm) diameter piles were installed to 19,600 N.m. (14,466 ft. lbs.) of torque, to achieve 84 kN (18,900 lbs) of service load, and the P3, 3.5" (88.9mm) diameter piles were installed to 11,500 N.m. (8,482 ft. lbs) of torque, to achieve 104 kN (23,400 lbs.), of service load. All piles were installed to an average depths ranging from 19 - 27 feet (5.79 - 8.23 m).

