

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

Owner Sudbury Neutrino Observatory, Sudbury, Ontario, Canada

DSI Unit DSI Canada Ltd., Sudbury, Ontario, Canada
DSI Scope Supply and post-tensioning of 134 DYWIDAG Strand Anchors Ø2.5 cm St 150

**DSI Mining Products Secure Underground Observatory in Canada****Sudbury Neutrino Observatory, Sudbury, Ontario, Canada**

The Sudbury Neutrino Observatory (SNO) is a world class scientific facility located 2.000 m underground in what used to be a nickel mine. Thanks to specialist unique location, interfering influences such as cosmic radiance are eliminated. Since 1999, the SNO has provided evidence for neutrinos which are created as a result of certain types of radioactive decay or nuclear reactions such as those in the sun, in nuclear reactors, or when cosmic rays hit atoms.

The key to SNO's research activities is the 12 m dia. acrylic sphere detector containing 1000 t of heavy water (deuterium oxide D₂O). This water container is surrounded by a stainless steel mesh containing 9.600 light sensors. The light sensors register tiny flashes of light which are created when neutrinos react with heavy water. In order to protect this process from radioactive influences, the mesh and light sensors are inside a barrel shaped cylinder which is ten stories high and filled with normal water.

During construction of the SNO in the mid- 1990's, high quality DSI- mining products were used. The abandoned mine's galleries were extensively supported by unbonded DYWIDAG Permanent Strand Anchors. The fixation and anchorage of the detector inside the cylinder was facilitated by the use of DYWIDAG grade 60 bars.

The most recent phase of the neutrino study has now been completed, as the heavy water has been exhausted and has to be renewed. As further research in the fields of neutrinos, supernovae and "dark matter" is to be carried out, the use of this underground laboratory has been substantially extended.

The expansion, named the SNOLAB, is another example of the use of high quality DSI mining products. Among others, a 5 story complex was supported by a total of 134 Ø 2.5 cm St150 DYWIDAG Strand Anchors in order to protect the large adjoining cylinder. The DYWIDAG Strand Anchors were post-tensioned by DSI Mining Canada's personnel.

At the beginning of 2007, new research began in this renowned institute which has already received numerous international science awards.