

**Excavations****Reference Details:**

Owner University of California at Berkeley, CA, USA +++ **Engineer** Pirooz Barrar & Associates (PB&A, Inc.), San Anselmo, CA, USA

+++ **General Contractor** McCarthy Construction, Los Angeles, CA, USA +++ **Sub Contractor and Soil Nail Installer** Drill Tech Drilling and Shoring, Antioch, CA, USA

DSI Units DSI USA, Western Division, Long Beach, CA, USA

DSI Services Supply of 1,545 assemblies (200t) of DYWIDAG Ø32mm THREADBAR[®] grade 1,030MPa (150 ksi) Soil Nails with Double Corrosion Protection

**DSI Permanent Soil Nails stabilize excavation of the new Stanley Hall****Stanley Hall Replacement, U. C. Berkeley, CA**

The University of California at Berkeley retained PB&A Inc. to design a permanent earth retention system for the excavation of the new Stanley Hall. The new structure is an 11-story building with six levels above grade and five levels underground. It is a large irregular shaped excavation, 74m x 80m, and 24.5m deep in some places.

The sloping site gives an uneven underground height for the building so that, at the east side, there are only three levels below grade, consequently creating an unbalanced lateral soil pressure on the basement walls. The unbalanced lateral force was estimated to be about three times as much as the lateral seismic force to be supported by the internal bracing of the building.

PB&A developed a creative shoring solution using permanent soil nails to integrate with the structural design of the building to form a seamless unit for the earth retention system.

The engineer chose to use Ø32mm prestressing threadbars, steel grade 150ksi (1,030 MPa) with lengths up to 25m enclosed inside the reliable double corrosion protection system. Connection to the shotcrete wall was resolved with large galvanized steel plates and welded Nelson studs anchors.