Design of Shallow Foundation on Expansive Soil

Friday, 18 September 2015, 08.00-17.00
Spazio Surabaya, Mayjend Yono Soewoyo Kav. 3, Surabaya

Structural damage can result from movement in clay soils caused by varying moisture conditions around the perimeter of homes. The majority of West Surabaya homes are situated on what are termed reactive clay soils. These soils are subject to expansion and contraction depending on seasonal weather and site conditions. Sandy sites and rocky terrain are usually not prone to this expansion and contraction.

In Australia, engineers design footings to the Australian Standard AS2870 – 2011 Residential slabs and footings. Footings correctly designed to this standard are intended to accommodate the expected movements caused by seasonal volume changes in the soil (swelling when wet and shrinking when dry) - under normal conditions. The performance of footings under this standard requires normal conditions to be maintained around the house.

Abnormal conditions (other than seasonal changes), may include the effect of trees, poor surface drainage and leaking plumbing. If not allowed for in the engineer’s design, these types of abnormal conditions may lead to movement and damage varying from minor to extreme. In this one day post conference seminar a number of Australian and Indonesian experts will be discussing the principles of classification of reactive site and the design of footing systems for light structures.

Topics to be covered:
• Geology and origin of expansive soils
• Behaviour and identification of expansive soils
• Site characterisation techniques in Australian practice
• Site characterisation techniques in Indonesia
• Footing systems for light residential structures in Indonesia and Australia
• Development of Australian Standard for footings and slabs on expansive soils AS2870
• Deemed to comply solutions and simplified engineering principles for footings and slabs in AS2870
• Site improvements and other considerations

Speakers:

DOMINIC LOPES
Dominic has some 50 years experience in geology, civil works and construction. He is a renowned forensic expert in the field of expansive soils with specialist skills in field investigations and laboratory testing. He has been the Managing Director of consulting companies in housing, civil works, piling and building remediation. Prior to that he was a Chief Geologist in a NATA accredited laboratory. Dominic is a founding member of the Foundation and Footings Society (Victoria) and Housing, Engineering Design and Research Association. He was also a member of the drafting committee of AS2870.

PROF. EMAD F. GAD
Emad is the Chair of the Department of Civil and Construction Engineering, Swinburne University of Technology, Australia. He is a civil engineer with extensive experience in residential construction, structural dynamics and connections. He has undertaken significant research related to structural performance of light framed residential structures subject to lateral loads from earthquakes and mine blasts. Recently, he has been leading a major research initiative focusing on the behavior of such residential structures on expansive soils.

GIDEON KUSUMA
Partner Benjamin Gideon & Associates, structural engineer at David Reid Homes Melbourne East mainly designing and construction foundation of residential building in the last 15 years. Concrete technologist specializing in admixtures, optimum mix design and quality control of concrete materials.

GOLOT SETYO BUDI
Gogot is a lecturer in Civil Engineering Department at Petra Christian University Surabaya - Indonesia. He is also in charge for running the Soil Mechanics Laboratory at Petra Christian University since 2010. He, as member of a team representing Civil Engineering department, has been involving in the project related to retrofitting foundations of low-rise housing, which are resting on expansive soil, located in west Surabaya.