

Soil Nail/Rock Dowel Works

In giving this approval of plans, I hereby impose the following conditions under item 6 in section 17(1) of the Buildings Ordinance (BO).

- (a) Sampling and testing of steel reinforcing bars used in the soil nail/rock dowel works should be carried out in accordance with CS2:2012. Testing should be carried out by a laboratory* accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for the particular test concerned. Test results[@] should be reported on a HOKLAS Endorsed Certificate and submitted within 60 days of the delivery of the steel reinforcing bars to the site. The test reports should be appended with a statement signed by the registered structural engineer (RSE) to confirm the following:
 - (i) All steel reinforcing bars used in the soil nail/rock dowel works and the test specimens covered by the test reports are in accordance with the types and grades of steel shown in the approved plans.
 - (ii) Sampling and testing of steel reinforcing bars used have been carried out in accordance with CS2:2012.
 - (iii) The acceptance criteria appropriate to each type and grade of steel reinforcing bars used have been complied with.
 - (iv) Testing of steel reinforcing bars has been carried out by a laboratory* accredited under HOKLAS.

- (b) The requirements of sampling and testing of grout are as follows:
 - (i) For each grout mix one sample of grout shall be provided from each 10 batches of grout, or every 10 m³ from the amount of grout produced in a day, whichever is the lesser, to determine the crushing strength of the grout. Samples shall be provided not more than 1 hour after the grout has been mixed and shall be protected from weather before test cubes are made.
 - (ii) Compression testing of grout test cubes should be carried out in accordance with the methods specified in CS1:2010 using 100mm size cubes. Testing should be carried out by a laboratory* accredited under HOKLAS for the particular test concerned. Test results[@] should be reported on a HOKLAS Endorsed Certificate and appended with a statement signed by the RSE to confirm that the acceptance criteria set out in clause 10.3.4.2(b) of the Code of Practice (CoP) for Structural Use of Concrete 2013 have been complied with, and should be submitted within 21 days after testing.

- (c) Qualified site supervision of the sampling of cement grout and making and curing of test cubes by experienced and competent persons should be provided to ensure that the works are carried out in accordance with the plans approved and that the required standards are complied with.

2. Your attention is drawn to the following conditions:
 - (a) Site supervision of the soil nail works by a team of supervisors shall be provided each by the authorized person, registered geotechnical engineer (RGE) and registered specialist contractor in accordance with the Technical Memorandum for Supervision Plans 2009 and the CoP for Site Supervision 2009 to ensure that the quality of the works is up to standard and that the works are carried out in accordance with the plans approved and in such a manner as not to render inadequate the margin of safety of, or impair the stability of, or cause danger to any building, structure, land, street or services. The extent of supervision to be provided for different stages of the soil nailing works is provided in the CoP for Site Supervision 2009.
 - (b) The technical competent person (TCP) T5 under the RGE's stream shall submit regular reports of his/her findings and recommendations to the RGE. The RGE shall formally submit these reports to the BD and copy them to the Geotechnical Engineering Office (GEO) at monthly intervals or more frequently.
 - (c) In addition to the TCPs T3 and T5 under the RGE's stream as required in paragraph 2(a) above, a directorate site supervisor (DSS) shall be provided for the soil nail/ rock dowel works. The name of the DSS shall also be given in the site supervision plan. The DSS shall submit regular reports of his/her findings and recommendations to the RGE. The RGE shall formally submit these reports to the BD and copy them to the GEO at monthly intervals or more frequently.
3. In connection with paragraph 2(a) above, details of site supervision of the works and of the quality of the soil nail works shall be included in the supervision plan and submitted prior to or at the time of application for consent to the commencement of the works.
4. A report containing results of the site trials with clear statements on buildability and whether special methods of construction need to be adopted (and if so the details) should be submitted to the BD at least one week prior to the commencement of construction of the working soil nails.
5. The pull-out test report, records of installation and non-destructive test report (if any) for the soil nails should be submitted to and found satisfactory by the BD within 21 days after testing.
6. The TCPs of grade T3 shall carry out site inspection of the works and prepare and certify the key records on supervision of soil nailing works in accordance with the CoP for Site Supervision 2009.
7. Prior notice should be given to the GEO of the date of commencement of site trials for soil nailing works/non-destructive tests for installed soil nails in order to facilitate GEO to carry out site inspection and field checks.
8. All significant signs of distress and/or notable landslides during the construction works should be reported promptly to the BD and the GEO.

- * A Directory of Accredited Laboratories in Hong Kong is obtainable from the Hong Kong Accreditation Service (HKAS) Executive, Innovation and Technology Commission.

A laboratory's accreditation for an individual test or calibration may be granted, modified or withdrawn at any time. Up-to-date information on accredited laboratories and their scopes of accreditation are available on the internet at the HKAS website at <http://www.itc.gov.hk/hkas/>.

- @ The test carried out by an accredited laboratory should be within its scope of accreditation. To ensure this, test results should be reported on a HOKLAS Endorsed Certificate or equivalent Certificate/Report issued from other laboratory accreditation bodies which have reached mutual recognition agreements/arrangements with the HOKLAS.