

**Drilled-in Anchors used for
Cantilevered Structure/Hanger/Curtain Wall Remedial Works**

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

- (a) Strength tests on a representative number of the drilled-in anchors, as directed by the Registered Structural Engineer, are required to be carried out in accordance with the test criteria specified under item (b) below and should be carried out by a recognised laboratory independent of the contractor.
- (b) Strength tests of the drilled-in anchors should satisfy the following criteria:
 - (i) Sampling rate should be at least 5% or 5 numbers, whichever is more, of each type and size of the anchors installed.
 - (ii) Each representative anchor should be tested for tensile load by pull-out test and/or shear load by shear load test as appropriate.
 - (iii) Test load should not be less than 1.5 times the recommended load of the anchor as specified by the anchor manufacturer.
 - (iv) Upon the maximum test load is reached, the load should be maintained for at least one hour, and the readings of load and deformation should be taken at the beginning and end of this period to establish whether the tested anchor is subject to creep and relaxation of load under this maximum test load.
 - (v) Recovery of the deformation after removal of all loads should be at least 80% of the total deformation at the maximum test load, and the tested anchor should not show any signs of separation, plastic deformation or deleterious effect.
- (c) A report containing all results of the above-mentioned tests and a discussion on any problems encountered during the installation of the anchor bolts and how they were overcome should be submitted within 21 days after testing and appended with a statement signed by the Registered Structural Engineer to confirm that all drilled-in anchors have been installed in accordance with the anchor manufacturer's recommendations.
- (d) A method statement on the anchor tests mentioned under item (a) above is required to be submitted to this Department prior to the application for consent to the commencement of the [please refer to approval letter for details e.g. cantilevered structure/hanger/curtain wall remedial] works.

2. The following conditions in respect of qualified supervision of works are imposed under item 6 in section 17(1) of the Buildings Ordinance:

- (a) Qualified site supervision of the drilled-in anchor works, by experienced and competent persons as defined in (b) and (c), 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.

- (b) The Registered Structural Engineer should assign a quality control supervisor to supervise the works, determine the necessary frequency of inspection by the quality control supervisor which should not be less than once a week, and devise inspection check lists. The minimum qualifications and experience of the quality control supervisor is to be the same as the Technically Competent Person of grade T3 under the Registered Structural Engineer's stream, as stipulated in the Code of Practice for Site Supervision 2009.
- (c) The Registered General Building Contractor should assign a quality control co-ordinator to provide full time on site supervision of the works and devise inspection check lists. The minimum qualifications and experience of the quality control co-ordinator is to be the same as the Technically Competent Person of grade T1 under the Registered General Building Contractor's/Registered Specialist Contractor's stream, as stipulated in the Code of Practice for Site Supervision 2009.
- (d) The names and qualifications of the supervisory personnel representing the Registered Structural Engineer and the Registered General Building Contractor respectively should be recorded in an inspection log book. The date, time, items inspected and inspection results should be clearly recorded in the log book. The log book should be kept on site for inspection by representatives of the Buildings Department.

3. Reference may be made to British Standard BS 5080: Parts 1 & 2 for the testing procedures for drilled-in anchors including apparatus set-up, load application and results presentation.