Summary of Decisions of the Structural Engineering Committee
SEC 5/2008 held on 15.07.2008

(a) Case 5/2008

Issue: Minimum reinforcement in large diameter bored piles and barrette piles

Recommendation: For large diameter bored piles and barrette piles:

1. The longitudinal reinforcement shall be of high yield steel bars and shall not be less than:

   (a) $0.5\%\ A_c$ for $A_c \leq 0.5\ m^2$;
   (b) $2500\ mm^2$ for $0.5\ m^2 < A_c \leq 1\ m^2$;
   (c) $0.25\%\ A_c$ for $A_c > 1.0\ m^2$;

   where A_c is the gross cross-sectional area of the pile.

   The minimum diameter for the longitudinal bars should not be less than 16mm. Piles should have at least 6 longitudinal bars.

2. The transverse reinforcement shall comply with the requirements for columns as stipulated in clauses 9.9.2.2 and 9.9.2.3 of Code of Practice for Structural Use of Concrete 2004.

Decision: Taking the following into consideration, members endorsed the recommendations:

(a) For minimum longitudinal reinforcement, a literature review has been carried out on the national standards. It reveals that the requirements on minimum longitudinal reinforcement in bored piles and columns are generally different and the criteria for minimum steel in bored piles in various references are similar, ranging approximately from 0.2% to 0.65% (for high yield steel bars), depending on the pile area. Taking into consideration that the Code of Practice for Structural Use of Concrete 2004 was based predominantly on BS8110 (now replaced by EC2), adopting EC2 should therefore give a consistent safety benchmark, and hence the recommendation 1 above.

(b) It is considered that the minimum transverse reinforcement in large diameter bored piles and barrette piles is crucial to its ductility design, and should comply with the same requirements for columns which are stipulated in clauses 9.9.2.2 and 9.9.2.3 of the Code of Practice for Structural Use of Concrete 2004.