Summary of Decisions of the Structural Engineering Committee
SEC Meeting 5/2016 held on 12.5.2016

Case 12/2016

Issue: Methodology Report for Wind Tunnel Test

Recommendation: To accept the following methodology and parameters for wind tunnel test of the proposed development at the proposed development:

(1) Topographic Model

Model scale: 1: 4,000

(2) Proximity Model

(i) Model scale: 1: 400

(ii) Extent of model: all known existing and proposed surrounding buildings and structures within a radius of 500m from the subject site will be modeled.

(3) Wind Climate Study Results

Directional characteristics of typhoons affecting HK would be determined by means of Sector Design Method together with the wind roses of Hong Kong. The wind roses are acquired based on a Monte Carlo simulation of storms passing within 250km of HK, conducted by Applied Research Associates, Inc. (ARA).

(4) Removal of adjacent buildings that could provide significant shelter

17 building groups were proposed to be removed in the Proximity Model.

(5) Design Wind Loads Adopted in Superstructure Design

The following in the superstructure design were proposed:

(i) The finally adopted peak design combined wind moment will not be less than 70% of the peak design wind moment based on code calculation as derived from the design values given in the Code of Practice on Wind Effects in Hong Kong 2004 (the Wind Code);

(ii) If the peak design combined wind moment determined in the wind tunnel test is found greater than the peak design wind moment based on code calculation as derived from the design values given in the Wind Code, the peak design combined wind moment determined in the wind tunnel test will be adopted for design;

(iii) The storey wind shears adopted for design shall be determined from the peak design combined wind moment established in accordance with sub-paragraphs (i) and (ii) above; and

(iv) The peak building acceleration assessment on human comfort under wind loads determined in the wind tunnel test shall be in accordance with the Code of Practice for Structural Use of Concrete 2013 clause 7.3.2. Limiting maximum peak acceleration at the top occupied floor of an office building to 0.25m/s^2 should be adopted.

(6) Wind Loads Adopted in Cladding Design

RSE proposed the followings in cladding design:

(i) The finally adopted peak design wind pressures will not be less than 70% of the peak design wind pressures based on code calculation as derived from the design values given in the Wind Code; and

(ii) If the peak design wind pressures determined in the wind tunnel test are found greater than the peak design wind pressures based on code calculation as derived from the design values given in the Wind Code, the peak design wind pressures determined in the wind tunnel test will be adopted for design.

Decision: Having noted the background information and arguments together with RSE's supervision arrangement, members endorsed the recommendation.