

Case 16/2016

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 600m from the subject site will be modeled.

(3) Wind Climate Study Results

The Upcrossing Method was used to combine the directional wind statistics and wind tunnel data to predict the overall design wind loads.

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

93 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 moments will not be less than 70% of the peak design wind moments 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 moments determined in the wind tunnel test are found greater than the peak design wind moments based on code calculation as derived from the design values given in the Wind Code, the peak design wind moments 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 moments established in accordance with sub-paragraphs

(i) and (ii) above; and

(iv) The peak building acceleration assessment on human comfort under wind loads 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 a hotel building to 0.25m/s^2 should be adopted.

(6) Design Wind Loads Adopted in Superstructure Design

The following in the cladding design were proposed:

- (i) The finally adopted peak design wind pressures for cladding 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.
- (iii) The internal pressures will be accounted for using pressure coefficients of -0.30 and +0.20 together with the design wind speeds, in accordance with the Wind Code.

Decision:

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