

Case 17/2022

Issue: Methodology Report for Wind Tunnel Test

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

(1) Topographic Model

Model scale: 1: 4,000

(2) Proximity Model

(a) Model scale: 1: 350

(b) Extent of model: all existing buildings and geographical features located within a 500m radius of the site will be modeled.

(3) Reginal Wind Climate

The directionality factors on pressure and the wind reference pressure for the determination of the 10-year return period peak building acceleration are made reference to Appendix A1 of Code of Practice on Wind Effects in Hong Kong 2019 (“COP-HK:2019”).

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

16 buildings were proposed to be removed in the Proximity Model.

(5) Design Wind Loads adopted for the Tower Structure

The followings in structural design of the proposed development were proposed:

(a) Design Loads to be the maximum of:

- i) 100% of the wind tunnel test results for the All Surrounding Buildings Scenario;
- ii) 100% of the wind tunnel test results for the Building Removal Scenario; and
- iii) 70% of the wind loads calculated in accordance with the provisions of the Wind Code.

(b) The peak ground acceleration assessment on human comfort under wind loads determined in the wind tunnel test will be compared with the limits for Offices and Hotels specified in Section 2.4.2 of COP-HK:2019. If the limit is exceed, general design parameters recommended in the wind tunnel test report, including

modification of tower form; and/or modifications to the dynamic properties of the structure; and/or specifications for an addition auxiliary damper system, will be considered to control the peak ground acceleration within the limits for Offices and Hotels specified in Section 2.4.2 of COP-HK:2019.

Decision:

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