Ref : BD_____

Address : _____

Appendix _____ to approval dated _____

Window/Window Wall/Glass Wall/Skylight/Glass Canopy/Glass Balustrade# 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)# Where steel welding is used for the connection of the window/window wall/glass wall/skylight/glass canopy/glass balustrade# supports, welding procedures and welders should be assessed/tested in accordance with the appropriate provisions of the Annex A to the Code of Practice for the Structural Use of Steel 2011.

(b)# Where aluminium/stainless steel/steel or the like extruded section is to be connected with the window/window wall/glass wall/skylight/glass canopy/ glass balustrade# and the method of connection of the extruded section to its supporting structure relies solely on interlocking without mechanical fixing, such as bolting or welding, performance test shall be carried out to demonstrate its integrity. Testing proposal shall be submitted by the Registered Structural Engineer prior to the consent application of the works. The testing proposal should be prepared by making reference to the Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-37. The test should be carried out by an independent laboratory* accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) or by other laboratory accreditation bodies which have reached mutual recognition agreements/arrangements with HOKLAS. The test results@ should be submitted prior to the application of occupation permit or the submission of Form BA14 as appropriate and appended with a statement signed by the Registered Structural Engineer to confirm that the acceptance criteria appropriate to the test have been complied with.

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 window/window wall/glass wall/skylight/glass canopy/glass balustrade# 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 are to be the same as the Technically

Competent Person of grade T3, 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 are to be the same as the Technically Competent Person of grade T1, 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.^^ Where windows are to be installed on precast concrete façade panels in a factory off-site, the following conditions in respect of qualified supervision of window works are imposed under item 6 in section 17(1) of the Buildings Ordinance:

(a) The window installation should be carried out in a factory with ISO 9001 quality assurance certification.

(b) Qualified site supervision of the window works, by experienced and competent persons as defined in (c) and (d), 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.

(c) The Registered Structural Engineer should assign a quality control supervisor to supervise the works in the factory, 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 are to be the same as the Technically Competent Person of grade T3, as stipulated in the Code of Practice for Site Supervision 2009.

(d) The Registered General Building Contractor should assign a quality control co-ordinator, to provide continuous supervision of the works in the factory and devise inspection check lists. The minimum qualifications and experience of the quality control co-ordinator are to be the same as the Technically Competent Person of grade T1, as stipulated in the Code of Practice for Site Supervision 2009.

(e) The names and qualifications of the supervisory personnel representing the Registered Structural Engineer and the Registered General Building Contractor 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 in the factory and a copy of it should be kept on site for inspection by representatives of the Buildings Department.

4. Also, under Building (Administration) Regulation 10, the following document(s) issued by the manufacturer(s) or supplier(s) and endorsed by the Registered Structural Engineer are required to be submitted prior to the application of occupation permit or the submission of Form BA14 as appropriate:

(a)# Where structural sealant is proposed, compliance certificate comprising sealant compatibility report, sealant adhesion report and print review report.

(b)# Where insulating glass unit (IGU) is used, with load sharing consideration in the structural design, certificate to demonstrate seal durability requirement as per ASTM E2190 or equivalent.

(c) With respect to the connection of the window/window wall/glass wall/skylight/glass canopy/glass balustrade# supports, a copy of mill certificate of the structural steel used, which should be appended with a statement signed by the Registered Structural Engineer to confirm that the requirements on chemical composition and mechanical properties appropriate to the type of steel used have been complied with and the structural steel used is produced from a manufacturer with an acceptable Quality Assurance system.

(d)# With respect to the residual surface compressive stress of heat treated glass used, test reports for measurement using polarimeter or similar device demonstrating compliance with the stress ranges, i.e. greater than 69 MPa for tempered glass and lying between 24 and 52 MPa for heat-strengthened glass.

(e)# In the case of glass balustrade or where the window/window wall/glass wall performs the function of a protective barrier complying with section 8 of Building (Construction) Regulations, test reports demonstrating the type of glass achieving an impact resistance not inferior to the appropriate impact class to BS 6206 corresponding to the related criteria given in BS 6180 as stipulated in the PNAP APP-110.

5.# The following conditions are imposed under item 6 in section 17(1) of the Buildings Ordinance for the use of tempered glass for the window/window wall/glass wall/skylight/glass canopy/glass balustrade# works:

(a) The tempered glass should be manufactured by a factory acquired ISO 9001 quality assurance certification.

(b) Heat soak process conforming to BS EN 14179-1:2005 or other equivalent international standards should be carried out to all tempered glass panes, as one of the quality control measures.

(c) A copy of quality supervision plan prepared by the Registered Structural Engineer and the Registered General Building Contractor for the quality supervision of manufacturer's heat soak process shall be submitted prior to the application for consent to the commencement of works.

6.[#] Also, under Building (Administration) Regulation 10, where tempered glass is used for the window/window wall/glass wall/skylight/glass canopy/glass balustrade[#] works the following documents shall be submitted:

(a) A copy of Quality Assurance Scheme issued by the manufacturer and appended with a statement signed by the registered structural engineer to declare that he or she has studied the Quality Assurance Scheme and confirm that there are adequate measures incorporated in the Scheme to ensure the quality of the tempered glass produced in compliance with the provisions of the BO and the approved plans. Such submission should be prepared in accordance with PNAP APP-37 and should be submitted prior to the application for consent to the commencement of the works.

(b) A copy of the compliance report for the heat soak process issued by the glass manufacturer and endorsed by the Registered Structural Engineer by confirming that the compliance report has adequate provisions in ensuring the heat soak process has been duly carried out to all tempered glass. Such submission should be prepared in accordance with PNAP APP-37 and should be submitted prior to the application for occupation permit.

(c) A copy of the quality supervision report prepared by the Registered Structural Engineer and the Registered General Building Contractor for the quality supervision of manufacturer's heat soak process should be submitted by the Registered Structural Engineer prior to the application for occupation permit. Such submission should be prepared in accordance with PNAP APP-37. The report should include a statement signed by the Registered Structural Engineer to confirm that adequate supervision has been provided in accordance with the quality supervision plan as mentioned in paragraph 4(c) above. The following should be contained in the inspection log book:

The names and qualifications of the quality control supervisors representing the Registered Structural Engineer and the Registered General Building Contractor for supervising the heat soak process for all tempered glass panes should be entered into the inspection log book. The date, time of inspections and data of the independent temperature logger for the heat soak process should be clearly recorded in the inspection log book, which should be kept in the factory and a soft copy of it should be kept on site and, when required, produced to the Building Authority for inspection.

7.[#] The following condition is imposed under item 6 in section 17(1) of the Buildings Ordinance for the use of proprietary stainless steel spider components (model nos. _____), including its associated "routel", for supporting glass panes of the window/window wall/glass wall/skylight/glass canopy/glass balustrade[#] works:

(a) Proof tests of the spider components, including its associated "routel", as directed by the Registered Structural Engineer, are required to be carried out in accordance with the test criteria specified in PNAP APP-37 by a laboratory independent of the contractor. Testing procedures, such as apparatus set-up, load application and results presentation, may make reference to the Code of Practice for the Structural Use of Steel 2011. Reports of the proof tests results[@] duly signed by the Registered Structural Engineer shall be submitted

prior to the application of occupation permit or the submission of Form BA14 as appropriate.

(b) A method statement on the proof test mentioned above is required to be submitted at least one week prior to the actual commencement of the works.

8.[#] Also, under Building (Administration) Regulation 10, where proprietary stainless steel spider components, including its associated "routel", are used for the window/window wall/glass wall/skylight/glass canopy/glass balustrade[#] works, a copy of the mill certificate of the stainless steel used, is required to be submitted within 60 days of the delivery of the proprietary stainless steel spider components to the site which should be appended with a statement signed by the Registered Structural Engineer to confirm that the requirements of chemical composition and mechanical properties appropriate to the type of stainless steel have been complied with.

[#] Delete wherever inapplicable.

* A Directory of Accredited Laboratories in Hong Kong is obtainable from the Hong Kong Accreditation Service (HKAS) Executive, Innovation and Technology Commission.

A laboratory's accreditation for an individual test or calibration may be granted, modified or withdrawn at any time. Up-to-date information on accredited laboratories and their scopes of accreditation are available on the internet at the HKAS website at http://www.info.gov.hk/itc/hkas/.

@ The test carried out by an accredited laboratory should be within its scope of accreditation. To ensure this, test results should be reported on a HOKLAS Endorsed Certificate or equivalent Certificate/Report issued from other laboratory accreditation bodies which have reached mutual recognition agreements/arrangements with HOKLAS.

^ Applicable to window/window wall/glass wall/skylight/glass canopy/glass balustrade works to be carried out on site.

^^ Applicable to windows to be installed on precast concrete façade panels in a factory off-site.