Code of Practice for the Structural Use of Glass 2018

The Buildings Department (BD) has set up a Technical Committee (TC) to, among others, collect and consider the views and feedback from the building industry arising from the use of the Code of Practice for the Structural Use of Glass 2018 (Glass Code 2018). Taking into account the advice of the TC, the following amendments to Glass Code 2018 have been promulgated and uploaded to BD website www.bd.gov.hk:

(a) Appendix A – July 2020; and

(b) Appendix B – February 2024

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Building Authority

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Amendments to the Code of Practice for Structural Use of Glass 2018

(July 2020)

Legends:

Amended

Deleted

(2/2024)

Major amendments to the Code of Practice for the Structural Use of Glass 2018 in July 2020 included:

(a) Clause 7.1.1 – elaboration of the design requirements for retaining device to cope with the situation of bond failure of structural sealant; and

(b) Item C2 of Annex C – revision of the symbol of glass fin thickness in the equation for the torsional moment of inertia (J).

Amendments to the Code of Practice for Structural Use of Glass 2018
(July 2020)

Item	Current version	Amendments
1. Clause 7.1.1 2nd paragraph[1]	The structural performance of a structural sealant depends on a number of factors such as risks to building occupants and pedestrians, long-term durability, degree of redundancy, nature of applied loads, and quality control during fabrication and erection. Façade system or glass element with structural sealant glazing application shall be designed to prevent any fall of glass pane in the event of bond failure in the structural sealant. Retaining devices for such structural sealant glazing in the form of feature capping, angle, bracket or insert, etc. shall be designed and constructed at the top and the bottom of the glass pane for the added purpose of restraining the glass pane from dislocation or falling in case of bond failure of structural sealant. The self-weight of the glass panes shall be mechanically supported by setting blocks.	The structural performance of a structural sealant depends on a number of factors such as risks to building occupants and pedestrians, long-term durability, degree of redundancy, nature of applied loads, and quality control during fabrication and erection. Façade system or glass element, located where any point of the glass pane installed is at a height 5 m or more above the finished floor level of the accessible area on either side of the glass pane, fixed by structural sealant on four sides shall be designed to prevent any fall of glass pane in the event of bond failure in the structural sealant. Retaining device in the form of feature capping, angle, bracket or insert, etc. shall be designed and constructed at any two opposing edges of the glass pane for the added purpose of restraining the glass pane from dislocation or falling in case of bond failure of structural sealant. The strength of such retaining device and associated glass panes shall be capable to resist 37% of the design wind pressure acting on the glass pane multiplying with a partial load factor of 1.0. The design wind pressure is taken as the wind reference pressure in accordance with the Code of Practice on Wind Effects in Hong Kong 2019 without applying any adjustment factors. The self-weight of the glass panes shall be mechanically supported by setting blocks.

[1] The design requirements for retaining device and associated glass panes to cope with the situation of bond failure of structural sealant are elaborated.

Item	Current version	Amendments
2. Clause 7.5.1 2nd paragraph[2]	Weather strips, glazing gaskets and glazing blocks shall be manufactured from extruded silicone rubber, Ethylene Propylene Diene Monomer (EPDM) rubber or other gasket material such as neoprene and Thermoplastic Elastomer (TPE) compatible with silicone sealant. Gaskets shall be provided on both sides of the vent glass unless it is structurally glazed. All gaskets/ weather seals/ spacers shall have continuous mechanical engagement to the framing members.	Weather strips, glazing gaskets and glazing blocks shall be manufactured from extruded silicone rubber, Ethylene Propylene Diene Monomer (EPDM) rubber or other gasket material such as neoprene and Thermoplastic Elastomer (TPE) compatible with silicone sealant. Gaskets shall be provided on both sides of the glass pane unless it is structurally glazed. All gaskets/ weather seals/ spacers shall have continuous mechanical engagement to the framing members.
3. Clause 9.4 3rd paragraph[2]	Deglazing test is a method of quality inspection used to confirm if the sealant application has strictly followed the recommendations outlined in the sealant manufacturer's print review and adhesion test report. Deglazing test should be carried out in accordance with the sealant manufacturer's suggested percentage of total number of structurally glazed glass panes to ensure the on-site structural glazing quality of the factory structural glazing quality before transportation to the site for installation. The inspection should include the following:	Deglazing test is a method of quality inspection used to confirm if the sealant application has strictly followed the recommendations outlined in the sealant manufacturer's print review and adhesion test report. Deglazing test should be carried out in accordance with the sealant manufacturer's suggested percentage of total number of structurally glazed glass panes to ensure the on-site structural glazing quality or the factory structural glazing quality before transportation to the site for installation. The inspection should include the following:

[2] A typo is corrected.

Item	Current version	Amendments
4. Annex C - C2[3]	In computing the effective torsional rigidity of beams of solid rectangular cross-section, the value of the torsional moment of inertia (J) may be taken as $$J = \frac{db^3}{3}(1 - 0.63\,\frac{b}{d})$$ where d and b are the depth (fin thickness) and breadth of the fin respectively. G and E are taken as 28,700 N/mm^2 and 70,000 N/mm^2 for glass fins.	In computing the effective torsional rigidity of beams of solid rectangular cross-section, the value of the torsional moment of inertia (J) may be taken as $$J = \frac{dt^3}{3}(1 - 0.63\,\frac{t}{d})$$ where d and t are the depth and thickness of the glass fin respectively. G and E are taken as 28,700 N/mm^2 and 70,000 N/mm^2 for glass fins.

[3] The symbol of glass fin thickness in the equation is revised.

Amendments to the Code of Practice for Structural Use of Glass 2018

(February 2024)

Legends:

Amended

Deleted

(2/2024)

Major amendments to the Code of Practice for the Structural Use of Glass 2018 in February 2024 included:

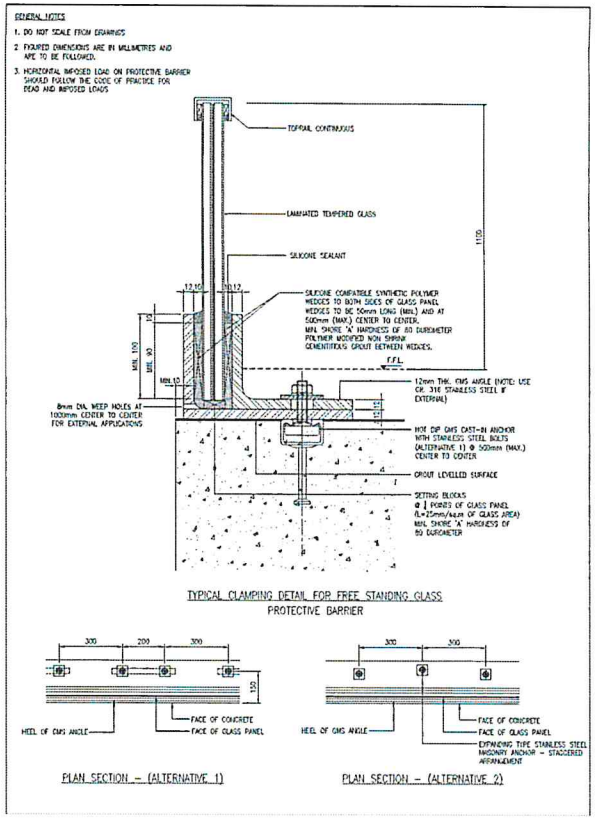
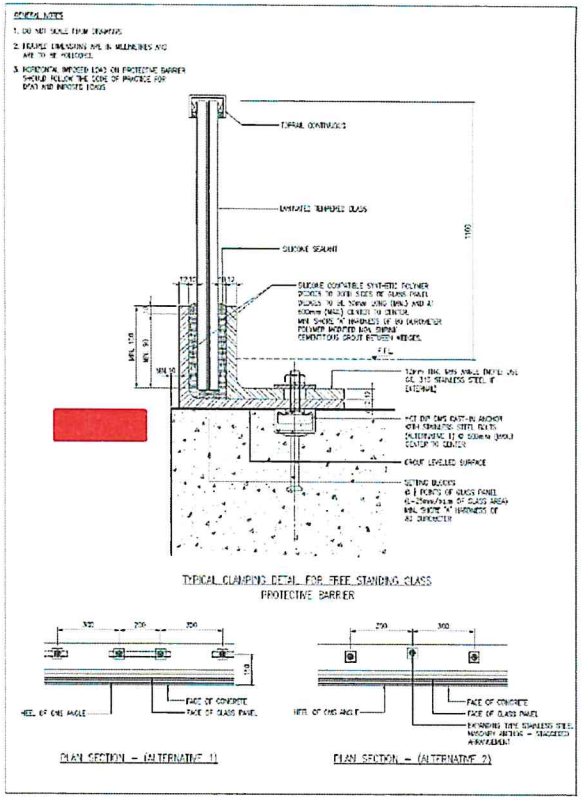
(a) Figure 6.1 – deletion of the 8mm dia. weep holes for external application in the typical glass balustrade details;

(b) Clause 8.3.1(b)[1] – revision of the pressure p_2 for the repeated positive and negative pressure test; and

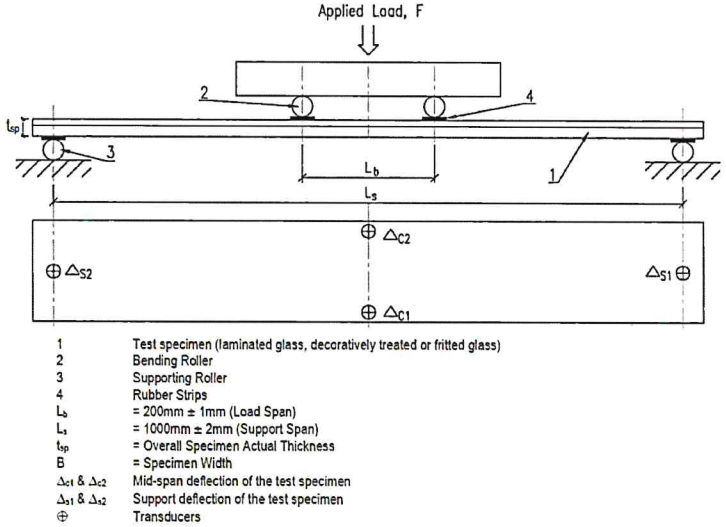
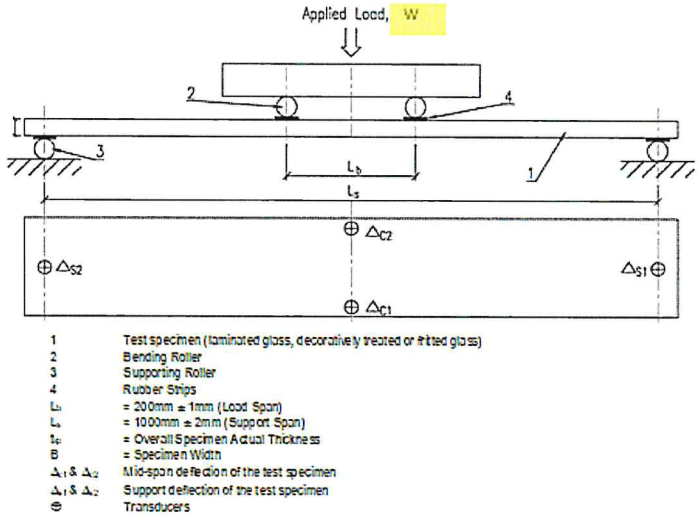
(c) Figure B1.1 of Annex B – revision of the expressions of failure load in item B1(2) Step k. and applied load.

[1] In case the preceding Code of Practice on Wind Effects in Hong Kong 2004 is adopted for the design of curtain wall, for the repeated positive and negative pressure test, p_2 should be the pressure obtained from the product of the total pressure coefficient c_p and the design wind pressure q_z appropriate to that part of the building.

Amendments to the Code of Practice for Structural Use of Glass 2018
(February 2024)

Item	Current version	Amendments
1. Figure 6.1[2]		

[2] The 8mm dia. weep holes for external application in the figure is deleted.

Item	Current version	Amendments
2. Clause 8.3.1 (b)[3]	(b) For the repeated positive and negative pressure test, p_2 should be the pressure obtained from the product of the total pressure coefficient c_p and the design wind pressure q_z appropriate to that part of the building, determined in accordance with the Code of Practice on Wind Effects in Hong Kong. The number of pressure pulses should not be less than 5.	(b) For the repeated positive and negative pressure test, p_2 should be the pressure taken as the net wind pressure P on the mullion of the representative portion in the performance test, determined in accordance with the Code of Practice on Wind Effects in Hong Kong 2019. The number of pressure pulses should not be less than 5.
3. Annex B – B1 (2) Step k. and Figure B1.1[4]	k. Record the failure load F_{max} and the time taken to reach this load. l. Observe and record the location of the origin of fracture. m. Repeat Steps 2a. to 2l. for all specimens.  Figure B1.1 Test set-up	k. Record the failure load W_{max} and the time taken to reach this load. l. Observe and record the location of the origin of fracture. m. Repeat Steps 2a. to 2l. for all specimens.  Figure B1.1 Test set-up

[3] The pressure p_2 for the repeated positive and negative pressure test is amended.

[4] The expressions of failure load in (2) Step k. and applied load in Figure B1.1 of item B1 are amended.