

GLASS GUARDS AND GLASS IN GUARDS

Rationale:

According to Sentence 4.3.6.1.(1) of Division B of 2007 VBBL, glass shall be designed in accordance with CAN/CGSB-12.20-M for all Part 3 buildings.

4.3.6.1. Design Basis for Glass

1) Glass used in *buildings* shall be designed in conformance with CAN/CGSB-12.20-M, "Structural Design of Glass for Buildings".

Under 7.1 Glass Guards and Balustrade of CAN/CGSB-12.20-M states that:

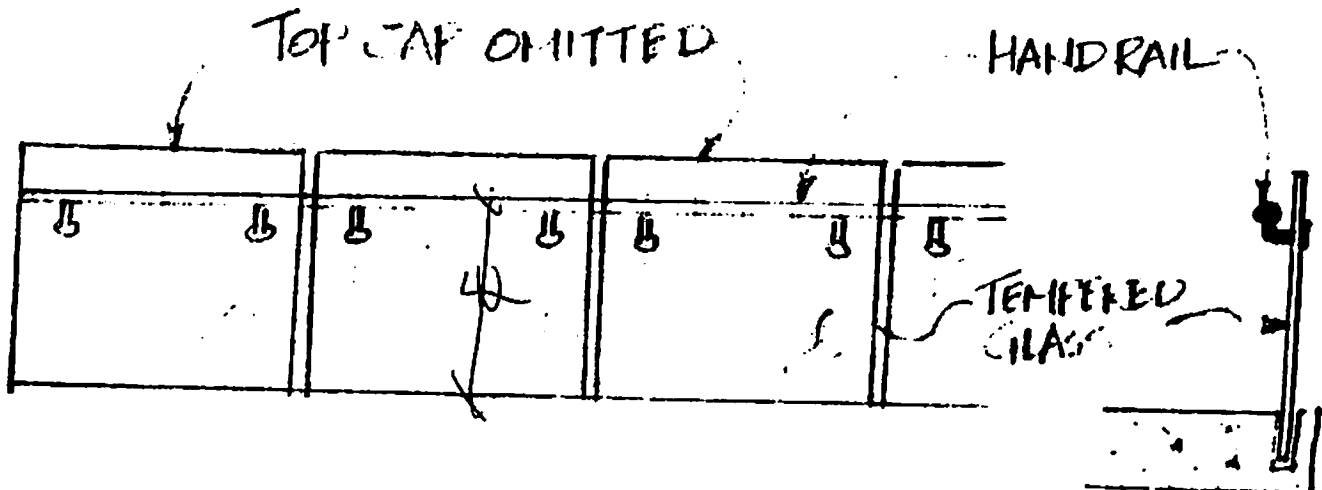
b. Any free standing glass guard shall be capped by a rail which is continuous over two or more lights. The glass guard shall resist the factored design load after failure of alternate lights.

Therefore, top cap is mandatory for free standing glass guard as per CAN/CGSB-12.20-M and it is further explained in the Appendix notes:

A5. GLASS GUARDS AND BALUSTRADES

A5.1 When a brittle material with variable mechanical properties like glass is used as structural component with the potential for catastrophic consequences in the event of failure, both increased load factors and alternative load paths are required in the design. For glass guards and balustrades the standard addresses these factors by the requirement for alternate lights to be assumed failed in the strength determination, and a rigid continuous guard over two or more lights.

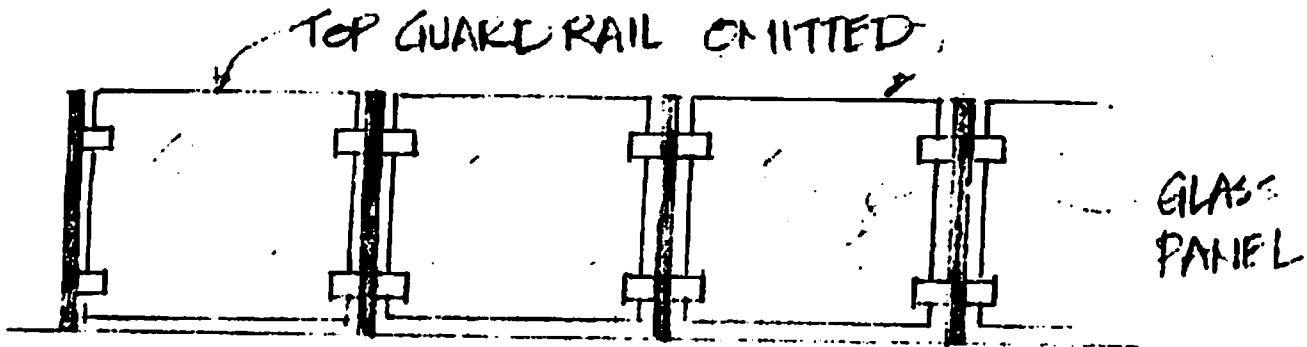
A5.2 Glass guards may have exposed edges and as glass edges are intrinsically weak, especially with thin glass, the designer should give consideration to "hard body" impact at the edges and provide protection if necessary. Examples of hard body impact include stones and floor cleaning equipment.



ELEVATION - FREE STANDING GLASS GUARD
WITHOUT TOP CAP - NOT PERMITTED

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Glass panel in guards without top rail is not permitted.



ELEVATION - GLASS IN GUARD
WITHOUT TOP GUARD RAIL - NOT PERMITTED

For Part 9 buildings, **Article 9.8.8.7. Glass in Guards** applies to glass forming part of the metal or wood guards and does not apply to free standing glass guards or glass panel without top guard. Sentence 9.8.8.7.(1) refers to CAN/CGSB-12.1-M, "Tempered or Laminated Safety Glass". In the Scope of CAN/CGSB-12.1 it states that this standard applies to safety glass intended primarily for use in doors and adjacent glazed panels etc..

Therefore, if glass used in Part 9 buildings other than those under the prescriptive provisions, such as 9.8.8.7., shall be designed according to Part 4 as specified in Article 9.4.1.1. That means Sentence 4.3.6.1.(1) of Division B of VBBL, and CAN/CGSB-12.20-M applies to structural design of free standing glass guard for all Part 9 buildings.

In conclusion, free standing glass guard shall be capped by a rail which is continuous over 2 or more lights for all Part 3 and Part 9 buildings and glass panel without top rail is not permitted.

GLASS GUARDS AND GLASS IN GUARDS

Free standing glass guard must be designed to Part 4 for all Part 3 and Part 9 Buildings:

