



Loads on Guards In Non Housing

The Building Standards Department issues Builder Tips as part of our customer service program. They are designed to provide an improved understanding of the Building Code and to reduce the costs associated with correcting infractions. Please contact your area building inspector for further information or call the Building Standards Department at 905.475.4848 extension 2189

3.3.1.18. Guards

(1) Except as provided in Sentences (5) and (6) and Articles 3.3.2.9. and 3.3.4.7., a guard not less than 1070 mm (42 in) high shall be provided

(a) around each roof to which access is provided for other than maintenance,

(b) at openings into smoke shafts referred to in Subsection 3.2.6. that are less than 1070 mm (42 in) above the floor, and

(c) at each raised floor, mezzanine, balcony, gallery, interior or exterior vehicular ramp, and at other locations where (See Note A-9.8.8.1.)

(i) the difference in level is more than 600 mm (23 ½ in) between the walking surface and the adjacent surface, or

(ii) the adjacent surface within 1.2 m (3' - 11") of the walking surface has a slope of more than 1 in 2, and

(d) except as provided in Sentence (6), around each skylight located in a portion of a roof that is intended to be occupied.

3.3.1.20. Transparent Door and Panels

(8) A window in a public area that extends to less than 1000 mm (39 in) above the floor and is located above the second storey in a building of residential occupancy, shall be protected by a barrier or railing from the floor to not less than 1070 mm (42 in) above the floor, or the window shall be non-openable and designed to withstand the lateral design loads for balcony guards required by Article 4.1.5.14.

3.1.21.1. Glass

1) Except as provided in Sentence 3.3.4.7.(2), glass in guards shall conform to MMAH Supplementary Standard SB-13, "Glass in Guards."



3.3.4.7. Stairs, Ramps, Landings and Guards for Dwelling Units

(1) Except as required in Article 3.3.4.8., stairs, ramps, landings, handrails and interior guards within a dwelling unit shall conform to the applicable requirements in Section 9.8.

4.1.5.14. Loads on Guards and Handrails (See Note A-4.1.5.14. and A-4.1.5.15.(1))

(1) The minimum horizontal specified live load applied outward at the minimum required height of every required guard shall be

(a) 3.0 kN/m for open viewing stands without fixed seats and for means of egress in grandstands, stadia, bleachers and arenas,

(b) 1.0 kN applied at any point, so as to produce the most critical effect, for access ways to equipment platforms, contiguous stairs and similar areas where the gathering of many people is improbable, and

(c) 0.75 kN/m or 1.0 kN applied at any point, so as to produce the most critical effect, whichever governs for locations other than those described in Clauses (a) and (b).

(2) The minimum horizontal specified load applied inward at the minimum required height of every guard shall be half that specified in Sentence (1)

(3) Individual elements within the guard, including solid panels and pickets, shall be designed for a load of 0.5 kN applied over an area of 100 mm by 100 mm (3 7/8" x 3 7/8") located at any point in the element or elements so as to produce the most critical effect.

(5) The specified live loads required in Sentence (3) need not be considered to act simultaneously with the loads provided for in Sentences (1), (2), (6) and (7).

(6) The minimum specified load applied vertically at the top of every required guard shall be 1.5 kN/m and need not be considered to act simultaneously with the horizontal specified live load provided for in Sentences (1), (3) and (7).

(7) Handrails and their supports shall be designed and constructed to withstand the following minimum specified live loads, which need not be considered to act simultaneously:

(a) 0.9 kN applied at any point and in any direction for all handrails, and

(b) 0.7 kN applied in any direction for handrails not located within the dwelling units.



4.1.5.16. Loads on Walls Acting As Guards

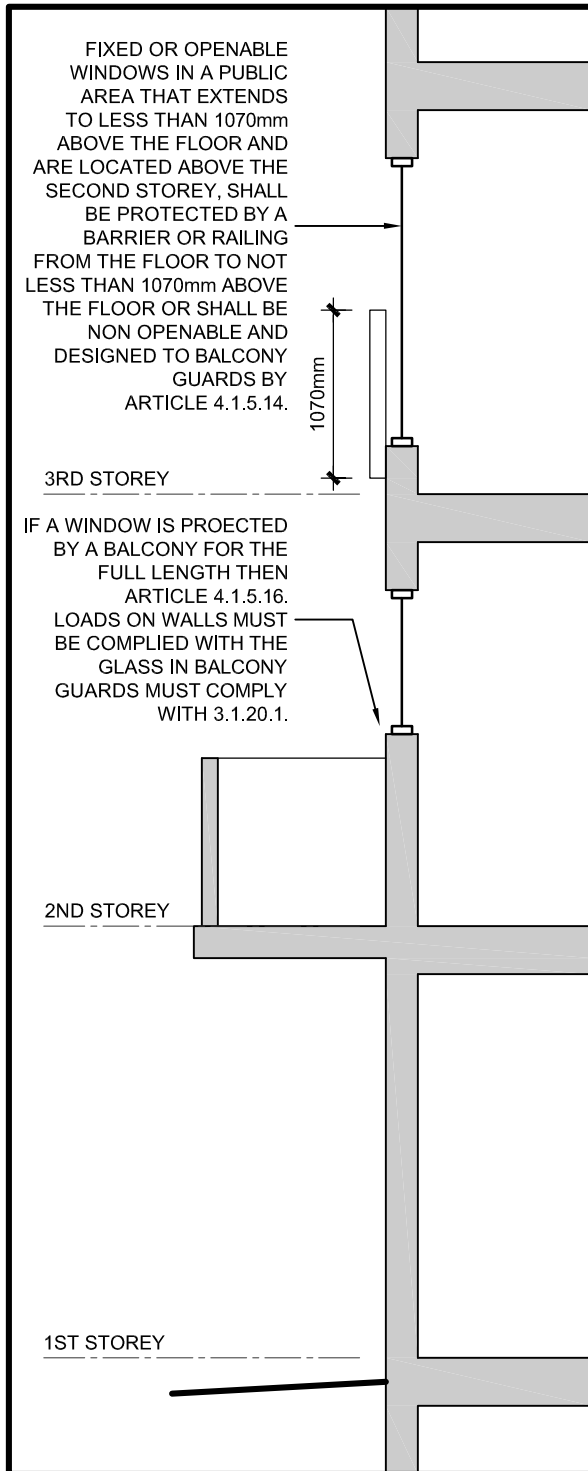
(1) Where the floor elevation on one side of a wall, including a wall around a shaft, is more than 600 mm (23 ½”) higher than the elevation of the floor or ground on the other side, the wall shall be designed to resist the appropriate outward lateral design loads prescribed elsewhere in the Section 4.1.5. or 0.5 kPa, whichever produces the more critical effect.

OBJECTIVE

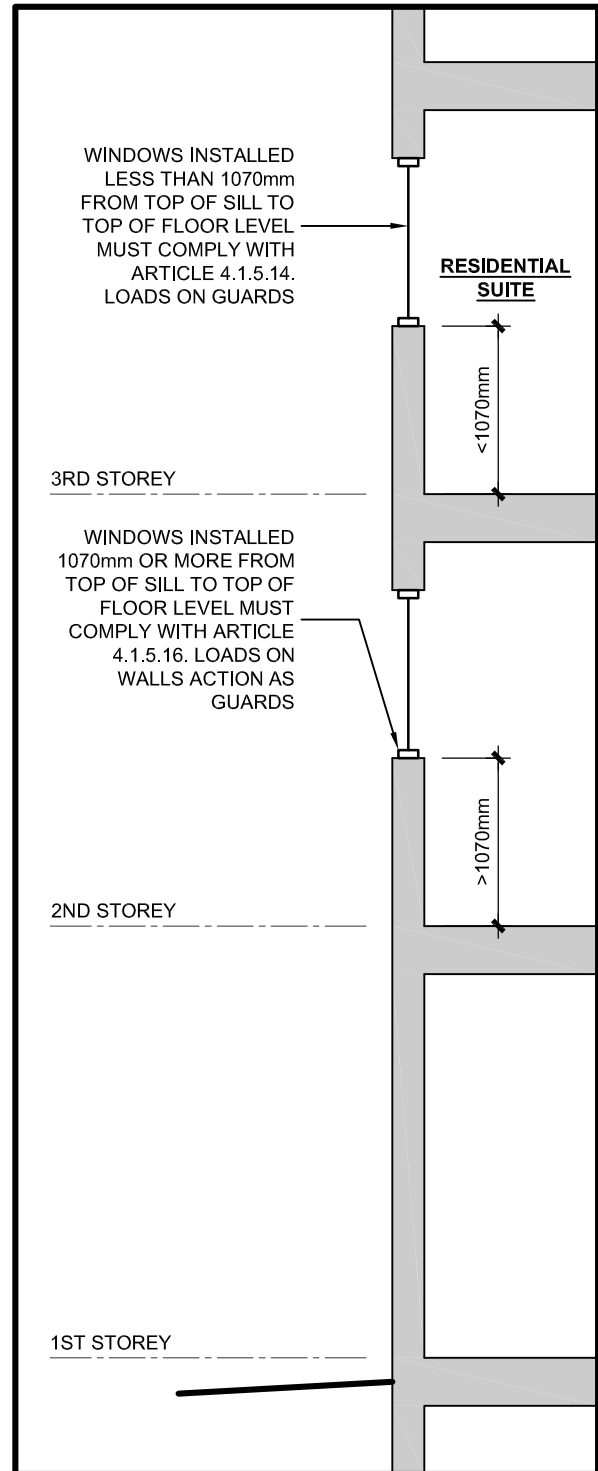
This Builder Tip specifically deals with guards for Part 3 buildings of residential occupancy.

The main intent for providing guards in residential occupancies is to prevent accidental falls from one level to another. Guards, whether they are walls or windows acting as guards, must withstand the maximum expected horizontal forces or loads exerted by persons based on the use and occupancy of the guarded area.

When an actual guard is installed, the design of the guard and its supporting elements must take in account the maximum expected horizontal forces to be exerted on the guard. The guard must also be designed to prevent climbing, the passage of small children through the elements and meet the minimum height requirements above the finished floor. The diagrams below depict the loading requirements for guards, walls acting as guards and balcony guards.



SECTION



SECTION