

## **Canadian Model Stair Code (NRC Canada) Notes on Stairs & Ramps & Guards**

2020/02/17 notes by DF collected on key details of the (2015) Canadian Stair Code excerpted from various sources including

Canadian Stair Codes, National Research Council, Canada (NRC Canada), retrieved 2020/02/17 original source: [https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/codes\\_centre/presentations/2010/stairs.html](https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/codes_centre/presentations/2010/stairs.html)

### **Headroom**

Minimum clearance(2010)  $\geq 2050$  mm. over stairs, and  $\geq 1950$ mm over ramps and landings for single dwelling unit, or  $\geq 2050$  over ramps and landings for Not a Single dwelling unit

### **Stair Dimension Measurement Points**

Measuring stair step rise \* run (tread depth) (see screen shot 2010 NBC)

Rise measured from upper surface of nosing to nosing

Run measured from nosing to nosing

Tread depth measured from face of riser to face of nosing.

### **Stair Step / Tread / Riser Dimensions**

Minimum dimensions of risers & runs

All steps: Rise: Max 200 Min 125 (private)

All steps: Rise: Max 180 Min 125 (public)

Rectangular Treads Run: Max 355, Min 210 (private)

Rectangular Treads Run: Max (no limit) Min 280 (public)

Minimum run dimension changed to 255 mm

### **Uniformity of Steps**

Rise Tolerance of 5 mm between adjacent treads or landings

Rise Tolerance of 10 mm between tallest and shortest risers in a flight (fire escapes exempt)

Run tolerance 5 mm between adjacent treads or landings

Run tolerance 10 mm between deepest and shallowest treads in a flight

## **Ramp Width**

Clear width  $\geq$  870 mm for exit ramps and public ramps

## **Handrails required along stairs**

Residential Stairs  $<$  1100mm (43") wide require a handrail on one side for both straight & curved stairs

Other locations:  $<$  1100mm (43") wide require a handrail on both sides of curved stairs

Stairs  $\geq$  1100mm (43") wide require handrail on 1 side (residential) or 2 sides (all other locations)

## **Handrails required along ramps**

Residential ramps  $<$  1100mm (43") wide require a handrail on one side for both straight & curved

Other locations:  $<$  1100mm (43") wide require a handrail on both sides of curved

Residential ramps  $\geq$  1100mm (43") wide require a handrail on both sides

Other locations:  $\geq$  1100mm (43") wide require a handrail on both sides

## **Handrails Must be continuously graspable**

### **Intermediate Handrails on Wide Stairs**

Stairs  $\geq$  2200mm (87 inches) require an intermediate handrail such that a user is no more than 825mm (32 inches) from a handrail.

### **Handrail height:**

A handrail must be between 865mm and 1070mm (34 and 42 inches) above the nosing.

[Comparison: U.S. handrail height above the step nose: 34 and 38 inches]

Commercial Stair Handrails: top of the a guard (42" minimum height) can also serve as handrail.

[Comparison: U.S.

Guards required for stairs with a 30" drop

Guard height: 42" minimum

Handrail height: 34" to 38" ]

## **Handrail Bracket Clearance**

2-inch minimum clearance between wall and inner surface of handrail.  
If the wall surface is considered "rough" clearance should be 2-3/8 inch.

## **Handrail Extensions**

Handrails must be terminated in a manner that will not obstruct pedestrian travel or create a hazard.  
That can be addressed (not the only way) by returning the handrail to a wall, floor or post.

## **Stair Guards**

Not required unless there is a 600mm (24-inch) drop

[Comparison: U.S. require guards where there is a 30-inch or more drop.]

Minimum guard Height: 1070mm (42-inch) - commercial

Minimum guard Height: 900mm (36-inch) - residential

Guards opening limitation 100mm (3-7/8-inch) e.g. between balusters.

## **Landings**

Landings are required at the top and bottom of interior and exterior stairs and ramps.

landings also required where door opens onto a ramp, ramp opens onto a stair, stair opens onto a ramp

No landing required at top of stairs in a garage when the stair does not have more than 3 risers OR at the top of stairs in garages where the door opens away from the stairs (regardless of number of risers)

Requirements that apply to stairs, ramps handrails and guards within dwelling units also apply to stairs, ramps handrails and guards in garages.

## **Stair Tread & Landing Slope**

Slope on treads and landings shall not exceed 1 in 50 (used to be 1 in 100)

## **Openable Residential Window Guards / Protection**

[presumably pertains as well to windows in stairs? - missing is requirement for guards over windows in stairwells / landings in the direction of travel]

Guard at height of 1070 mm OR mechanism to control window opening to 100 mm  
Exception: for openings located higher than 1070 mm OR bottom edge of openable portion of window is < 1800 mm above surface on other side.

### **Prevent Climbable Guardrailings / Guards / Balustrades**

Climbable stair guards: examples and dimensions given to qualify for making guards not-climbable

Climbability restrictions are required for levels above 4.2 meters (13'-9") above the adjacent level.

This is a change from the 2010 NBC which required climbability restrictions on all guards.

Ontario may still require climbability restrictions on all guards.

Climbability restrictions do not apply for guards in industrial applications where children are not expected to be present.

More decorative elements are now permitted where guards protect occupants from an elevation difference of 4.2 m or less.

### **Stair guard load requirements**

- see clip - detailed table TBD

### **Handrail load requirements**

1. Handrail and their supports shall be designed and constructed to withstand the following loads which are not to be considered to act simultaneously:

1.1 a concentrated load of not less than 0.9 kN (202 lbs)

or

1.2 a uniform load of 0.7 kN/m (48 lb/ft)