

Ramps

NBC Division B, Article 3.8.3. - Ramps

A ramp located in a barrier-free path of travel shall:

- have a clear width not less than 870 mm,
- have a slope not more than 1 in 12 (see Figure 9),
- have a level area not less than 1500 mm by 1500 mm at the top and bottom and the level area extends not less than:
 - 600 mm beyond the edge of the door opening where the door opens towards the ramp (see Figure 10), or
 - 300 mm beyond the edge of the door opening where the door opens away from the ramp (see Figure 11).
- have a level area not less than 1200 mm and least the same width as the ramp:
 - at intervals not more than 9 m along its length (see Figure 12), and
 - where there is an abrupt change in the direction of the ramp (see Figure 13).
- be equipped with a handrail at a height between 865 mm to 965 mm high,
- equipped with a guard conforming with other regulations in the NBC Division B, Article 3.4.6.6. (see Figure 14),
- handrails do not apply to ramps serving as an aisle for fixed seating
- the surfaces of ramps and landings shall:
 - be hard or resilient where the ramp is steeper than 1 in 15,
 - have a cross slope not steeper than 1 in 50, and
 - when exposed to water, be designed to drain.
- ramps and landings not at grade or adjacent to a wall shall have edge protection consisting of:
 - a curb not less than 75 mm high, or
 - a raised barrier or rail located not more than 100 mm from the ramp or landing surface.
- floors or walks in a barrier-free path of travel having a slope steeper than 1 in 20 shall be designed as a ramp.

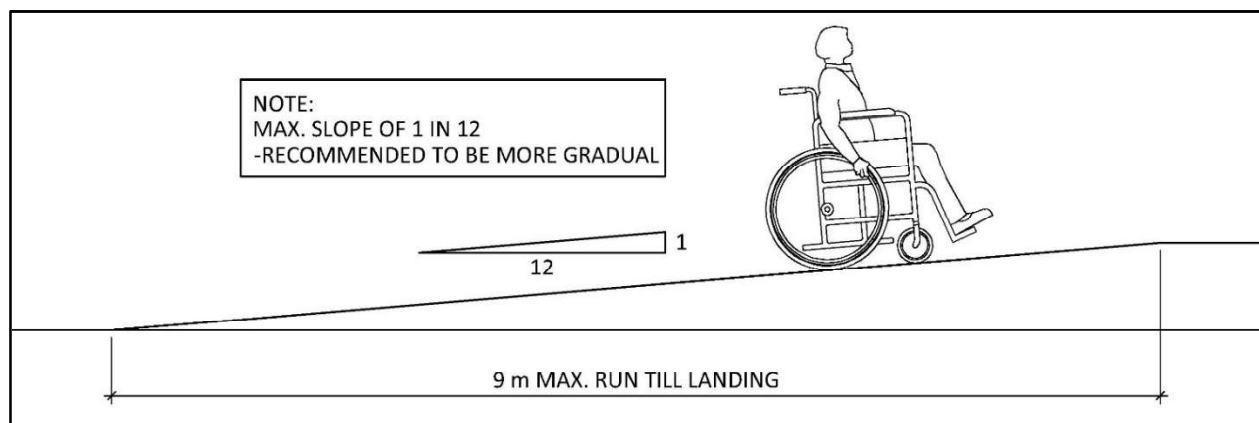


Figure 9 - Ramp Slope (NBC)

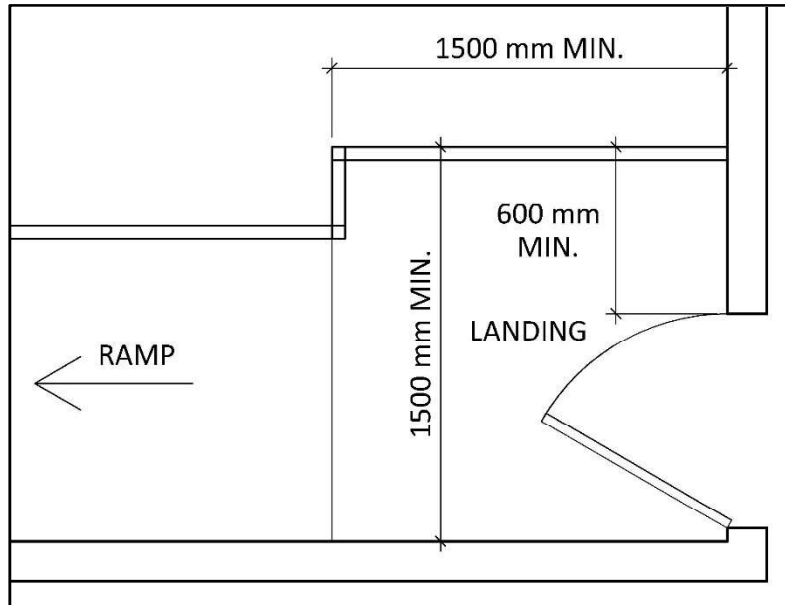


Figure 10 - Landing configuration – Door Swinging Towards Ramp (NBC)

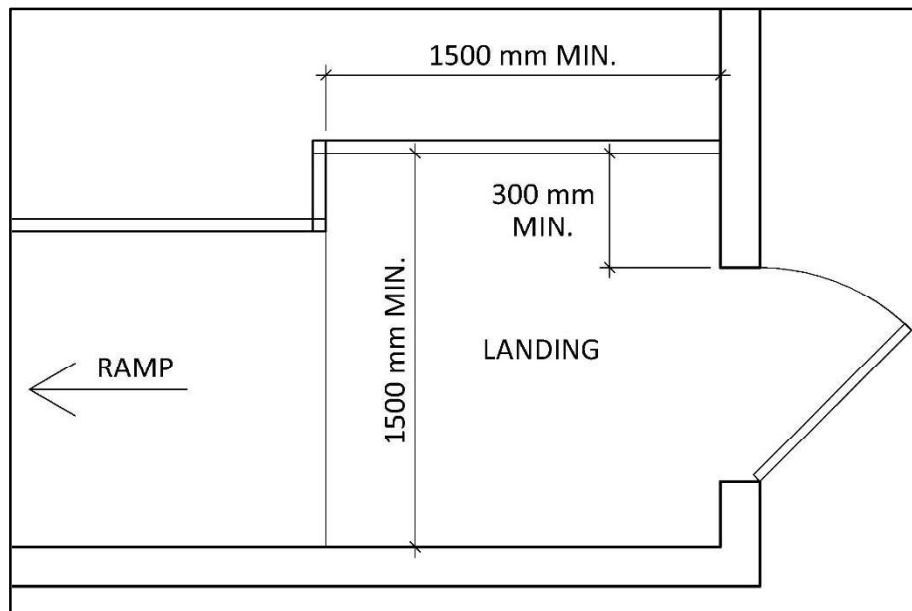


Figure 11 - Landing Configuration – Door Swinging Away from Ramp (NBC)

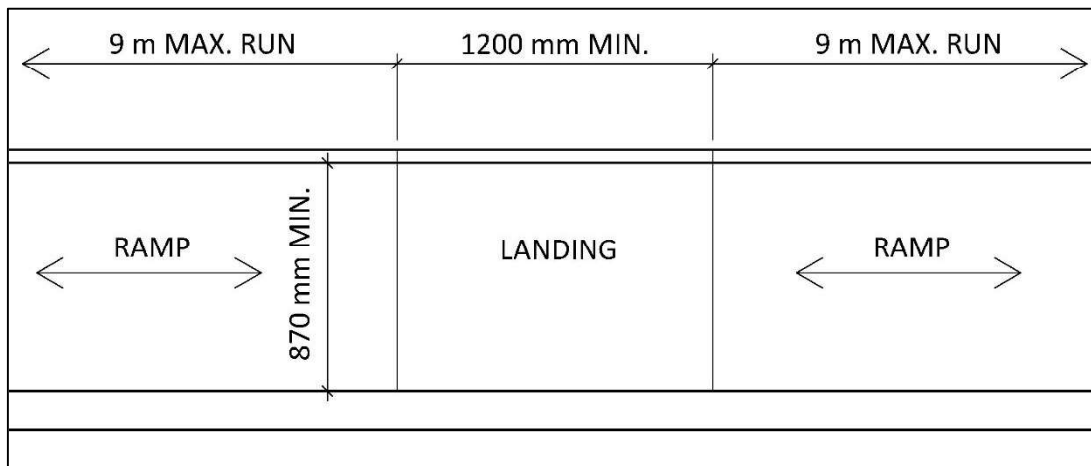


Figure 12 - Landing Configuration When Ramp Exceeds 9 m In Run (NBC)

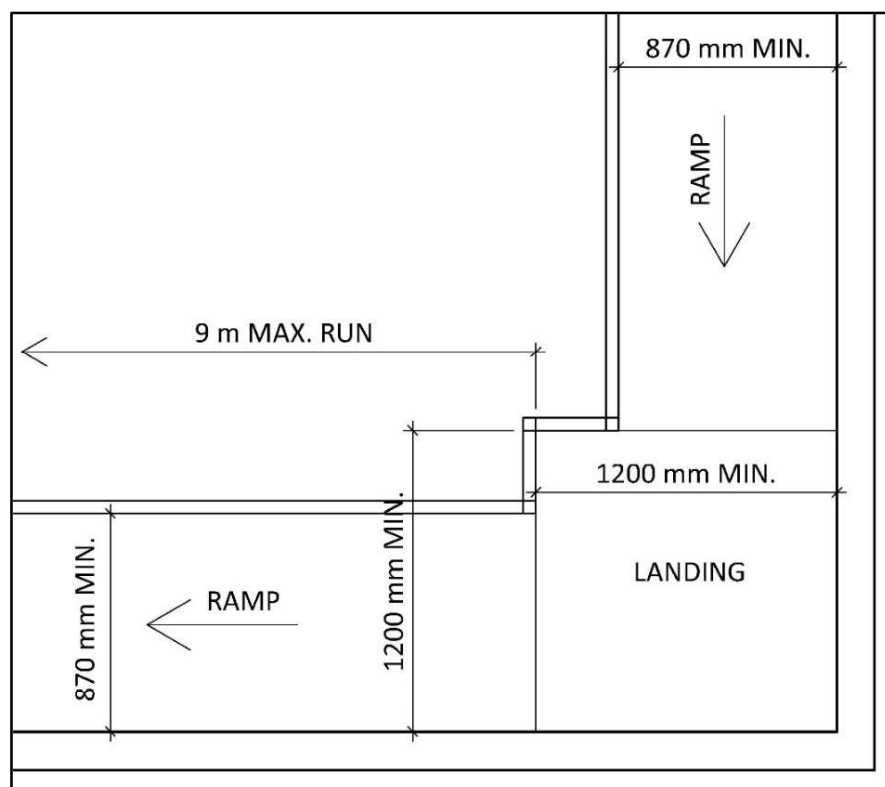


Figure 13 - Landing Configuration for Change of Direction (NBC)

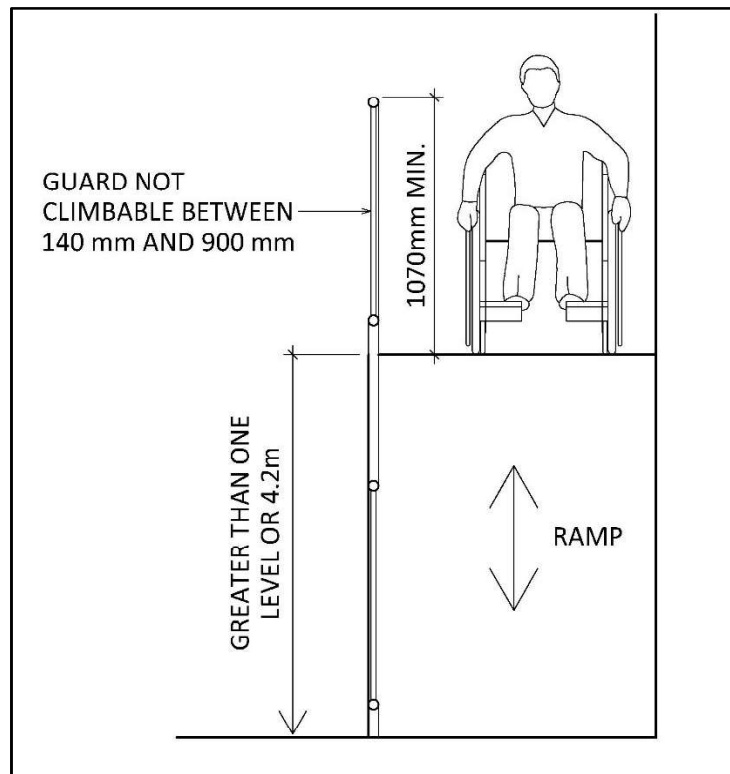


Figure 14 – Guard Requirements for Ramps (NBC)

CSA B651 – Clause 5.5 – Ramps

Ramps required shall:

- have a running slope with the ratio between 1:12 (8.3333%) and 1:20 (5%),
- have a maximum distance between level landings of 9 m,
- have a cross slope of the ramp surface not steeper than 1:50 (2%) (see Figure 6 on page 24),
- have a clear width of not less than 920 mm,
- landings shall be level and:
 - be supplied at the top and bottom of each ramp,
 - be provided at all changes of ramp direction,
 - be at least as wide as the widest ramp leading to it,
 - have a length not less than 1500 mm (see Figure 15),
 - at doorways serving and accessible route, have an area not less than 1500 mm by 1500 mm (see Figure 16), and
 - where it meets a slope change, have a 50 +/- 10 mm wide colour contrasted and slip-resistant strip equal to the width of the ramp,
- have edge protection when ramps or landings are not at grade or adjacent to a wall in the form of either:
 - a curb with a minimum height of 75 mm, or
 - a raised barrier or rail with its lower edge not more than 75 mm from the ramp or landing surface.
- have a minimum illumination at the surface level of at least 100 lx,
- have handrails on both sides when the ramp has a rise greater than 150 mm that:
 - comply with the regulations that are outlined in this guide (see 'Handrails' page 32),

- are continuous on the ramp and around landings,
- are colour-contrasted with their surroundings,
- have at least one set of handrails with a clear width between 920 mm and 1000 mm between the rails,
- have a height between 860 mm and 920 mm, measured from the ramp surface to the top of the rail, and
- have horizontal extensions beyond the top and bottom of the ramp;
 - at least 300 mm long, and
 - that are returned to the post, floor or wall.

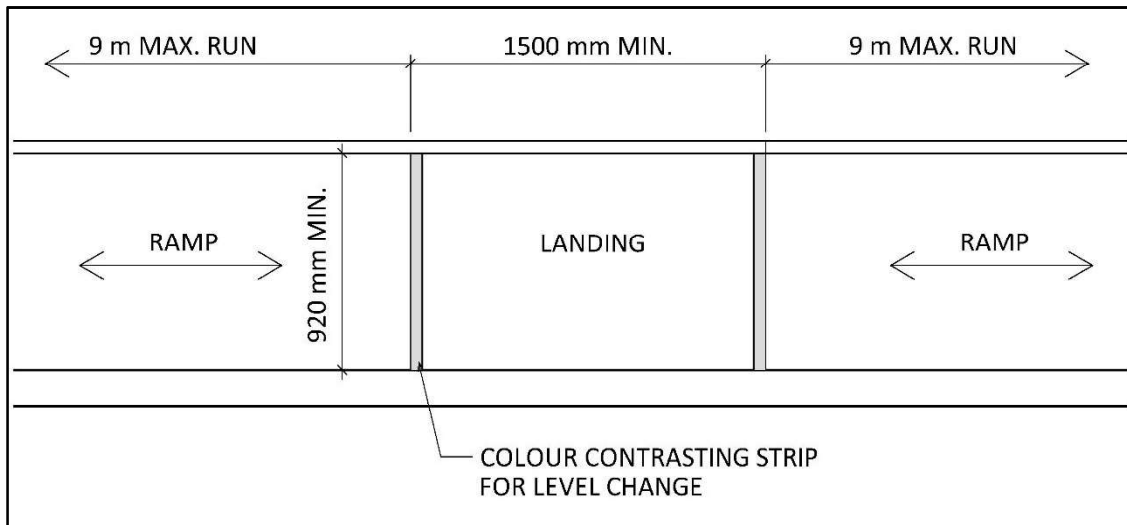


Figure 15 – Colour Contrasting Strips (CSA B651)

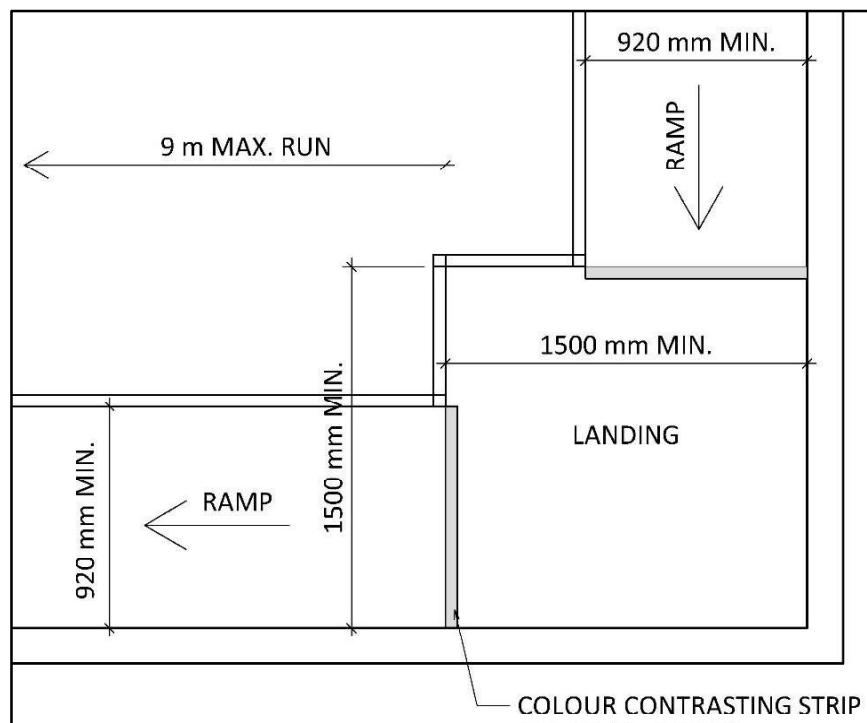


Figure 16 – Landing c/w Colour Contrasting Strips (CSA B651)

Handrails

NBC Division B, Article 3.4.6.5. – Handrails

When handrails are required shall:

- be supplied on one side of stairs that are less than 1100 mm in width,
- have one handrail on each side of:
 - stairs that are 1100 mm or more in width,
 - curved flights of stairs that are any width, and
 - ramps.
- be continuously graspable along the entire length and free of any sharp or abrasive elements, and shall have: (see Figure 17)
 - a circular cross-section with an outside diameter not less than 30 mm and not more than 43 mm, or
 - a non-circular cross-section with a perimeter not less than 100 mm and not more than 125 mm and whose largest cross-sectional dimension is not more than 45 mm.
- measured vertically from the top of the handrail to:
 - a straight line drawn tangent to the tread nosings of the stair or aisle stop served by the handrail, or
 - the surface of the ramp, floor, or landing served by the handrail.
- have an installed height for both ramps and stairs of:
 - not less than 865 mm, and
 - not more than 1070 mm.
- when required, be continuously graspable throughout the length of:
 - the ramp, and
 - a flight of stairs, from the bottom riser to the top riser.
- when interrupted by a doorway, have at least one handrail that is continuous throughout the length of the stairway or ramp, including at landings,
- terminate in a manner that will not obstruct pedestrian travel or create a hazard,
- have at least one handrail that extends 300 mm horizontally beyond the top and bottom of the stairway or ramp,
- have a clearance behind the handrail of at least;
 - 50 mm, or
 - 60 mm if the surface behind the handrail is rough or abrasive.
- be designed complete with the supports, to withstand the loading values of not less than:
 - 0.9 kN (approximately 202 pounds) applied at any point and any direction, and
 - 0.7 kN (approximately 158 pounds) applied uniformly in any direction not located in dwelling units.

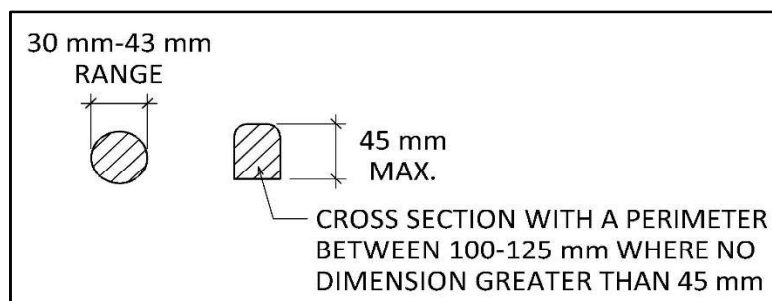


Figure 17 – Handrail Requirements (NBC)

CSA B651, Clause 5.3 – Handrails

When handrails are required shall:

- resist a force of 1.3 kN (approximately 292 pounds) applied in any direction,
- have a graspable cross-section that is either: (see Figure 18)
 - circular with an outside diameter of 30 to 40 mm, or
 - elliptical with an outside perimeter between 100 and 125 mm, with the largest cross-sectional dimension not more than 45 mm.
- be free of any sharp or abrasive elements,
- have a continuous gripping surface, without interruption by newel posts or other construction elements or obstructions that interrupt a hand hold,
- have a clear space between the handrail and the wall, and underneath the handrail, as follows;
 - between 35 and 45 mm wide for a smooth wall surface, and
 - between 45 and 60 mm wide for a rough wall surface, and
- be colour-contrasted with the surrounding wall surface.

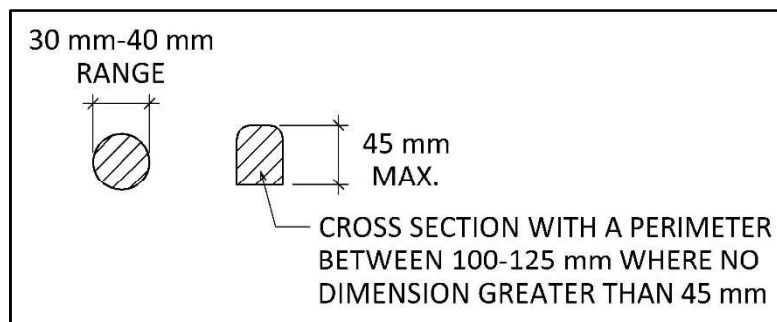


Figure 18 – Handrail Requirements (CSA B651)