Welcome to the BCBC 2018 Update Sessions

Session 3.6
Parts 3 and 9
Specific to Stairs Ramps, Landings, Handrails and Guards
The BOABC have made some changes to this presentation to provide information that is specific to the BC Building Code.

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Stairs, guards and handrails

National Building Code

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Run dimension in dwelling units
Parts 3 and 9 for Stairs, Landings, Handrails and Guards
Parts 3 and 9 for Stairs, Landings, Handrails and Guards

This is a summary of where changes to stairs, ramps, landings, handrails and guards occurs in the 2018 BCBC

The changes are located in the following Sections:

Div. A

Section 1.4. Terms and Abbreviations

Div. B

Section 3.3. Safety within Floor Areas
Section 3.4. Exits, and
Section 9.8. Stairs, Ramps, Handrails and Guards

Handbook:
pages 9-13 (Part 3)
pages 48-52 (Part 9)
There are 3 new defined terms applicable to stairs:

- **Flight**
- **Run**, and
- **Tapered Tread**
Terminology

Flight means a series of steps between landings.
**Terminology**

- *Run* means the horizontal distance between two adjacent tread nosings on a stair.
Terminology

- *Tapered treads* means a tread with non-parallel edges that increases or decreases its *run* uniformly over its width.

[Image of a spiral staircase]

Treppe, Leipziger, Messe, Sachsen: [https://commons.wikimedia.org/wiki/File:Treppe._Leipziger_Messe._Sachsen._IMG_4384WI.jpg](https://commons.wikimedia.org/wiki/File:Treppe._Leipziger_Messe._Sachsen._IMG_4384WI.jpg)
Part 3 Changes for Stairs, Landings, Handrails and Guards

Change begins Part 3 starting with Section 3.3.:  

Section 3.3. Safety within Floor Areas  

Subsection 3.3.1. All Floor Areas  
3.3.1.14. Ramps and Stairways  
3.3.1.16. Tapered Treads in a Curved Flight  
3.3.1.18. Guards  

Subsection 3.3.2. Assembly occupancies  
3.3.2.10. Handrails in Aisles with Steps  

Subsection 3.3.5. Industrial Occupancies  
3.3.5.4. Repair and Storage Garages  
3.3.5.10. Guards
Part 3 Changes for Stairs, Landings, Handrails and Guards

*Tapered treads in a curved flight*
Minimum dimensions for curved stair not used as an exit and not within or serving 1 dwelling unit
There is no maximum run dimension for curved stair not used as an exit and not within or serving 1 dwelling unit
Minimum dimensions for curved flight within or serving 1 dwelling unit that is not used as an exit
Part 3 Changes for Stairs, Landings, Handrails and Guards

Maximum dimensions for tapered treads not used as an exit within or serving 1 dwelling unit.
Next Part 3 changes continue in:

Section 3.4. Exits

Subsection 3.4.3. Width and Height of Exits
  3.4.3.3. Exit Width Reduction

Subsection 3.4.6. Types of Exit Facilities
  3.4.6.3. Maximum Vertical Rise of Stair Flights and Required Landings
  3.4.6.4. Dimensions of Landings
  3.4.6.5. Handrails
  3.4.6.6. Guards
  3.4.6.8. Treads and Risers
  3.4.6.9. Curved Flights in Exits
Part 3 Changes for Stairs, Landings, Handrails and Guards

Tapered Treads for Exits
Part 9 changes occur in

Section 9.8. Stairs, Ramps, Handrails and Guards

Subsection 9.8.3. Stair Configurations
  9.8.3.1. Permitted Configurations

Subsection 9.8.4. Step Dimensions
  9.8.4.1. Rise for Rectangular, Tapered and Winder Treads
  9.8.4.2. Run for Rectangular Treads
  Table 9.8.4.2. Run for Rectangular Treads
  9.8.4.3. Dimensions of Tapered Treads
  9.8.4.4. Uniformity and Tolerances for Risers, Runs and Treads
### Dimensions for Rectangular Treads

#### Table 9.8.4.1 (Rise) and Table 9.8.4.2 (Run)

<table>
<thead>
<tr>
<th>Stairs Type</th>
<th>Rise (no change)</th>
<th>Run (no change)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIVATE</strong></td>
<td>Min 125 mm – Max 200 mm</td>
<td><strong>Min 255 mm</strong> – Max 355 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stairs Type</th>
<th>Rise (no change)</th>
<th>Run (no change)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PUBLIC</strong></td>
<td>Min 125 mm – Max 180 mm</td>
<td>Min 280 mm – No limit</td>
</tr>
</tbody>
</table>

### Notes to Tables 9.8.4.2.1 and 9.8.4.2

- **(1) Private stairs** are exterior and interior stairs that serve single *dwelling units* or that serve garages that serve single *dwelling units*.
- **(2) Public stairs** are all stairs not described as service stairs or private stairs.
Section 9.8. changes (continued)

**Subsection 9.8.6. Landings**
- 9.8.6.3. Dimensions of Landings
- 9.8.6.5. Tactile Warning,

**Subsection 9.8.7. Handrails**
- 9.8.7.1. Required Handrails
- 9.8.7.2. Continuity of Handrails
- 9.8.7.4. Height of Handrails
- 9.8.7.5. Ergonomic Design
- 9.8.7.7. Design and Attachment of Handrails
Part 3 Changes for Stairs, Landings, Handrails and Guards

Length of landing requirements have not changed where flights are in line with the landing or turn 90 degrees.

Images apply to landings for *dwelling units*. 

Minimum 860 mm
Where flights turn less than 90 degrees there are new measurement points prescribed to establish minimum length.

Images apply to landings for *dwelling units*.
Section 9.8. changes (continued)

**Subsection 9.8.8. Guards**

9.8.8.2. Loads on Guards
9.8.8.4. Guards for Floors and Ramps in Garages
9.8.8.5. Openings in Guards
9.8.8.6. Design of Guards to Not Facilitate Climbing
Spiral stairs are not permitted in BC

BCBC DELETED Spiral stair references in the current NBC

- 9.8.3.1 Permitted configurations
- 9.8.4.5 Requirements for mixed flights
- 9.8.4.7 Requirements for spiral stairs
Differences between NBC and BC

Mixed-run flights are not permitted in BC
Winder type treads are permitted within a *flight*, however, are not permitted to converge to a point in BC.
Winder Treads

Winder treads at minimum run (255mm)
Winder Treads

Winder treads at maximum run (355mm)
Open risers no longer permitted in Part 3 Public stairs
Except for stairs within a dwelling, or serving not more than 2 dwellings, landings required at the top of a flight of stairs shall be provided with **tactile walking surface indicators** conforming to Subsection 3.8.3

(http://www.urbanaccesssolutions.com)
Ornamental guards

- Restricted choices
- **Now!** Permitted when less than one floor-to-floor elevation (4.2 m)
Industrial guards
Height of guards

- New **minimum** height: 1 070 mm
  on flights of public stairs, ramps and landings

Courtesy of: Stainless Fabricators, Inc.
At least one handrail shall be located not more than 750 mm from the natural path of travel on the stair or ramp.

Except for stairs with winders, where a flight of stairs within a dwelling unit consists of tapered treads, one handrail shall be installed along the narrow end of the treads.

Height of handrails is raised to a maximum of 1070mm.
The clearance between a handrail and the surface behind it shall be not less than

- 50 mm, or
- Where the wall surface is rough or abrasive it must be 60 mm
• Except for single dwellings, required handrails shall be **continuously graspable** throughout the length of ramps, and flights of stairs, from the bottom riser to the top riser.

• **For stairs or ramps serving a single dwelling**, a handrail is permitted to start from a newel post or volute installed on the bottom tread.
Handrails in step aisles
3.4.6.5.(2) New

One handrail shall be provided on each side of
• a) stairs that are 1 100 mm or more in width,
• b) curved *flights* of any width, and
• c) ramps.
3.4.6.5.(3) New

In addition to Sentence (2), intermediate handrails shall be provided so that

a) a handrail is reachable within 750 mm of all portions of the required exit width,

b) at least one portion of the stair or ramp between two handrails is the minimum width required for stairways or ramps (see Sentences 3.4.3.2.(8) and 3.4.3.3.(4)), and

c) all other portions of the stair or ramp between two handrails have a clear width of 510 mm or more.
Part 9 for Stairs, Landings, Handrails and Guards

50 mm dia. handrails projected onto stairs

Reachable within 750 mm from closest handrail

At least one portion of the stair or ramp between two handrails is the minimum width required for stairways or ramps (850 mm, width of 510 mm or more).
3.4.6.5.(4) New

Where a stair or ramp is wider than its required exit width, handrails shall be located along the most direct path of travel.
Takeaways

• Terminology
• New dimensioning and uniformity of tapered treads
• New dimensioning of landings
• Run dimension increase in dwelling units
• Open risers in *industrial* buildings
• Guards and handrail design
• Height of guards and handrails
• Continuity of handrails
Thank you