

3.3 EXTERNAL STEPS

THIS SECTION DEALS WITH THE DESIGN, LOCATION AND PROVISION OF EXTERNAL STEPS.

PERFORMANCE OBJECTIVE

The connectivity of the public realm and access to and between buildings and external spaces shall be designed to minimise the need for steps. Steps shall always be provided in conjunction with ramps (where the change in level is greater than 300mm) to provide an alternative means of access. Steps and stairs shall be designed to ensure the safety and comfort of all users.

3.3.1 MANDATORY PROVISIONS

The design of external steps will satisfy the performance objectives if (see figure 17):

1. If not readily apparent stepped access is clearly signed.
2. Ramps are used in preference to single isolated steps where the rise is less than 300mm.
3. The riser and going dimensions for each step are consistent within a flight and across consecutive flights.
3. There are a maximum of 12 risers in any one flight where the tread dimension is less than 350mm and a maximum of 18 risers in any one flight where the tread dimension is 350mm or greater.

5. The minimum unobstructed flight width (between walls, balustrades, upstands and strings) is 1200mm and the width between handrails is not less than 1000mm.
6. Level unobstructed landings with a length equal to the width of the stair (not less than 1200mm) are provided at the top and bottom of each flight and no doors open across landings.
7. The dimensions of step risers are between 150mm and 170mm and the dimensions of step goings are between 300mm and 450mm. The relationship between the riser and going dimensions is twice the rise plus the going (2R + G) and equals between 550mm and 700mm.
8. The surface materials are durable, easy to maintain and slip-resistant when wet. The frictional characteristics are similar for treads and landings even if the materials used are different.
9. A permanent integral nosing that contrasts visually with the tread and riser surfaces is provided to the full width of each step. The nosing is between 50mm and 65mm deep and between 30mm and 55mm high. There are no open risers.
10. Where projecting nosings are provided they have a chamfered profile and a maximum overlap of 25mm (see figure 18).
11. Tactile surfaces in accordance with Section 2.2 are provided at the top and bottom of each flight as a hazard warning.
12. Surfaces finishes to the steps contrast visually with the landing surfaces.
13. The maximum cross-fall gradient on a stair flight or landing is 1:50.
14. A continuous handrail in accordance with Section 3.4

- is provided to both sides of flights and around intermediate landings.
15. Where flights are wider than 2000mm a handrail divides the flight into two widths such that the space between handrails is not less than 1000mm and not more than 2000mm.
 16. Artificial lighting providing, an even level of illumination of 100 lux (measured at the tread surface), is provided along the full length of the stair flight and at landings
 17. Where the soffit beneath a stair is less than 2000mm above the finished floor level the area beneath is protected by guarding and low level cane detection or a barrier providing the same degree of protection.

3.3.2 MANDATORY DESIGN OBJECTIVES

GENERAL

1. Steps present a general hazard to vulnerable users particularly those with impaired sight. Flights of steps should therefore be readily identifiable with tactile markings at the top and bottom of flights. Tactile markings should not generally be used on intermediate landings unless there is an additional access route onto the landing.
2. The safe and comfortable use of the stair is largely dependent on the relationship between the height of the riser and the depth of the tread. Deeper treads provide greater tolerance for foot

placement and at the upper end of the dimensional range the tread will allow people to stand and rest at any point on the flight. For vulnerable users to feel confident using a stair foot placement, a combination of visual location and physical feel, is critical. Users should therefore be easily able to differentiate steps and walking rhythm should not be broken by uneven riser heights within a flight. Stair treads should have sufficient slip-resistance so that users can feel confident of not slipping. The tactile sensation of foot on tread is important for both those with sight impairments and those who are physically frail and unsteady on their feet.

3. Handrails should provide a means of support and a visual and tactile guide to the stair location. Handrails should be provided even where there are only two steps.

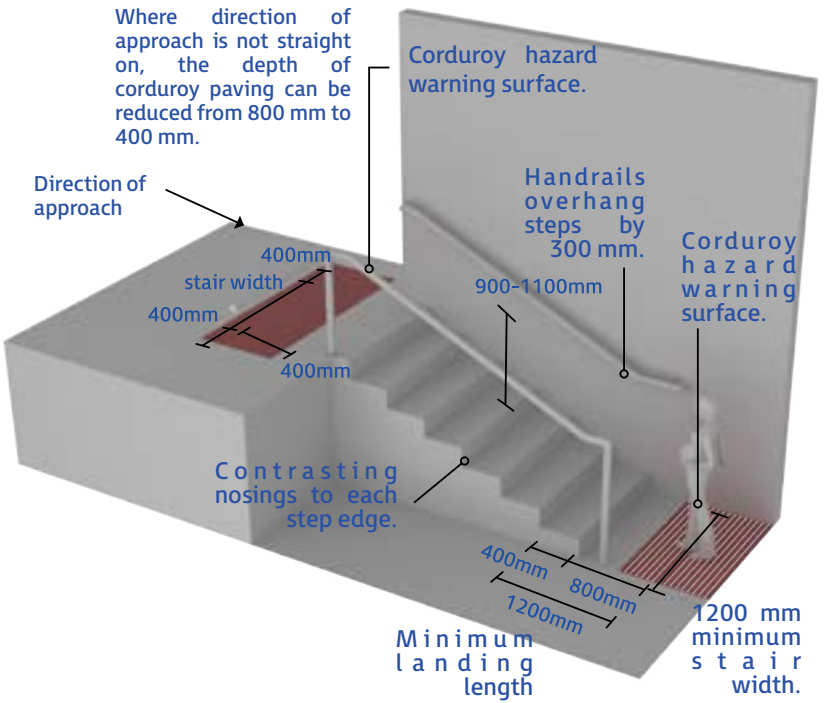


Figure 17 / Stair dimensions

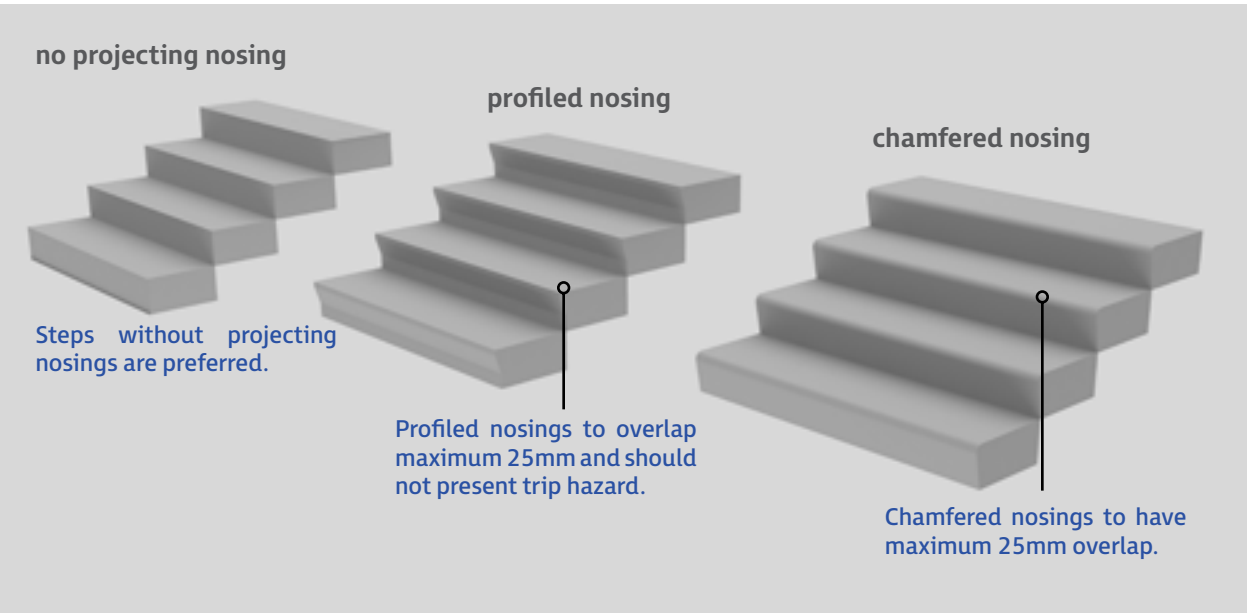


Figure 18 / Step profiles