



0001c Design Checklist - Circulation

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00 Design principles

0.01 Main Considerations

It is a requirement to undertake the [00 PLANNING AND DESIGN/ 0001R - DESIGN REFERENCE](#) and [GLOSSARY OF TERMS](#) information into all aspects of design, detailing and delivery when developing the content here within. Clear demonstration of adherence to these requirements is part of the services and will be called upon at key points in the project and during at the discretion of the Department of Education (DoE).

0.02 Introduction

The circulation strategy of schools must achieve safe, legible movement throughout the school, provide social interaction and connectivity and facilitate the connection between learning spaces to support the school's pedagogical approach.

Circulation in all school types must be designed to provide operational adequacy proportional to movement of staff and students.

The Education Facilities Standards and Guidelines (EFSG) generally exceed National Construction Code (NCC) requirements due to the unique operational nature of the school environment with mass movements occurring multiple times across a school day. The standards are based on operational effectiveness in addition to emergency egress and address:

- widths of horizontal travel paths based on operations and mass movement
- number and location of vertical movement points to enable efficient mass movement between floor levels during the brief interval between bells.

The following criteria for the design of circulation spaces assume that students (with school bags) can be travelling to areas at the same time as other students are traveling in the opposite direction, thus increasing the potential for crossflow and congestion.

These requirements are additional to the requirement to achieve full compliance with all relevant building codes and regulations.

Refer to [00 PLANNING AND DESIGN/0001C DESIGN CHECKLIST - ACCESSIBILITY](#)

0.03 Movement – Circulation Widths

Main circulation is the primary path of travel connecting a series of buildings or learning hubs. Main circulation spaces are required to have a minimum 2100mm clear width

providing 3 movement lanes. This includes external paths, walkways, ramps, stairs and corridors.

In supplementary circulation areas accessed off a main circulation path to no more than 4 full time learning spaces, the minimum clear width is 1400mm which must comply with the additional NCC and Australian Standards (AS)1428.1 and AS1428.2 requirements to achieve turning and door access clearances for a wheelchair user.

Where bag storage is located on a wall adjacent to a corridor an additional 500mm width for the bag storage zone is to be provided to the clear corridor width. Clear corridor width will be $2100 + 500 = 2600\text{mm}$ where bag storage is provided on one side wall of the corridor.

0.04 Movement - Within a Cluster

An assessment of the required movement within classroom/ learning areas should be undertaken based on the number of students in these areas and in consideration of the following:

- Most students leave an area before the next group arrives.
- Students pack / unpack materials from bags and queue within an area. Area required for queuing is 0.5 m² per student.
- Student numbers: Assume that each classroom caters for up to 30 students (learning desk positions) with 90% of learning positions occupied in a cluster to allow for a reasonable occupancy factor: eg Science area with 6 laboratories - $6 \times 30 \times 90\% = 162$ students.
- When students are queuing, minimum movement will occur.
- A Single lane of students must be 0.7m wide to allow for movement.

0.05 Movement - Into and out of a Cluster

An assessment of the required movement within the classroom/ learning areas should be undertaken based on the number of students in these areas and consideration of the following:

- Students will leave within the first minute of a period change or break.
- Movement lanes must be 0.7m wide, which allows for students carrying bags.
- Flow rate of each 0.7m wide lane, would be 40 students per minute (S/min) on stairs and 60 S/min otherwise. The flow rate is the volume of students that can pass a single point in the 0.7m wide lane.
- Student numbers: Assume occupancy of 90% of the learning positions in the cluster.

- Widths of cluster exit openings/passage is to be based on the number of students accommodated in that area.
- Where the calculated width results in 1.4m or less, allow for one additional movement lane (0.7m) for movement against the main flow. In effect the minimum clear circulation width, including stairs, is 2.1m to and from classrooms.

Example:

For a cluster of 6 laboratories, 180 students leave in 1 minute Required capacity of exit openings or passages is:

$$(180 \times 0.9) = \frac{162 \text{ S/min}}{60 \text{ S/min}} = 2.7/0.7 = 3.85 \text{ ie. 4 Lanes (to nearest full lane)}$$

Notwithstanding Building Regulatory requirements, this width may be distributed among several exits in proportion to the amount of accommodation to which each path leads.

0.06 Width for Mass Movement

Corridors and circulation spaces, including stairs, are to be designed to suit the number of students that are to use the space. In main circulation areas the width should be estimated based on student numbers, as follows:

- Most students are moving to one point, e.g. canteen or buses at the same time.
- Students using the circulation area will need to pass through in two minutes.

Example:

A travel width for 700 students in two minutes would require:

$$\begin{aligned} \frac{700 \text{ (S)}}{60 \text{ (S/min/L)} \times 2 \text{ (min)}} &= 5.83 \text{ L per 2 minutes} \\ &= 6 \text{ Lanes} \\ &= 4.2 \text{ m clear width.} \end{aligned}$$

Notwithstanding Building Regulatory requirements, this width may be distributed among several travel pathways in proportion to the amount of accommodation to which each path leads. The minimum requirement being 2.1m (see 0.04 Movement - Into and out of a Cluster)

0.07 Movement in other Areas

Where there are not large numbers of students moving through circulation areas, such as in the administration office areas, the clear width can be reduced to 1200 mm for short corridor lengths, a ramp or stair up to a raised platform in the hall. Note that additional circulation space is required at doorways and passing areas for wheelchair users to the requirements of AS1428.1 and AS1428.2

0.08 Weather Protection

Circulation Areas provided between administrative, staff and all student spaces (except Agriculture), are required to be protected from sun, rain and unfavourable winds.

Refer to: [00 PLANNING AND DESIGN/0001C DESIGN CHECKLIST - FINISH](#) for material selection and treatment of circulation spaces