
The physical school environment

BRIEF 2

Educational facilities

Students learn best when schools are accessible, safe, hygienic, reasonably comfortable, and cognitively stimulating.

Well-designed schools can positively affect learning by focusing on issues such as: location, building materials, size of classrooms, furniture, lighting, temperature, ventilation, noise level, sanitation, and the inclusion of auxiliary facilities. Beyond the basic school infrastructure, the built environment can also become a powerful support for learning by emphasizing literacy-rich displays and elements that reinforce the use of scientific and mathematical skills.

Issues and Discussion

Location: Schools should be located no further than 3 kilometres from students' homes, and closer for younger children, in order to increase access and attendance. Locations should be chosen with safety and health considerations in mind. An enclosure or other appropriate boundary helps to protect children and keep them within the school area.(3)(5)(6)

Building Materials: Locally-available and environmentally-friendly materials should be used to the extent possible without compromising the school's structural strength and durability. Extra caution needs to be taken in areas prone to natural disasters.(5)(6)

Classroom Size and Design: Classrooms should be planned for a minimum of 1.2m² per student, and a maximum of 40-45 students per room. Slightly larger classrooms of 1.4m² per student allow for more flexible use of the learning space. Classrooms should be easy to exit in case of emergency.(2)(4)

Appropriate furniture: Classroom furniture should be provided in adequate numbers, with a plan for regularly replacing broken items. Furniture should be of the correct dimensions for the age of the students, and mobile pieces are preferable, as they allow for more flexible learning strategies. Classrooms should also include a provision for storing students' belongings, and should include ample chalkboard and other display space.(5)

Adequate lighting: Classrooms need to be well-lit in order for students to read, write, and follow what their teacher is saying. Window size should at a minimum correspond to 20% of the classroom floor area, with auxiliary electric lights whenever possible. In order to maximize reflective lighting within the classroom, light colours should be used for ceiling, walls, and furniture.(5)

Shelter, Temperature, and Ventilation: Roofing materials should be durable and regularly repaired to provide sun protection and to prevent leaking and caving in. A temperature of 20-23°C is preferable for optimal learning. Raised ceilings, deep overhangs, and ventilation grills can reduce classroom temperatures in hot climates. Measures to increase wall and window insulation can improve heat retention in cold climates. Extra ventilation is needed wherever there are emissions from chemicals and heating fuels.(1)(4)(6)

Noise Level: Noise distraction can interfere significantly with learning. Schools should not be located near railways, high-traffic areas, or noisy industries. There should also be sufficient space or good quality walls between classrooms to avoid noise contamination; classrooms themselves should not be overcrowded. Bare concrete or brick walls reflect sound, while paper or cloth displays can help to absorb it.(1)(2)(5)

Hygiene, Sanitation, and Health: Students need access to potable water at school. Hygienic hand washing facilities, whether sinks or a simple “[tippy tap](#)”, should be provided near toilets and eating areas, along with a cleaning agent such as soap or wood ash. There should be approximately 5 latrines or toilets per 3 classrooms. Covers for the toilets/pits and appropriate ventilation, along with regular maintenance and cleaning, help to reduce odours and the spread of disease. Any food on the premises should be carefully stored, and schools should be equipped with at least a basic first aid kit for health emergencies.(3)(5)(6)

Additional Facilities: Offices and storerooms are also considered necessary school facilities. Other facilities of benefit to students’ learning include libraries, IT centres, and laboratories. Amenities such as sports facilities, outdoor shelters, school gardens, kitchen, canteen, health clinic, dormitories, and teacher housing can also improve student attendance and reduce teacher absenteeism—however, the benefits of these facilities must be weighed against their costs.(3)

Literacy- and Learning-Rich Displays: The physical school environment should also be designed with learning opportunities in mind. Wooden rails in classrooms can provide space for tacking up [literacy-rich displays](#). An innovative architectural initiative, [BaLA](#) (Building as Learning Aid) proposes 150 low-cost design ideas for incorporating key learning areas into the built environment, from window grills that promote pre-writing skills, to door tracks that teach the concept of radian degrees.(5)

Inclusiveness Considerations

Gender: The key gender considerations associated with the physical school environment are linked to sanitary facilities and safety. Girls particularly benefit from having water available for washing and an accessible store of sanitary supplies. Girls and boys should have separate toilets for privacy, preferably located close to classrooms to allow teachers to monitor students’ safety. Classrooms should also have windows that allow external monitoring of classroom activities, in order to reduce the risk of abuse.(5)

Accessibility: School construction planning should take into account the needs of students with physical disabilities by including ramps, handrails, wide doorways, larger toilets, and other such measures.(5)

Policy Examples

- Bhutan [[PDF](#)]
- Peru [[PDF](#)]
- Rwanda [[PDF](#)]
- Mali [[PDF](#)]

References and sources

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