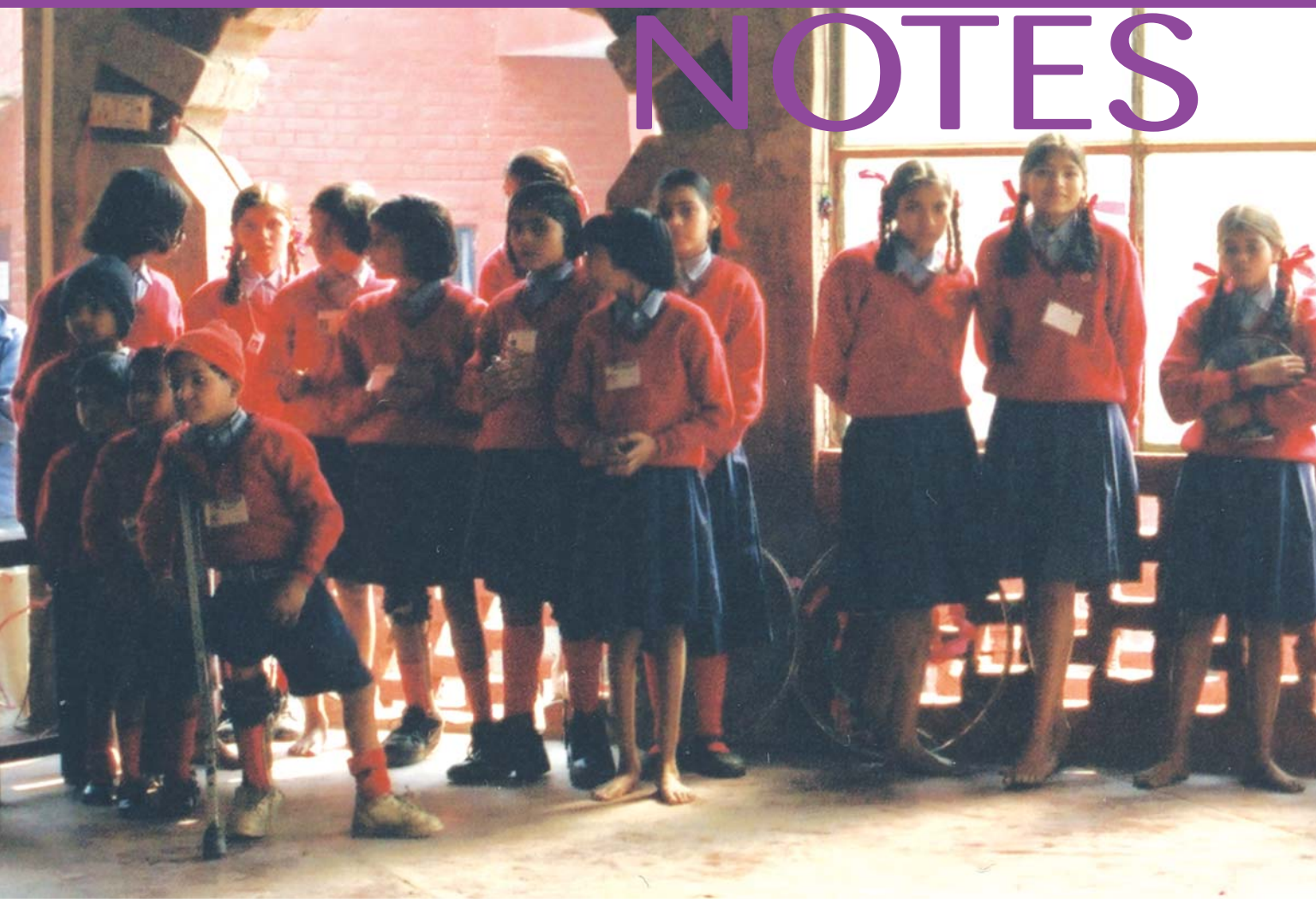
Education NOTES



Education for All: The Cost of Accessibility

The goal of Education for All (EFA) is to provide universal access to primary education throughout the world. To accomplish this goal, as many as 10 million classrooms will be built in developing countries by 2015. A key objective of the program is to ensure that no child is denied access to education because of disability.

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Access to all schools

is necessary to ensure that children with disabilities can participate independently in a mainstreamed environment since most villages will have only one school building. The related construction costs, if any, are not a barrier to providing access and are insignificant when compared to the benefits. Children who are educated with their peers have greater opportunities to become productive members of their societies and be more integrated socially in their communities.

Research has demonstrated that the cost of accessibility is generally less than 1% of total construction costs; however, the cost of making adaptations after a building is completed is far greater. Concerns about the cost of accessibility are typically based on lack of knowledge and experience and inaccurate estimates of the actual cost of construction. The most common argument is that accessible design requires much more space to accommodate wheelchairs. In two design research studies, Schroeder and Steinfeld (1979) redesigned 9 non-accessible buildings to meet accessibility standards. No additional space was necessary in any of the buildings, just rearrangement of the existing plan. In another study, Steven Winter Associates (1993) completed a similar analysis of 8 residential projects with similar results. This study was particularly noteworthy because it focused on housing where rooms are much smaller than those found in educational facilities.

Research suggests that accessibility reduces the cost of inclusion overall. Those who believe that accessibility is very costly often prepare estimates of additional costs to support their case. These estimates are usually based on assumptions that are not correct. For example, they may add cost factors for increased space without redesigning the plan of the building and omit deductions for savings like the elimination of stairs. Or, they may use worst case scenarios to generalize.

Providing accessibility to schools allows parents with disabilities to participate in the education of their children. In fact, since schools are probably the largest civic facility in rural villages, many community activities will take place in these buildings, once they are available. Therefore, they are likely to increase participation in civic life for all people throughout the life span. This participation will reinforce the value of school attendance and help to ensure that families keep their children in classes.

Controlling Costs

Many strategies can be used to keep the cost of accessibility at a minimum. For instance, sites where buildings must be raised well above grade to mitigate against flooding should be avoided as should sites so small that a two story building will be required.

When revising existing standard designs to make them accessible, it is important to revise the overall designs and not just add accessibility features. Usually, making the plan of another part of the building more efficient can compensate for the added space needed for wheelchair access. When a ramp is added, a stairway can often be eliminated.

In countries where accessibility is a new idea, changes to customary methods of construction may be needed to provide accessibility. For example toilets may be traditionally located between floor levels in two story schools to make them more accessible to each floor. Simply relocating the toilet rooms to the first floor eliminates any additional cost to make them accessible.

Perhaps the most important reason for unnecessary increased costs is not taking accessibility into consideration from the start of a design project. For example, if a school is on a sloping site and the entrance is at the downhill end, adding a second entrance at the uphill end may make a ramp unnecessary. Or, changing the location of the entrance by moving it to the uphill end may not only eliminate the need for a ramp but also for stairs, thereby saving money overall.

There are, of course, some unavoidable costs for accessibility. For example, EFA includes the provision of toilets or latrines in all school construction projects. Accessible toilets and latrines have to be large enough for wheelchair use. Although this will require more space than what would be needed for inaccessible facilities, the additional area required is minimal, about one square meter in a toilet stall. This is insignificant in comparison to the costs of adding the toilet or latrine itself.

Guidelines for Cost Control

Design factors:

- Use topography to advantage. Steeper ground often makes it easier to provide access, not harder. Paths oriented parallel to the slope of land are easier to make accessible than those that run perpendicular to the slope.

- Avoid level changes inside the building. This removes the need for ramps entirely. If abrupt level changes are kept below 15 centimeters, railings are not needed on ramps.

- Eliminate raised thresholds and steps at doorways. Thresholds are often used to bridge the gap between different floor surface materials on each side of a wall. When needed, thresholds should be recessed or kept low with a gradual transition from exterior floor surface to interior floor surface. This will eliminate the need for ramps and separate accessible entries to classrooms.

- Avoid the use of elevators and lifts. They are the most costly items to build and may be very hard to obtain, causing significant construction delays. They also create significant maintenance costs and may take a long time to repair.

- Where no site is available that is large enough for a one story school, plan the school using a split level design so that ramps can be used to connect levels. On steep sites, an accessible entry can be provided to each level connected by an accessible path of travel outside. In climates with extensive rainy seasons, it may be possible to shelter the paths with overhanging roofs or galleries.

- Provide increased space for wheelchair access without increasing the overall size of the building by careful design and efficient use of all available space.

- Run ramps in the direction of travel so that everyone will use them and stairs can be eliminated.

Construction factors:

- Avoid specialty products. Find locally available alternatives when costs are prohibitive. For example, make grab bars from steel bars, pipes or wood if it is cheaper.

- Be creative in the use of available materials and products. For example, if wide doors are not available, use double doors made from two narrow doors. Paved surfaces, although desirable, are not absolutely necessary for wheelchair access if walking materials are durable, even, stable and well drained.

- Educate builders about new practices before construction begins to avoid creating problems in the field and institute quality control procedures. Rebuilding projects that are already under construction increases the cost of accessibility significantly.

Social factors:

- Invest resources in education and outreach during design to engage local builders and product suppliers in identifying how to accomplish the goals of accessibility. This will reduce lack of cooperation and reduce the need for quality control when construction commences.

- Use culturally appropriate means to provide access. For example, trying to save money by building one unisex accessible latrine instead of making the regular boys' and girls' toilet facilities accessible will be unacceptable in a culture that maintains strict separation between the sexes.

Conclusion

Cost is not a significant barrier to accessible design although it is often perceived to be one. Research has shown that the cost of accessibility is generally less than 1% of total construction costs. Estimates of costs developed by those with limited knowledge of accessible design often overstate the actual cost and ignore savings. Sometimes, the belief that accessibility costs more is founded in experience with projects where

accessibility was introduced too late in the process or through experience with poorly designed, constructed or managed projects. To ensure that costs are controlled, it is critical to introduce accessibility in the early stages of project design. It is helpful to educate designers, builders and citizens about the purpose and benefits of accessibility to the whole community so that they understand the value of accessibility and work to find good solutions to difficult problems. Technical assistance should be made available to ensure that accessibility will be effectively implemented, especially when departures from standard accessible design are necessary in the course of a project.

In design of accessible buildings, the following key practices will avoid significant cost impacts:

- Carefully select the site and exploit the site topography to provide accessible routes to the classroom building and other facilities.
- Avoid level changes in a building except where absolutely necessary.
- Use locally available products and construction techniques as much as possible.
- Implement closer quality control procedures as designers and builders become familiar with the new approaches.

Universal design is an approach to accessibility that can increase the value of accessibility. Whereas conventional accessible design focuses on the needs of people with disabilities, the goal of universal design is to benefit the entire population, not just one group. In general, universal design of schools will make them easier to maintain because the buildings will have fewer stairs, wider door openings, less obstacles to circulation and more durable walking surfaces. Improved lighting and elimination of hazards will lead to fewer accidents. When there are clear benefits for all users, controversies about cost will give way to creative problem solving and providing the best environment for learning possible.

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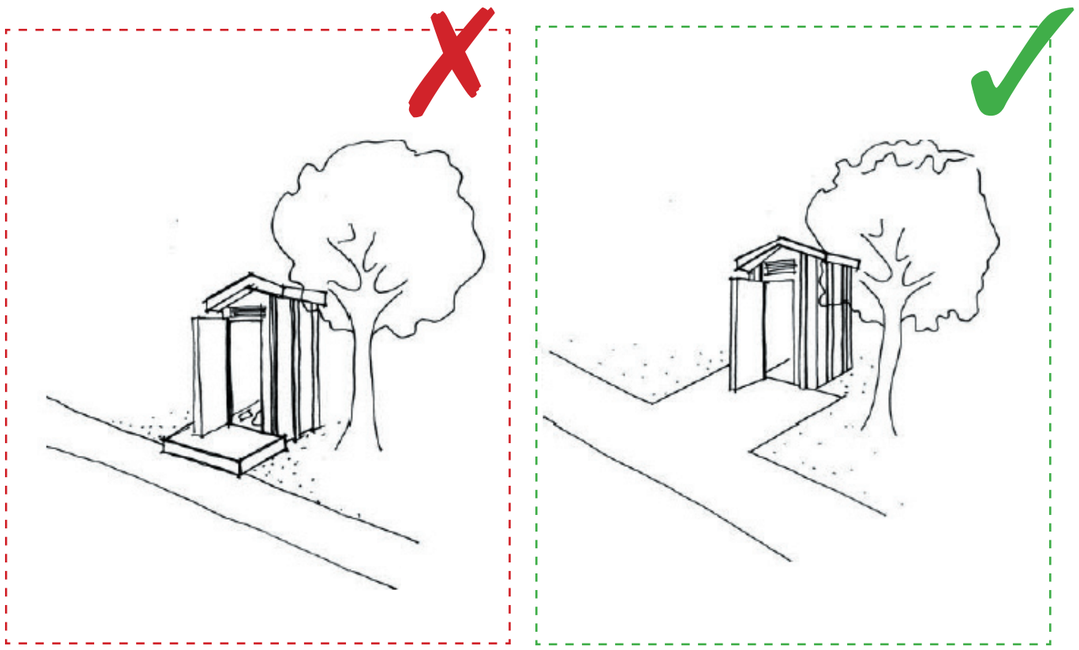

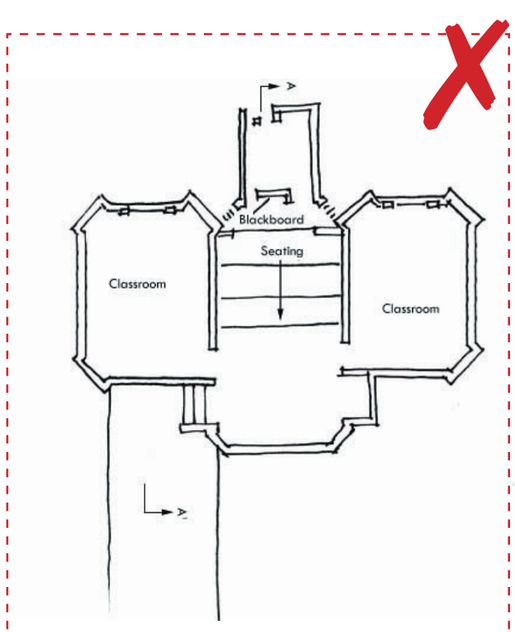

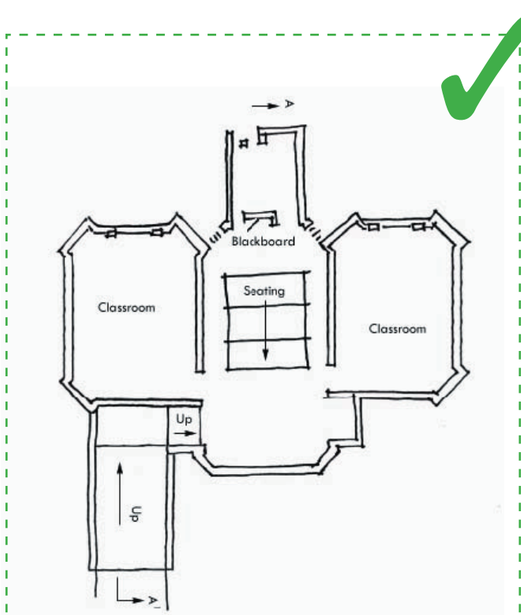

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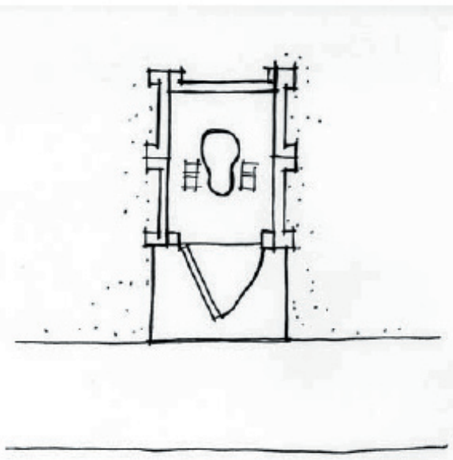
Illustration 4: Access to Latrines.

The inaccessible latrine on the left has a step at the entry while the accessible latrine on the right has none.

1

Illustration 1: Designing Entries and School Plan.

Because of the stairs, the plan on the left has an inaccessible entry but the one on the right has ramps to provide full access for all users.



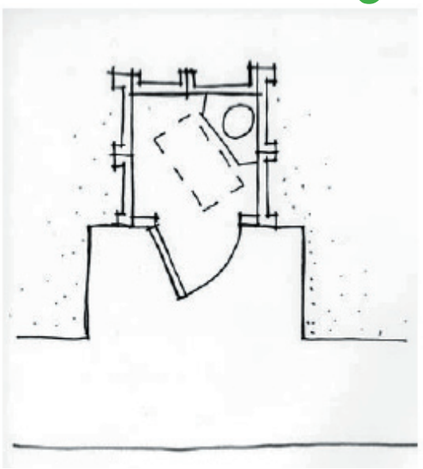


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Illustration 2: Planning Level Changes.

The inaccessible seating area on the top left is excavated into the ground and limits wheelchair access to the rear.

Children cannot approach the front to address the class or use the blackboard (see plan in illustration 1). By building the seating above grade, the accessible design on the lower right provides convenient access for all.

3

Illustration 3: Latrine Design.

The inaccessible latrine on the left requires squatting and provides no access for wheelchair users while the accessible latrine on the right provides a seat that helps everyone and enough space for wheelchair users.