1.1. **NORMS AND STANDARDS**

The norms and standards listed below are provided as standard guidelines for infrastructure managers, but because of each province's unique circumstances some of the values may vary.

1.1.1. **Site Sizes**

Before finalising the site size the following factors should be taken into account:

- Is a single or double storey building anticipated?
- What design and layout of the building would be used?
- Will this school be in a rural or urban area?
- What is the current density of schools in the area considered?
- How many families would benefit from a school the area?
- What extramural activities are to take place on the school site?

The school site of the specified size should provide adequate recreational space for children during breaks. Recommended site sizes are as follows:

- Primary School: 2.8 - 4 ha
- Secondary School: 4.8 - 6 ha

In a less formal settlement sports facilities may be shared between two or more primary schools or even between a school (primary or secondary) and the community.

Example:

i) **Two primary school with a shared sports ground the suggested area required is as follows:**

<table>
<thead>
<tr>
<th>Primary school I</th>
<th>:</th>
<th>1.4 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared sports ground</td>
<td>:</td>
<td>2.0 ha</td>
</tr>
<tr>
<td>Primary school II</td>
<td>:</td>
<td>1.4 ha</td>
</tr>
<tr>
<td><strong>TOTAL AREA REQUIRED</strong></td>
<td>:</td>
<td><strong>4.8 ha</strong></td>
</tr>
</tbody>
</table>

ii) **School sharing sports facility with community the suggested area required is as follows:**

- Primary school : 1.4 ha
- Secondary school : 2.6 ha

1.1.2. **Site Suitability**

Experience has shown that school sites are often placed on land which is not best suited to building operations. As a result, site preparation can become very costly and additional funds may have to be spent on excessive earthworks.

The following guidelines are recommended:

- The location of school sites should be determined in consultation with local community
- School site should preferably be rectangular with the longest sides facing North and South
- School sites should not be situated next to cemeteries, business centres, railway stations, taxi ranks and hotels.
Where a 1:50 year floodline crosses a school site, sufficient ground should be available above the floodline for the erection of school building.

The slope of the site should not exceed 15 degrees.

If a servitude (e.g. Eskom power lines) is imposed, the buildings and sportsfield should be planned in such a way that the servitude will not affect normal school activities.

Schools should not be placed next to busy roads.

At least 50% of the perimeter of school site should be fronted by a street, and should not be adjacent to residential or other sites.

Soil conditions should be such that the buildings and sportsfield may be provided at minimum cost. Turf, clay dolomite, rocky soil should be avoided. Excavated areas and areas formerly used as refuse sites, are all unsuitable as sites for schools.

School sites should be large enough to accommodate the school buildings and sports fields.

### 1.1.3. Sports and Recreation Facilities

It is the intended policy of the Department ultimately to provide at least one type of sportsfield at each school. However, sports and recreational facilities can only be provided in terms of budget availability and the relative priority of sportsfields when considered alongside other facilities.

Initially the provision of sportsfields will be confined to those schools where the slopes are flat enough to level off (2% slope only) without having to undertake any costly earthworks. The maximum field size provided will be that of an athletics track, if the ground is flat enough.

During planning, provision should be made for the inclusion of basic facilities e.g. Level area that can be utilised for a soccer field, tennis area or parking area.

**NB:** Avoid locating buildings on the flattest part of the site, thereby making the later provision of sportsfields very costly.

The same considerations as for school sites should be taken into account. Other considerations particular to sportsfields include the following:

- Clustering where more than one school utilises the facility might be beneficial to the community. However, good communication regarding utilisation (what school uses the field when) should exist between the various schools involved,

- For the purpose of the curriculum it might be required that the sportsfield be planned with grass. Fields should only be grassed where there is sufficient water (rainfall or reticulation) to sustain growth. Maintenance (mowing, etc) should also be provided for.

- In order to save cost the construction and maintenance of the facilities could be done in partnership with a sports body. From a cost perspective, sharing of a sports facility between a school and the community can be beneficial.

- Department of Sport and Recreation may establish a central sport complex which can then be utilised by schools in the mornings and by the community for the rest of the time, and the school might then not necessarily be responsible for maintenance on the facility.

### 1.1.4. Density and School Capacity

School sites should as far as possible be evenly distributed within the planning unit or residential area. It is not
acceptable to all communities to have a primary school and secondary school located next to each other. When constructing two primary schools with a shared sportsfield the sportsfield should separate the two schools clearly as each school should serve a specific community.

The school capacity should not exceed the following:

Primary school : 960 pupils (average 40 per classroom)
Secondary school : 1200 pupils (average 35 per classroom)

The number of residential erven and the average size of these erven determine the number of primary and secondary school sites to be provided in new residential areas or in extensions to existing areas:

The number of school sites required will be rounded off to the nearest whole number (e.g. 2.5 becomes 3, and 2.4 becomes 2)

The number of residential erven and school sites in new extensions may be calculated together with that in adjacent residential areas to determine whether sufficient school sites are available for the residential area as a whole.

1.1.5. Accommodation Schedule

The following guidelines indicate what space categories that are required in a school. Please note that the requirements below reflect the ideal situation, and may need to be deviated from to maximise the benefit of the budget available:

- **Classrooms**
  - Primary school < 24 (maximum occupancy 40 pupils per classroom)
  - Secondary school < 34 (maximum occupancy 35 pupils per classroom)

- **Laboratory / Homecraft**
  - Provide a Laboratory and a Homecraft centre at each secondary school where the curriculum provides for such tuition

- **Computer / Resource centre**
  - 300 m²

- **Paved forum (this can be covered or uncovered)**
  - Provide at each school 0.5 m² per pupil e.g. 1000 pupils require 500 m²

- **Toilets**
  - 2 toilets per classroom (i.e. per 35 or 40 pupils) plus a toilet for a physical disabled person

- **Offices**
  - 1 office per 5 classrooms

- **Staffroom**
  - Provide a staffroom if school has 5 or more classrooms

- **Reception class**
  - Provide 1 reception classroom at each primary school

- **Library/Media Centre**
  - Provide a library at each school

- **Administration block**
  - Where the size of the school justifies it, the administration elements may be included in a separate building consisting of the following:
    - Staffroom

Provide as described above
- Offices
  - Provide as described above
- Strongroom
- Sickroom
- Storeroom

Combine the following if necessary
- Bookroom
- Duplicating room
- Equipment room
- Toilets
- Reception area
- Kitchen for feeding scheme

Other services to be accommodated:

- Electricity
  - Electrify all schools where electrical reticulation is available. If the area of the school is on the current Eskom 5 year it is advisable to install conducts during construction.
- Fencing
  - Provide appropriate fencing around the school, outbuildings and sportsfield
- Rainwater tanks
  - Provide rainwater tanks at schools in rural areas where no water reticulation is available, 4 tanks per classroom block if possible
- Renovations
  - Consider renovating existing facilities where appropriate. On completion the facilities should all be in a readily maintainable condition.
1.1.6. Sizes of Classrooms

Sizes of classrooms may vary according to the curriculum but the recommended size for a classroom is 50m², which accommodates 40 primary schools pupils or 35 secondary school pupils.

1.1.7. Specialised Learning Areas

Specialised learning areas such as laboratories and computer halls, as well as other specialised areas should be provided according to:

- the subjects offered by the curriculum
- number of pupils following the subjects as stipulated by the curriculum
- the total number of pupils which the school is intended to accommodate.

When considering inclusion of specialised learning areas consider the following:

- Security and safety of equipment
- Maximum utilisation of areas
- Availability to and use by neighbouring schools.

1.1.8. Learners with Special Educational Needs (LSEN)

The general principles of access to the school and facilities for disabled pupils depend on the specific category of disability.

For instance, to accommodate pupils who depend on a wheel chair or crutches for mobility the structure can be adapted and the school will need to provide ramps, toilets, specialist rooms, rails, etc. Double stories buildings cannot be considered unless adequate access can be provided.

For other disabilities such as blindness it might not necessarily be cost effective to accommodate single individuals and such pupils will be referred to a special school facilitating that specific disability. Should adequate funds be available the facility can be provided and pupils from other communities might then also benefit from the full service school.

Because of the budget constraints, full service schools should be established in the neighbourhoods where they are needed most.

1.1.9. Ablution Facilities

It is the policy of the Department to provide the sufficient toilets at all schools. Ideally this will accord with the National Building Regulations (2 toilets per classroom), but in emergency cases it may be less.

Every school must have adequate sanitation so that health, hygiene and the learning environment are not compromised in any way. The provision of toilets is governed by the availability of funds and thus will be dealt with in order of priority.

**Number of toilets**

- Primary School : 1 toilet per 25 pupils but not more than 35 toilets
o Secondary School : 1 toilet per 20 pupils but not more than 30 toilets
o General : provide \( \frac{1}{3} \) less toilets for boys

**Type of toilets**

- Water and sewer reticulation available : flush toilets
- Only water reticulation available : septic tanks if soil and environmental conditions permit
- No water reticulation : ventilated pit latrines

**General**

- The maximum number of toilets should be provided within the budget constraints.
- Provision should be made for toilets for physically disabled pupils.
- Consider providing instruction on how to utilise flush toilets where applicable.

### 1.1.10. Water Supply

Provide rainwater tanks at schools in rural areas where no water reticulation is available, 4 tanks per classroom block if possible.

Provide flush toilets if water and sewer reticulation is available. If not appropriate on site sanitation facilities should be provided.

Avoid planting grass on sport facilities if irrigation is not possible.

### 1.1.11. Electrification

Electrify all schools where electrical reticulation is available.

#### 1.1.11.1. Grid Electricity

- Eskom supplies 200 metres of power line free of a monthly rental. Should the length of the line exceed 200 metres, the customer (DoE) will be charged R66 per 100 metres per month for 25 years (For example, if Eskom builds 1 200 metres of line, the customer will receive 200 metres free and pay for 1 000 metres at R66 per 100 metres i.e. R660,00 per month). The customer has the option to pay the monthly rental up front or to pay monthly. The tariffs are thus, R660,00 monthly or R56 023,82 up front.

- For each point of supply Eskom requires a connection fee and a deposit over and above the amount given above.

- The customer will be required to pay a basic charge and an electricity consumption fee on a monthly basis.

#### 1.1.11.2. Non-Grid Electricity (Solar Power)

- The funding for the erection of non-grid systems at schools, done by Eskom derives
from RDP funds. Central Government has promised that they intend seeing to it that all schools in South Africa receive electricity, in due course.

- Electrification of schools also includes non-grid and should not be seen as a second rate option. Eskom supplies electricity in the rural areas, according to a ten-year plan and all of the schools outside of this plan are eligible for non-grid electricity.

- The non-grid systems at schools can go a long way to improving the quality of education. The use of educational aids (TV, VCR's, overhead projectors) can enhance the teaching process significantly.

- In the evenings, school buildings with non-grid electricity can be utilised by the surrounding communities for various activities, as well as the ABET (Adult Basic Education) project. In other words, non-grid electricity can be used to equip people with skills.

- The schools with non-grid electricity can now use their buildings for various activities, such as fund raising, meetings of clubs and societies, social gatherings, etc.

- The DoE is responsible for the maintenance of the non-grid systems and it is therefore important that each and every Principal at a school with non-grid electricity sees to it that it is used to its maximum potential and that proper preventative maintenance is done regularly.

### 1.1.11.3. General

It is very important to inform Eskom about a faulty system as quickly as possible.

Principals ought not to feel apprehensive about reporting a failing system, given they are doing their job. Remember it is to everyone's advantage that the system be fully operational.

The completion of the following forms are important:

- Application form for the installation of non-grid electricity.
- Take-over Certificate.
- Educational aids hand over certificate.
- TV/VCR training procedure.
- Guidelines for the proper use of solar electrical systems.

The relevant ESKOM contact persons are listed in the addenda to this manual.

### 1.1.12. Telecommunications

Communication is vital for quick decision making and day-to-day operation. It is therefore important to use technology as an enabler and have access to communications.

It is important for the Physical Resources Planner to contract Telkom before building a school, so that Telkom can start planning for infrastructure.

Contact details for Telkom for each province are listed in the addenda to this manual. The contact persons can assist the Physical Resources Planner in the following:

- New connections – there are standard procedures to be followed
- Costs – special prices available for government organisations
- Telkom grids – planning and availability
- Access to Internet – nationally 1000 of 40 000 schools already have access.
- E-mail facility – Telkom and service providers.