



REPUBLIKA E KOSOVES
MINISTRIA E ARSIMIT, E SHKENCËS
DHE E TEKNOLOGJISË
MINISTRY OF EDUCATION,
SCIENCE AND TECHNOLOGY
MINISTARSVO OBRAZOVANJA
NAUKE I TEHNOLOGIJE



DESIGN GUIDELINES FOR SCHOOL FACILITIES NORMS AND STANDARDS

GENERAL GUIDELINES



VOLUME 1



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**GENERAL
GUIDELINES**

VOLUME 1

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ABBREVIATIONS AND ACRONYMS

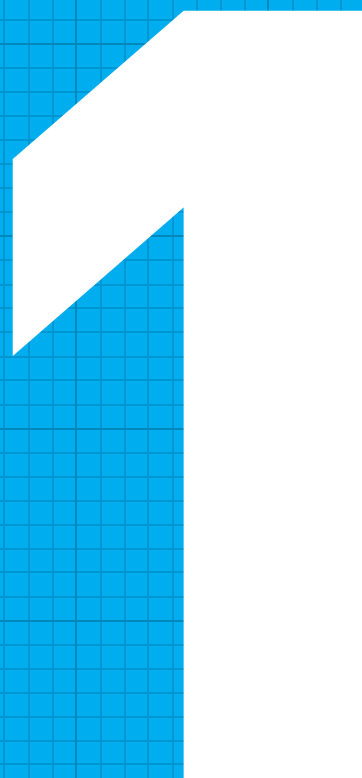
ACS	Average Class Size
CCTA	Council for Curriculum, Textbooks and Assessment
DQE	Design Quality Evaluation
EMIS	Education Management Information System
EMP	Environmental Management Plan
EU	European Union
FFL	Finished Floor Level
GIS	Geographical Information System
GF	Ground Floor
GF+1	Ground Floor plus one floor
GPS	Global Positioning System
ID	Infrastructure Department
IDEP	Institutional Development for Education Project
IDA	International Development Agency
MDG	Municipal Education Development Grant
MED	Municipal Education Directorate
MESP	Ministry of Environment and Spatial Planning
MEST	Ministry of Education, Science and Technology
NGO	Non Government Organization
OECD	Organization for Economic and Cooperation Development
PTR	Pupil-Teacher Ratio
SBD	Standard Bidding Documents
SDG	School Development Grant
TOR	Terms of Reference
UNMIK	United Nations Interim Administration Mission in Kosovo
VET	Vocational Education and Training

INDEX CODES

EDUCATION LEVELS:

PP	Pre-Primary Education
PE	Primary Education
BE	Basic Education
PP/PE	Pre-Primary and Primary Education
LSC	Lower Secondary Education
USC	Upper Secondary Education
L/USC	Lower and Upper Secondary Education
GL	General (all levels)

TYPE OF SPECIFICATION		CODE	NORM OR SPECIFICATION
0	References	REF	Lists of annexes, tables, figures, abbreviations
1	Introduction	INT	
2	Design concepts	DC	Space programming Space design Accessibility
3	General principles (Volume 1)	GP	Technical norms Safety and security Comfort parameters Furniture and equipment
4	Specific parameters (Volume 2)	SP	Linked to site features and constraints Linked to environment Linked to climate
5	Guidelines for Internal Spaces	IS	Teaching spaces Administration facilities Ancillary spaces
6	Guidelines for External Spaces (Volume 1)	ES	Playgrounds and open shelters Sport areas



1. INTRODUCTION

1.1 ACKNOWLEDGMENT

These guidelines have been prepared for the Ministry of Education, Science and Technology (MEST) by Daniel Dupety, consultant architect with the assistance of his national counterpart, Mrs. Merita Behluli, consultant architect, a team of professionals from the Infrastructure Division (ID) and the support of the IDEP management Unit in the Ministry of Education, Science and Technology (MEST). The team also worked closely with the other departments of the MEST who provided valuable guidance during the preparation of the document.

The first version of the guidelines was presented and discussed in a wrap up meeting held in the building of the MEST on September 09, 2010. Based upon comments raised during this session, the Guidelines have been revised and amended several times and the final version was sent to the MEST on January 25, 2011 and edited on September 2011.

Funding for the study and preparation of the guidelines was provided under the IDEP financed under a World Bank grant.

The consultant wishes to express his gratitude to the MEST authorities for their warm hospitality, their support and valuable advices.

1.2 OBJECTIVES OF THE GUIDELINES

This document is intending to serve as a reference for designers of schools and/or school facilities. It defines and describes the educational spaces needed by type, size and specifications according to the standards and

requirements established by MEST for academic public schools in urban and rural areas of Kosovo.

The guidelines will facilitate an understanding not only of the physical educational spaces required, but also of the factors affecting their design and the quality of the environment to be achieved, within and around the buildings.

The Guidelines include the room specific data for all types of school spaces: academic spaces such as ordinary classrooms and laboratories, support space such as libraries, administrative areas and external activity spaces such as playgrounds, sport areas, access and parking. It can be used for a number of different purposes and at a number of different levels, including:

- Design of new schools
- Design of extensions to existing schools
- Evaluation and upgrading of existing sites and schools
- Study and provision of school furniture and equipment
- Reference basis for studies of facilities use and efficiency

In addition, these guidelines recommend, for the higher and lower levels, the designing of teaching and support spaces for schools, taking into account the need for realism, appropriateness, future flexibility, cost-effectiveness and efficiency and, as such, intended as an essential contribution to good design of educational facilities.

Level	Subject	Page
GR	REF	12

1.3 HOW TO USE THESE GUIDELINES

1.3.1 GENERAL OUTLINES

For practical reasons, it has been decided to divide these guidelines in two volumes (handbooks), the first one being dedicated to General guidelines and the second one to Specific guidelines. This distribution implies the repetition of some common elements especially those concerning design concepts.

The preparation of the norms, specifications and guidelines of these handbooks were based upon the following data:

- The existing guidelines for Kosovo primary schools, already used as a reference document by planners, designers and site supervisors ;
- The education law of the MEST ;
- The ISO norms for construction;
- Other Kosovo laws including environmental protection law, special planning law and fire protection regulations; Law on construction, instruction on technical conditions of building facilities for access of disabled people; technical regulation on saving thermal energy and thermal protection of buildings.
- The new curricula for general education ;
- Various standard school building designs for Kosovo; and
- Other guidelines previously prepared by the consultant.

The norms, standards and guidelines of these two handbooks shall not be considered as mandatory rules but more as recommendations that could be modified due to specific conditions such as the site dimensions and topography or the school extension possibilities.

Likewise, the sketches and drawings of the typical teaching spaces included in these guidelines are not meant to restrict the designers from providing other alterna-

tives and solutions for shapes (dimension and area) and arrangement of these teaching spaces within the same requirements.

1.3.2 SUBJECT OUTLINES

The content of the guidelines is distributed in two specification categories: (i) general and specific concepts, parameters and norms; and (ii) technical summaries with models and guidelines for each type of room and for external spaces. This distribution allows the reader to collect information at two different levels corresponding to the two volumes of the guidelines:

- (i) General data and guidelines distributed in chapters 2 and 3 of the first volume:
 - Design concepts;
 - General norms;
- (ii) Site specific characteristics, detailed models, data and guidelines in chapters 1 to 5 of the second volume:
 - Specific parameters;
 - Guidelines and models for internal spaces;
 - Guidelines for external spaces.

1.3.3 REFERENCE INDEXES

Reference indexes are located in the upper right corner of each page to facilitate the spotting of subjects without having to refer to the table of content. These indexes are following education level and subject initials (see above abbreviation list) in the following order:

- 1st cell : concerned level of education (PP, EL, LSC, HSC or GR);
- 2nd cell : Specification type (initials of norms,

- parameters or spaces) ;
- 3rd cell : page number or technical summary identification number ;

The index codes are explained in the «abbreviations and acronyms» on page 02. As an example, the index of table 1.1 below shows a reference to the Lower and Upper Secondary, concerning “Specific Parameters”, page 12

TABLE 1.1
SAMPLE INDEX

Cycle	Subject	Page
LSC/USC	SP	12

Tables in the text and in annexes have different colors, each of them corresponding to a different level of education: blue for primary level, yellow for lower secondary, orange for upper secondary and green for subjects related to several levels.

1.3.4 MODELS AND TECHNICAL SUMMARY SHEETS

Each technical summary sheet gives all necessary norms, parameters and elements for internal spaces including:

- Dimensions and surface areas corresponding to those of the accommodation schedules ;
- Space and activity requirements;
- Links with other school spaces and needed accesses;
- List of fixed equipment with installation /location proposals; and
- Space requirements and functional scheme.

This document will be periodically updated to reflect new or revised policies and requirements established by MOES.i.

1.4 EDUCATIONAL AND ARCHITECTURAL TERMS

The vocabulary used by authorities, education specialists and technicians of both public and private sectors is including terms that may not be the same for everyone. The present guidelines are using the terms generally used by MEST staff. These are:

1.4.1 TERMET ARSIMORE

- **BASIC EDUCATION:** Grades 0/1 through 9 (age group: 6 to 15 years old);
- **CLASS:** Group of students studying at the same academic level. In a rotating system a class is not corresponding to a classroom;
- **COMPREHENSIVE SCHOOLS:** School which include academic and vocational education
- **GENERAL CLASSROOM:** Space designed and equipped for teaching general subject matter to students;
- **GRADE:** Level of academic study, in time reference equal to one school year;
- **ELEMENTARY EDUCATION:** includes Pre-primary and Primary level. Pre-primary level: grade 0, age 5-6 Primary: Grades 1 to 5 (age group 6 to 12) corresponding to “Primary school” facilities;
- **UPPER SECONDARY EDUCATION:** Grades 10 to 12 (age group: 15 to 19 years old). This level is corresponding to “High school facilities”;
- **LABORATORY:** Space designed and equipped to allow students to carry out supervised experiments in biology, chemistry, geology and physics, either individually or in groups.
- **LOWER SECONDARY EDUCATION:** grades 5 to 9 (age group 12 to15). This level is corresponding to “Lower Secondary school” facilities;
- **MULTI-PURPOSE HALL:** Space designed and equipped to accommodate different organized educational and social activities such as assemblies, group

Level	Subject	Page
GR	REF	14

discussions, exhibitions, plays, lectures ...etc.

- **RURAL SCHOOL:** School situated within smaller communities (towns or villages) having fewer than 10,000 inhabitants.
- **SITE AREA:** A term quantifying the size of the property occupied by educational facilities. There is a difference between urban and rural areas.
- **URBAN SCHOOL:** School situated in an area of a town or a city having more than 10,000 inhabitants.
- **VOCATIONAL AND TECHNICAL EDUCATION:** Educational programs in which students are taught vocational subjects such as agriculture, home economics, Industrial, business

1.4.2 ARCHITECTURAL/ENGINEERING TERMS

- **ACOUSTIC COMFORT:** The acoustic conditions under which the school and its occupants can operate at maximum efficiency.
- **ADMINISTRATIVE AREA:** The physical space in a school dedicated to administrative activities.
- **CIRCULATION AREA:** Space allocated for horizontal and vertical movement within the building, such as entrance halls, corridors and staircases.
- **CLIMATIC COMFORT:** The environmental conditions under which the school and its occupants can operate at maximum efficiency.
- **EDUCATIONAL FACILITIES:** The physical space in a school dedicated to educational activities.
- **HYGIENIC ENVIRONMENT:** The general conditions of hygiene in a school that affect the level of comfort and health of the occupants and it depends on the physical condition of the sanitary facilities, water supply, water reserve and wastewater evacuation and treatment system that enable the school to operate efficiently and safely.
- **ORIENTATION:** The direction of a school facility (parts of school facilities), which are influenced by

natural climatic factors such as sun and wind direction.

- **SCHOOL SITE:** The land area within which the educational facilities are located.
- **SERVICE FACILITIES:** The physical space in a school dedicated to support both educational and administrative activities.

1.5 THE EDUCATIONAL SYSTEM IN KOSOVO

1.5.1 BY LEVEL OF EDUCATION

According to the Education Law (N°2004/15), the educational system in Kosovo is divided in four main education levels:

- Level 0: Pre-primary level: 1 year for children in age group 5 and 6 years;
- Level 1: Primary Education (first stage of basic education) for 5 years (ages 6 to 12);
- Level 2: Lower Secondary Education (second stage of basic education) for 4 years (ages 12 to 15)
- Level 3: Upper Secondary Education for 3 or 4 years, depending on the curricula (ages 15 to 19). This level, open to students on a voluntary basis, has four main streams: Languages, Social Sciences, Mathematics and Communication, Natural Sciences.

In Kosovo, Education is compulsory from grade 1 to 9 (Basic Education) and school buildings are generally available for these grades although (i) their size is often too small for the actual enrolment, obliging the MEST to rely on double or triple shifts in many schools (sometimes up to four shifts); (ii) their location is sometimes at inconvenient distances from villages, especially for cluster schools; (iii) specialized teaching rooms are too often missing for Secondary levels; and (iv) many school facilities

are in bad physical conditions.

In rural areas with scattered population, the education system relies on satellite schools (primary level with 3 to 5 grades) and cluster schools located in villages with a central position (Basic Education, grades 1 to 9) where students from satellite schools can pursue their Education in higher grades.

1.5.2 BY TYPE OF SCHOOL AND BY CONTENT

One of the most important constraint and issue of the Kosovo Education System is related to the lack of facilities and infrastructures: many schools don't have the facilities corresponding to the MEST curricula and as a result, teachers are only giving demonstration courses and, due to high enrolments, many schools are functioning with multiple shifts.

To tackle the most important issues of the sector, the MEST has launched a "Strategy for the Development of Pre-University Education" (2007-2017), with seven main objectives. One of these objectives is to provide for "adequate and healthy physical environment for learning and teaching" by creating conditions to introduce efficient and appropriate school designs and reduce multiple shifts.

These guidelines are part of the first steps towards the general improvement of the Education physical environment. They propose a complete revision of the school facilities needs, based on curricula, weekly teaching/learning loads, progressive decreasing of the shifting system and enrolments. According to these new schemes, the schools shall have the following facilities:

- (i) Schools providing Elementary education: a Primary school facility consists of the teaching rooms such as classrooms, library, multi-purpose hall, computer room and support facilities including administrative and service areas. In addition, the Pre-primary level of education shall have classrooms, playrooms, open air terraces, headmaster office and common areas ;
- (ii) Schools providing Lower Secondary Education: a Lower Secondary School facility consists of the main educational rooms such as classrooms, library, multi-purpose hall, general science laboratory (biology, chemistry, and physics), computer room and support facilities including the administrative and service areas;
- (iii) Schools providing Upper Secondary Education: the Upper secondary school facilities have the same requirements as the lower secondary schools with more additional specialized subjects. Their teaching is organized in four main streams including Mathematics and information technology, Languages, Social Sciences and Natural Sciences;
- (iv) Basic Education. Schools providing education from grade 0 to 9 (pre-primary, primary and lower secondary) will remain with some modifications: it is proposed that for new school facilities, the two levels of the Basic Education Schools be settled on the same sites with different facilities, except for facilities that may be used by both levels (primary and lower secondary) such as: administration offices, multipurpose hall, library and sport facilities. In addition the design of such schools will be carried out in such a way that in the future, these associated schools can split and become totally separated with a minimum extension and changes in the facilities.
- (v) To improve the quality of education and to decrease the pressure on students and teachers, the MEST has agreed that in the new schools there will not be more than two shifts and that the actual shifting system will be modified so that the students of each level will remain in the facilities dedicated for each level (type of facilities and size of furniture for each level have different sizes). This proposal may be more difficult for the management of the teacher's time tables, but it is unavoidable if the objective is to improve the students' learning conditions and comfort.

Level	Subject	Page
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1.6 USERS OF THE GUIDELINES

This document is intended to serve as a reference and guide for all those who are involved in the process of planning, programming, designing and building new school facilities or renovating existing school facilities. Although these guidelines have been designed for the schools of the public sector, they can also be used by stakeholders of the private education sector. These include:

- (i) All professionals concerned by the school design and construction, including professional designing firms, consulting firms, architect, engineers and other design professionals;
- (ii) MEST, municipal administration with respective directorates, other public or private administrations, school principals or directors, boards of trustees, administrators and teachers. It is also a reference document for technical and/or research studies concerning MEST schools.

2

2.

2.1 ARCHITECT'S BRIEF

This section of the guidelines sets out the order of activities which will be required of the Design Team. Following the formal contract of agreement for the design work, these activities will begin with the issue to the Team of a commissioning Brief, consisting of a site address and a Briefing Document. The Team has no prior control over the content of the Brief, which is prepared, after due consideration of all relevant factors by the Municipalities' technical department or by the Infrastructure Department of the Ministry of Education, Science and Technology. This procedure will apply whether the Design Team is an independent consulting firm or an in-house Municipality or MEST Team of professionals.

2.1.1 ORIGIN AND STATUS OF THE BRIEFS

The Brief constitutes the starting point of the work of the Design Team. Its preparation should be based on the following information:

- a description of a typical day in the life of the school at the moment and how it will change with the transformation agenda;
- the organizational structure of the school, including management, departments, pastoral support and so on;
- the ethos and values of the school;
- activities to be accommodated within the school, including out of hours community uses and the type of accommodation they require;
- the frequency of the different activities – the usage

levels of the different types of accommodation

- required adjacencies between different activities, departments etc
- arrangements for community access and the required security levels;
- ways in which the school might change in the near future to account for new and different pedagogical, informal advisory events, and new teaching methods.

All this information is extremely useful to the designers of the school and should therefore be included in the detailed brief as background information.

Once all these issues have been established, the next stage of writing the brief is to produce a detailed **accommodation schedule** (spreadsheet listing all the spaces required). This schedule (accommodation schedule) will list exactly the number of rooms required and their minimum sizes, as well as the anticipated school capacity given in terms of total number of student places and groups. Further information about individual rooms is listed in what are usually called room data sheets. The schedule will add up to an overall target area for the building to ensure that cost limits are not exceeded,

Level	Subject	Page
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2.1.2 THE SITE

The allocation of a site for a new school is done by the Municipalities following a decision by their technical Department planning the school infrastructure, based on the educational needs (school mapping exercise) and availability of land based on municipal regulatory plans, approved by MEST, based on the national strategies and policies on development of school infrastructure. The evaluation of alternatives and final selection of the site is based on criteria agreed over time with designers. This selection requires enquiries and studies on the following aspects and criteria:

- Education needs of the school catchment area with potential demand for enrolment;
- Availability of suitable land;
- Neighborhood and relationship with residential area;
- Size of school as compared to the authorized occupancy rate;
- Availability of utilities (water, electricity, sewage, telephone);
- Topographic characteristics and suitability for a school settlement;
- Geodesic characteristics and likely implications on foundation costs;
- Town planning rules and regulations;
- Local community involvement and its interest in the project.

The site being selected through an official process, the design team will be given the results of the above mentioned enquiries with the address and sufficient details to locate the site beyond doubt. More details on other specific parameters over the location are provided in chapter 1 of Volume 2 of the Guidelines.

2.1.3 SCHOOL TYPE AND LAY OUT

To date, the classrooms have different sizes, ranging from 24 to 40 student places and corresponding to various designers and financiers. To better standardize the size of classrooms and to better answer to the country's actual situation, it has been agreed that new schools, will be designated as “**Urban or high density population areas**” or “**Rural or low density population areas**” and this, due to different sizes of student groups or classes (24 in rural areas and 36 in urban areas) will have a bearing on the space standards and room sizes to be adopted by designers. This designation will be carried out by the MEST through its responsible Departments, based on actual and future populations of the concerned catchment area.

The school will be defined by type or education level, i.e. Pre-primary, Primary, Basic, Lower Secondary or Upper Secondary together with the range of Grades to be accommodated, as described below. The school type and the range of Grades will be selected by the Municipalities' Education Department as appropriate to the needs and requirements of the catchment area.

To date, most of the schools in Kosovo are of three types:

- Basic education schools** including pre-primary, primary and lower secondary levels (grade 0 to 9) separated from the upper secondary education for schools with a sufficient number of students;
- Elementary education** satellite schools with a smaller number of students (grade 1 to 5) with or without pre-primary classes generally located in low density population areas and referring to a cluster school for the higher grades of the lower secondary level; and
- Upper secondary education** schools (Grade 10 to 12).

SCHOOL LEVELS AND ACTUAL GRADE DISTRIBUTION

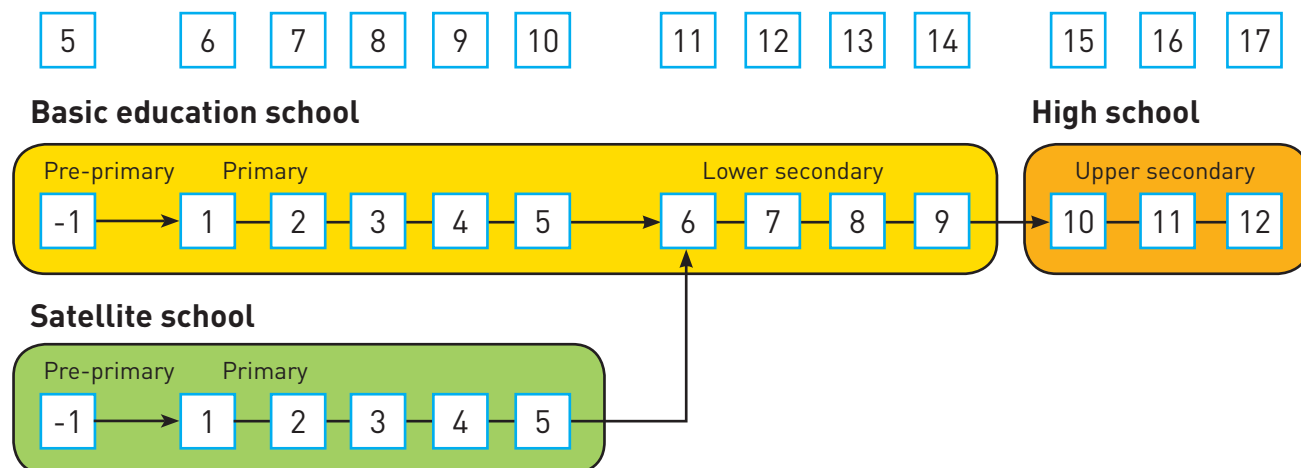


FIG. 1-2.1

SCHOOL LAY OUTS AND NEW GRADE DISTRIBUTION

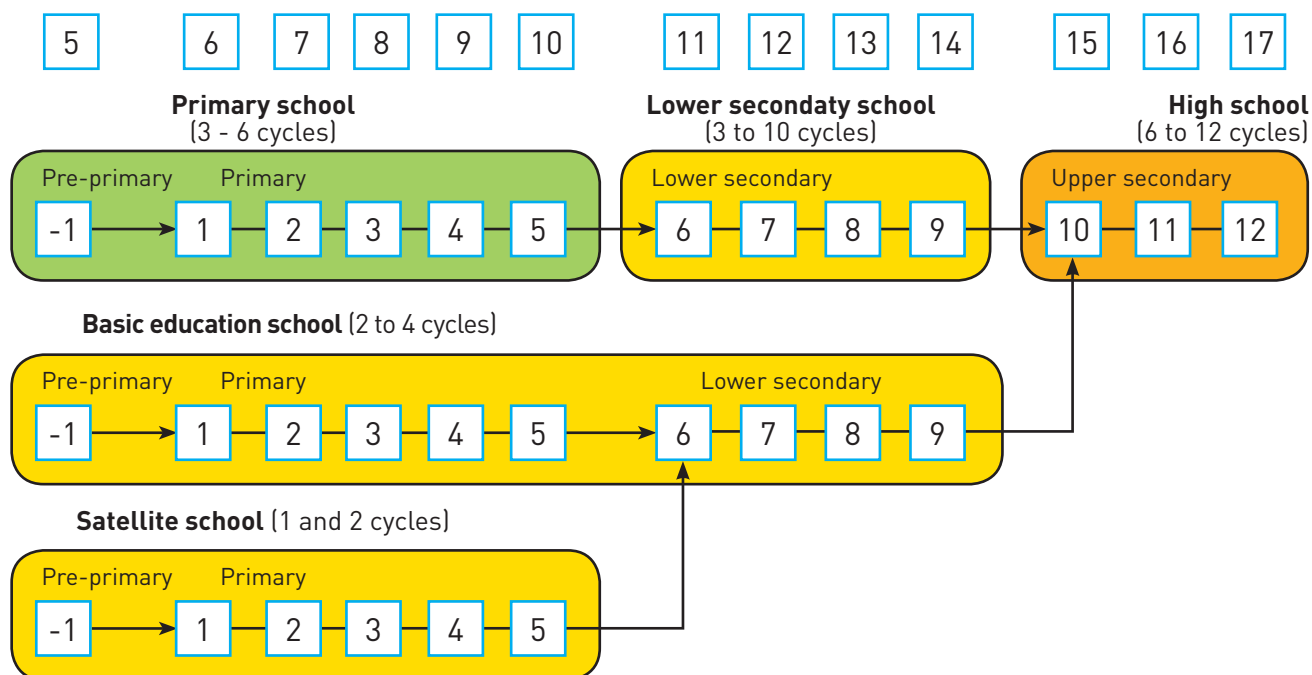


FIG 1-2.2

■ SIZE OF SCHOOLS (CLASSES)

Full cycles	High Density or Urban areas				Low density or Rural areas		
	Pre P.	PR.	L.SC.	U.SC.	Pre P.	PR.	L.SC.
YEARS:	1	5	4	3	1	5	4
					SATELLITE SCHOOLS		
1					1	5	
2					2	10	8
	REGULAR SCHOOLS				REGULAR SCHOOLS		
3	3	15			3	15	12
4	4	20			4	20	16
5	5	25	20		5	25	20
6	6	30	24	18			
7			28	21			
8			32	24			
9			36	27			
10				30			
11				33			

TABLE 2.1

This situation is expected to progressively shift to a double system with (i) separated schools for each level of education in areas with a high density population (mostly urban areas); and (ii) the actual system with satellite schools and basic education cluster schools associating both primary and lower secondary levels in areas with a lower population density.

2.1.4 SCHOOL SIZE

The size of a school is usually determined by (i) the size of enrolment (actual and projected number of students) and (ii) the chosen method of space and teaching management. The school enrolment objectives are defined by school planning and school mapping departments of the MEST while the method of space and teaching management

usually depends on decisions taken by regional or school administrations.

There are two methods of space and teaching management, depending on the way classrooms are being utilized:

- (i) The fixed utilization of classrooms with one class (student group) dedicated to one classroom and different subject teachers coming to give courses in each classroom and/or students moving to specialized rooms, leaving their ordinary classroom empty. Due to heavy demographic pressure (high numbers of students and up to three shifts) and lack of equipped specialized rooms, this system is the most commonly used in Kosovo.

- (ii) The rotating system of teaching in which students

move after each class period and go to subject dedicated rooms such as Geography, Language, Sciences...etc. This system is more economical and requires fewer classrooms. It also has other advantages such as the permanent displays of learning aids of the subject dedicated to the classroom or laboratory. The present guidelines recommend this system and base the school size calculations for lower and upper secondary levels on this assumption.

With the agreement of the MEST authorities the minimum and maximum size of the new standard schools were established (V1 annex 03 and tables 2.1 and 2.2 below) as follows: (i) pre-primary and primary satellite schools: 1 and 2 full cycles (6 and 12 classes); (ii) pre-primary and primary schools: 3 to 6 full cycles (15 to 30 classes); (iii) lower secondary schools: 2 to 10 cycles (8 to 36 classes); and (iv) upper secondary schools: 4 to 12 cycles (12 to 33 classes).

For basic education schools (pre-primary, primary and lower secondary levels), the standard size is: (i) in low density or rural areas, 2 and 3 full cycles (20 and 30 classes); and (ii) in high density, urban or semi urban areas, 3 and 4 cycles (30 and 40 classes).

■ SIZE OF BASIC EDUCATION SCHOOLS (IN CLASSES)

Full cycles	Pre P.	PR.	L.SC.	Total
Years:	1	5	4	
Low density or Rural areas				
2	2	10	8	20
3	3	15	12	30
High density or Urban areas				
3	3	15	12	30
4	4	20	16	40

TABLE 2.2

The decisions taken on minimum and maximum size of school lead to a total of 29 standard schools out of which 19 are for urban or high density areas and 10 for rural or low density areas (see table 2.3 below).

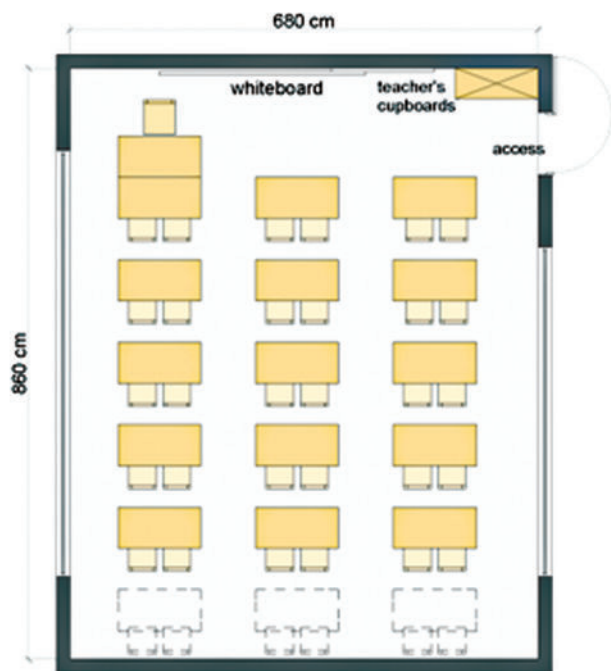
2.1.5 CLASSROOM SIZE AND CAPACITY

The size and surface area of classrooms were planned in accordance with (i) the foreseen number of student seats (capacities); (ii) the size and type of desks and chairs in relation with the age and size of students ; (iii) the number of frontal rows and number of desks and chairs in a frontal row when the class is organized in a classic demonstration course lay out; (iv) the minimum and maximum acceptable distance from students to writing board, visual aids or screen as well as minimum acceptable viewing angle ; (v) the minimum space for an easy circulation between desks and chairs and for a possible teaching from any point; (vi) the minimum acceptable distance between students; (vii) the sufficient surface area and dimensions to allow the laying out of furniture in different ways so that students will be able to work on their own, in small or in whole class groups; and (viii) special requirements for learners with reduced mobility and/or special education needs.

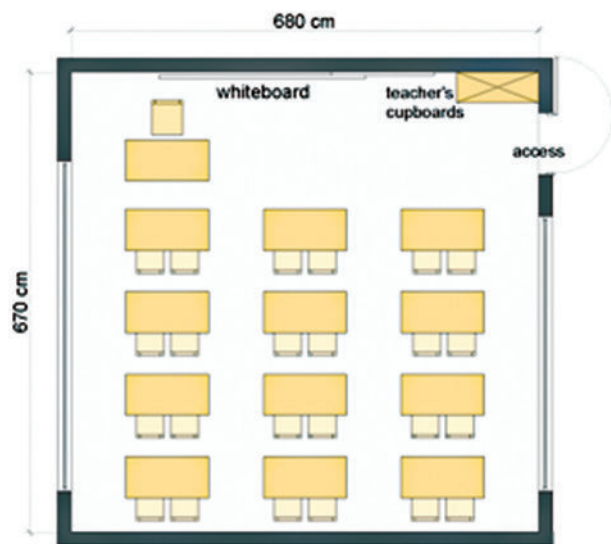
In addition, the designer shall assess and understand how the curriculum is taught and how the classrooms are to be used so that he can arrive at innovative solutions for the type of activities that will take place in the room. He also needs to evaluate and take into account the inter-relation and access to other spaces such as (i) supporting spaces that suit students working on their own; (ii) storage and teacher support areas; (iii) storage for students' clothes and bags; and (iv) social and recreation spaces.

To simplify the planning process and the design of schools, the MEST has decided that all new classrooms will have a capacity of (i) thirty six student places in areas

Level	Subject	Page
GR	REF	24



ORDINARY CLASSROOM
Frontal teaching, 30-36 students
Lower and Upper Secondary Level



ORDINARY CLASSROOM
24 students
Lower Secondary Level

FIG.1-2.3

with high density population (mostly urban); (iii) twenty four student places in areas with low density population (mostly rural areas); (iii) the four levels of education will have the same capacities for all their classrooms; and (iv) practical works in laboratories and specialized rooms will be taught in half groups of 18 and 12 students.

■ SIZE OF ORDINARY CLASSROOMS

Level of education	Student places		Surface area M2		M2/student place	
	Low	High	Low	High	Low	High
Population density:						
Pre-primary	24	30-36	48	65	2.0	1.8-2.2
Primary	24	30-36	44	58	1.8	1.6-1.9
Lower secondary	24	30-36	45	58	1.9	1.6-1.9
Upper secondary	24	30-36	nuk ka	58	nuk ka	1.6-1.9

TABLE 2.3

Climate Environnement Neiborghood Services Networks Town planning

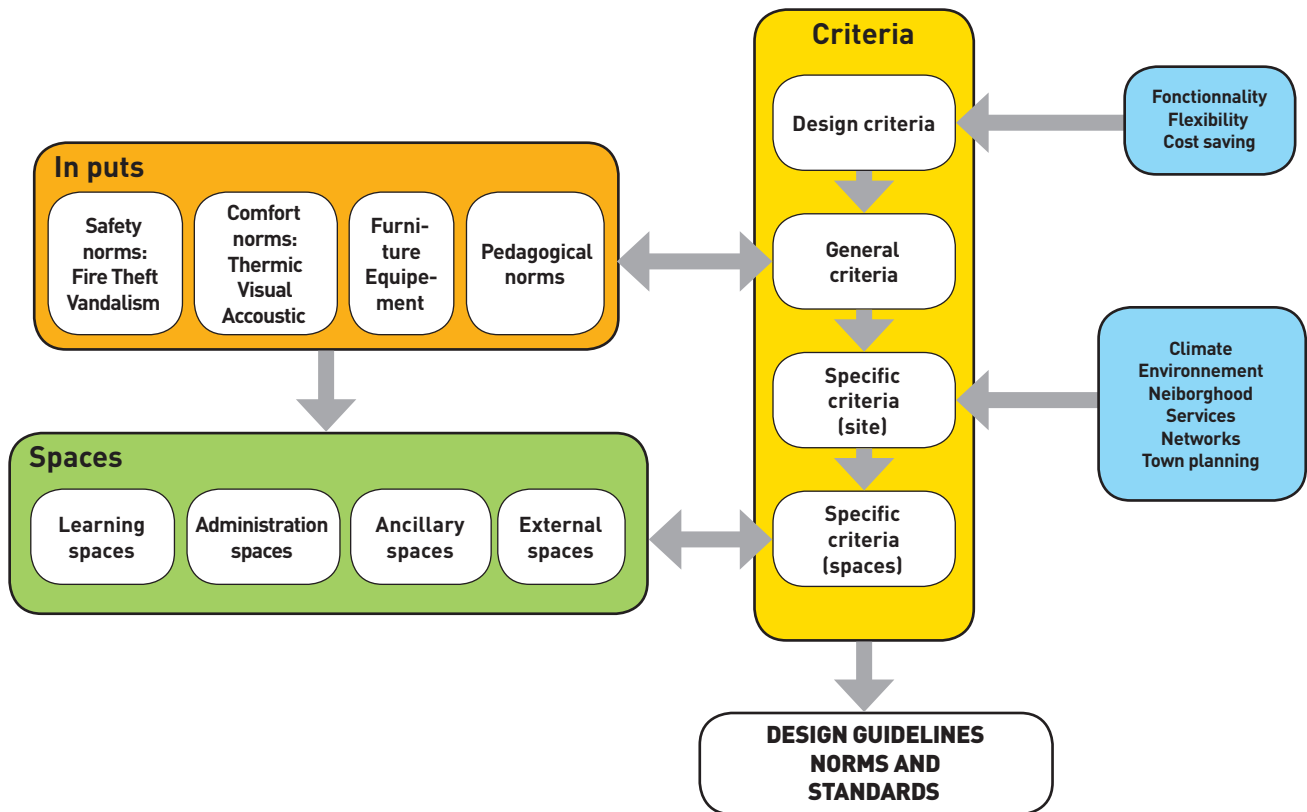


FIG.1.2.4

The average surface areas for classroom ranges from 44 to 48 m² for schools located in low density population areas with classes of 24 students and from 58 to 65 m² in high density population areas with classes of 36 students (see table 2.4 above). These dimensions were calculated on the basis of the requested capacities (24 and 30-36 students), the number and size of desks in the frontal rows (3 double desks) as well as in the longitudinal rows (see class lay outs in fig.1-2.3 below).

2.2 SPACE PROGRAMMING AND SPACE NORMS

The designing of norms and standards belongs to the second stage of the school facilities planning process which includes a cycle of four different activities (V1 annexes 01 and 02). This second stage, called "Research and Development" includes the preparation of various norms and standards for the preparation of standard school accommodation schedules and prototypes.

School construction programming

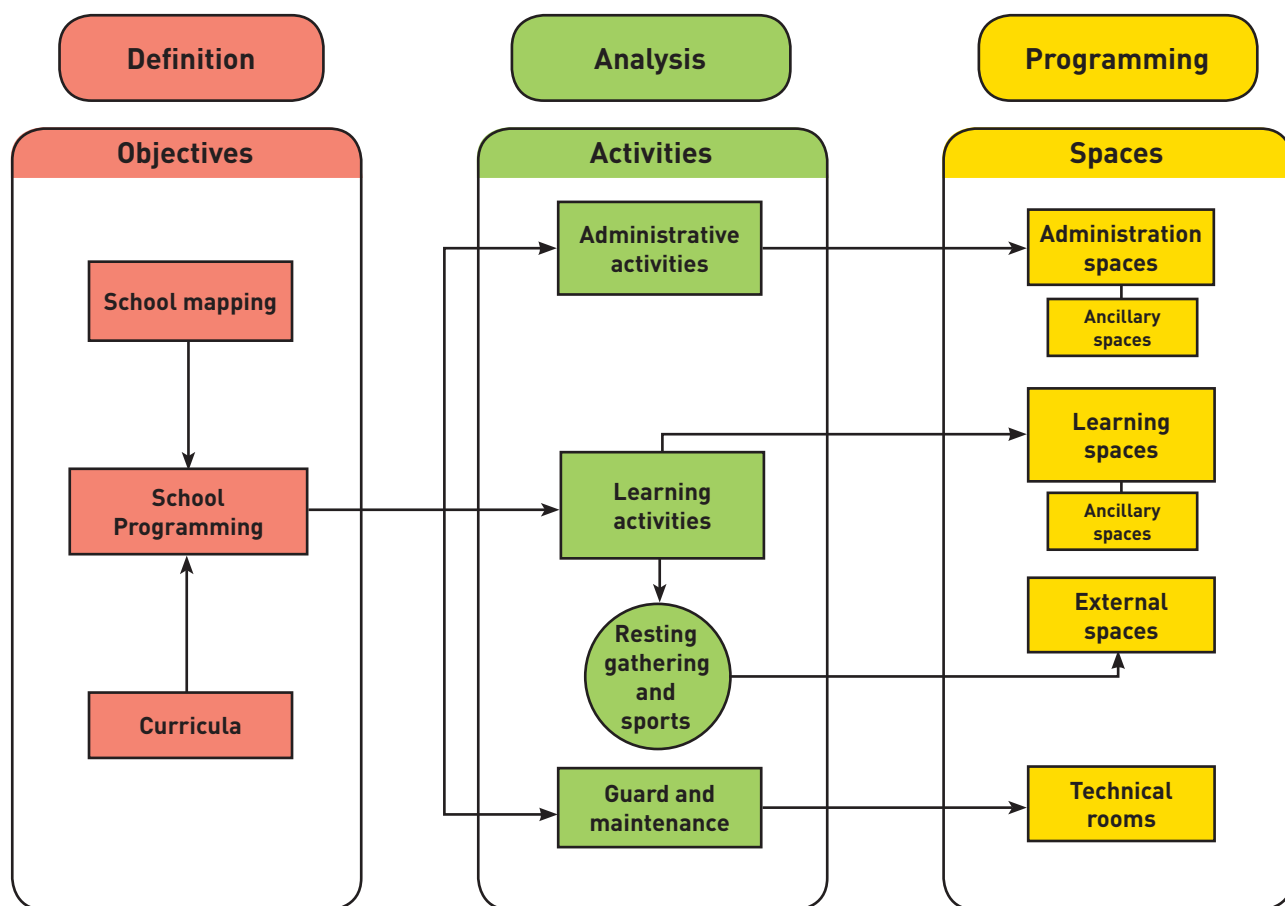


FIG.1-2.5

2.2.1 SCHOOL AREAS

The school facilities were distributed in three main categories, to allow the calculation of average surface area ratios per student for each category and make easier the comparison with other school projects in Kosovo and/or in other countries. These three categories are concerning:

- Teaching and pedagogical ancillary areas dedicated to each level of education;

- Administration areas;
- Common services and ancillary spaces allotted to the school as a whole.

2.2.2 SPACE NORMS FOR BUILT AREAS

The surface areas recommended for teaching and pedagogical support areas are based upon requested capacities

(see paragraph 2.1(e) above), dimensions of furniture, width of internal circulations and type of activity. The surface areas of other facilities were calculated on the basis of the number of occupants and the type of activity to be performed in these facilities. Areas of circulation spaces were calculated as a percentage of the room areas (between 21 and 25%).

2.2.3 INTERNAL SPACES

The space need assessment for teaching and educational support is estimated on the basis of the curricula, weekly teaching load, rate of occupancy and room capacity (see para. 2.3 on accommodation schedules below).

The administration and service rooms are determined according to the number of users and their functions.

The number of toilets and other sanitary facilities is determined proportionally to the school total capacity (for example, an average 30 students is calculated per toilet cubicle)

Following the above mentioned recommendations for the calculation of needed quantities of rooms and surface areas, 27 accommodation schedules were prepared, each of them corresponding to a level of education and a size of school. The analysis of these schedules gives net and gross surface areas per student for each category of building and for the total of each standard school. The detailed quantities and surface areas are shown in V1 annexes 06 to 09 and summarized in the tables 2.4 to 2.8 below.

2.2.4 EXTERNAL SPACES

External spaces are divided in three categories:

- Spaces allocated to recreation areas (play grounds) and sport areas;
- Circulation areas including those for vehicles

(roads and parking) and for pedestrians (sidewalks and paths);

- Green areas with plantations (trees, shrubs, bushes and lawns).

The minimum requirement of land area for each type of school is calculated by adding the necessary requested external spaces to the built area of each building. This area depends on the school capacity, the number of floors, and the estimated proportion of land attributed to landscaping and circulations. The detailed calculation of land requirements are given for each school standard in V1 annex 04 and summarized in tables 2.9 to 2.12 below.

For the pre-primary level (associated with primary level), the minimum requirement for external spaces is roughly equivalent to the total floor area, including the covered verandas (see annex 06 and table 2.4).

■ ELEMENTARY SCHOOLS
AVERAGE GOSS AREA IN M2 / STUDENT PLACE

Grouping of facilities by function	6 Cl.	12 Cl.	18 Cl.	24 Cl.	18 Cl.	24 Cl.	30Cl.	36Cl.
Population density	Low density (rural)			High density (urban)				
Teaching and pedagogic support (pre-primary)	6.89	6.07	6.39	7.66	4.94	5.16	5.22	5.12
Teaching and pedagogic support (Primary)	3.86	3.39	5.04	4.99	4.28	4.10	3.98	3.86
Optional facilities	0.00	0.23	0.27	0.90	0.03	0.51	0.67	0.56
Total including circulations without optional facilities	4.37	3.84	5.27	5.43	4.39	4.28	4.19	4.07
Total including circulations with optional facilities	n.a	4.07	n.a.	4.07	5.54	6.33	4.42	4.79

TABLE 2.4

■ BASIC EDUCATION SCHOOLS
AVERAGE GOSS AREA IN M2 / STUDENT PLACE

Grouping of facilities by function	20 CL.	30 Cl.	30 Cl.	40 CL.
Population density	Low density (rural)		High density (urban)	
Teaching and pedagogical support pre-primary	5.14	4.82	4.16	4.24
Teaching and pedagogical support (primary)	3.48	3.43	3.82	3.80
Teaching and pedagogical support (lower secondary)	11.56	10.75	7.21	6.90
Administration	0.56	0.44	0.29	0.22
Common services	0.98	0.91	0.87	0.85
Total including circulations	8.42	7.85	6.37	6.16

TABLE 2.5

■ LOWER SECONDARY SCHOOLS

AVERAGE GOSS AREA IN M2 / STUDENT PLACE

GROUPING OF FACILITIES BY FUNCTION	12 CL.	16 CL.	20 CL.	20 CL.	24 CL.	28 CL.	32 CL.
POPULATION DENSITY	LOW DENSITY (RURAL)			HIGH DENSITY (URBAN)			
Teaching and pedag. support	5.70	5.33	4.71	6.26	5.42	4.95	5.13
Administration	0.68	0.52	0.45	0.48	0.44	0.40	0.38
Common services	0.67	0.63	0.62	0.89	0.87	0.87	0.86
Total including circulations	7.05	6.49	5.77	7.63	6.73	6.22	6.36

TABLE 2.6

■ UPPER SECONDARY SCHOOLS. STREAM DISTRIBUTION

GROUPING OF SUBJECTS	GROUPINGS	CYCLES					CLASSES				
TOTAL CYCLES		7	8	9	10	11	7	8	9	10	11
Languages	A	2	2	2	2	3	6	6	6	6	9
Social sciences	B	1	2	2	2	2	3	6	6	6	6
Mathematics and information	C	2	2	3	3	3	6	6	9	9	9
Natural sciences	D	2	2	2	3	3	6	6	6	9	9

TABLE 2.7

■ UPPER SECONDARY SCHOOLS

AVERAGE GOSS AREA IN M2 / STUDENT PLACE

Functional areas	21 KL.	24 KL.	27 KL.	30 KL.	33 KL.
Teaching and pedagogical support	4.93	4.37	4.64	5.47	5.41
Administration	0.47	0.44	0.41	0.38	0.35
Ancillary facilities	0.95	0.93	0.92	0.89	0.89
Total including circulations	6.35	5.73	5.97	6.74	6.65

TABLE 2.8

Level	Subject	Page
GR	REF	30

■ PRIMARY EDUCATION

SITE MINIMUM SURFACE AREA BY STUDENT PLACE

(M² / student place)

School size	Population Density	Number of floors		
		GF	GF+1	GF+2
6 classes	Low	10.9	-	-
12 classes	Low	10.3	-	-
18 Classes	Low	10.9	-	-
18 classes	Low	-	8.3	-
24 classes	Low	9.9	-	-
24 classes	Low	-	7.7	-
18 classes	High	9.9	0.0	-
18 Classes	High	-	7.6	-
24 classes	High	-	7.5	-
30 classes	High	-	7.1	-
36 classes	High	-	6.4	-
36 classes	High	-	-	5.7

■ LOWER SECONDARY EDUCATION

SITE MINIMUM SURFACE AREA BY STUDENT PLACE

(M²/ student place)

School size	Population Density	NUMBER OF FLOORS		
		GF	GF+1	GF+2
12 classes	Low	16.2	-	-
16 classes	Low	14.7	11.4	-
20 classes	Low	11.4	9.3	8.2
20 classes	High	12.0	9.6	8.3
24 classes	High	10.7	8.5	7.4
28 classes	High	9.4	7.9	7.0
32 classes	High	9.5	8.0	7.0
36 classes	High			

TABLE 2.9

■ UPPER SECONDARY EDUCATION

SITE MINIMUM SURFACE AREA BY STUDENT PLACE

(M² / student place)

School size	Population density	Number of floors		
		GF	GF+1	GF+2
21 classes	High	11.5	9.8	-
24 classes	High	10.6	8.9	7.9
27 classes	High	10.1	8.2	7.2
30 classes	High	9.3	7.5	6.5
33 classes	High	8.9	7.3	6.4

TABLE 3.5

2.3 ACCOMMODATION SCHEDULES (SPECIFICATION OF FACILITIES)

2.3.1 ELEMENTARY SCHOOLS - STANDARDS

The programming of the 12 standard schools for **pre-primary and primary** levels was carried out with the help of Excel tables giving standard accommodation schedules for schools of low density or rural areas (24 student per class) and for high density or urban areas (36 students per class). This table gives for each standard, the list of rooms by category, their quantities, the total net and gross areas and the average surface areas by student (annex 1-05).

2.3.2 LOWER AND UPPER SECONDARY SCHOOLS - STANDARDS

The programming of the 12 school standards for lower and upper secondary schools was based on a set of four excel tables linked to each others, starting from the

official weekly teaching loads and ending by the "accommodation schedules". These tables are:

- The weekly teaching loads** for public schools by level, subject and grade (V1 annex 06). For upper secondary level, the table is divided in four different loads, one for each stream.
- The **curricula and time schedules**, allowing the calculation of total weekly number of hours by subject for each level and for each size of school;
- The **accommodation schedule** table, distributing the teaching hours by type of room and calculated the required number of rooms with their rate of occupancy; and
- The school accommodation schedule and **area tables** giving for each standard, the list of rooms by category, their quantities, the total net and gross areas and the average surface areas by student (V1 annexes 07 to 08).

2.3.3 BASIC EDUCATION SCHOOLS - STANDARDS FOR PRE-PRIMARY AND PRIMARY LEVELS

The programming of the 4 standard basic education schools was based on the accommodation schedules of both elementary schools and lower secondary schools. This programming was prepared on an Excel sheet (V1 annex 09) with the following distribution: (i) separated teaching and pedagogical support for each of the three levels of education; (ii) common facilities may be used by three levels such as administration, canteen, library, sports hall and other technical ancillary facilities (see paragraph 1.5.2 above).

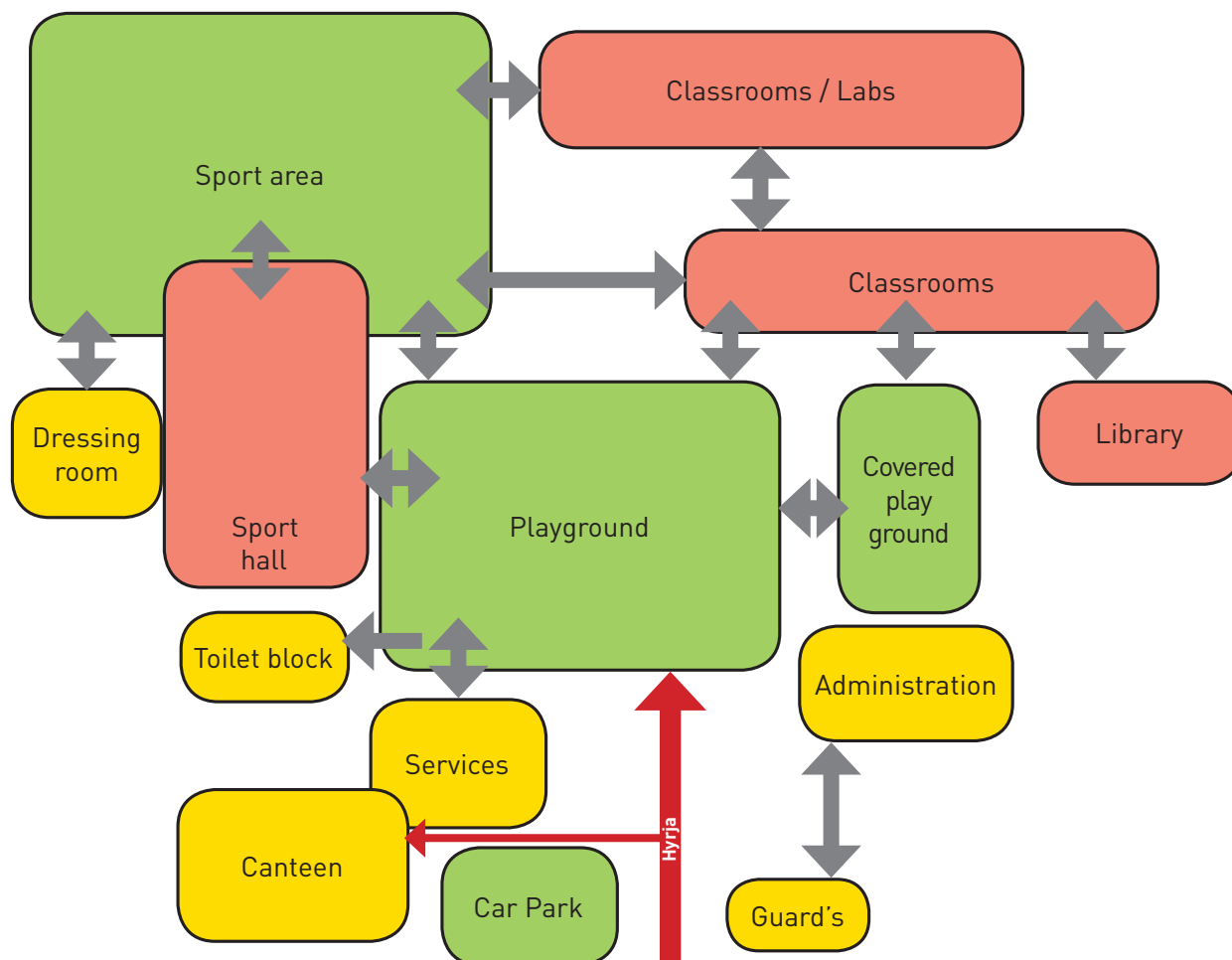
2.4 FUNCTIONALITY AND FLEXIBILITY

2.4.1 FUNCTIONALITY

When designing a school, a certain balance should be established between quality of function and cost efficiency. This balance may be obtained by various means such as

- Rational **dimensioning** of spaces:
- Adapted **circulation areas**: circulation spaces should not exceed 25% of the useful built area. They should be dimensioned and adapted to the school population, they should be functional and observe safety requirements;
- Optimal **number of spaces**: the number of spaces is primarily determined by the rate of occupancy (see paragraph 2.2 above, on accommodation schedules). In small schools where an acceptable rate cannot be reached, especially for specialized teaching spaces, multipurpose spaces should be considered;
- Maximum **versatility**: spaces must be designed with a maximum versatility, enabling them to adapt to several subjects and changes, when this is compatible with their functional requirements;
- Grouping of spaces**: spaces should be grouped in blocks according to function and interrelation. This would ensure an easy identification of activities and their corresponding spaces, an easy communication between different spaces, without congestion in circulations and waiting areas, an easy surveillance of spaces and an optimal use of available land;
- Integration of needs**: the location of spaces within the school should follow fundamental imperatives such as sanitation and hygiene rules, functional comfort and security regulations as well as acoustic, visual and climatic comfort.

Example of a functional diagram for an upper secondary school (01)



School site

FIG. 1.2.6

2.4.2 FLEXIBILITY

The designer will have to foresee sufficient flexibility to allow (i) the school staff to adapt the school premises to various existing teaching methods; and (ii) planners to adapt the facilities to future eventual curricula and syllabuses:

- The requested flexibility of facilities (and furniture) allowing for various teaching methods (see fig 1-2.8 below) concerns the ordinary classrooms (frontal teaching, working in small groups, seminar teaching...), laboratories and specialized rooms (practical work in half groups, demonstration courses in full groups) and multipurpose rooms and sport halls

Example of a functional diagram for an upper secondary school (02)

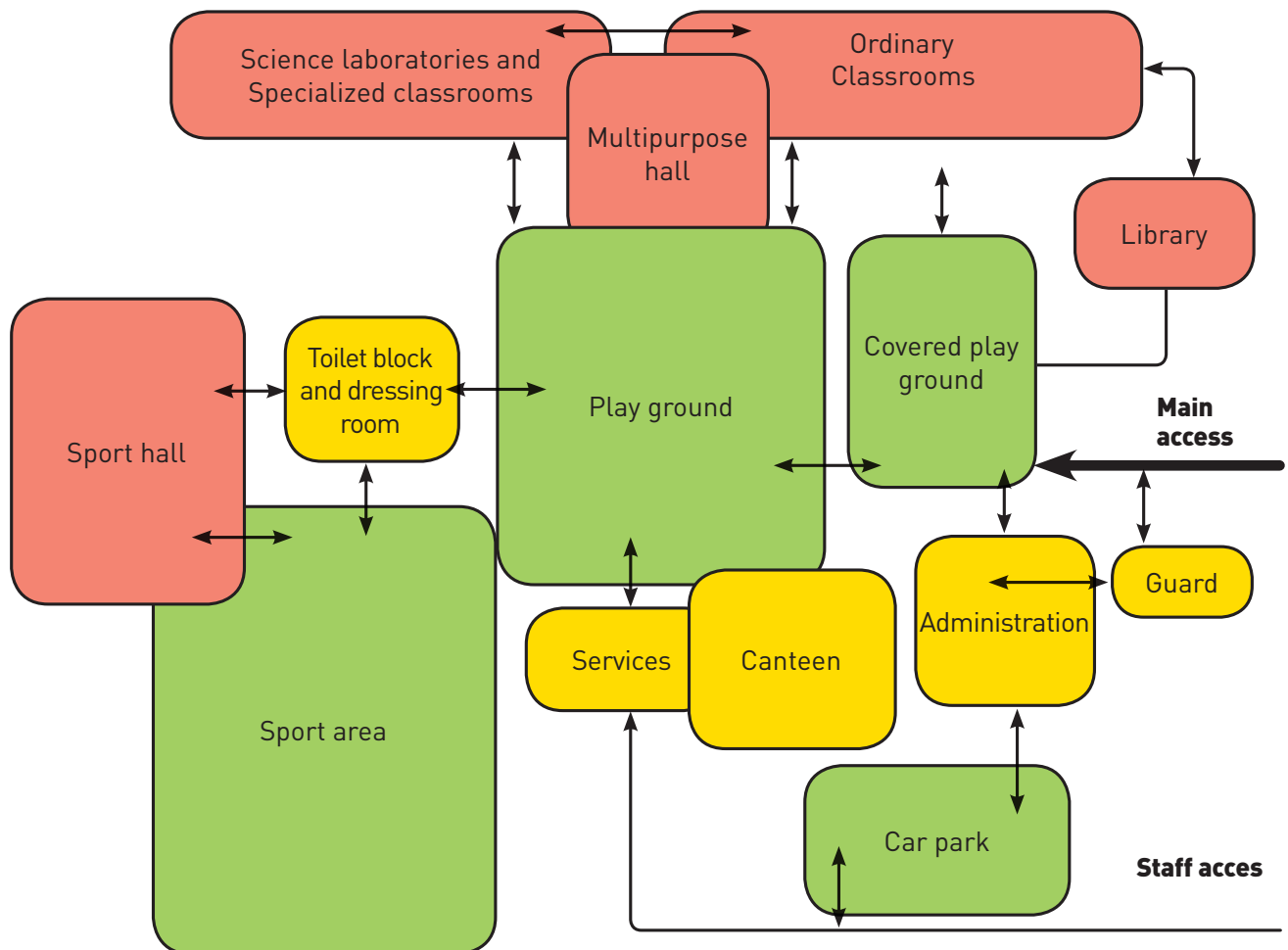


FIG. 1-2.7

- (possibility to regroup several classes)...
- b) The types and division of spaces given in the design program should be interpreted in structures that can be easily modified for changing needs in the future. Planning for flexibility is an essential consideration in school design to accommodate the continuous evolution in both educational thinking and building

techniques and technologies. It will facilitate a school adaptation to new uses by means of changes in layout and permits such changes without excessive cost. For this reason, a flexible plan must also allow for an easy adaptation to future developments in space layouts, building structures, artificial lighting, ventilation techniques and acoustics. Making a build-

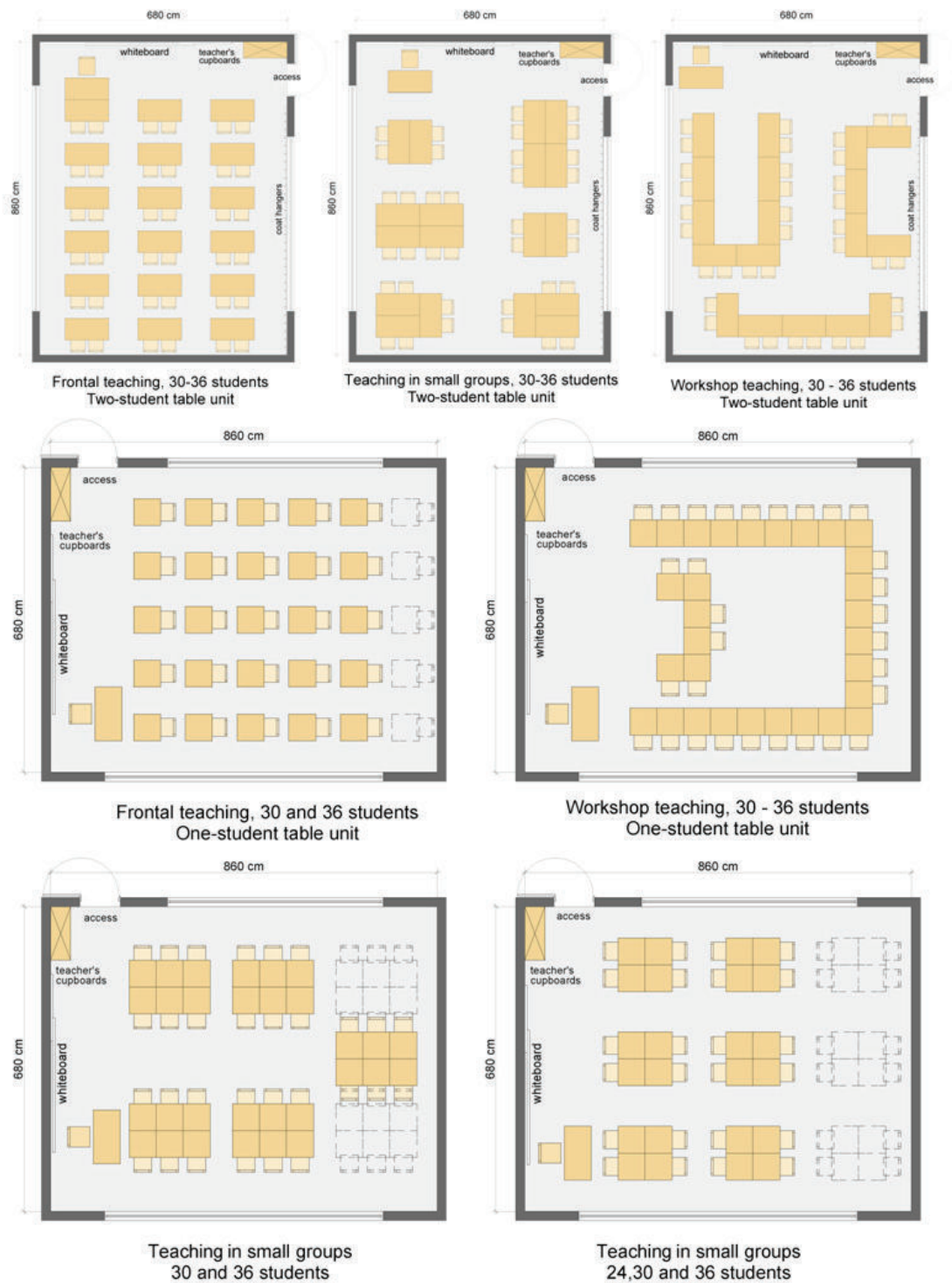


FIG.1-2.8

ding highly flexible (for example, with large numbers of moveable walls) is generally very expensive and can only be justified where the changes are likely to be frequent and essential. There is little point in putting in a large, sliding, soundproof partition if it is only going to be moved once a year. On the other hand, it is wise to avoid structural systems, such as having load-bearing cross walls between classrooms, which make it difficult and expensive to move walls and change room sizes at a later date. A timber, concrete or steel framed building will generally be much more adaptable in the future.

2.5 DESIGN AND AESTHETICS

The importance of the physical appearance of a public school should not be minimized. A school building that is attractive, responds to and is consistent with the design and context of the neighborhood, builds a sense of pride and ownership among students, teachers, and the community. In addition, like most of the cultural establishments, the school is a symbol of knowledge and progress for the community.

The architectural quality of its buildings should therefore not only contribute to the functionality of the school, but also to its integration within the community and to its building as a symbol by:

- (i) Instilling in students a sense of good architecture through the harmony and proportions of built spaces, open spaces, facades
- (ii) Creating a pleasant environment in the school and helping users to appreciate it through the use of materials, colors and plants, the quality of waiting and circulation areas...etc.
- (iii) Allowing an easy identification of different spaces by grouping them according to their activities and by providing easy links between buildings and spaces;
- (iv) Integrating cultural values and specific elements of

the community's environment and therefore increasing its sense of appropriation and its pride in its school;

The school internal spaces should reflect and enhance the learning activities by:

- (v) Providing an interior environment that is visually comfortable and stimulating;
- (vi) Providing ample natural light and incorporating colors that stimulate or soothe, depending on the space function;
- (vii) Ensuring diffuse, uniform daylight throughout classrooms and avoiding glare and direct-beam sunlight inside the rooms.

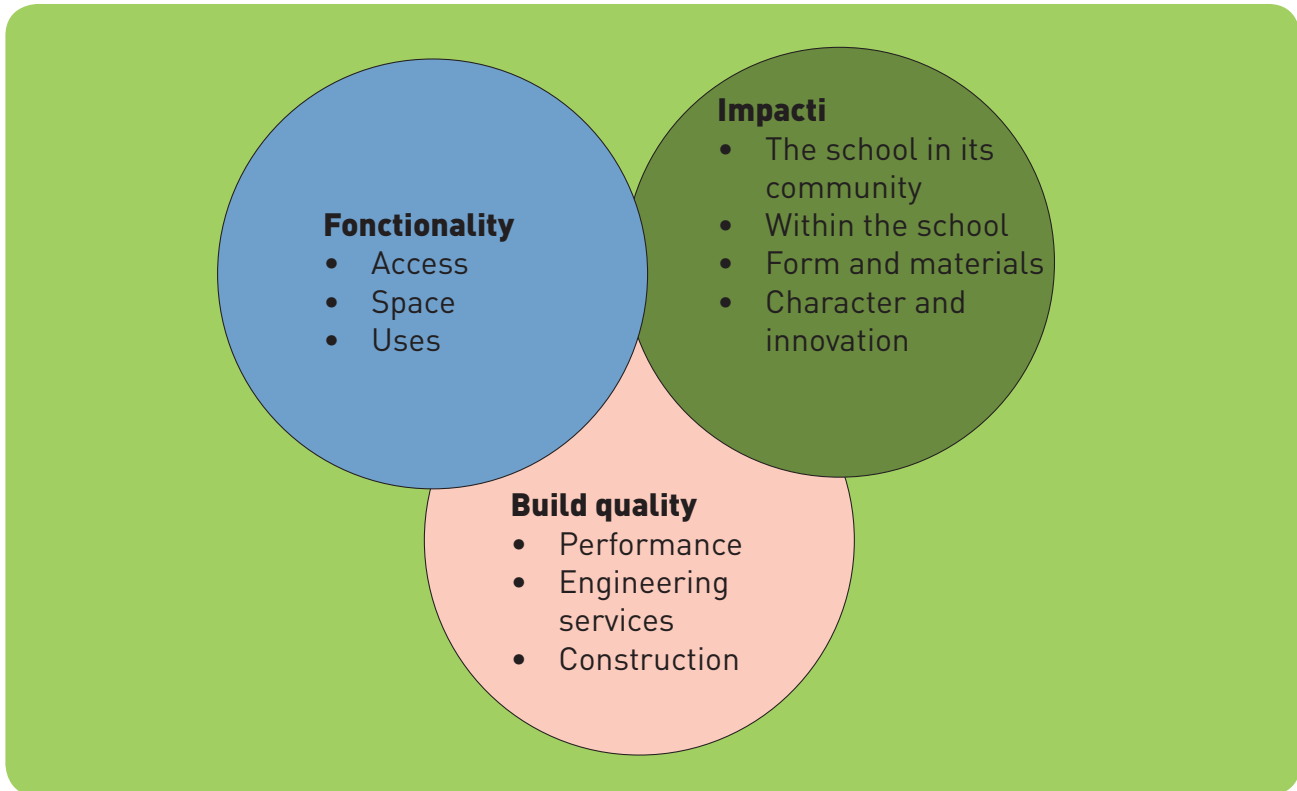
The quality of the Design should be discussed, specified, evaluated and checked at various stages throughout the design and procurement process. This will relate to things that can be scientifically measured, such as the level of daylight in a classroom, or to more subjective aspects such as the attractiveness of the building or how it makes users feel.

At the outset of the project there are many factors to be considered and many individual views to be taken into account for the quality evaluation and therefore, the client (Municipality and MEST/DI) may be willing to carry out a Design Quality Evaluation (DQE).

The Design Quality Evaluation (DQE) is a tool consisting of questionnaires with predefined statements distributed under three main headings: functionality, building quality and use. This tool is usually designed for use at three stages in the school building project: (i) Designer's briefing (to help prepare the architect's brief); (ii) Mid design (to evaluate the proposal against the original aspirations); and (iii) Occupation (evaluate how well the building is performing).

DESIGN QUALITY EVALUATION

Three indicators working together



2.6 COST AND BUDGET PARAMETERS

The materials and building techniques should ensure architectural quality while at the same time meeting budgetary requirements. The designer should therefore choose materials and techniques that establish the best possible relationship between quality, durability and cost.

The school capital and operating budgets are usually financed by different sources, their spending comes at different times and they are managed by different services and persons. As a result, there is often little incentive to factor in the long-term cost of a building when making decisions about its design and construction. However, to

reduce the total cost of owning a building while ensuring its quality, it is necessary to balance the initial design and construction costs with the running costs such as lighting, heating, cooling, repairing and otherwise operating and maintaining the facility. This balance could be reached through:

- Use of local resources (materials and labor) and consider the recyclability of materials within the threshold of quality;
- Ease and simplicity of design and construction;
- Durability with respect to the effects of climate and intensive use by students;
- Selection of building elements on the basis of

- life-cycle cost analysis (compare the lifespan of projects and systems with the expected lifespan of the facility);
- v. Specified materials and products that are easy to maintain;
- vi. Commissioning of the facility to ensure that it operates in a manner consistent with design intent;
- vii. Use energy simulation and analysis tools to optimize energy performance (integrate day lighting systems, high-performance HVAC, energy-efficient building shell, and high-performance electric lighting); and
- viii. Anticipate and prepare an easy and efficient maintenance schedule with adapted materials and using locally available accessories and spare parts.

report on the result of the budget check should be made in any case in the first progress report.

Once the project capital cost has been set up and its sum is broken down to give proportions for various elements, it is important for the Designer to immediately make a detailed cost plan based on a synthesis of the total gross floor area, using the total number required for each space category with the corresponding space allowances. To this, an allowance for circulation and structure will be added at approximately 25 % and the cost per m² gross can then be calculated from the given budget sum. It should be noted that this addition for structure and circulation is generous and can be considered to contain a contingency. The target addition to be aimed at, in the final design, should be around 36%, which should include 12 to 14% for structure (difference between net and gross area).

A review and checking of unit costs on recent tender results will indicate whether the project space total is achievable within the budget or whether economies of scale or an increase in budget are indicated. Such a check is essential as a starting point for the design work. If there is a negative discrepancy of some size, then discussions need to be initiated with the Technical Department in charge of the project, as a matter of urgency. A

3

3. GENERAL PRINCIPLES

3.1 TECHNICAL NORMS

Technical norms for construction, building techniques and materials are not yet established in Kosovo and professionals of the construction sector are relying on foreign norms, mostly from EU, OECD countries and/or from the United States.

However, a construction law was passed in 2004 (Law N°2004/15 of May 27, 2004) which gives the main rules and orientations to the sector and, concerning technical norms, gives in Chapter 2 (Basic construction requirements) and chapter 3 (Building products and building techniques) the main requirements for construction and use of construction materials.

In addition, the International Organization for Standardization (ISO) has prepared internationally accepted technical standards that can be consulted and/or purchased by its members. These norms dealing with various sectors are permanently completed and up dated. The main technical standards that can be applied to school construction can easily be consulted on internet under the following references:

■ ISO STANDARDS

ICS ref.	Main sections
91.06	Elements of buildings
91.08	Structures of buildings
91.09	External structures
91.10	Construction materials
91.12	Protection of and in buildings
91.14	Installations in buildings
91.16	Lighting
91.18	Interior finishing
91.19	Building accessories
93.00	Civil engineering

TABLE 3.1

3.2 COMFORT PARAMETERS

There are three main sources of physical discomfort that the body can experience: temperature, light and sound. An amount of any of these outside an acceptable range will cause discomfort and it is the object of the facilities design to so arrange a building's environment that potential discomfort is reduced to an acceptable level. This is an inexact science since much response to discomfort is subjective and varies between individuals. However, studies have shown broad agreement on what are considered as suitable levels for each of the sources. The environmental quality within a school is especially critical to the students learning effectively.

3.2.1 CLIMATIC COMFORT (TEMPERATURE)

(a) Definitions and terminology

The **thermal comfort** is usually attributed to two main parameters: (i) the thermal comfort feeling due to the balance between accumulated and lost calories in the body; and (ii) the control of the climatic conditions including sun position and radiation, temperature, humidity and winds.

Designers of school buildings need to take into account the climatic conditions of the area where the construction is envisaged. The present guidelines give general statements about climatic conditions in Kosovo, but additional and more detailed data shall be collected for precise conditions in the concerned area, such as: (i) average monthly temperatures with minima and maxima; (ii) local hygrometry; and (iii) prevailing winds for each climatic season and frequency of strong winds and storms.

Level	Subject	Page
GR	REF	42

(b) Kosovo Climatic Conditions

The climate of Kosovo is predominantly continental, resulting in warm summers and cold winters with Mediterranean and Alpine influences (average temperature within the country range from +30 °C (summer) to -10 °C (winter)). However, due to unequal elevations in certain parts of the country, there are differences in temperature and rainfall distribution.

December and January are regarded as the coldest months, July and August as the warmest months of the year. The maximum rainfall rate is reached between October and December. Between November and March, snowfall can be expected in Kosovo, even in the flat parts of the country. The highest snowfall rates can be expected in the mountain regions of Kosovo.

The valley between Mitrovicë/Mitrovica and Kaçanik/Kaçanik belongs to the dryer areas of the country. In contrast, the plain of Dukagjini between Pejë/Peć and Prizren is described as a very fertile area with more precipitation between November and March.

Based on the climate conditions, Kosovo can be separated into three climatic areas (see fig. 4 below):

- (i) The climatic area of **Kosovo (Rrafshi i Kosovës)**, which includes the Ibar-Valley, is influenced by continental air masses. For this reason, in this part of the country, the winters are colder with medium temperatures above -10 °C, but sometimes down to -26 °C. The summers are very hot with average temperatures of 20 °C, sometimes up to 37 °C. This area is characterized by a dry climate and a total annual precipitation of 600 mm per year, approximately.
- (ii) The climatic area of **Dukagjini (Rrafshi i Dukagjinit)**, which includes the watershed of the Drini i Bardh river, is influenced very much by the hot air masses, which cross the Adriatic Sea. Medium temperatures during winter range from 0.5 °C to sometimes 22.8 °C. The average annual

precipitation of this climatic area is about 700 mm per year. The winter is characterized by heavy snowfalls.

- (iii) The climatic area of the **mountains and forest** parts is characterized by a typical forest climate, that is associated with heavy rainfalls (900 to 1,300 mm per year), and summers that are very short and cold, and winters that are cold and with a lot of snow.

Finally, it can be stated that the Kosovo territory is characterized by a sunny climate with variable temperature and humidity conditions.

(c) Improving climatic comfort

To improve the thermal comfort of school spaces, possible climate control measures are classified in two categories:

- (i) **Natural** or passive measures including building orientation, position and dimensions of the openings, quality of materials, thermal insulation, planting next to the buildings...
- (ii) **Artificial** or active measures including mechanical or electrical means such as heating, ventilation or air conditioning.

In order to control the climate effects on the school spaces, simple measures should be taken by designers at the beginning of the design process. These are concerning:

- I. **Orientation of buildings:** orientation of learning spaces towards South and North is recommended as such orientation provides a protection against direct sun rays. This preferential orientation can deviate of about minus or plus 30° (because of site requirements or because of the orientation of the prevailing winds) without much consequence on the classroom comfort (see fig. 1-3.4 below);
- II. **Placement of buildings:** the distance between buildings from façade to façade shall be

Schematic overview of climatic zones of Kosovo

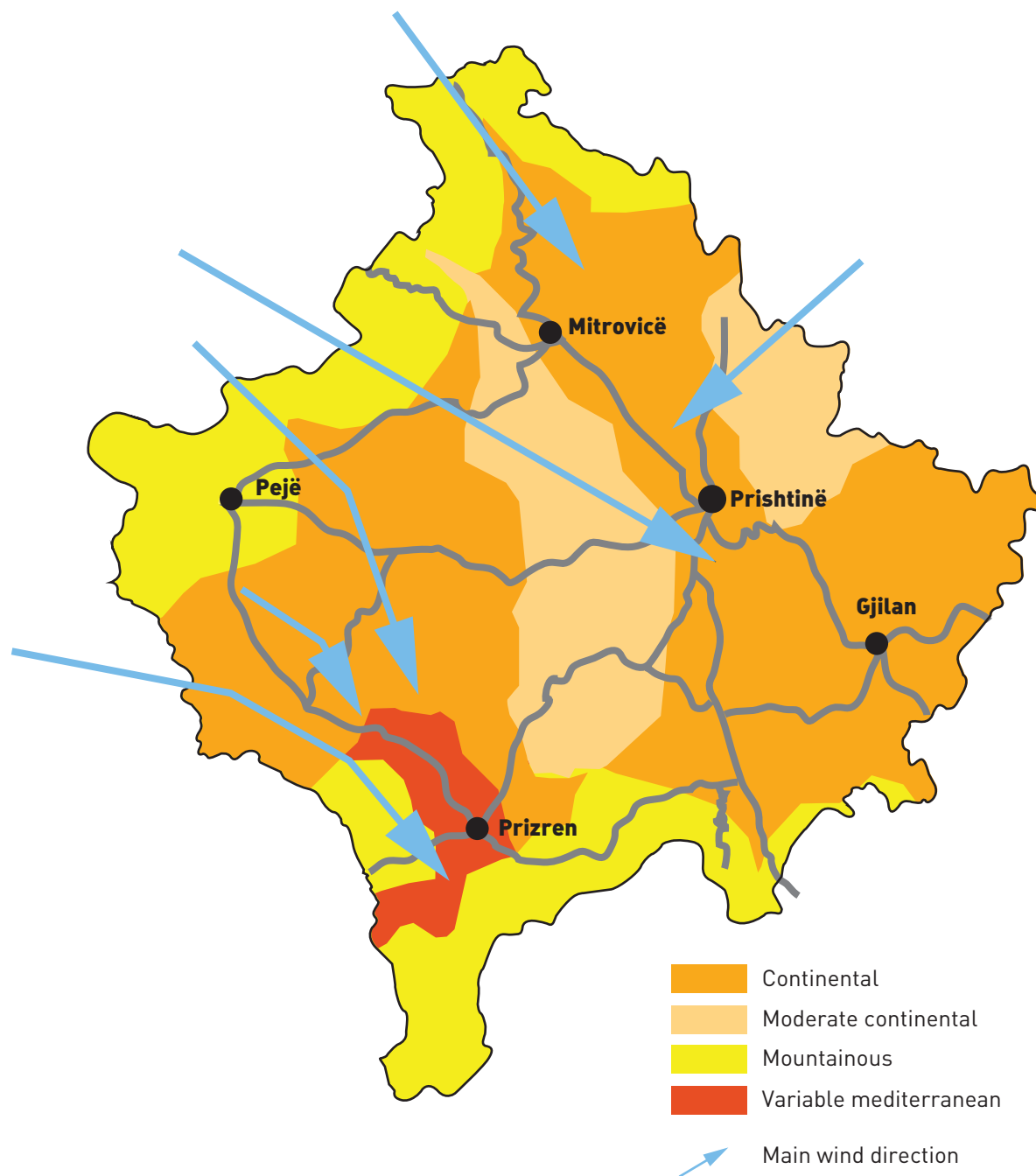


FIG. 1-3.1

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proportional to the height of the buildings to allow fresh air and natural light in the lowest levels. For the same reasons, a minimum 4.0 m distance shall be kept between the main facades and the enclosure wall;

- III. **Shape and design** of buildings as for example, the possibility of transversal air flow for the renewal of fresh air with natural cross ventilation during the hot season, or the choice of a four slopes pitch roof in areas with heavy snow fall;
 - IV. **Landscaping:** vegetation can play an essential role in creating a microclimate, whenever needed. Plantation of trees contributes effectively in the protection from dust, winds and sunlight. In addition the plantation of lawn shrubs and bushes allow the protection against the sunlight reverberation and reflected glare from the ground;
 - V. **Appropriate building elements:** this includes the appropriate roof drainage and site drainage around the buildings, the shading with adjustable shutters on windows, sun breakers, sun screening, overhangs and/or galleries that could bring additional protection against sunlight, especially when the building orientation is unfavorable.
 - VI. **Adequate building materials,** including façade materials with possible reflection of the sunlight, insulation materials to increase the walls and roof thermal inertia
- (d) **Active climate control**
- (i) Low temperatures: comfort level at the lowest temperatures can be taken as being between 19°C for stationary work activity and 15°C for circulation areas. The heat input to bring the interior environment to these levels will normally not be very high. However much lower minima can occur in any of the months of the "heating season" and a heating system needs to be able to respond to these lows.

■ RECOMMENDED MINIMUM TEMPERATURES

Classroom	19°C
Stores	16°C
Corridors	15°C
Sanitary blocks	16°C
Workshop	16°C
Multipurpose room	19°C
Administration offices	19°C
Medical room	22°C

TABLE 3.2

The pattern of occupation for schools is also a factor affecting the practical solutions to thermal comfort: the school working week is generally Monday to Friday and the working day is 08.00 to 17.00 (or more with double shifts), with a lower need for thermal comfort during the week-ends and during the cold season vacation of two weeks in December-January, the input of heating is minimal or not required.

- (ii) **High temperatures:** Kosovo's climate is predominantly continental dry and hot from May to September, with sunlight on most days during this period (see para 3.2.1 (b) above on climate). The hottest months are July and August with regional variations due to elevation. However, air temperatures in the low to mid 28° C will be a limit for comfortable school work and with adequate air movement by natural air flow from open windows and fans, these levels can usually be achieved in general classrooms during the teaching year, provided that control measures described in paragraph 3.2.1 (e) are implemented in the design of the buildings.

However, in specialized rooms such as computer laboratories with a class-sized number of monitors

operating, the temperature can exceed 38° C and cooling is necessary. Other laboratories may also require cooling by reason of heat generating activities or a need to limit the rate of ventilation for certain experiences and practical works. Cooling is best achieved by means of split system units or air-conditioners, and it will be good design practice to provide these to laboratories. There may also be a case for possible air conditioning units for certain administration rooms.

The traditional construction of schools in Kosovo generally has a good thermal inertia, which means a slow passage of heat through external walls so that radiation to the interior is delayed until into the afternoon, when normal school occupation ends. A generally high diurnal temperature range means that with good management, the school can be ventilated during the low temperature period at night so that it will be cool for the start of the school day. This will have an effect on the design of windows and internal air fans.

The occupancy pattern in school use will also be a significant factor for the hotter season since the school year includes a vacation in July and August, considered as the hottest months and during which there is no need for artificial climate control.

(e) Passive climate control

Control over heat ingress and build-up can be minimized naturally with an adequate design of the building envelope. The source of heat is the sun and therefore exclusion of direct sunlight from the interior is essential. As has been indicated, the solid exterior walls can be neglected as a significant source of interior heat build-up during the school day. This means that the windows are the elements requiring attention. This is achieved in two ways, by **orientation and sun screening**. It should be noted that sun shading devices inside the glass are ineffective as the material is heated and re-radiates inward. It is essential to stop the sun from striking the glass, heat is not re-radiated out through the glass because the wavelength is changed

and greenhouses heat up. It must be noted that the use of double glazing is ineffective in stopping sun penetration, it is effective at preventing heat loss outwards.

- (i). **Orientation for sun** : the best compass direction, or orientation, for the essential daylight admitting windows is North-South (see fig. 3.3 below): the North elevation, in Kosovo has no direct sunlight on the window planes and the South elevation has minimal sun rays striking the window planes with the smallest angle of incidence during the course of the day: at the hottest part of the day, the sun will be at its highest and the angle of incidence to the South-facing windows will be at its narrowest. Sun from this orientation is the easiest to screen out.

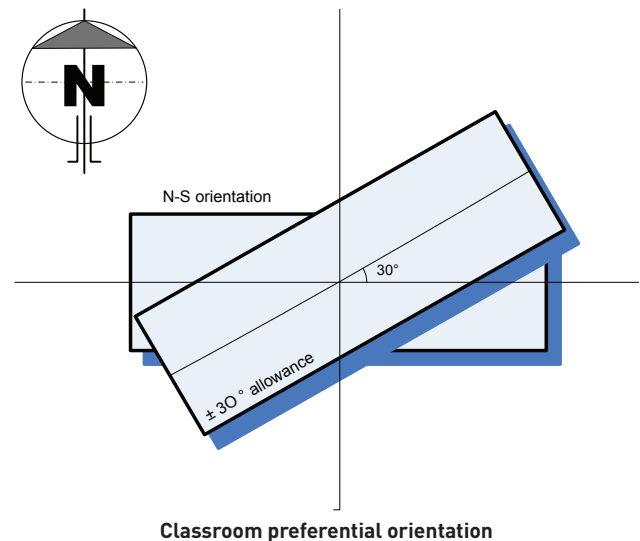


FIG.1-3.3

- (ii). Cross-ventilation will be a natural comfort factor for the hottest part of the year (see fig 3.4 below) but, in the higher elevations, the need is more likely to exclude air that has been heated by passing over hot dry ground. In any case, a building group with rooms with the option of openings both sides are not economical, although this is the optimum

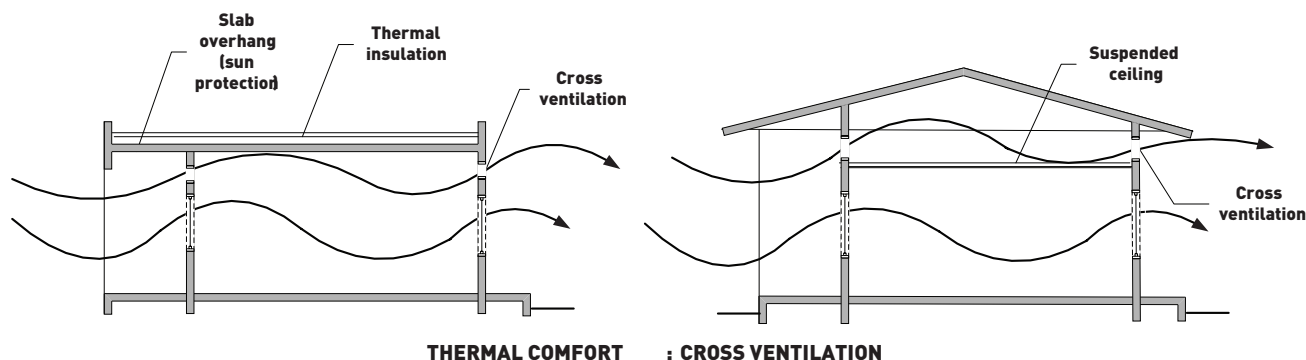


FIG. 1-3.4

recommendation. A school, like any building mass, will have a pressure gradient over it in any wind condition and direction, so that air will flow through the building from positive pressure to negative, to the extent that internal divisions and spaces permit. This is how the overnight potential cooling benefit will be assisted by exterior high-level window opening lights and the interior open able fanlights above doors.

- (iii). **Sun Screening:** effective sun screening devices can be designed to operate in any orientation, since sun angle is entirely predictable. However, owing to seasonal change in elevation, round the year full exclusion would require movable elements in a screen. In practice, screening is usually a compromise, although if the optimum orientation has been designed in, then screening will be effective. Assuming a South orientation, a window will be screened by an external horizontal shelf at the level of the top of the window, with a projection depending on the duration of the year that it is desired to exclude the sun from penetrating the room or from striking the glass. In winter time, there will be a benefit in the cold season from sun penetration, so the sun angle to be excluded should be from May to October. It is essential to stop the sun from striking the glass

as the heat is very effectively inward and the glass itself is heated thus accentuating the effect. It must be noted that the use of double glazing is ineffective in stopping sun penetration, it is only effective at preventing heat loss outwards. The building of a large roof overhang or the provision of window head louver screens are part of the usual sun protection solutions (see Fig 1-3.5 below). However, an alternative is to incorporate a shelf into the structure of the window at the level of the transom, i.e. about 2.00 m above Finished Floor Level (FFL), with an external and an internal projection from the window plane. This works by the internal projection screening from the floor the sun entering from above the transom and the external projection screening out the lower incidence sun. The top of the shelf is a solid reflector which acts to reflect light onto the ceiling and thus to the back of the room, thus optimizing the daylight distribution. This device is less effective at excluding heat since the transmission through the upper part of the window is permitted. This might be an advantage in very deep classrooms of 8.00 m or more, but in the standard Kosovo model of 6.80 m the daylight penetration has been observed to be more than adequate.

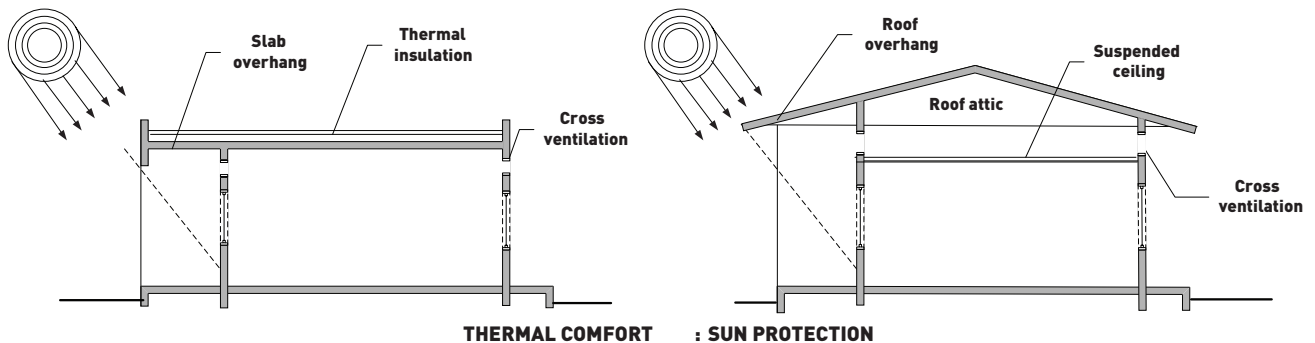


FIG. 1-3.5

3.2.2 VISUAL COMFORT

(a) Definitions and terminology

The need for high standards and well design lighting in school facilities is based on: (i) natural lighting resulting from direct sunlight or indirect light reflected from the ground and other external or internal surfaces (see table 3.3 and 3.4 below); (ii) artificial light from electricity sources (lamps, fluorescent tubes); (iii) brightness or intensity of light whether from natural or artificial source or from an opaque surface or object; and (iv) contrast that applies equally to differences in brightness or color.

■ AVERAGE LIGHT REFLECTION FACTORS

Materials	%
Plaster	85
White paper	84
White painting	75
Cement	55
Freestone	50
Natural timber (light color)	33
Red brick	20

TABLE 3.3

(b) Findings from previous studies

Excessive glare from sunlight can cause acute discomfort and in a classroom situation can cause headaches and prevent effective teaching and learning. The amount of daylight normally falling on an un-shaded work plane in a Kosovo school will be well over 1000 lux and a comfortable working level should be 300 to 400 Lux (see table 3.4 below). Readings show adequate daylight at the back of the normal classroom and the addition of sun screening as discussed above will lower the intensity near the windows. Internal window blinds may be the only means of reducing glare on a very bright sunlit day and it will be appropriate for the designer to make provision for the necessary track.

■ COMPARATIVE LIGHTING VALUE IN LUX

Location	Lighting (lux)
Outside, full sunny weather at noon	80,000 to 100,000
Inside, next to a window with clear skies :	
- 0,50 m from window	2,000 to 4,000
- 1,50 m from window	700 to 900
Work plane/ 60W lamp 0,60 m above	500 to 700

TABLE 3.4

Level	Subject	Page
GR	REF	48

(c) Recommended measures

Designers must take appropriate measures to ensure lighting and visual comfort which is essential for the good performance of students and school staff. These are:

(i) Natural lighting:

- To limit the use of expensive artificial lighting, the building plan and room layouts should maximize the use of natural light while minimizing the potential glare that could occur during certain periods of the day;
- a good level of lighting is important in circulation areas to minimize the risk of accidents;
- the distance between opposite facades should allow sufficient penetration of light into the facilities. The same distance recommendations apply for climatic comfort;
- the number, dimension, placement and arrangements of windows must comply with the required quantity of light (and air flow). Bearing in mind the importance of natural lighting, it is recommended that the total surface of windows in learning spaces should be 15 to 20% of the floor area;
- the depth of rooms may affect the natural lighting for spaces on the opposite side of the windows. It is therefore recommended to avoid room depth exceeding 7.00m;
- when using overhangs, struts and/or bars to protect windows, their effect on natural light should be carefully studied;
- plantation of trees and bushes can limit the intensity of light, depending on their size, shape, type of foliage and distance from the buildings

(ii) Artificial lighting:

- some school activities imperatively demand adequate artificial lighting, especially in winter time at the end of the day or on cloudy days.
- the installation of lighting equipment can also allow the extension of working hours (double shifts, night courses, meetings...);

- the type of lighting equipment to be installed depends on the intensity of light required and the type of related activity. However the fluorescent tubes, when compared to incandescent lamps, have the advantage of low surface brightness, high efficiency, low heat production and good light distribution;
- there are no precise standards in Kosovo for the amount of light required in school facilities, but it is recommended to use the following average standards:

Rooms	General	Work plan*
Stores, archives	200	n.a
Classrooms,	300 to 500	375
Laboratories, library	500 to 600	450
Offices, administration	400 to 500	375
Corridors and stairs	200	n.a
Lobbies and lounges	250	n.a
Multi-purpose hall	350	n.a
Chalkboard lighting (At 75cm over workplan)	n.a	400

TABLE 1-3.5

- Individual switches should be provided for lighting control in all spaces. For areas exceeding 20 M2, either dimming or multiple switches should be installed to reduce the light intensity.
- The building design and the type of lighting equipment must address accessibility for an easy maintenance, especially in high ceiling areas.

(iii) Visual angles and distances

Students often complain of not being able to clearly see visual aids such as whiteboards and video screens. Glare is often the cause of a student's inability to see clearly. Another important factor is the angle of the sight

line along which they are looking. Inability to see clearly may cause a student to adopt an uncomfortable posture and discomfort will result in loss of concentration. This is especially so with younger students whose angle of view distorts the image even if there is no glare.

There is some evidence that students who are located where the viewing angle is extreme, or the distance from the aid is excessive, are likely to have a poor learning outcome. If all students are to have equal educational opportunities, despite where they sit, the designer should pay close attention to seating layouts so that:

- Maximum distance between the last row of students and the main chalkboard is about 9.0 m. Beyond this range the writings are difficult to read and students will need to strain their concentration to be able to understand the written text;
- Minimum distance between the first row and the black board is about 2.0 m. Below this distance, the students of the first row will not be able to see the whole chalkboard with an acceptable visual angle (see fig. below);
- The minimum visual angle to the main blackboard shall be 30° (see fig. 3.6 below) so that the angle at which the teaching aid is viewed does not visually distort the students' understanding of what they see (below 30°, the reading of writings becomes difficult);
- The main natural light should be, as much as possible, located on the left side of students so that the shade of their hand is not projected on the text or drawing they are preparing.

3.2.3 ACOUSTIC COMFORT

(a) Definitions and terminology

Before recommending measures to improve the acoustic comfort in school facilities, terms and notions

related to acoustics should be defined:

- (i) The **sound** is a pressure wave in an elastic medium. If not restricted, it spreads from the source in all directions and diminishes in intensity as the square of the distance from source. It moves at about 0.344 m/second in the air and with a faster speed in denser media such as wood, steel, concrete...etc.
- (ii) **Transmission** of sound through a medium depends upon its density and homogeneity. In homogeneous medium such as steel, the sound is transmitted with a greater efficiency than in a non homogeneous medium such as a brick wall;
- (iii) Sound **intensity** is the rate at which the energy of sound is transmitted. This intensity is measured in decibels (dB);
- (iv) Sound frequency is measuring the number of pressure waves per second produced by this sound. The average human hear responds to frequencies 16 to 16,000 waves per second;
- (v) **Absorption** represents the proportion of sound that stays in materials and never comes out. The more porous materials, the higher is the absorption and structural surfaces. People or furniture are actually absorbing part of the sounds.

(b) Findings from previous studies

Acoustic discomfort may come from outside or inside sources. The acoustic environment in schools can be excessively noisy, especially when the students are entering, leaving or on break. When they are in class the need is for a controlled level of sound so that what is meant to be heard is clearly heard. Unfortunately, the traditional finishes and surfaces in many Kosovo school are hard and reflective, so that echoes do persist and reverberation time can be excessive, although in a classroom it should not be significant. The intelligibility of a teacher's speech in a classroom however also depends on the level of background noise. There are three sources of unwanted background noise that need to be controlled: From

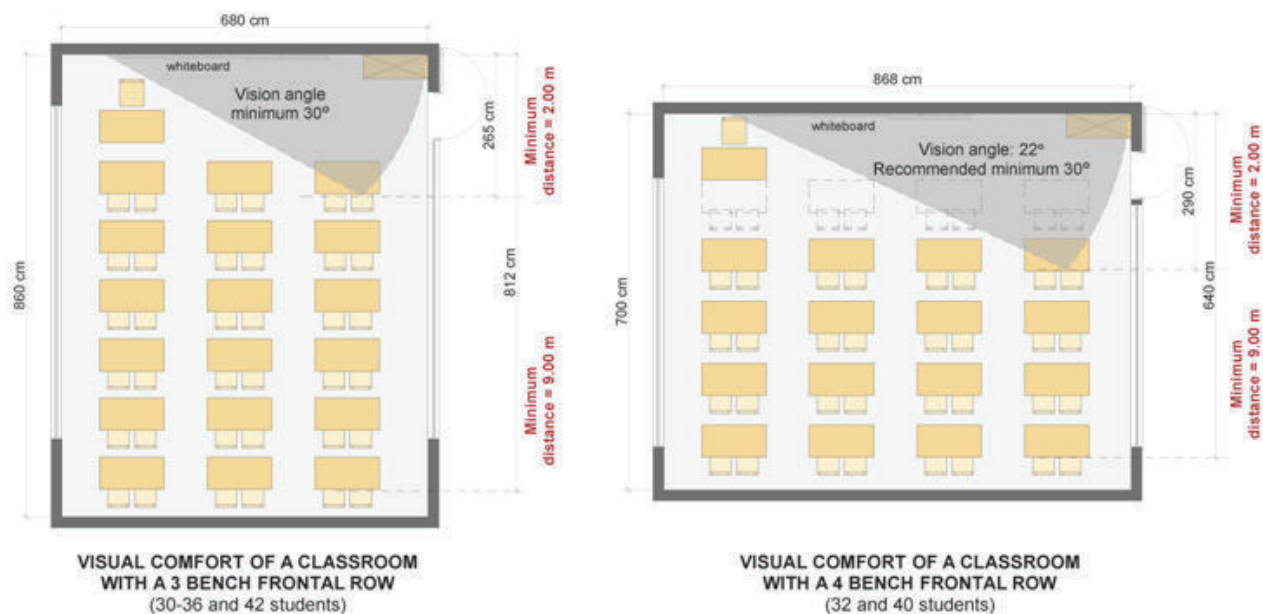


FIG. 1-3.6

adjoining teaching spaces;

- (i) From major noise sources within the school such as workshops, multi-purpose hall and corridors as well as from playgrounds and other sources of noise outside the school;
- (ii) From other sources off the site.

(c) Recommended measures

In order to provide a good hearing environment, the following considerations must be taken into account in the design of the school:

- (i) **School location:** exterior noise can be controlled by locating school buildings as far away as possible from noisy boundaries, by orientating learning spaces away from noise sources, by building perimeter walls around the school site or increasing landscaping elements to limit the penetration of exterior noise (markets, highways, stations...).
- (ii) **Location of buildings** with reference to interior and exterior sources of noise, e.g. the play-

grounds, the multi-purpose hall, music room and other spaces in which high levels of sound are produced should be located as far away as possible from buildings with classrooms, the library and other quiet spaces.

- (iii) **Layout of spaces:** student in a class or discussion group workshop should be at a workable distance from the teacher. The larger laboratories and teaching spaces should be kept to a size where the distance to the teacher and blackboard is not more than 9 meters from the back row (see visual comfort para.3.2.2 (c) (iii) above);
- (iv) **Soundproofing:** measures should be taken to provide sufficient soundproofing between spaces (classrooms, halls, offices...) to prevent disturbances caused by external or internal noises. A solid material such as a block wall between a predictable noise source and neighboring teaching activity will give a decibel reduction of a good order; and

- (v) **Materials and techniques** should be adapted to noise control between spaces and inside spaces: the use of absorbent materials on ceiling, the construction of double external walls separated with a void filled with insulating materials (polystyrene), 18cm thick partitions and walls between teaching rooms, floor finishes materials helping to decrease impact noises, stuffing of joints around pipes and air ducts...etc.

3.3 DESIGNING FOR HYGIENIC ENVIRONMENT

3.3.1 INTERNAL SANITARY SPACES

The quality of the hygienic environment in schools depends on the design, selection of the fittings and facilities for the use of students, staff (teaching staff, administrative staff and service staff) and visitors, but also on the maintenance and management in use of these facilities. In the standard accommodation schedules (V1 annexes 06 and 07), the numbers of fittings and facilities provided under table 3 (Common Services) are set out. These will, if well maintained, provide the level of provision required inside the educational establishments in the matter of toilets, washrooms and water supply. There are, in addition, external components of these services, the good management of which are vital to the hygiene and continued operation of the internal facilities.

3.3.2 TREATMENT OF WASTE AND ATMOSPHERIC WATERS

There are generally three types of waters to be treated and/or evacuated from school facilities. These are (i) **foul effluents** from toilet cubicles; (ii) **waste waters** from washbasins, showers and sinks; and (iii) **rain waters** from

roofs or external spaces. In addition, special treatments may be needed for oily waters (oil and grease traps) or for acid waters produced in laboratories (special pre-treatment). Treatment of waters differs from one place to the other, depending on the availability of a public sewage network and the possibility of a connection to a running water supply system:

(a) **School sites with public sewage network**

All waters may be directly sent to the network (see fig. 1-3.7 below). If needed, the roof rain waters may be collected separately in a tank to be used for watering school plantations and gardens.

(b). **For school sites with running water supply and without connection to a public sewage network:**

There is no alternative but to install a local solution with an independent disposal to deal with all school liquid wastes from sanitary facilities, laboratories, canteens... In any case, the chosen waste treatment system shall be friendly to the environment and cause no nuisance to the neighborhood. Two main solutions with possible variations are offered to designers to solve the on-site water treatment problem. These are:

- the traditional system (see fig. 1-3.8 below) with a two or three tank septic form, from which the treated effluents are sent to filter and percolate into the ground through a soak pit or a filtering bed. This system is usually designed with separate networks for foul effluents (going through the septic tank) and the waste waters going directly to the soak pit. In additional Septic tanks can be coupled with other on-site wastewater treatment units such as bio-filters or aerobic systems involving artificial forced aeration
- the new system including two sealed tanks, the first being a settlement chamber and the second being a holding tank, from which the effluent is regularly pumped to a tanker and taken to a central treatment plant. The solids in the first tank also have to be removed periodically.

SANITARY FACILITIES WITH RUNNING WATER SUPPLY AND PUBLIC SEWAGE

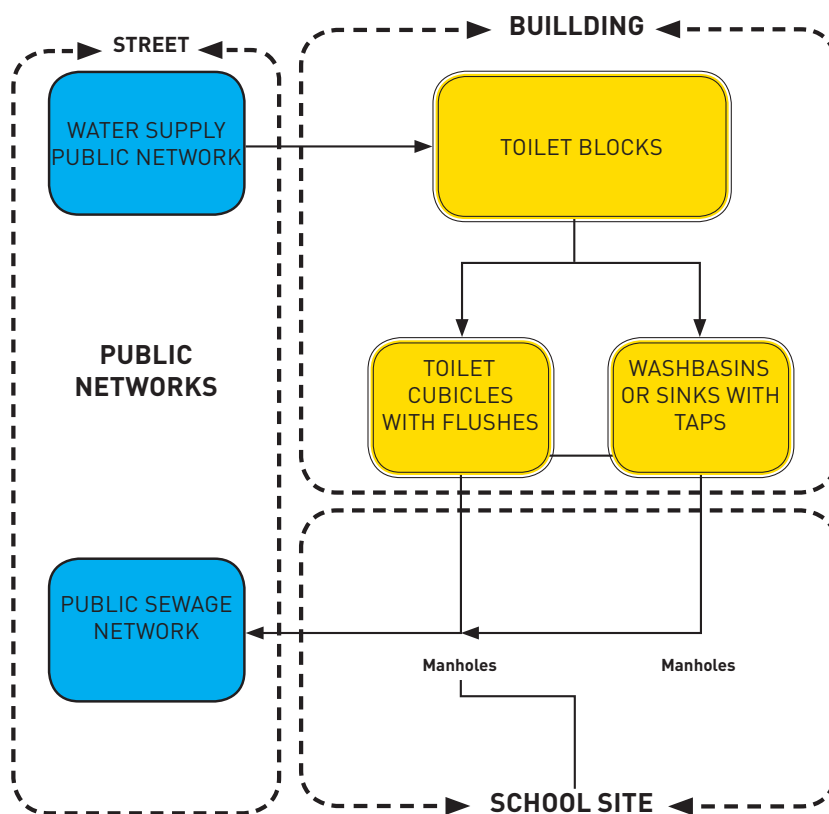


FIG.1-3.7

Schools without running water supply (remote rural areas): The only solution when running water is not available in a school is to build dry latrines with watertight tanks (see fig.1.3.9 below).

- (d) All these autonomous liquid waste treatment systems should be: (i) readily accessible for emptying solid wastes; (ii) distant from school building foundations (minimum 3.0 m); (iii) distant from any water wells (minimum 50.0 m); and (iv) properly ventilated and well maintained.

3.3.3 WASTEWATER CONDUITS

Wastewater conduits should respect the sanitary and ecological requirements. Each conduit should be sized in accordance with the quantity of liquid wastes at time of peak usage. They also should be tightly sealed to prevent the intrusion of harmful insects and small animals as well as the leaking of effluent. The main points to be observed during the setup of wastewater conduits are:

- Conduit slopes must be constant, without variation, between 2% and 2.5% for rain waters and 3% to 3.5%

SANITARY FACILITIES WITH RUNNING WATER BUT WITHOUT SEWAGE

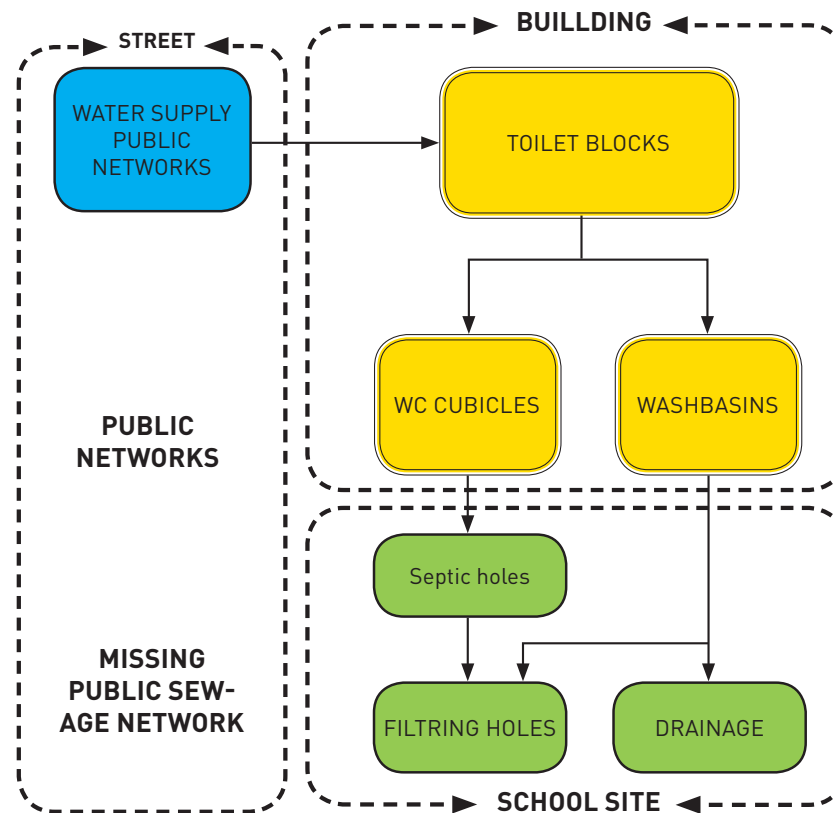


FIG.1-3.8

for waste waters, before treatment. For this reason, the designer shall, as much as possible, locate the septic tanks next to the toilet blocks;

- Sewer minimum diameter should be 100 mm and waste water drains minimum diameter shall be 80 mm;
- Pipe connections must be Y shaped and direction angles without manhole shall be less than 30°;
- Manholes shall be built at each change of direction, the angle of which is higher than 30° (vertical or horizontal);
- Distances between manholes should respect the

requirements to allow easy access and maintenance (refer to specific construction norms: about 30.0 m minimum for sewers and 50.0 m for pipes and drains);

- Each sanitary equipment must be equipped with a siphon to eliminate odors and filter large solid waste that could stuck the piping; and
- When a building has several floors, all vertical conduits must be ventilated.

SANITARY FACILITIES WITHOUT RUNNING WATER SUPPLY

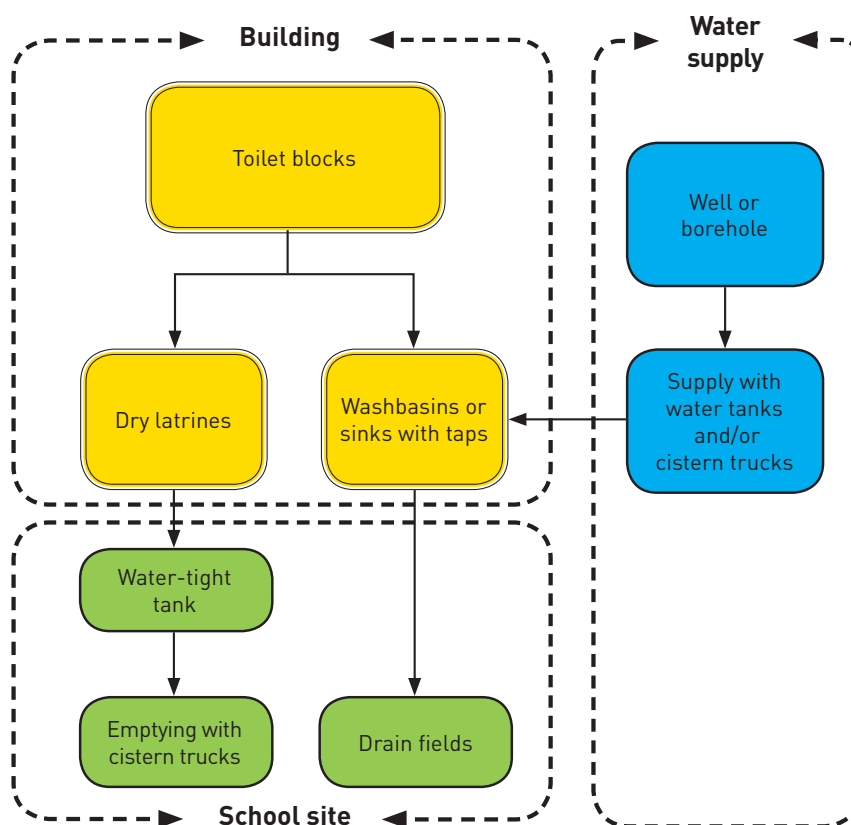


FIG. 1-3.9

3.3.4 WATER SUPPLY AND WATER TANKS

The quality of water must be tested by a specialized laboratory. The test results must meet the drinkable water criteria and, if the tests reveal inappropriate water characteristics, a treatment system must be specified and provided.

(a) Water supply

Uji zaWater is usually supplied from a public water

supply network or alternative sources of supply such as springs, wells, free fall water supply network or, in rural areas, through truck transportation.

The average water supply for schools is generally based upon the consumption per student per day. However, this average consumption which may increase by 20 to 30% during the hot season is as follows:

- 1.5 Liter per student and staff member for drinkable water;
- 6.0 Liter per student for washing and toilet con-

sumption;

- 10.0 Liter per seat per day for laboratories; and

(b) Water transportation

Water is supplied through galvanized steel or PE, PEHU, PPR pipes to the school site directly to the buildings or through a water tank if the supply and pressure is irregular (mostly rural areas). All supply pipes on the site must have inspection openings, valves and gate valves (cut out) for maintenance and isolation purpose. Pipes shall run parallel to walls and slabs with minimum crossovers and they shall be installed far away from all electrical equipments such as transformer, elevator shaft, electrical wiring...

(c) Water storage

For water storage, cisterns made of galvanized steel or other resistant material meeting hygienic conditions for storing potable water is required. The position / location of these cisterns shall be arranged to give an adequate gravity flow whenever required, to all school areas.

3.3.5 SITE DRAINAGE

The school site drainage includes the general grading of the site, the storm drainage system and the roof drainage.

(a) Site grading

If the site has no natural slope, it needs to be graded in such a manner that all areas are sloping away from buildings at a minimum gradient of 1%. All open spaces surrounding the buildings, including service areas, and parking areas must be graded so that no rain water can flow into the buildings, should the storm drains servicing the area become overwhelmed.

(b) Storm drainage system

All site drainage from new construction or existing buildings shall be linked to the existing storm water drainage system and all storm water runoff from paved areas (sport areas, play grounds, roads, parking areas and paths) shall be collected in storm drains or open channels and carried out by underground pipes to retention areas, water tanks or public sewage network.

(c) Roof drainage

The roof of buildings must be designed to allow the drainage of rain waters: (i) flat roofs of concrete slab must have slopes of a minimum gradient of 1% leading to outlets and vertical drain pipes; (ii) pitch roofs of several storey buildings shall have gutters and vertical drain pipes connected to the main site drainage system.

3.3.6 VENTILATION OF PREMISES

The ventilation of school premises greatly improves the hygiene inside the facilities by eliminating damp, humidity, moistures on walls, partitions and openings and by chasing away insects that are responsible for diseases. In addition, the air movements are helping to decrease some diseases such as mycosis by diminishing the heat of the bodies and thus decreasing the perspiration of students and staff by evaporation and convection. The ventilation of the school facilities can be provided by:

(a) Natural ventilation

Natural ventilation, unlike fan-forced ventilation, uses the natural forces of wind and buoyancy to deliver fresh air into buildings. Fresh air is required in buildings to alleviate odors, to provide oxygen for respiration, and to increase thermal comfort.

Wind causes a positive pressure on the windward side and a negative pressure on the leeward side of buildings. To equalize pressure, fresh air will enter any windward

opening and be exhausted from any leeward opening. In summer, wind is used to supply as much fresh air as possible while in winter, ventilation is normally reduced to levels sufficient to remove excess moisture and pollutants.

To obtain good natural ventilation, it is important (i) to avoid obstructions between the windward inlets and leeward exhaust openings; (ii) to avoid partitions in a room oriented perpendicular to the airflow. On the other hand, accepted design avoids inlet and outlet windows directly across from each other, in order to promote more mixing and improve the effectiveness of the ventilation.

The effectiveness of the internal ventilation when compared to the external wind strength depends on the angle of the wind and the relative size of entry and exit openings. It ranges from about 80% of the wind entering the premises with a building oriented perpendicularly to the prevailing wind, down to 40% with an opening at a 45° angle of incidence

(see paragraph 3.2.1 (e) on climatic comfort)

(b) Mechanical ventilation

Mechanical ventilation may be necessary in (i) • regions with a significant number of hot, windless days during the school term; (ii) existing buildings where it is physically impractical, because of the building configuration, to obtain adequate natural ventilation; (iii) specialized rooms such as music rooms, rooms that contain significant numbers of heat-producing equipment such as computers, multi-purpose halls and gyms; and (iv) spaces with sources of contaminants which must be extracted at source such as cooking facilities, workshops and science laboratories. Mechanical ventilation is basically a method of delivering fresh air to the space using fans and ducts, air extract fans, air conditioning equipments, split systems, heat recovery systems or heat pumps. All these mechanical ventilation systems must be designed by experienced heating and ventilating engineer to ensure (i) correct air distribution; (ii) appropriate

temperature and humidity; (iii) satisfactory air filtration; (iv) low noise; and (v) economical operation.

The main advantages of these systems include a better control of the ventilation and interior temperature as well as less retention of dust and dirt. However, running costs of such systems may be too high for school budgets.

3.4 SPECIFIC TECHNICAL ELEMENTS

3.4.1 HEATING

The air renewal of 2 volumes per hour shall be considered when calculation the heating load of naturally ventilated premises.

(a) The **heating distribution** shall include:

- A reverse return for large horizontal system
- Isolation, drain and regulating valves for each riser
- Individual insulation of pipes in non heated spaces with fire retardant material;
- The maximum surface temperature recommended for all accessible heated materials including radiators is 60°C (mandatory for pre-primary classrooms).

(b) **The boiler room will have :**

- fire resistant materials complying with fire protection rules;
- no direct access to public spaces;
- an emergency stop for power and an emergency shut-off for fuel;
- an emergency light and portable fire extinguishers;
- Hour meters, water meter and an alarm ring.

3.4.2 VENTILATION

Requirements concerning the ventilation of rooms are as follows:

- Natural ventilation using permanent openings is not recommended;
- Where applicable, the airflow for mechanical ventilation shall not be less than 15m³/h per person;
- Noise level of the ventilators must be considered carefully;
- The ventilated period should be limited to the occupation period plus one hour;

3.4.3 DOMESTIC HOT WATER

Requirements concerning the hot water system are:

- Production and storage temperature shall not exceed 60°C;
- The production equipment shall be the nearest possible to the utilization points;
- Hot water pipes and tanks should be insulated with fire retardant materials. .

3.5 DESIGNING FOR SAFETY

Precautions should be taken to limit the risks of accidents and fire as well as body injuries in schools. In the design of schools, the following measures and precautions should be considered with respect to the severity of the risks:

3.5.1 INTRUSION, THEFT, VANDALISM AND ARSON

Design measures against intrusion, theft and vandalism include a range of remedial actions that can be taken on school premises to reduce the vulnerability of particular targets, to improve security and reduce fire spread.

They are essentially tools to help the day to day school management in order to prevent or anticipate recurrent abuses of property and so reduce the burden on maintenance services and detrimental impact of unsightly damages. Some simple measures can be taken at design stage to limit the risks. These are concerning:

(a). The building distribution and site lay out

The careful design of site lay outs can greatly improve the school security if it includes (i) **limited access to the school site** with enclosure walls sufficiently high,(minimum height of 2m) and difficult to climb smooth surface finishes), protection with prickly shrubs and hedges, limited number of gates, intruder alarm systems, restricted circulation for visitors altogether; (ii) easy surveillance of the compound with buildings located so as to limit hidden spaces and with the guard's station and/or reception desk settled in strategic locations (ii) **controlled access to the buildings** with a limited number of entrance doors, restricted access to flat roofs, security grills on the ground floor openings, providing protected rooms and stores for valuables (computers, video, chemicals, lab equipment, costly books...) and avoiding hidden alcoves and entrances;

(b). The lighting of premises and external spaces

After school hours, sensitive areas and key points, such as entrances, need additional lighting: security lighting is usually considered to be an effective deterrent to damage and it is rather cost effective. The lighting fittings should be inaccessible, except for maintenance purpose, they should be protected against breakage and control equipment should be remote. Bulkhead lights on the building themselves will be less vulnerable than those on columns but, on the other hand, column lights are less likely to throw concealing shadows. Movement activated lighting, especially in unlit areas may be considered when a permanent lighting would be

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too expensive and night lighting of secondary entrance is recommended to ease the surveillance.

(c). The quality of building materials, finishes and fittings

The designers of school facilities should anticipate the vulnerable areas and possible remedies. For example, (i) wall surfaces in corridors where students are queuing are an obvious target for graffiti and petty damage; (ii) areas out of sight such as lavatories, cloakrooms and changing rooms provide assembly points for rowdy behavior and retreats to lone offenders; and (iii) damage to roofs and fences can result from students trying to retrieve stray balls. Simple remedies proposed at design stage can heavily reduce the need for maintenance and repair works. These remedies are concerning the following construction elements: (i) smooth and impervious wall, partition and floor finishes to help the removal of graffiti (glazed ceramic, mosaic tiles, plastic laminates, vitreous enamel or PVC coated steel are all easily washed); (ii) doors of solid materials and, if necessary, protected by steel plates. They should not have glazed panels in the lower parts and frames should be securely fixed; (iii) sanitary fittings should be securely fixed, drainage connections should allow for individual rodding of each appliance; (iv) glazing items should be selected in accordance with the level of risk and replacement (plain glass, wired glass, laminated glass...); (v) the number, type and size of windows on the ground floor and other accessible areas should take account of the requested level of security; (vi) electrical wiring and conduits should be hidden to the extent possible and electrical fittings should be well installed to prevent or discourage vandalism. In addition, the designer shall help the future school management by providing specific store rooms, securely locked,

to ensure that materials and equipments which can be used to create damage such as dust bins (can be set on fire), ladders (can be used by intruders) and inflammable materials are out of reach of students and possible intruders.

3.5.2 ACCIDENTS

The risks concerning accidents on school compounds are mainly concerning five potential risks of injury to students and staff. These are:

- (i) traffic accidents at the entrance and exit of the school compound;
- (ii) Falls and injuries on playgrounds and sports fields;
- (iii) Falls in or from multi-storied buildings;
- (iv) Laboratory accidents: (chemicals, burns, etc.); and
- (v) Workshop accidents (tools, machinery, etc. for vocational and technical schools);

Measures to be taken by designers of school facilities to prevent accidents and injuries are concerning the following points:

(a) The school location and its access

The school site should be located as far as possible from areas that have a high risk of accidents (highways, railway stations...) and fires (workshops, factories, warehouses, gas station...). The access road to the school should be, at least, 8.0 m wide and suitable for cars and trucks, including ambulances and firemen rescue vehicles.

To avoid traffic jams and disturbance of circulation and to ensure safety of students, staff, parents and visitors using busses or cars, a drop area should be designed in front of the main access gate. In addition, a large paved area or sidewalk should be located at the school main entrance to lessen the risk of car accidents when students are entering or leaving the compound. This paved

area should be a minimum 4.0 m wide and should have no obstacle (kiosks, vehicles) that could interfere with the flow of students. On the road itself the local authorities should be involved to provide for speed jumps, road signs and notice boards.

(b) Circulation components

To prevent falls from multi-storey buildings, open galleries and stair cases will receive a balustrade that is a minimum 1.05 m in height. Materials used should be particularly resistant and durable with a maximum 11.0 cm distance between balusters.

Stairs should preferably be of simple design with two flights and one landing between each level and access to roofs should be locked and strictly limited to maintenance staff. Each flight must be wide enough to allow, as a minimum, two persons to walk up or down the stairs. Treads should be finished with a non-skid material and should be marked at their extremities.

For other recommendations concerning the size, maximum distance and location of stairs and corridors, see paragraph. 3.4.3 below, on fire protection systems.

(c) Plantations

It is important that designers and school managers keep a sufficient distance between the trees and the buildings of the school compound (minimum 5.0 m). Pruning of the lower parts of the trees is also recommended to prevent the climbing of students and discourage intruders.

(d) Construction techniques and materials

It is the designer's responsibility to select materials and building techniques that will decrease the risks of accidents. For example (i) the floor coverings should be non-skid and without obstacle; (ii) a protection against falling objects is to be considered when a building has several levels; (iii) the resistance to shocks of partitions and glazing is to be carefully studied in relation with the risks of

accident of the concerned area. The used of tempered or reinforced glass is strongly recommended; (iv) corners and edges of walls should be rounded at least till 2.0 m height; (iv) water, gas and electricity conduits should be separated and well protected; (v) electrical equipments, distribution boards and circuits should be placed in safe areas to avoid any danger of electrocution or fire; and (vi) each building shall receive a full lightning protection including.

3.5.3 FIRE PROTECTION SYSTEMS AND REGULATION

Technical norms and recommendations for fire protection of buildings are not yet established in Kosovo and professionals of the construction sector are relying on foreign norms, mostly from EU, OECD countries and/or from the United States. However, law on fire protection was passed in 2006 (Law N°02/L-41 of April 27, 2006) which gives the main rules, measures and orientations of the fire protection system in Kosovo.

The precautions to be taken by the school designers include a set of measures to limit the fire risks, ease the evacuation of the facilities users and to facilitate the access of rescue teams. These are involving various protection methods and fire safety systems which are briefly described below:

(a) The site access

As for the protection against accidents, the school site should be located as far as possible from areas that have a high risk fires (workshops, factories, warehouses, gas station...) and the access road to the facilities should be, at least, 8.0 m wide (to check with the local rescue services) and should be suitable for cars and trucks, including ambulances and firemen rescue vehicles.

(b) The circulation components

- (i) **Access of emergency vehicles and personnel:** firefighting regulations give strict norms to be

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applied to school designs concerning the access of rescue and firemen teams to the buildings.: vehicle access to the exterior of a building is needed to enable high reach appliances, such as turntable ladders and hydraulic platforms, to be used and to enable pumping appliances to supply water and equipment for fire-fighting, search and rescue activities. Access requirements increase with building size and height: it concerns the minimum width of access roads, the distance between roads and buildings, the dimensions of roads, the turning facilities in dead ends...

- (ii) **Means of escape:** the first and fundamental principle is the provision of alternative means of escape. It ensures that people should always be able to turn and walk away from a fire, except for very short distances at the start of their evacuation if they happen to be in close proximity to the fire. One of the key ways the design guidance ensures adequate means of escape is by setting upper limits on the travel distance to a storey or final exit. For example, in a multiple storey building, the maximum distance to reach a staircase is 20.0 m. As a result, the maximum distance between two staircases shall not be more than 40.0 m. Depending on the risk level, number of evacuation routes, maximum evacuation distance is from 12 to 45 m.
- (iii) **Width of circulations** (doors, corridors and galleries) is determined by the number of users (see paragraph 2.2.28 of Volume 1): corridors must be wide enough to allow fast, safe and easy evacuation of premises and in any case, they cannot be narrower than 1.5 m for single loaded circulations and 1.8 m for double loaded circulations (see table 2.1 of Volume 1).

(c) **The building elements and materials**

- (i) The performance in terms of **resistance of**

materials and building elements are measured in terms of (i) resistance to **collapse** or load bearing capacity which applies to load bearing elements only (denoted "R" in European classification); (ii) resistance to **fire penetration** or integrity (denoted "E"); and (iii) resistance to the **transfer of excessive heat** or insulation (denoted "I").

- (ii) The schools designers will have to refer to the existing fire protection regulations that are giving rules and criteria for the **selection of materials** for each element of the building (structures, walls, partitions, ceilings, roof, openings and glazing), depending on the height of the building, its use and the position of the concerned element in the firefighting scheme.
- (iii) **Fire mains and hydrants:** fire mains are installed in buildings and equipped with valves, so that the fire and rescue services may connect hoses for water to fight fires inside the building. They may be of the "dry" type which are normally empty and are supplied through a hose from a fire and rescue service pumping appliance. Alternatively, they may be of the 'wet' type where they are kept full of water and supplied from tanks and pumps in the building. There should be a facility to allow a wet system to be replenished from a pumping appliance in an emergency.
- (d) **The firefighting equipment**
 - (i) **Automatic fire detection:** Early automatic detection and alarm of the fire will allow occupants to escape quickly and safely, or tackle the fire while it is still at an early stage of development. It will enable professional help to be summoned without delay which should reduce the damage to the buildings and their content. Examples of such equipment include hold-open devices for

fire doors, smoke extraction or ventilation systems, pressurization systems and fire dampers in ventilation ducts.

- (ii) **Signs and notice:** All signs and notices should be positioned so that they can be easily seen and understood. Signs must be used, where necessary, to help people identify escape routes and exits, find fire-fighting equipment and emergency fire telephones. Notices must be used, where necessary, to provide instructions on how to use any fire safety equipment, on the actions to be taken in the event of fire and information for the fire and rescue service
- (iii) **Emergency lighting:** emergency lighting is required to clearly indicate and illuminate escape routes and exit signs, including escape routes which are external to the building, to ensure that changes of level and direction are indicated and to ensure that fire alarm call points and fire-fighting equipment can be easily located.
- (iv) **Smoke control:** there are four main reasons for the control of the spread of smoke: to protect means of escape, to assist fire fighting, to limit the risk to occupants in rooms not immediately in the vicinity of the fire and to minimize smoke damage to the contents of the building. In most cases this is achieved using containment measures such as doors and walls. However in some circumstances smoke ventilation systems or pressurization systems may be necessary or desirable.
- (v) **First aid fire fighting:** fire extinguishers shall fulfill a life safety function if the safest way to escape from the effects of a fire is actually to put it out. They also have an obvious role to play in property protection, if the fire can be tackled before it becomes too large. Different types of fire extinguisher are used for different fire types: the main types are given in table 3.6 below, along

with the types of fire they are suitable for and the general location of fire-fighting apparatus. Where the fire risk is not confined to a particular location, eg, Class A fires, the fire extinguishers should be positioned on escape routes, close to the exit from the room or floor, or the final exit from the building.

- (vi) **Sprinkler systems:** Sprinkler systems incorporate flow meters connected to alarms and if such a building-wide fire suppression system is installed it will have the added bonus that there will be heat detectors throughout the school which may lead to overall savings. However, such a system may be too costly and the designer may have to choose a limited compensatory feature to address specific risks or hazards by protecting only one building or only part of a building.
- (vii) **Restricting fire spread:** fire resisting and smoke restricting construction has three primary objectives: (i) to prevent fire and smoke from spreading into protected routes, ie, protected corridors and stairways; (ii) to isolate areas where the risk assessment has identified hazardous areas or areas identified as critical to the functioning of the school; and (iii) to restrict disproportionate damage to the school as a result of a fire by means of compartmenting thus limiting the fire to the room of origin.
- (viii) **Fire doors:** any door in a fire-resisting or compartment wall shall be a fire door, designed to resist the passage of fire and smoke. Fire doors are used on escape routes to sub-divide long corridors and thus ensure that no more than a short stretch of corridor leading to an exit is likely to become smoke-logged during a fire. Similarly, fire doors are used to separate stairs from circulation routes in order to protect the stairs from smoke ingress. Fire doors will generally have

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glass vision panels to assist occupants, including those with special needs, in their movements. Vision panels will also be valuable in the event of fire, to enable people to see whether the space on the other side is affected by smoke or not. The extent of glazing that may be used depends on whether or not it provides insulation as well as integrity to the appropriate fire resistance level - at least 60 minutes.

3.5.4 DETERIORATION AND NATURAL DISASTERS

(a) Deterioration

Provisions should be made to limit the risks of damage to and deterioration of both building and equipment, as the lack of protective measures could reduce the useful life of both and/or cause expensive repairs. The two principal causes of deterioration, other than wear and tear are the weather and various biologic agents:

i. **Weather:** climatic factors could have a serious effect on the school buildings if they are not carefully dealt with at design stage, especially on external features such as insulation, waterproofing, roof water drainage, position of windows and doors, window sills and overhangs, etc. The deterioration effects on buildings and equipment are mainly caused by:

- Intensive sunlight and sun radiations (external finishes);
- Humidity, especially during wintertime (structure and finishes, warping of wooden elements and oxidation of metal framing);
- Sand and dust winds (coating, openings and external equipments);
- Chemical elements in urban areas and salt in the atmosphere (coating, painting and metallic structures);
- Heavy rains and storms (roofing and openings)

(ii) **Biological agents:** certain insects such as ter-

mites, ants or spiders, small animals such as birds and rodents as well as fungi resulting from a combination of darkness, heat and humidity are degrading factors of the buildings, materials and equipment, reducing the useful life of the school facilities. In addition, these agents can have a harmful effect on health, safety and comfort of the users (see para. 3.3.6 above).

(iii) **Protection against deterioration** includes simple measures that can easily be incorporated during the design and construction phases. These include:

- clearing and cleaning of the site before starting the construction;
- use of materials resistant to termites (wood) and corrosion (metal);
- selection of solid and washable external finishes;
- treatment of wooden elements with fungicides and insecticide products;
- closing or protection of all openings that could allow the access of animals and insects (joints, ducts, conduits, ventilation openings...etc.);
- good ventilation and natural lighting of storage areas to prevent the growing of fungi;
- strict water tightness of ducts and conduits to avoid leakages and water accumulation that could attract animals and insects;

(b) Earthquakes

This paragraph deals with the requirements intended to preserve the integrity of the school building structures when subjected to an earthquake of a medium or high intensity. Normally, according to building codes and regulations, structures are designed to "withstand" the largest earthquake of a certain probability that is likely to occur at the concerned location. This means that the loss of life and property should be minimized by preventing the collapse of the buildings.

Usually, Seismic design requirements depend on the regulations of the country/locality of the project and its authorities which stipulate applicable seismic design

■ TYPE AND USE OF FIRE EXTINGUISHERS

Class of fire	Materials / products Involved	Type of extinguisher	Location in schools
Class A	Solid materials such as wood, paper or textiles	Water	Design and Technology spaces Stages of every assembly hall Residential areas of boarding schools On escape routes, so that the walking distance to the nearest extinguisher does not exceed 30m
Class B	Flammable liquids such as petrol, diesel or oils	Foam or dry powder	Laboratories, food technology, kitchens
Class C	Gases	Wet chemical	Kitchens/food tech for deep fat fires
Class D	Metals	Foam	Boiler rooms where oil fuel is used
Class F	Cooking oil / deep fat fryers	Carbon dioxide or dry powder	Electrical switch rooms and places where live electrical equipment is known or thought to be present, eg, stage lighting control areas and ICT classrooms
	Vehicles	Dry powder	Vehicle protection

TABLE 3.6

codes and criteria. However, technical norms and recommendations for the seismic design of buildings are not yet established in Kosovo although the country is located in a seismic area, and professionals of the construction sector are relying on foreign norms, mostly from EU, OECD countries and/or from the United States.

The energy of ground seismic waves received at the base of a building, due to reflections, reduces dramatically. However, the remaining portions of the incident waves during a major earthquake still bear a huge devastating potential. Once the seismic waves have entered the building superstructure, there are three main measures to control them to mitigate their effects. These are:

- Increase the capacity of buildings to store the seismic energy;
- Ease the dissipation of the wave energy inside the superstructure; and
- Disperse the wave energy between a wider

range of frequencies.

In addition to the design requirements for the structure itself, other requirements may include soil stabilization works underneath the structure to make sure that, heavily shaken ground does not provoke the collapse of the structure sitting upon it.

The main objectives of the measures to be considered by school designers are concerning (i) preservation of human lives and property; (ii) decrease the damage; and (iii) guarantee the continued functioning of the school.

To reach these objectives, the designers must consider specific measures in order to improve the response of the buildings to earthquakes. These include simple rules and recommendations to be followed by designers, especially for the selection of construction techniques and materials such as:

(i) Architectural design

- Designing simple buildings if possible monolithic, avoiding irregular and/or articulated shape, both in plan and in elevation;

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- Avoiding wide openings in the infill concrete panels that can cause irregularity in the plan (torsion effects) and in elevation creating local weaknesses and unaffordable ductility demand;
- Avoiding excessive inter-storey height, commonly seen in gymnasium and theatre structures, that increases the flexibility of the structure and the danger of collapse of infill panels in reinforced-concrete structures;
- Avoiding large overhangs, heavy decorative elements, concrete gargles...

(ii) Technical design:

- Providing seismic isolation whenever necessary;
- Designing complete reinforced concrete ring-beams;
- Providing for strong links between concrete slabs and columns;
- Setting up wide anti-seismic joints to divide complex structures in several parts;
- Avoiding shape irregularity which often results in structural irregularity giving an unfavorable feature to buildings in seismic areas;
- Avoiding sharp angles and direction changes in the load bearing structure;
- Avoiding the piercing of large shafts or openings in load bearing walls;
- Avoiding mixed systems with both columns and load bearing masonry;
- Avoiding sudden variations of structure sections (columns, walls)

(iii) Quality of construction:

- Following high standards of construction with a reinforced supervision and strict control of the works;
- Providing regular and effective maintenance of structural elements.

iv. Foundations

- Adapting foundations to the geological type of soil;
- Avoiding the common vibrating of ground seismic waves with those crossing the buildings in order to stop the wave amplification phenomena.

(c) Lightning

A lightning protection system is an important safety measure that has to be considered by school designers.

Such a system is designed to protect the buildings and their content from damage due to lightning strikes by intercepting them and safely passing their extremely high voltage currents to the ground. Most lightning protection systems include a network of three main elements. These are:

- lightning rods** or air terminals usually located at or along the upper points of a roof structure, and electrically bonded together by bonding conductors;
- metal down conductors** also called "down leads", which are connected by the most direct route to one or more grounding. Connections to the earth electrodes must not only have low resistance, but must have low self-inductance;
- ground electrodes** or "earthing" made of rods, plates or mesh.

(d) Flooding and landslides

The protection against flooding and landslides starts with the right selection of a site location with no or minimal risk of flooding or landslide and it can be completed by specific measures adapted to each site, based on local enquiries and soil tests with adequate number, depth and location of soil borings.

However, if the school site is located in an "A zone" (near a river, stream or lake), and the projected lowest floors are below the base flood elevation, the best way

to protect it against flood damage is to elevate the buildings so that the lowest floor is at or above the base flood elevation. The designer may also take the following measures to avoid or mitigate flood damages in such a zone:

- Use water-resistant building materials in areas below the base flood elevation;
- Do not foresee any basement or lower floors if they're below base flood elevation;
- Prevent sewer lines and drainage from backing up by installing backflow valves or standpipes;
- Raise the sensitive equipment such as the water heater, oil tanks, boiler and electrical wiring on concrete blocks, above the base flood elevation level. If there is no possibility to raise a particular item, anchoring it and protecting it with a flood-wall or shield should be considered;
- Install flood shields or built-up barriers for basement windows and doors. The tops of shields and barriers should extend above the base flood elevation;
- Install and maintain a sump pump system if there are below-grade floors; and
- Landscape with native plants and vegetation that resist soil erosion.

3.6 MAINTENANCE CONSIDERATIONS

The problem of physical facilities maintenance is a universal one and the consideration of this problem at design stage is of vital importance: in the early design stages of any building, it must be decided, in addition to the amount of space needed, the desired length of life for the building and the amount of money to be spent both in capital outlay and in maintenance.

During the preparation of the **design brief**, decisions

should be taken concerning capital expenditure in relation to annual repair and replacement costs as well as the ultimate building life to be expected. These decisions will have vital effects on the amount of maintenance the new buildings will require during their life span. It should be clearly understood that the lowest initial cost is usually not the most economical in the long run, as many cheaper materials will require more frequent maintenance and may have a shorter working life than some more adequate, but more expensive alternatives. For example, this is particularly true of wall and floor finishes that are subject to constant use and wear.

The first place to prevent defects and reduce maintenance needs is in preparing a suitable **initial design** and, to achieve this, the maintenance system shall give more importance to the design of all new schools. The maintenance engineers and technicians should be consulted at each stage of the setting up of new constructions. They will have to check the following points:

- At planning stage: **sizes, quantities and performance** of facilities should correspond to their actual tasks and use. This should be reflected in the design briefs and checked before the launch of the design phase. For example, the number of toilet cubicles to be built should correspond to the actual number of students (about 30 students per cubicle). Otherwise, over-use of toilet facilities will provoke a rapid deterioration of all the elements (plumbing, flushes, doors, septic tank and soak pits) with, in addition, frequent sewage blockages;
- A cost-benefit** analysis should be prepared, taking into account the estimated cost of preventive and corrective maintenance during the building life cycle. The maintenance specialists should be able to recommend modifications if the cost of maintenance is too high, in comparison to the investment cost.
- At project design stage, the **choice of materials**, fittings and construction techniques should be checked

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through using balance criteria for cost, comfort, structural suitability, etc. For example the use of heavy duty taps, flushes and sockets is a necessity in schools where all these elements are often overlooked;

- (iv) During the design stage, **specifications** for all building elements should be checked, keeping in mind, the amount of maintenance works to be provided during the life span of each element;
- (v) During implementation, effective **supervision** should be provided throughout the construction phase. The supervisors should be given sufficient flexibility to be able to remedy all defects prior to final certification.

3.7 FURNITURE AND EQUIPMENT

The planning and design of school furniture and equipment is not part of the present guidelines, but since their characteristics and dimensions are playing a large role in the determination of the room dimensions and configuration, it is necessary to consider their dimensional aspect as an element of the building design, especially for the definition of room dimensions and surface areas, doors and windows location and dimensions...etc.

In addition, most of the fixed equipment such as blackboards, built-in cupboards, shelves, laboratory benches and sinks... etc. are often part of the civil works contracts and therefore their design and specifications have to be prepared by the building designers.

For practical purpose and to address specific suppliers, the school furniture and equipment are usually divided in lots as follows:

- (i) **General education furniture** for classrooms (student tables and chairs, teachers' tables and chairs, lab tables and stools, chalkboard, cupboard, coat racks and display boards.)
- (ii) **Educational equipment** such as, water sinks, wall

units, fume hoods, lab tools and devices, computers and printers... etc.)

- (iii) **Furniture of administrative spaces:** desks, tables, armchairs, chairs, special hangers for maps and photos;
- (iv) **Equipment of administrative spaces:** computers, photocopiers, printers, scanners, audiovisual equipment, telephones...

3.7.1 INTERFACES WITH USERS AND ANTHROPOMETRICS

School furniture and equipment must be adapted to the size of the students using them. Incorrect postures due to an unsuitable seat or table that is too low or too high can cause fatigue and physical problems. Similarly students should not have to stand on tiptoe to reach the chalkboard nor have to seat in seats too large or too narrow for them. The sizing and design of furniture and equipment items are usually based on ergonomic requirements themselves defined by children measurements obtained through anthropometric surveys. For example, the height of the lower leg is used to fix the height of seats and the length of reach for the height of shelves (see fig. 1-3.10 and 3.11 below).

The anthropometric surveys are giving average children dimensions as well as maximum and minimum sizes for each age group and the design of furniture is based on these dimensions. For example, (i) for the sitting position, dimensions of the lower leg, upper leg, hip width and shoulder width are necessary and (ii) for working surfaces (sitting), height of elbow, thickness of thigh, reach forward and eye height are needed.

The dimensions of children are varying from one country to another but to date, Kosovo did not carry any specific anthropometric survey. The actual dimensions of the school furniture are based on past surveys and possibly on surveys of neighboring countries.

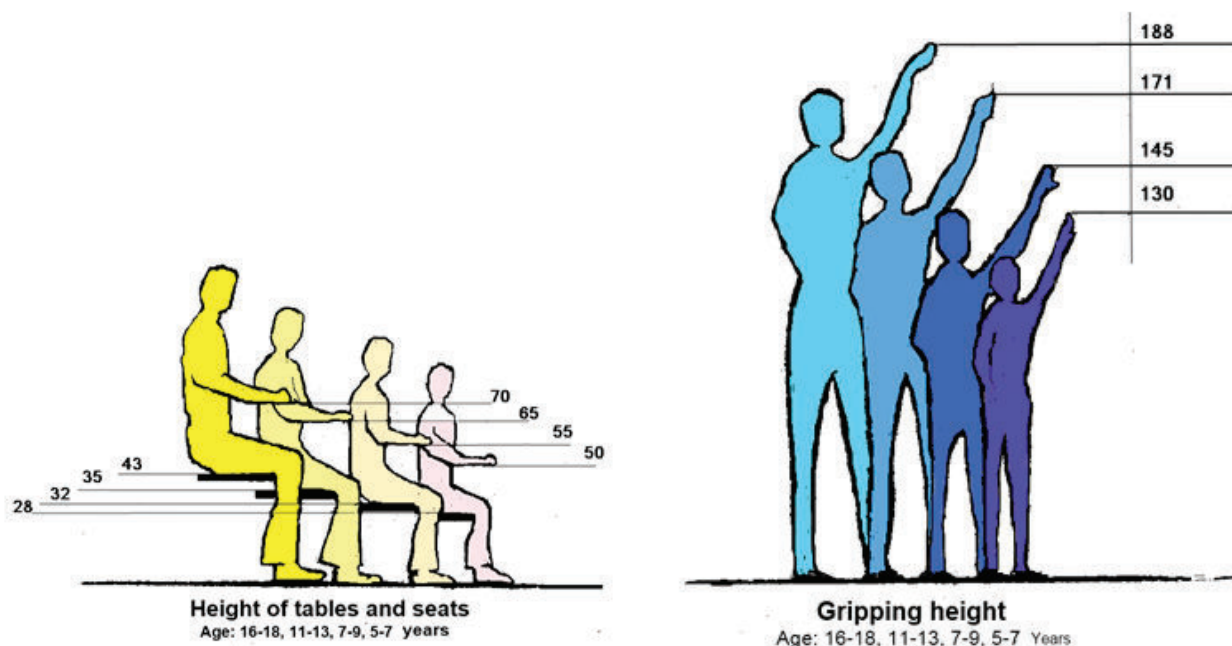


FIG. 1-3.10

For practical purpose, the sizes of students between 6 and 18 years old are often distributed in four categories, corresponding to four different sizes of furniture. As an example, the results of an anthropometric survey made in 1998 from UNESCO for Palestinian schools are shown in the table 3.7 below with the students' average standing heights by category, the recommended sizes for students' seats (table 3.8) and students' desks (table 3.9).

3.7.2 INTERFACES WITH BUILDING

Buildings should be designed taking furniture and equipment into consideration. It is therefore essential that their characteristics, quantities and dimensions be clearly defined before the start of the building design. At this point, the main interface requirements to be considered by both building and furniture designers are concerning:

(i) The room dimensions in accordance with the size,

quantities and characteristics of the furniture and equipment: spaces should not be overprovided with furniture and rooms should be large enough to shelter the required items (fig 1-3.12 below);

- (ii) The furniture and equipment dimensions should be compatible with the doors, corridors and stair dimensions so that transport, delivery and installation can be easily carried out;
- (iii) The furniture metal runners should be protected so that the floor finishes will be protected;
- (iv) Points of potential collision between furniture and building elements, such as wall and exposed corners should be protected, especially when trolleys are being used;
- (v) As much as possible, furniture should be made of fire resistant materials. This measure is complementary of the fire protection measures described in paragraph 2.5.3 above.

AVERAGE SIZE OF STUDENTS

Ref.	Age	Size	Average Height (cm)		Level of Education
	(years)	Category	1st year	last year	
A	6-8	Small	117	126	Primary
B	9-10	Medium	137	137	Primary
C	11-13	Large	154	155	Lower Sec
D	14-18	Pre-adult	160	171	Lower/ Upper Sec

TABLE 3.7

RECOMMENDED SIZES FOR STUDENTS' SEATS

Ref.	Size category	Height	Width	Depth
A	Small	30.0	28.0	33.0
B	Medium	34.0	31.5	37.0
C	Large	37.5	34.5	40.5
D	Pre-adult	38.0	38.0	44.5

TABLE 3.8

RECOMMENDED SIZES FOR STUDENTS' DESKS

Ref.	Size Category	Height	Double desks		Single desks	
			Width	Depth	Width	Depth
A	Small	50.0	110.0	55.0	55.0	55.0
B	Medium	56.0	115.0	57.5	57.5	57.5
C	Large	62.0	115.0	57.5	57.5	57.5
D	Pre-adult	68.0	120.0	60.0	60.0	60.0

TABLE 3.9

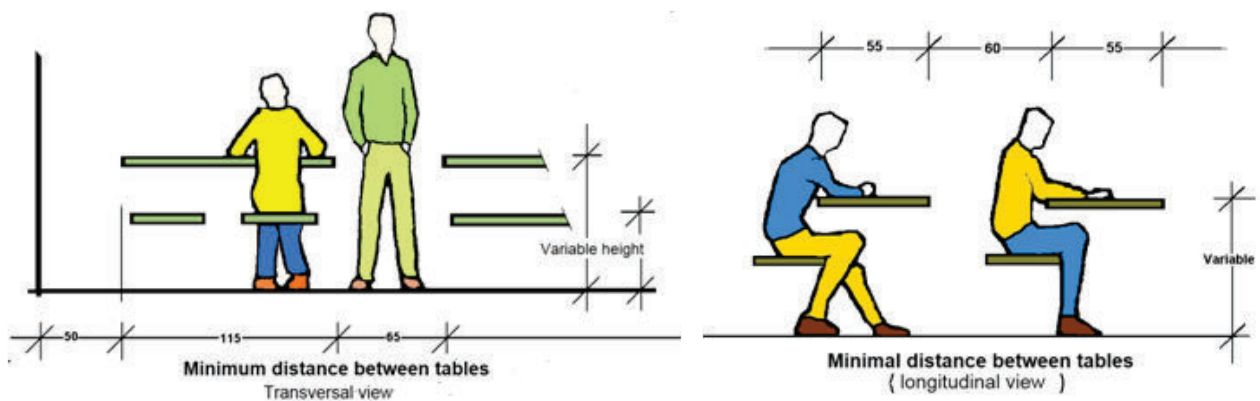
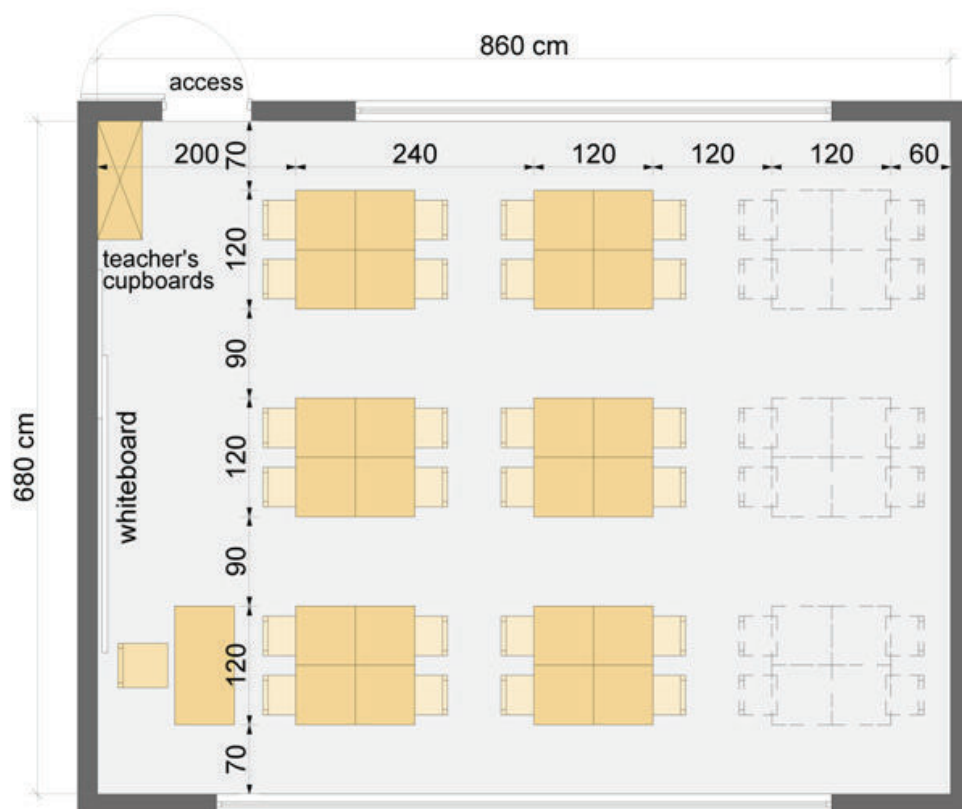


FIG. 1-3.11



Teaching in small groups, one-table unit
24, 30 and 36 students

FIG.1-3.12

Other interface requirements need to be considered for water, gas and electricity supply, sewage and drainage and computer network. The design of these networks shall take into account the requested characteristics (location, diameters, voltage, intensity, outlets and inlets...) especially in laboratories, specialized teaching rooms, administration offices where heavy equipment may be installed.

3.8 SPECIAL REQUIREMENTS

3.8.1 DESIGNING FOR THE DISABLED

Design of school facilities should provide unhindered access, stay and learning of students with special needs. Ministry of Environment and Spatial Planning on

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18/06/2007 has adopted the Administrative Instruction on "Technical conditions of constructed facilities for access of persons with disabilities", thus designers should take this instruction into account, although this guideline shall provide for the specific technical conditions for school facilities.

The types of disability which can be catered for in a standard school will be restricted, for practical reasons, to those with a locomotion disability, hearing loss which is remedied by a hearing aid and partial or total sight loss after appropriate training. However, the last category will be unable to participate in all school teaching or learning activities.

Disabled people could be students, teachers, visitors or staff. Their main problem is reduced mobility because they use wheelchairs, crutches or canes. This problem requires particular dimensioning of circulation areas, doorways, sanitary facilities, escape routes and class spaces to accommodate the disabled.

The dimensions of the disabled persons in wheelchairs have to be considered by designers for the sizing of the school spaces and circulations. The wheelchairs have different dimensions, following the age of the students and the type of item. However, the following dimensions, corresponding to adult average dimensions shall be considered (see fig. 1-3.13 and 3.14):

- The chair width is generally between 600 and 700 mm
- The length is between 1000 and 1250 mm
- The external radius is between 1300 and 1500 mm

The reaching space of disabled in wheelchairs is defined as:

- Between 230 and 300 mm over the floor level;
- Between 1100 and 1300 in height;
- Between 300 and 400 mm from the lateral sides of the chair;

3.8.2 ACCESSIBILITY TO EXTERNAL SPACES AND BUILDINGS

(a) External circulations

- Entrances to the school grounds from the roadway should be without steps;
- Special car parking should be foreseen with a larger space on one side (3.80 m instead of 2.5 m width);
- Borders of pedestrian walkways should have chamfered edges and pedestrian areas should be separated from vehicular traffic by a kerb stones;
- Walkways should respect the minimum required width of 1.5 m for the standard wheelchair, turning radius and floor coverings should be made of non-skid materials and be free from obstacles to easy movement;
- Gradients on footways should not be steeper than 1:12 or 5% and long slopes should be divided in stages;
- Pavements should have a minimum 0.90 m width if designed for one way and 1.80 m for two ways.
- Signals should be visible and rationally continuous
- Access to all buildings should be reachable by disabled persons, possibly with ramps, the slopes of which should not exceed 1:12 (5%) with a level landing area after each 9 m length of ramp;
- All passageways to playgrounds and sport fields should be designed with ramps wherever necessary. The finishes of these ramps should be made of non-skid materials such as concrete tiles, stones or asphalt;
- Ramps should be provided with a side rail and/or a kerb along the length of the ramp;

(b) Internal spaces

- Main building entrances should be clearly recognizable, easy to open and simple to pass through;
- Door thresholds should be avoided or have a maximum height of 20 mm;

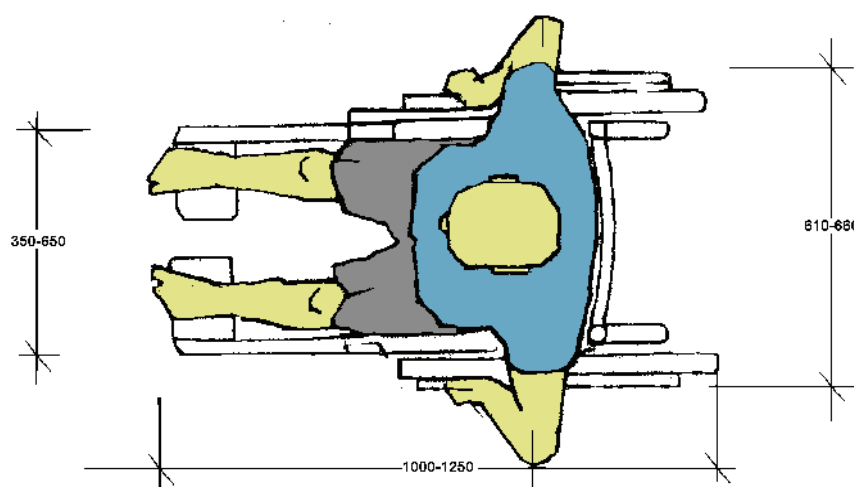


FIG. 1.3.13

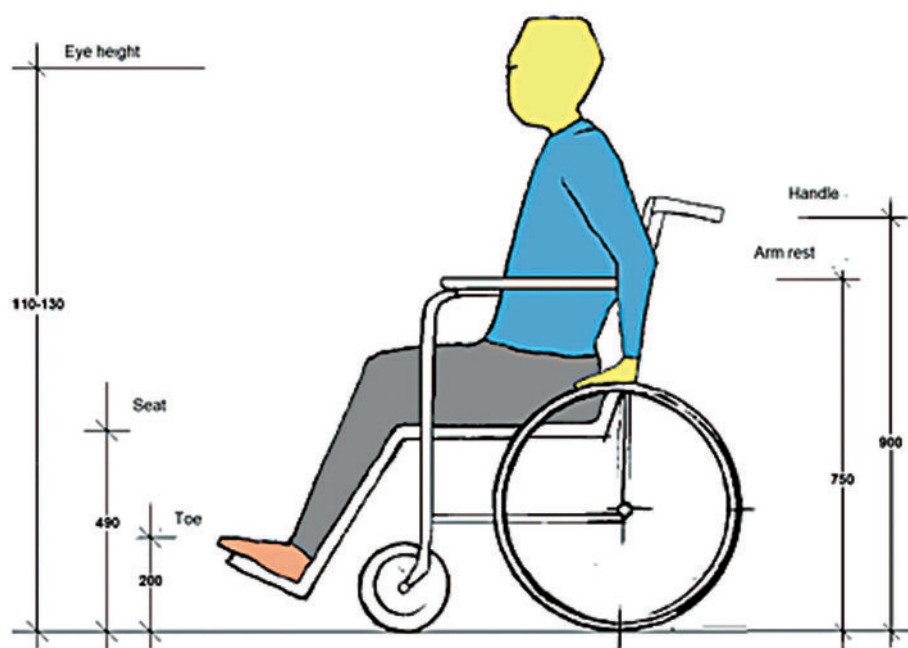


FIG. 3.14

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- In teaching areas, a workspace with an area of 1.5 m diameter is to be kept clear and unencumbered so that a wheelchair can turn and be positioned in front of the table;
- Chalkboards should be accessible from a sitting position. A board with adjustable height may be an option;
- Small changes in level should be avoided. Where there are unavoidable, small ramps are preferable to steps;
- To assist students with impaired vision, entirely glazed doors should be avoided, different colors should be used in staircases for landings and steps, windows at the end of corridors should be avoided (excessive contrast in lighting)
- Lift(s) should be located near the building entrance, the lift car should be large enough for wheelchairs and the signs and control should be reachable by disabled persons. Elevator should contain signs such as Braille, acoustic and visual notification of floor number.

3.8.3 SANITARY AND ELECTRICAL EQUIPMENTS

- Electrical switches and controls should be large and mounted with the height limits of 0.8 to 0.9 m;
- Consideration should be given to disabled persons with taps easy to grab and washbasins located at a height of 700 mm to 800mm
- Low level type toilets should be complemented with vertical grab rail placed at the side and slightly ahead of the toilet;
- Each school should have a toilet cubicle for disabled students with special dimensions (1.70x1.70 m) with wide enough door (1.0 m) and securely fitted grab rails;
- One drinking fountain with appropriate dimensioning for the handicapped shall be installed with the school's regular drinking fountains.

4

4.0 ANNEXES

ANNEX 1: School Construction Planning Process

ANNEX 2: School Facilities Planning and programming

ANNEX 3: Standard Schools

ANNEX 4: Calculation of site minimum surface areas

ANNEX 5: School Accommodation Schedule - Standard Elementary Schools –rural areas

ANNEX 6: School Accommodation Schedule - Standard Elementary Schools –urban areas

ANNEX 7: School Accommodation Schedule – Standard Basic Education Schools-rural areas- 2 cycles per education level

ANNEX 8: School Accommodation Schedule – Standard Basic Education Schools-rural areas- 3 cycles per education level

ANNEX 9: School Accommodation Schedule – Standard Basic Education Schools – urban areas – 3 cycles per education level

ANNEX 10: School Accommodation Schedule – Standard Basic Education Schools – urban areas – 4 cycles per education level

ANNEX 11: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 3 cycles

ANNEX 12: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 4 cycles

ANNEX 13: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 5 cycles

ANNEX 14: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 6 cycles

ANNEX 15: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 7 cycles

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ANNEX 16: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 8 cycles

ANNEX 17: School Accommodation Schedule – Lower Secondary Standard Schools- urban areas – 9 cycles

ANNEX 18: School Accommodation Schedule – Lower Secondary Standard Schools- rural areas – 3 cycles

ANNEX 19: School Accommodation Schedule – Lower Secondary Standard Schools- rural areas – 4 cycles

ANNEX 20: School Accommodation Schedule – Lower Secondary Standard Schools- rural areas – 5 cycles

ANNEX 21: School Accommodation Schedule – Upper Secondary Standard Schools- urban areas – 7 cycles

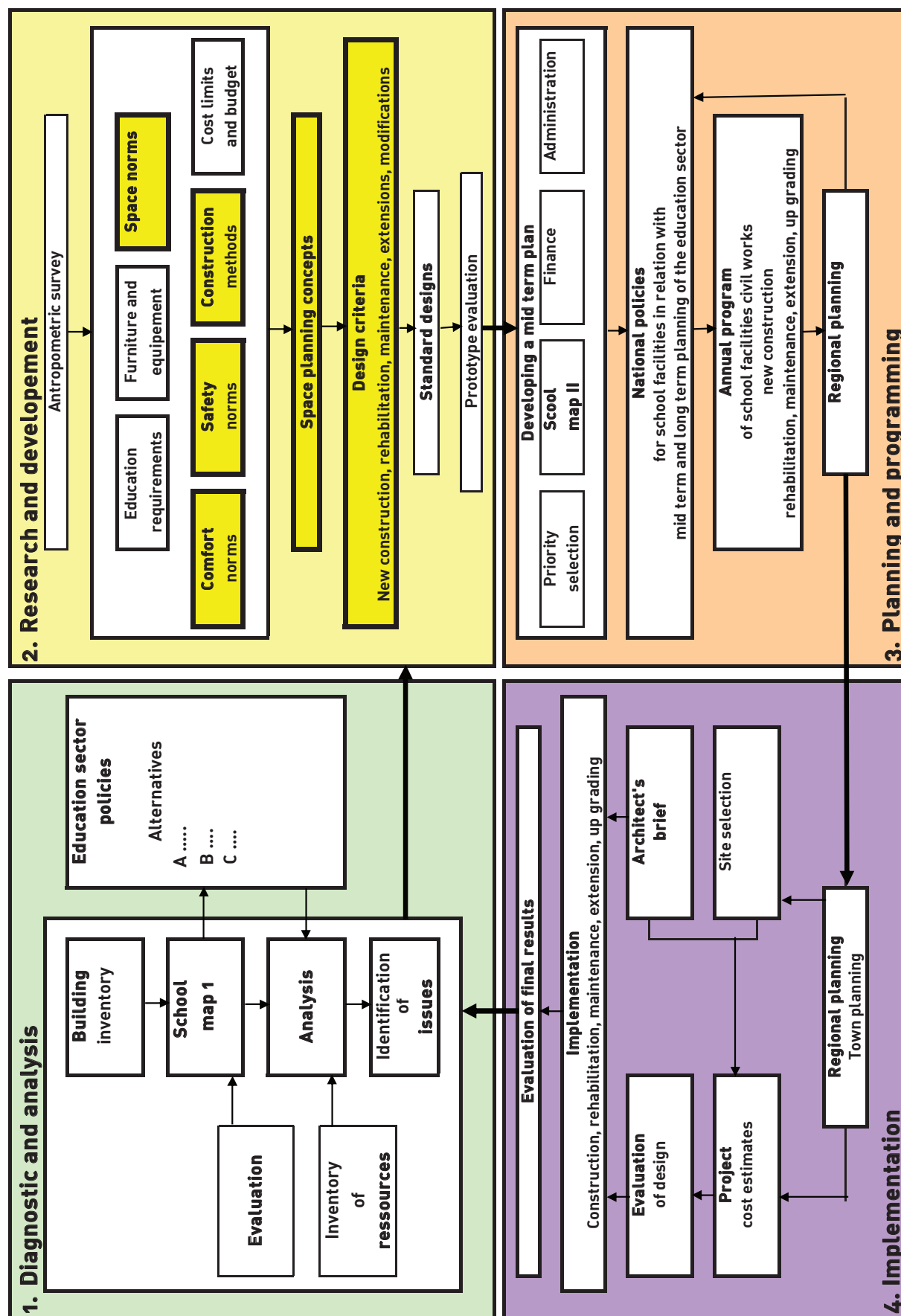
ANNEX 22: School Accommodation Schedule – Upper Secondary Standard Schools- urban areas – 8 cycles

ANNEX 23: School Accommodation Schedule – Upper Secondary Standard Schools- urban areas – 9 cycles

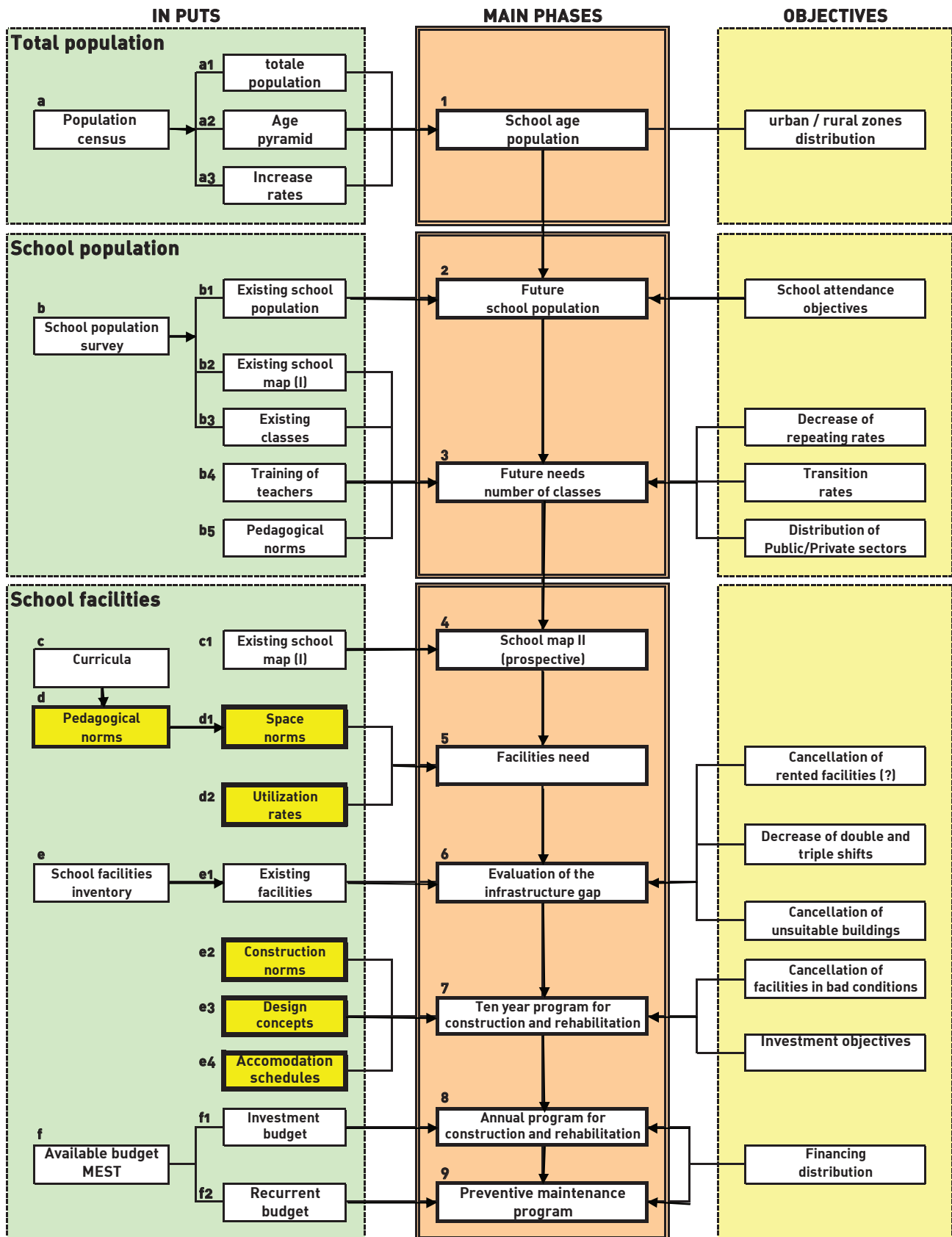
ANNEX 24: School Accommodation Schedule – Upper Secondary Standard Schools- urban areas – 10 cycles

ANNEX 25: School Accommodation Schedule – Upper Secondary Standard Schools- urban areas – 11 cycles

SCHOOL CONSTRUCTION PLANNING PROCESS



SCHOOL FACILITIES PLANNING AND PROGRAMMING



STANDARD SCHOOLS

HIGH DENSITY OR URBAN AREAS

Students per class: 36

1. Separated levels

Education level:		Pre primary and primary			Lower secondary			Upper secondary		
Grades:		1 to 5			6 to 9			10 to 12		
Number of grades:		5			4			3		
Student places:		36			36			36		
Full cycles		Classes	Student PL	Classes	Student PL	Classes	Student PL	Classes	Student PL	Classes
1										
2										
3		3	108	15	540					
4		4	144	20	720					
5		5	180	25	900	20	720			
6		6	216	30	1,080	24	864	18	648	
7					28	1,008	21	756		
8					32	1,152	24	864		
9					36	1,296	27	972		
10							30	1,080		
11							33	1,188		
Total		4 standard schools			5 standard schools			6 standard schools		

Students per class: 36

3. Basic education schools (associated levels)

Education level:		Primary			Lower secondary			Total		
Grades:		1 to 5			6 to 9			0 to 9		
Number of grades:		5			4			10		
Student places:		36			36			36		
Full cycles		Classes	Student PL	Classes	Student PL	Classes	Student PL	Classes	Student PL	Classes
1										
2										
3		3	108	15	540	12	432	30	1,080	
4		4	144	20	720	16	576	40	1,440	
Total					2 standard schools					

LOW DENSITY OR RURAL AREAS

Students per class: 24

2. Separated levels

Education level:		Pre primary and primary			Lower secondary		
Grades:		1 to 5			6 to 9		
Number of grades:		5			4		
Student places:		24			24		
Full cycles		Classes	Student PL	Classes	Student PL	Classes	Student PL
1		1	24	5	120		
2		2	48	10	240	12	288
3		3	72	15	360	18	432
4		4	96	20	480	24	576
5		5	120	25	600	30	720
6						24	576
Total		5 standard schools			4 standard schools		

Students per class: 24

4. Basic education schools (associated levels)

Education level:		Primary			Lower secondary			Total		
Grades:		1 to 5			6 to 9			0 to 9		
Number of grades:		5			4			10		
Student places:		24			24			24		
Full cycles		Classes	Student PL	Classes	Student PL	Classes	Student PL	Classes	Student PL	Classes
1										
2		2	48	10	240	8	192	20	480	
3		3	72	15	360	12	288	30	720	
4										
Total					2 standard schools					

CALCULATION OF SITE MINIMUM SURFACE AREAS

(M2)

Ref.	Population density	Class number	Student / class	Total capacity	Built area			Play ground sport areas	Circulations parking, Landscaping	Minimum surface area			Miimum surf. per student		
					GF	GF+1	GF+2			GF	GF+1	GF+2	GF	GF+1	GF+2
1.0 Elementary education															
1.1	Low	6	24	144	629	-	-	720	216	1,565	-	-	10.9	-	-
1.2	Low	12	24	288	1,105	-	-	1,440	432	2,977	-	-	10.3	-	-
1.3	Low	18	24	432	2,177	-	-	1,944	583	4,704	-	-	10.9	-	-
1.4	Low	18	24	432	-	1,137	-	1,944	486	-	3,567	-	-	8.3	-
1.5	Low	24	24	576	2,830	-	-	2,304	576	5,710	-	-	9.9	-	-
1.6	Low	24	24	576	-	1,564	-	2,304	576	-	4,444	-	-	7.7	-
1.7	High	18	36	648	2,746	-	-	2,916	729	6,391	-	-	9.9	-	-
1.8	High	18	36	648	-	1,259	-	2,916	729	-	4,904	-	-	7.6	-
1.9	High	24	36	864	-	1,635	-	3,888	972	-	6,495	-	-	7.5	-
1.10	High	30	36	1,080	-	2,261	-	4,320	1,080	-	7,661	-	-	7.1	-
1.11	High	36	36	1,296	-	2,640	-	4,536	1,134	-	8,310	-	-	6.4	-
1.12	High	36	36	1,296	-	-	1776.3	4,536	1,134	-	-	7,446	-	-	5.7
2.0 Basic education															
2.1	Low	20	24	480	4,040	-	-	2,160	648	6,848	-	-	14.3	-	-
2.2	Low	30	24	720	5,623	2,811	-	3,240	972	9,835	7,023	-	13.7	9.8	-
2.3	High	30	36	1,080	7,069	3,534	2,356	4,320	1,080	12,469	8,934	7,756	11.5	8.3	7.2
2.4	High	40	36	1,440	9,790	4,895	3,263	5,040	1,260	16,090	11,195	9,563	11.2	7.8	6.6
3.0 Lower secondary education															
3.1	Low	12	24	288	3,046	-	-	1,728	518	4,774	-	-	16.6	-	-
3.2	Low	16	24	384	3,739	1,869	-	1,920	576	5,659	4,365	-	14.7	11.4	-
3.3	Low	20	24	480	3,391	1,695	1,130	2,160	648	5,551	4,503	3,938	11.6	9.4	8.2
3.4	High	20	36	720	5,493	2,747	1,831	3,240	972	8,733	6,959	6,043	12.1	9.7	8.4
3.5	High	24	36	864	5,815	2,908	1,938	3,456	1,037	9,271	7,401	6,431	10.7	8.6	7.4
3.6	High	28	36	1,008	5,547	2,774	1,849	4,032	1,210	9,579	8,015	7,091	9.5	8.0	7.0
3.7	High	32	36	1,152	6,487	3,243	2,162	4,608	1,382	11,095	9,234	8,153	9.6	8.0	7.1
3.8	High	36	36	1,296	8,284	4,142	2,761	5,184	1,555	13,468	10,881	9,500	10.4	8.4	7.3
4.0 Upper secondary education															
4.1	High	21	36	756	4,798	2,399	-	3,780	1,134	8,578	7,313	-	11.3	9.7	-
4.2	High	24	36	864	4,952	2,476	1,651	3,888	1,166	8,840	7,531	6,705	10.2	8.7	7.8
4.3	High	27	36	972	5,802	2,901	1,934	3,888	1,166	9,690	7,956	6,989	10.0	8.2	7.2
4.4	High	30	36	1,080	7,282	3,641	2,427	3,780	1,134	11,062	8,555	7,341	10.2	7.9	6.8
4.5	High	33	36	1,188	7,902	3,951	2,634	4,158	1,247	12,060	9,356	8,039	10.2	7.9	6.8

**STANDARD ELEMENTARY SCHOOLS
SCHEDULES OF ACCOMMODATION
LOW DENSITY OR RURAL AREAS**

School type :		Satellite schools				Regular rural schools								Comments		
Number of classes (primary level)		5 1 Class	10 2 Classes	15 3 Classes	15 3 Classes	15 3 Classes	20 4 Classes	20 4 Classes	20 4 Classes	20 4 Classes	20 4 Classes	20 4 Classes	20 4 Classes	Depending on site dimensions and slope		
Number of floors		1 floor	1 floor	1 floor	1 floor	1 floor	2 floors	2 floors	1 floors	1 floors	2 floors	2 floors	2 floors			
Student places per class room		24	24	24	24	24	24	24	24	24	24	24	24	576		
Total number of student places per school		144	288	432	432	432	576	576	576	576	576	576	576			
Ref.	Facilities / rooms	Capacity	Net area per unit	Q	Surf. Area M2	Q	Surf. Area M2	Q	Surf. Area M2	Q	Surf. Area M2	Q	Surf. Area M2			
1.0 PRIMARY SCHOOL ACCOMMODATION																
1.1	Classroom	24	45.56	5	227.80	10	455.60	15	683.40	15	683.40	20	911.20	1.90 M2/student		
1.2	Headmaster's office		16.00	1	16.00	1	16.00	1	16.00	1	16.00	1	16.00	1.90 M2/student 1.90 M2/student 1.50 M2/student 0.50 M2/student 2.50 M2/teacher = computer room(?)		
1.3	Secretary's office		12.00				12.00	1	12.00	1	12.00	1	12.00			
1.4	Store		10.00	1	10.00	1	10.00	1	10.00	1	10.00	2	20.00			
1.5	Demonstr. Laboratory (natural Sciences)	24	45.56				45.56	1	45.56	1	45.56	2	91.12			
1.6	Preparation room and Store		9.50				9.50	1	9.50	1	9.50	1	9.50			
1.7	Library	48	72.00				72.00	1	72.00	1	72.00	1	72.00			
1.8	Multipurpose hall		Variable				216.00	1	216.00	1	216.00	1	216.00			
1.9	Teachers' room		40.00				45.00	1	45.00	1	45.00	1	45.00			
1.10	Students' toilets (per unit)		3.50	5	17.50	10	35.00	15	52.50	15	52.50	20	70.00			
1.11	Teachers' toilets (per unit)		5.00	1	5.00	2	10.00	2	10.00	2	10.00	2	10.00			
1.12	Disabled student toilet		4.50	1	4.50	1	4.50	1	4.50	1	4.50	1	4.50			
1.13	Central heating room		20.00	1	20.00	1	20.00	1	20.00	1	20.00	1	20.00			
1.14	Fuel / coal store		30.00	1	30.00	1	30.00	1	30.00	1	30.00	1	30.00			
1.15	Staircase (1 or 2 floors)		35.00				0	0.00	2	70.00	0	0.00	2			70.00
1.16	Circulation areas		Variable		82.70		145.28		306.62		324.12		394.69			427.33
	Total net area				413.50		726.38		1,533.08		1,620.98		1,973.45			2,136.65
	Total gross area				463.12		813.54		1,171.04		1,815.04		2,210.26	2,393.08		
	Gross area per student place				3.86		3.39		4.77		5.04		4.60	4.99		
2.0 PRE-PRIMARY ACCOMMODATION																
2.1	Pre primary class room	24	60.00	1	60.00	2	120.00	3	180.00	3	180.00	4	240.00	5	300.00	
2.2	Veranda		23.45	1	23.45	2	46.90	3	70.35	3	70.35	4	93.80	5	117.25	
2.3	Quiet room	10	25.00	1	25.00	1	25.00	2	50.00	2	50.00	3	75.00	3	75.00	
2.4	Pre primary toilets		4.00	2	8.00	4	16.00	5	20.00	5	20.00	7	28.00	7	28.00	
2.5	Staff office and storage		12.00	0	0.00	0	0.00	1	12.00	1	12.00	1	12.00	1	12.00	
2.6	Staff toilet		4.50	1	4.50	1	4.50	1	4.50	1	4.50	1	4.50	1	4.50	
2.7	Circulation areas		Variable		26.78		47.82		73.68		73.68		100.46		119.66	
	Total net area				147.73		260.22		410.53		410.53		553.76		656.41	
	Total gross area				165.46		291.44		459.79		459.79		620.22		735.18	
	Gross area per student place				6.89		6.07		6.39		6.39		6.46		7.66	
3.0 OPTIONAL ACCOMMODATION																
3.1	Teacher's accommodation		40.00		0.00	1	40.00	1	40.00	2	80.00		0.00		Only for remote locations For two classes simultaneously 7 M2/student	
3.2	Guards' house (optional)		15.00			1	15.00	1	15.00	1	15.00	1	15.00			
3.3	Sport hall	48	336.00									1	336.00	1		336.00
3.4	Sport equipment store		10.00									2	20.00	2		20.00
3.5	Dressing room		18.00									2	36.00	2		36.00
3.6	Sport teacher's office		15.00									1	15.00	1		15.00
	Total net area				0.00		55.00		55.00		95.00		422.00			422.00
	Total gross area				0.00		67.65		67.65		116.85		519.06		519.06	
	Gross area per student place (two levels)				0.00		0.23		0.16		0.27		0.90		0.90	
4.0 GRAND TOTAL																
4.1	Without option (Net area)		561.23				986.59		1,943.41		2,031.11		2,527.21		2,793.06	
4.2	Without option (Gross area)		628.88				1,104.98		2,176.84		2,274.84		2,830.48		3,128.22	
4.3	With options (net area)						1,041.89		1,998.61		2,126.11		2,949.21		3,215.06	
4.4	With options (gross area)						1,172.63		2,244.49		2,391.69		3,349.54		3,647.28	
Net surf. Area / student place (without options)			3.90				3.43		4.50		4.70		4.39		4.85	
Gross area / student place (without options)			4.37				3.84		5.04		5.27		4.91		5.43	

**STANDARD ELEMENTARY SCHOOLS
SCHEDULES OF ACCOMMODATION**

**STANDARD ELEMENTARY SCHOOLS
SCHEDULES OF ACCOMMODATION
HIGH DENSITY OR URBAN AREAS**

School type :		Urban schools										Comments		
Number of classes (primary level)		15 Classes 3	15 Classes 3	15 Classes 2 floors	20 Classes 4	25 Classes 5	30 Classes 6	30 Classes 2 floors	30 Classes 3 floors	30 Classes 3 floors	Depending on site dimensions and slope			
Number of floors		36 648	36 648	36 648	36 864	36 1080	36 1296	36 1296	36 1296					
Student places per class room		36	36	36	36	36	36	36	36					
Total number of student places per school		648	648	648	864	1080	1296	1296	1296					
Ref.	Facilities / rooms	Capacity	Net area per unit	Q	Surf. Area M2	Q	Surf. Area M2	Q	Surf. Area M2	Q	Surf. Area M2			
1.0 PRIMARY SCHOOL ACCOMMODATION														
1.1	Classroom	36	58.48	15	877.20	15	877.20	20	1,169.60	25	1,462.00	30	1,754.40	1.62 M2/student 1.62 M2/student 1.50 M2/student 0.50 M2/student 2.50 M2/teacher = computer room(?)
1.2	Headmaster's office		16.00	1	16.00	1	16.00	1	16.00	1	16.00	1	16.00	
1.3	Secretary's office		12.00	1	12.00	1	12.00	1	12.00	1	12.00	1	12.00	
1.4	Store		10.00	1	10.00	1	10.00	2	20.00	2	20.00	2	20.00	
1.5	Demonstr. Laboratory (natural Sciences)	36	58.48	1	58.48	1	58.48	1	58.48	1	58.48	1	58.48	
1.6	Preparation room		9.50	1	9.50	1	9.50	1	9.50	1	9.50	1	9.50	
1.7	Library	65	97.20	1	97.20	1	97.20	1	97.20	1	97.20	1	97.20	
1.8	Multipurpose hall		Variable	1	324.00	1	324.00	1	432.00	1	540.00	1	648.00	
1.9	Teachers' room		Variable	1	45.00	1	45.00	1	60.00	1	75.00	1	90.00	
1.10	Students' toilets (per unit)		3.50	15	52.50	15	52.50	20	70.00	25	87.50	30	105.00	
1.11	Teachers' toilets (per unit)		5.00	2	10.00	2	10.00	2	10.00	2	10.00	2	10.00	
1.12	Disabled student toilet		4.50	1	4.50	1	4.50	1	4.50	1	4.50	1	4.50	
1.13	Central heating room		20.00	1	20.00	1	20.00	1	24.00	1	30.00	1	24.00	
1.14	Fuel / coal store		30.00	1	30.00	1	30.00	1	36.00	1	45.00	1	36.00	
1.15	Staircase (1, 2 or 3 floors)		35.00	0	0.00	2	70.00	2	70.00	2	70.00	3	105.00	
1.16	Circulation areas		Variable		391.60		409.10		522.32		634.30		738.77	
	Total net area				1,957.98		2,045.48		2,611.60		3,171.48		3,693.60	
	Gross area				2,212.51		2,311.39		2,951.11		3,583.77		4,223.49	
	Gross area per student place				4.40		4.28		4.40		3.98		3.91	
2.0 PRE-PRIMARY ACCOMMODATION														
2.1	Pre-primary room	36	82.80	3	248.40	3	248.40	4	331.20	5	414.00	6	496.80	2.30 M2/student 2.50 M2/student 1 cubicle for 15 students
2.2	Veranda		25.00	3	75.00	3	75.00	4	100.00	5	125.00	6	150.00	
2.3	Quiet room	10	25.00	1	25.00	1	25.00	2	50.00	3	75.00	3	75.00	
2.4	Pre primary toilets		4.00	8.0	32.00	8	32.00	10	40.00	12	48.00	15	60.00	
2.5	Staff office and storage		12.00	0	0.00	0	0.00	1	12.00	1	12.00	1	12.00	
2.6	Staff toilet		4.50	1	4.50	1	4.50	1	4.50	1	4.50	1	4.50	
2.7	Circulation areas		Variable		87.49		87.49		119.88		152.26		179.81	
	Total net area				472.39		472.39		657.58		830.76		978.11	
	Gross area				533.80		533.80		743.06		938.76		1105.27	
	Gross area per student place				4.94		4.94		5.16		5.22		5.12	
3.0 OPTIONAL ACCOMMODATION														
3.2	Guards' house (optional)		15.00	1	15.00	1	15.00	1	15.00	1	15.00	1	15.00	7 M2/student For two classes simultaneously
3.3	Sport hall	72							504.00	1	504.00	1	504.00	
3.4	Sport equipment store		10.00						20.00	2	20.00	2	20.00	
3.5	Dressing room		18.00						36.00	2	36.00	2	36.00	
3.5	Sport teacher's office								15.00	1	15.00	1	15.00	
	Total net area				15.00		15.00		590.00		590.00		590.00	
	Gross area				18.45		18.45		725.70		725.70		725.70	
	Gross area per student place (two levels)				0.51		0.51		20.16		20.16		20.16	
4.0 GRAND TOTAL														
4.1	Without option (Net area)				2,430.37		2,517.87		3,269.18		4,002.24		4,671.96	4,716.71 5,279.32 5,328.76 5,305.71 6,005.02 6,054.46 3.64 4.11
4.2	Without option (Grossarea)				2,746.31		2,845.19		3,694.17		4,522.83		5,279.32	
4.3	With options (net area)				2,445.37		2,532.87		3,284.18		4,022.24		4,671.96	
4.4	With options (gross area)				2,764.76		2,853.64		3,712.62		4,522.83		5,279.32	
	Net surf. Area / student place (without options)				3.75		3.89		3.78		3.71		3.60	3.64 4.11
	Gross area / student place (without options)				4.24		4.39		4.28		4.19		4.07	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
BASIC EDUCATION STANDARD SCHOOL - RURAL AREAS

Teaching level	3 Levels	Form N° BE 01 Rc
Cycle number	2 Cycles	
Class number	20 Classes	
Student seats / class	24 Places	
Total capacity	480 Students	
		Date
		Filled by ID

Ref.	Rooms	Capacity	Length	Width	Quantity	Net area		Gross area	Comments
						/unit	Total		

A. TEACHING AND PEDAGOGICAL SUPPORT

1.0 Pre primary level **2 Cycles** **2 Classes** **48 students**

1.1	Preschool room	24	6.70	6.70	2	44.89	89.78		1.87 M2/student
1.2	Verranda		6.70	3.50	2	23.45	46.90		
1.3	Quiet room		5.00	5.00	1	25.00	25.00		
1.4	Pre school toilets				4	4.00	16.00		
1.5	Circulation areas				Variable		40.87		0.23
Sub total							218.55	244.77	0.12
M2/ student							4.55	5.10	

2.0 Primary level **2 Cycles** **10 Classes** **240 Students**

2.1	Classroom	24	6.70	6.80	10	45.56	455.60		1.90 M2/student
2.3	Store				1	10.00	10.00		
2.4	Demonstration laboratory (natural Sciences)	24	7.90	6.50	1	51.35	51.35		2.14 M2/student
2.5	Preparation room and store				1	9.50	9.50		
2.6	Library	50			0	Variable	0.00		In common with Lower secondary
2.7	Multipurpose hall	60			0	Variable	0.00		In common with Lower secondary
2.8	Teachers' room	12			1	Variable	30.00		2.5 M2/ teacher
2.9	Students' toilets (per unit)				10	3.50	35.00		
2.10	Teachers' toilets (per unit)				2	5.00	10.00		
2.11	Handicaped student toilet				1	4.50	4.50		
2.12	Staircase				0	0.00			
2.13	Circulation areas				Variable		139.37		0.23
Sub total							745.32	834.76	0.12
M2/ student							3.11	3.48	

3.0 Lower secondary level **2 Cycles** **8 Classes** **192 students**

3.1	Ordinary class room	24	6.80	6.70	3	45.56	136.68		1.90 M2/student
3.2	Specialized class room	24	7.70	6.80	1	52.36	52.36		With cupboards
3.3	Storage (specialized rooms)				1	25.00	25.00		
3.4	Language laboratory	24	7.70	6.80	1	52.36	52.36		
3.5	Physics Laboratory	24 / 12	6.70	8.00	1	53.60	53.60		1 demonstr. bench + 2 side benches
3.6	Preparation room (two labs)				1	35.00	35.00		between labs. 1 bench with sink
3.7	Chemistry laboratory	24 / 12	6.70	8.00	1	53.60	53.60		1 demonstr. bench + 2 side benches
3.8	Biology laboratory	24 / 12	6.70	8.00	1	53.60	53.60		1 demonstr. bench + 2 side benches
3.9	Preparation room (one lab)				1	25.00	25.00		
3.10	Arts and drawing room	24	6.70	8.00	1	53.60	53.60		Associated with music
3.11	Music room	24	6.70	8.00	0	53.60	0.00		In arts and drawing room
3.12	Computer room	12			1	40.00	40.00		12 computers
3.13	Library. Reading room (with primary level)	86			1	120.96	120.96		1.4 M2/seat
3.14	Book storage				1	25.00	25.00		
3.15	Librarian office	1			1	16.00	16.00		
3.16	Multipurpose hall (with primary level)	480			1	240.00	240.00		0.5 M2 per student (total)
3.17	Sport hall (with primary level)	48			1	384.00	384.00		8.0 M2 per student
3.18	Shower blocks four cubicles each				2	16.00	32.00		
3.19	Dressing room				2	20.00	40.00		
3.20	Sport teachers' office				1	18.00	18.00		
3.21	Sport equipment storage				1	20.00	20.00		
3.22	Entrance hall				1	120.00	120.00		
3.23	Circulation areas and stair cases						367.25		21 to 25% of room net area
Sub total							1,964.01	2,219.34	Gross area = net area +12 to 14%
M2 / student							10.23	11.56	

B. COMMON FACILITIES

4.0 Administration

4.1	Director				1	25.00	25.00		
4.2	Deputy director				2	16.00	32.00		
4.3	Accountant				1	16.00	16.00		
4.4	Secretary / reception desk				1	16.00	16.00		
4.5	Teachers' room (lower secondary only)	2.5			1	39.00	39.00		16 teachers
4.6	Community organization room				1	16.00	16.00		
4.7	Professional orientation				1	16.00	16.00		
4.8	Storage equipment / consumables				1	10.00	10.00		
4.9	Archives				1	8.00	8.00		
4.10	Administration staff toilets				2	8.00	16.00		2 cubicles
4.11	Circulation areas / hall, reception						44.62		21 to 25% of room net area
Sub total							238.62	269.64	Gross area = net area +12 to 14%
M2 / student							0.50	0.56	

5.0 COMMON SERVICES

3.1	Medical room				1	16.00	16.00		
3.2	Maintenance workshop				1	18.00	18.00		
3.3	Canteen	160			1	175.82	175.82		1.1 M2/ student
3.4	Kitchen				1	40.00	40.00		
3.5	Food storage				2	8.00	16.00		
3.6	Tools and equipment storage				1	12.00	12.00		
3.7	Teachers and personnel toilets				2	8.00	16.00		2 cubicles (x 1 WC block)
3.8	Students' toilet block				2	14.00	28.00		4 cubicles (x 2 WC blocks)
3.9	Guard's room				1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	480			1	288.00	288.00		0.6 M2/student
3.11	Central heating room				1	25.00	25.00		
3.12	Coal store (optional)				1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)				0	40.00	0.00		
3.14	Circulation areas / hall						74.02		21 to 25% of room net area
Sub total							417.02	471.23	Gross area = net area +12 to 14%
M2 / student							0.87	0.98	

GRAND TOTAL

Total area						3,583.52	4,039.74		
M2 / student						7.47	8.42		

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
BASIC EDUCATION STANDARD SCHOOL - RURAL AREAS

Teaching level	3 Levels	Form N°	BE 02 Rc
Cycle number	3 Cycles	Date	
Class number	30 Classes	Filled by	ID
Student seats / class	24 Places		
Total capacity	720 Students		

Ref.	Rooms	Capacity	Length	Width	Quantity	Net area	Gross area	Comments
						/unit	Total	

A. TEACHING AND PEDAGOGICAL SUPPORT

1.0 Pre primary level **3 Cycles** **3 Classes** **72 students**

1.1	Preschool room	24	6.70	6.70	3	44.89	134.67	1.87 M2/student
1.2	Verranda		6.70	3.50	3	23.45	70.35	
1.3	Quiet room		5.00	5.00	1	25.00	25.00	
1.4	Pre school toilets				4	16.00	64.00	0.23
1.5	Circulation areas				Variable		67.62	
Sub total							361.64	405.04
M2/ student							7.53	8.44

2.0 Primary level **3 Cycles** **15 Classes** **360 Students**

2.1	Classroom	24	6.70	6.80	15	45.56	683.40	1.90 M2/student
2.3	Store				1	10.00	10.00	
2.4	Demonstration laboratory (natural Sciences)	24	7.90	6.50	1	51.35	51.35	2.14 M2/student
2.5	Preparation room and store				1	9.50	9.50	
2.6	Library	50			0	Variable	0.00	In common with Lower secondary
2.7	Multipurpose hall	60			0	Variable	0.00	In common with Lower secondary
2.8	Teachers' room	18			1	Variable	45.00	2.5 M2/ teacher
2.9	Students' toilets (per unit)				15	3.50	52.50	
2.10	Teachers' toilets (per unit)				2	10.00	20.00	
2.11	Handicaped student toilet				1	4.50	4.50	
2.12	Staircase				1	20.00	20.00	
2.13	Circulation areas				Variable		206.14	0.23
Sub total							1,102.39	1,234.67
M2/ student							3.06	3.43

3.0 Lower secondary level **3 Cycles** **12 Classes** **288 students**

3.1	Ordinary class room	24	6.80	6.70	4	45.56	182.24	1.90 M2/student
3.2	Specialized class room	24	7.70	6.80	2	52.36	104.72	With cupboards
3.3	Storage (specialized rooms)				1	25.00	25.00	
3.4	Language laboratory	24	7.70	6.80	2	52.36	104.72	
3.5	Physics Laboratory	24 / 12	6.70	8.00	2	53.60	107.20	1 demonstr. bench + 2 side benches
3.6	Preparation room (two labs)				1	35.00	35.00	between labs. 1 bench with sink
3.7	Chemistry laboratory	24 / 12	6.70	8.00	1	53.60	53.60	1 demonstr. bench + 2 side benches
3.8	Biology laboratory	24 / 12	6.70	8.00	2	53.60	107.20	1 demonstr. bench + 2 side benches
3.9	Preparation room (one lab)				1	25.00	25.00	
3.10	Arts and drawing room	24	6.70	8.00	1	53.60	53.60	Associated with music
	Music room	24	6.70	8.00	0	53.60	0.00	In arts and drawing room
3.11	Computer room	12			1	40.00	40.00	12 computers
3.12	Library. Reading room (with primary level)	130			1	120.96	120.96	1.4 M2/seat
3.13	Book storage				1	25.00	25.00	
3.14	Librarian office	1			1	16.00	16.00	
3.15	Multipurpose hall (with primary level)	720			1	360.00	360.00	0.5 M2 per student (total)
3.16	Sport hall (with primary level)	48			1	576.00	576.00	8.0 M2 per student
3.17	Shower blocks four cubicles each				2	16.00	32.00	
3.18	Dressing room				2	20.00	40.00	
3.19	Sport teachers' office				1	18.00	18.00	
3.20	Sport equipment storage				1	20.00	20.00	
3.21	Entrance hall				1	120.00	120.00	
3.22	Circulation areas and stair cases						498.24	21 to 25% of room net area
Sub total							2,664.48	3,010.86
M2/ student							9.25	10.45

B. COMMON FACILITIES

4.0 Administration

4.1	Director				1	25.00	25.00	
4.2	Deputy director				2	16.00	32.00	
4.3	Accountant				1	16.00	16.00	
4.4	Secretary / reception desk				1	16.00	16.00	
4.5	Teachers' room (lower secondary only)	2.5			1	72.00	72.00	29 teachers
4.6	Community organization room				1	16.00	16.00	
4.7	Professional orientation				1	16.00	16.00	
4.8	Storage equipment / consumables				1	10.00	10.00	
4.9	Archives				1	8.00	8.00	
4.10	Administration staff toilets				2	8.00	16.00	2 cubicles
4.11	Circulation areas / hall, reception						52.21	21 to 25% of room net area
Sub total							279.21	315.51
M2/ student							0.39	0.44

5.0 COMMON SERVICES

3.1	Medical room				1	16.00	16.00	
3.2	Maintenance workshop				1	18.00	18.00	
3.3	Canteen	240			1	263.74	263.74	1.1 M2/ student
3.4	Kitchen				1	40.00	40.00	
3.5	Food storage				2	8.00	16.00	
3.6	Tools and equipment storage				1	12.00	12.00	
3.7	Teachers and personnel toilets				2	8.00	16.00	2 cubicles (x 1 WC block)
3.8	Students' toilet block				2	14.00	28.00	4 cubicles (x 2 WC blocks)
3.9	Guard's room				1	10.00	10.00	next to the main entrance
3.10	External covered recreation spaces	720			1	432.00	432.00	0.6 M2/student
3.11	Central heating room				1	25.00	25.00	
3.12	Coal store (optional)				1	30.00	30.00	Could be replaced by a fuel tank
3.13	Guard's house (optional)				0	40.00	0.00	
3.14	Circulation areas / hall						94.24	21 to 25% of room net area
Sub total							581.24	656.80
M2/ student							0.81	0.91

GRAND TOTAL

Total area						4,988.96	5,622.88	
M2 / student						6.93	7.81	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
BASIC EDUCATION STANDARD SCHOOL - URBAN AREAS

Teaching level	3 Levels	Form N°	BE 01 U
Cycle number	3 Cycles	Date	
Class number	30 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	1,080 Students		

Ref.	Rooms	Capacity	Length	Width	Quantity	Net area		Gross area	Comments
						/unit	Total		

A. TEACHING AND PEDAGOGICAL SUPPORT

1.0 Pre primary level

3 Cycles

3 Classes

108 students

1.1	Preschool room	36	9.00	7.20	3	64.80	194.40		1.80 M2/student
1.2	Verranda		7.15	3.50	3	25.03	75.08		
1.3	Quiet room		5.00	5.00	1	25.00	25.00		
1.4	Pre school toilets				8	32.00	256.00		
1.5	Circulation areas				Variable		126.61		0.23
Sub total							677.08	758.33	0.12
M2 / student							14.11	15.80	

2.0 Primary level

3 Cycles

15 Classes

540 Students

2.1	Classroom	36	8.60	6.80	15	58.48	877.20		1.62 M2/student
2.2	Store				1	10.00	10.00		
2.4	Demonstration laboratory (natural Sciences)	36			1	58.48	58.48		1.62 M2/student
2.5	Preparation room and store				1	9.50	9.50		
2.6	Library	50			1	Variable	0.00		In common with Lower secondary
2.7	Multipurpose hall				0	Variable	0.00		In common with Lower secondary
2.8	Teachers' room	18			1	Variable	45.00		2.5 M2/ teacher
2.9	Students' toilets (per unit)				15	3.50	52.50		
2.10	Teachers' toilets (per unit)				2	10.00	20.00		
2.11	Handicaped student toilet				1	4.50	4.50		
2.12	Staircase				1	24.00			
2.13	Circulation areas				Variable		247.75		0.23
Sub total							1,324.93	1,483.92	0.12
M2 / student							2.45	2.75	

3.0 Lower secondary level

3 Cycles

12 Classes

432 students

3.1	Ordinary class room	36	8.60	6.80	4	58.48	233.92		1.62 M2/student
3.2	Specialized class room	36	7.70	6.80	2	62.56	125.12		With cupboards
3.3	Storage (specialized rooms)				1	25.00	25.00		
3.4	Language laboratory	24	7.70	6.80	2	65.28	130.56		
3.5	Physics Laboratory	24 / 12	6.70	8.00	2	75.00	150.00		1 demonstr. bench + 2 side benches
3.6	Preparation room (two labs)				1	35.00	35.00		between labs. 1 bench with sink
3.7	Chemistry laboratory	24 / 12	6.70	8.00	1	75.00	75.00		1 demonstr. bench + 2 side benches
3.8	Biology laboratory	24 / 12	6.70	8.00	2	75.00	150.00		1 demonstr. bench + 2 side benches
3.9	Preparation room (one lab)				1	25.00	25.00		
3.10	Arts and drawing room	36			1	75.00	75.00		Associated with music
3.11	Music room	36			0	0.00	0.00		In arts and drawing room
3.12	Computer room	18			1	40.00	40.00		18 computers
3.13	Library. Reading room (with primary level)	194			1	120.96	120.96		1.4 M2/seat
3.14	Book storage				1	25.00	25.00		
3.15	Librarian office	1			1	16.00	16.00		
3.16	Multipurpose hall (with primary level)	1080			1	540.00	540.00		0.5 M2 per student (total)
3.17	Sport hall (with primary level)	72			1	576.00	576.00		8.0 M2 per student
3.18	Shower blocks four cubicles each				2	16.00	32.00		
3.19	Dressing room				2	20.00	40.00		
3.20	Sport teachers' office				1	18.00	18.00		
3.21	Sport equipment storage				1	20.00	20.00		
3.22	Entrance hall				1	120.00	120.00		
3.23	Circulation areas and stair cases						591.69		21 to 25% of room net area
Sub total							3,164.25	3,575.60	Gross area = net area +12 to 14%
M2 / student							7.32	8.28	

B. COMMON FACILITIES

4.0 Administration

4.1	Director				1	25.00	25.00		
4.2	Deputy director				2	16.00	32.00		
4.3	Accountant				1	16.00	16.00		
4.4	Secretary / reception desk				1	16.00	16.00		
4.5	Teachers' room (lower secondary only)	2.5			1	72.00	72.00		29 teachers
4.6	Community organization room				1	16.00	16.00		
4.7	Professional orientation				1	16.00	16.00		
4.8	Storage equipment / consumables				1	10.00	10.00		
4.9	Archives				1	8.00	8.00		
4.10	Administration staff toilets				2	8.00	16.00		2 cubicles
4.11	Circulation areas / hall, reception						52.21		21 to 25% of room net area
Sub total							279.21	315.51	Gross area = net area +12 to 14%
M2 / student							0.26	0.29	

5.0 COMMON SERVICES

3.1	Medical room				1	16.00	16.00		
3.2	Maintenance workshop				1	18.00	18.00		
3.3	Canteen	360			1	395.60	395.60		1.1 M2 / student
3.4	Kitchen				1	40.00	40.00		
3.5	Food storage				2	8.00	16.00		
3.6	Tools and equipment storage				1	12.00	12.00		
3.7	Teachers and personnel toilets				2	8.00	16.00		2 cubicles (x 1 WC block)
3.8	Students' toilet block				2	14.00	28.00		4 cubicles (x 2 WC blocks)
3.9	Guard's room				1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	1080			1	648.00	648.00		0.6 M2/student
3.11	Central heating room				1	25.00	25.00		
3.12	Coal store (optional)				1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)				0	40.00	0.00		
3.14	Circulation areas / hall						124.57		21 to 25% of room net area
Sub total							827.57	935.16	Gross area = net area +12 to 14%
M2 / student							0.77	0.87	

GRAND TOTAL

Total area						6,273.04	7,068.52		
M2 / student						5.81	6.54		

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
BASIC EDUCATION STANDARD SCHOOL - URBAN AREAS

Teaching level	3 Levels	Form N°	BE 02 U
Cycle number	4 Cycles	Date	
Class number	40 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	1,440 Students		

Ref.	Rooms	Capacity	Length	Width	Quantity	Net area		Gross area	Comments
						/unit	Total		

A. TEACHING AND PEDAGOGICAL SUPPORT

1.0 Pre primary level

4 Cycles

4 Classes

144 students

1.1	Preschool room	36	9.00	7.20	4	64.80	259.20		1.80 M2/student
1.2	Verranda		6.70	3.50	4	23.45	93.80		
1.3	Quiet room		5.00	5.00	2	25.00	50.00		
1.4	Pre school toilets				10	4.00	40.00		
1.5	Circulation areas				Variable		101.89		0.23
Sub total							544.89	610.28	0.12
M2/ student							11.35	12.71	

2.0 Primary level

4 Cycles

20 Classes

720 Students

2.1	Classroom	36	8.60	6.80	20	58.48	1169.60		1.62 M2/student
2.2	Store				2	10.00	20.00		
2.4	Demonstration laboratory (natural Sciences)	36			1	58.48	58.48		1.62 M2/student
2.5	Preparation room and store				1	9.50	9.50		
2.6	Library				1	97.20	97.20		
2.7	Multipurpose hall				0	Variable	0.00		In common with Lower secondary
2.8	Teachers' room	24			1	Variable	60.00		In common with Lower secondary
2.9	Students' toilets (per unit)				20	3.50	70.00		2.5 M2/ teacher
2.10	Teachers' toilets (per unit)				2	5.00	10.00		
2.11	Handicaped student toilet				1	4.50	4.50		
2.12	Staircase				1	20.00	20.00		
2.13	Circulation areas				Variable		349.43		0.23
Sub total							1868.71	2092.96	0.12
M2/ student							2.60	2.91	

3.0 Lower secondary level

4 Cycles

16 Classes

576 students

3.1	Ordinary class room	36	8.60	6.80	5	58.48	292.40		1.62 M2/student
3.2	Specialized class room	36	7.70	6.80	2	52.36	104.72		With cupboards
3.3	Storage (specialized rooms)				1	25.00	25.00		
3.4	Language laboratory	24	7.70	6.80	2	52.36	104.72		
3.5	Physics Laboratory	24 / 12	6.70	8.00	2	53.60	107.20		1 demonstr. bench + 2 side benches
3.6	Preparation room (two labs)				3	35.00	105.00		between labs. 1 bench with sink
3.7	Chemistry laboratory	24 / 12	6.70	8.00	2	75.00	150.00		1 demonstr. bench + 2 side benches
3.8	Biology laboratory	24 / 12	6.70	8.00	2	75.00	150.00		1 demonstr. bench + 2 side benches
3.9	Preparation room (one lab)				0	25.00	0.00		
3.10	Arts and drawing room	36	6.70	8.00	1	75.00	75.00		Associated with music
3.11	Music room	36			0	75.00	0.00		In arts and drawing room
3.12	Computer room	18			2	40.00	80.00		18 computers
3.13	Library. Reading room (with primary level)	259			1	161.28	161.28		1.4 M2/seat
3.14	Book storage				1	25.00	25.00		
3.15	Librarian office	1			1	16.00	16.00		
3.16	Multipurpose hall (with primary level)	1440			2	720.00	1,440.00		0.5 M2 per student (total)
3.17	Sport hall (with primary level)	72			1	576.00	576.00		8.0 M2 per student
3.18	Shower blocks four cubicles each				2	16.00	32.00		
3.19	Dressing room				2	20.00	40.00		
3.20	Sport teachers' office				1	18.00	18.00		
3.21	Sport equipment storage				1	20.00	20.00		
3.22	Entrance hall				1	120.00	120.00		
3.23	Circulation areas and stair cases						837.73		21 to 25% of room net area
Sub total							4,480.05	5,510.47	Gross area = net area +20 to 25%
M2 / student							7.78	9.57	

B. COMMON FACILITIES

4.0 Administration

4.1	Director				1	25.00	25.00		
4.2	Deputy director				2	16.00	32.00		
4.3	Accountant				1	16.00	16.00		
4.4	Secretary / reception desk				1	16.00	16.00		
4.5	Teachers' room (lower secondary only)	2.5			1	77.00	77.00		31 teachers
4.6	Community organization room				1	16.00	16.00		
4.7	Professional orientation				1	16.00	16.00		
4.8	Storage equipment / consumables				1	10.00	10.00		
4.9	Archives				1	8.00	8.00		
4.10	Administration staff toilets				2	8.00	16.00		2 cubicles
4.11	Circulation areas / hall, reception						53.36		21 to 25% of room net area
Sub total							285.36	350.99	Gross area = net area +20 to 25%
M2 / student							0.20	0.24	

5.0 COMMON SERVICES

3.1	Medical room				1	16.00	16.00		
3.2	Maintenance workshop				1	18.00	18.00		
3.3	Canteen	480			1	527.47	527.47		1.1 M2/ student
3.4	Kitchen				1	40.00	40.00		
3.5	Food storage				2	10.00	20.00		
3.6	Tools and equipment storage				1	12.00	12.00		
3.7	Teachers and personnel toilets				2	8.00	16.00		2 cubicles (x 1 WC block)
3.8	Students' toilet block				2	14.00	28.00		4 cubicles (x 2 WC blocks)
3.9	Guard's room				1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	1440			1	864.00	864.00		0.6 M2/student
3.11	Central heating room				1	25.00	25.00		
3.12	Coal store (optional)				1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)				0	40.00	0.00		
3.14	Circulation areas / hall						155.82		21 to 25% of room net area
Sub total							1,074.82	1,225.29	Gross area = net area +12 to 16%
M2 / student							0.75	0.85	

GRAND TOTAL

Total area						8,253.84	9,789.99		
M2 / student						5.73	6.80		

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 01 U
Cycle number	3 Cycles	Date	
Class number	12 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optional)		
Total capacity	432 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments	
				/unit	Total			
1.0 TEACHING AND PEDAGOGICAL SUPPORT								
1.1	Ordinary class room	36	4	58.48	233.92		8.60 x 6.80	1.62
1.2	Specialized class room	36	2	62.56	125.12		With cupboards	
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory	36	2	65.28	130.56		9.60 x 6.80	1.81
1.5	Physics Laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		1	35.00	35.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	1	75.00	75.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		1	25.00	25.00			
1.10	Arts and design room	36	1	75.00	75.00			
1.11	Music room	36	0	75.00	0.00		with art room	
1.12	Computer room	18	1	40.00	40.00		18 computers	
1.13	Library. Reading room	86	1	120.96	120.96		1.4 M2/seat	
1.14	Book storage		1	25.00	25.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	432	1	216.00	216.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				517.17		21 to 25% of room net area	
	Sub total				2,765.73	3,125.27	Gross area = net area +12 to 14%	
	M2 / student				6.40	7.23		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00		
2.2	Deputy director		2	16.00	32.00		
2.3	Accountant		1	16.00	16.00		
2.4	Secretary / reception desk		1	16.00	16.00		
2.5	Teachers' room	2.5	1	72.00	72.00		29 teachers
2.6	Community organization room		1	16.00	16.00		
2.7	Professional orientation		1	16.00	16.00		
2.8	Storage equipment / consumables		1	10.00	10.00		
2.9	Archives		1	8.00	8.00		
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles
2.11	Circulation areas / hall, reception				52.21		21 to 25% of room net area
	Sub total				279.21	315.51	Gross area = net area +12 to 14%
	M2 / student				0.65	0.73	

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00		
3.2	Maintenance workshop		1	18.00	18.00		
3.3	Canteen	144	1	158.24	158.24		1.1 M2/ student
3.4	Kitchen		1	40.00	40.00		
3.5	Food storages		2	8.00	16.00		
3.6	Tools and equipment storage		1	10.00	10.00		
3.7	Teachers and staff toilets		2	8.00	16.00		2 cubicles (x 1 WC block)
3.8	Students' toilet block	14.4	2	21.60	43.20		7 cubicles (x 2 WC blocks)
3.9	Guard's room		1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	432	1	259.20	259.20		0.6 M2/student
3.11	Central heating room		1	25.00	25.00		
3.12	Coal store (optional)		0	20.00	0.00		
3.13	Guard's house (optional)		0	40.00	0.00		
3.14	Circulation areas / hall				73.01		21 to 25% of room net area
	Sub total				357.21	403.65	Gross area = net area +12 to 14%
	M2 / student				0.83	0.93	

GRAND TOTAL

Total area		3,402.15	3,844.43	
M2 / student		7.88	8.90	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 02 U
Cycle number	4 Cycles	Date	
Class number	16 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	576 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	5	58.48	292.40		8.60 x 6.80	1.62
1.2	Specialized class room	36	2	62.56	125.12		With cupboards	
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory		2	65.28	130.56		9.60 x 6.80	1.81
1.5	Physics Laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		3	35.00	105.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and design room	36	1	75.00	75.00			
1.11	Music room	36	0	75.00	0.00		with art room	
1.12	Computer room	18	2	40.00	80.00		18 computers	
1.13	Library. Reading room	115	1	161.28	161.28		1.4 M2/seat	
1.14	Book storage		1	25.00	25.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	576	2	288.00	576.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				659.49		21 to 25% of room net area	
	Sub total				3,526.85	3,985.34	Gross area = net area +12 to 14%	
	M2 / student				6.12	6.92		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room	2.5	1	77.00	77.00		31 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				53.36		21 to 25% of room net area	
	Sub total				285.36	322.46	Gross area = net area +12 to 14%	
	M2 / student				0.50	0.56		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	192	1	210.99	210.99		1.1 M2/ student	
3.4	Kitchen		1	40.00	40.00			
3.5	Food storages		2	8.00	16.00			
3.6	Tools and equipment storage		1	10.00	10.00			
3.7	Teachers and staff toilets		2	8.00	16.00		2 cubicles (x 1 WC block)	
3.8	Students' toilet block	19.2	2	28.80	57.60		9 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	576	1	345.60	345.60		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				88.46		21 to 25% of room net area	
	Sub total				459.06	518.73	Gross area = net area +12 to 14%	
	M2 / student				0.80	0.90		

GRAND TOTAL

Total area	4,271.27	4,826.53
M2 / student	7.42	8.38

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 03 U
Cycle number	5 Cycles	Date	
Class number	20 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	720 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	6	58.48	350.88		8.60 x 6.80	1.62
1.2	Specialized class room	36	3	62.56	187.68		With cupboards	
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory	36	2	65.28	130.56			
1.5	Physics Laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		3	35.00	105.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and design room	36	1	75.00	75.00			
1.11	Music room	36	1	75.00	75.00			
1.12	Computer room	18	2	35.00	70.00		18 computers	
1.13	Library. Reading room	144	1	201.60	201.60		1.4 M2/seat	
1.14	Book storage		1	30.00	30.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	720	2	360.00	720.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				745.83		21 to 25% of room net area	
	Sub total				3,988.55	4,507.06	Gross area = net area +12 to 14%	
	M2 / student				5.54	6.26		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room	2.5	1	95.63	95.63		38 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				57.64		21 to 25% of room net area	
	Sub total				308.27	348.34	Gross area = net area +12 to 14%	
	M2 / student				0.43	0.48		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	240	1	263.74	263.74		1.1 M2/ student	
3.4	Kitchen		1	50.00	50.00			
3.5	Food storages		2	10.00	20.00			
3.6	Tools and equipment storage		1	12.00	12.00			
3.7	Teachers and staff toilets		2	8.00	16.00		2 cubicles (x 1 WC block)	
3.8	Students' toilet block	24	2	36.00	72.00		12 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	720	1	432.00	432.00		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				107.58		21 to 25% of room net area	
	Sub total				564.58	637.97	Gross area = net area +12 to 14%	
	M2 / student				0.78	0.89		

GRAND TOTAL

Total area		4,861.39	5,493.37
M2 / student		6.75	7.63

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 04 U
Cycle number	6 Cycles	Date	
Class number	24 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	864 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	7	58.48	409.36		8.60 x 6.80	1.62
1.2	Specialized class room	36	3	62.56	187.68		With cupboards	
1.3	Storage (specialized rooms)		2	25.00	50.00			
1.4	Language laboratory	36	3	65.28	195.84			
1.5	Physics Laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		3	35.00	105.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	4	75.00	300.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and design room	36	1	75.00	75.00			
1.11	Music room	36	1	75.00	75.00			
1.12	Computer room	18	2	35.00	70.00		18 computers	
1.13	Library. Reading room	173	1	241.92	241.92		1.4 M2/seat	
1.14	Book storage		1	30.00	30.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	864	2	216.00	432.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				774.82		21 to 25% of room net area	
	Sub total				4,143.62	4,682.30	Gross area = net area +12 to 14%	
	M2 / student				4.80	5.42		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room	2.5	1	117.00	117.00		47 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				62.56		21 to 25% of room net area	
	Sub total				334.56	378.05	Gross area = net area +12 to 14%	
	M2 / student				0.39	0.44		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	288	1	316.48	316.48		1.1 M2/ student	
3.4	Kitchen		1	50.00	50.00			
3.5	Food storages		2	10.00	20.00			
3.6	Tools and equipment storage		1	12.00	12.00			
3.7	Teachers and staff toilets		3	8.00	24.00		4 cubicles (x 1 WC block)	
3.8	Students' toilet block	28.8	2	43.20	86.40		14 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	864	1	518.40	518.40		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				124.86		21 to 25% of room net area	
	Sub total				668.26	755.14	Gross area = net area +12 to 14%	
	M2 / student				0.77	0.87		

GRAND TOTAL

Total area	5,146.45	5,815.49
M2 / student	5.96	6.73

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 05 U
Cycle number	7 Cycles	Date	
Class number	28 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	1,008 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments	
				/unit	Total			
1.0 TEACHING AND PEDAGOGICAL SUPPORT								
1.1	Ordinary class room	36	8	58.48	467.84		8.60 x 6.80	1.62
1.2	Specialized class room	36	4	62.56	250.24		With cupboards	
1.3	Storage (specialized rooms)		2	25.00	50.00			
1.4	Language laboratory	36	3	65.28	195.84			1.81
1.5	Physics Laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		4	35.00	140.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	2	75.00	150.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and design room	36	1	75.00	75.00			
1.11	Music room	36	1	75.00	75.00			
1.12	Computer room	18	2	35.00	70.00		18 computers	
1.13	Library. Reading room	202	1	282.24	282.24		1.4 M2/seat	
1.14	Book storage		1	35.00	35.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	1008	2	252.00	504.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	140.00	140.00			
1.23	Circulation areas and stair cases				825.05		21 to 25% of room net area	
	Sub total				4,412.21	4,985.79	Gross area = net area +12 to 14%	
	M2 / student				4.38	4.95		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00		
2.2	Deputy director		2	16.00	32.00		
2.3	Accountant		1	16.00	16.00		
2.4	Secretary / reception desk		1	16.00	16.00		
2.5	Teachers' room	2.5	1	136.50	136.50		55 teachers
2.6	Community organization room		1	16.00	16.00		
2.7	Professional orientation		1	16.00	16.00		
2.8	Storage equipment / consumables		1	10.00	10.00		
2.9	Archives		1	10.00	10.00		
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles
2.11	Circulation areas / hall, reception				67.51		21 to 25% of room net area
	Sub total				361.01	407.94	Gross area = net area +12 to 14%
	M2 / student				0.36	0.40	

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00		
3.2	Maintenance workshop		1	18.00	18.00		
3.3	Canteen	336	1	369.23	369.23		1.1 M2/ student
3.4	Kitchen		1	60.00	60.00		
3.5	Food storages		2	12.00	24.00		
3.6	Tools and equipment storage		1	15.00	15.00		
3.7	Teachers and staff toilets		3	8.00	24.00		4 cubicles (x 1 WC block)
3.8	Students' toilet block	33.6	2	50.40	100.80		17 cubicles (x 2 WC blocks)
3.9	Guard's room		1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	1008	1	604.80	604.80		0.6 M2/student
3.11	Central heating room		1	25.00	25.00		
3.12	Coal store (optional)		0	20.00	0.00		
3.13	Guard's house (optional)		0	40.00	0.00		
3.14	Circulation areas / hall				144.22		21 to 25% of room net area
	Sub total				774.02	874.64	Gross area = net area +12 to 14%
	M2 / student				0.77	0.87	

GRAND TOTAL

Total area	5,547.23	6,268.37
M2 / student	5.50	6.22

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 06 U
Cycle number	8 Cycles	Date	
Class number	32 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	1,152 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	9	58.48	526.32		8.60 x 6.80	1.62
1.2	Specialized class room	36	5	62.56	312.80		With cupboards	
1.3	Storage (specialized rooms)		2	25.00	50.00			
1.4	Language laboratory	36	3	65.28	195.84		10.00 x 6.80	
1.5	Physics Laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		4	35.00	140.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		1	25.00	25.00			
1.10	Arts and design room	36	1	75.00	75.00			
1.11	Music room	36	1	75.00	75.00			
1.12	Computer room	18	3	35.00	105.00		18 computers	
1.13	Library. Reading room	230	1	322.56	322.56		1.4 M2/seat	
1.14	Book storage		1	40.00	40.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	1152	3	288.00	864.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	140.00	140.00			
1.23	Circulation areas and stair cases				977.16		21 to 25% of room net area	
	Sub total				5,225.68	5,905.02	Gross area = net area +12 to 14%	
	M2 / student				4.54	5.13		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room	2.5	2	78.00	156.00		62 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	10.00	10.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				71.99		21 to 25% of room net area	
	Sub total				384.99	435.04	Gross area = net area +12 to 14%	
	M2 / student				0.33	0.38		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	384	1	421.98	421.98		1.1 M2/ student	
3.4	Kitchen		1	50.00	60.00			
3.5	Food storages		2	12.00	24.00			
3.6	Tools and equipment storage		1	15.00	15.00			
3.7	Teachers and staff toilets		3	8.00	24.00		4 cubicles (x 1 WC block)	
3.8	Students' toilet block	38.4	2	57.60	115.20		19 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	1152	1	691.20	691.20		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				159.66		21 to 25% of room net area	
	Sub total				875.86	989.72	Gross area = net area +12 to 14%	
	M2 / student				0.76	0.86		

GRAND TOTAL

Total area	6,486.53	7,329.78	
M2 / student	5.63	6.36	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - URBAN AREA

Teaching level	1 level	Form N°	LS 07 U
Cycle number	9 Cycles	Date	
Class number	36 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optional)		
Total capacity	1,296 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	10	58.48	584.80		8.60 x 6.80	1.62
1.2	Specialized class room	36	5	62.56	312.80		With cupboards	
1.3	Storage (specialized rooms)		2	25.00	50.00			
1.4	Language laboratory	36	4	65.28	261.12		10.00 x 6.80	
1.5	Physics Laboratory	36 and 18	4	75.00	300.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		4	35.00	140.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	3	75.00	225.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	4	75.00	300.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		1	25.00	25.00			
1.10	Arts and design room	36	2	75.00	150.00			
1.11	Music room	36	2	75.00	150.00			
1.12	Computer room	18	3	35.00	105.00		18 computers	
1.13	Library. Reading room	259	1	362.88	362.88		1.4 M2/seat	
1.14	Book storage		1	40.00	40.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	1296	3	324.00	972.00		0.5 M2 per student	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	150.00	150.00			
1.23	Circulation areas and stair cases				1,111.04		21 to 25% of room net area	
	Sub total				5,941.64	6,714.05	Gross area = net area +12 to 14%	
	M2 / student				4.58	5.18		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room	2.5	2	87.75	175.50		70 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	10.00	10.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				76.48		21 to 25% of room net area	
	Sub total				408.98	462.14	Gross area = net area +12 to 14%	
	M2 / student				0.32	0.36		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	432	1	474.72	474.72		1.1 M2/ student	
3.4	Kitchen		1	60.00	70.00			
3.5	Food storages		2	12.00	24.00			
3.6	Tools and equipment storage		1	15.00	15.00			
3.7	Teachers and staff toilets		3	8.00	24.00		4 cubicles (x 1 WC block)	
3.8	Students' toilet block	43.2	2	64.80	129.60		22 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	1296	1	777.60	777.60		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				177.40		21 to 25% of room net area	
	Sub total				980.00	1,107.41	Gross area = net area +12 to 14%	
	M2 / student				0.76	0.85		

GRAND TOTAL

Total area	7,330.62	8,283.60	
M2 / student	5.66	6.39	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - RURAL AREA

Teaching level	1 level	Form N°	LS 01 R
Cycle number	3 Cycles	Date	
Class number	12 Classes	Filled by	ID
Student seats / class	24 Places		
Total capacity	288 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	24	4	45.56	182.24		6.7 x 6.8	1.90
1.2	Specialized class room	24	2	49.64	99.28		With cupboards	2.07
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory	24	2	46.00	92.00			
1.5	Physics Laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		1	35.00	35.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	24 and 12	1	50.00	50.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		1	25.00	25.00			
1.10	Arts and drawing room	24	1	55.00	55.00			
1.11	Music room	24	0	55.00	0.00		Associated with Arts and design	
1.12	Computer room	12	1	32.00	32.00		12 computers	
1.13	Library. Reading room	58	1	80.64	80.64		1.4 M2/seat	
1.14	Book storage		1	25.00	25.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	288	1	144.00	144.00		0.5 M2 per student	
1.17	Sport hall	48	1	480.00	480.00		10.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				407.37		21 to 25% of room net area	
	Sub total				2,178.53	2,461.74	Gross area = net area +12 to 14%	
	M2 / student				7.56	8.55		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room		1	57.60	57.60		29 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				48.90		21 to 25% of room net area	
	Sub total				261.50	295.49	Gross area = net area +12 to 14%	
	M2 / student				0.91	1.03		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	96	1	105.49	105.49		1.1 M2/ student	
3.4	Kitchen		1	40.00	40.00			
3.5	Food storage		2	8.00	16.00			
3.6	Tools and equipment storage		1	10.00	10.00			
3.7	Teachers and personnel toilets		2	8.00	16.00		2 cubicles (x 1 WC block)	
3.8	Students' toilet block	9.6	2	14.40	28.80		5 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	288	1	172.80	172.80		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				57.57		21 to 25% of room net area	
	Sub total				255.37	288.57	Gross area = net area +12 to 14%	
	M2 / student				0.89	1.00		

GRAND TOTAL

Total area	2,695.39	3,045.79	
M2 / student	9.36	10.58	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - RURAL AREA

Teaching level	1 level	Form N°	LS 02 R
Cycle number	4 Cycles	Date	
Class number	16 Classes	Filled by	ID
Student seats / class	24 Places		
Total capacity	384 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	24	5	45.56	227.80		6.7 x 6.8	1.90
1.2	Specialized class room	24	2	49.64	99.28		With cupboards	2.07
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory		2	46.00	92.00			
1.5	Physics Laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		3	35.00	105.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and drawing room	24	1	55.00	55.00			
1.11	Music room	24	0	55.00	0.00		Associated with Arts and design	
1.12	Computer room	12	2	32.00	64.00		12 computers	
1.13	Library. Reading room	77	1	107.52	107.52		1.4 M2/seat	
1.14	Book storage		1	25.00	25.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	384	2	192.00	384.00		0.5 M2 per student	
1.17	Sport hall	48	1	480.00	480.00		10.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				508.44		21 to 25% of room net area	
	Sub total				2,719.04	3,072.51	Gross area = net area +12 to 14%	
	M2 / student				7.08	8.00		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room		1	61.60	61.60		31 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				49.82		21 to 25% of room net area	
	Sub total				266.42	301.05	Gross area = net area +12 to 14%	
	M2 / student				0.69	0.78		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	128	1	140.66	140.66		1.1 M2/ student	
3.4	Kitchen		1	40.00	40.00			
3.5	Food storage		2	8.00	16.00			
3.6	Tools and equipment storage		1	10.00	10.00			
3.7	Teachers and personnel toilets		2	8.00	16.00		2 cubicles (x 1 WC block)	
3.8	Students' toilet block	12.8	2	19.20	38.40		6 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	384	1	230.40	230.40		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				67.86		21 to 25% of room net area	
	Sub total				323.26	365.29	Gross area = net area +12 to 14%	
	M2 / student				0.84	0.95		

GRAND TOTAL

Total area	3,308.72	3,738.85	
M2 / student	8.62	9.74	

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS
LOWER SECONDARY STANDARD SCHOOL - RURAL AREA

Teaching level	1 level	Form N°	LS 03 R
Cycle number	5 Cycles	Date	
Class number	20 Classes	Filled by	ID
Student seats / class	24 Places		
Total capacity	480 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	24	6	45.56	273.36		6.7 x 6.8	1.90
1.2	Specialized class room	24	3	49.64	148.92		With cupboards	2.07
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory		2	46.00	92.00			
1.5	Physics Laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		3	35.00	105.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	24 and 12	2	50.00	100.00		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and drawing room	24	1	55.00	55.00			
1.11	Music room	24	0	55.00	0.00		Associated with Arts and design	
1.12	Computer room	12	2	35.00	70.00		12 computers	
1.13	Library. Reading room	96	1	134.40	134.40		1.4 M2/seat	
1.14	Book storage		1	30.00	30.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	480	2	240.00	480.00		0.5 M2 per student	
1.17	Sport hall	48	1	480.00	480.00		10.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				561.13		21 to 25% of room net area	
	Sub total				3,000.81	3,390.91	Gross area = net area +12 to 14%	
	M2 / student				6.25	7.06		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room		1	76.50	76.50		38 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				53.25		21 to 25% of room net area	
	Sub total				284.75	321.76	Gross area = net area +12 to 14%	
	M2 / student				0.59	0.67		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	160	1	175.82	175.82		1.1 M2/ student	
3.4	Kitchen		1	50.00	50.00			
3.5	Food storage		2	8.00	16.00			
3.6	Tools and equipment storage		1	10.00	10.00			
3.7	Teachers and personnel toilets		2	8.00	16.00		2 cubicles (x 1 WC block)	
3.8	Students' toilet block	16	2	24.00	48.00		8 cubicles (x 2 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	480	1	288.00	288.00		0.6 M2/student	
3.11	Central heating room		1	25.00	25.00			
3.12	Coal store (optional)		0	20.00	0.00			
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				80.46		21 to 25% of room net area	
	Sub total				393.46	444.61	Gross area = net area +12 to 14%	
	M2 / student				0.82	0.93		

GRAND TOTAL

Total area				3,679.01	4,157.28			
M2 / student				7.66	8.66			

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

UPPER SECONDARY STANDARD SCHOOL - URBAN AREAS

Teaching level	Upper Secondary	Form N°	US 01 U
Cycle number	7 Cycles	Date	
Class number	21 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	756 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments	
				/unit	Total			
1.0 TEACHING AND PEDAGOGICAL SUPPORT								
1.1	Ordinary class room	36	5	58.48	292.40		8.60x6.80	1.62
1.2	Specialized class room	36	2	65.28	130.56		9.60x6.80	With cupboards
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory	36	3	65.28	195.84		9.60x6.80	
1.5	Physics Laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		4	35.00	140.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		0	25.00	0.00			
1.10	Arts and design room	36	1	68.80	68.80			
1.11	Music room	36		68.80	0.00			With arts and design
1.12	Computer room	18	2	58.48	116.96			18 computers
1.13	Library. Reading room	189	1	264.60	264.60			1.4 M2/seat
1.14	Book storage		1	25.00	25.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	378	1	189.00	189.00			0.5 M2 per student (total)
1.17	Sport hall	72	1	576.00	576.00			8.0 M2 per student
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	120.00	120.00			
1.23	Circulation areas and stair cases				617.08		21 to 25% of room net area	
	Sub total				3,300.04	3,729.05	Gross area = net area +12 to 14%	
	M2 / student				4.37	4.93		

2.0 ADMINISTRATION							
2.1	Director		1	25.00	25.00		
2.2	Deputy director		2	16.00	32.00		
2.3	Accountant		1	16.00	16.00		
2.4	Secretary / reception desk		1	16.00	16.00		
2.5	Teachers' room	2.5	1	99.25	99.25		40 teachers
2.6	Community organization room		1	16.00	16.00		
2.7	Professional orientation		1	16.00	16.00		
2.8	Storage equipment / consumables		1	10.00	10.00		
2.9	Archives		1	8.00	8.00		
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles
2.11	Circulation areas / hall, reception				58.48		21 to 25% of room net area
	Sub total				312.73	353.38	Gross area = net area +12 to 14%
	M2 / student				0.41	0.47	

3.0 COMMON SERVICES							
3.1	Medical room		1	16.00	16.00		
3.2	Maintenance workshop		1	18.00	18.00		
3.3	Canteen	252	1	276.92	276.92		1.1 M2/ student
3.4	Kitchen		1	40.00	40.00		
3.5	Food storage		2	8.00	16.00		
3.6	Tools and equipment storage		1	10.00	10.00		
3.7	Teachers and staff toilets		4	8.00	32.00		4 cubicles (x 1 WC block)
3.8	Students' toilet block	25.2	2	44.10	88.20		13 cubicles (x 2 WC blocks)
3.9	Guard's room		1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	756	1	453.60	453.60		0.6 M2/student
3.11	Central heating room		1	35.00	35.00		
3.12	Coal store (optional)		1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)		0	40.00	0.00		
3.14	Circulation areas / hall				114.34		21 to 25% of room net area
	Sub total				632.94	715.22	Gross area = net area +12 to 14%
	M2 / student				0.84	0.95	

GRAND TOTAL

Total area	4,245.71	4,797.65
M2 / student	5.62	6.35

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

UPPER SECONDARY STANDARD SCHOOL - URBAN AREAS

Teaching level	Upper Secondary	Form N°	US 02 U
Cycle number	8 Cycles	Date	
Class number	24 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optional)		
Total capacity	864 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	6	58.48	350.88		8.60x6.80 1.62
1.2	Specialized class room	36	2	65.28	130.56		9.60x6.80 With cupboards
1.3	Storage (specialized rooms)		1	25.00	25.00		
1.4	Language laboratory	36	3	65.28	195.84		9.60x6.80
1.5	Physics Laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches
1.6	Preparation room (two labs)		4	35.00	140.00		between labs. 1 bench with sink
1.7	Chemistry laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches
1.8	Biology laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches
1.9	Preparation room (one lab)		1	25.00	25.00		
1.10	Arts and design room	36	1	68.80	68.80		
1.11	Music room	36		68.80	0.00		With arts and design
1.12	Computer room	18	0	58.48	0.00		18 computers
1.13	Library. Reading room	216	1	302.40	302.40		1.4 M2/seat
1.14	Book storage		1	25.00	25.00		
1.15	Librarian office	1	1	16.00	16.00		
1.16	Multipurpose hall	432	1	216.00	216.00		0.5 M2 per student (total)
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student
1.18	Shower blocks four cubicles each		2	16.00	32.00		
1.19	Dressing room		2	20.00	40.00		
1.20	Sport teachers' office		1	18.00	18.00		
1.21	Sport equipment storage		1	20.00	20.00		
1.22	Entrance hall		1	120.00	120.00		
1.23	Circulation areas and stair cases				624.28		21 to 25% of room net area
	Sub total				3,338.56	3,772.58	Gross area = net area +12 to 14%
	M2 / student				3.86	4.37	

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00		
2.2	Deputy director		2	16.00	32.00		
2.3	Accountant		1	16.00	16.00		
2.4	Secretary / reception desk		1	16.00	16.00		
2.5	Teachers' room	2.5	1	115.75	115.75		46 teachers
2.6	Community organization room		1	16.00	16.00		
2.7	Professional orientation		1	16.00	16.00		
2.8	Storage equipment / consumables		1	10.00	10.00		
2.9	Archives		1	8.00	8.00		
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles
2.11	Circulation areas / hall, reception				62.27		21 to 25% of room net area
	Sub total				333.02	376.32	Gross area = net area +12 to 14%
	M2 / student				0.39	0.44	

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00		
3.2	Maintenance workshop		1	18.00	18.00		
3.3	Canteen	288	1	316.48	316.48		1.1 M2/ student
3.4	Kitchen		1	40.00	40.00		
3.5	Food storage		2	10.00	20.00		
3.6	Tools and equipment storage		1	12.00	12.00		
3.7	Teachers and staff toilets		4	8.00	32.00		4 cubicles (x 1 WC block)
3.8	Students' toilet block	28.8	2	50.40	100.80		14 cubicles (x 2 WC blocks)
3.9	Guard's room		1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	864	1	518.40	518.40		0.6 M2/student
3.11	Central heating room		1	35.00	35.00		
3.12	Coal store (optional)		1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)		0	40.00	0.00		
3.14	Circulation areas / hall				127.72		21 to 25% of room net area
	Sub total				711.12	803.56	Gross area = net area +12 to 14%
	M2 / student				0.82	0.93	

GRAND TOTAL

Total area	4,382.70	4,952.45
M2 / student	5.07	5.73

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

UPPER SECONDARY STANDARD SCHOOL - URBAN AREAS

Teaching level	Upper Secondary	Form N°	US 03 U
Cycle number	9 Cycles	Date	
Class number	27 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optimal)		
Total capacity	972 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	7	58.48	409.36		8.60x6.80 1.62
1.2	Specialized class room	36	2	65.28	130.56		9.60x6.80 With cupboards
1.3	Storage (specialized rooms)		1	25.00	25.00		
1.4	Language laboratory	36	4	65.28	261.12		9.60x6.80
1.5	Physics Laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches
1.6	Preparation room (two labs)		5	35.00	175.00		between labs. 1 bench with sink
1.7	Chemistry laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches
1.8	Biology laboratory	36 and 18	2	68.80	137.60		1 demonstr. bench + 2 side benches
1.9	Preparation room (one lab)		0	25.00	0.00		
1.10	Arts and design room	36	1	68.80	68.80		
1.11	Music room	36		68.80	0.00		With arts and design
1.12	Computer room	18	4	58.48	233.92		18 computers
1.13	Library. Reading room	243	1	340.20	340.20		1.4 M2/seat
1.14	Book storage		1	35.00	35.00		
1.15	Librarian office	1	1	16.00	16.00		
1.16	Multipurpose hall	486	1	243.00	243.00		0.5 M2 per student (total)
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student
1.18	Shower blocks four cubicles each		2	16.00	32.00		
1.19	Dressing room		2	20.00	40.00		
1.20	Sport teachers' office		1	18.00	18.00		
1.21	Sport equipment storage		1	20.00	20.00		
1.22	Entrance hall		1	140.00	140.00		
1.23	Circulation areas and stair cases				746.48		21 to 25% of room net area
	Sub total				3,992.04	4,511.00	Gross area = net area +12 to 14%
	M2 / student				4.11	4.64	

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00		
2.2	Deputy director		2	16.00	32.00		
2.3	Accountant		1	16.00	16.00		
2.4	Secretary / reception desk		1	16.00	16.00		
2.5	Teachers' room	2.5	2	65.88	131.75		53 teachers
2.6	Community organization room		1	16.00	16.00		
2.7	Professional orientation		1	16.00	16.00		
2.8	Storage equipment / consumables		1	10.00	10.00		
2.9	Archives		1	8.00	8.00		
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles
2.11	Circulation areas / hall, reception				65.95		21 to 25% of room net area
	Sub total				352.70	398.55	Gross area = net area +12 to 14%
	M2 / student				0.36	0.41	

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00		
3.2	Maintenance workshop		1	18.00	18.00		
3.3	Canteen	324	1	356.04	356.04		1.1 M2/ student
3.4	Kitchen		1	50.00	50.00		
3.5	Food storage		2	10.00	20.00		
3.6	Tools and equipment storage		1	12.00	12.00		
3.7	Teachers and staff toilets		4	8.00	32.00		4 cubicles (x 1 WC block)
3.8	Students' toilet block	32.4	2	56.70	113.40		16 cubicles (x 2 WC blocks)
3.9	Guard's room		1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	972	1	583.20	583.20		0.6 M2/student
3.11	Central heating room		1	35.00	35.00		
3.12	Coal store (optional)		1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)		0	40.00	0.00		
3.14	Circulation areas / hall				142.01		21 to 25% of room net area
	Sub total				790.21	892.94	Gross area = net area +12 to 14%
	M2 / student				0.81	0.92	

GRAND TOTAL

Total area	5,134.95	5,802.50
M2 / student	5.28	5.97

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

UPPER SECONDARY STANDARD SCHOOL - URBAN AREAS

Teaching level	Upper Secondary	Form N°	US 04 U
Cycle number	10 Cycles	Date	
Class number	30 Classes	Filled by	ID
Student seats / class	36 Places (30 Places optional)		
Total capacity	1080 Students		

Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		
1.0 TEACHING AND PEDAGOGICAL SUPPORT							
1.1	Ordinary class room	36	9	58.48	526.32		8.60x6.80 1.62
1.2	Specialized class room	36	3	65.28	195.84		9.60x6.80 With cupboards
1.3	Storage (specialized rooms)		1	25.00	25.00		
1.4	Language laboratory	36	4	65.28	261.12		9.60x6.80
1.5	Physics Laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches
1.6	Preparation room (two labs)		5	35.00	175.00		between labs. 1 bench with sink
1.7	Chemistry laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches
1.8	Biology laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches
1.9	Preparation room (one lab)		1	25.00	25.00		
1.10	Arts and design room	36	1	68.80	68.80		
1.11	Music room	36		68.80	0.00		With arts and design
1.12	Computer room	18	5	58.48	292.40		18 computers
1.13	Library. Reading room	270	1	378.00	378.00		1.4 M2/seat
1.14	Book storage		1	35.00	35.00		
1.15	Librarian office	1	1	16.00	16.00		
1.16	Multipurpose hall	540	3	270.00	810.00		0.5 M2 per student (total)
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student
1.18	Shower blocks four cubicles each		2	16.00	32.00		
1.19	Dressing room		2	20.00	40.00		
1.20	Sport teachers' office		1	18.00	18.00		
1.21	Sport equipment storage		1	20.00	20.00		
1.22	Entrance hall		1	140.00	140.00		
1.23	Circulation areas and stair cases				978.35		21 to 25% of room net area
	Sub total				5,232.03	5,912.19	Gross area = net area +12 to 14%
	M2 / student				4.84	5.47	

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00		
2.2	Deputy director		2	16.00	32.00		
2.3	Accountant		1	16.00	16.00		
2.4	Secretary / reception desk		1	16.00	16.00		
2.5	Teachers' room	2.5	2	68.69	137.38		55 teachers
2.6	Community organization room		1	16.00	16.00		
2.7	Professional orientation		1	16.00	16.00		
2.8	Storage equipment / consumables		1	10.00	10.00		
2.9	Archives		1	8.00	8.00		
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles
2.11	Circulation areas / hall, reception				67.25		21 to 25% of room net area
	Sub total				359.62	406.37	Gross area = net area +12 to 14%
	M2 / student				0.33	0.38	

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00		
3.2	Maintenance workshop		1	18.00	18.00		
3.3	Canteen	360	1	395.60	395.60		1.1 M2/ student
3.4	Kitchen		1	50.00	50.00		
3.5	Food storage		2	10.00	20.00		
3.6	Tools and equipment storage		1	12.00	12.00		
3.7	Teachers and staff toilets		4	8.00	32.00		4 cubicles (x 1 WC block)
3.8	Students' toilet block	36	4	15.75	63.00		9 cubicles (x 4 WC blocks)
3.9	Guard's room		1	10.00	10.00		next to the main entrance
3.10	External covered recreation spaces	1080	1	648.00	648.00		0.6 M2/student
3.11	Central heating room		1	35.00	35.00		
3.12	Coal store (optional)		1	30.00	30.00		Could be replaced by a fuel tank
3.13	Guard's house (optional)		0	40.00	0.00		
3.14	Circulation areas / hall				139.52		21 to 25% of room net area
	Sub total				852.52	963.35	Gross area = net area +12 to 14%
	M2 / student				0.79	0.89	

GRAND TOTAL

Total area	6,444.17	7,281.91
M2 / student	5.97	6.74

SCHOOL ACCOMMODATION SCHEDULE AND SURFACE AREAS

UPPER SECONDARY STANDARD SCHOOL - URBAN AREAS

Teaching level Cycle number Class number Student seats / class Total capacity	Upper Secondary 11 Cycles 33 Classes 36 Places (30 Places optimal) 1188 Students	Form N° US 05 U Date Filled by ID
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Ref.	Rooms	Capacity	Quantity	Net area		Gross area	Comments
				/unit	Total		

1.0 TEACHING AND PEDAGOGICAL SUPPORT

1.1	Ordinary class room	36	9	58.48	526.32		8.60x6.80	1.62
1.2	Specialized class room	36	4	65.28	261.12		9.60x6.80	With cupboards
1.3	Storage (specialized rooms)		1	25.00	25.00			
1.4	Language laboratory	36	5	65.28	326.40		9.60x6.80	
1.5	Physics Laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches	
1.6	Preparation room (two labs)		4	35.00	140.00		between labs. 1 bench with sink	
1.7	Chemistry laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches	
1.8	Biology laboratory	36 and 18	3	68.80	206.40		1 demonstr. bench + 2 side benches	
1.9	Preparation room (one lab)		1	25.00	25.00			
1.10	Arts and design room	36	3	68.80	206.40			
1.11	Music room	36		68.80	0.00		With arts and design	
1.12	Computer room	18	5	58.48	292.40		18 computers	
1.13	Library. Reading room	297	1	415.80	415.80		1.4 M2/seat	
1.14	Book storage		1	45.00	45.00			
1.15	Librarian office	1	1	16.00	16.00			
1.16	Multipurpose hall	594	3	297.00	891.00		0.5 M2 per student (total)	
1.17	Sport hall	72	1	576.00	576.00		8.0 M2 per student	
1.18	Shower blocks four cubicles each		2	16.00	32.00			
1.19	Dressing room		2	20.00	40.00			
1.20	Sport teachers' office		1	18.00	18.00			
1.21	Sport equipment storage		1	20.00	20.00			
1.22	Entrance hall		1	150.00	150.00			
1.23	Circulation areas and stair cases				1,063.90		21 to 25% of room net area	
	Sub total				5,689.54	6,429.18	Gross area = net area +12 to 14%	
	M2 / student				4.79	5.41		

2.0 ADMINISTRATION

2.1	Director		1	25.00	25.00			
2.2	Deputy director		2	16.00	32.00			
2.3	Accountant		1	16.00	16.00			
2.4	Secretary / reception desk		1	16.00	16.00			
2.5	Teachers' room	2.5	2	73.38	146.75		59 teachers	
2.6	Community organization room		1	16.00	16.00			
2.7	Professional orientation		1	16.00	16.00			
2.8	Storage equipment / consumables		1	10.00	10.00			
2.9	Archives		1	8.00	8.00			
2.10	Administration staff toilets		2	8.00	16.00		2 cubicles	
2.11	Circulation areas / hall, reception				69.40		21 to 25% of room net area	
	Sub total				371.15	419.40	Gross area = net area +12 to 14%	
	M2 / student				0.31	0.35		

3.0 COMMON SERVICES

3.1	Medical room		1	16.00	16.00			
3.2	Maintenance workshop		1	18.00	18.00			
3.3	Canteen	396	1	435.16	435.16		1.1 M2/ student	
3.4	Kitchen		1	60.00	60.00			
3.5	Food storage		2	12.00	24.00			
3.6	Tools and equipment storage		1	15.00	15.00			
3.7	Teachers and staff toilets		4	8.00	32.00		4 cubicles (x 1 WC block)	
3.8	Students' toilet block	39.6	4	17.50	70.00		10 cubicles (x 4 WC blocks)	
3.9	Guard's room		1	10.00	10.00		next to the main entrance	
3.10	External covered recreation spaces	1188	1	712.80	712.80		0.6 M2/student	
3.11	Central heating room		1	35.00	35.00			
3.12	Coal store (optional)		1	30.00	30.00		Could be replaced by a fuel tank	
3.13	Guard's house (optional)		0	40.00	0.00			
3.14	Circulation areas / hall				154.14		21 to 25% of room net area	
	Sub total				931.94	1,053.09	Gross area = net area +12 to 14%	
	M2 / student				0.78	0.89		

GRAND TOTAL

Total area		6,992.63	7,901.67	
M2 / student		5.89	6.65	





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MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

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