

# **school:FREE**


Recommendations for the Design of Schoolgrounds


Imprint:

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## **Recommendations for the Design of Schoolgrounds**

Study on behalf of:

 - Austrian Institute for School and Sport Facilities

 **BIG** Bundes  
Immobilien  
Gesellschaft – Federal Real Estate Company

**bm:bwk** - Austrian Federal Ministry for Education, Science and Culture (bm:bwk)

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conducted by:



ILA - Institute for Landscape Architecture  
Department for Space, Landscape and Infrastructure  
University of Natural Resources and Applied Life Sciences Vienna  
1190 Wien, Peter Jordan – Straße 82  
tel ++43/1/47654/7220  
fax ++43/1/47654/7229  
[office.ila@boku.ac.at](mailto:office.ila@boku.ac.at)  
[www.boku.ac.at/ifl/la/](http://www.boku.ac.at/ifl/la/)

Editors: DI Dr. Michael Mellauner, DI Liette Clees

Authors: DI Liette Clees

DI Alice Größinger

DI Dr. Michael Mellauner

DI Paula Polak

Paul Toporek

Dr. Johannes Tschapka

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## 0. FOREWORD

Schoolgrounds have become a core focus of school interest in the last 10 years. The requirements have become more diverse and need new concepts and methods of designing and implementation. The Austrian Federal Ministry for Education, Science and Culture (bm:bwk) thus started the initiative “Schulfreiräume – Freiraum Schule” (*Schoolgrounds - Schools’ Open Space*) in co-operation with the Austrian Institute for School and Sport Facilities (ÖISS) in 2002.<sup>1</sup> Objective of this project is the acquisition and evaluation of good national and international examples. For an Austrian-wide exchange of information and experience amongst experts, teachers and representatives of school authorities a conference under the same title was held in Pöchlarn in the Austrian Province of Lower Austria in co-operation with the initiative “Natur im Garten” (*Nature in the Garden*). Austria thus joins a world-wide movement which has shed new light on schoolgrounds, not only on the European continent, but also on the other side of the Atlantic Ocean.



School garden, Karin Schwarz Viechtbauer

Schoolgrounds create a broad understanding for sustainable development as proclaimed at the World Summit against Poverty and for Environmental Protection 2002 in Johannesburg. The UN General Assembly decided on a “Decade of Education for Sustainable Development 2005 – 2014” in its 57<sup>th</sup> session in December 2002.<sup>2</sup> Key themes of this decade include the fight against poverty, consumption patterns, health provision, environmental protection, development co-operation, rural and urban problems and population growth, as well as attitudes and values, intercultural learning, human rights, peace education, coping with conflicts, education on democracy and social solidarity. The aforementioned comprehensive topics lead to the principles of schoolgrounds listed in this study.

In 1995 the Boston Mayor Thomas M. Menino started the initiative ‘Designing Schoolyards & Building Community’ with the words: “The Boston Schoolyard Initiative is dedicated to transforming Boston’s schoolyards into dynamic centers for learning and community life”<sup>3</sup>. He takes up the idea of an increasing amount of mayors who see the school and the schoolyard as one of the image carriers of a municipality or a town. “Running, laughing children and children who are absorbed in learning...who are getting in touch with their neighbourhood and environment are the best indicators for a lived health provision, environmental and social policy<sup>4</sup>.”

Since 1986 Austria has been participating in the OECD/CERI<sup>5</sup> project “Environment and School

<sup>1</sup> Clees, Liette; Lagler, Andrea; Tschapka, Johannes (2003) Starter package “Schulfreiräume – Freiraum Schule”, Federal Ministry for Education, Science and Culture, Vienna

<sup>2</sup> United Nation’s General Assembly, (2002) Resolution 57/ page 254

<sup>3</sup> Menino, Thomas M. (2000), “Designing Schoolyards & Building Community” Boston Schoolyard Initiative, Boston

<sup>4</sup> Smith, Syd (2002) “Learnscapes – A quality approach to implementing your School Environmental Management Plan” Department of Education, Sydney

<sup>5</sup> Organisation for Economic Co-operation and Development

Initiatives". This project investigates into the correlation between school developments and environmental and health education. The Austrian Federal Ministry for Education, Science and Culture (bm:bwk) has been amongst the leaders together with the Australian Government Department of Education, Science and Training in the field of 'Learnsapes' since 1998. In this artificial word combining the words 'landscape' and 'learning' the meaning lies within: schoolgrounds must be created as spaces of studying and learning for young citizens so that they can actively take part in planning, designing and using them and so that they can develop democratic awareness.

The OECD network responded to the challenge schools have to face as places of future-oriented and life-long learning. In co-operation with the OECD "Programme on Educational Building" the experts come to the conclusion that pupils need areas outside the school building where they have the opportunity to directly and sensuously experience their surroundings in order to make a holistic development possible. (Communiqué of the report "Ground for Celebration", Winchester 1997).<sup>6</sup>

Many Austrian teaching principles, ordinances and directives, e.g. policy ordinances of the Austrian Federal Ministry for Education, Science and Culture (bm:bwk) on health education, political education, project teaching and environmental education, ecolabel for schools (awarded by the Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management) directly or indirectly refer to the necessary integration of academic open spaces into teaching.<sup>7</sup>



Workshop Future: Teens\_Open\_Space, Peter Nistelberger

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<sup>6</sup> Fisher, Kenn; Titman, Wendy; Wilson, Jeremy (1997) "Grounds for Celebration – Use of School Grounds for Learning" OECD PEB, Paris

<sup>7</sup> The economies of forestry, environment and water management refer directly or indirectly to the necessary utilisation of open spaces for academic feasibility. Policy ordinance on health education: GZ 27.909/15-V/3/1996, policy ordinance on teaching principle "political education in schools", GZ 33 464/6-19a/1978, re-announced: 33466/103-V/4a/1994, policy ordinance on project teaching: GZ 10.077/5-I/4a/2001, policy ordinance on teaching principle environmental education: GZ 37 888/8-110 (14c)/1985; re-announced: 37 888/61-V/3/1994, directives on environment sign for schools and educational facilities

## 1. INTRODUCTION

Due to a lack of experience regarding successfully implemented projects and negative examples of sustainable usability in the daily routine of schools, insecurity prevails concerning the design of schoolgrounds. Planners and building owners need general recommendations and guidelines. The Institute for Landscape Architecture organised an interdisciplinary team of the ÖISS working group “Schulfreiräume“ (*schoolgrounds*) on behalf of the ÖISS, BIG (*Federal Real Estate Company*) and the bm:bwk (*Austrian Federal Ministry for Education, Science and Culture*) (made up of landscape architects, playground designers, pedagogues and representatives of the ministries) and worked out the present recommendations for the process of designing schoolgrounds.

The recommendations address designers and maintainers of schools and persons in charge of the administration of schools.<sup>6</sup> The study stresses the qualities of schoolgrounds and states approximate values for urban and schoolyard planning, since the basis for creating schoolgrounds of high quality is sufficient open space.

### What are Schoolgrounds ?

The term “schoolgrounds” describes all areas which are used by the pupils or by the staff for lecture or in their free time. The recommendations for designing schoolgrounds refer to the entire school area excluding buildings. The entrances of schools on public property including all external areas made available for school use have to be discussed as core topics and included in the design.



Toni Anderfuhren

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<sup>6</sup> Parallel to this study a manual was worked out on behalf of the Provincial Government of Lower Austria and the bm:bwk directly addressing teachers, headmasters and parents who want to re/design the schoolyard together with the pupils.

## **Current Situation**

Recent developments in our society have led to a reduction of open space for activities for children and adolescents within and around residential areas. Much of their time they spend in school, i.e. in class or in after-school care clubs. Against the background of health problems, lack of social competencies, increasing aggressive behaviour and weaknesses in motor and coordinative skills of our children the quality of schoolgrounds become significantly important.

The planning and designing of schoolgrounds is in most cases deficient. Neither school maintainers, nor planning architects, nor teachers are aware of the importance of schoolgrounds for the pupils' every day school life, for social learning and recreation. Schoolgrounds are most of the time only places used for supply or disposal purposes. The legislator is responsible for regulating matters of sports facilities and car parks. Schoolgrounds, however, must become a place of social learning and teaching.

## **Objective**

The recommended principles complement one another and cannot be substituted. Schoolgrounds have to become more than just the area which holds the sports facilities or the actual yard close to the building where pupils spend their breaks in-between class. Landscape architects and landscape designers must be consulted as expert designers. The recommendations at issue are to be presented to the working group "Schulraum" of the ÖISS and to be discussed. An integration of the recommendations into the directives for school areas of the ÖISS is desired and needs to be examined.

## **Method**

By the reflection on various model projects, by the input of professional experience of the team and by comparative literature research, thematically ordered recommendations are presented. Furthermore a checklist is presented which makes it possible to check the implementation of principles before, during and after the process of participation, planning and designing. Criteria of a successful implementation of principles are defined. Furthermore statements are made on present standards, recommendations and guidelines on the federal and the provincial level concerning the realisation of schoolgrounds; quantitative aspects in Austria and Germany are examined. For this, German municipalities were contacted in order to

question their design background and practical implementation.

### **Strategies**

Due to scarce resources the planning and designing of schoolgrounds are in most cases neglected in the course of a building project. Thus it is proposed to make the granting of financial support, grants, etc. for school building projects dependent on a conception to be presented for the utilisation of schoolgrounds and their integration into every day school life. Projects without any reference to schoolgrounds and their integration into every day school life are not to be supported and should thus be deferred.

Prerequisite and guarantee for a sustainable utilisation and further development of the schoolgrounds is that the school plays an active part and participates. This active role of pupils and staff must be accompanied by experienced experts in a participating process or must at least be executed under professional instruction. Additionally the school must create the prerequisites by appropriate organisational and subject-relevant measures so that the pupils may use the schoolgrounds within the framework of class and after or in-between classes.

## **2. Recommendations for Planning and Designing Principles**

In the following the 14 worked out principles on planning and designing of schoolgrounds will be described, each on one page. Each principle is introduced by a thesis. Then the central recommendations are introduced, accompanied by an example for better understanding. A quote, a picture and a description of the location where the principle was implemented complete the description of the planning and designing principle.

The principles are of the same value. The authors stress once again that during the course of planning and designing schoolgrounds all principles have to be considered. Single principles cannot be substituted by others. Space requirements as a prerequisite have priority. The order of principles following the first one is simply an alphabetical arrangement and does not represent a rating.

The principles are not homogenous, they rather address various aspects and framework conditions. The participants in the planning and designing process have to put the contents into relation with each other and interweave them.

After the principles you will find a checklist which helps the persons in charge concerning administration and planning with the examination of the principles.

### **SPACE REQUIREMENTS**

### **BARRIER FREE**

### **PARTICIPATION**

### **PHYSICAL ACTIVITY**

### **RECREATION**

### **GENDER MAINSTREAMING**

### **COMMUNICATION**

### **PLACE FOR LEARNING**

### **MULTI-USE**

### **MULTI-FUNCTIONALITY**

### **NATURE & ENVIRONMENT**

### **PRESENTATION**

### **SAFETY & SECURITY**

### **CHANGEABILITY**

## SPACE REQUIREMENTS

**Politics and Administration must take care of the availability of sufficiently dimensioned schoolgrounds.**

When choosing a location for a new school project it needs to be investigated if there is sufficient open space available. Many calculations of space per class room are very low in new school building projects (e.g. Viennese School Building Project 2000)<sup>7</sup>. The gross spaces are stated with 90 to 200 m<sup>2</sup> per class. Considering the current average number of pupils in one class (30 and more) this will be 3 to 10 m<sup>2</sup> per student. However, this gross value also includes all space needed for access, waste disposal and parking places for cars and bicycles. When the ordered space of sports facilities<sup>8</sup> is taken out of the calculation, in many cases only a minimum of not or less defined open space remains. And these are most of the time inappropriate for multiple use due to location at the fringe, inappropriate light or small type. In Germany the recommendations for the net outdoor area (not including sports, disposal and parking facilities) target a rare approximate value of 25 m<sup>2</sup> per student, which is hardly ever realised (see page 35).

### Recommendations

- 5m<sup>2</sup> (better 10m<sup>2</sup>) of open space per student (excl. sports facilities, disposal and parking space)
- Sufficiently connected and usable space is to ensure and potentials within the building complexes (terraces, roof gardens) are to be analysed for usability.
- The possibility to include public (parks, etc.) and/or private (sports club facilities, fallows, etc.) open spaces is to be investigated.
- Multi-functional sports facilities usable for a broad range of activities counteract a lack of open space at schools

“Without available open space it is not possible to realise high quality schoolgrounds”



Erich Kästner Realschule Hermeskeil, Germany



Franziskus Gymnasium Eifel, Germany

<sup>7</sup> Bittner, Edthofer, Pichler, Schmölzer, Schönauer (2002): SVN Schule Vernünftig Nutzen. Die Freiräume des Wiener Schulbauprogramms 2000. (*USR Using School Reasonable. The Schoolgrounds of the Viennese School Programm 2000*)

<sup>8</sup> See chapter 4, annex A1. Currently Valid Regulations and Recommendations in Austria

## BARRIER FREE

**Noone is to be disadvantaged due to any disability. The Republic of Austria (Federal State, Federal Provinces, Communities) declares itself to ensure the equal treatment of disabled and not disabled persons in all areas of daily life** (Federal Constitution, Sect. 7, Art. 1, 1997)

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It must be guaranteed that pupils and teachers and all other staff of schools have barrier free access to buildings and schoolgrounds. Since disabilities can be manifold (visual impairment, impairment of motion, of the hearing, etc.) measures have to take into account the different requirements.<sup>9</sup> The significant directives in this respect are defined in the Austrian standards ÖNORM B1600 and B1602.<sup>10</sup>

### Recommendations

- Entries and the main access of schoolgrounds have to be designed without any barriers in order to not exclude persons with disabilities from using the schoolgrounds. Ramps are to be provided. The road width must be sufficient; a width of 150 cm is ideal.
- Multi-functional play equipment is to be prioritised. Nest swings are also suitable for (seriously) disabled children.
- It is to be considered that persons with wheelchairs need more space.
- Basic play equipment such as swings, slides and sand boxes are to be accessible without any barriers.
- Multi-functionality, changeability and multi-use fulfil the requirements of barrier free schoolgrounds. These aspects allow pupils with disabilities to use the schoolgrounds, too. Such schoolgrounds are also easier to adapt if necessary.

“...finally I can bury my nose into lavender”  
(a nine-year old girl in a wheelchair)



Therapy garden Vinzenz von Paul-Park, Michl Mellauner

Recreation and therapy are in the centre of the currently opened small yard-like park in the 6<sup>th</sup> district of Vienna. It was not planned that the visitors with wheelchairs should plant and take care of the plants themselves, but since the areas with plants are designed for wheelchairs it is possible to get as close as possible to the plants and smell them or touch and feel the different leaves. The paths are ramps which can be used by persons in wheelchairs without any help. A special area is reserved for the therapy of persons with walking disabilities.

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<sup>9</sup> see ÖAR - Österreichische Arbeitsgemeinschaft für Rehabilitation (*Austrian Working Group for Rehabilitation*) (editor), Network of Austrian Information Centres for Barrier Free Planning and Building (2000): *Barrierefreies Gestalten. Spielplatz für Alle (Barrier Free Designing. Playground for All)*, technical information brochure 4/ 1. edition

<sup>10</sup> Austrian standard ÖNORM B1600 „Barrierefreies Bauen - Planungsgrundsätze“ (*Barrier Free Building – Designing Principles*), B1602 Barrierefreie Schul- und Ausbildungsstätten und allfällige Begleiteinrichtungen (*Barrier Free Schools and Educational Institutes and Required Additional Facilities*)

## PARTICIPATION

**Schoolgrounds give room for co-operative and social acting and plays an important role in learning democratic rules.**

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Schoolgrounds give room for co-operative acting and help finding ones identity through joint and social thinking and learning. In participatory processes pupils and teachers experience school as a habitat, something where there is room for designing and thus as an area to test one's own effect on others. This implies for the planning e.g. sustainable utilisation and careful treatment of the schoolgrounds which will be the place for development of present and future generations of users.

### Recommendations

- The participation of the users in the designing process must be ensured.
- Before introducing the participatory process the financial framework for participation, planning and realisation, as well as maintenance are to be cleared up.
- An awareness building process is to be introduced for reaching consensus and for defining the rules for further proceedings in joint efforts.
- There must be room for planning and designing the schoolyard. The commissioned landscape designers take over the results of the participatory process (collection, evaluation and hierachy of the users' wishes) and integrate them into an appropriate planning and designing concept.
- The participation is to be conducted by experienced persons with references.
- In the participatory process the users' wishes are to be defined in alignment with the principles, they do not have to come up with a complete design.
- The target is to integrate as many effected persons as possible. The participatory process must be open to all groups.

"Children take their task and responsibility in the participatory process very seriously if they are offered the right pre-conditions. Pupils can participate even after the designing phase in implementing the design and maintaining the schoolyard.

Judith Heissenberger (Pedagogue)



Boarding school Boerhaavegasse, 1030 Vienna, Liette Clees

For setting up a basic concept for the new schoolyard according to the needs of the pupils a participatory process took place under the auspices of experts. Approximately 200 pupils thought about different issues regarding their schoolyard in 12 working groups for two days. Additional 400 pupils were interviewed or handed in a questionnaire. The faculty had an additional workshop in order to come up with ideas for later use of the schoolyard in their lectures.

Objective of the participatory process was the direct confrontation with the schoolyard for analysing the wishes of the users. The results of the participation were the basis for the schoolyard concept.

## PHYSICAL ACTIVITY

**Health experts have been claiming for years that many school starters show strong posture faults due to lack of movement.**

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Schoolgrounds play a very important role in the healthy development of children. Playing around for compensating the lack of physical activity in the classroom means communication, experiencing the skills of the body, experiencing material and social relations. Physical activity promotes self-regulation. Intellectual, motor and psychosocial skills and competencies are learned via physical activity, presumed that there is sufficient time and space. A lack of physical activity may lead to posture faults, headaches, hyperactivity and concentration and learning disorders. Physical activity contributes actively to learn how to deal with dangers and helps children and adolescents becoming secure in their activities.

### Recommendations

#### o Cognitive Development

- Provide the opportunity to experience the relation between cause and effect
- Provide the opportunity of swinging, going down a slide, balancing, rolling, climbing and spinning. This promotes the conception of impetus, balance, gravity and friction

#### o Development of Motor Skills

- Balance, body co-ordination, reaction speed, agility, power and perseverance are important prerequisites for being able to actively avoid accidents, also in every-day life.
- Right to risk – adolescents need extreme stimulation of their senses.

#### o Psychosocial Development

- The search for identity is to be promoted. Human beings can only learn about themselves via their bodies, by experiencing the movement of the body. Confidence, autonomy, initiative and diligence can be promoted by being active and moving.
- There is the possibility to leave traces, decide your own will and design and change your environment.

“Children need a diverse challenging environment in order to test their skills“



the girl in the trees, Erwin Frohmann

A small remnant of nature at the fringe of a school the children love to go to. In the crowns of the trees growing in all directions, girls and boys alike try their climbing skills. Although it is not that high the children still need to be very skilful and need a lot of co-ordination in order to be able to balance across the almost horizontally lying stems of the trees.

## RECREATION

**Schoolgrounds are a place for recreation, relaxing and private retreat.**

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Schoolgrounds are places for recreation of the soul, the mind and the body. Thus it is very important that they have a pleasing flair. Pupils who do not think about school when they are having their break are more receptive and concentrated during class.

### Recommendations

- Small rooms promote quiet zones. Rooms should be divided into quiet zones and zones of activity. The need to “withdraw oneself“ must be taken into account.
- It is to guarantee that children do have the opportunity to observe their surroundings. Introverted pupils are then able to integrate themselves step by step into their environment.
- There need to be wind and weather protected places for larger and smaller groups to sit/lie, according to the size of the school.
- Impairments are to be minimised by appropriate measures (walls or mounds against noise, modelling of the ground, planting, etc.).
- Suitable plants promote the sense of well-being, the recreation and re-activation of the senses – seeing, feeling and smelling. Plants are not only functional, but are also used in an aesthetic sense.
- Calming, energy dispensing elements (water and stones) need to be considered.

“Breaks serve recreation. With 500 pupils it is best guaranteed if all pupils walk around slowly in the yard (roundabout).”

(Excerpt of the school regulations of a Berlin Gymnasium (grammar school). Acc. to F. Wellendorf: Academic Socialisation and Identity. Weinheim/Basel 1973, p.90)



BRG Linzerstrasse 146, 1140 Vienna, Paula Polak

The schoolyard of the BRG has become a place of recreation after the re-designing by the pupils. The open space is characterised by two elements: a small pond with a wooden bridge and a multifunctional pit with natural stones. The pit is used for barbecues, seating, as a meeting point, an open air class room and much more. The biotope is perfect for relaxing and so is the solar-driven brook. Through its calming effect the waters invite you to stay, observe and daydream. The entire schoolyard with its elements of water, large-scale planted areas and natural stone seats is used intensively during the breaks and for teaching by the pupils and the teachers.

## GENDER MAINSTREAMING (Equal Opportunities for All in our Society)

**All planning and measures are to be evaluated on their different effects on women and men, young and old people and persons of different origin and religion, etc.**

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Girls and boys, women and men use public open spaces in different ways. Analyses conducted in parks of Barcelona and Paris<sup>11</sup> showed that the design has a significant impact on the activities of girls and young women<sup>12</sup>. It is to be cleared in the preparing stage of the project which measures are necessary to ensure the satisfaction of the needs of all participants, which must be clarified beforehand. The measures are to be reviewed if and what kind of impact they will have on the users. Schoolgrounds which cannot be adopted by all groups alike are to be avoided.

### Recommendations

- Consulting of gender mainstreaming specialists.
- Integration of all user groups into the planning and participatory process; the process must include all groups and must be structured that way that all groups can participate in it.
- Integration of all groups into later stages of realisation and maintenance measures.
- Provision of open and more intimate sections (for working in smaller groups).
- Provision of use-neutral and permeable spaces by protecting a differentiated organisation of the total space. Provision of attractive retreat and observation areas, opening up the view to central spaces, provision of attractive sports opportunities to girls (basketball, volleyball, badminton, etc.).

"The schoolyard is for everybody"



Girls in their self-constructed tent, Hanna Posch

The objective of the re-structuring of the Einsiedler park in the 6<sup>th</sup> district of Vienna in the year 2000 was to improve the preconditions for the girls to be able to adopt it for their needs. The main issues of the re-structuring are to strengthen the girls by making it easier for them to integrate into the city quarter. Provision of accompanying playing facilities, sensitive design of the "spaces in-between", an upgrading of the transition zones by playable borders, enlargement of the playable areas in general and multi-functional possibilities to play, as well as changeability and space for one's own initiative.<sup>13</sup>

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<sup>11</sup> Oertzen S.v. (2002)

<sup>12</sup> e. g. closed ball cages become territorial bulwarks of young male teenagers. This is to be avoided by opening up the construction and partially eliminating the grid. This changes the access and development of the area. The children also have to play (football) much more carefully and intelligently. The area is more open and less pre-defined for other users.

<sup>13</sup> Studer H. (2002)

## COMMUNICATION

**Schoolgrounds are places for young people who spend most of their time during the day in school, to meet, communicate and interact.**

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When people meet space is needed to make all the various types of communication such as verbal/non-verbal, observing/not observing, seeing/not to be seen possible.

They are on the one hand places for interaction within the framework of school and on the other hand they are a communication centre within the community by multi-use.

### Recommendations

- Designing of zones for different types of communication (zones of retreat, playing, meeting, monitoring or taking a walk, open spaces to remain). They make cross-age communication possible.
- There must be provisions for differentiated areas of communication in smaller and larger groups.

“I love to sit in the wooden hut. We always talk when we are there.”

David, 10 years



Volksschule „Feige“ in Herten, D

The schoolyard of a primary school was re-designed by a participatory activity in co-operation with the company ProKids-Herten GmbH in Herten/Germany. The meadow of the school is used by the pupils, the after-school club, the boy scouts and the forester (forest school). The structure and the close-to-nature design provide for many niches and areas for retreat. The fireplace is not only used for barbecues, the small atrium of stones provides enough space for an open-air lecture.

The labyrinth of wooden posts serves the strengthening of the senses and provides for the perfect hiding place to share secrets. The pond and the dry-stone wall are wonderful places to chat, since it is very quiet there.

## PLACE FOR LEARNING

**Schoolgrounds are centres for teaching and learning.  
They reflect the school's nature.**

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The design of a schoolyard comprises a "hidden curriculum". Approved pedagogic methods such as open learning, phases without work or project teaching need to be considered in the design of the schoolyard. The teachers have to go beyond traditional subjects related to nature and physical activity (physical education, biology) and need to use the schoolyard for other subjects, too. International experience shows that even subjects like mathematics and Latin can be taught in open space. With children (up to 12 years) the method of sensual and observatory hands-on learning is to be given priority. For adolescents schoolgrounds are interesting as a place of learning and lecture only if as many subjects as possible are taught in open space.

### Recommendations

Schoolgrounds are to be integrated into every-day school-life along the lines of research and social learning.

- Provision of places to observe fauna and flora and for scientific phenomenons.
- Experimental fields for sensual experience of material and physical or geo-scientific experiments and/or gardening.
- Individual places for quiet reading or concentrated writing and for open-air lectures for the whole class are necessary.
- Workshops and studios, stages for music, handicraft and art lessons, room for exhibitions and presentations are already to be integrated in the obligatory open space concept.
- Places to sit for sharing thoughts and information in phases without work or for co-operation in project groups need to be considered in the design.

"...it dose not matter if it is a four leafed clover or a six-legged ant. The material for algebra grows and crawls in our school garden. "

primary school teacher / Vienna



Rohrwassergasse 2, 1120 Vienna, Johannes Tschapka

The schoolmaster developed the schoolyard into an integral part of the lessons in co-operation with the teachers. A pavilion provides for enough space for open-air lectures. A labyrinth made of bushes holds niches for small working groups or for children who want to concentrate on a task on their own. The school pond invites them to sit down and read. Willow huts and groups of shrubs give the children the opportunity to play during the breaks or to retreat in small groups. There is a visual separation of time of lectures and time to play.

## MULTI-USE

**Open spaces are scarce, thus schoolgrounds are to be opened up to the public whenever they are not used by the school.**

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A major part of schoolgrounds is financed by the public purse. Thus they are to be made available for the public whenever the school does not use them. In order to ensure this, the legal and financial framework, as well as spatial conditions must be guaranteed. Multi-use schoolgrounds open up playing grounds for children living in the neighbourhood and thus contribute to improve the supply with open space. Through co-financing projects the supply can be expanded and the equipment can be of higher quality. With new constructions the multi-use concept must be considered early enough. The accessibility from the public property street and the supply with public sanitary installations need to be taken into account

### Recommendations

- Multi-use must not impair the use of the schoolyard by the school.
- Multi-use is to be considered already in the designing stage (new construction or renovation).
- Multi-use makes schools to centres of the community.
- Multi-use expands the area of open space within the community.
- Multi-use can also be provided for only a part of the schoolgrounds.
- Multi-use provides children with the opportunity to be physically active after school, on weekends and during school holidays.

“It is cool that we are allowed to use the schoolyard after school and during the holidays.”

(two friends, third form)



VS Auhofstraße 49, Vienna 13<sup>th</sup> district, Eva Doringner

The robust schoolyard was opened to the children for use after school and during the holidays at the end of the 1990ies. The concerns of the school managers and of some parents were dissipated by custody offered and financed by the district. The schoolyard is only opened at certain times, the hours of custody were announced. Sensitive parts as the pond were used exclusively by the school in the beginning. Thanks to the custody the children are integrated into the care of the pond even after school.

## MULTI FUNCTIONALITY

**A schoolyard is a place for studying, is a stage, festival hall, athletic field, is a place for recreation. A table is banquet, work bench, bar, altar, climbing element, bed. A wall is a room structuring element, something to sit on, something to climb on, something to step over. A pool full of water is a retention room, a habitat and laboratory, good for ice skating, good for meditation.**

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Multi-functionality opens up space to play, specialisation prevents openness to different ways of use. Open opportunities to use something and the quality of “not defined” elements leave room for interpretation. Individual sections and the total of it all provoke unknown ideas, provoke different “games”.

Multi functionality has to ensure all the requirements open space has to fulfil: to be place of activity, for studying and learning, for regeneration, celebration and communication. Multi functionality guarantees that the manifold requirements to open space are fulfilled, especially in our times of scarce open space.

### Recommendations

It is not different functions on their own side-by-side or a collection thereof which guarantee multi functionality, but it is the clarifying of basically possible ways of use, the spatial side-by-side and the chronological order which is to be ensured before and in the course of the planning stage:

- A concept for the different ways of using the schoolyard is to be worked out which puts the individual parts and the space total under this motto.
- Openness to use is to be encouraged for the entire open space. Multi-purpose areas are to be striven for.
- Multi functional furniture for the schoolyard must be considered.
- The technical infrastructure of the open space (water, electricity, Internet if applicable, sewage, etc.) must be chosen in such a way that it is possible to fulfil all the different requirements (lectures, festivals, presentations, etc.).
- Organisational matters must be clarified timely enough with the school management. It must be permitted to access schoolgrounds!

“...a coin can have more than two sides...”



Hans-Radl-Schule, 18<sup>th</sup> district of Vienna, Michl Mellauner

The idea behind was that children with physical impairments are able to get into the crown of a deciduous tree. Now girls and boys of the primary and the secondary school can get into the crown of the lime tree even in wheel chairs. Additionally the platform in the tree is an attractive place for a nice chat, for studying without anybody around and a look-out tower above the large lawn of the school. Seeing but without being seen instantly.

## NATURE & ENVIRONMENT

### Schoolgrounds bring pupils very close to nature.

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Green schoolgrounds provide the opportunity to comprehend nature with all senses. The change of the seasons can be experienced, ecological correlations are illustrated, pupils do research for the class on the living object. A schoolgarden designed for ecological variety offers natural habitats for flora and fauna in an area of settlement. Pupils realise very early what sustainability means by the economical use of natural resources (soil, water, energy, ...). Global correlations become clear and transparent.

### Recommendations

- Natural stock is to be considered in the design and to be maintained if possible.
- Earthwork balance must be targeted, zones of removal are to be re-used if possible (reduction of transport energy).
- Rain water is to stay on the property (cisterns, drains, infiltration basins, ponds, planted roofs, etc.). The sealing degree must be as low as possible.
- The possibility of re-using existing building material is to be investigated (reduction of transport energy, material and disposal costs).
- Roofs and facades are to be planted with vegetation (binding of dust and moisture, protection against noise, thermal regulation, secondary habitats).
- Maintenance does not have to be large-scale, it should rather be close to nature. Organic waste (trims of shrubs and grass, kitchen waste, dead wood) are to be composted if possible. Planting is to be chosen according to habitat. Native species have to be prioritised (fodder plants of native animal species, fruits, vegetables for the kitchen and for cooking lessons).

“In the ‘Botanischer Garten’ (botanical garden) right in the centre of Vienna more than 165 species of solitary bees can be found.“

Heinz Wiesbauer



tubes filled with larvae chambers of solitary bees, M. Mellauner

Even in the inhospitable, rough urban environment with high temperatures in summer a number of solitary bees find enough space to live in the city provided that there are enough flowering plants. This solitary bee which is a non-colony forming species can be either tiny (few millimetres) or quite large (four centimetres) and with sufficient knowledge it can quite easily be observed, since offering artificial breeding tubes to this species is actually quite simple.

## PRESENTATION

**Schoolgrounds are presentation and exhibition areas. They represent the image of a school.**

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The appearance of buildings and outdoor areas communicates the attitude, the didactic concept and the openness of a school to the outside world. Schoolgrounds attract people from outside, make them curious and increase the identification of pupils, teachers, educators and custodians.

### Recommendations

- The exhibition area of the school is to be integrated into the overall concept of the design.
- Pedagogic contents are to be reflected by the schoolgrounds.
- The presentation opportunities of the school to the outside world are to be examined.
- Entrance areas are to be designed as meeting points and waiting rooms.
- There must be sufficient seating accommodations for pupils or waiting persons.
- Garden or yard-like schoolgrounds are to be designed in such a way that festivals, exhibitions, performances and similar events are ensured for the school and the community, without impairing every-day academic life at school.
- Accompanying measures for traffic calming and clearly arranged entrance areas are to be taken.
- Clear borders to roads and passages are to be developed.

“Our bench is the best one. Everybody knows it. It is famous.”

Manuela, 13 years



Mittelschule 1150 Vienna, Selzergasse, Kids Company

The pupils thought the seating accommodations in their neighbourhood inconvenient and inappropriate. They decided to develop their own seating sculpture. The girls and boys developed this object which has many facets and can be used by several persons at the same time. The different niches provide space for smaller and larger groups.

The “seating sculpture Selzergasse” was painted in bright colours by the children of the first form and since then it stands there to be used by anybody who is ready to sit down or tired of standing. It has become a gathering place and a characteristic object of this part of the district.

## SAFETY AND SECURITY

### Children have the right to risk

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Children are confronted with a world of too many rules and regulations. The places allocated to them in the residential areas bear no risk whatsoever, they are made “dead” safe by the responsible persons. The innate basic need to be in motion and take risks is negated in most cases. To avoid danger due to “safety reasons” leads to a lack of the experience of risk. As a consequence children and adolescents are looking for these dangers and risks in unprotected areas. Schoolgrounds where children and teenagers are taken care of most of the time open up new opportunities to experience challenges and risks.

The Purpose of “dead” safe playgrounds is continuously discussed. Children have an emotional basic need for physical activity. Rotating and accelerating sensations are experienced as being fun. The older they get the stronger is the need for extreme sensation of their senses, for exciting and sensational experiences. Playground equipment causing a neuro-physiological stimulation such as ropeway, carrousel and swing are especially popular. Climbing forests or balancing poles, equipment that trains your sense of balance are heavily in demand.

### Recommendations

- In general the Austrian standard ÖNORM EN 1176 (European Standard for Playground Equipment) applies. Safety standards are seen as a challenge for individual solutions, they do not prevent them.
- Applying the standard does not mean that no accidents will occur whatsoever, but the severance of the injuries is minimised.
- The readiness to take risks when children are getting older must be counteracted by providing challenging rotating, accelerating and balancing equipment.
- Managers have to have an inspection plan according to the Austrian standard ÖNORM EN 1176-7 and have to adhere to it.
- The inspection and the servicing is to be conducted by an authorised person.

“The benefit of controlled risk for the development of our children’s skills is clearly prioritised in the standard [ÖNORM EN 1176] against few unavoidable injuries which may also include broken extremities.”

Rußold 2003, Head of Business Section TÜV Austria.



Toni Anderfuhren

## CHANGEABILITY

**Schoolgrounds must comprise areas suitable for change and new interpretation by future generations of pupils and teachers. The planned elements should basically leave room for further development.**

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This is not about multi-functionality in the narrowest sense of the word, but this is about future generations still finding opportunities to live their own ideas and interpretation of schoolgrounds and thus giving them their own distinctive characteristic of “their time” by changing and developing these areas. Future generations are not to be confronted with the results of planning and designing of past activities and thus making them to pure consumers of the schoolgrounds, but opportunities are to be provided that they can get active themselves and can change and do something.

### Recommendations

- Future generations are to be considered in the design.
- Not all spaces and areas are to be pre-defined.
- The planned elements are to be designed for change as a rule.
- If there is a lack of open space, areas are to be provided which imply reconstruction and changes (the schoolground as “construction site”, “construction playground”, experimental field).
- Areas are to be provided which can easily be changed by using temporary constructions like a stage, stands. Furniture is to be mobile in order to be able to adjust it to changed requirements.

“Nothing stays the same.”



Vegetable and flower garden, Michi Mellauner

A vegetable and flower garden shows very clear what is meant by changeability. Each year the pupils can decide anew which vegetables, which flowers are sown/planted. The use of the garden the year before does not impair the use and decisions of the years to come. This principle of free decision is an important basis for schoolgrounds. Children who leave school do not determine by their gardening what plants future generations of pupils have to cultivate in the vegetable and flower garden.

### 3. CHECKLIST

The following list helps municipalities, constructors and designers with checking how a project fulfils the 14 principles in planning and designing schoolgrounds. What needs to be mentioned is the fact that the principles are to be checked in the different stages of the project. The four stages are preparation, planning, realisation and continuous use. It makes sense that considerations/measures are to be reviewed until the stage of use. Even if all stages work harmoniously together and all objectives have been implemented everybody must commit him/herself to use the schoolgrounds for learning and passing ones freetime there every day anew; this is a prerequisite. In this respect the schools, the managers and the persons in administration and politics have to take over a very important role. Internally the pre-conditions must be developed in order to make open-air teaching, physical activity and recreation after school and at the weekend possible. Furthermore we would like to stress once again that the review of all principles is necessary. Principles are not to be substituted.

Including/commissioning experts of landscape architecture and planning at a sufficiently early stage is very important. Many problems with schoolgrounds occur because the outdoor areas are only a by-product of the designing and planning of a school. Very rarely experts of the above mentioned profession are commissioned to work on this complex task. The financing is to be ensured at a very early stage. Many important resource and vegetation protecting measures for the outdoor areas are to be taken before planning and realisation of the design.

	Preparation	Planning	Realisation	Use	Personal Remarks
<b>SPACE REQUIREMENTS</b>	<ul style="list-style-type: none"> <li>• Minimum 5 (better 10) m<sup>2</sup> per student</li> <li>• Purchase of sufficiently large property</li> <li>• Purchasing, renting, leasing or arranging possibility of joint use of additional property</li> </ul>	<ul style="list-style-type: none"> <li>• Include building-related potentials (terraces, roofs, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of alternative locations during construction</li> </ul>	<ul style="list-style-type: none"> <li>• Integration of public (parks) and private (sports clubs) open space in the vicinity</li> </ul>	
<b>BARRIER FREE</b>	<ul style="list-style-type: none"> <li>• Getting sensitive by recognising existing barriers for persons (with different impairments) at this school</li> </ul>	<ul style="list-style-type: none"> <li>• Taking into account all relevant standards</li> <li>• Check if all ramps and clear widths of paths and passages are complying</li> <li>• Central equipment (play and sports, too) is to be reached</li> </ul>	<ul style="list-style-type: none"> <li>• Check accessibility and details of design</li> </ul>	<ul style="list-style-type: none"> <li>• Ensuring accessibility</li> <li>• Ensuring necessary measures of maintenance</li> </ul>	

		without barriers			
<b>PARTICIPATION</b>	<ul style="list-style-type: none"> <li>Ensuring budget for financing the participatory process of the school.</li> <li>Decisions of SGA<sup>14</sup> to integrate all groups</li> <li>Planning workshops</li> <li>Ensuring room for design and opportunities of realisation and financing</li> </ul>	<ul style="list-style-type: none"> <li>Integration of the wants and wishes of the users by the planners</li> <li>Presentation of the integrated wishes, feedback</li> </ul>	<ul style="list-style-type: none"> <li>Integration of the users into clear measures</li> <li>Co-ordination with executing companies or municipality's construction facilities</li> </ul>	<ul style="list-style-type: none"> <li>Integration of the school into maintenance measures</li> <li>Integration into further adaptations of the schoolgrounds</li> </ul>	
	<b>Preparation</b>	<b>Planning</b>	<b>Execution</b>	<b>Use</b>	Personal Remarks
<b>PHYSICAL ACTIVITY</b>	<ul style="list-style-type: none"> <li>Internal 'stock-taking' of the current situation concerning physical activities.</li> <li>Investigation of current potential at the school property/in the vicinity</li> </ul>	<ul style="list-style-type: none"> <li>Integration of the appropriate requirements and the users' wishes and wants</li> </ul>	<ul style="list-style-type: none"> <li>Checking</li> </ul>	<ul style="list-style-type: none"> <li>Checking the possibilities and probable administrative / internal obstacles: is it "permitted" to use a room?</li> </ul>	
<b>RECREATION</b>	<ul style="list-style-type: none"> <li>Listing of existing recreational areas on the schoolgrounds</li> </ul>	<ul style="list-style-type: none"> <li>Consider existing quiet zones</li> <li>Offering various quiet zones to various groups</li> <li>Integration of the users' wishes and wants</li> <li>Provision of wind and weather protected areas</li> <li>Strengthening active recreation (physical activity)</li> </ul>	<ul style="list-style-type: none"> <li>Checking</li> </ul>	<ul style="list-style-type: none"> <li>Allow it</li> <li>Integration of the schoolgrounds into every-day life of the pupils</li> <li>Fewer very short breaks and more longer breaks for making going out more attractive</li> </ul>	
<b>GENDER MAINSTREAMING</b>	<ul style="list-style-type: none"> <li>Listing of existing playing habits and territories of girls and boys of different age groups</li> <li>Equal opportunities: integration of all into the participatory process</li> <li>All groups are to be addressed</li> </ul>	<ul style="list-style-type: none"> <li>Consider the results of the participatory process in the planning stage</li> <li>Provision of areas for different user groups</li> </ul>	<ul style="list-style-type: none"> <li>Checking what kind of impact measures have on different user groups</li> </ul>	<ul style="list-style-type: none"> <li>What changes are needed in order to break up the problems within the group and find a solution</li> </ul>	
<b>COMMUNICATION</b>	<ul style="list-style-type: none"> <li>Listing of existing communication areas in the schoolgrounds</li> </ul>	<ul style="list-style-type: none"> <li>Provision of areas to retreat, play, meet, observe and stroll around for smaller and for larger groups</li> </ul>		<ul style="list-style-type: none"> <li>Allow it</li> </ul>	
<b>PLACE FOR LEARNING</b>	<ul style="list-style-type: none"> <li>Developing of a concept for integrating the schoolyard into teaching.</li> <li>Permission of the SGA to use the schoolgrounds as a place for learning as a precondition for financial support</li> </ul>	<ul style="list-style-type: none"> <li>Integration of requirements</li> <li>Combination with other principles</li> </ul>	<ul style="list-style-type: none"> <li>integration of the progress in construction into teaching if possible</li> </ul>	<ul style="list-style-type: none"> <li>Blocked times of teaching</li> <li>Use it and report on it</li> </ul>	

<sup>14</sup> Schulgemeinschaftsausschuss / Schulforum - a committee of the entire school community (pupils, teachers, parents)

	<ul style="list-style-type: none"> <li>• Intensive integration of all teachers</li> </ul>				
<b>MULTI-USE</b>	<ul style="list-style-type: none"> <li>• Investigate possible potentials</li> <li>• Investigate existing accessibility and equipment</li> <li>• Shaping of opinion</li> <li>• Clarify organisation and financing aspects</li> </ul>	<p>If multi-use is possible:</p> <ul style="list-style-type: none"> <li>• ensure ideal accessibility</li> <li>• provide sanitary facilities if possible</li> <li>• Analyse materials for potential intense use</li> </ul>		<ul style="list-style-type: none"> <li>• Secure additional maintenance efforts and expenses</li> </ul>	

	<b>Preparation</b>	<b>Planning</b>	<b>Execution</b>	<b>Use</b>	Personal Remarks
<b>MULTI-FUNCTIONALITY</b>	<ul style="list-style-type: none"> <li>Clarify what kind of activities are taking place on the schoolgrounds during the academic year and what kind of areas are needed</li> </ul>	<ul style="list-style-type: none"> <li>Developing of a spatial concept</li> <li>Promotion of open use</li> <li>Multi-functional furniture</li> </ul>			
<b>NATURE &amp; ENVIRONMENT</b>	<ul style="list-style-type: none"> <li>Listing of existing water cycles;</li> <li>Listing and protection of vegetation stock</li> <li>Listing of selected animal groups (e.g. birds, amphibians, insects), also listing of birds using the buildings (e. g. colony of swifts)</li> <li>Investigating existing and re-usable material/substrata</li> <li>In general: use recyclable construction materials</li> <li>Integration of the users</li> </ul>	<ul style="list-style-type: none"> <li>Provision of secondary habitats, include breeding places for cave breeders (birds, bats, etc.) into the construction</li> <li>Natural planting in the right places</li> <li>Developing a care-taking concept</li> <li>Appropriate climbing support for plants on facades</li> <li>Roof water collection</li> <li>Building cisterns for non-potable water (toilets, watering)</li> <li>Biotop for evaporation purposes</li> <li>Rooftop planting as water reservoir</li> <li>permeable surfaces</li> </ul>	<ul style="list-style-type: none"> <li>Avoid re/construction measures during breeding and spawning time</li> <li>Professional tree trimming</li> <li>Protection of roots, crowns and stems before construction work starts</li> <li>Realise earth work balance</li> <li>Recycling</li> <li>Water management</li> <li>Noise, dust</li> </ul>	<ul style="list-style-type: none"> <li>Observe acceptance of breeding places</li> <li>Documentation of further development by the school</li> <li>Measuring of measures (precipitation, evaporation, infiltration, amount of non-potable water, etc.) during class</li> <li>no use of pesticides, fungicides and other chemicals</li> </ul>	
<b>PRESENTATION</b>	<ul style="list-style-type: none"> <li>How are contents and objectives of the school presented outside the building?</li> <li>Definition of these contents by the school</li> </ul>	<ul style="list-style-type: none"> <li>Communication of the contents and objectives of the school in the entrance areas/ forecourt and closed schoolgrounds</li> <li>Provision of sufficiently large connected areas for presentation</li> </ul>		<ul style="list-style-type: none"> <li>Show internally and externally</li> </ul>	
<b>SAFETY &amp; SECURITY</b>	<ul style="list-style-type: none"> <li>Awareness raising at school: standards do not prevent anything, standards give the opportunity to find individual solutions!</li> </ul>	<ul style="list-style-type: none"> <li>Creative consideration of all standards</li> </ul>	<ul style="list-style-type: none"> <li>Creative implementation of standards</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspections and maintenance work conducted by authorised staff</li> </ul>	
<b>CHANGEABILITY</b>	<ul style="list-style-type: none"> <li>Consider future generations</li> </ul>	<ul style="list-style-type: none"> <li>Ensure undefined areas</li> <li>Consider changeable furniture</li> <li>Schoolyard as construction site and experimental field</li> <li>Permit temporary activities</li> </ul>		<ul style="list-style-type: none"> <li>Permit changes and adaptations on the school side and on the administration side</li> </ul>	

## 4. ANNEX

### A. Currently Valid Regulations and Recommendations in Austria

The sector of compulsory education is under the responsibility of the municipal administration. Therefore each province has its own school building regulations which are either a subgroup of the building regulations, directives, provincial laws or only an informal working paper without any legal binding.

In the following you will find quantitative and qualitative directions of the individual provinces regarding the design of “outdoor areas” at Austrian schools. The data (except point A.12) is taken out of the study „Vergleichsstudie Raumprogramm“<sup>15</sup> of the ÖISS.

#### A.1 State

##### Standard Net Space and Function Programme for AHS/BMBWK

Synthetic pitch: 22 m x 44 m

Track 100 m (3 lanes) + long jump pit

Surrounding area, area for playground equipment

Forecourt, schoolgrounds

Parking space for cars, motorcycles and bicycles.

#### A.2 Vienna

##### Planning of New School Buildings of the City of Vienna – Draft and Construction Instructions / MA 19 (2002)

Minimum values for total area of property and partial areas for planning Viennese compulsory schools:

Type of Space	8-class school	12-class school	24-class school
Build-up area	2,000 m <sup>2</sup>	2,500 m <sup>2</sup>	5,000 m <sup>2</sup>
Outdoor space for breaks	500 m <sup>2</sup>	800 m <sup>2</sup>	1.500 m <sup>2</sup>
Playing and sports facilities	1,700 m <sup>2</sup>	2,000 m <sup>2</sup>	3,500 m <sup>2</sup>
Parking spaces for cars, space for waste disposal	270 m <sup>2</sup>	370 m <sup>2</sup>	700 m <sup>2</sup>

<sup>15</sup> Rabl, Brigitte (2001) „Österreichische Schulbaurichtlinien – Vergleichsstudie Raumprogramm“ (*Austrian School Building Directives – Comparative Study Space Programme*), ÖISS, Vienna, status 7/2004

Remaining areas (Parking space, paths, etc.)	230 m <sup>2</sup>	330 m <sup>2</sup>	500 m <sup>2</sup>
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Paved schoolyard (not forecourt) in direct vicinity of the school building, best next to the assembly hall: 1,00 m<sup>2</sup>/student

The sports facilities are individually stated in the space allocation plan and comprise the following areas:

Grass playground, min. 30 m x 40 m

Hard court: 22 m x 44 m

Track: 5 m x 80 m, four-lane, with jump pit 4 m x 6 m

High jump run-up circle at the hard court

Outdoor equipment room (size acc. to space allocation plan) with door openings of 2 x 2 m close to the sports facilities

In primary schools toilets must easily be reached

10 m<sup>2</sup> area for outdoor equipment, 12 m<sup>2</sup> area for snow-removing vehicles

Compulsory parking spaces acc. to Austrian standard ÖNORM B 1600

e.g.: 9-class primary school:	e.g.: 12-class secondary school
Hard court: 22 m x 44 m	Hard court: 22 m x 44 m
Track (60 m) with jump pit	Track (100 m) with jump pit
Area for garden beds: 60 m <sup>2</sup>	Area for garden beds: 100 m <sup>2</sup>
Area for playground equipment: 200 m <sup>2</sup>	High jump facility: 20 m <sup>2</sup>
Outdoor equipment room: 42 m <sup>2</sup>	Outdoor equipment room: 52 m <sup>2</sup>

### A.3 Lower Austria

#### School Building Regulation for Lower Austria, Provincial Law Gazette LGBl. 5050-0 (1975)

##### Art. 7 School Building Site

(2) Property of such size that the school building with forecourt, sports facilities and playground, school garden can be accommodated. Due to local conditions sports facilities and playground, as well as the school garden can be accommodated at different properties but in reasonable distance. In this case there must be a schoolyard according to the total number of pupils at the property.

(3) Sports facilities and playgrounds may be omitted at vocational schools. However, there must be sufficiently large areas for training workshops.

#### School Building Regulation for Lower Austria, Provincial Law Gazette LGBl. 94 (1964)<sup>16</sup>

##### Art.1 Building Site

(3) A school building site is to be of such a size that taking the local conditions into consideration with schools of less than one hundred pupils 25 m<sup>2</sup>, with schools of more pupils 20 m<sup>2</sup> floor space per student are made available. If the sports facilities and the playground are accommodated at different places the floor size may be deducted from the amount. In this case, too, a maximum of 40 % of the floor space may be built-up.

<sup>16</sup> de lege not in force, but it still serves as a basis

#### **Art. 24 Sports facilities and playground**

(1) Are to be located in such a way that they are close to the school building, but not in front of the windows of the classrooms. It must be possible to accommodate a hard court of the size 30 m x 20 m and a running distance of 60 m, furthermore with and primary and secondary schools of more than 4 classes a lawn of the size 70 m x 40 m, with smaller primary schools of the size 30 m x 20 m.

#### **A.4 Burgenland**

##### **Provincial Law Gazette LGBl. for the Federal Province of Burgenland No. 50 (1988) – School building and Development Regulation**

#### **Art.1 Building Site**

(3) School building site taking the local conditions into consideration – without sports facilities and playground is to be 25 m<sup>2</sup> per student calculated by a three-year average.

Sports facilities and playground may be accommodated at different properties but in reasonable distance, there must be a schoolyard of appropriate size at the property

Enlargement opportunities to be taken into consideration

Max. 40% of the building site to be built-up.

(4) Vocational schools: sufficiently large building space for training work shops

#### **Art.15 Sports facilities and playground**

(1) Close to the school building, but not in front of the windows of the class rooms. It must be possible to accommodate a hard court of the size 30 m x 20 m and a running distance of 60 m, furthermore with high schools and primary schools of more than 4 classes a lawn of the size 70 m x 40 m, with primary and secondary schools of more than 12 classes a lawn of the size 110 m x 60 m. Primary and secondary schools of more than 12 classes in one building complex: 2 hard courts.

Combined long and high jump facilities, with high schools shot-putting facilities with 2 circles.

#### **Art.33 Additional Facilities**

(7) Parking space with a shed roof for single-lane vehicles is to be constructed.

(8) Sufficient storage room between main entrance and public roads.

(9) Constructional measures for disabled persons acc. to Austrian standard ÖNORM B 1600

##### **Provincial Law Gazette LGBl. for the Federal Province of Burgenland No. 36 – Bgld. Compulsory School Law 1995**

#### **Art.39 Constructional Design and Furbishing**

(3) Schools, esp. primary schools, secondary schools, special schools and polytechnical schools as well as vocational schools must accommodate sports facilities, a playground and esp. secondary schools have to have a gymnasium, furthermore (...) a school garden if required.

#### **A.5 Styria**

##### **Internal Space and Function Programme / Agency of the Styrian Provincial Government**

Sports facilities: primary schools: grass playing field, 60 m track, jump facilities

Secondary schools: grass playing field, 60 m track, jump facilities, possibly hard court

## **A.6 Carinthia**

### **Carinthian School Building Regulations, Provincial Law Gazette LGBl. No. 86 (1994)**

#### **Art.1 School Property**

School properties are esp. school real estate, school building and school related additional buildings such as living quarters and work shops, gymnasium, sports facilities and schoolyard.

#### **Art.3 Size of the School Property**

Required buildings, additional buildings and other facilities for operating a school

### **Carinthian School Building Regulations, Section 6 “Schools”**

#### **Art.77 Structure**

(2) Entrances for pupils min. 5 m distance of public places.

#### **Art.80 Parking Spaces**

Roofed, dust-free paved bicycle parking spaces, dust-free paved car parking spaces, number in accordance with the size of the school

## **A.7 Upper Austria**

### **Upper Austrian School Building and Furnishing Regulation 1994, Provincial Law Gazette LGBl. No. 80 in the version of Provincial Law Gazette LGBl. No. 52/1999**

#### **Art.1 School Property**

The school property must be situated in such a way that

1. life and health of the pupils are not endangered, their mental, emotional and ethical development is not impaired and operation of school is not disturbed;
2. unfavourable impact of developments in close vicinity such as noise, vibration, air pollution and reduced light are not to be expected.

and must be large enough to accommodate school buildings with an appropriate forecourt, the necessary additional buildings, parking spaces and schoolyards as well as sports facilities and playgrounds with the necessary equipment. Sports facilities are to be located as close as possible.

## **A.8 Salzburg**

### **Directives for Locating, Designing and Furnishing Common and Vocational Compulsory Schools**

#### **Provincial Law Gazette LGBl. for the Province of Salzburg No. 60/61 (1984)**

#### **Art.2 Size of the School Property (No. 60: common compulsory schools)**

...is to be calculated in such a way that an appropriate large forecourt, the buildings required for operating the school and all facilities are to be accommodated.  
...without considering the sports facilities 20 m<sup>2</sup>/student, minimum 2,500 m<sup>2</sup>

#### **Art.2 Size of the School Property (No. 61: vocational schools except vocational and agricultural and forestry vocational schools [deviating from 60])**

...without considering the sports facilities, gymnasium, work shops and other rooms for applied teaching 20 m<sup>2</sup>/student, minimum 2,500 m<sup>2</sup>

#### **Art.3 Schoolyards and Sports Facilities (No. 60, 61)**

- (1) Sports facilities may be omitted if there is such a facility in reasonable distance
- (2) Schoolyard 3 m<sup>2</sup> / student

#### **Art.26 Designing of non-built-up parts of the school property (No. 60: common compulsory schools)**

- (1) Depending on type and size of school

No disturbance of teaching

Facilities should fulfil competition requirements

Execution acc. to Austrian standard ÖNORM B 2605

(2) open space for traffic development

(4) other open space is to be used appropriately and without much effort on garden design by using native and weather resistant plants; care-taking must be possible without much effort.

## **A.9 Tyrol**

**Tyrolian School Organisation Law 1991, Provincial Law Gazette LGBl. No. 84, changed last by LGBl. No. 89/2002**

### **Art.70 (1)**

School buildings and rooms are to be planned, constructed and maintained in such a way that they fulfil the requirements of protection of life, health and ethics of the pupils, meet pedagogic and special needs of disabled pupils and guarantee the satisfaction of tasks. Furthermore measures are to be taken which go beyond the aforementioned and are necessary based on contractual regulations for protection of life, health and ethics of the provincial teachers when they are in service. When schools are built anew, reconstructed or enlarged the expected future space for teaching needs to be taken into consideration.

### **Art.70 (4)**

Every school needs to have:

a) an open space close to the building (the class rooms) for physical activity and playing.

## **A.10 Vorarlberg**

**Provincial Law Gazette of Vorarlberg LGBl., 14<sup>th</sup> Regulation of the Provincial Government on Location, Constructional Design, Furnishing and Equipment of Public Compulsory Schools (1990)**

### **Art.2 Location and Size of the Property**

(3) size to accommodate school buildings, schoolyard, necessary additional buildings, sports facilities and playground, school garden

(4) Schoolyard min. 3 m<sup>2</sup> / student

### **Art.3 Location, Size and Design of School Buildings**

(4) sufficient open space between the entrances and public traffic areas

### **Art.24 Sports Facilities and Playgrounds**

(1) must be located in such a way that the pupils in the class rooms are not distracted

(2) Sports facilities and playground plain and dry, lawn and hard court with elastic surface with the following minimum dimensions: primary schools + special schools: 25 m x 50 m lawn,

15 m x 30 m hard court; secondary schools + polytechnical schools: 30 m x 60 m lawn,

30 m x 30 m or 40 m x 20 m hard court

### **A.11 Austrian Standard ÖNORM B 2605 “Sports Facilities – Planning Directives and Execution Instructions“, 5.3.1.: Requirements:**

1. – 4. form:

Space requirement for a physical education group: approx. 2,000 m<sup>2</sup>. About 40% of the space is to be planned as small pitch with integrated track and fields facilities, synthetic surfaces are to be given priority, the remaining part is to be lawn. For 1 to 2 class primary schools lawn only is required.

5. – 13. form:

For the simultaneous use of up to four physical education groups the following is required:

- 1 small pitch 22 x 44 m (synthetic surface)
- 1 short distance track min. 60 m, if possible 100 m, min. 3 lanes (synthetic surface)
- 1 long jump facilities (run-up track synthetic surface)
- 1 Combination facilities (shot-putting/beach volleyball)
- 1 high jump cushion (mobile) to the small pitch
- 1 turf pitch or joint use of turf sports facilities in a distance of max. 500 m from the school building

Appropriate expansion with more than 4 physical education groups.

The above mentioned is the minimum equipment, assimilation to competition requirements is to be favoured.

If the sports facilities are only used for physical education reduced minimum measures acc. to 5.3.3. (run-up length, safety distances, etc.) are permitted.

Check before the planning stage if there are appropriate sports facilities in the vicinity (max. 500 m walking distance) of the school where joint use is possible.

If the sports facilities are used to capacity by several schools and sports clubs it is recommended to establish central school sports facilities (with circular track and simple terraces) at an advantageous location.

### **A.12 Austrian Standard ÖNORM B 2607 “Playgrounds – Planning Directives” , 4.1.4: Approximate Values for Calculating Space Requirements of the Playground:**

The above mentioned standard states quantitative approximate values in order to be able to calculate the space requirements of a playground. Local and situation specific factors are to be taken into consideration (building density, population density, population structure, availability of other open space, etc. )

10 m<sup>2</sup> / per child or adolescent is the approximate value for institutions like nursery schools, after-school clubs, etc. and schools which are to be equipped with directly related organisational and spatial playgrounds.

**Acc. to 4.1.3 Playground Development Plan, FWP, BBP:** The municipal playground system is to be based on the space determination- and development plan. Playgrounds are to be ensured outside and inside building land as a basis of municipal development planning in the aforementioned instruments.

### A.13 Summary

In some documents outdoor areas of schools comprise only schoolyard and sports facilities, in Salzburg sports facilities at the schools may be omitted if there is the opportunity of a joint use of external sports facilities. Sports facilities within the school property are only obligatory in Vienna and Vorarlberg, the remaining seven federal provinces permit facilities in *reasonable distance*.

In several provinces an additional schoolyard/school garden is required, but dimensions are not always stated. The indicated values range between 1 m<sup>2</sup> (Vienna) and min. 3 m<sup>2</sup> (Vorarlberg) per student in Austria. In the federal province of Burgenland schoolgrounds are indirectly required by stating 25 m<sup>2</sup> property/student excl. sports facilities and only 40% may be built-up area. It is remarkable that a *paved* schoolyard is explicitly required in Vienna. Furthermore it is stated that the toilets must easily be reached from the sports facilities, especially in primary schools.

Several provinces recommend a hard court. Only in Vorarlberg a lawn is generally required, in all other provinces only if the premises are large enough or with larger schools.

The sizes of the pitches are very different. In Salzburg execution is required according to Austrian Standard ÖNORM B 2605 "Sports Facilities – Planning Directives and Execution Instructions". The federal state and Vienna recommend dimensions stated in the Austrian Standard ÖNORM B 2605, but not as execution basis.

	School Property	Schoolyard	Hard Court	Track	Lawn	Other
Austrian Standard ÖNORM B 2605		10 m <sup>2</sup> / user in institutes (organisational and spatial directly assigned playgrounds)				
Austrian Standard ÖNORM B 2605			1.-4. grade: 40% of 2,000 m <sup>2</sup> sports facilities 5.-13. grade: 22 m x 44 m	5.-13. grade: 60 m, better: 100 m	1.-4. grade: 60% of 2,000 m <sup>2</sup> sports facilities 5.-13. grade: yes	5.-13. grade: long jump facilities combination of shot-putting & beach volleyball high jump
Vienna	defined by functional units depends on type of school, approx. 15-20 m <sup>2</sup> /student	1 m <sup>2</sup> /student paved	22 m x 44 m plus 200 m <sup>2</sup> surrounding area	VS 60 m, HS 100 m	30 m x 40 m	space for playground equipment, garden beds
Lower Austria	25 m <sup>2</sup> /student (<100 children) or 20m <sup>2</sup> /st. (>100), max. 40% built-up area	schoolyard school garden	30 m x 20 m	60 m	HS, VS>4Kl.: 70 m x 40 m or: 30 m x 20 m	
Burgenland	25 m <sup>2</sup> /student, max. 40% built-up area	school garden as required	30 m x 20 m	60 m	>4 classes: 70 m x 40 m >12 cl.: 110 m x 60 m	combined long and high jump facilities HS: shot putting facilities
Styria			probably with HS	60 m	yes	jump facilities
Carinthia		schoolyard	outdoor sports facilities			
Upper Austria		requ. schoolyard	sports facilities/ playground if possible			functional planting
Salzburg	20 m <sup>2</sup> /student (excl. outdoor sports facilities) min. 2,500 m <sup>2</sup>	3 m <sup>2</sup> /student	acc.to competition requirements, acc.to Austrian Standard ÖNORM B 2604			functional planting
Tyrol			sports facilities/playground as close as possible			
Vorarlberg	defined by functional units	>3 m <sup>2</sup> /student, school garden	VS/SS: 15 m x 30 m HS/PTS: 30 m x 30 m or. 40 m x 20 m		VS/SS: 25 m x 50 m HS/PTS: 30 m x 60 m	

## B. CURRENTLY VALID DIRECTIVES AND RECOMMENDATIONS IN GERMANY Overview

In the following you will find a table of directives on town and open space construction and planning in Germany. In the course of the research it was found that many German Federal States do have directives in this respect but due to drastically cut budgets the municipalities do not and are not able to meet them. Since the provisions are target provisions except the ones concerning sports facilities, they are not met according to information given by planning departments of various municipalities. New construction projects in densely and not so densely populated parts of the towns, the municipalities do not meet the approximate values due to aforementioned financial reasons.

	Total area/school garden	thereof schoolyard	Sports facilities	Parking space	Space for bicycles
Lower Saxony	25 m <sup>2</sup> / student	5 m <sup>2</sup> / student			
Bavaria <sup>17</sup>		3 m <sup>2</sup> / student			
Berlin (primary school) 25 children per class <sup>18</sup>	30 m <sup>2</sup> / group/class	class 1: 10 m <sup>2</sup> class 2-6: 5 m <sup>2</sup> / Student	Pitch 42 m x 64 m Track 100 m x 7,5 m Track and fields 480 m <sup>2</sup> Lawn for gymn. 400 m <sup>2</sup>	6 á 25 m <sup>2</sup>	For 1/2 of all pupils, 2 m <sup>2</sup> per bicycle
Berlin (secondary / comprehensive school)	30 m <sup>2</sup> / group/class	5 m <sup>2</sup> / student	Pitch 62m x 94 m Track 100m x 7,5 m Track and fields 660 m <sup>2</sup> Lawn for gymn. 400 m <sup>2</sup>	440 m <sup>2</sup> for 8 classes	For 2/3 of all pupils, 2 m <sup>2</sup> per bicycle
Richter <sup>19</sup> (1981)	25 m <sup>2</sup> / student	5 m <sup>2</sup> / student			
Gälzer <sup>20</sup> (2002)	30 m <sup>2</sup> / student	5 m <sup>2</sup> / student			
Cologne	25 m <sup>2</sup> / student	5 m <sup>2</sup> / student			

The research showed that the stated values are strongly influenced by the recommendations of the 1980ies. Even more currently literature reproduces these values. The approximate values for schoolyards are recommended with 5 m<sup>2</sup>/student and thus are one fifth and one sixth, respectively of the total school garden. It makes sense not to dispense with the quantitative requirements of space. However, it is significant to state not only quantitative but also qualitative requirements and to insist on them even if the approximate values are not met. The aforementioned principles are targeted at these qualitative aspects.

<sup>17</sup> Bavarian School Building Regulations, December 30, 1994, changed November 27, 2003

<sup>18</sup> SENATSWERWALTUNG FÜR BILDUNG, JUGEND UND SPORT BERLIN (1992):

<sup>19</sup> Richter Gerhard: Handbuch Stadtgrün (*Manual Green Town*), (1981)

<sup>20</sup> Gälzer Ralph: Grünplanung für Städte (*Urbane Green Zone Planning*), (2001)

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**ÖNORM B1601:** Spezielle Baulichkeiten für behinderte und alte Menschen; Planungsgrundsätze

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**ABBREVIATIONS:**

VS (Volksschule)	primary school
HS (Hauptschule)	secondary school
SS (Sonderschule)	special school
PTS (Polytechnische Schule)	polytechnical school