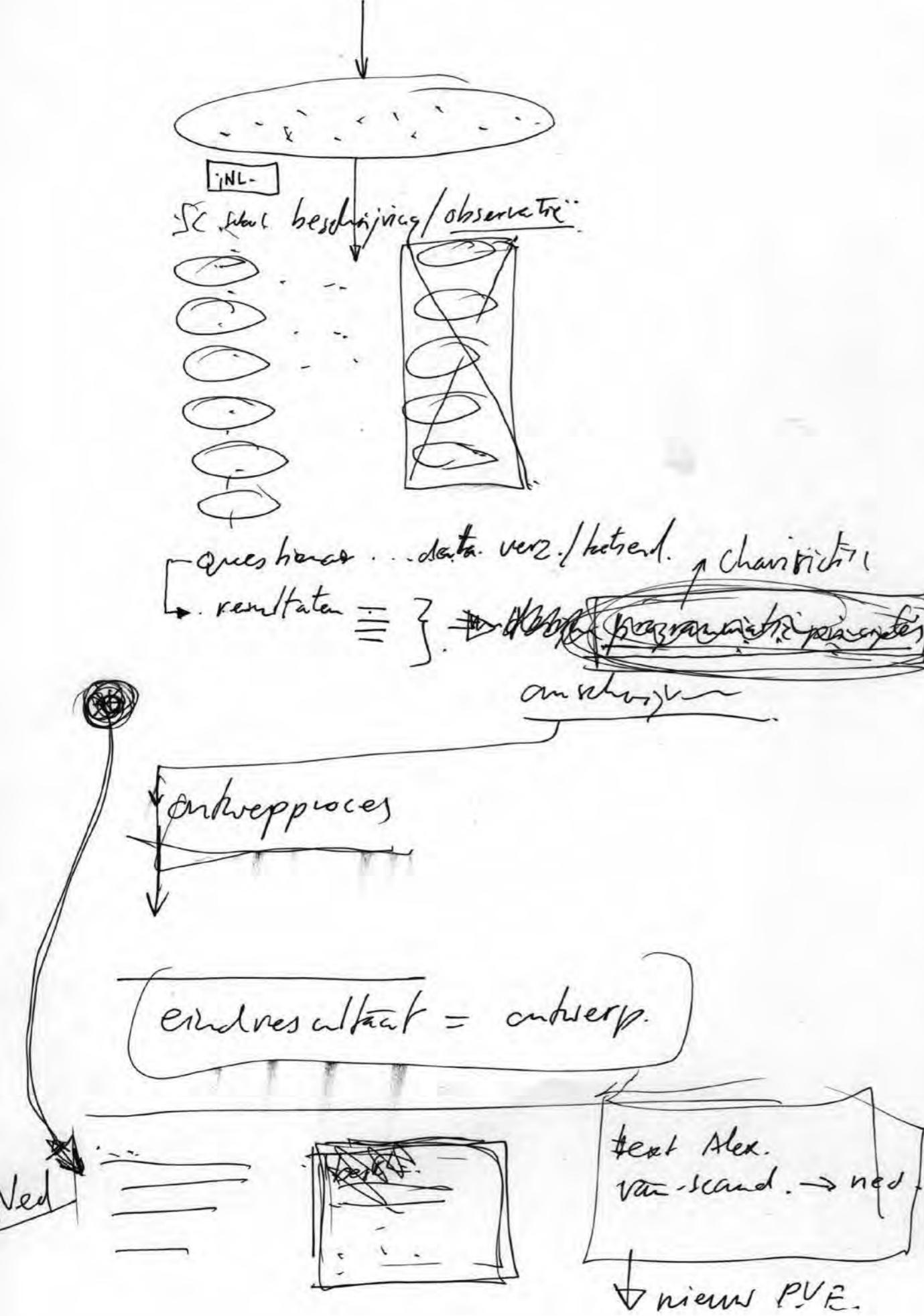


Learning from Scandinavia

towards a new way of designing a Dutch school





Contents

Introduction	5
Scandinavian school studies	
a - Overview	7
b - School visits	13
Aranäsgymnasium (upper secondary school), Kungsbacka (SE)	14
I Ur och Skur EkoMyran preschool, Oxie/Malmö (SE)	18
Ängsdals elementary- and preschool, Bunkeflostrand/Malmö (SE)	24
Ørestad gymnasium (upper secondary school), Copenhagen (DK)	32
Munkegård elementary school, Gentofte (DK)	38
Kunskapskolan (secondary school), Helsingborg (SE)	46
c - Questionnaire	53
d - Essential characteristics	59
The Swedish and Finnish school system and the PISA study	67
Multiple intelligences	71
Meetings	77
Sense of coherence (SOC)	79
Outdoor education and Dewey	81
Individual education	87
Flexibility	89
Basic guidelines and program for a new school	93
Implementing the Scandinavian model into Dutch space	
a - Designing a new school	97
b - Schoolbezoek	155
Vensterschool (openbare basisschool), Groningen	158
Openluchtschool (neutraal bijzondere basisschool), Amsterdam	162
Michaelschool (vrijeschool), Leeuwarden	165
Moving through context, TUD	168
Sterren College (VMBO), Haarlem	170
Een frisse-lucht-school vanuit gezond verstand	177
Sources	191
Colophon	194



Introduction

The goal of this study is to develop a new way of designing a Dutch school, a school that will prepare today's students for their life after school, maximize their abilities to acquire knowledge, inspire them and leave them curious and ready to meet the future's demands taking into account the successful factors that give Finland and earlier gave Sweden a top placement in international large scale studies such as PISA.

There is obviously a plethora of different factors such as economical, educational and socio-economical at play in terms of students' learning and academic performances, and it may be difficult to separate these components from each other. We as architects cannot change all of these specific factors, but it must be our task to be aware of and analyze them and thereby try to prevent adverse effects, and implement desired ones. It is not just about what a building's architecture look like, but what it actually does; we want to see the building as an educational tool; the education but also the school building, must be able to inspire and give the students tools to make them communicate, collaborate, accept and manage change and make them feel part of their own education.

By studying the different ideological currents in the Swedish and Finnish school systems, reading and analyzing studies and surveys like PISA and HATTIE's meta study, as well as exploring different pedagogical movements we wish to find some guiding design and pedagogical principles for a successful school system, both as in the educational system and as in the school building itself. In addition to this we will also be examining students', teachers' and parents' expectations and preferences about the school, and by talking with experts in educational sciences, landscape architects and architects specialized in schools, we hope to get as many inputs from as many angles as possible.

Scandinavian school studies

a - Overview

The Swedish education system is based on the principle that everyone should have equal opportunities regardless of ethnic origin and living environment. The system is also based on a lifelong learning process and further education is an important part of the general education, with special emphasis on adult education and vocational training. A recent OECD report shows that a relatively high percentage of the Swedish population is highly educated. The Swedish education system is mainly financed by public funds, and in 2003 the government expenditure for the entire education system amounted to 3.2% of GDP. The average is about 2.5% of GDP, which means that Sweden is one of the countries with the highest cost of training.

Compulsory school is nine years long and children start school at six or seven years of age. A large majority of students (approximately 98%) studies in a public school, even if it is possible to choose between public and private schools. The school year is relatively short; it comprises 40 weeks with at least 178 and not more than 190 school days.

Upper secondary school consists of 17 state-determined programs, of which 15 are vocational programs and two are preparing the students for university. All programs are three years long and they all include the core subjects Swedish, English, social

studies, math and sports and health studies. Vocational programs include training in the workplace for at least 15% of the time. Upper secondary school has become a school for all, where 98% of the pupils who attended primary school continue to upper secondary school, and only a relatively small percentage of students drop out.

The Swedish education system is comprised of a number of types of schooling and education, designed for individuals of different ages and with differing needs and abilities. Most schools in Sweden are communal, which means that it is the municipality that is the manager of the schools. Typically, children attend a municipal school close to home. Students and their parents are also entitled to choose another public school, or a privately run independent school. Independent schools are open to all and must be approved by the Schools Inspectorate. Teaching in independent schools shall have the same objectives as municipal schools, but can have a profile that differs from the municipal school. It is common for independent schools to have a different focus than the local primary school, for example, special education (Montessori or Waldorf education), ethnic targeting, or have a specific religious character. If the independent school does not comply with applicable regulations, the Schools Inspectorate will withdraw its approval.

Some schools are operated by someone else than the municipality; an association, foundation or a company. These schools are in Sweden called the free or independent schools. In order to operate an independent school it must obtain permission from the State. Schools Inspectorate decides on such permits and for obtaining permission to operate an independent school, the operator must among other things follow the basics of the national curriculum, provide students with knowledge of the nature and level corresponding to those students in the public school. Free schools have the right to issue diplomas to the students. These scores have the same value as the grades of public schools. Free schools must be open to all students. This means that students are admitted through a queue in which the notification date listed or through the "proximity principle, i.e. that students in the school's neighbourhood have priority. In addition, an independent school may give preference to students who have one or more siblings in that school. Independent primary schools may not charge school fees, but the municipal grants are intended to cover independent school costs.

Private School is a type of school that are not maintained by local, regional or

national authorities. The private school also reserves the right to select its students and is partially or wholly funded through fees rather than public funding. There are only a very small number of private schools in Sweden following the Swedish curriculum, for example Grennaskolan and Lundsberg's school.

Sweden has 37 institutions for higher education, seven of which are universities and the remainder are small and medium-sized colleges. There are three types of diplomas: university degree, obtained after two years of study, bachelor degree obtained after at least three years studies and master's degree after a minimum of five years of study. Distance education has a long tradition in Sweden, and there are a number of courses at higher levels to choose from in this study form. In 1993, the number of places at universities and colleges significantly increased (they were about 30% more than in the early 1990's). In 1994 about 30% of the young people continued studying at a university or college, which is free of charge for the students. Students at colleges and universities are entitled to financial assistance by the government in the form of student grants and loans.

The different parts of the education system

The National Agency for Education has produced a map that provides an overview of the various parts of the education system

- Pre-school
- Childcare for schoolchildren
- Compulsory school
- Non-compulsory schooling
- Folk high schools (independent adult education colleges)
- Higher vocational education
- Universities and university colleges

Pre-school

Pre-school is the collective name for three types of activity available to children who have not yet started school (the pre-school class or compulsory school):

- pre-school
- pedagogical care
- open pre-school

Pre-schools, like childcare for schoolchildren, have twin tasks. They are to help provide an environment that stimulates children's development and learning, and enable parents to combine parenthood with work or studies.

Municipalities are obliged to provide pre-school or family day-care homes to children aged from one year and up:

- when their parents are working or pursuing studies
- when their parents are unemployed or on parental leave. A place is to be made available to each child for at least 3 hours a day or 15 hours a week.

The open pre-school is for children who are not registered at a pre-school. A parent or another adult accompanies the child. Open pre-school can also function as a supplement to pedagogical care.

What is a pre-school class?

The pre-school class is non-compulsory education designed to stimulate each child's development and learning, and provide a platform for their future schooling.

The pre-school class combines the pedagogical methods of the pre-school with those of the compulsory school. An important objective is that the pre-school class, compulsory school and leisure-time centre are to be more closely linked. The activities are to be stimulated by the encounter between differing pedagogical traditions.

Childcare for schoolchildren

Childcare for schoolchildren is the collective name for three types of activity available to children up to the age of 12 who attend school (pre-school class or compulsory school):

- leisure-time centres
- family day-care homes
- open leisure-time activities

Together with pre-schools, childcare for schoolchildren has twin tasks. They are to help provide an environment that stimulates children's development and learning, and enable parents to combine parenthood with work or studies.

Municipalities are obliged to provide leisure-time centres or family day-care homes to children up to and including the age of 12 whose parents are working or studying.

The municipality is to take parents' wishes about what type of care they want into account as far as is reasonable. Care of children aged 10-12 can also be run as an open leisure-time activity.

Compulsory school

In Sweden, attendance in school is compulsory for all children aged 7-16, which means at least nine years in compulsory school. The age when children may start school is flexible: a child can start school as a 6, 7 or 8-year-old. Compulsory school is mandatory and free of charge. The same standard of education is to be provided throughout the country and is to provide a platform for further studies.

"Compulsory schooling" includes compulsory comprehensive school, the Sami school, the school for the deaf and hearing-impaired and compulsory school for children with learning disabilities.

Upper secondary school

All young people in Sweden who have finished compulsory school are entitled to three years of schooling at upper secondary. Upper secondary education provides a platform of knowledge for further studies and for a future career.

Upper secondary education is comprised of the regular upper secondary school and upper secondary for young people with learning disabilities.

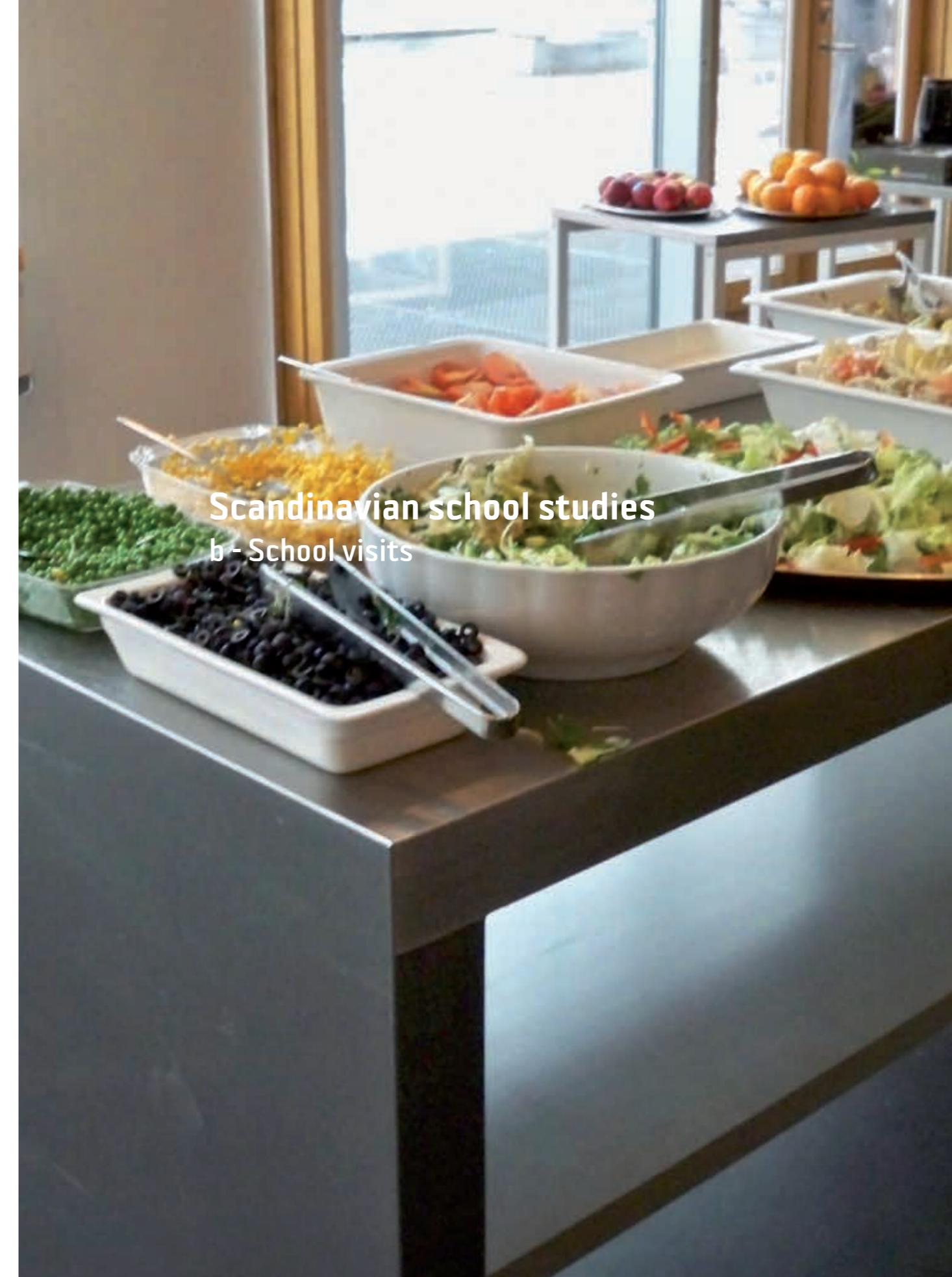
Upper secondary offers various types of program.

- 17 national programs, which last for three years. These are divided into mandatory core subjects, program-specific subjects, optional courses and project work. There are a total of 17 national programs.
- Individual programs for pupils with particular educational needs. This might for example include pupils who want to do an apprenticeship.
- Specially designed local programs, which combine subjects from the various national programmes.

Upper secondary is free, non-compulsory (but with attendance requirements) schooling that young people can choose after completing compulsory school. Upper secondary consists of national programs, specially designed programs and individual programs.

Each national upper secondary program is comprised of:

- Eight core subjects - English, artistic activities, physical education and health, mathematics, natural science, social studies, Swedish or Swedish as a second language, and religious studies.
- A number of program-specific subjects, which are particular to the selected program.
- A special project.
- Work place training in the vocationally oriented programs.
- The various upper secondary programs can be seen as preparation for further studies, vocationally-oriented, or a combination of the two.





Aranäsgymnasium (upper secondary school) Kungsbacka (SE)

Gymnasiagatan 44 434 42 Kungsbacka Sweden
T +46(0)300 - 83 33 00 E aranasgymnasiet@kungsbacka.se

Background

The building of Aranäs upper secondary school was the first part of a city development project for the expansion of the centre of Kungsbacka to the south. The old block sizes stand as model for the new district; it is an urban structure where the measurements are taken from the inner city of Kungsbacka. The school was designed by Wingårdh arkitektkontor and completed in 2006. Beside the school facilities and study-/workplace for almost 1800 people the building program also incorporated the Kungsbacka theatre, which was moved from its previous location. The theatre plays an important roll as a centre for cultural experience in the city but it is also used as a resource for the students attending the school.

Aranäs upper secondary school and Kungsbacka theatre received the Kasper Salin Prize 2006, which is awarded by Sveriges Arkitekter (the Swedish Association of Architects) and given to the best building or built environment of the year.

Facts

Students 2009: 1 430 (capacity for 1 650) | Staff 2009: 180 | Educational programs: 11 | Completed: 2006 | Area: 21 000 sqm | Floors: 3 | Façade: polished Terrazzo elements | Architect: Wingårdh arkitektkontor AB | User: Kungsbacka kommun Gymnasie- & Vuxenutbildning

Description

The Aranäs upper secondary school is one of two municipal upper secondary schools in Kungsbacka, located in the middle of the west coast of Sweden, twenty minutes' drive south of Göteborg. At Aranäs the students can select between ten national programs, some with local orientations, and the international program International Baccalaureate.



The school is partly a remodelling of an old building and partly a new construction. Measurements and patterns refer to the neighbouring rectilinear urban structure. The intention of the architects was to break the big school down into several smaller buildings and by gathering a large volume into a compact volume, along with the use of prefabricated concrete elements, costs could be kept low.

The new construction consists of two large triangular volumes which are connected in a narrower midsection. The study rooms are assembled around the two centrally positioned indoor courts. As the school is in three levels many of the common spaces and gathering rooms are situated in direct connection to these open spaces. The indoor courts also serve as foyers for the school and for the theatre.

The many students accommodated in the building have been divided into three equally sized teams. The two triangular rooms form nuclei for two of them, while the third has moved into the old, partly converted building. The education can take place in groups of various sizes, adapted to specific topics or according to the size of a group within a program. There are rooms and halls for up to five students to mini-assembly halls of 60-70 students. Several rooms can be divided.

Most of the interior walls are in glass, to prevent the institutional feeling of corridors that so often characterized Swedish schools. The transparency is experienced in both the teaching facilities and in the work spaces of the staff.

The black and white concrete elements in the façade give the building graphical impression. A number of signs and symbols, referring to the diversity in our society where things can be interpreted in different ways and have several meanings, are intended to evoke curiosity.

More information:

contact person: Patrik Elvirsson, school informant

school website: www.aranasgymnasiet.kungsbacka.se

architect website: www.wingardhs.se

Kasper Salin Prize information: www.arkitekt.se/salinpriset



I Ur och Skur EkoMyran preschool Oxie/Malmö (SE)

NP Skölds väg 24 238 41 Oxie Sweden
T +46(0)762 688 438 E forskolan@ekomyran.nu

Background

The ecological preschool "I Ur och Skur EkoMyran" is located in Toarps Ekoby (The ecological village of Toarp). This village is the result of an idea of an ecological dwelling initiated by the politicians of the municipality of Malmö and taken on by HSB Malmö, a tenant-owner cooperative housing association. The village is designed by the architect Krister Wiberg and was completed in 1992. The preschool, which is a parent cooperative, has been active since August 2001. Besides the ambition of teaching the children the values of ecology and recycling, the preschool applies the educational philosophy of Friluftsfrämjandet (The Swedish outdoor association) called "I Ur och Skur" ("In Rain and Shine"). The main idea of this philosophy is that children's need for knowledge, exercise and fellowship are satisfied by being in the nature.

Facts

Children: 18, age 2-5 years | Staff: 3 teachers, 1 chef | Completed: 1992 (building)
2001 (preschool was started) | Floors: 1 | Architect: Krister Wiberg | User: parent
cooperative EkoMyran

Description

The ecological preschool "I Ur och Skur EkoMyran" is renting its premises within Toarps Ekoby which is situated right outside Oxie, a suburb south east of Malmö urban area. All the houses in the small village, as well as the community centre (where the preschool is situated), have a similar idiom; glazed verandas and solar panels on the roofs are combined with a traditional Skånsk (south Swedish) and Danish character. The roofs are in clay bricks and the facades are clad with plaster in red or yellow ochre. The three main volumes of the community centre form a U-shape to-

wards the small village street, with the inner courtyard as entrance space. The main volume primarily contains the preschool facilities which consist of a bigger room for gathering and dining, a smaller room for play and a kitchen. In the adjoining left wing there is a cloakroom, a nursery room, toilets and facilities for the staff. Besides the preschool the community centre also contains laundry service, sauna, guest room, a room for gatherings/parties and a workshop.

EkoMyran have access to several outdoor spaces. The yard belonging to the preschool is equipped with two shelters, slides, bridges, balance board, etc. and its boundaries are defined by a low metal fence framed by trees and shrubs. Allotments, berry bushes and fruit trees are situated next to the yard and the view to the south consists of large open fields. On some allotments chickens are held which the kids can feed and in direct adjacent to the building a sandbox and a large ball field is placed. EkoMyran also have access to the playground owned by the village. It is located next to the preschool premises and contains swings, seesaw, slide, a playhouse and a sandbox with digging bucket.

In accordance with the concept of the "I Ur och Skur" philosophy each day is an outdoor-day at the EkoMyran preschool. A lot of the educational activities aim to encourage the children's interest for nature. The children play, eat and even sleep outside. When the weather is really bad, the outdoor stay might be a bit shorter and during winter time the children usually eat their lunch indoors.

The ecological orientation is described as a fundamental part of the preschool, both in the educational philosophy as on a practical level with the use of solar panels, local day water handling and food preparation. The preschool has chef of their own, preparing the food in accordance to the goals of the parent cooperative. The food and its way from "earth to table" play an important roll in the preschool activities. The children participate in everything from the preparation and serving of the food, to the recycling and composting and during season the cultivation of crops is also a part of the everyday activity.

Educational philosophy: I Ur och Skur

The first I Ur och Skur preschool was started in 1985 in Stockholm by Susanne Drougge and Siw Linde, two preschool teachers with a great interest for the nature and the idea of intergrading outdoor activities in the daily education. In 1987 the

Swedish organisation called Friluftsfrämjandet (The Swedish outdoor association) embraced the concept. The organization today approves schools or preschools to market themselves with this "profile" when at least a fourth of the staff has an education in the pedagogic concept. Every preschool/school connected to the organization obtains access to a network, training, research and continuous development.

The educational philosophy is based on the idea that the children are helped in their development by things found in the nature. They learn to balance, crawl, jump and climb on tree trunks and rocks. They experience fellowship during tales reading under the spruce and when the packed lunch is shared with others. They practice their senses by tasting, smelling, feeling, looking, listening and comparing things that can be found around them on the fields, in the woods and by the lake. The children in the I Ur och Skur will acquire a built-in notion for the nature, which they have for the rest of their life.

Classes

The educational philosophy of I Ur och Skur exists both in preschools, the educational care, elementary schools and leisure-time centers. I Ur och Skur preschool units operated both in the municipal, cooperative and private form.

Reference and for more information:

Carina Alsheim, manager T +46(0)762 688 438

preschool website: www.ekomyran.nu

Toarps ekoby: www.malmo.se/Medborgare/Stadsplanering--trafik/Stadsplanering-visioner/Malmos-stad-smiljo/Arkitektur-i-Malmo/Alla-byggnader/Toarp-ekoby.html

I Ur och Skur website: www.friluftsframjandet.se/for_barn/iurochskur



I Ur och Skur EkoMyran preschool Oxie/Malmö (SE)

Reflections

Survey visit 17th December 2010: conversation with Carina Alsheim, manager.

Main points of interest: The I Ur och Skur educational philosophy, the ecological ambitions (from earth to table concept), the different outdoor resources/spaces.

Parent cooperative form

The intention was to have a day care centre where the children get the opportunity to stay outdoors, eat ecological food, and learn how to cultivate their own vegetables and how to behave in the nature. According to the staff these children develop better balance and motor function, are less likely to get sick and their imagination is more stimulated.

At this first short visit at Ekomyran, the adjoining yard appeared to be well used and the hilly ground, covered with snow, made a nice place for running and sliding. The yard contained mostly natural objects that were used as play items. A great quality was the open view over the fields (where the tractor is a joyful entertainment in harvest time), but the surrounding metal fence was a dull and not so nice feature (this is although probably less visible when the many bushes and trees are covered with leaves).

As the outdoor space is so essential in the I Ur och Skur philosophy, the yard felt rather small, however when considering the small number of children in the group and the amount of excursions made to neighbouring areas the size is adequate. According to the staff more space is always a welcoming fact but the key aspect is to have a variety of different types of spaces and to keep a balance between the possibility for overview and spaces for seclusion.

The parent cooperative form is quite common in the I Ur och Skur preschools. To be a member of a parent cooperative means that one is very much involved in the preschool stay of ones child, which is the case at Ekomyran. The parents know each other, the other children and the staff (a fact also favoured by the small size of the preschool). It is easy for the parents to have a broad insight of the activities and to be able to influence the situation at the preschool.



Ängsdals elementary school and preschool Bunkeflostrand/Malmö (SE)

Ängsdalsvägen 20 218 31 Bunkeflostrand Sweden
T +46(0)40-36 34 52 E info@angshamn.se

Background

The Ängdals elementary school and preschool are operated and owned by the staff through a company that was created in 1994. The educational work was first carried out in temporary barracks, but in the year 2003 a permanent school building designed by Metro Arkitekter was completed. The building has been published in Swedish architectural magazines and in a book presenting "good buildings" in Malmö during the years 2000-2005. In 2008 the building process continued with the adding of a new building volume on the site to meet the demands for more space. The preschool works according to the Reggio Emilia Approach, an educational philosophy putting the natural development of children as well as the close relationships that they share with their environment at the centre of its philosophy.

Facts

Children: preschool 100 (1-5 years) school 250 (classes 0-9) | completed: 2003 (main building) 2008 (preschool department) | area: 1200 m² BTA (2003) och 550 m² BTA (2008) | architect: Metro Arkitekter | user: Ängsdals skola (staff owned company) | leisure-time activities: yes, open until 6pm

Description

The school is situated in a calm residential area in Bunkeflostrand, south of Malmö urban area and near the Oresund Bridge. The site is occupied by two rectangular shaped one story building. The scale is coherent with the low brick houses in the surrounding area. The two long sides of the main building have different character; large floor-to-roof windows opens the facade facing the schoolyard while the other gives a more closed impression creating a back towards the landscape and public football field. The main entrance is reached from the short side of the volume facing the street.



On the inside the plan is built upon a communication backbone stretching throughout the building with several spaces for meeting, leading to a central square that represents the school's social hub. The classrooms are situated in a row along this axis and on the other side larger commonly used spaces are placed (gym and assembly hall, kitchen, a workshop and spaces for the staff). The interior is characterized by the sequence of different rooms shifting in scale and the varying daylight. As the building is open to the ridge daylight is headed down with the help of high-rank windows and roof lights. Each classroom has a cloakroom situated in open connection to the communication axis and thus not reached directly from the outside. The classrooms are conventional in form but they all have an adjoining study room for smaller groups or calmer activities. Large floor-to-roof windows grant each classroom direct access to the schoolyard where an individual terrace forms an extension of the classroom in summertime.

The smaller building in the south of the site was added five years after the first building was completed. Together the two volumes form a corner framing the small schoolyard. The additional building contains a permanent preschool department and rooms for special topics as, such as NO (nature orientation), home economics, music etc. The idioms of the two buildings are related due to their overall shape and the rounded base characterizing the roof. For the newer building a façade system in concrete was however chosen instead of the board cladding used in the first building. In addition the window surfaces are smaller, but the biggest difference is the internal organization. Instead of the open ceiling with skylights and axial communication backbone, the second building is based around an atrium, providing daylight to the core of the building.

As a complement to the small size of the schoolyard the children are allowed to play in Afrikaparken, one of the theme parks of Malmö City, situated right next to the school premises. Afrikaparken is described as an intermediate between a playground and a park, where the wilderness of East Africa was the model.

Educational philosophy: the Reggio Emilia Approach

The preschool works according to the Reggio Emilia Approach, which is an educational philosophy focused on preschool and primary education. The philosophy was first developed in Italy after World War II and is today widely spread all over the world, especially in Sweden.

Working according to the Reggio Emilia teaching method is much about the attitude towards the child. The belief in the competent child; the child who possesses many



skills and great potential is the crucial starting point. The adult should be available as a support and encourage for the child; more of a co-researchers than a conventional teacher. Listening, documentation and reflection are some of the characteristics of this educational philosophy, and to look at diversity as an important value. The educator should for example preferable not provide ready answers to questions and toys should be as “undefined” as possible.

Parents are a vital component to the Reggio Emilia philosophy. Parents are viewed as the child's first teacher and the teachers should involve parents in every aspect of the curriculum. The organization of the physical environment is also essential to the early childhood program of Reggio Emilia, and is often referred to as the child's “third teacher”. The planning of new spaces and the remodeling of old ones emphasizes the integration of each classroom with the rest of the school, and the school with the surrounding community.

Reference and for more information:

Inger Persson, school manager M +46(0)708169435

school website: www.angshamn.se

architect website: www.metroarkitekter.se

Reggio Emilia in Sweden: www.reggioemilia.se

Theme playgrounds in Malmö:

www.malmo.se/Medborgare/Idrott--fritid/Ung-Fritid/Lekplatser.html



Ängsdals elementary school and preschool Bunkeflostrand/Malmö (SE)

Reflections

survey visit 25th November 2010 conversation with Inger Persson, school manager
Main points of interest No canteen Every classroom has an individual study room The high-rank windows and roof lights provide with daylight into the core of the building The terraces functioning as an extension of the classrooms The location close to and the use of Afrikaparken The Reggio Emilia approach

The school and the preschool have no canteen (which otherwise is common in Swedish schools); instead the children eat their lunch in the classroom together with the teacher. The advantage with a mutual canteen space is that the children from different classes meet one another, but on the other hand these environments are often noisy and the dining can be stressful. Eating in the own classroom creates a calmer dining situation and a feeling of community.

The staff is in general very content with the school facilities. The large windows and the daylight from above provide good spatial qualities. The individual terraces and the possibility to extend the classroom to the outside is an interesting feature. As the visit was made in winter time it was rather difficult to evaluate the quality of the school-yard (the Africaparken should also be studied more thoroughly at a later visit).



Ørestad gymnasium (upper secondary school) Copenhagen (DK)

Ørestads Boulevard 75 2300 København S Denmark
T +45 82 30 22 22 E mail@oerestadgym.dk

Background

In 2005, the Danish government established a new vision for the upper secondary school reform. This pedagogical reform, with the intention to ensure a better transition for students from upper secondary school to higher education, promotes innovation and self-directed learning in the Danish education system. 3XN, an architectural firm based in Copenhagen, responded to this vision by creating a radically different learning environment for Ørestad Gymnasium. The program was deliberately formulated without the traditional requirements of spatial subdivisions, which left most of the task to interpretations. The school is noted for its architecture and the innovative layout without traditional corridors and classrooms, a layout that to a large extent promotes web-based learning, hence the school has been nicknamed 'the virtual gymnasium'.

Facts

students: about 800 | staff: about 110 | area: 12,000 m² | budget: 27 mio Euro | completed: 2007 | architect: 3XNielsen | Team client: Municipality of Copenhagen/Undervisnings- og Bygningsstyrelsen

Description

The Ørestad Gymnasium is situated in Ørestad, a developing city area in Copenhagen, Denmark. Ørestad has seen considerable construction since the start and the development is planned to proceed over the next 20 years. The Ørestad Gymnasium is a public upper secondary school offering degree programs in both the natural sciences, social sciences and humanities, with the profile especially in media, communications and culture.

The school is organized around a central atrium, where a broad main staircase



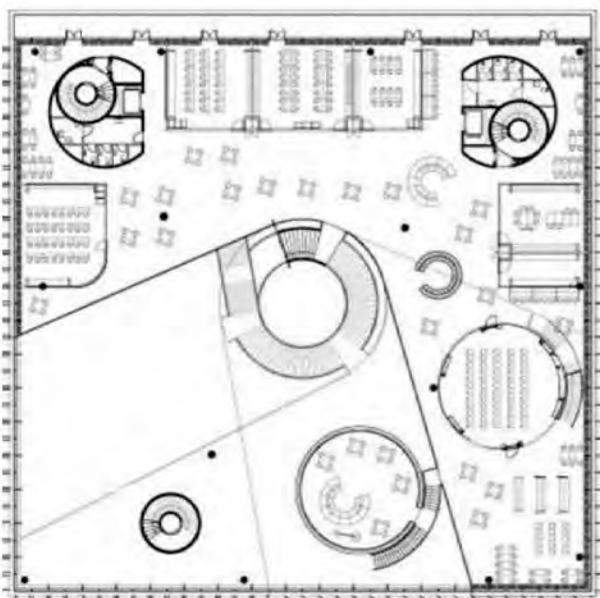
winds its way upwards to the roof terrace. In addition to serving as the primary connection up and down, the staircase embodies the heart of the educational and social life of the school.

The four boomerang shaped storey decks are open towards the atrium and rotated to create the super structure of the building which contains the four study zones: humanities, social sciences, media and nature science. Each zone has been placed on a level of its own, providing organisational flexibility with the possibility to create many different spaces and thus different learning environments for individual study and group work. Three massive columns form the primary load bearing system, supplemented by a number of smaller columns positioned according to structural requirement and not as part of a regular grid. As a result, each floor has few permanent elements and can be laid out and rearranged. The superstructure is supplemented by a series of newly developed 'room furniture', which accommodate the need for the flexible and temporary room arrangements and learning environments required by varying group sizes – from one on one to larger groups.

The rotated decks are mirrored in the facades. Due to their rotation, the decks create openings double- and triple high while drawing lines on the façade. On each floor, one façade is withdrawn to create an outdoor space. These outdoor spaces are connected from ground to roof. In front of the glass facades, a series of coloured semi-transparent glass louvers can open or close to protect from the sun. The building is designed for an educational philosophy aimed at flexible and structured use of different learning spaces. The building is an open building where students, teachers, administration and management activities are visible to each other. Using IT to create an organization of teaching, Ørestad Gymnasium is a virtual school equipped with the most modern technology. IT is used as an essential learning platform, as well as an educational tool available to students outside school hours.

Reference and for more information:

Ingelise Ihle Andersson, organises guided tours T +45 3264 5475: ia@dac.dk
 school website: www.øerestadgym.dk
 architect website: www.3xn.dk
 Ørestad website: www.ørestad.dk
 Article about the school:
www.fastcodesign.com/1662178/wanna-improve-education-demolish-the-classrooms
Ørestad gymnasium (upper secondary school) Copenhagen (DK)





Reflections

survey visit 25th November 2010

Main points of interest: The space in the central atrium/hallway - a lot of empty air
School without traditional classrooms The free way of working, IT based education
Interesting spatial organisation

As Ørestad Gymnasium has an open studying environment instead of traditional class rooms, visits made without a guide are only allowed during the lunch break. Food is served at the school and several of the students eat in the big open foyer space which also is used for a number of other purposes such as gatherings and larger presentations.

The shifting floor plates create a horizontal flow of spaces where the staircase becomes a main meeting place and the amount of "air" and empty volume is rather striking. The impression is far from the traditional institutional and corridor-thinking and the spaces seem to be used in several ways. The extended use of IT-based learning is furthermore an interesting aspect. (This way of learning is probably not as suited for students with concentration problems)



Munkegård elementary school Gentofte (DK)

Vangedevej 178, 2870 Dyssegård Denmark
T +45 3998 5650 E munkegaardsskolen@gentofte.dk

Background

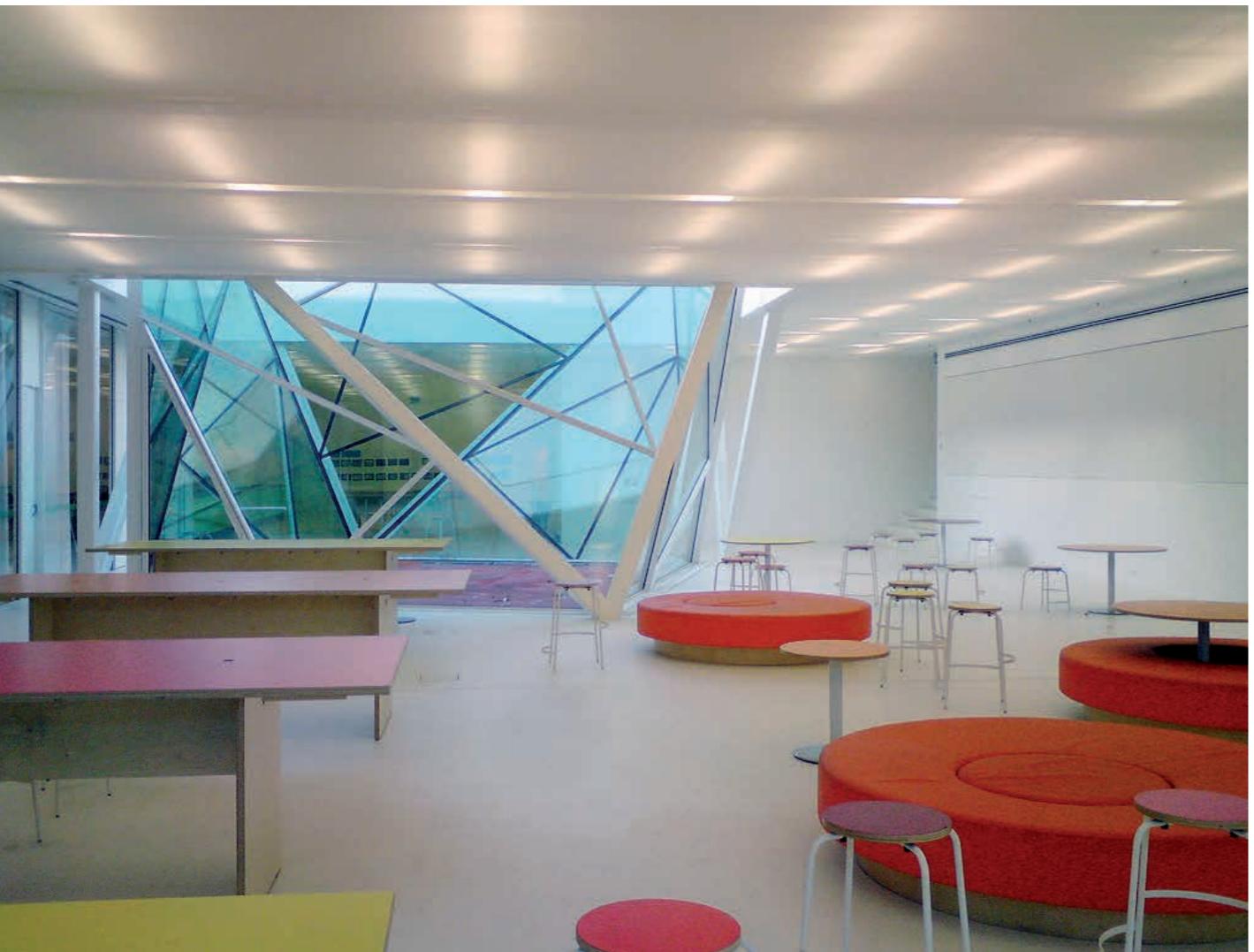
In 1937 a new school law in Denmark imposed the municipalities to launch an extensive school building program. One of the more famous examples is the Munkegård School, situated in Gentofte Municipality, by the Danish architect Arne Jacobsen. The school was completed in 1956 and is considered pioneering for its time. Between the years 1998 and 2009 the Gentofte municipality ran comprehensive school development and expansion project named SKUB. The project involved educationally based and future-oriented refurbishment of all schools in the municipality. As the Munkegård School was listed in 1995 the process of renovation came to pass in close contact with the conservation authorities. The reconstruction began in January 2006 and was completed in late 2009. Architect to the assignment was Dorte Mandrup arkitekter.

Facts

students: ca 450 (classes 0-9) | teachers: 3 (preschool) 35 (elementary school) | completed: 1956 | reconstruction: 2006-2009 | area: 8500 sqm (original school) 1600 sqm (new underground level) | architect: Arne Jacobsen (original school) Dorte Mandrup arkitekter (reconstruction) | user: Gentofte Kommune | leisure time activities: yes

Description

The site plan of the Munkegård School resembles a chess board, a grid of gardens and houses. The school consists of a series of single storey rows, which are connected by transverse glass corridors to a network. The 24 classes are grouped in pairs and have direct access to the small yards or flower gardens created by the grid. It is one of the first Danish schools that were built in one level. Two parts of the building are



however in two stories; one is placed on the edge of the grid, while the other containing assembly hall, staff room and other facilities, is located in the middle. The roofs are designed as an interrupted pitched roof with two inclination degrees, where high placed windows bring down daylight to the classrooms as a complement to the large windows at ground level.

In 2001 a renovation process was started by the school as a part of SKUB, the school development and expansion project of Gentofte Municipality. This was a challenging task as the Munkegård School is considered one of Arne Jacobsen's masterpieces and great regard was to be taken to the architect's original expression. The solution was to place the new extension under ground, beneath the existing schoolyard. Daylight is attained via 4 large bright courtyards designed as crystal-like openings, symbolically reflecting the small yards of the main building. The new space primarily contains facilities for subjects as the body and health, nature and technology.

In addition a new educational development centre was established in the auditorium and a special designed staircase-furniture functions as a spectator area for events on the stage. The centrally located placement in the school makes the centre into a natural gathering point and a place where one can meet in several occasions. The two gyms (originally one for girls and one for boys) were merged into one big, which gave the school a space large enough for gathering the entire school. New outdoor spaces with new playgrounds were also added in the renovation process.

SKUB

This comprehensive development of public schools was impelled by the estimation that the number of children in the municipality would increase by 50% by 2009/2010. At the same time the Primary Education Act of 1993 incited for a change in the way public schools were operated. With this in mind the Municipality council decided to start the process of extending and renovating schools in Gentofte. Moreover, it was decided that there should be a visionary development of the pedagogy, organization and furnishings – the schools should be at the forefront. The education and the teaching environment were to be more orientated towards the unique child and its individual way of learning and expressing. The goal was to give the children access to a variety of educational settings. Teaching was to be possible to organize in larger or smaller units, across ages, subject and classes, so the learning situation around the individual child could be optimized.



SKUB involved the construction of a brand new school, extension and refurbishment of 11 schools, including four gym halls. In addition there were built two multi centres and four dental clinics in Gentofte. The work of SKUB was organized in and by a project team. The project team consisted of a workforce from diverse commissions who all contributed with their special knowledge and skills. The SKUB project team was closed in September 2009 and the responsibility for school development and buildings now lies with Skole og Fritid (School and Leisure) and Teknik og Miljø (Technology and Environment).

Reference and for more information:

Dorte Mandrup, architect: dorte@dortemandrup.dk
school website: www.munkegaardsskolen.dk
architect website: www.dortemandrup.dk
SKUB-project website: www.skub.dk/
Info about the SKUB-project and Danish schools:
Jens Guldbaek, LOOP T +45 2077 3101 M mail@loop.bz
Short text and description also in the book:
"Skolhuset: idé och form" by Hjördis Kristenson



Munkegård elementary school Gentofte (DK)

Reflections

survey visit 25th November 2010 conversation with Dorte Mandrup, architect

Main points of interest: The connection between indoor and outdoor spaces The new underground floor reconnecting the building The interesting design of the atriums The SKUB project launched by Gentofte Municipality

The survey visit was made when the school was closing for the day, which meant that it was difficult to get a good feeling for the use of the spaces. An interesting aspect was however the contrast between the dark corridors at ground level and the very bright space in the new addition one level down (evening becomes day).

In the original building structure a striking characteristic is where the boundary between outside and inside almost disappears. The small outdoor yards connected to the classrooms are further an aspect worthy of closer examination. Regarding the new extension under ground level the crystal-like form of the atriums made a playful addition, moreover giving light in the evening to the playground above. These spaces as well as the new educational development centre with its staircase-furniture would also be interesting to see in use.



Kunskapsskolan (secondary school) Helsingborg (SE)

Bergaliden 15, 252 23 Helsingborg Sweden
T +46(0)8 506 917 50 E info.helsingborg@kunskapsskolan.se

Background

Kunskapsskolan (eng translation: The Knowledge School) was founded as a company in 1999 and currently operates 23 secondary schools for pupils between the ages of 12 and 16 and 9 upper secondary schools for students between 16 to 19 years old (under the name Kunskapsgymnasiet). The schools don't charge any fees. They are financed through a state school voucher system which is established to ensure that all independent schools operate with the same legal and financial conditions as public schools. According to the website of Kunskapsskolan the business concept is to "develop and operate a chain of privately managed schools with the same educational notion". In addition to this the school has developed a facility concept connected to its educational approach. The architect Kenneth Gärdestad, who is the head architect of Kunskapsskolan, has been involved in the company from the start and is responsible for any changes made at the schools or the drawings when new ones are established.

Facts

students: 430 (classes 6-9) | staff: 30 | completed: 1954 (the original building),
2005 (renovated to fit the school concept) | area: 2900 sqm | architect: Paul
Hedqvist (original building) Kenneth Gärdestad, head architect of Kunskapsskolan |
User: Kunskapsskolan i Sverige AB | Leisure time activities: no

Description

In Helsingborg the Kunskapsskolan operates a school situated in the centrally located annexe of the old Nicolaiskolan, a brick building initiated 1954. The old building, which is considered to have great qualities such as the spacious bright hallway with its stairs, has been internally changed to fit the "facility concept" of Kunskapsskolan.



This concept implies that every school interior should look the same and have the same type of furniture, regardless of where it is located. According to this concept the rooms should have bright colours, transparency, be spacious and have many glass walls. The staff should be able to have a good overview to ensure security and a good working atmosphere for both the students and the teachers. There should be no corridors and no traditional classrooms; instead the schools consist of a variety of open rooms in different sizes and characters with the ambition to suit the students' individual needs.

There are a couple of "key room types" involved in the facility concept: - The café, where the students and the teachers eat lunch together, functions as a meeting place with space for both work and relaxation. In Helsingborg this space is situated in the big central hallway, which is open in all floors and receives daylight from above. - The editorial office is a large open room, where students and teachers work together and a person who needs help always can find someone to ask. - The lecture hall is an amphitheatre for presentations, lectures or other gatherings. - Study rooms of different sizes are available for individual studies, for discussions in pairs or small groups, or for a class with about 20 students.

The fundamental principle of the method of learning is the conviction that all students are different and that they learn in different ways and at different rates. The structure of working varies from a regular school; compared to a traditional school where each one in a class have a similar schedule and going at the same rate, the structure and procedure at Kunskapsskolan is based on the individual planning of each student. In addition to plan what to do and how to proceed, it is included in the planning to consider where the work should be carried out for it to be as efficient as possible. Some students have extensive need for silence or to sit separately while they work, while others learn better with the surrounding sounds or by sitting together with friends when solving a task.

Reference and for more information:

Joakim Andersson, school manager, Helsingborg and Landskrona T +46(0)733 173 453

school website: www.kunskapsskolan.se

Swedish Association of Independent Schools website: www.friskola.se



Kunskapsskolan (secondary school) Helsingborg (SE)

Reflections

survey visit 21th December 2010 conversation with Joakim Andersson, school manager. Main points of interest: The role of the architect and the facility concept (and the lack of development in it...) An educational structure that could be compared to studies at the university The concept of an "open school" with no doors The multi use of the canteen area (ambition to optimize the sqm use) The qualities of the old building (hallway, brick walls, staircase)

The chief architect has a very special and determining role in the organisation of Kunskapsskolan. If something is to be changed or redeveloped then he has to be contacted and consulted. The school in Helsingborg is, according to the school manager, the school most reminding of a "regular" school. Doors have been taken away from the old classrooms, but still they give the visual impression of being just that; classrooms. The interior hallway, which is open in several levels, has been glazed and contains the typical furniture and colour scheme.

The school states that it's "facilities are designed to support and inspire students in their learning" and that there is a strong connection between the facilities and the educational philosophy. This is however not really visible or convincing. The idea to have an open school without class- rooms and corridors is interesting, but that it has to look exactly like this, with exactly these furnitures could be questioned. Nevertheless the school in Helsingborg has received good results in official school comparisons and the composition of students at the school corresponds to the average student of Helsingborg (regarding sex, background of the parents, economic situation, etc.).

It's a take it or leave it concept.

Note: interesting to compare with Kunskapsskolan in Landskrona

Scandinavian school studies

c - Questionnaire

In addition to visit schools and reading and analyzing material on education we also chose to make our own questionnaires to get some answers on certain aspects of the school building and the educational system. The questionnaire consists of building technical questions about ventilation, light and audio, social ones regarding the school's composition of functions and people, pedagogical ones about different teaching methods and other ones about leisure activities and the layout of a school building. Most of the answers showed highly differentiated opinions, but in some cases such as having a home classroom, using the outdoor, and having multifunctional buildings on the school premises showed predominantly coherence.

The questionnaire was handed out to students between 10-13 years, teachers and teacher students. The questionnaire was not meant to be a statistically secure document, but as a small survey (26 answered the questionnaire) to test our own thoughts and prejudices about school buildings, students and teachers. Doing a small survey like this of course leaves room for misinterpretation, and sometimes it is also a question of the responses being so used to the traditional ways of learning that they can not grasp what the implementation of new methods could mean. Nonetheless have we taken all the responses into consideration while designing the school, and when the responses have contradicted the educational research of today, we have tried to find a path in between, not going against the existing research, but also trying to meet the needs of the people spending a majority of their time in school.

QUESTIONNAIRE

"the school that is bigger on the inside than the outside"

how do you want your school to be?

Fill the circle that best fits your answer



NAME OF SCHOOL/PRE-SCHOOL _____



SEGREGATED SCHOOL ACTIVITIES



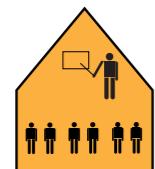
INTEGRATED SCHOOL ACTIVITIES



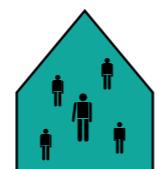
DIFFERENT BACKGROUNDS UNDER DIFFERENT ROOFS



DIFFERENT BACKGROUNDS UNDER ONE ROOF



TRADITIONAL PULPIT TEACHING



INDIVIDUAL LEARNING METHODS



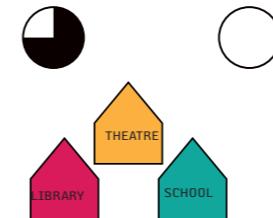
SCHOOL AND LEISURE TIME ACTIVITIES SEPARATED



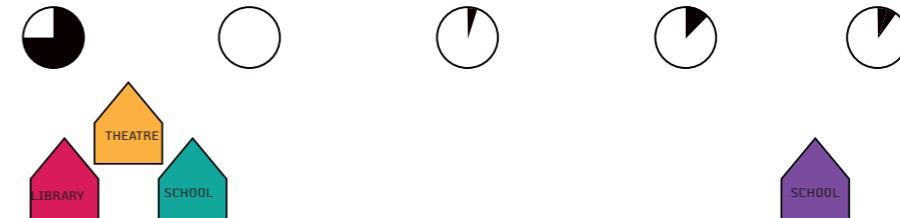
SCHOOL AND LEISURE TIME ACTIVITIES INTEGRATED



THE SCHOOL IS IN USE ONLY DURING THE DAY



THE SCHOOL IS IN USE DAY AND NIGHT



MIXED USES ON CAMPUS



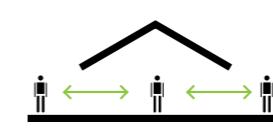
ONLY SCHOOL ON CAMPUS



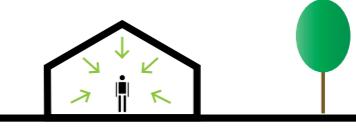
OUTDOOR TEACHING



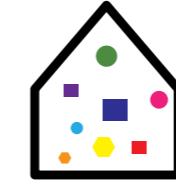
INDOOR TEACHING



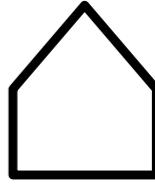
CONTACT/DISTRACTION



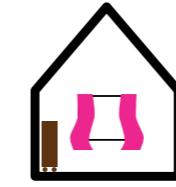
ISOLATION/CONCENTRATION



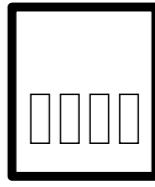
LOTS OF THINGS IN THE CLASSROOM



NO THINGS IN THE CLASSROOM

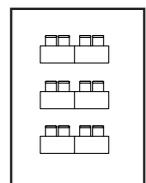


HOMELY

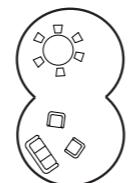


DESIGN FEELING

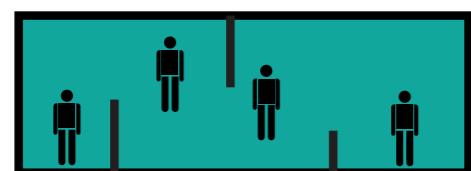




TRADITIONAL CLASSROOM



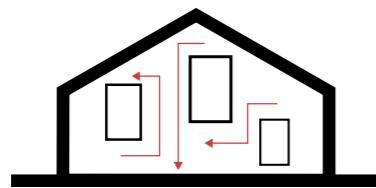
UNTRADITIONAL CLASSROOM



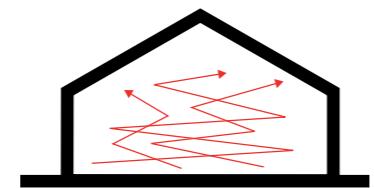
NO/MOBILE HOMECLASSROOM



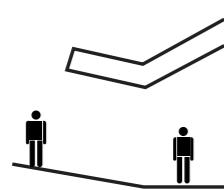
HOMECLASSROOM



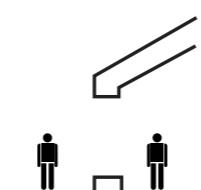
LIMITED MOBILITY



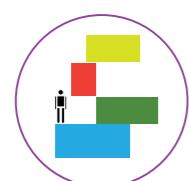
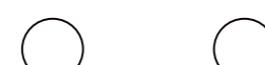
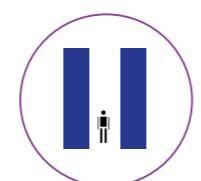
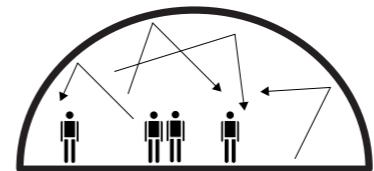
FREE MOBILITY



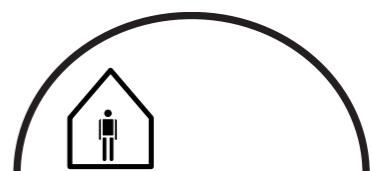
OPEN PLAN



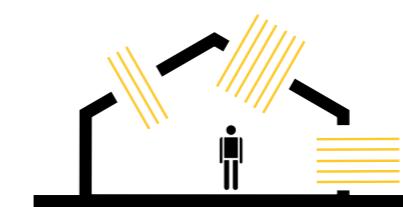
SECONDING PLAN

UNTRADITIONAL ROOM ORGANIZATION
LIMITED AVAILABILITYTRADITIONAL ROOM ORGANIZATION
UNIVERSAL AVAILABILITY

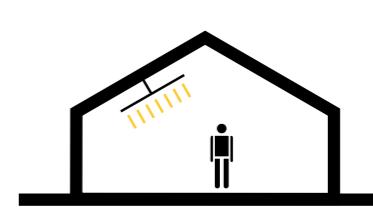
50 DECIBEL (NORMAL CONVERSATION AROUND 60-70)



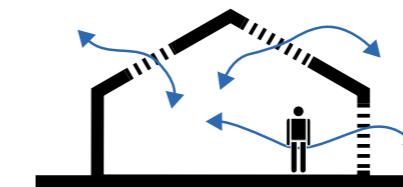
0 DECIBEL



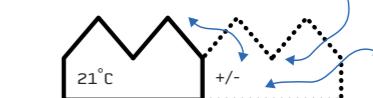
UNREGULATED LIGHT OF VARYING BRIGHTNESS



REGULATED LIGHT (300 LUX GENERAL LIGHTING IN SCHOOL)

NATURAL VENTILATION WITH VARIATION IN THE
INDOOR CLIMATEMECHANICAL VENTILATION WITH AN EVEN
AND CONSTANT TEMPERATURATURE (21°C)

EVEN TEMPERATURE IN THE WHOLE BUILDING

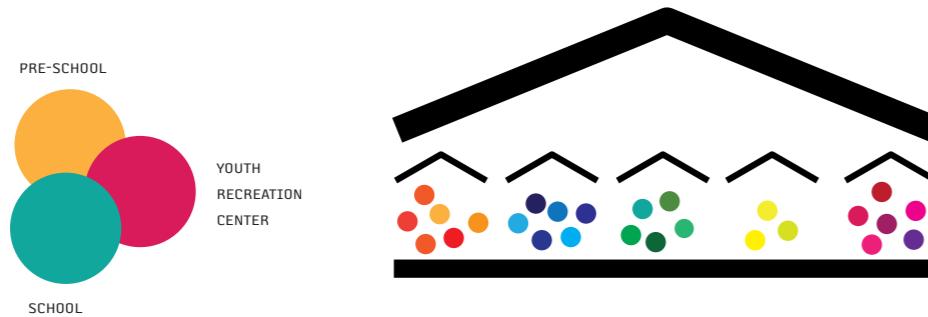
DIFFERENT TEMPERATURARE
ZONES

OTHER COMMENTS:

THANK YOU FOR YOUR PARTICIPATION!

Scandinavian school studies

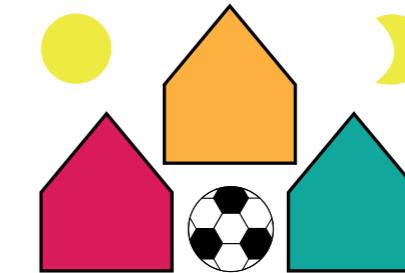
d - Essential characteristics



**1. Assemble students and children
from different backgrounds and of different ages**

People learn better when put together with people who are not like themselves, it creates discussions, teaches children (and adults) how to cooperate and communicate and motivates problem based learning. High performing students help the other students to achieve the goals.

Our survey showed that most students wish for a more segregated school, where people with different backgrounds are separated, and where the different functions as kindergarten and pre-school are separated from the traditional school, and this is also the opinion of the ones advocating the free school choice, but in this case we prefer to go with today's research which states that a mixed school is a better school. Kindergarten, pre-school and after-school are integrated in our school building but still have their own closed off space.

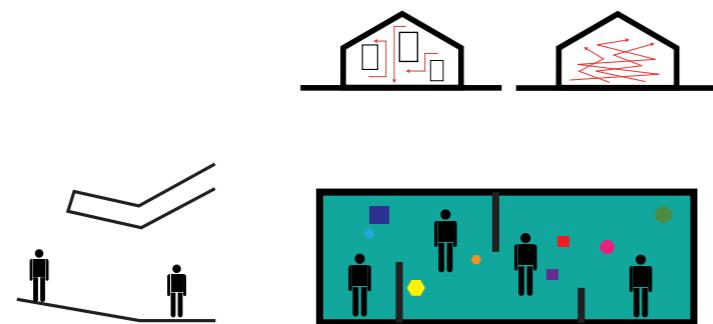


**2. Assemble different activities in the school facilities,
making the building useable by day and at night**

It is important to inspire meetings between the students and the people outside the school sphere, making space for example for a library, theatre, workshops or a sports hall. This also prolongs the hours the school can be used, making it more profitable and a resource for a larger group of people.

Our survey showed that the students and teachers were very positive regarding mixed functions at the school premises such as theatre, gymnasium and library, but less positive regarding the use of school both during the day and the night. (The questionnaire did not mean that the students were supposed to be in school from morning to evening, but rather that a different group of people other than the students would use the premises after school hours, but this may have been miscommunicated to the questionnaire responses). Responding to the question to what extent school and leisure time activities should be integrated the responses were very mixed, varying from totally separated to totally integrated. We interpret that as that the school should offer some leisure activities, but that they to a great extent should be optional.

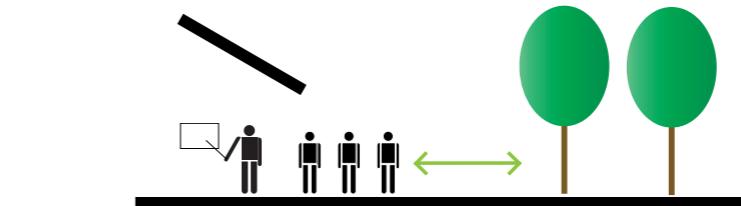
Some parts of our school such as the dining area, the gymnasium and some classrooms are able to close off so that they can be used after school hours.



3. Create various spaces for studying

To meet the different learning needs of all individuals it is important to offer numerous different study situations; closed off rooms for deep concentration or narration, smaller group rooms for the students to discuss and solve problems in, larger halls for music or art education and larger open space for the students themselves to decorate and furnish.

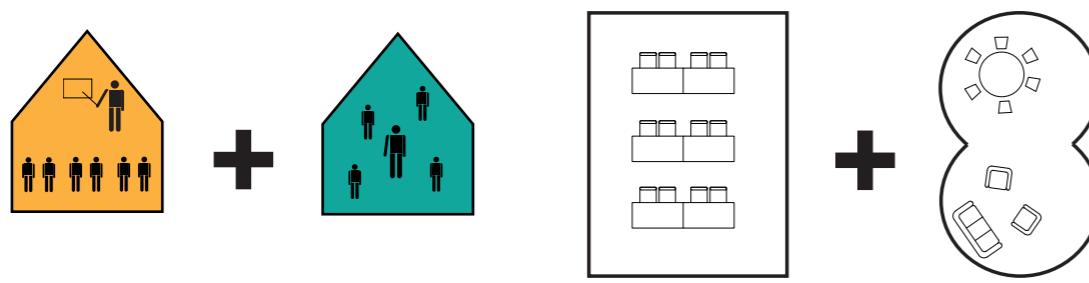
The responses were overwhelmingly unambiguous in wanting an open plan, but half of the responses also wanted some kind of demarcating elements. Our solution is to work with an open plan, but at the same time creating closed off areas for activities that are noise sensitive and easily disturbed.



4. Use the outdoor space as a study facility

Children learn easier if they can move around simultaneously as they are taught something. Children that spend a lot of time outdoors are often healthier, more longwinded and have better balance and motor skills than children that spend most of their time indoors. In addition to that nature often offers a comprehensive and structured explanation of why things are the way they are.

Most of the questionnaire responses answered that they wanted to use the outdoor at least as much as the indoor, and almost half of the responses checked the option for maximum outdoor education. Our school has in addition to the school yard a half climate atrium where plants can grow all year around and balconies and terraces that can be used as an extended classroom during good weather conditions.

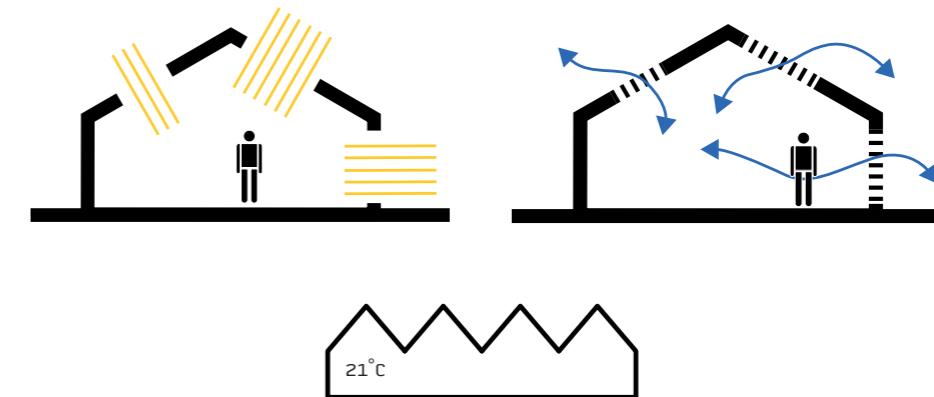


5. Classroom and teaching methods

Each student is unique, and to optimize the student's learning it takes varying sizes and openness of teaching facilities to make it possible to vary the size of groups, ages and subject compositions, and thereby satisfying a variety of individual needs. In addition to the physical school building, the pedagogical methods must also meet the various needs of the students, varying in form from musical and physical to theoretical and mathematical ways of learning. Stimulating more senses optimizes the students' abilities to learn, understand and remember.

Researchers believe that instead of having the office as a model, the workshop, laboratory or studio should be used as role models for the way classroom environments should look like, and other studies have shown that varied teaching methods benefit most students and their abilities to acquire knowledge. Stepping away from the traditional direct instruction, mixing it up with other pedagogical methods would make more students benefit from their education.

When choosing between traditional and untraditional classrooms and teaching methods the responses are again totally divided. This only strengthens our opinion that the study spaces must be of different sizes and types to meet all the individual needs. In our school we have created various study spaces, including group rooms in various sizes, traditional classrooms, workshops, open study spaces and outdoor spaces.

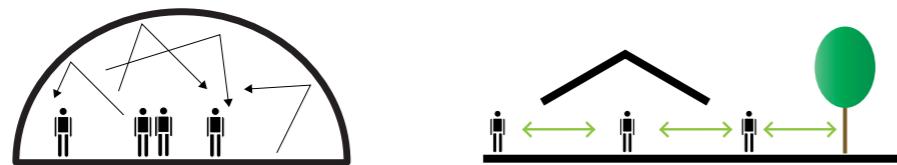


6. Temperature, ventilation and lightning

Daylight is widely accepted to have a positive psychological effect on the human being, among other things fighting mental illness, and helping the human body taking up essential vitamins. Studies also show that students who sit closer to a window are more energetic and have less concentration problems. Because schools and other educational facilities have a high person density, it is essential to have a well-functioning ventilation. There are great benefits using mechanical ventilation in schools, but also disadvantages. The systems must be regularly serviced, vents should be cleaned, and air filters replaced. Sometimes students develop health problems and complaints despite good air flow.

Most responses stated that they wanted an even temperature throughout the building, but with the possibilities to regulate ventilation and lightning manually. As far as light and ventilation goes, there are a number of openable doors and windows in the building that could ventilate the building naturally in addition to a mechanical ventilation system. Each level is also offsetted one meter to provide shading for the sun, while direct sunlight might complicate reading and concentration. More shading, if needed, can be provided by using manually moveable curtains.

Our school has an even indoor climate, except for the centre atrium which is a half climate space. The school's facades open up to the south, and are more closed to the north. This to collect as much sunlight and lose as less heat as possible. Some of the windows to the south can be used for attaching small solar cells, making up an interesting pattern on the glass parts and producing energy at the same time.



7. Noise and level of distraction

A healthy sound environment is important to get the students to concentrate and not be disturbed by other activities going on simultaneously. It is also important that the acoustics inside the teaching facilities have a high standard to facilitate narration and communication. Different activities produce various levels of noise and are differently noise and visually sensitive and therefore need different degrees of screening.

The responses answered to a high degree that they wanted a study space with a lot of visual contact and a majority of the responses did not seem to want to study in silence, but instead accepted quite a lot of noise around them. Studies show that different students need different surroundings to be able to achieve knowledge the best way possible. An example of how students' learning styles differ from each other are the results of research conducted in the U.S. This research showed that up to 40% of young people in schools need background music to perform better, about 20% want absolute silence, and 40% are flexible in this regard. In addition to this different kind of activities require different degrees of screening. For individual work, or for work in groups of two as well as smaller groups there might be need for a higher level of screening than in a music or gymnastic lesson. For this reason it is very important to design different spaces for different degrees of noise and visually sensitive activities.

Inside class and group rooms the acoustic can easily be improved by using sound-deadening pads on furniture, demarcating bigger rooms, using noise screens and sound-deadening curtains and place noise absorbers at the back of the classroom while early sound reflexes are necessary for speech intelligibility further back in the classroom. The traditional classrooms in our building are open to the outside to provide a view over the surrounding landscape, connecting the students to the outside world without distracting them. The various group rooms have different levels of screening, ranging from the open glass box to the more closed off group rooms in direct connection to the classrooms. Using translucent materials in the gymnasium walls can for example provide outsiders with an idea of what is going on, without distracting neither the practitioners nor the people moving around it.

The Swedish and Finnish school system and the PISA study

Schools and education in the Scandinavian countries have given many students the opportunities to live a better life than their parents and grandparents. While education has served to adapt and socialize the growing generation to the structure of society and thus has been more stabilizing and preservative than changing the social order, it has also in modern times been the bridging of social and economical differences. In international surveys that have studied the Swedish education system after the 60s major school reform, the benefits of the cohesive school's advantages have been highlighted for their significance regarding compensating for unequal social and economic home conditions. The reforms leading up to this have been decided in broad agreements across party lines and compared to the educational system in for example Great Britain and Germany where students have to make choices early in the school system where parallel school system lives on, and students are separated according to their abilities to attain knowledge.

Sweden has the last years lost its place as one of the highest performing schools in PISA. What has happened to initiate this change? Has the development from a highly differentiated school to a cohesive school "for all" that has been ongoing for the past 100 years in the 2000s first decade taken a new turn? Do the right to choose



schools and the system of free or independent school augment the risk of segregation and reversion to a more differentiated school system? Is the introduction of so-called elite classes and the division of secondary education in an academic part and a part that does not give general eligibility vocational studies, evidence of such a return? What other factors might there be for this decline in students' development and furthermore; what are the success factors of the successful Finnish school and what led Sweden earlier to a top placement in for example the PISA studies and what can we learn from it when trying to design a new Dutch school?

Finland exhibits both low overall variation in student performance and very low variation among schools. The results in Finland are also affected rather little by the individual's own socio-economic background. Furthermore, the effect of the schools' socio-economic composition on student achievement is very low and, finally, the variation in the schools' socio-economic composition is substantially lower than the OECD average. The lowest performing students in Finland are basically performing on par with higher-performing students in other countries.

Of all the school systems in the world, the Swedish one is most similar to the Finnish: kindergarten and preschool classes are followed by nine years of primary school which is free, compulsory, and the same for all students. Class size, special education and school libraries are very similar. Additional private lessons that are common in some other countries hardly exist. Nevertheless, Finland succeeds the best in getting all schools to perform equally. The difference between the schools' performance in PISA is the lowest of all the OECD countries.

Sweden has a significantly higher total variation in results than the OECD average, but a significantly lower variation-between-schools. The overall effect of socio-economic background is also significantly higher than the OECD average, while the effect on the school level does not differ from the average OECD country. However, the variation in schools' socio-economic composition is the second lowest of all countries. As a whole, the assessment must be that Sweden is now on the whole a fairly average country in terms of equivalence based on these indicators. However, the variation in results between schools changed significantly since the last PISA study. Variation-between-schools was in 2009 more than twice as large as 2000. As for the effect of students' socio-economic background on their reading

comprehension, Sweden was in 2000 significantly lower than the OECD average, in 2009 instead significantly above the OECD average.

What has happened to Sweden that could lead to this change?

The overall impression from the results of reading comprehension in PISA 2000 and 2009 is that Sweden during the 2000s has lost its position at the top as one of the countries with the most equivalent school systems to now be no more an average country in terms of equivalence. This relative decline is not so much due to the fact that other countries caught up with Sweden; the main reason is rather that the equivalence in Sweden has deteriorated during this time period. The differences between high and low performing students have increased, as well as the differences between high and low performing schools. Also, the students' socio economic background has gotten a larger impact on how well they perform in school.

The Finnish school exhibits the smallest differences between different schools and end up in the top layer of PISA in 2009 regarding students' reading comprehension and understanding of natural science and mathematics. Sweden is in fifth place but has lagged behind. Finland, together with Iceland exhibits the smallest variation between schools in terms of socio-economic composition. However, Sweden still has a small variation compared to the rest of the OECD countries but not in a Scandinavian or Nordic perspective, while the Netherlands is well above average. The Finnish school uses the principle of subsidiarity, that is, the students attend the school whose catchment area they belong to, and there are no free or independent schools to choose from. The only thing deciding where the students attend school is where they live, and this could of course also have an impact on the socio-economic composition, but Finland seems to manage that difference pretty well in comparison to many other countries.

The Nordic countries have consistently the least variation between schools, Finland having the lowest, nine percent. The countries showing the greatest variation between schools are Italy, Chile and Hungary, each with a between-schools-variation of over 70 percent. One explanation of the Nordic countries' relatively low variation between schools is partly the late start of school in these countries, which means that most 15 year olds still go to school, while in many other countries where the



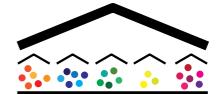
start of school is earlier, these students have gone on to the corresponding upper secondary school where the various choices of school programs and their distribution in different schools gives a larger variation between schools. This should be borne in mind when equivalence indicators are measured.

According to Anders Jakobsson, one reason that the Finnish school has succeeded is that it is very cohesive, both in terms of organization and teaching methods in the classroom. School, home and community work together to help students get the best education. Other factors of success are teachers and similarity says Timo Lankinen, Director General of the Board of Education as equivalent to the Swedish National Agency for Education: "The best educational system gives teachers good education, in-job training, and lets them concentrate on their work - teaching," he says. Also, teacher is a popular profession in Finland. For each admission place on the 5-year teacher education there are ten candidates. Applicants are selected both by knowledge tests and personal interviews. The pressure on the admission places in turn means that it has an excellent raw material to work with when it comes to those admitted to the program says Timo Lankinen.

So what Finland so successfully cultivates and Sweden earlier cultivated is a public school system that is cohesive and does not separate students from an early age. In Finland it is not possible to choose which school the students should attend, which means that there are no A- or B-schools for the teachers to choose between, which in turn means that the level of the teachers and the education will be more equivalent than in for example Holland and Sweden, where an earlier separation of students and a free choice of school reigns. This is also what the studies of the Swedish educational system show. The free school choice pulled the highest achieving students from schools that may already had problems with economy, low achieving students, and low attendance to higher achieving schools, leaving the lowest achieving schools with the lowest achieving students in a downhill spiral. The same studies have shown that high achieving students do not achieve higher only with the reduction of the lower achieving students, but that in fact the lower achieving students achieve higher when studying together with the higher achievers.

Multiple intelligences

Dr. Howard Gardner, professor of education at Harvard University, developed the classical theory of multiple intelligences in 1983. It suggests that the traditional notion of intelligence, based on I.Q. testing, is far too limited. Instead, Dr. Gardner proposes eight different intelligences to account for a broader range of human potential in children and adults. These intelligences are:



Linguistic intelligence: This area has to do with words, spoken or written. People with high verbal-linguistic intelligence display a facility with words and languages. They are typically good at reading, writing, telling stories and memorizing words along with dates. They tend to learn best by reading, taking notes, listening to lectures, and by discussing and debating about what they have learned. Those with verbal-linguistic intelligence learn foreign languages very easily as they have high verbal memory and recall, and an ability to understand and manipulate syntax and structure.

Logical-mathematical intelligence: This area has to do with logic, abstractions, reasoning and numbers. While it is often assumed that those with this intelligence naturally excel in mathematics, chess, computer programming and other logical or

numerical activities, a more accurate definition places less emphasis on traditional mathematical ability and more on reasoning capabilities, recognizing abstract patterns, scientific thinking and investigation and the ability to perform complex calculations.

Spatial intelligence: This area deals with spatial judgment and the ability to visualize with the mind's eye. A spatial person is also good with puzzles.

Bodily-kinesthetic intelligence: The core elements of the bodily-kinesthetic intelligence are control of one's bodily motions and the capacity to handle objects skillfully. Gardner elaborates to say that this intelligence also includes a sense of timing, a clear sense of the goal of a physical action, along with the ability to train responses so they become like reflexes.

In theory, people who have bodily-kinesthetic intelligence should learn better by involving muscular movement (for example getting up and moving around into the learning experience), and are generally good at physical activities such as sports or dance. They may enjoy acting or performing, and in general they are good at building and making things. They often learn best by doing something physically, rather than by reading or hearing about it. Those with strong bodily-kinesthetic intelligence seem to use what might be termed muscle memory - they remember things through their body such as verbal memory.

Musical intelligence: This area has to do with sensitivity to sounds, rhythms, tones and music. People with a high musical intelligence normally have good pitch and may even have absolute pitch and are able to sing, play musical instruments, and compose music. Since there is a strong auditory component to this intelligence, those who are strongest in it may learn best via lecture. Language skills are typically highly developed in those whose base intelligence is musical. In addition, they will sometimes use songs or rhythms to learn. They have sensitivity to rhythm, pitch, meter, tone, melody or timbre.

Interpersonal intelligence: This area has to do with interaction with others. In theory, people who have a high interpersonal intelligence tend to be extroverts characterized by their sensitivity to others' moods, feelings, temperaments and motivations, and their ability to cooperate in order to work as part of a group.

They communicate effectively and empathize easily with others, and may be either leaders or followers. They typically learn best by working with others and often enjoy discussion and debate.

Intrapersonal intelligence: This area has to do with introspective and self-reflective capacities. People with intrapersonal intelligence are intuitive and typically introverted. They are skillful at deciphering their own feelings and motivations. This refers to having a deep understanding of the self; what your strengths/ weaknesses are, what makes you unique, being able to predict your own reactions/emotions. People with intrapersonal intelligence also prefer to work alone.

Naturalist intelligence: This area has to do with nurturing and relating information to one's natural surroundings. Examples include classifying natural forms such as animal and plant species and rocks and mountain types; and the applied knowledge of nature in farming, mining, etc.

Dr. Gardner means that our schools and culture focus most of their attention on linguistic and logical-mathematical intelligence. We esteem the highly articulate or logical people of our culture. However, Dr. Gardner means that we should also place equal attention on individuals who show gifts in the other intelligences: the artists, architects, musicians, naturalists, designers, dancers, therapists, entrepreneurs, and others who enrich the world in which we live. Unfortunately, many students who have these gifts do not receive much reinforcement for them in school. Many of these students, in fact, end up being labeled learning disabled, ADD (attention deficit disorder) or simply underachievers, when their unique ways of thinking and learning are not addressed by a heavily linguistic or logical-mathematical classroom.

The theory of multiple intelligences proposes a major transformation in the way our schools are run. It suggests that teachers be trained to present their lessons in a wide variety of ways using music, cooperative learning, art activities, role play, multimedia, field trips, inner reflection, and much more. The theory of multiple intelligences has grabbed the attention of many educators around the world, and many schools are currently using its philosophy to redesign the way it educates children, but there are still many more schools out there that teach in the traditional way, through lectures, worksheets and textbooks.

One of the most prominent features of the theory of multiple intelligences is how



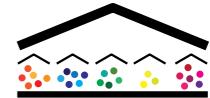
it provides eight different potential pathways to learning. If a teacher is having difficulty reaching a student in the more traditional linguistic or logical ways of instruction, the theory of multiple intelligences suggests several other ways in which the material might be presented to facilitate effective learning.

Whether one is a kindergarten teacher, a graduate school instructor or an adult learner seeking better ways of pursuing self-study on any subject of interest, the same basic guidelines apply. Whatever one is teaching or learning, one might connect it with:

- words (linguistic intelligence)
- numbers or logic (logical-mathematical intelligence)
- pictures (spatial intelligence)
- music (musical intelligence)
- self-reflection (intrapersonal intelligence)
- a physical experience (bodily-kinesthetic intelligence)
- a social experience (interpersonal intelligence), and/or
- an experience in the natural world (naturalist intelligence)

For example, if one is teaching or learning about the law of supply and demand in economics, one might read about it (linguistic), study mathematical formulas that express it (logical-mathematical), examine a graphic chart that illustrates the principle (spatial), observe the law in the natural world (naturalist) or in the human world of commerce (interpersonal); examine the law in terms of the own body (for example when one supplies one's body with lots of food, the hunger demand goes down; when there's very little supply, one's stomach's demand for food goes way up and you get hungry) (bodily-kinesthetic and intrapersonal); and/or write a song (or find an existing song) that demonstrates the law.

One does not have to teach or learn something in all eight ways, but the possibilities are there, and then one can self decide which particular pathways interest one the most, or seem to be the most effective teaching or learning tools. This shows us that there are numerous ways to acquire knowledge, and what is right for one might be totally wrong for another, and that both the education and the school building needs to be adaptable and ready to meet all the different needs the students and teacher might have.





Meetings

School premises are supposed to encourage, facilitate and develop creative and social meetings between students, teachers and other persons who move within the school environment, but also between the world of school and the rest of the society.

To create flexible rooms that can be used in many different ways encourages meetings over age and institutional boundaries. An example of a successful meeting point is the centrally located stairs in Munkegårdsskolan in Gentofte, Denmark (originally designed by the famous designer Arne Jacobsen, later modified by Dorte Mandrup Architects). The stairs are used - except as for transportation - as public space for the nearby stage. Also in Ørestad College in Copenhagen, the main staircase is used as a meeting place at the same times as it creates an overview of much of the school that has an open floor plan. At Kunskapsskolan (The school of Knowledge) in Helsingborg, the cafeteria has been developed as a meeting place where you can dine, but besides that also work and relax. The cafeteria is located in the central foyer; and has visual contact with all of the school's floors.

Other ways of creating meetings is to integrate other functions than those traditionally in place on the school grounds. In 2007, Riksförbundet Hem & Skola



(the National Association of Home & School) demanded in a letter to the Council for Form, Architecture and Design, that there would be built a cultural centre for each existing school consisting of music rooms, studios, dance halls and other features that "promotes students' creativity - which in turn raises their desire to study, supports their social development as well as opens doors to the future society and lifelong learning." Such a plan would be very difficult to implement, especially given the strict budget the educational system is under, but the idea is a good one. To integrate functions other than traditional school functions would invite to meetings between the school world and the society. The functions do not need to be placed in an individual building; but could be integrated with existing or planned school buildings. An example of this is Aranäs Gymnasium in Kungsbacka, which share foyer with a theatre, creating meetings between students and people from outside of the educational sphere. In Kunskapsgallerian (The Knowledge Mall) in Sickla, private and municipal secondary schools, post-secondary education, as well as a restaurant, café and community facilities intermingle. The preschool Ugglan (The Owl) in Alby has a dining room with a separate entrance and is used as banquet and meeting hall in the evenings and weekends to expand the school's time of utilization. If the school is used during other times than just the traditional hours, it means that its economical situation is improving, both for the sake that other activities can rent special rooms and pay for this which will give the school a greater financial freedom that can be used for improving the education, but also because the use of the building is more economical, if for example used by native language school for immigrants the municipality does not have to rent other premises and can therefore save money that instead can go back to the school.

Sense of Coherence (SOC)

Both the Convention on the Rights of the Child and the Swedish curriculum emphasize the importance of children's right to influence and take responsibility for their own environment. By participating in a democratic process, children learn responsibility, reasoning techniques, and cooperation, important abilities one needs to possess in today's society. The Swedish curricula of '98 and '11 both express the importance of students' ability to influence, take responsibility and be involved in all aspects of their education. The students' Sense of coherence is an important factor in the Swedish curriculum, and an important starting point in our construction of a modern school.

SOC, "sense of coherence" is a concept created by Professor Aaron Antonovsky and is an. Antonovsky was a professor of medical sociology and his research included among other things what it is that makes people become and remain healthy, that is, the origin of the curative factors: salutogenes. The health perspective of Antonovsky states that health / illness is a multidimensional phenomenon and not a permanent condition. People can thus be more or less ill, and many different factors at many different levels affect an individual's condition.



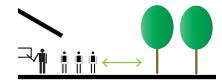
The concept of SOC has three components. A basic experience that what is happening in and outside the individual is predictable, understandable and structured (intelligibility) and to what degree people experience that these resources are available, internally as well as externally, by which one can meet the demands of life (manageability) and that the challenges of life are worth investing their commitment in, that is to be involved as participants in the processes that shape one's daily life and future (meaningfulness). Antonovsky developed a chart that measures the degree of SOC. High values mean that the individual has a strong sense of coherence and thus a high ability to handle challenges.

With this in mind, it is reasonable to assume that how and where the school is located, how people move in the school environment, what hierarchies are maintained, how different age groups and educational orientations and disciplines are segregated or integrated are very important factors for students' learning ability. It is therefore essential that students feel that their school attendance is structured and understandable, meaningful and worthy of participation and investment and that they themselves can influence their education.

Outdoor education and Dewey - a brief history -

The modern school is often said to have drawn inspiration from, among others, John Dewey (1859-1952), an American philosopher, psychologist and educational reformer. Dewey's ideas have had a great impact on school in terms of work forms, educational goals, and the opening up of schools to the community. He wanted to abolish the traditional classroom and introduce a "learning by doing-pedagogy". The school should be a laboratory instead of an auditorium, a place where learning is created by activity and not by conveying knowledge one-way from teacher to student he meant.

The goal was to overcome the difference between thought and action. Student activities were put at the heart of planning and implemented teaching, which also put high demands on the teacher's knowledge of the subject. According to Dewey, the educational process has two sides: one psychological, the most fundamental, and one sociological that is important for us to rightly understand the children. He saw the importance of being considerate of and having respect for children's conditions, experiences, interests, desires and habits. Dewey argued that practical knowledge was worth just as much as theoretical knowledge. Furthermore, Dewey argued



that we develop by doing practical things. The understanding of various concepts is facilitated in practical action, direct experience and with concrete materials.



In the end of the 19th century, a changeable pedagogy and visual instruction had become fashionable. It was then used as a supplement to classroom instruction and books. For teachers, it was important to link education with practical experiences. For instance, bike tours, hikes and education in nature were being carried out. Through direct observation, knowledge would become a whole and the children were able to see, smell and feel rather than just reading about it. Questions were to be taken from reality and not from books. This led to an outdoor education with historical and contemporary objectives: to educate for the care of our natural environment, and a growing responsibility for all living things.

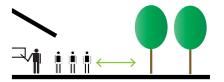
Outdoor education advocates believe that this teaching method, aiming to vary the traditional teacher-centred teaching in the classroom and learning through bodily experiences outside in different environments - that is, learning experiences that stimulate all the senses and thereby help to improve learning ability.



Outdoor education is considered applicable in most subjects studied in elementary school, from sports to math, but even in high school this educational direction may be of considerable benefit to students. Through the physical stimulation, learning can be an enjoyable experience regardless of subject, the advocates argue. Studying outside, close to the landscape (in a park, an industrial or urban environment) in which students have lived in may result in a strengthening of students' sense of belonging. Nature often offers a comprehensive and structured explanation of why things are the way they are, and to get students to, for example, take care of school gardens can help less motivated students to feel involved and important, something that in itself is extremely important for the way these students will cope with and embrace their education.

Learning in an outdoor environment

Today there is hardly anyone who opposes the fact that children feel well both physically and mentally by being outdoors. The boundless outdoors space holds endless opportunities to discover the world with the body and all its senses, in play and movement that promotes health and motor development. In nature, the child experiences



cause and effect in a practical way, and they can detect similarities and differences, they learn to see coherence, context and a whole which can only be learned through their own experience. In today's schools learning outdoors should be seen as a complement to traditional education, where learning often takes place within four walls.

An Italian study, "Urban Child's needs", in which children were involved in the planning processes of outdoor environments, revealed that the children (5-10 years) preferred to improve the quality and safety of the urban environment in general rather than constructing playgrounds, because they would then be able to move more freely on their own and have the opportunity to play where they wanted to.

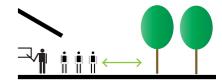
Other studies show that a diverse school outdoor environment promotes children's play and most school leaders believe that the playground is very or fairly important for the students as a social meeting place, as well as for their health and wellness. The latter two factors are very important to make a student able to benefit from any education whatsoever. Children who spend a lot of time outdoors are healthier, can run farther and faster, have better motor skills and balance than children who spend a lot of time indoors. In addition to this, too much sitting still may lead to back problems. Furthermore, research shows that children playing in rich natural pre-schools play more games, play better in groups and are more resilient. In large school grounds, especially on those that have access to natural areas, there is more activity as the landscape context invites to ingenuity and is also a source of knowledge and learning. Children want and need to move, and according to modern brain science children learn better when they are.

School grounds should also be designed in the scale of students, with a good mix of different kinds of environments, such as asphalt or gravel for the skipping rope, ball games and other activities that require flat level ground, "natural" areas such as woods, swamps and meadows for more free play and more designed sites as playgrounds or sandboxes. One should also bear in mind that when there is a large difference in age composition, there should in addition to the open space be more defined, demarcated spaces so that also the youngest students will feel safe.

To see the school building and the school grounds as part of a larger unit also promotes the use of the schoolyard as a tool in teaching. The construction of, for example a school ground can expand students' understanding of ecology and

environment, while they feel involved in getting things to grow, adding a personal approach to nature and the environment. To involve students in the school ground or the school's outdoors design can give the school an explicit identity as both teachers and students can be proud of. The more people who have an interest in the school yard and use it in different ways, the more it will be appreciated, and the more invested into, which can be a beginning of a virtuous circle.

Another way to use the school's outdoor areas is to link the terraces to some or all of the educational facilities which may then function as extensions of the classroom in good weather and then also vary the teaching environment for students. An example of this is Ängdalsskolan in Malmö, where every classroom has an outdoor terrace used as an extension of the traditional classroom in summer. Covered porches or the like could be interesting outdoor workshops for the study of nature and the environment. To use the school's outdoor areas as communication surfaces outdoors is another opportunity.





Individual education

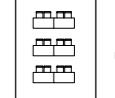
The Swedish elementary and secondary upper school curricula indicates that the work should be organized and implemented so that students develop according to their own capacity and at the same time are stimulated to use and develop their whole potential. Each student is entitled to development in school and the teachers must be aware of each individual's needs, circumstances, experience and thinking. Essential in the individualized education is the teacher's expectations of the student. If the teacher's expectations of the student are lower than the student's actual performance level, the student will only perform on a par with the teachers' lower expectations and not take advantage of his or her full potential.

The PISA study shows that when the separation between high- and low-performing students increases, the results of the low- and middle-performing students drop. And the high-performing students do not improve their performance. "This may be difficult to understand: it's not that high-performing students improve their performance significantly when they come to a group where there are other high-performing students" says Anders Jakobsson, professor, Malmö Högskola. Another consequence of the high-performing students' relocation to other more high-performing



schools is that many schools are left struggling to survive when these students move. If the school loses their most talented students, the average achievement drops and eventually more of the talented teachers and "the next generation of talented students" will want to work and study elsewhere, which in turn means fewer and scarcer resources for a school which probably already have too little. Several schools in socio-economically disadvantaged areas in Sweden are threatened to be closed down, or have already closed down because of this downward spiral. This is in every respect an unwanted development as schools that really could work stands empty, without students or teachers to accommodate. Concerning this, one can once again take a look at the Finnish school, which instead of free school choice is using the principle that you go to school where you live. In Sweden, the trend has been that bad schools have been neglected by talented students, and therefore becomes even worse, whereas in Finland there is no opportunity to opt out a poor school for the better, making the school closest to the student the one he or she goes to. One should certainly not ignore the argument that the Finnish principle can also strengthen segregation, but the fact remains; Sweden, on many different levels, dropped in the PISA study, according to many because of the free school choice. The discrepancy between Sweden and Finland is that in Sweden there is a very big difference in how the different schools can meet different individuals' educational needs, while in Finland a way has been found in which the vast majority of schools succeeds to deliver similar results. Therefore, it has also eliminated the greatest factor behind the relocation of talented students. If all schools perform about the same level, have the same resources and equally dedicated teachers, there is no need for the most talented students to move.

Flexibility




+ 

Another recurrent theme in studies of students' learning ability and school buildings is the need for flexibility; flexibility in terms of classroom size and appearance, flexibility in teaching practice, working hours and working arrangements. We have gone from a school of an industrial society that was more hierarchical and centralized, where the work was done at a particular place, at specified times with a certain supervisor; the teacher who knew all the right answers, towards a more independent, experimental and problem-solving form of teaching where the teacher's role is that of the tutor who will encourage learning and instead of giving specific answers, will discuss and analyze together with the students. The school buildings of today are often not adapted to the current curriculum, but rather suitable for the old school's (usually one-way) communication pedagogy, and to meet the contemporary educational ways of thinking the school's physical design must also be updated.

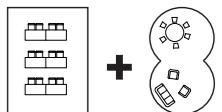
Openness, area efficiency, flexibility and transparency are words used frequently in the school building debate. Classrooms will no longer only be the traditional rectangular room, but open, transparent, dividable and multifunctional rooms that



can be used by the school's students at different times. At the same time, children need an intimacy and a small scale that does not always go hand in hand with these big, open and transparent rooms. Too much openness, for example glass walls, can also be distracting and lead to concentration problems for some students. English studies show that 3-8 year olds who reside in large rooms show case territoriality, which is a prerequisite for complete mental health, only if a big room is divided by many corners and walls. Researchers also believe that privacy, that is, the ability to restrict others' influence, is important for student's adjustment and development. The students should not be isolated, but there should be an opportunity to be alone. Repeated visits to the same places is important for students' sense of security, thus making it easier for them to absorb new experiences and learn new skills.

The fact that all students are different and that their capacity to absorb knowledge is different from each other is obviously something we have to take into account when we design and build new schools. Since the different ways in which students best learn vary, a variety of teaching methods is required, but also a variety in learning environments. As an example of how students' learning styles differ from each other may be seen in some of the results of research conducted in the U.S. This research showed for example that up to 40% of young people in schools need background music to perform better, about 20% want absolute silence, and 40% are flexible in this regard.

Each student is unique, and to optimize the student's learning it takes varying sizes and openness of teaching facilities to make it possible to vary the size of groups, ages and subject compositions, and thereby satisfying a variety of individual needs. Researchers also believe that instead of having the office as a model, the workshop, laboratory or studio should be used as models for the way classroom environments should look like, since students need environments that inspire different types of practical activities and actions. The physical environment creates opportunities as well as barriers of play and learning and it is therefore important to organize the teaching spaces in a way that maximizes the creation of these conditions, as far as it is possible, as well as to avoid the barriers of the same.



Many of the newer schools (built in the 90s or later) are visually and audibly more disturbing, than the older schools, due to the open floor plans, the abolishment of the corridors and traditional classrooms. One problem when you replace a large number of solid walls with glass walls may be that you lose tranquillity and the educational need to showcase student work.

Demarcating different spaces can be done in a number of ways. One example of demarcation between the common room and the classroom is to divide the rooms with glass cabinets - where it is possible to showcase students' artwork - and closed cabinets for storage, a functional solution that is both storage efficient and pedagogically appealing. Another example of screening inside or outside of classrooms is group rooms. These rooms can be glass-encrusted sections with full transparency, and shielded by curtains when needed, closed off rooms for work without disturbances or group alcoves integrated in the classroom. Inside the classrooms, different spaces may be created by mobile furniture, whiteboards and screens.

Scandinavian school studies e - Basic guidelines and program for a new school

Basic guidelines for designing new school buildings

1 Provide an inclusive learning environment for the children.

This means the building as well as the organisation should facilitate maximum hospitality to everybody alike. Universal accessibility is the key word.

2 Provide the possibility to harbour other neighbourhood activities in the school building.

This programmatic linking with the neighbourhood embeds the school building in its environment and connects it with the living environment of the children as well.

3 Integrate secondary schooling partially in the learning environment.

Departing from the concept of separate school buildings for primary and secondary education allows 12-year-olds an easier and more gradual transition to the latter.

4 Create spatial diversity in the building.

Diversity offers users (teachers as well as pupils) the opportunity to customise their schooling activities to their own specific needs and criteria.

5 Ensure that the environment of the building as well as the outside building areas become part of the learning environment.

The indoor and outdoor areas are to be made accessible for playing, learning and other no longer compartmentalised activities.

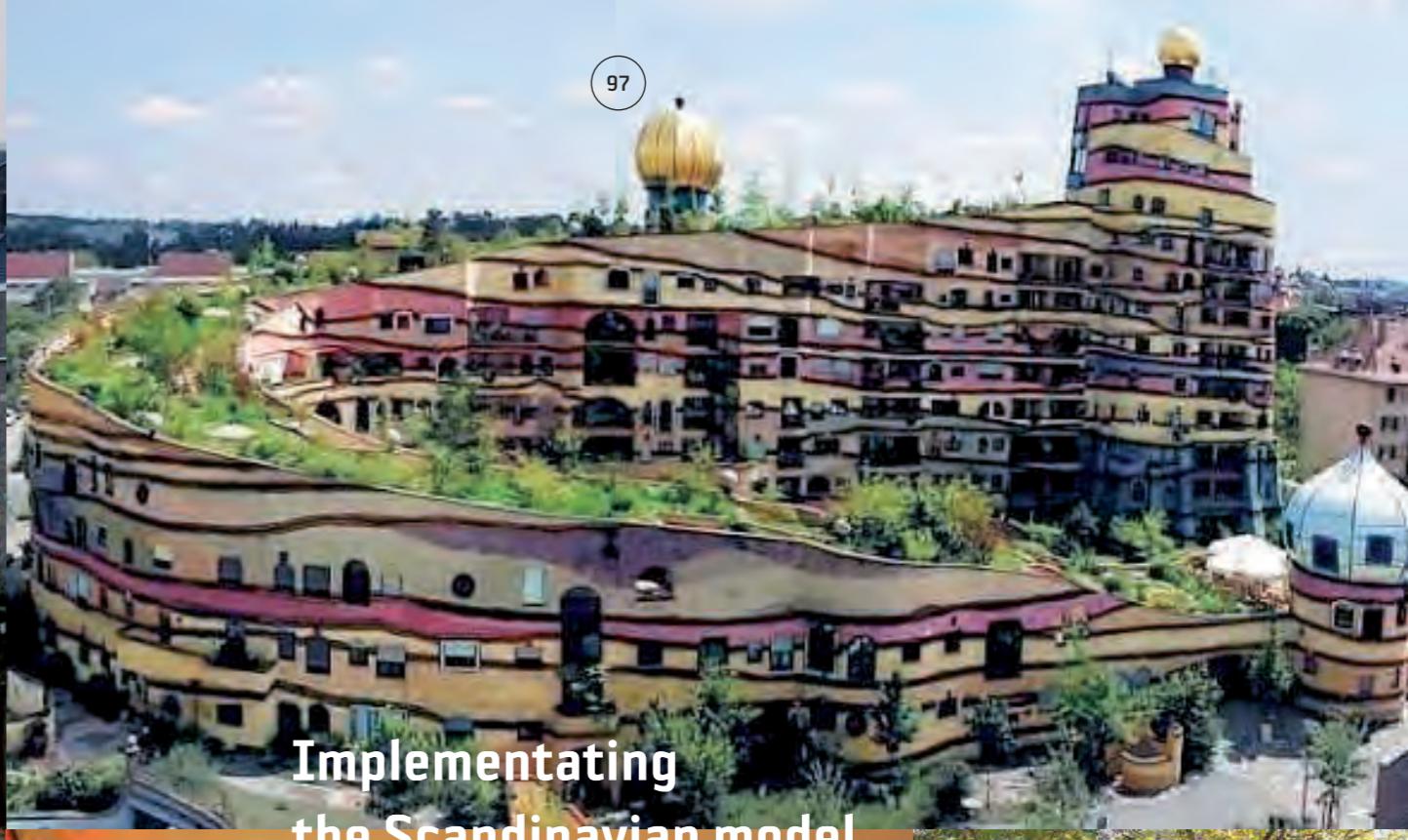
6 Provide an open flexible learning environment with maximum adaptability and usability.

It's imperative to be able to meet specific shifts in educational needs at short notice by the alternative use of spaces.

7 Create an interactive indoor climate.

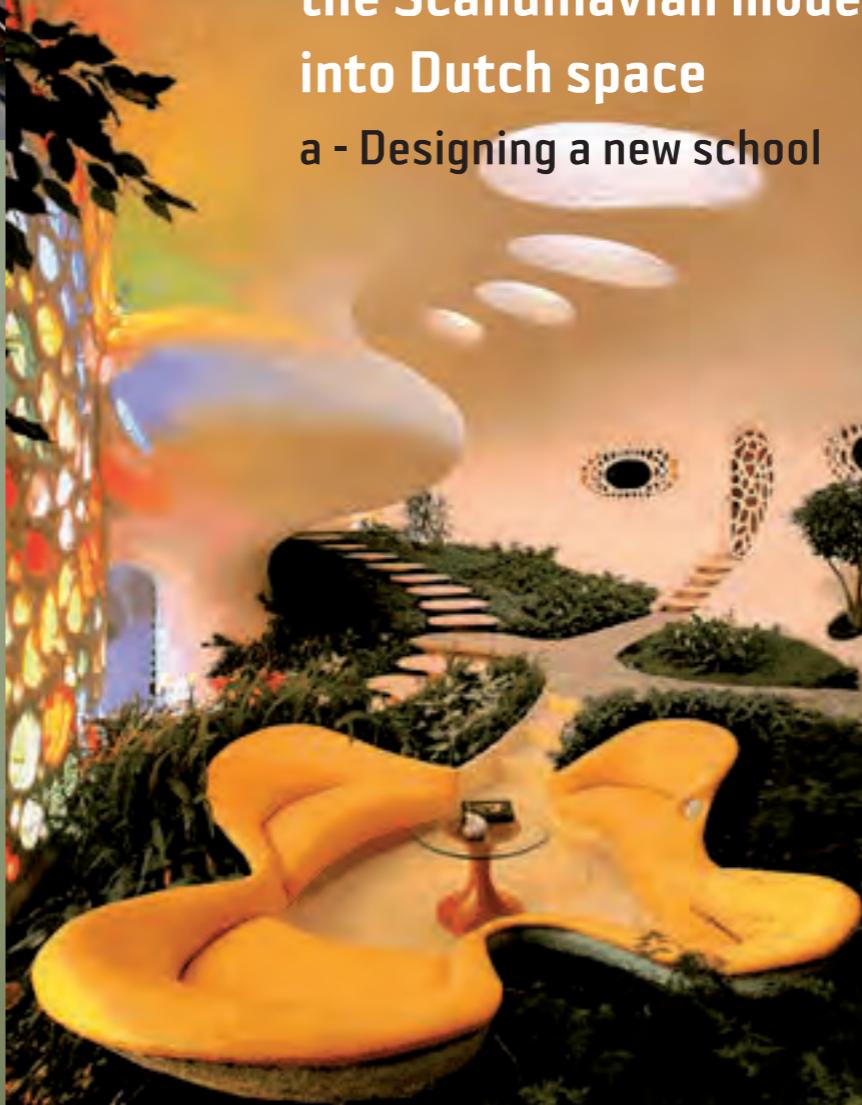
Offer individuals or the group the opportunity and the responsibility to control the indoor climate themselves, whether this concerns the light, noise, temperature or ventilation levels or any combination of these indoor climate conditioning elements.

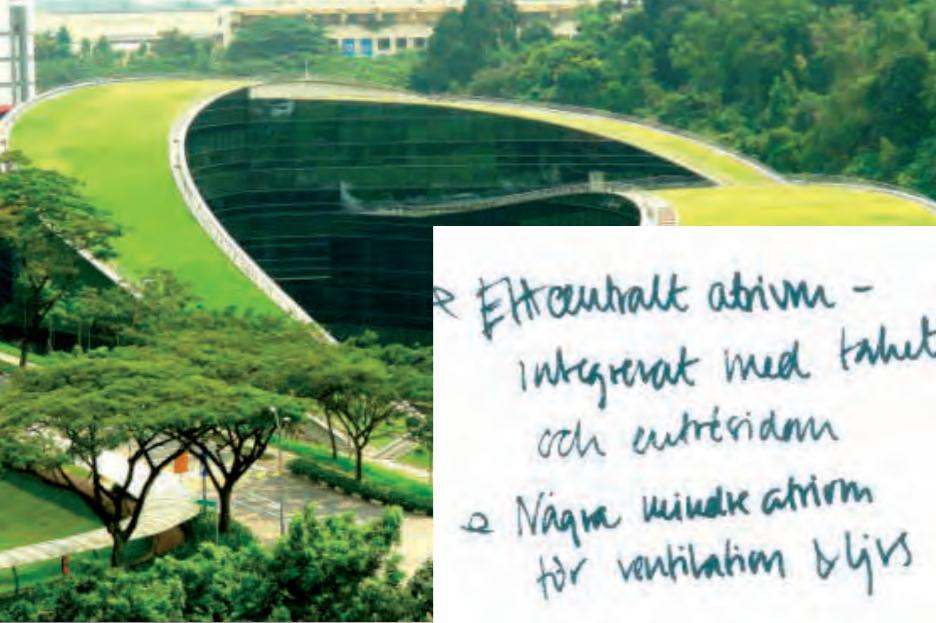
Program:			
Classroom	8	75 m ² each	600 m ²
Classroom	11	65 m ² each	715 m ²
Group rooms			800 m ²
Workshops			250 m ²
Open study space			3.800 m ²
Kindergarten			90 m ²
After school care			85 m ²
Pre-school			80 m ²
Common kitchen			15 m ²
Common playground			80 m ²
Locker rooms	2	40 m ² each	80 m ²
Gymnasium			200 m ²
Music room			100 m ²
Auditorium			85 m ²
Library			450 m ²
Teacher's area			250 m ²
Kitchen			90 m ²
Dining area			300 m ²
Atrium			400 m ²
Toilets			250 m ²
Storage			150 m ²
Communication zones, stairs, elevators etc			800 m ²
Total			9.670 m ²
Level 1			3.700 m ²
Level 2			3.200 m ²
Level 3			2.500 m ²
Level 4			350 m ²
Roof			2.800 m ²
Total			12.550 m ²
ca 700 students			
ca 40 kindergarten			
ca 30 after school care			
ca 60 pre-school (can use after school care premises during school hours)			
ca 35 teachers/pedagogues			
ca 10 staff including caretaker, cooks and cleaners			



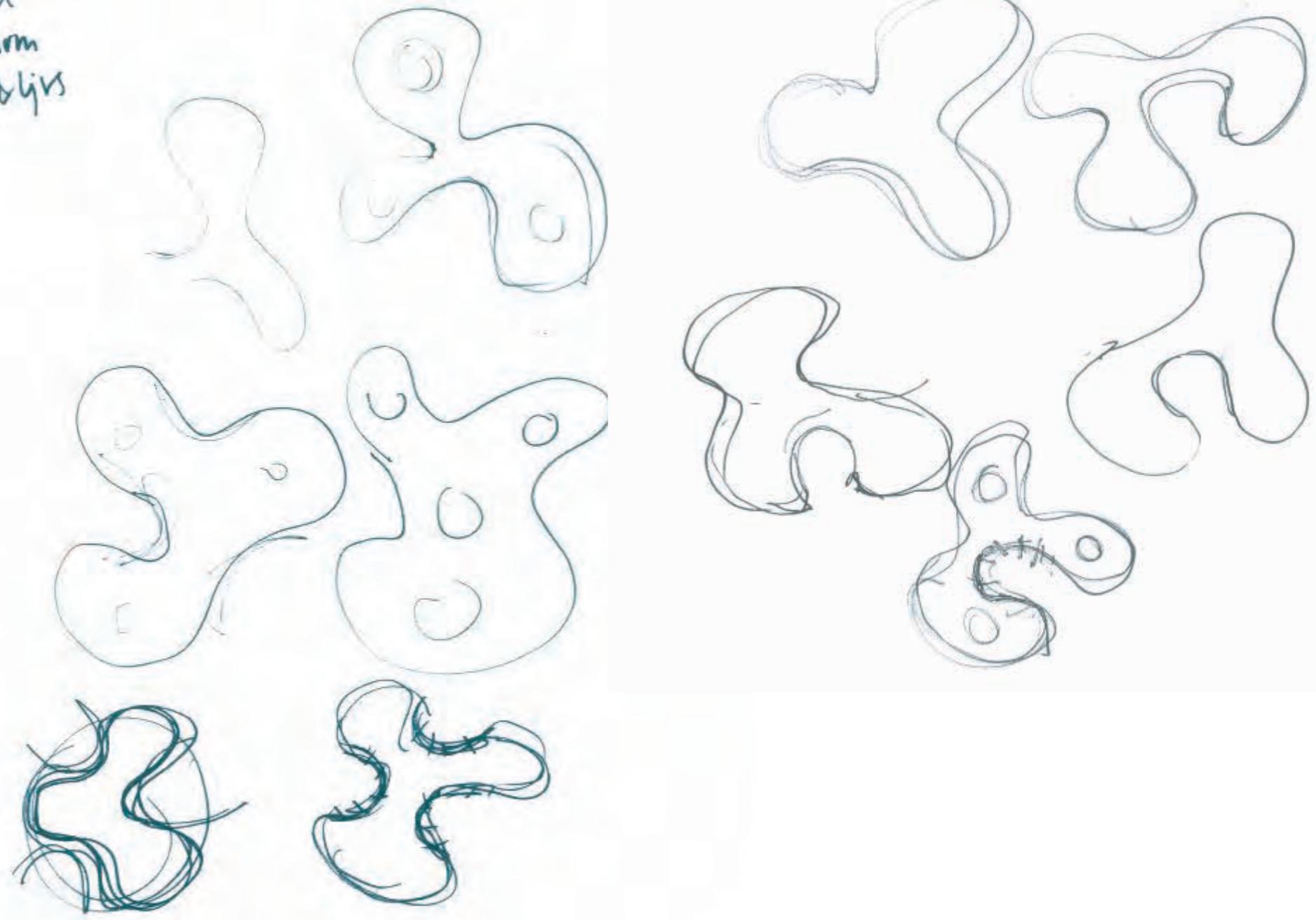
Implementing the Scandinavian model into Dutch space

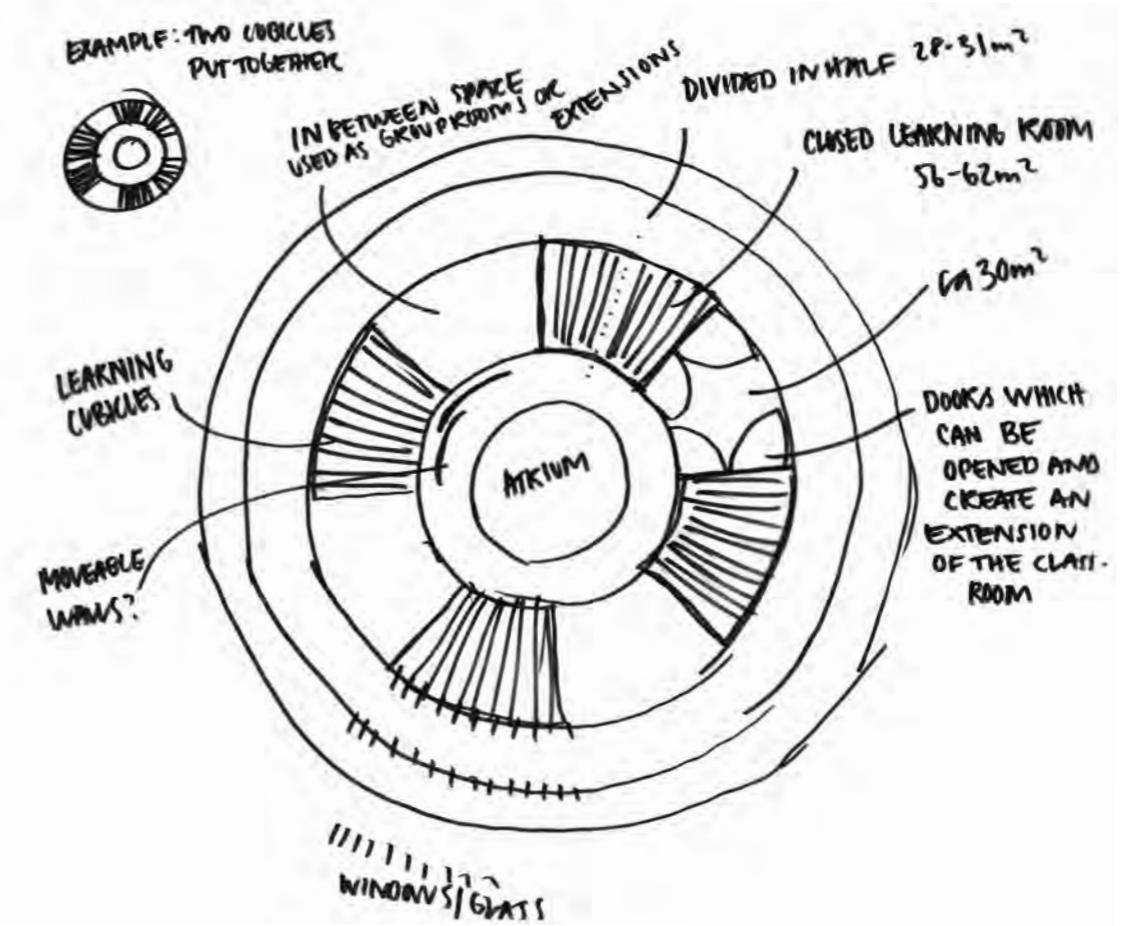
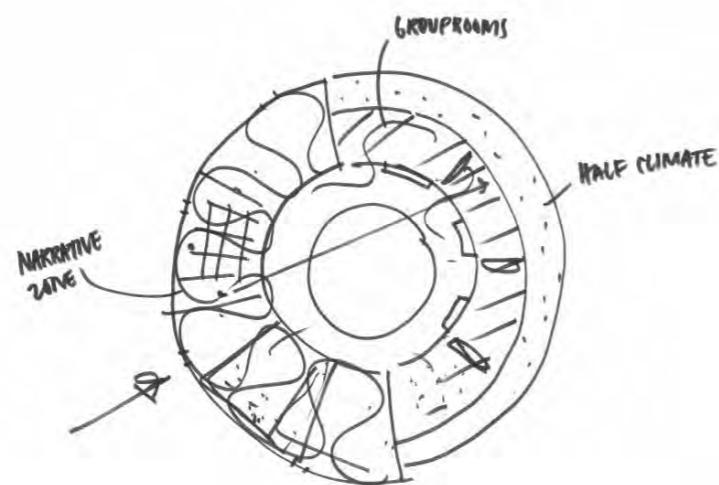
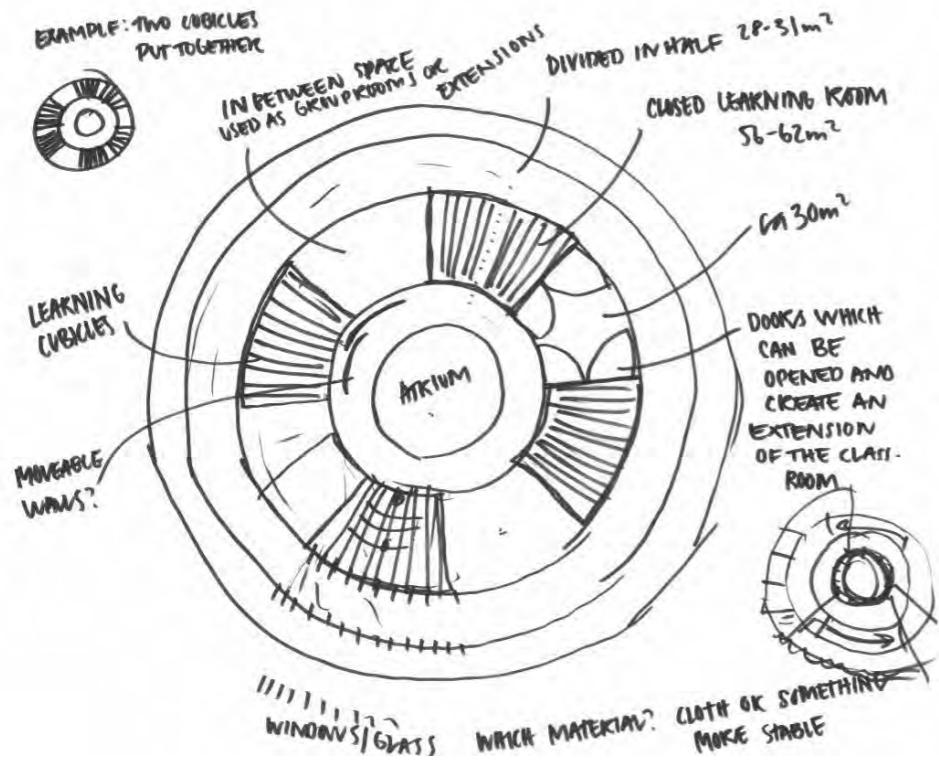
a - Designing a new school





- Ett centralt atrium - integrerat med taket och entréområdet
- Några mindre atrium för ventilation & ljus

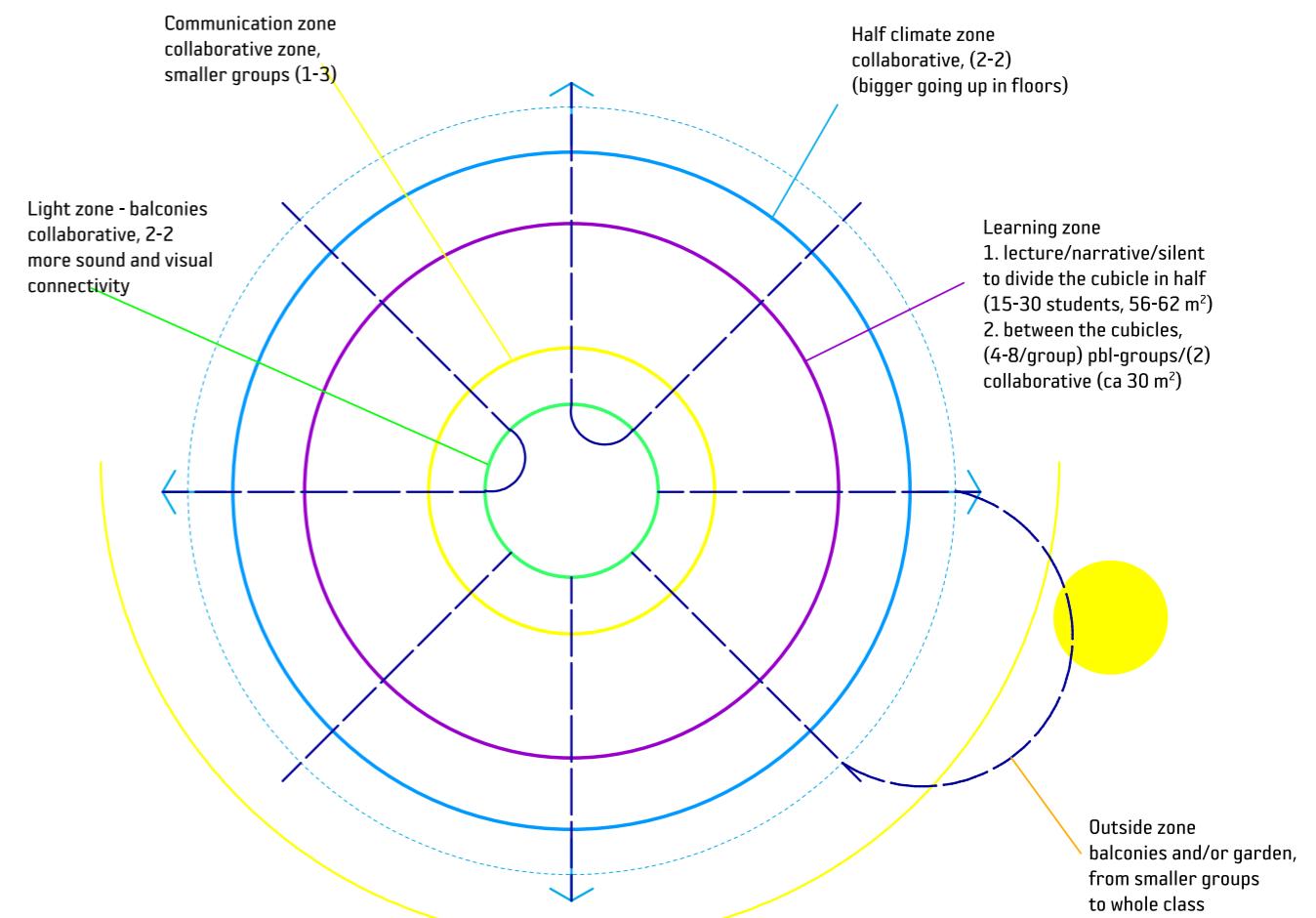


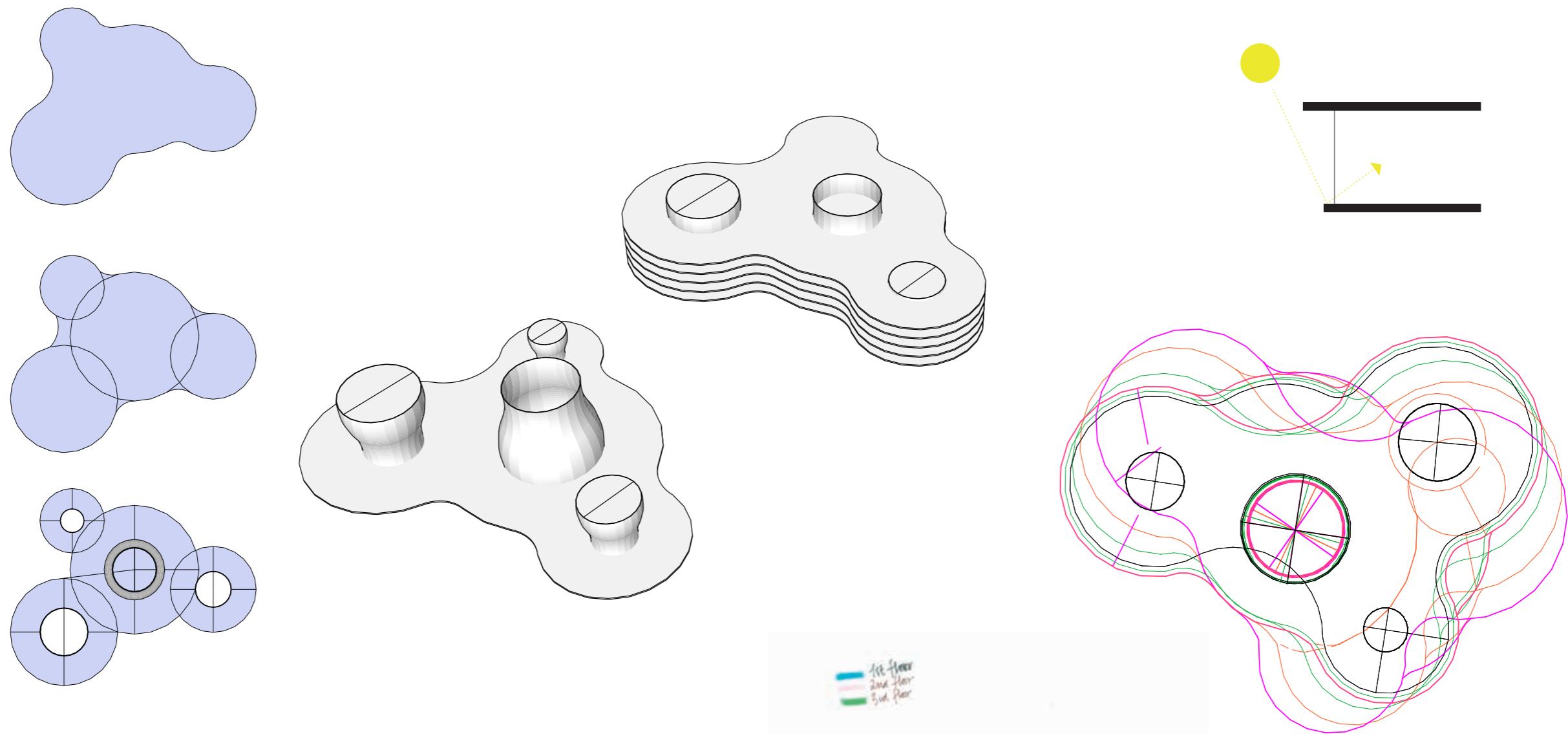


Choosing to work with an organic form the first thoughts revolved to a high extent around how to divide the school into smaller, circular parts and what those different parts should contain. Our first idea was to work with different zones around the atriums; different zones with different levels of screening and openness. Later on in the process the multiple zones were altered into only two zones, one communication zone with open study spaces and the more closed off outer zone, with contact with the outdoor environment.

The first thoughts also included:

- In between the different atriums there are larger open spaces for the students to use in study or leisure time activities. These open spaces can be divided with moveable furniture.
- Inside garden year around where each class is responsible for one small part.
- Outside garden and playground on roof, through the half climate atrium. Also an outside on ground school yard.
- Different "roofs" in atriums, eg, one has a pool of water where the light is filtered.
- Gym that can be accessed also during the night, without passing through the entire school.
- Bigger assembly rooms for theatre, music, performances
- Outside amphitheater



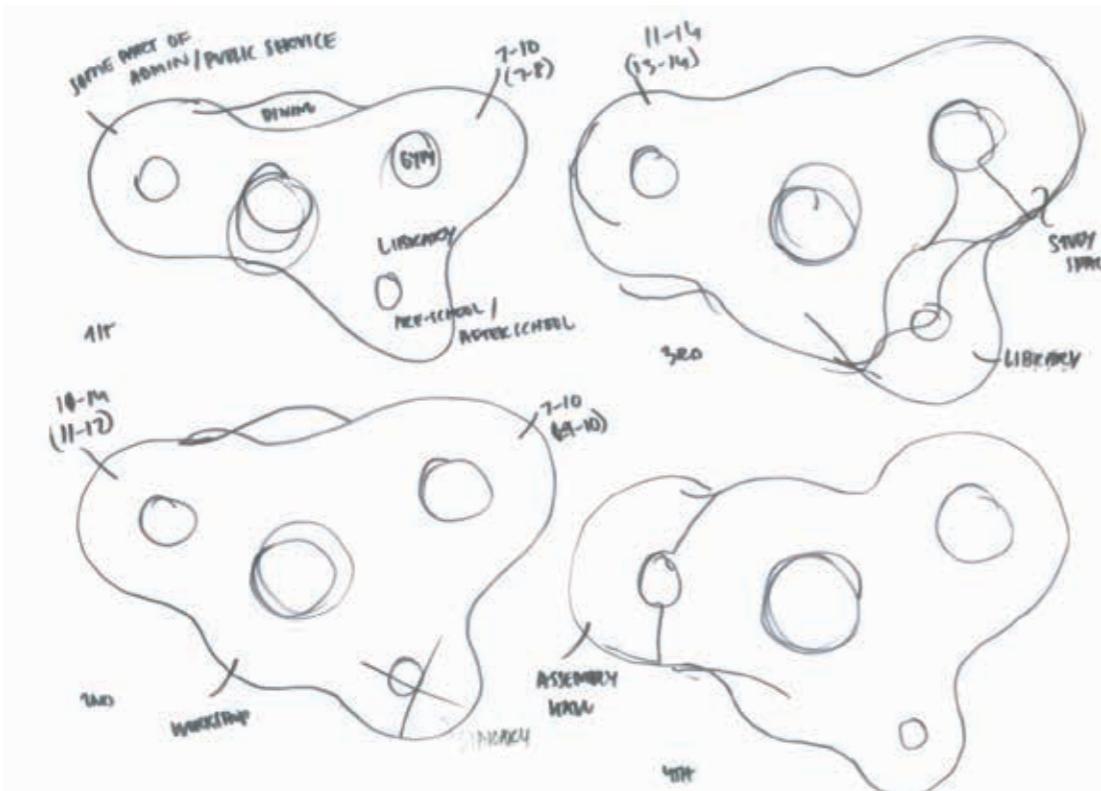


When discussing the reconstruction of the school, we tried to integrate the different circles into a whole, connecting them with an outer shell and open study spaces in between. The atriums were from the beginning placed in the centre of the circles but were later moved in one direction creating oval or circular inner rooms around the atriums that some places made room for study spaces and in others narrower communication areas.

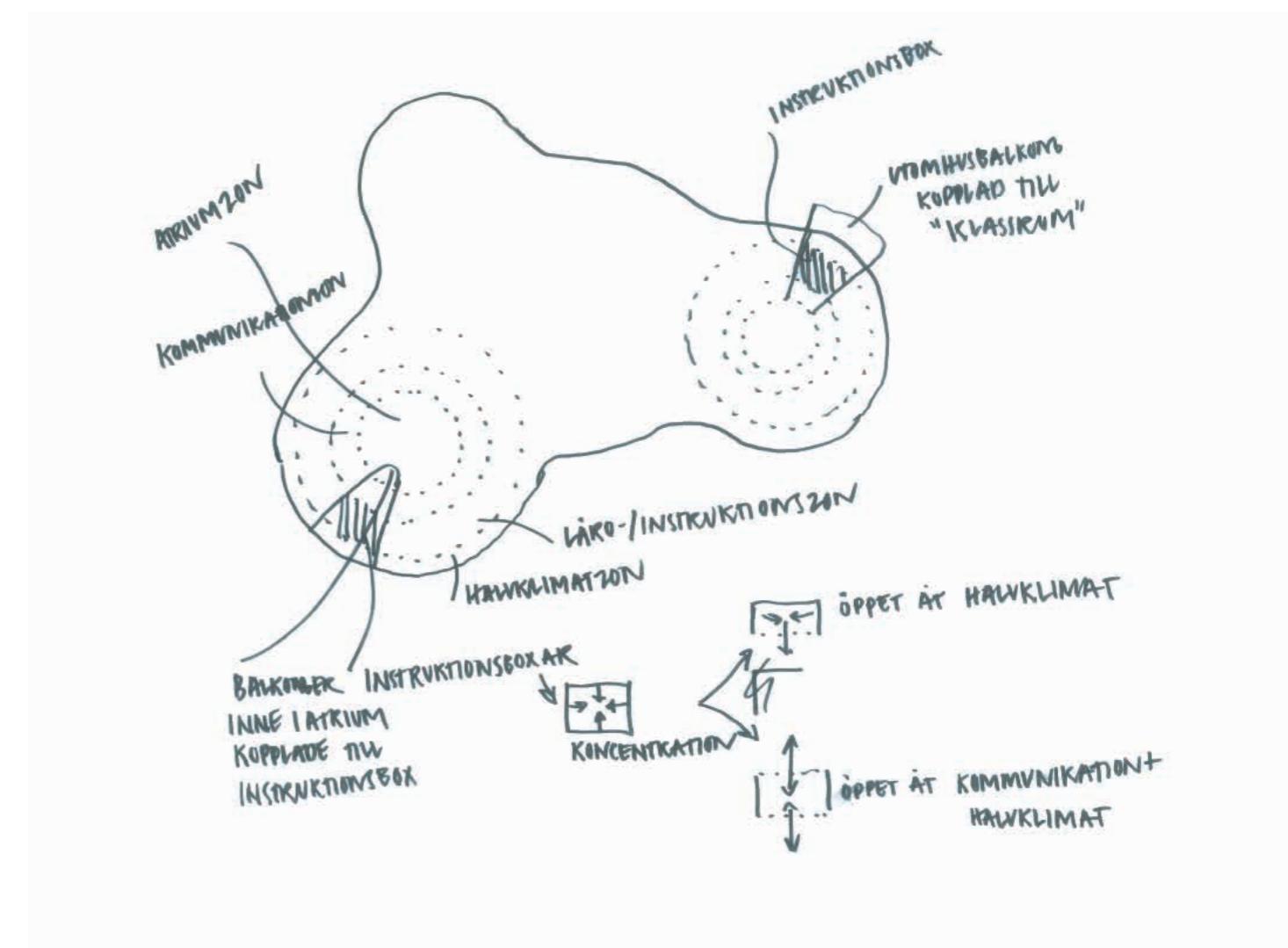
Every level was offsetted one meter to create shading from the direct sunlight and the rotated to create balconies and outdoor space to extend the classrooms, group rooms and workshops to the outside of the building.

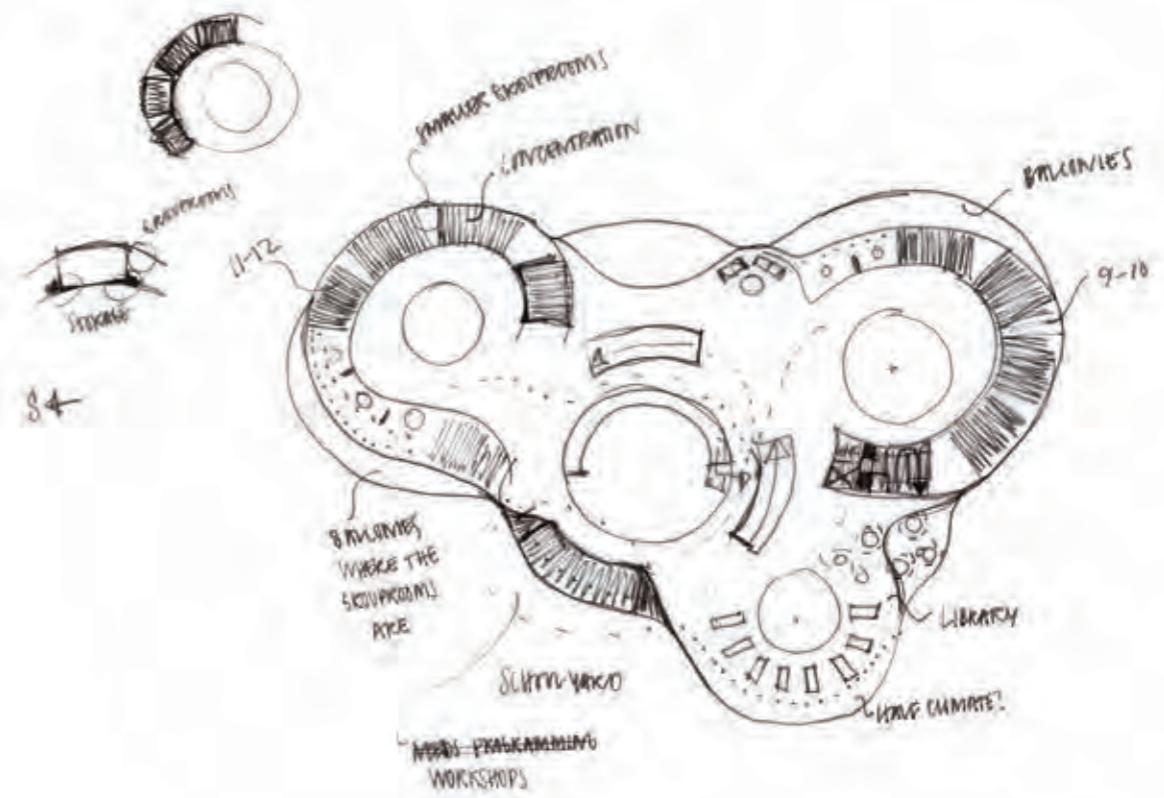
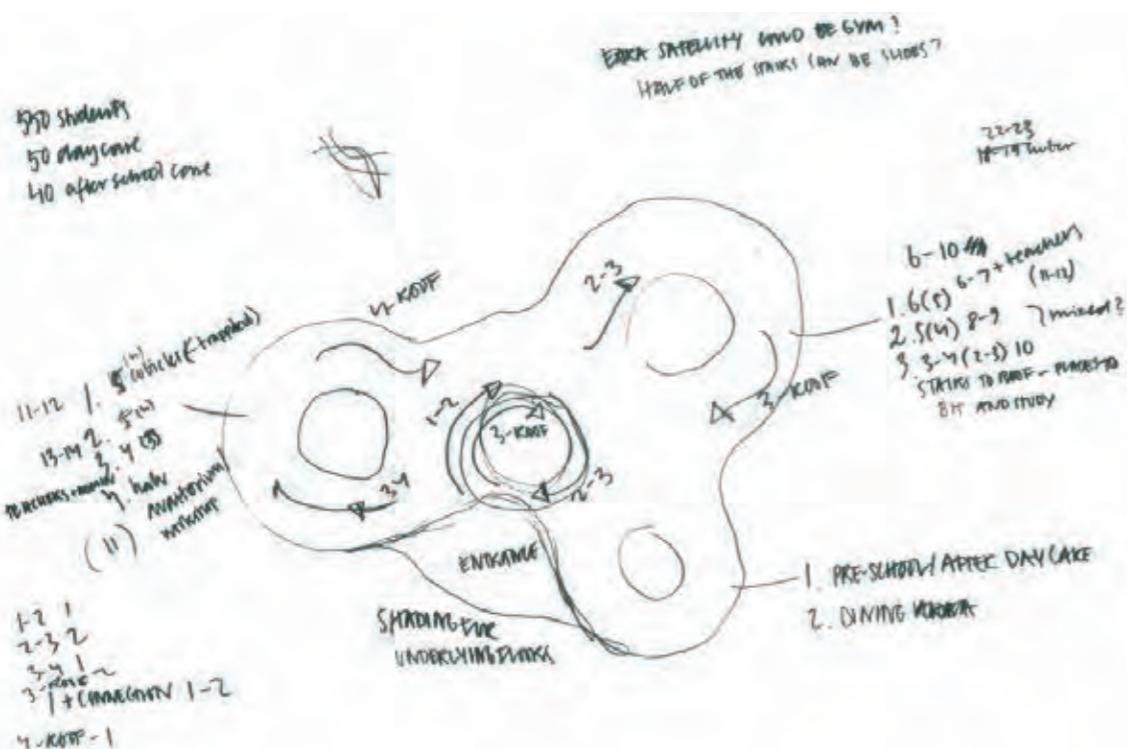
The next step in the process was to decide how to organize the different age groups, integrate functions such as library, gymnasium, kindergarten and pre-school. We held on to the idea of more closed off teaching facilities around the atriums and open space connecting them creating a flexible study space throughout the school.

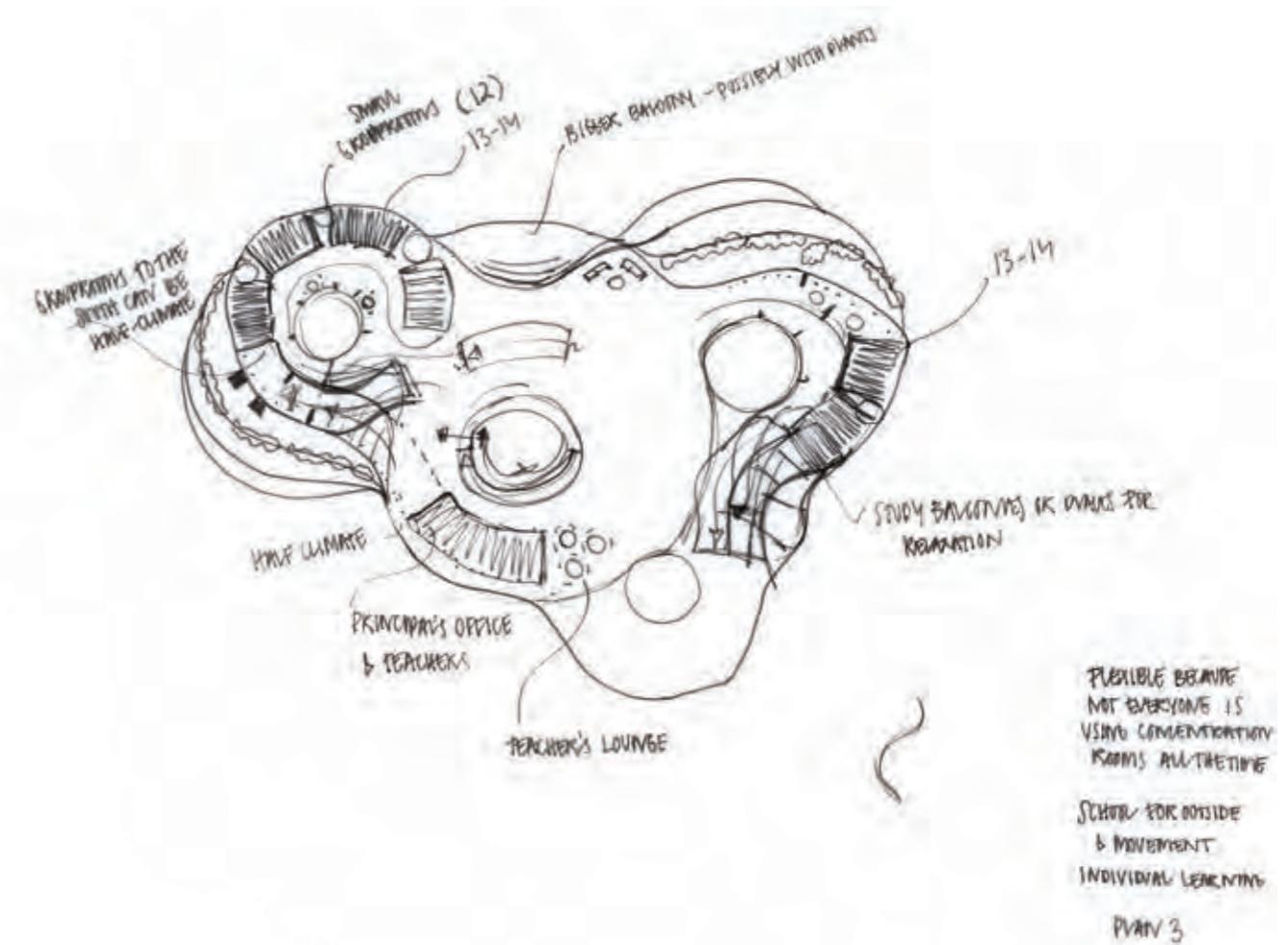
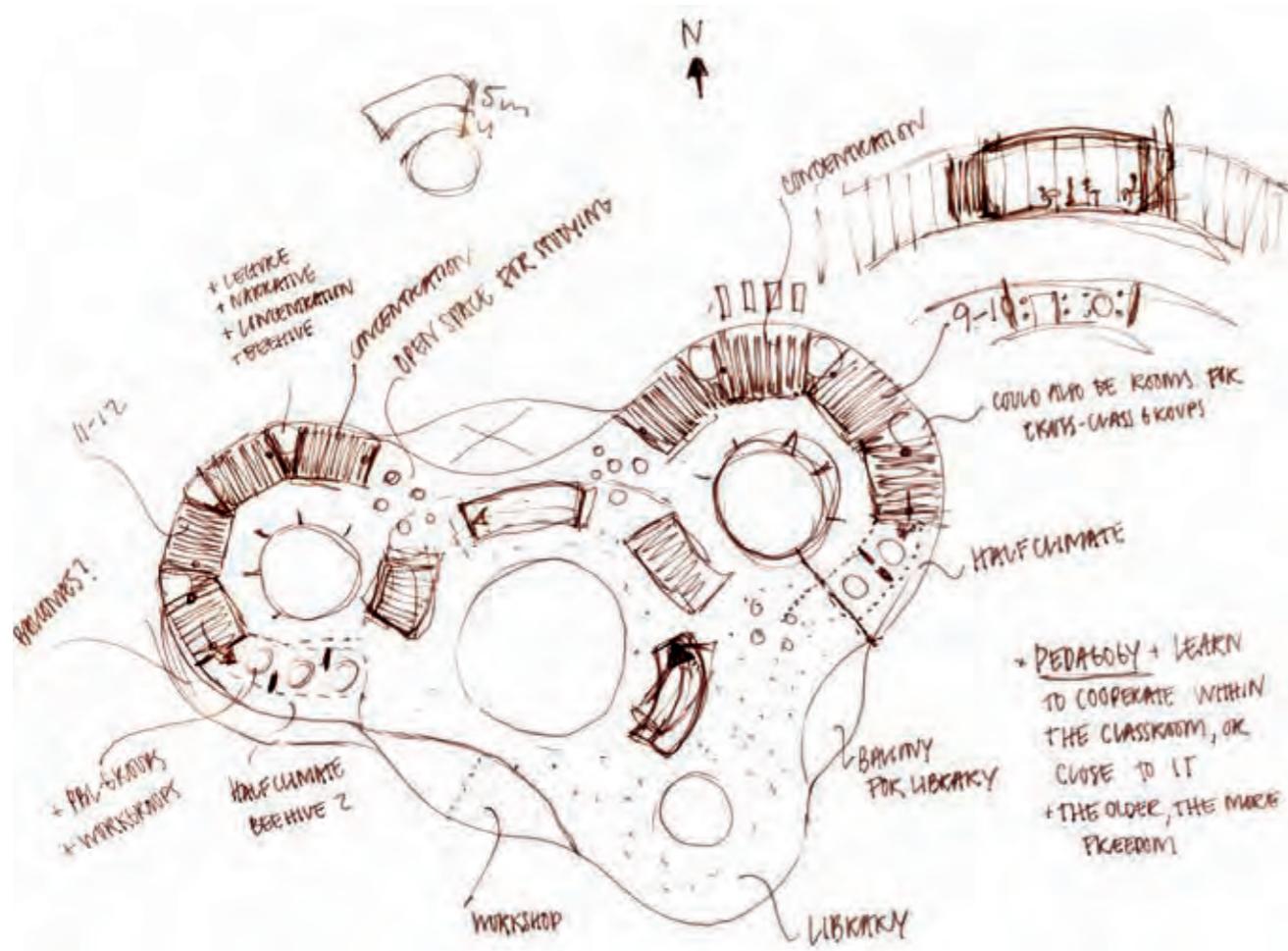
Our solution was to gather pre-school, after school care and kindergarten at the entrance level around the smallest atrium, close to the entrance, making it easy for parents to pick up and drop off their children. This way they could share some facilities including a small kitchen, inner playground and workshop.



Classes 1-6 and 7-12 were split up around the two remaining "satellites", where larger functions such as gymnasium and auditorium also were placed, creating not home classrooms but an extended home area with group rooms and workshops where students of more or less the same age could interact.

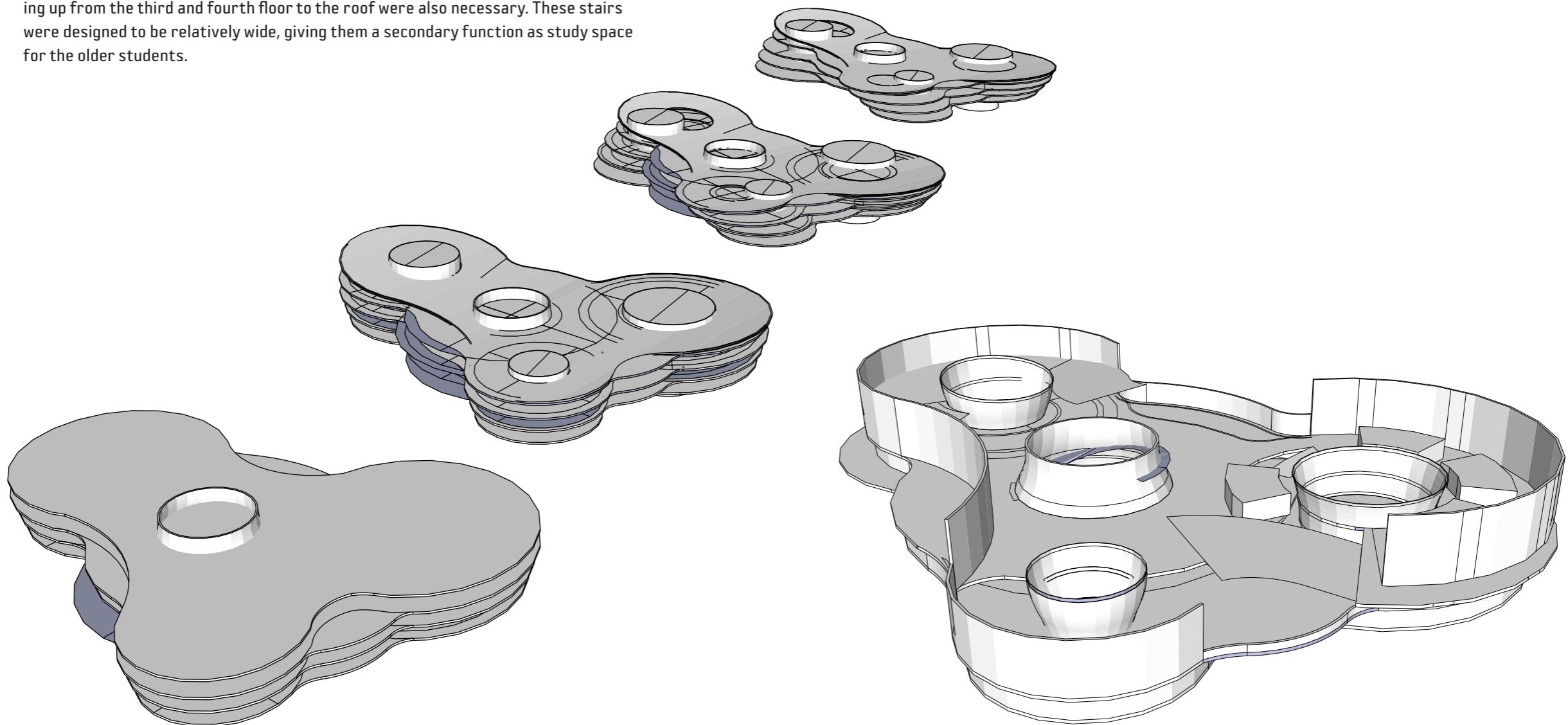
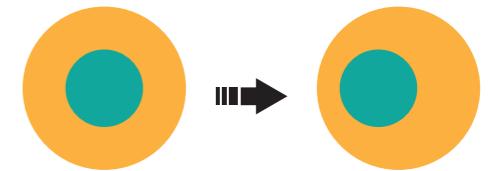




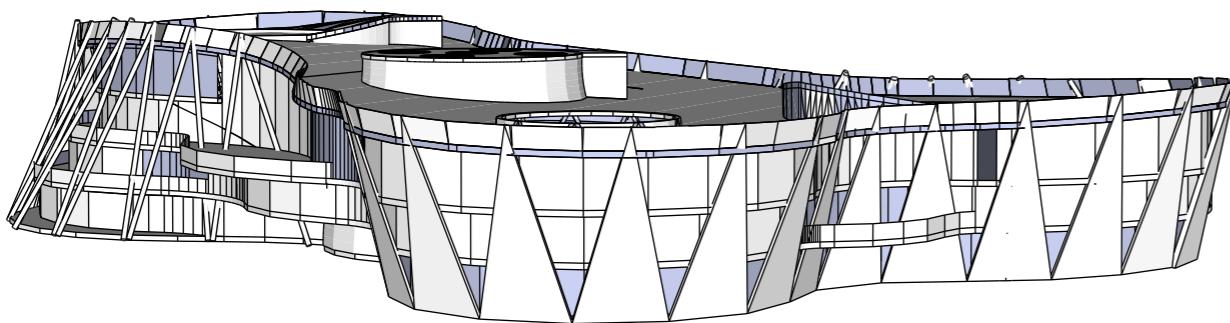
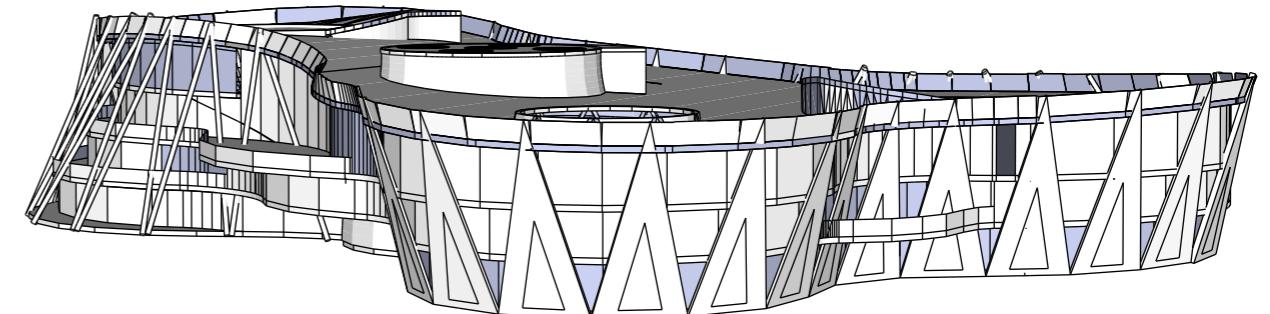
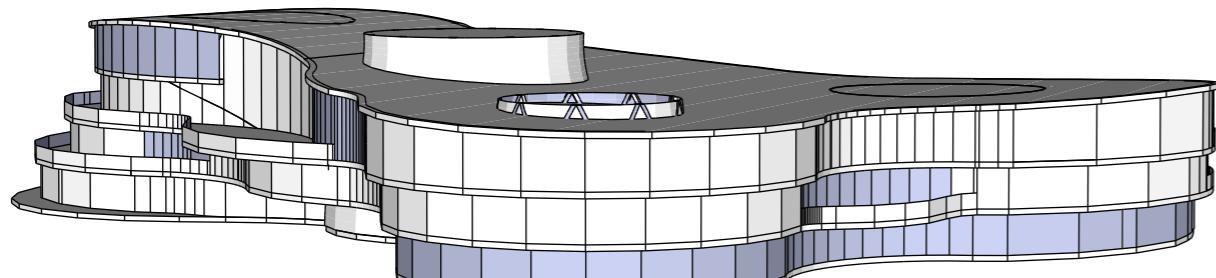
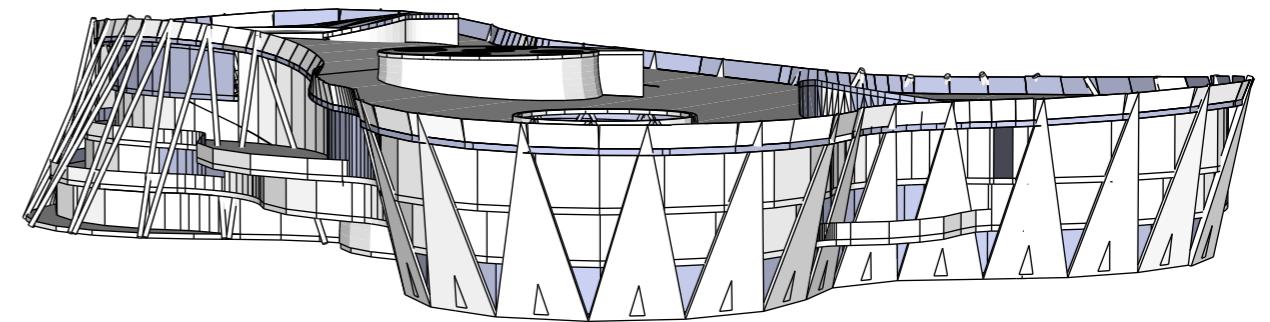


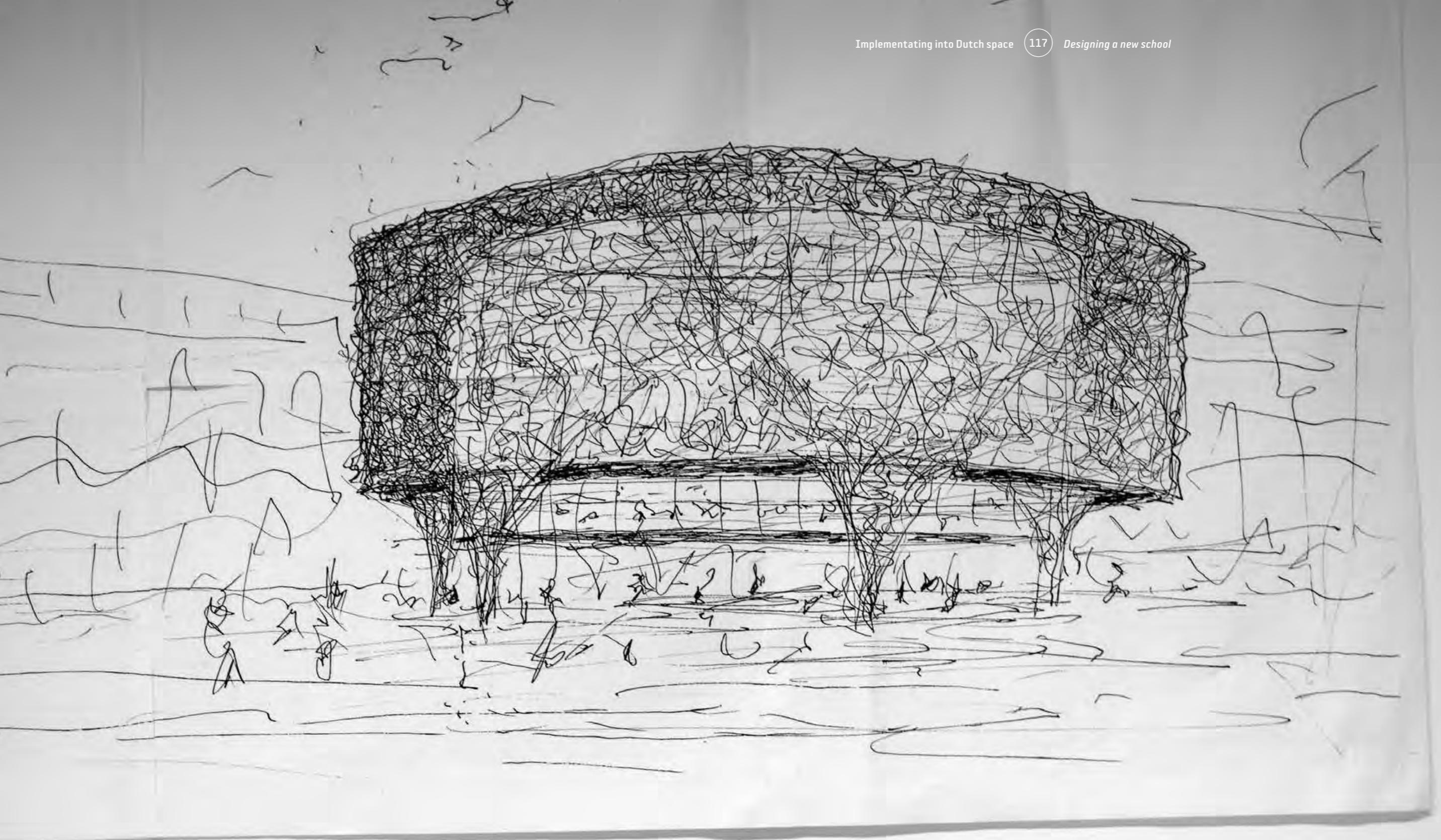
Since the rotation of the floors altered the inside of the building the atriums were moved in a direction where they together with the surrounding class and group-rooms created a differentiated space with room for both study, play and communication.

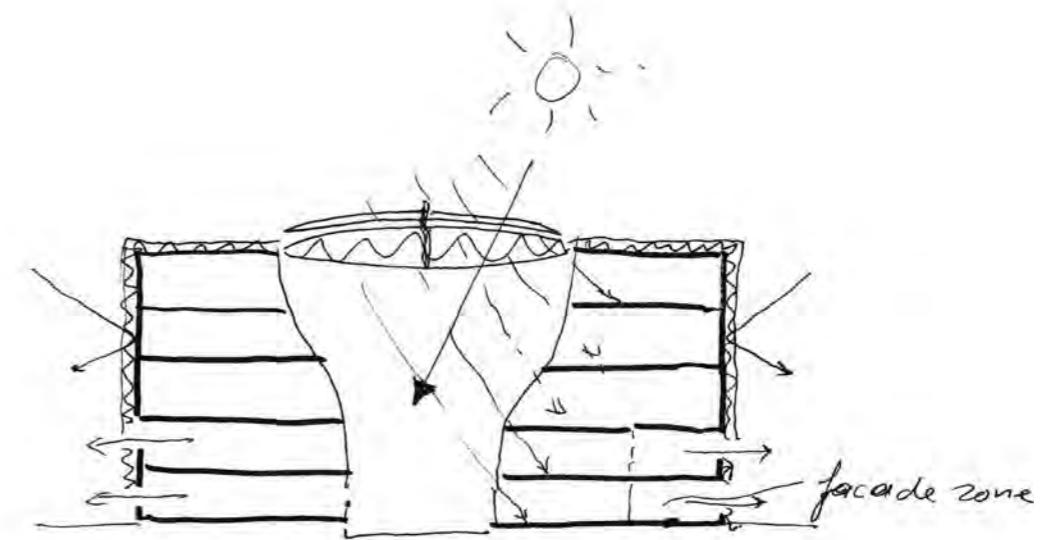
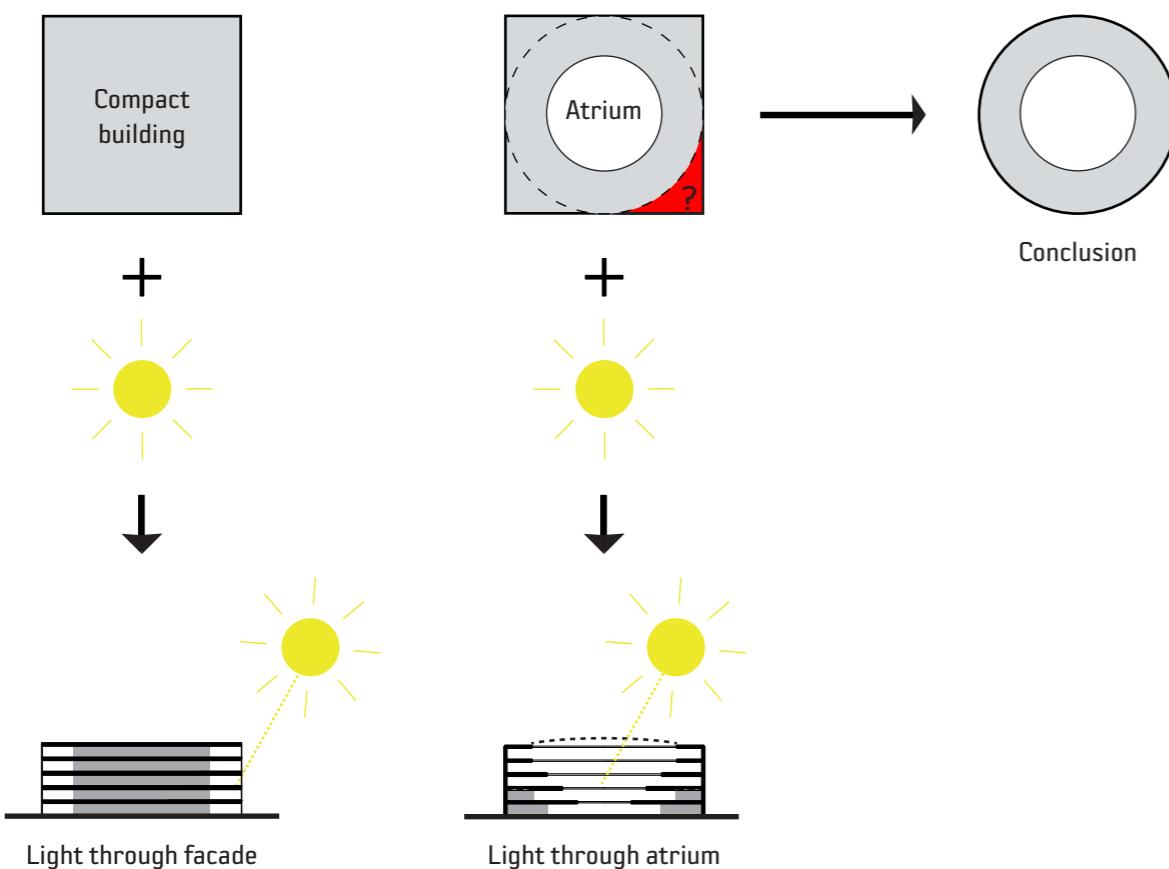
The main staircase is situated inside the half climate centre atrium, but stairs leading up from the third and fourth floor to the roof were also necessary. These stairs were designed to be relatively wide, giving them a secondary function as study space for the older students.



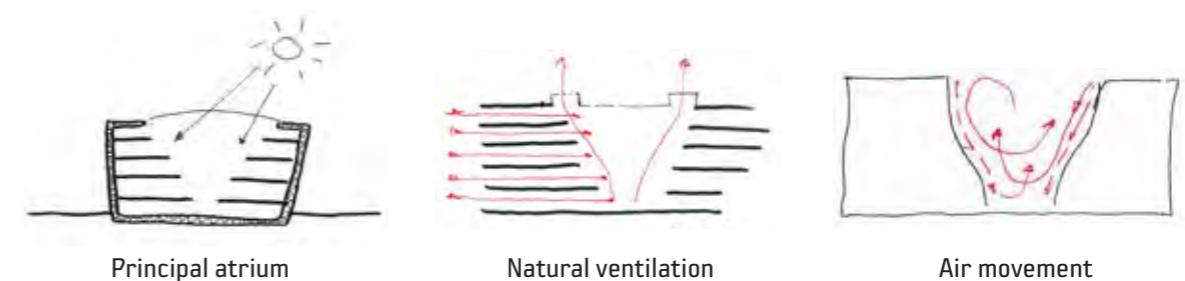
The construction is held up by the atriums, together with the triangular shaped wooden facade parts and wooden pillars. To adapt to the climate, heat loss and sunlight the north facade is built up by more of the closed facade parts and less by the pillars, to the south, it is instead the other way around. This way of organizing and designing the facades will let more sunlight in on the higher levels. Therefor additional openings in the facade were made on the lowest floors.

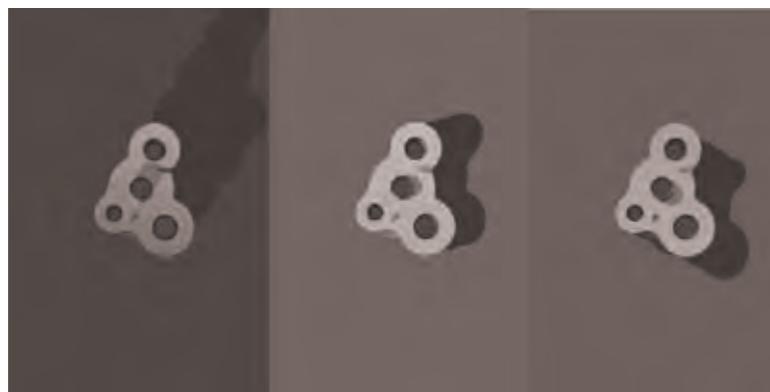






Most of the atriums have a wider opening to gain as much sun light as possible. The solar circle is a natural source of light, reaching the parts with solar light where the facade can not. Intelligent solar cells can be used on roof and facade.





february 9.00 am - 12.00 - 15.00 pm



may 9.00 am - 12.00 - 15.00 pm



august 9.00 am - 12.00 - 15.00 pm



november 9.00 am - 12.00 - 15.00 pm

The school "that is bigger on the outside" is a sustainable building concept developed for an urban environment.

Inspired by F.L. Wright's Johnson Wax building in Chicago, it was decided to opt for a studying environment lit from above. Via a "climate roof" the interior comes in contact with sunlight. The four atriums with the workplaces organized around them form the central light sources in the building together with openings in the facade.

The atrium (except from the centre atrium) becomes narrower towards the lower floors. Where the floors become too deep to benefit from daylight from the atriums there are windows sited in the façade to let in additional daylight.

The openness of the facade increases to the south to let in sunlight and heat, while the northern facades are to a higher extent closed off to prevent heat loss. On the ground level the building comes into contact with the public space and opens out to allow contact to be made with the surroundings.

The building is ventilated in a natural way via ventilation grilles in the facade that can be controlled in groups by the user. The air is let into the room in a roundabout way. Behind the facade a heating and cooling ring main is mounted that pre-heats (or cools) the air which is then led deeper into the room through ceiling ducts, to prevent draughts and reverse convection. A natural draught towards the open space of the atrium develops. The air is thus forced outside through the atrium roof by convection currents. This process is reinforced by fans that are driven by wind turbines on the roof, situated round the edge of the atrium. This crown of chimneys draws the heated and used air outside, where it delivers energy via heat recovery to pre-heat or otherwise cool the air in the facades. Both the extraction and the supply of ventilation air thus happen by natural means.

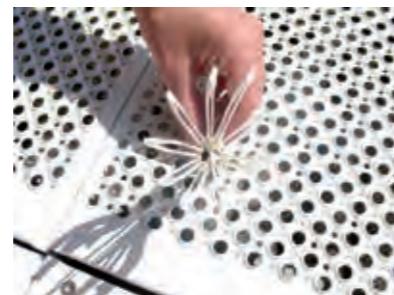
The central ring in the climate roof consists of transparent PV cells integrated into the glass roof. Besides energy production they simultaneously prevent entry of too much direct sunlight. A glass suspended roof provides a buffer of air that is heated up and thus avoids the occurrence of too rapid heat loss through the roof. The four atriums in the building differ from each other due to the one in the centre being semi-climatised. The second atrium that is in open connection with the workplaces is provided with green balconies in order to add a natural and air-purifying component.

The building is heated and cooled by floor heating (circulating water) built in under the floating floors. In order to optimize the efficiency of this no ceilings are specified. Solar boilers on the roof and heat and cold storage in combination with a heat pump ensure that the energy demand for space heating is 75% fulfilled from sustainable ground heat.

The building is constructed with wooden atriums, wooden triangular façade parts, wooden pillars and glass.



All profiles stretched



All profiles connected



One profile



Stretched



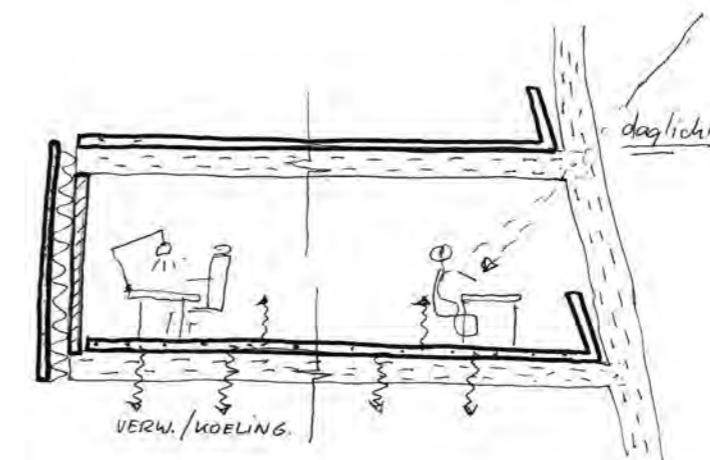
Laminated wood beams



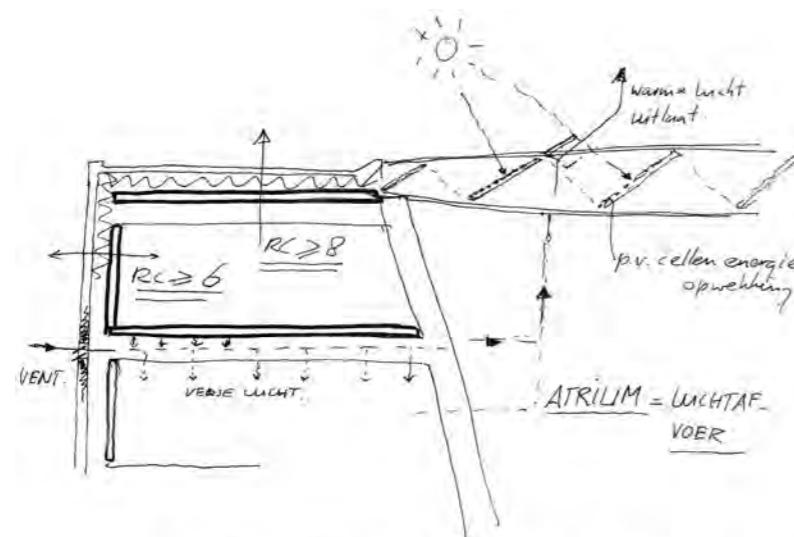
Laminated wood beams



Ceramic floor

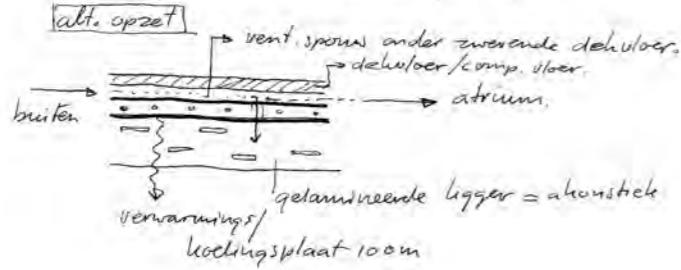
constructieve opzet :

- gelamineerde houtdraagconstructie
→ overgedimensioneerd = B60/B90
- minimale dichte betonvloer 100m²
vloerverwarming / koeling.
- geen plafonds - werkplekverlichting.
→ acoustische glaven in
gelamineerde konstr.
- openbare gevel variant 1 : - binnenporseel
massief houten wandelem.
- 200 mm witte wol
- baksteen zelfdragend op
fundering.
- variant 2 : - bi-sp. bl. baksteen poroso?
- 200 mm houtsparren
- geacytiseerd hout

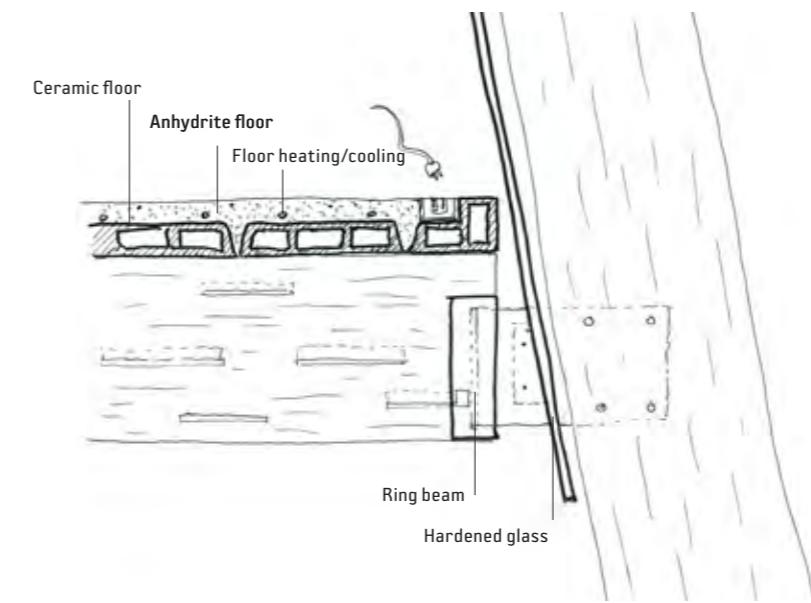


**ATRIUM = DAGLICHT = GESLOTEN GEVEL
= VENTILATIE CONCEPT.**

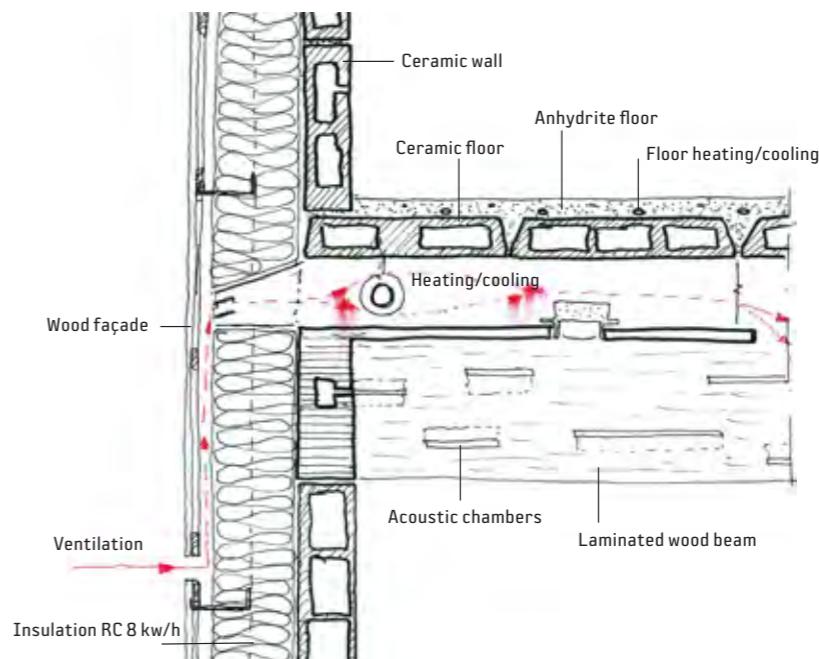
VERSE LUCHT aanvoer vanaf gevel,
stijgt langs hoel/verwarm. laag.
afgevoerd via natuurlijke wijze atrium

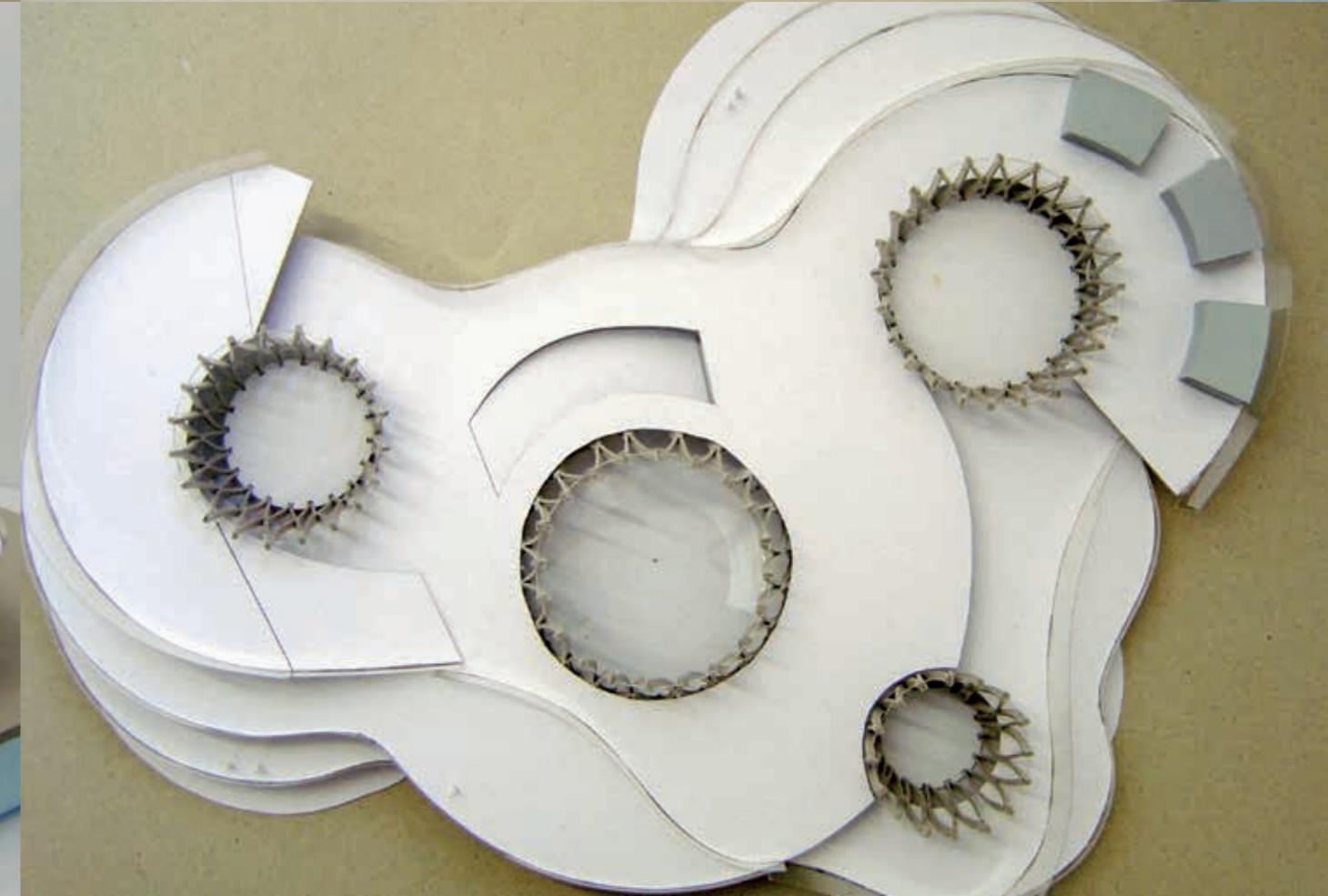
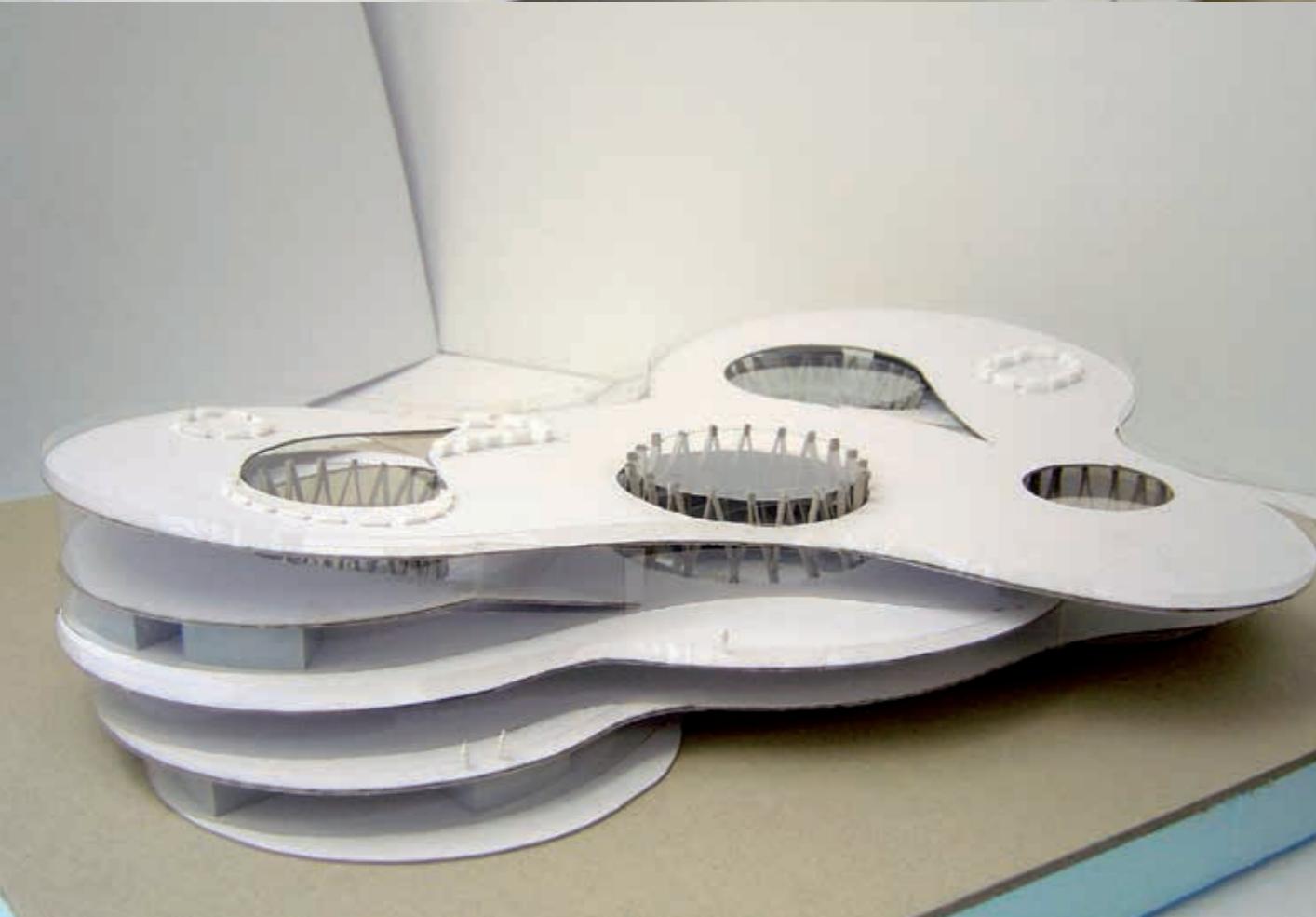
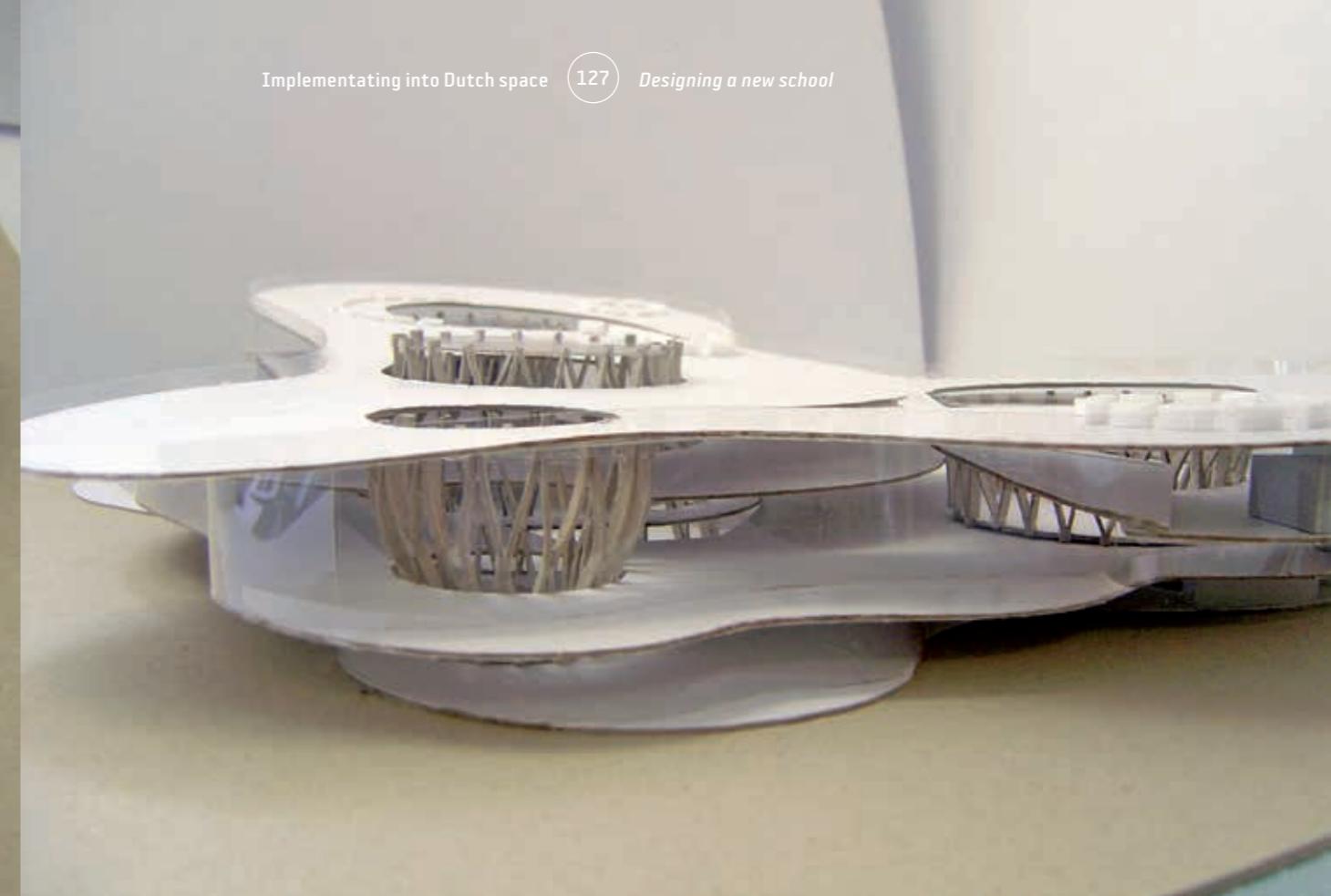
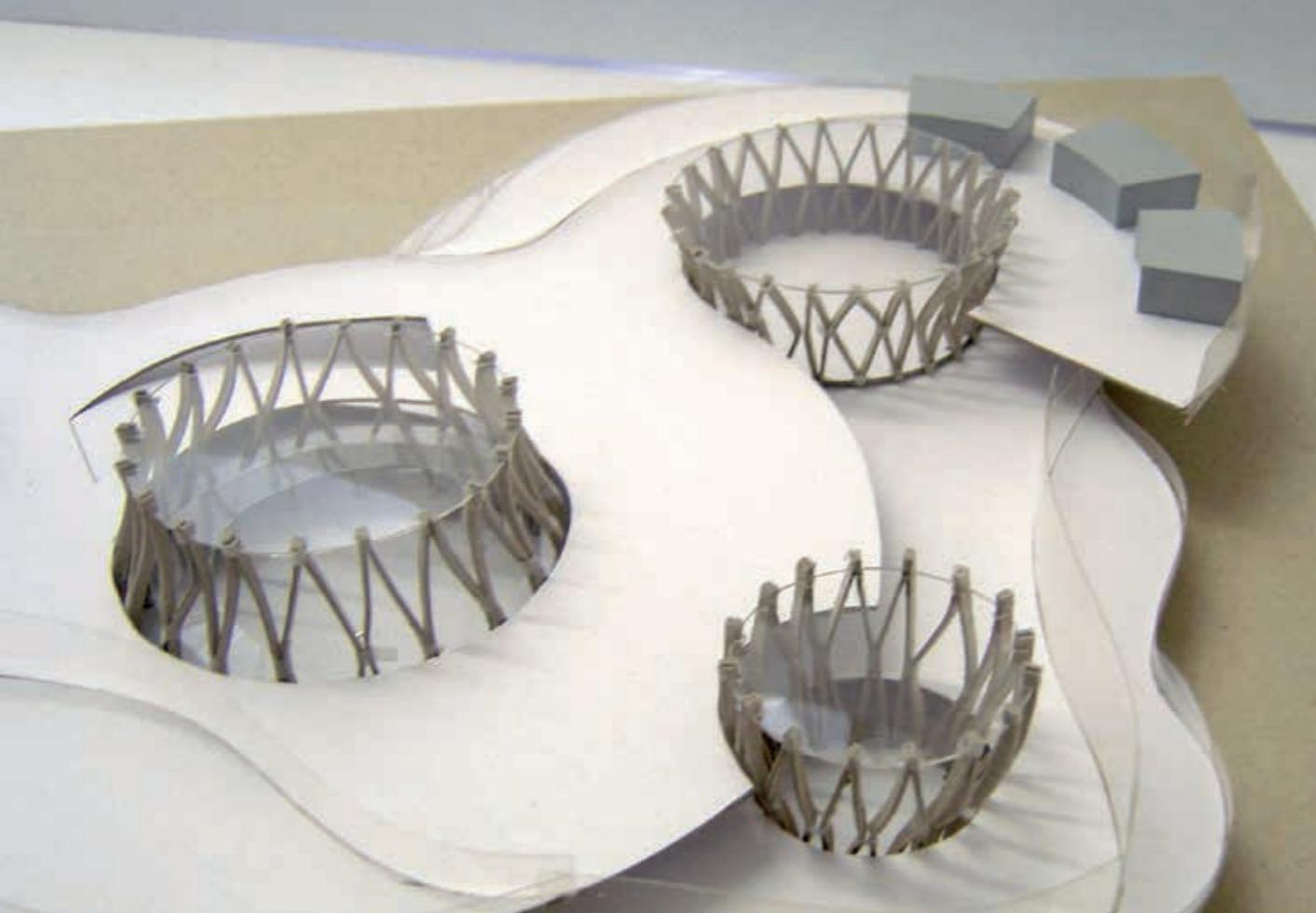


Supporting construction made of laminated wood,
minimum thickness of floors with integrated heating
and cooling system.

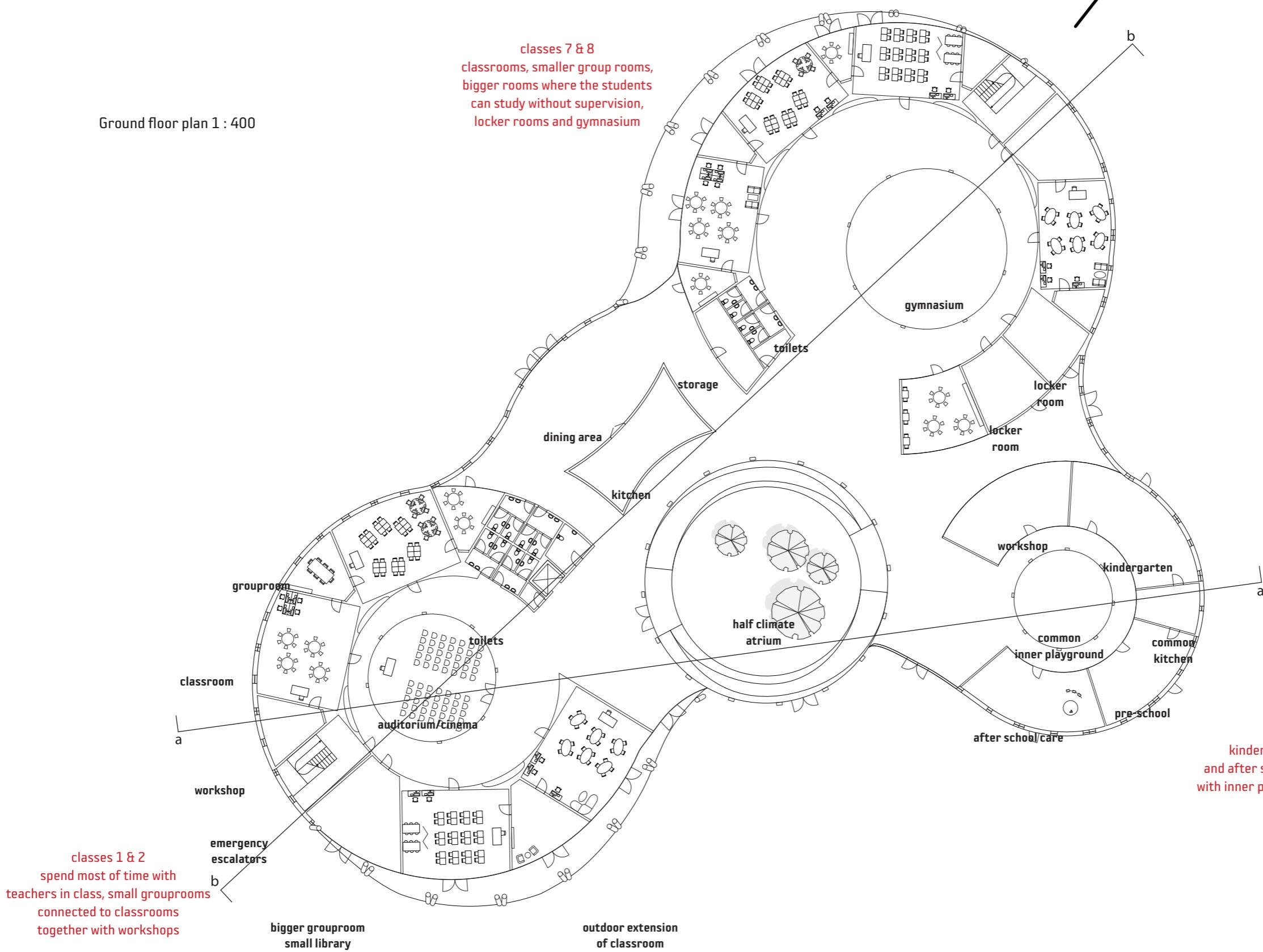


Principal section (detailed) through floor towards atrium
The daylight atriums provide the building with fresh air through a natural
ventilation system together with the heating/cooling floor system
Below: Principal section (detailed) through floor and outside wall

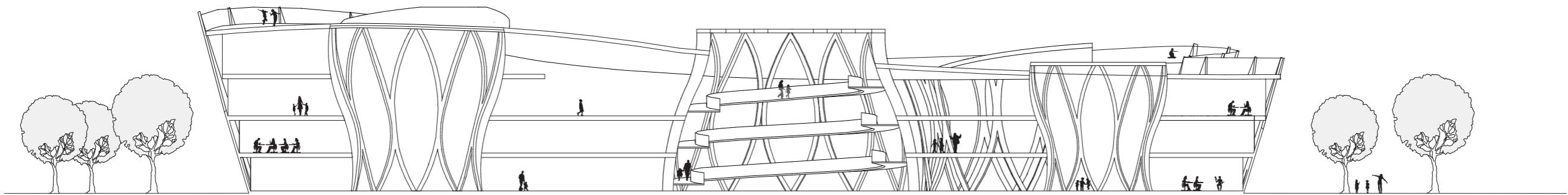




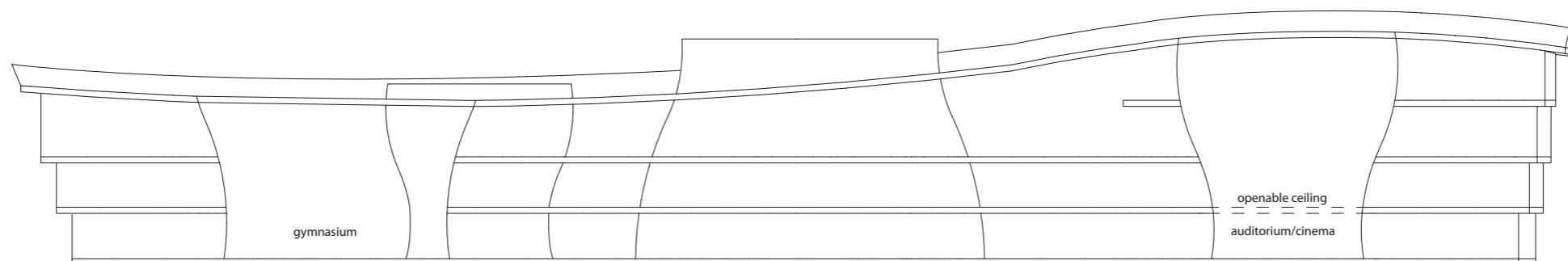
Ground floor plan 1 : 400



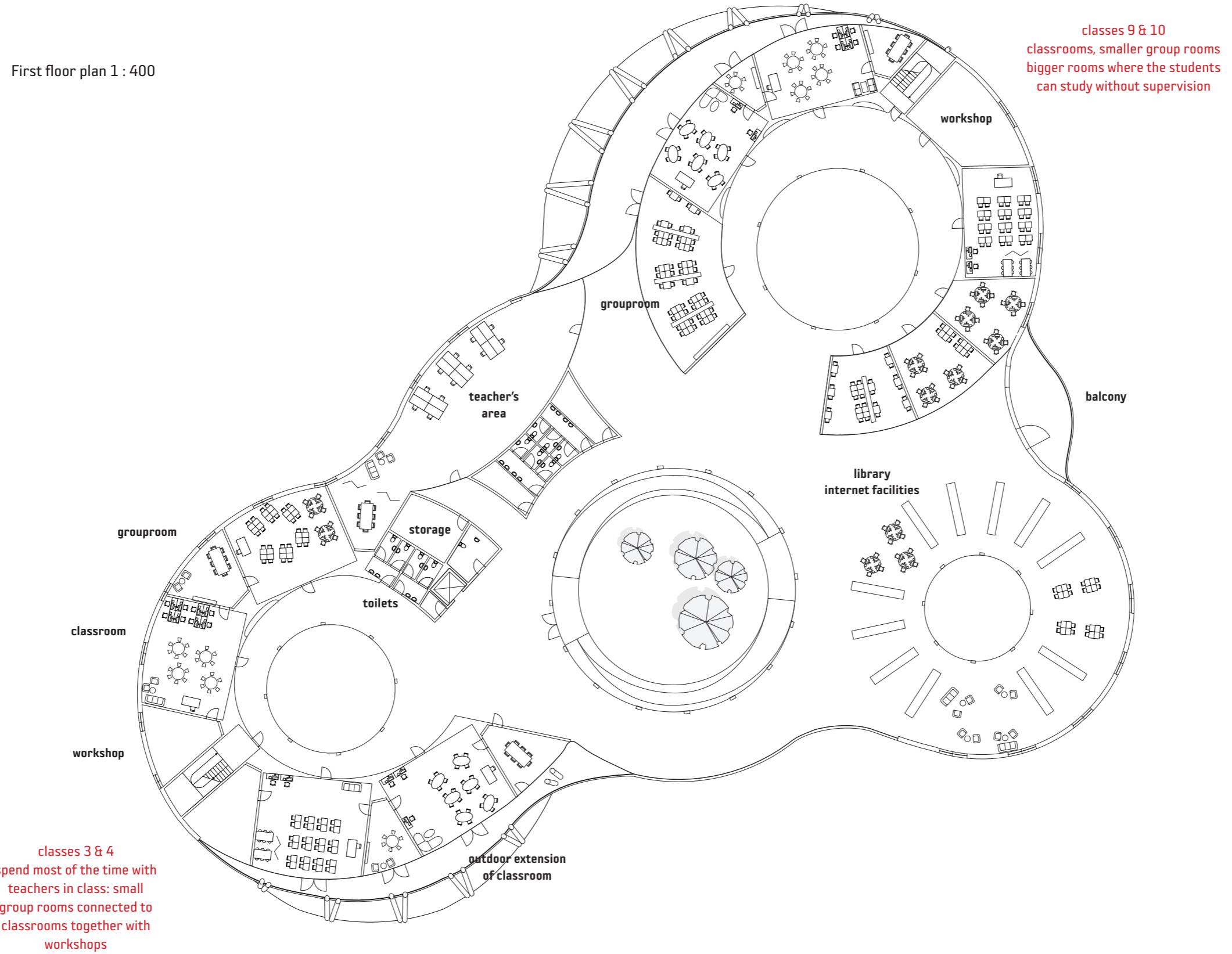
Cross section a-a 1 : 400



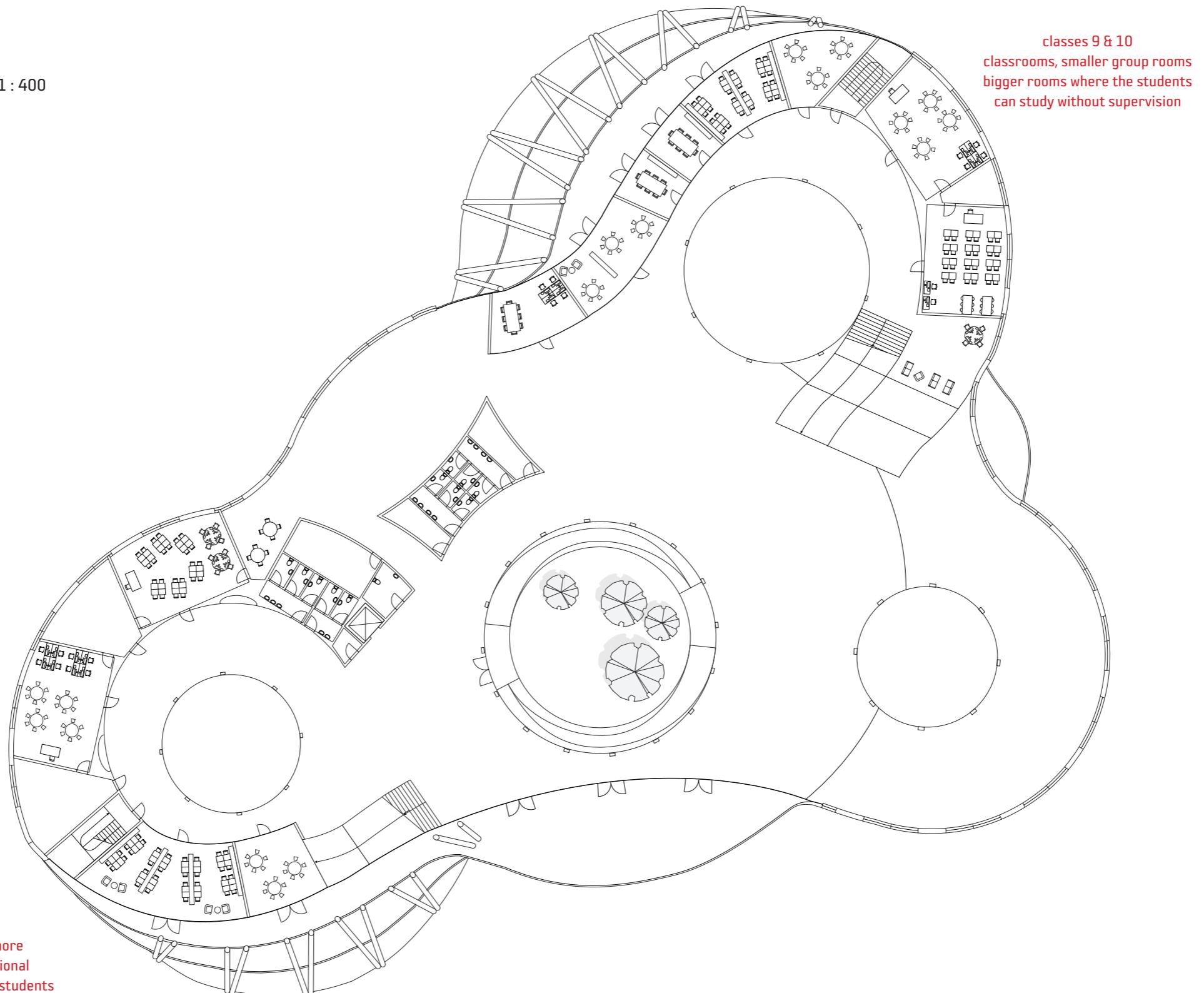
Cross section b-b 1 : 400



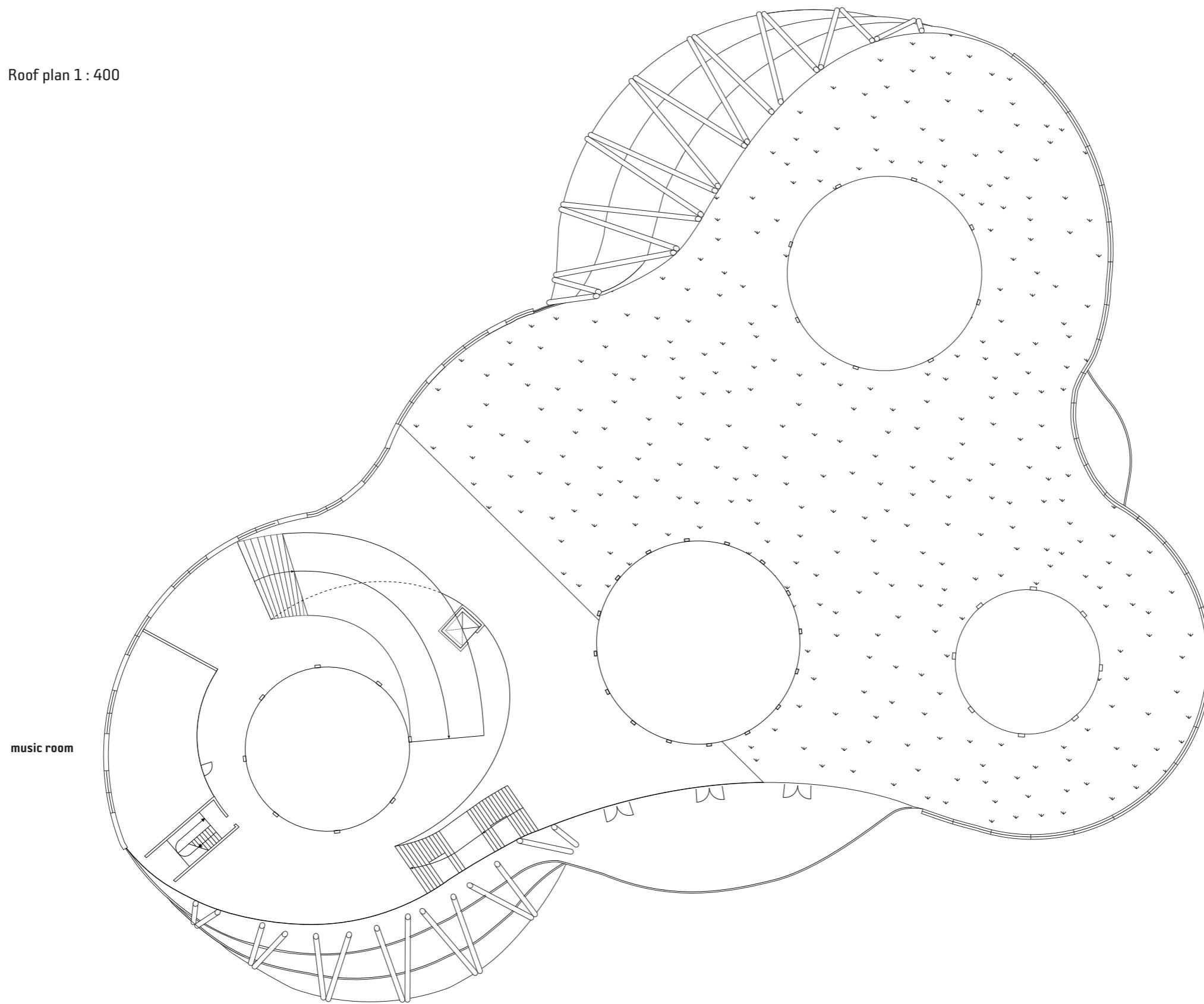
First floor plan 1 : 400



Second floor plan 1 : 400



Roof plan 1:400





North and west façade showing the façade principle in closing off the façade more to the north, while it opens up towards the south. Also showing the balconies that can be used as an extended classroom.



The different atriums on the roof create an interesting landscape for the students to play in and around. The smallest atrium is also the lowest point of the roof, and is used as a water filled basin that can be used in play and education.

Hybrid school landscapes are placed out in the surroundings of the school or possible in the neighbourhood as integrating satellites.



The centre atrium is a half-climate where plants can grow all year around. It is also the entrance of the building containing the main staircase/ramp leading up to the roof. The atrium lets in sunlight and gives together with the other atriums the building a transparent feeling.



Our school and summary

We started out discussing the layout of the school, coming to the conclusion that it could be built up by several circles, implying the de-centralized hierarchy our school was to possess. The mid-circle was meant to symbolize the heart of the school, with its satellites with different functions placed around it. Each level was offsetted one meter to create shading for the sun, and then rotated to create balconies or extensions of the classrooms. The roof was given an inclining shape to activate the students and together with the atriums give them an interesting outdoor space. The building's construction consists of the atriums, the wooden pillars and the wooden triangular façade parts, which together with glass windows make up the façade. The façade opens up towards the south, and closes towards the north to use the climate as an external heater and cooler.

Since studies show that the more cohesive a school is the better it works we chose to build a school from 1-12 instead of the 1-10 system the Netherlands normally use. If the separation of the students into different educational systems can be put off for two more years, maybe the reinforcement of for example socio-economic factors can be weakened. Keeping a mixed composition of students and the prevention of separation into different educational systems for another two years might help even out the differences while still maintaining the highest achieving students. People also rise their abilities to learn when put together with people who are not like themselves, it creates discussions, teach children (and adults) how to cooperate and communicate and motivates problem-based learning. In addition to that high performing students help lower achieving students to achieve higher.

Our survey handed out to Swedish students and teachers showed that most students prefer not to have a home classroom but to move around and use different kind of spaces in their studies. Since research shows that students need a place where they feel at home for them to be best equipped to acquire knowledge we tried to find a path in between. The school consists of four atriums, each with their own "speciality". The centre atrium which is a half climate space leading up to the roof is also the entrance and heart of the school. The youngest students' learning facilities are located at the entrance level, and the older they get, the higher in the building they reside. This to symbolize the way education is providing one with a broader view of the world and the progress that education promotes. The youngest students,

in classes 1-2, together with the after day care, pre school and kindergarten and classes 7-8 have direct contact with the surrounding school yard. Since the youngest students need more supervision it is only natural that they reside in the lower levels where the presence of balconies is much less.

In our project we have worked with various circle-based habitats. Instead of having a specific home class room there is a larger area - the extended classroom - belonging to the group of students and teachers working and studying in it. Each area consists of an atrium, workshops, classrooms, group rooms and a large open-plan room where more noisy activities can take place. There is an area larger than a classroom to relate to, but nonetheless it is a demarcated area which students will know and feel comfortable in while doing their studies. On the first level around the southern atrium classes 1-2 are located, on the next level classes 3-4, and so on. This means that as a new student you are first introduced to your peers, your own teachers, and the smaller part of the bigger school that is supposed to house your education for the first years, this gives the new students time to learn to get along with their peers and respect each other in a peaceful environment. It is also a way to make the younger students not always exposed to the games of older students which may at times seem scary and to make them feel at home and safe, so that they in their own time and manners can get to know the larger building around them.

The three remaining atriums are divided into different ages of the students. The south circle contains classes 1-2 on the ground floor, classes 3-4 on the second floor and 5-6 on the third floor. The northwest circle contains classes 7-8 on the ground floor, classes 9-10 on the second and classes 11-12 on the third. The northeast circle contains kindergarten, after school care and day care which shares a common space within the three storey atrium which ends with a ceiling of glass, which because it is the lowest point of the roof forms a water filled basin on top which filtrates the light giving the youngest children something to watch and be interested in. This to give the pedagogues an incentive and a tool to explain how water, the sun and nature works, raising the youngest students interest in nature and getting them curious and to ask questions already from an early age.

The different circles contains different age groups and are divided in this manner to provide the students with a feeling of home even though the spaces of their studies

can vary. It is also important to let the youngest students get used to school in a comforting environment before they are exposed to the older students whom may seem fearsome for someone who just started school. Nevertheless there are spaces within the different circles that provide meeting places and interaction between the different age group. In the south atrium there is for example an auditorium or a larger room that can be used by all the students. In the north atrium the gymnasium is situated. This way the youngest students can get to know the different parts of the school under supervision of a teacher or other staff personnel, to get comfortable in moving around in their own pace and to later on be able to move around freely at the school premises without feeling intimidated.

The educational facilities also vary in size, form and connectivity depending on which age group they are intended for. The youngest students have larger traditional classrooms ($75m^2$) while they spend most of their time supervised by a teacher and have a greater need for privacy than the older ones. On each level there are also small workshops linked to the classrooms that can be used in teaching letting the students use their bodies and motoric skills to gain knowledge.

Group rooms are according to some studies a very important part of teaching for both teachers and students. On each level there are also group rooms of different sizes and types. There are more and more group rooms the higher up in the building you get, and the older the students get. Older students are more capable of independent work than the younger ones, but the building's layout with group rooms on every level will hopefully ensure that the students from an early age are trained to work independently. The youngest students have access to group rooms that can easily be provided by the teacher and are directly connected to the classrooms. The older students' classrooms are $65m^2$, $10m^2$ smaller than the younger students', the idea is that the older students spend less time in the classroom and more in the group rooms which they also have more of, or other spaces where they can move around more freely. Students' personal freedom to chose where they want to work with their assignments augment over time while their personal preferences to how best acquire knowledge gets stronger over the years and the group rooms intended for the older students as well as for the younger ones provide a broad variety of light and sound conditions as well as different degrees of openness.

A diverse learning environment and varied teaching methods facilitates students' learning and ability to remember different things. The more ways you learn one thing, the more associations you will be able to make, which in turn means that more synapses in the brain is working and that you get better and more opportunities to bring forth things from the memory. In addition to this the chance to reach as many students as possible is greatest if the students can learn one thing in a number of ways. In order to best meet all students' different needs, we have worked extensively with various sizes and degrees of screening of the rooms the students will use.

• 50-200 students

For the larger assemblies there are different kinds of spaces available; the half climate atrium which is centrally located in the building can be used for more spirited activities such as games and play, while the auditorium, or "cinema", to the more quiet and introverted activities such as watching movies or attending lectures. When good weather the outdoor space on top of the building can also be used for larger gatherings.

• 23-30 students - assembly hall/large class

For when the whole class is gathered one might use the traditional classroom ranging in size from $65-75m^2$. Activities such as presentations or briefings by teachers and/or students can take place here.

• 6-8 students - whole class

For PBL groups (problem based learning) where problem solving and joint discussion of relatively sophisticated problems that require more perspectives and individual briefings for teachers and students takes place, there are also a wide variety of spaces one can use. The classroom which can be divided by screens into smaller parts, workshops with room for about 10 people, smaller group rooms with room for up to 10 people, and large group rooms with room for about 25 people. These kinds of studios and rooms are all supposed to have access to portable computers, whiteboards, and round or oval tables to facilitate the work. In addition to the more closed spaces there is the open study landscape, including a library, connecting the different parts where one can arrange one's own work place according to one's needs.

• 4 students - problem based learning

For work within groups of four, where quiet work or joint discussions to resolve problems is taken place, should also have access to a small, possibly portable whiteboard and may therefore be carried out in different places depending on the degree of privacy you need/want. There are again smaller, more closed off rooms for activities as reading aloud to each other, and bigger, more open rooms for activities that are less noise sensitive.

• 2 students - beehive/collaborative zone

On occasions when work in groups of two (the beehive or collaborative zone) are taken place, the furniture in the classroom can quickly be rearranged; with help of screens a little more closed off spaces may be obtained. There are also the library and the smaller group rooms at hand.

• 1 student - individual

When it comes to quiet, individual work students can, depending on the nature of the work, choose to sit in the classroom with their classmates or in the open study landscape that might be more suitable for older students or students who are not easily bothered or distracted.

In the design of our school there is room for the students to create their own personalized spaces where they can acquire knowledge the best way possible for them in addition to the more firm and closed class and group rooms. On the second floor there is a larger library with space for casual studies in sofas and armchairs, but also a large collection of computers that can be used during the studies.

(Computers are also placed in the classrooms and in some of the group rooms.)

In between the different circles there are big open spaces that can be divided according to the students wishes and the larger stairways on the third and fourth floor also include terraced study spaces. Our survey showed that the students wanted a mix of traditional and untraditional classrooms and teaching, together with an open plan with free mobility so we tried to provide a mix of all of these features in our school to accommodate the different needs of the students, making sure that everyone should be able to acquire knowledge the best way suitable for that individual.



In addition to the indoor spaces varying in size and form to meet all the students' different needs our school also provides a wide range of outdoor spaces. Both the Convention on the Rights of the Children and the curriculum emphasize the importance of children's right to influence on and to be responsible for their own environment. By participating in a democratic process, children learn responsibility, reasoning techniques, and to cooperate, characteristics rather important to possess in today's society. As described earlier the concept of SOC: intelligibility, manageability, and meaningfulness are three key words in education. To meet the needs of these three goals the use of the outdoor environment is essential. Nature provides a hands on approach to education, students learn about the natural world, exploring the forest and the beach ecosystems, and working together as a community simultaneously as they get an understanding of how things work, from planting a seed, to watching something grow, using ingredients which they have planted and taken care of in cooking food that they can eat. It also stimulates all the senses and thereby helps to improve learning ability as we have discussed earlier. In addition to the inner rooms, our school also offers several outdoor rooms that can be used in different ways. Many of the classrooms and group activity rooms have balconies or patios directly connected to them so that they can function as an extension of the classroom in good weather. The youngest students have no balconies but terraces connected to their classrooms so that they are also directly linked to the surrounding outdoor environment that poses no security risks. In the middle of our school building is a half climate atrium that makes it possible to grow plants, but also to have "outdoor education" throughout the year. In this atrium there is a ramp leading up to and onto the roof where, as a volcano erupts lava, the building erupts a school yard with great views of the surrounding area, a playground, slide and plants but also an enclosure of glass that makes it safe for even the youngest children to spend time here. These outdoor spaces are intended to be used in the education, and not only during breaks or after school hours. Our survey also showed that most students and teachers prefer to study outside or to have a mix of out- and inside studies.

Most of the students also answered that they wanted unregulated lighting and natural ventilation, which is possible with openable doors and windows. Now the openings to the outside have more than just the quality to let in light and air; they also provide a classroom that can be extended to the outside where the students could profit from a larger study area in good weather.



The surrounding school yard provides a mix of coatings for different purposes, such as asphalt or gravel for the skipping rope, ball games and other activities that require flat level ground, "natural" areas such as woods, swamps and meadows for more free play and more designed sites as playgrounds or sandboxes. The school also provides more enclosed rooms for the feeling of case territoriality, which is a prerequisite for complete mental health. A certain amount of privacy is also essential for the ability to restrict others' influence, which is important for the students' adjustment and development; the students should not be isolated, but there should be an opportunity to be alone or to play in smaller groups without the intervention of unwelcome visitors.

Parts of the school are possible to close off so that they can be used also outside normal school hours. The gym and the locker room are accessible from the outside so that sport activities also can take place during evenings and weekends. The ground floor of the south circle can also be closed off and the class and group rooms can together with the workshops and the auditorium be used in adult education and for smaller screenings after school hours. The dining area with kitchen is also possible to use closed off from the rest of the school and can be used as a meeting place or for small parties or dinners.

Implementatie van het Scandinavisch model in Nederlandse ruimte b - 'Schoolbezoek'

1 - De Vensterschool in Groningen ontworpen door Onix hebben we gekozen omdat het tijdens dit onderzoek onderdeel was van een debat over schoolomgevingen in het algemeen. Het tijdschrift Schooldomein organiseerde een gesprek tussen architect Alex van de Beld en de huidige leiding van de school om winnende gebouwen van de scholenbouwprijs na 10 jaar te evalueren. Het artikel is toegevoegd aan dit onderzoek omdat het mogelijke ontwikkelingsperspectieven schetst voor leeromgevingen.

2 - De Openluchtschool in Amsterdam van architect Duiker is een onontkoombare keuze vanwege het daar uitgewerkte idee van het combineren van binnen- en buitenlokalen, en het idee dat het een school voor elk kind zou moeten zijn. Alex van de Beld bezocht de school en ontdekte dat hij nog steeds goed funktioneert ondanks het feit dat tijdens de laatste restauratie de mogelijkheid om de klaslokalen totaal open te zetten naar de leerbalkonnen is verdwenen. De lokalen funktioneren nog steeds goed en de balkons worden op zomerse dagen gebruikt.

3 – De Michaelschool in Leeuwarden, een basisschool ontworpen door Onix, is gekozen omdat het op het eerste gezicht in groot contrast lijkt met het Scandinavische model aangezien het niet flexibel is en totaal ontworpen als specifiek maatpak. Maar niettegenstaande deze karakteristieken blijkt het gebaseerd op een zeer duidelijke visie, bijna een ideologie over antroposofisch bouwen, waarin veel ideeën verwantschap vertonen met de Scandinavische modellen, ondanks het feit dat daar het bijzonder onderwijs niet bestaat.

4 – Studenten van de TU Delft hebben twee scholen, ontworpen door Onix, geanalyseerd. Ze hebben dit onafhankelijk gedaan, als studenten architectuur, en concentreren zich op de werking van het architecturale concept in relatie tot het programma en de plek. De studie heet: Moving through context. Het is relevant voor dit onderzoek omdat het algemene thema's en overlap blootlegt binnen de productie van scholen bij Onix, waarin het belang van de omgeving als onderdeel van de leefwereld van het kind centraal staat.

5 – Het Sterren College in Haarlem is gekozen omdat het een recent gebouwde school is waar een aantal van de in deze studie ontwikkelde ideeën aan het licht komen. De school is een VMBO en wil een open leeromgeving voor de leerlingen zijn. Specifiek kenmerk van de school is de afdeling tuinieren waar het programma een sterke relatie heeft met de binnen- en buitenruimte. Het interview met de directeur van de school gaat over zijn eigen ideeën en ervaringen bij de school en konfronteerde hem met de door ons ontwikkelde uitgangspunten.

6 – Het laatste onderdeel behelst een introductie van het ontwikkelde gedachtengoed in de Nederlandse realiteit. In een workshop-achtige setting werden de ontwikkelde plannen gepresenteerd aan Sibo Arbeek, Hilde Mulder en Jan Willem van Kasteel van ICSadviseurs, professionele experts op het gebied van de realisatie van scholen. Sibo Arbeek is ook hoofdredacteur van Schooldomein, een tijdschrift voor en over scholen. De samenvatting van deze workshop dient als een brug naar een mogelijk volgende stap: het ontwikkelen van een handboek voor het bouwen van betere scholen...

In case 1, 2, 3 en 5 hebben we de scholen geconfronteerd met onze 7 uitgangspunten:

1 Zorg dat de school een inclusieve leeromgeving voor het kind is.

Dit wil zeggen dat zowel het gebouw als de organisatie maximale gastvrijheid faciliteert voor een ieder. Universele toegankelijkheid als motto.

2 Zorg ervoor dat er mogelijkheden zijn om in de school andere (buurt)activiteiten onder te kunnen brengen.

Deze programmatiche verwerving met de wijk zorgt ervoor dat het schoolgebouw verankert in z'n omgeving en dat er een brug geslagen wordt met de woonomgeving van het kind.

3 Maak het mogelijk een deel van het voortgezet onderwijs onder te brengen in de leeromgeving.

Breken met het principe dat kinderen al op 12 jarige leeftijd naar een geheel nieuwe school moeten maken een geleidelijker overgang naar het voortgezet onderwijs mogelijk.

4 Creëer ruimtelijke diversiteit in het gebouw .

Diversiteit biedt mogelijkheden voor de gebruiker om naar eigen inzicht onderwijs te geven en te ontvangen.

5 Zorg ervoor dat de omgeving van het gebouw en de buitenruimte rondom het gebouw onderdeel wordt van de leeromgeving.

Buiten- en binnenruimte wordt opengesteld voor zowel spelen, leren en andere activiteiten die niet langer gecompartmenteerd zijn.

6 Zorg voor een open leeromgeving die maximaal flexibel in te richten en te gebruiken is.

Veranderende inzichten moeten snel vertaald kunnen worden naar alternatief ruimtegebruik.

7 Creëer een binnenklimaat dat interactief is.

Zorg dat het individu en de groep zelf verantwoordelijkheid kunnen nemen voor het veranderen van het klimaat, of dat nu gaat over de lichtbehoefte, het geluidsniveau, de temperatuur en ventilatie of een combinatie hiervan.

Evaluatie prijswinnende Vensterschool

De maakbare samenleving

Uiteindelijk was het ook een discussie over de maakbare samenleving. Met architect Alex van de Beld die via zijn gebouwen mensen wil prikkelen om het avontuur aan te gaan. En met locatiemanager Vensterscholen Tineke Timmer en directeur Marije Vellinga die ervaren dat het gebouw de ontmoeting juist makkelijk moet maken. Schooldomein doet verslag van een goed gesprek tussen architect en gebruikers van de eerste Vensterschool in Groningen.

Tekst Sibo Arheek Foto's Peter van der Knoop

Het moet gezegd, het gebouw van ONIX Architecten ligt na 15 jaar in gebruik nog steeds prachtig in de Groningse Oosterparkwijk. Een los gebouw, maar toch ruimtelijk verbonden met de oorspronkelijke school in de Amsterdamse stijl, een rijksmonument, waar de school nu onderwijs verzorgt. Het prijswinnend project lijkt een natuurlijke verbinding aan te gaan met het water, de bomen en het groen van het park. Een zwevend paviljoen dat uitnodigt om er naar binnen te gaan. Dat gebeurt via een lang pad dat via de traditionele gangenschool naar de nieuwbouw leidt.

Moeizame verbinding

Toch zijn de gebruikers van het eerste uur niet echt tevreden over het gebouw, of liever over de verbinding tussen het oude en het nieuwe gebouw en de praktische mogelijkheden van de nieuwbouw.



foto: Alex van der Beld, Marije Vellinga en Tineke Timmer

Directeur Marije Vellinga van de Siebe Jan Bouma-school: "Het grootste probleem is toch dat dit nieuwe gebouw los staat van de school, waardoor de verbinding met de school niet echt tot stand is gebracht en je je pedagogisch concept niet kwijt kunt. Omdat het gebouw aan het water ligt, en via een smalle brug verbonden is met de oorspronkelijke school, moet er ook toezicht zijn bij verkeer over en weer, zodat natuurlijk verkeer moeilijk plaatsvindt. De nieuwbouw was ontworpen als een ontmoetingsplek voor de school en de buurt, maar dat vindt niet echt meer plaats omdat het gebouw eigenlijk te klein is voor de behoefte die de wijk heeft aan activiteiten. Wel zijn er nog een peuterspeelzaal en wat bibliotheekkasten, maar voor het overgrote deel worden de ruimten door de school gebruikt, als kantoorruimte en lunch- en vergaderruimte."

Onderhoudsproblemen

"De makke is natuurlijk ook dat dit de eerste Vensterschool was", stelt Tineke Timmer, "de volgende voorbeelden spelen al weer veel beter in op de vragen uit de wijk. Je kunt ook niet een eenduidig concept maken, want elke Vensterschool is weer uniek en vraagt om een andere vertaling in de ruimte." Marije vindt het ook niet een echt handig gebouw: "Het ligt boven het water en je bereikt de multifunctionele ruimte via een steile trap. Dat maakt het al lastig voor ouderen, de jongste kinderen en rolstoelers. Omdat de ruimten als het ware om de bomen heen zijn gevouwen is het ook erg gehorig. De twee monumentale bomen groeien zo langzamerhand de school in en zorgen voor onderhoudsproblemen aan het dak. De patio die in het midden ligt, is donker, de verbindingstrap tussen de peuterspeelzaal en de gang is bijna weer spekglad. Eigenlijk een verblijfruimte waar

je niet zoveel mee doet. Bovendien was het een plek geworden voor zwervers en hangjongeren, dus hebben we ook hekken moeten plaatsen. Daarnaast is het beheer nooit geregeld, dus daarom is het gebouw 's avonds ook niet open."

Ontmoeting faciliteren

Op dat moment komt architect Alex van de Beld binnen en hij reageert direct: "Het gebouw kent, doordat het in het water ligt, eigenlijk heel weinig noodzaak tot beveiliging via hekken. Het feit dat rond het monument hekken zijn geplaatst vind ik eigenlijk niet kunnen voor een moderne school. Je moet de samenleving wel activeren om op de juiste wijze gebruik te maken van het gebouw." Dat levert natuurlijk een interessante discussie op tussen Alex als architect en Marije en Tineke als ervaringsdeskundigen: "Het kan toch niet zo zijn dat het gebouw dicteert hoe je moet gedragen? Het is juist andersom: het gebouw moet ontwikkelingen en ontmoeting makkelijk maken. Dat is hier niet het geval. Bovendien had je toen

ook kunnen bedenken dat je een multifunctionele ruimte altijd op de begane grond moet leggen, omdat mensen er makkelijk moeten kunnen komen." Alex legt uit waarom voor dit concept gekozen is: "Je moet het zien als een campus met paviljoens in een waterrijke- en parkachtige omgeving. Dit gebouw moet als een soort boomhut letterlijk beklimmen worden. Je moet geprikkeld worden om er naar toe te gaan. Daarnaast moet je niet blind zijn voor het feit dat inhoud verandert, omdat de vraag uit de samenleving verandert. Dan is het heel legitiem om te zeggen dat de school hier niet meer past, maar andere maatschappelijke functies mogelijk wel."

Brede school concept

Daarop klinkt Marije als muziek in de oren: "Nieuwbouw op een andere plek, maar dan vanuit een echt brede schoolconcept zou prachtig zijn. Nu hebben we twee keer net niets; in de gangenschool komt de visie van de school niet tot zijn recht en de nieuwbouw wordt niet gebruikt waarvoor het bedoeld was." Alex gaat ▶



"Je moet de mensen wel prikkelen om gebruik te maken van het gebouw."



"Je moet trouw blijven aan het concept. Je gooit toch ook niet de oude kast van je tante weg?"

nog even in op de verbinding tussen de gebouwen: "Wij hebben er bewust voor gekozen geen glazen gang te maken. Dat had afbreuk gedaan aan de paviljoengedachte. Maar we hadden natuurlijk wel gehoopt dat de gebouwen complementair aan elkaar zouden werken."

Budgettaire (on)mogelijkheden

Wel geeft Alex toe dat bepaalde zaken slimmer hadden gekund: "Natuurlijk mag je daarvan leren. De trappen die te steil zijn, de akoestiek en de koeling van de centrale ruimte, die nu zomers veel te heet is door het vele glaswerk. Bovendien is de patio te vochtig en dat tast het binnenklimaat aan. Maar deels heeft het ook te maken met budgettaire (on)mogelijkheden. Zo hebben we in het ontwerp rekening gehouden met een lift en zou op het dak een prachtige leefomgeving voor leerlingen kunnen ontstaan. Wat keihard overeind blijft, is het concept; daar moet je ook trouw aan blijven. Je gooit toch ook niet de oude kast van je tante weg? Misschien wordt dit wel het jongste monument van de stad, omdat het zo bijzonder is. Je moet out of the box denken en dan zul je zien dat dit gebouw voor de wijk goed werkt." Alex keurt het gebouw nog even na 15 jaar in gebruik. "Het

Juryoordeel Scholenbouwprijs 2000

"Het gebouw scoort in de ogen van de jury op drie belangrijke punten hoog: de stedenbouwkundige inpassing, de vertaling van het onderwijskundig-pedagogische aspect in het programma van eisen en de architectonische kwaliteit. De twee gebouwen vormen een nieuwe eenheid die is ontstaan door het contrast tussen de oude en de nieuwe school. Wel twijfelt de jury aan de duurzaamheid van de detailering."

ziet er ruimtelijk nog steeds fantastisch uit, maar je ziet wel dat de gemeente te weinig onderhoud pleegt aan de duurzame materialen en de binnenuitruimte. Als je dat regelmatig schoonspuwt, zul je zien dat die binnenuitruimte weer meer gaat leven. En als de journalist al weg is, regelt de architect met de school direct dat het overbodig hekwerk verdwijnt, waardoor een barrière tussen school en nieuwbouw wordt weggehouden en het plein beter toegankelijk wordt. Over de maakbare samenleving gesproken. ▶

Voor meer informatie surf u naar www.vensterwijkkoosterpark.nl of naar www.onix.nl of naar www.siebejanboumaschool.nl.

Wat is de relevantie van onze Scandinavische uitgangspunten voor de Vensterschool?

1 Zorg dat de school een inclusieve leeromgeving voor het kind is.

Uit het toegevoegde gesprek blijkt wel dat dit een heel specifieke situatie betreft. Het is een discussie tussen idealen, waarbij eerlijkheidshalve het gebouw als school niet erg goed functioneert, maar als wijkgebouw juist haar identiteit ontleent aan de incluerende kwaliteit.

2 Zorg ervoor dat er mogelijkheden zijn om in de school andere (buurt)activiteiten onder te kunnen brengen.

Verankering in de wijk is groot maar kan nog worden verbeterd nu de hekken rondom de oude en de nieuwe school worden opgeruimd. Het campusmodel met school-, buurt- en aanverwante functies kan verder worden ontwikkeld in het pioenpark, waar eerder ook al een speeltuingebouw door Onix is ontworpen.

3 Maak het mogelijk een deel van het voortgezet onderwijs onder te brengen in de leeromgeving.

Is niet echt haalbaar vanwege de geringe omvang en de specifieke ruimtes die in het gebouw zijn ondergebracht. Op dat schaalniveau mist het gebouw de nodige flexibiliteit.

4 Creëer ruimtelijke diversiteit in het gebouw.

Diversiteit is ruim vorhanden in het gebouw dat altijd heeft uitgedaagd tot ander gebruik. Hopelijk wordt er snel een nieuwe bestemming voor ouderen gevonden.

5 Zorg ervoor dat de omgeving van het gebouw en de buitenruimte rondom het gebouw onderdeel worden van de leeromgeving.

Het gebouw is integraal onderdeel van een speelomgeving.

6 Zorg voor een open leeromgeving die maximaal flexibel is in te richten en te gebruiken.

Die heeft een tijdlang gewerkt, maar door groeiend aantal leerlingen is het gebouw te klein geworden. Het is op deze plek niet uitbreidbaar. Dat is een bezwaar.

7 Creëer een binnenklimaat dat interactief is.

Kan beter omdat het gebouw te warm wordt vanwege de grote glasoppervlaktes. Verder is de verwarming centraal geregeld.



Openluchtschool, Amsterdam

Wat is de relevantie van onze Scandinavische uitgangspunten voor de Openluchtschool?

1 Zorg dat de school een inclusieve leeromgeving voor het kind is.

Eigenlijk stond dit principe al in de statuten van de Vereniging van openluchtscholen die is opgericht in 1927: dat er een gezonde omgeving voor ieder kind aangeboden zou kunnen worden. De openluchtschool van Duiker is een gestapeld model waarbij de plattegrond centraal ontsloten wordt, 2 lokalen per verdieping. Later is er een kleine lift in geplaatst die de toegankelijkheid vergroot. De lokalen zijn ruim en open zonder leernissen, al zijn die op sommige plekken later ontstaan bij een verbouwing. De lokalen zijn prettig maar niet erg aanpasbaar aan variërende leersituaties, behalve natuurlijk de prachtige mogelijkheid om aanvankelijk het lokaal te kunnen vergroten met de openluchtterrassen. Deze zijn helaas in de laatste verbouwing meer als balkons op zichzelf komen te staan omdat de pui tussen lokaal en terras nog maar voorzien is van een enkele terrasdeur i.p.v. de originele vouwwand die over de volledige breedte geopend kon worden.

2 Zorg ervoor dat er mogelijkheden zijn om in de school andere (buurt)activiteiten onder te kunnen brengen.

De programmatische verwerving met de wijk is groot. Kinderen uit de buurt moeten naar deze school en ze ligt centraal in de wijk. De situatie op het binnenterrein maakt het contact met de woonwijk nog sterker. Aanvankelijk is het gebouw in de vrije

ruimte gebouwd, waar het later door het woonblok is ingesloten. Niettemin is dit een waardevolle verwerving van school met buurt. Het poortgebouw van later datum zorgt voor een sterke relatie met de straat. Helaas is het binnenterrein s'avonds afgesloten waardoor het geen dubbelfunctie heeft als buurtplein.

3 Maak het mogelijk een deel van het voortgezet onderwijs onder te brengen in de leeromgeving.

Dit is niet mogelijk omdat het gebouw niet uitbreidbaar is. Dit geldt zowel voor de plattegrond als ook de hoogte ervan. Het gebouw is ook erg klein en heeft geen overcapaciteit. Het is kortom een begrensd maatpak voor deze school.

4 Creëer ruimtelijke diversiteit in het gebouw.

De ruimtelijke diversiteit op de begane grond, waar het speellokaal en de lerarenkamers geplaatst zijn, is groot. Daarboven zijn drie identieke verdiepingen gestapeld, met beperkte mogelijkheden. Niettemin is het aanvankelijke idee van de openluchtlokalen uiteraard een prachtig voorbeeld van ruimtelijke diversiteit: het buitenlokaal in aanvulling op het binnenlokaal.

5 Zorg ervoor dat de omgeving van het gebouw en de buitenruimte rondom het gebouw onderdeel wordt van de leeromgeving.

Het binnenterrein werkt heel goed als speelterrein rondom het gebouw. Groen ontbreekt vanwege de geringe oppervlakte en het stedelijke karakter van de plek. Het spelen geconfronteerd met de woningen rondom is een aantrekkelijk levendig gegeven wat volgens de conciërge van de school geen problemen met de buurt oplevert. Wel is het nodig om s' avonds het plein af te sluiten.

6 Zorg voor een open leeromgeving die maximaal flexibel in te richten en te gebruiken is.

Ondanks het constructieve casco van de betonbouw dat in principe flexibel is, is het gebouw zo klein dat er niet erg veel veranderd kan worden in de plattegrond. Mogelijkheden zijn beperkt en de structuur ligt vrijwel vast.

7 Creëer een binnenklimaat dat interactief is.

Door de openluchtterassen kan elk lokaal geopend worden op ieder gewenst moment. Buiten wordt wel lesgegeven want de omgeving is niet erg lawaaiig. De verwarming is gemoderniseerd en dat is niet erg gebruiksvriendelijk gedaan. Door de grote glasoppervlaktes kan het wel snel te warm worden in het gebouw.

Michaelschool, Leeuwarden

We spreken met Marie-Marth Prins, directeur van de school.

1 Is jullie school een inclusieve leeromgeving voor het kind?

(Inclusieve leeromgeving wil zeggen dat zowel het gebouw als de organisatie maximale gastvrijheid faciliteert voor een ieder. Universele toegankelijkheid als motto.)

Wij ervaren het gebouw én de schoolorganisatie als gastvrij: in principe zijn alle kinderen welkom. (Haha, al wordt de lift als berging gebruikt....)

2 Is het mogelijk om in jullie gebouw andere (buurt-)activiteiten onder te brengen?

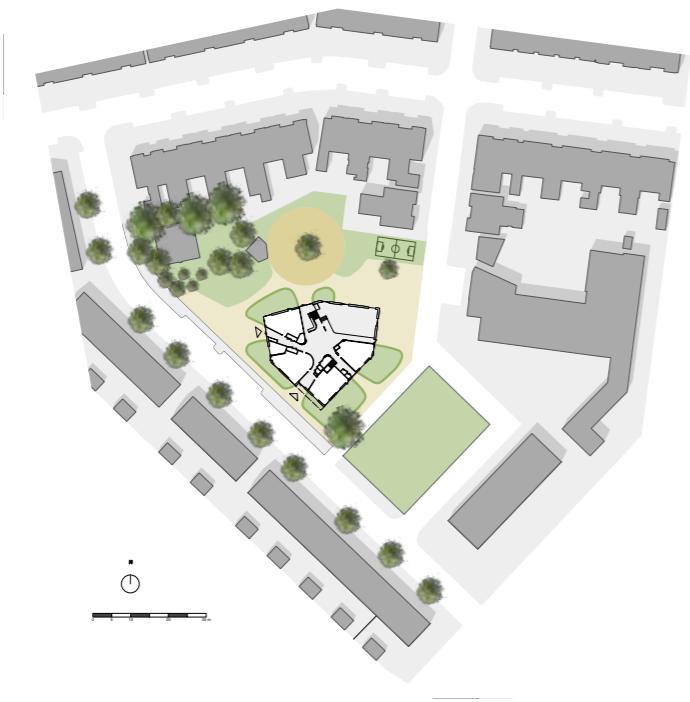
(Deze eventuele programmatiche verwerving met de wijk zorgt ervoor dat het schoolgebouw verankert in z'n omgeving en dat er een brug geslagen wordt met de woonomgeving van het kind.)

Momenteel wordt het gebouw buiten schooltijden gebruikt voor culturele lessen/ cursussen (tango, streetdance, tango-orkest, yoga, lezingen, cursussen). Met de gemeente zijn wij in gesprek om een cultuureducatielokatie in het gebouw te vestigen.

3 Is het mogelijk een deel van het voortgezet onderwijs onder te brengen in de leeromgeving?

(Breken met het principe dat kinderen al op 12 jarige leeftijd naar een geheel nieuwe school moeten maken een geleidelijker overgang naar het voortgezet onderwijs mogelijk.)

Nee.



4 Is er ruimtelijke diversiteit in het gebouw gecreeerd? Zo ja, hoe dan? Zou je de ruimtelijkheid kunnen omschrijven?

(Diversiteit biedt mogelijkheden voor de gebruiker om naar eigen inzicht onderwijs te geven en te ontvangen.)

Ja, er is mogelijkheid om in verschillende ruimtes te werken, er zijn werk- en studieplekken in de openbare ruimtes, en de centrale hal wordt bijvoorbeeld ook deels als onderwijsruimte gebruikt (zowel voor beweging, muziek als stil lezen).

5 Wordt er buiten het gebouw onderwijs gegeven? Is de omgeving van het gebouw en de buitenruimte rondom het gebouw onderdeel wordt van de leeromgeving?

(Het is een pré als de buiten- en binnenruimte wordt opengesteld voor zowel spelen, leren en andere activiteiten.)

Er zijn 5 tuinen waarin tuinbouw en ervaringsonderwijs wordt gegeven. Daarnaast zijn er twee speelpleinen met uitnodigende (fantasie-prikkelende) speeltoestellen.

6 Is er sprake van een open leeromgeving die maximaal flexibel in te richten en te gebruiken is?

(Onze stelling is dat veranderende inzichten snel vertaald moeten kunnen worden naar alternatief ruimtegebruik.)

Mwah. Voor sommige ruimtes geldt dat wel (grote zaal is samen te voegen met de hal), voor andere ruimtes niet (klaslokalen). Was ook niet onze wens.

7 Is het binnenklimaat interactief is?

(Het is duurzaam en positief dat het individu en de groep zelf verantwoordelijkheid kan nemen voor het veranderen van het klimaat. Of dat nu gaat over de lichtbehoefte, het geluidsniveau, de temperatuur en ventilatie of een combinatie hiervan.)

Temperatuur en ventilatie zijn nog een probleem. Worden extern niet goed afgesteld. We zijn blij dat in de meeste ruimtes de ramen open kunnen. In de ruimtes waar dat niet kan, is het bedompd en veel te warm.

ONIX

Moving through context

Introduction

Onix is a Dutch architectural bureau, well known for it's innovative, critical and obstinate way of building design. The bureau was founded in 1994 by Hélio Meijer and Alex van de Bildt.



Oeuvre



Broad school, 2006, Berkel en Rodenrijs, Netherlands



Vensterschool, 1998, Groningen, Netherlands



Ching



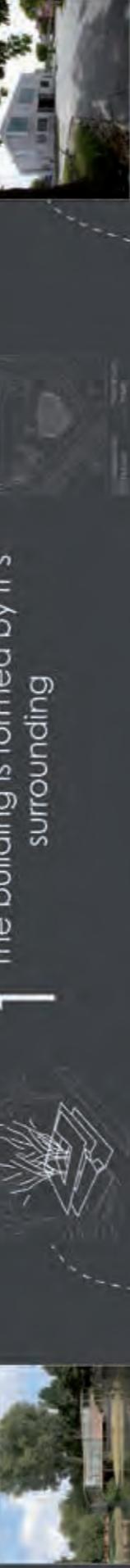
Clark and Pause



Form



Operation



Conclusion

Onix has a strong cantilevered roof, which is a common feature of their buildings. While both approach one design from a different angle, they will have different impacts on the building. In the first case, the roof is a dominant element, while in the second, it is more of a supporting element. The roof is a key element in the design of the building, and its location is crucial to its success. This same logic applies to the Michela school, where the building is a central element, and its cantilevered roof is a key feature of the building. The result is a strong connection between nature and the building, because it moves from a static object and becomes a dynamic element.

Groningen, in the north of the Netherlands. Over time, Onix has produced a lot of unique buildings and therefore earned a lot of recognition in the Netherlands and abroad, especially the last couple of years where Onix and its head architects won a lot of awards. Onix has a critical attitude to the conceptuality which has taken such a dominant position in contemporary architecture. Their search is to combine the old with the new, to use familiarity's in such innovative ways that they create something new and fresh. This led them to a very modifiable yet special type of architecture.

Tulsi | Max Broekhuizen | 4105249
Student | Ruben Stovers | 1216430
Tulsi | Kaaria Mabes Zonne
The last school they made by combining the old and the new, to use familiarity's in such innovative ways that they create something new and fresh. This led them to a very modifiable yet special type of architecture.



Broad school, 2009, Diemen, Netherlands



St. Michaëlschool



Ching



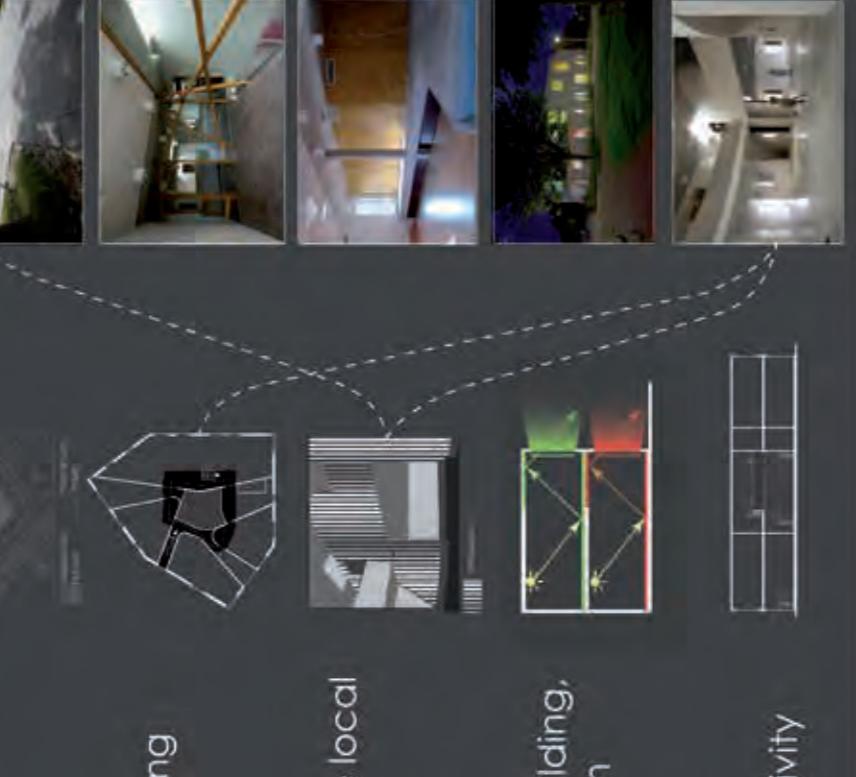
Clark and Pause



Form



Sources



Conclusion

Onix has a strong cantilevered roof, which is a common feature of their buildings. While both approach one design from a different angle, they will have different impacts on the building. In the first case, the roof is a dominant element, while in the second, it is more of a supporting element. The roof is a key element in the design of the building, and its location is crucial to its success. This same logic applies to the Michela school, where the building is a central element, and its cantilevered roof is a key feature of the building. The result is a strong connection between nature and the building, because it moves from a static object and becomes a dynamic element.

Another example of the Onix school that building is the Vensterschool, which is designed in such a way that it looks like a tree trunk. This is a great example of a sustainable building, as it uses local materials and techniques to create a building that is in harmony with its surroundings. The Vensterschool is a great example of how Onix's design philosophy can be applied to a real-world project. The building is a simple rectangular volume with a large cantilevered roof, which is supported by a series of columns. The roof is made of wood and has a textured surface, giving it a natural appearance. The building is surrounded by trees and other vegetation, creating a sense of integration with the environment. The interior of the building is spacious and light-filled, with large windows that look out onto the surrounding landscape. The overall aesthetic is minimalist and organic, reflecting the natural materials used in its construction.





Sterren College, Haarlem

Interview met directeur Andre van Zon.

Ik had twee delen voorbereid voor een gesprek over zijn school. Een eerste deel rond de vraag of de ideeën die aan het gebouw ten grondslag liggen ook goed werken en het andere deel waarin ik hem confrontereert met het ideële programma van eisen zoals dat uit het Scandinavisch onderzoek naar voren komt met de vraag of hij zich daarin herkent en of die al geheel of ten dele op zijn school van toepassing zijn. Niettemin nam hij direct het initiatief door te melden dat het van het allergrootste belang was dat er een school was gemaakt die van binnen en van buiten mooi is en dat voor hem een omslag teweegbracht na 30 jaar werkzaamheid binnen het VMBO omdat de school nu respectvol werd omarmd door ouders en leerlingen. De architectuur draagt bij aan het imago van het VMBO dat nu wel iets voorstelt zo vertelt Van Zon trots en bevrijdt zich daarmee enigszins van het stigma dat het in Nederland met zich meedraagt. Zijn compliment aan de architect Mecanoo en de projectarchitect gaat zover dat hij veronderstelt dat het van cruciaal belang is in de ruimtelijke ervaring van het schoolgebouw lucht en openheid te kunnen beleven.

Op mijn vraag of zijn school dan ook de ideale omvang heeft was het antwoord: ja, vanwege het financiële break-even point van 850 leerlingen en ook vanwege de mogelijkheid dat een dergelijk programma biedt om het gebouw in verschillende 'pleinen', in dit geval als afdelingen gemaakt, op te delen zonder dat het schooltjes binnen een school worden. Het koppelen van die pleinen aan een centrale aula is een geslaagd idee dat er een school van maakt en houdt. Dat is belangrijk voor onderlinge



betrokkenheid. Nadeel is dat als er iets onverwachts gebeurd dit theatraal in het centrale deel zichtbaar is voor eenieder.

Wat iets minder goed uitpakt is de indeling van de onderbouw. Daarin is de moeilijkste groep van 13-, 14- en 15-jarige pubers onderverdeeld in te kleine groepen en delen ze toiletten. Twee concrete problemen levert dat op. Lawaaioverlast bij het heen en weer lopen en te weinig bewegingsruimte voor een doelgroep die niet lang kan stilzitten. Dat laatste kan deels worden ondervangen door een programmering van bv. lichamelijke oefening als blok tussen lessen, maar beter was het geweest om deze groep niet 'vast' te zetten op een basishonk maar conform hun natuur meer te laten zwerven door het onderwijslandschap. Dat laatste natuurlijk niet zonder de balans tussen rust en beweging (mentaal als ook lichamelijk) uit het oog te verliezen.

In de bovenbouw speelt dit niet omdat kinderen dan een richting hebben gekozen waarvoor ze gemotiveerd zijn en binnen die motivatie zelfstandiger kunnen opereren.

Van Zon is eerlijk en helder in zijn commentaar dat natuurlijk ook zelfkritisch is naar de eigen onderwijsvisie die heel bewust op het open onderwijslandschap is gestoeld, maar kennelijk toch ook daarin een aantal tekortkomingen ziet die wellicht voorkomen hadden kunnen worden. Niettemin werkt de school als geheel zeer goed .

1 Zorg dat de school een inclusieve leeromgeving voor het kind is.

Dit punt is samen met punt drie een lastig te beoordelen idee. Natuurlijk is het VMbO toegankelijk voor een ieder, maar de schifting is al eerder gemaakt tijdens de basisschool. Enigszins strijdlustig stelt Van Zon dat daar de kinderen al een stigma oplopen of op zijn minst met vooroordeLEN dat ze niet goed kunnen leren worden geconfronteerd en dat juist het vertrek naar een nieuwe school onder 'gelijken' hun het zelfvertrouwen weer teruggeeft. Volgens Van Zon bloeien ze op na al een beetje verpietert te zijn. Dat opbloeien staat ook hoog in het vaandel van de school en Van Zon stelt dan ook dat de vele individuele aandacht voor eenieder bijdraagt aan het succes van de school en dat er helaas daarna op vaak massale MBO's weer van alles misgaat. Kinderen worden weer op zichzelf teruggeworpen. Hij is het dan ook niet eens met het idee om brugklassen aan het basisonderwijs te hangen hetgeen zou betekenen dat zijn leerlingen pas later overstappen naar de het VMBO. Dat zou betekenen dat veel leerlingen verder verpieteren omdat ze niet kunnen opboksen tegen de concurrentie. Het antwoord van Van Zon is ook hier helder en gemotiveerd maar lijdt wel aan de naar binnen gerichte (verzuilde) beoordeling van het zelf heel goed

willen doen, maar er geen vertrouwen in hebben dat dat elders ook kan.

2 Zorg ervoor dat er mogelijkheden zijn om in de school andere (buurt) activiteiten onder te kunnen brengen.

Deze programmatische verweving met de wijk zorgt ervoor dat het schoolgebouw verankert in z'n omgeving en dat er een brug geslagen wordt met de woonomgeving van het kind, hetgeen heel concreet gebeurt. Buurtbewoners komen voor weinig geld eten in de school: maaltijden die de leerlingen bij kookles hebben klaargemaakt. Voor de leerlingen is dit een motivator omdat men complimenten krijgt en het leren *for real* is. Een ander prachtig voorbeeld is de zelfgetuinierde groente en fruit die wordt verkocht aan de buurt. Op mijn vraag of dat nog verder zou kunnen gaan en er wijkgerichte functies in het complex ondergebracht worden was het antwoord iets twijfelender al had men daar wel over gesproken: een politiepost, maar dat zou het stigma bekrachtigen... Wel zou een echt restaurant kunnen wat bij het imago van de school past en een buurtwinkel. Verder is het zo dat er sportvoorzieningen in het park worden gebouwd die ook voor de buurt toegankelijk zijn, in die zin zal een deel van het park meer *shared space* worden dan het nu is. De groene omgeving functioneert nu nog deels als buffer naar de buurt die volgens Van Zon snel klaagt over overlast, nl. al bij het zien van jongeren vanuit hun achtertuin. Van Zon was het eens met de stelling dat hier nog een wereld te winnen valt.

3 Maak het mogelijk een deel van het voortgezet onderwijs onder te brengen in de leeromgeving. Zie antwoord vraag 1. Door de grens te doorbreken dat kinderen al op 12 jarige leeftijd naar een geheel nieuwe school moeten, onstaat er een geleidelijker overgang naar het voortgezet onderwijs .

4 Creëer ruimtelijke diversiteit in het gebouw.

Diversiteit biedt mogelijkheden voor de gebruiker om naar eigen inzicht onderwijs te geven en te ontvangen. Diversiteit zat opgesloten in het pve en de visie van de school. Op elke afdeling een aantal meer gesloten lokalen en het onderverdelen in 4 afdelingen zorgt voor een basis. In de onderbouw is de diversiteit te gering zoals eerder gebleken, maar in het totale aanbod van onderwijsprogramma en de ruimte die ook buiten daarvoor wordt gecreëert is het ruim voldoende.

5 Zorg ervoor dat de omgeving van het gebouw en de buitenruimte rondom het gebouw onderdeel wordt van de leeromgeving.

Van dit punt is het schoolgebouw een geslaagd voorbeeld, deels vanwege het

programma dat gericht is op tuinbouw en koken, maar ook als gezonde en groene leefomgeving van het lerende kind. Buiten lesgeven kan nog worden gestimuleerd onder de docenten. Buiten en binnenruimte wordt opengesteld voor zowel spelen, leren als andere activiteiten die niet langer gecompartmenteerd zijn.

6 Zorg voor een open leeromgeving die maximaal flexibel in te richten en te gebruiken is.

Veranderende inzichten moeten snel vertaald kunnen worden naar alternatieve ruimtebehoefte. Dit is goed mogelijk door de bouwmethodiek van drager en inbouw, maar ook door de opdeling in vier vleugels. Het gebouw kan worden uitgebreid op het terrein en omgebouwd als dat nodig blijkt.

7 Creëer een binnenklimaat dat interactief is.

Zorg dat het individu en de groep zelf verantwoordelijkheid kunnen nemen voor het veranderen van het gewenste klimaat, of dat nu gaat om de lichtbehoefte, het geluidsniveau, de temperatuur of de ventilatie.

Dit punt is in het gesprek wat onderbelicht gebleven, maar er zijn geen noemenswaardige problemen omdat de 'leerzuilen' van het gebouw ook hun eigen klimaat nodig hebben dat daarop ingesteld is.



177



'Een frisse lucht school vanuit gezond verstand' *

Alex van de Beld presenteert de voorlopige resultaten van *Learning from Scandinavia*

Alex: Het is work-in-progress maar we kunnen er nog iets mee – we schrijven als het ware zelf een programma van eisen gebaseerd op Scandinavische scholen – en ontwerpen een prototype dat vooral nieuwe kansen biedt voor Nederland om anders naar scholen te kijken. Misschien kan dat hier nog aangescherpt worden.

Kijk, met name de Scandinavische scholen hebben een soort van context gegenereerd rond de vraag: kan het ook anders? We hebben het over basisonderwijs maar met een draai er aan, dat zal je straks merken. Vervolgens hebben we ons vanuit die voorbeelden afgevraagd wat interessant programma zou zijn. Dat mondigt uit in schetsen, plannen en ideeën want: het is ontwerpend onderzoek... het mondigt uit in een model en verder is er het plan om het hele onderzoek om te zetten in een soort van manual, een manual gericht op de partijen die bij de realisatie van een nieuwe school betrokken zijn... of dat er uitkomt durf ik nu nog niet te zeggen.

Hier zie je een eerste Scandinavische school (*Aranäsgymnasium, Kungsbacka*, p.15) waar een theater aan vast zit, het is een maatschappelijke instelling geworden die breder is dan de school, een gymnasium en een gymnasium in Zweden is van 15 tot 18 jaar en iedereen gaat naar het gymnasium, of je nu goed kunt leren of niet...

Sibo: In Nederland heb je de Cultuur Campus Leidsche Rijn, een combinatie van

* Een gesprek tussen Sibo Arbeek, Hilde Mulder en Jan Willem van Kasteel van ICSadviseurs en Alex van de Beld en Berit Ann Roos van Onix

school, muziekcentrum, theater, bibliotheek en een aantal maatschappelijke woningen waar verstandelijk gehandicapten wonen die werken in de horeca van de school, daar zie je dus ook die maatschappelijke verbindingen...

Alex: Hier zie je een Scandinavisch principe geïllustreerd (*I Ur och Skur EkoMyran, Malmö p.19*). Scandinaviërs zeggen: er is geen slecht weer, er is alleen slechte kleding – en het is er natuurlijk altijd slecht weer! Wat zie je nu: kinderen zijn altijd buiten en goed gekleed! Met goede regenpakken aan spelen ze heel veel buiten en er wordt buiten gelunched. Het hele vooropgezette Nederlandse idee dat alles binnen moet gebeuren? Dit is een mogelijke mindset die natuurlijk uit die noordelijke landen komt omdat het daar altijd slecht weer is, veel slechter dan in Nederland! Als je daar op een Nederlandse manier mee om zou gaan kom je nooit die school meer uit. Interessant zou ik zeggen.

Een derde voorbeeld: Ängsdals (p. 25). Je ziet hier een lagere school met kinderopvang waar alle lokalen, je kunt het haast niet zien, een bordesje hebben aan de gevel. Er is een buitenkamertje gecreëerd, heel simpel. Elk lokaal kan opengeschoven worden en dan kan het onderwijs half buiten gegeven worden als het weer goed is. Het is eigenlijk een openluchtschooltje.

Hier een spectaculaire school uit Denemarken: Ørestad. (*Ørestad gymnasium, Copenhagen p. 33*) Een open concept haalt het landschap het interieur in. Dit is ook een gymnasium, dus voor iets oudere kinderen: we hebben breed gekeken naar wat er speelt in onderwijsland. Hier zitten de Deense kindertjes met hun eigen Apple op schoot in hoekjes, gaatjes en gangen en zones en er is helemaal geen lokaal meer! De hele school is een interactieve zone geworden... We hebben ook met gebruikers van het gebouw gesproken over de werking ervan. Het vaak aangevoerde bezwaar tegen zo'n opzet: dat leerlingen met concentratieproblemen zich in zo'n gebouw niet thuis voelen, er niet mee overweg kunnen – werd hier tegengesproken. En de leerlingen komen uit allerlei gezinnen, de school is sterk buurtgebonden.

Sibo: Er is een heel mooi Nederlands equivalent van deze school: de Niekéé school in Roermond. Die is door kunstenaar Sjef Drummen als één groot atelier ingericht! De school is één grote bak met R-u-i-m-t-e! De enige ruimtes die daar niet werken zijn de ruimtes die vooraf bepaald zijn –

Alex: Ja, dat zie je in Ørestad dus ook - er zitten een soort cilinders in, plekken waarin je kunt terugtrekken, afgesloten stilteplekken in die verder geheel open school en: ze worden niet gebruikt...

Berit Ann: Leerlingen willen erbij horen, zeker in deze leeftijdscategorie en dan ga je

dus niet in een afgezonderde stilteplek zitten... ook dan moet het een vloeiende overgang zijn naar stilte, zonder dat het je afzondert, afsnijdt van de rest...

Alex: We hebben een voorbeeld van een vloeiende ruimte van Dorte Mandrup die een mooie tijdloze uitbreiding aan een school van Arne Jacobsen heeft gemaakt. (*Munkegård basisschool, Gentofte p. 39*) Dat is een monument, tijdloos, een prachtig soort strokenbouw, doeltreffend, ruime lokalen met mooi licht er in maar het voldeed niet meer aan alle actuele eisen, van klimaat tot en met gebruik. Wat heeft Dorte Mandrup gedaan? Ze heeft het idee gelanceerd om ondergronds een uitbreiding te doen! Om niet het monument te verstoren. Ondergrondse ruimtes met drie lichtpatio's die ze erin heeft laten zakken om licht in die kelder te brengen. Een prachtig idee met het oog op het monument, alleen de kritiek is nu dat men nog op zoek is naar hoe het gebruikt moet worden... want het idee was dat dit net als in Ørestad een open veld moet zijn waarin de leerlingen hun eigen plek zoeken maar: het werkt (nog) niet. In Ørestad werkt het wel en hier niet – misschien zit dat deels ook in de gebruikers...

Hilde: Je moet natuurlijk je doelgroep in de gaten houden – jonge kinderen zullen anders reageren op zo'n open situatie dan oudere...

Alex: De laatste school (*Kunskapskolan, Helsingborg, p. 47*) is ook een gymnasium en we hebben het gekozen omdat dit een bedrijf is dat zeer succesvol hun eigen schoolmodel exploiteert – zij gaan zeer effectief met hun punten en leerlingen om – zuigen leerlingen aan en verdienen daar hun geld mee...

Hilde: Twente profileert zich daar toch sterk mee? Met ondernemerschap...

Sibo: Ik heb een nieuwe reeks in Schooldomein, *Ondernemen in het Onderwijs*, en dan zie je steeds meer dat onderwijsondernemers op basis van vooraf gestelde performance-criteria hun bedrijfsproces inrichten. Alleen, die kunnen dan wat zachte zijn. Steeds meer onderwijsmensen komen ook uit het bedrijfsleven. Frank van Esch, voorzitter CvB INOS, komt uit het bedrijfsleven en de sectordirecteur van een school hier in Apeldoorn, Aventus, die komt uit het bedrijfsleven en heeft een aantal bedrijfsmatige principes op de schoolorganisatie toegepast en die scoort daar waanzinnig mee, bijvoorbeeld bij het terugdringen van voortijdige schooluitval...

Alex: We hebben hier vrij lang doorgesproken en leraren op deze scholen werken 40 uur per week op school en dat zijn lesuren! Voorbereiden doen ze maar thuis. Leraren klagen daar niet over, zijn loyaal net als bij IKEA. Uitval van leerlingen wordt niet geaccepteerd – groepen zijn anderhalf keer zo groot, ik geloof 35 leerlingen in een groep.

Jan Willem: Zijn alle leerlingen welkom?

Alex: Ja, onderscheid aan de poort is in de Zweedse verhoudingen ondenkbaar, dat

hebben we ook gevraagd, niet dubbel gechecked, goede vraag dus – zij krijgen middelen van de overheid, maken die school en verwerven zich een positie op basis van succes...

Sibo: We hebben ook wel een paar van dit soort scholen maar niet veel...

Jan Willem: Dit is een interessante want eigenlijk zie je hier: je organiseert de hele school, gebouw én onderwijs: dit is eigenlijk een vergevorderde vorm van doorcentralisatie...

Alex: Juist! En dan even naar een voorlopige conclusie: al deze scholen moeten er volgens de visie van deze onderneming hetzelfde uitzien! Het IKEA-model – dit is weliswaar een school in een bestaand gebouw maar al die bankjes en dat die eethoek daar zit – het is allemaal onderdeel van de *corporate identity* en er zijn er inmiddels 150 van in Zweden! Allemaal met hetzelfde eet-interieur! De architect bedenkt dingen die niks met het gebruik te maken hebben maar wel met het plaatje – identiteit, beeldvorming!

Hilde: Hebben ze daar alleen openbaar onderwijs? Of ook bijzonder onderwijs? Want dan is identiteit juist belangrijk en wil je dat kunnen uitstralen...

Alex: In Zweden mag je geen bijzonder onderwijs organiseren...

Jan Willem: Op deze manier heb je het hier over particulier onderwijs... nou, nee, want het wordt gefinancierd met overheids geld...

Alex: Juist!

Sibo: Hoe zit het aanbestedingstechnisch dan? Waarbij de ontwikkelaar naast een financier ook een architect in dienst heeft...

Alex: Één architect! heeft al die 150 scholen gedaan. Enfin, genoeg daarover – ik wil het over de vragenlijst hebben, de vragenlijst die we hebben ontwikkeld. Een formulier waarop je kunt aangeven in welke mate je bepaalde zaken in je gebouw belangrijk vindt: wil je kunstlicht of wil je daglicht? Wil je grote of kleine ruimtes? Mag het rommelig zijn of moet alles steeds keurig opgeborgen kunnen worden? Het zit vol met gevisualiseerde vragen...

Jan Willem: Dit kun je voorleggen aan alle personeelsleden en aan het eind van de dag heb je je programma van eisen geformuleerd! De scholenbouwwaaijer werkt net zo: thema's/subthema's/tabbladen, de waaijer roept vragen op, is aselect te gebruiken, daarom ook die waaiervorm – via een nog in te richten kenniscentrum wil de Rijksbouwmeester/VROM alle scholen er een geven... het is een tool

Alex: Wij willen hier ook een tool van maken...

Hilde: Maar dit is al interactiever dan de scholenwaaijer en dit nodigt uit tot het maken van keuzes, tot het uitspreken van je voorkeur...

Jan Willem: Je moet wel oppassen met je plaatjes, een huisje roept een gevoel op dat je misschien niet bedoelt; je moet je van die betekenissen bewust zijn en die zou je met andere vragen moeten tackelen... iemand kiest dat huisje: omdat hij/zij een punt-dak wil? Of omdat hij/zij behaaglijkheid belangrijk vindt? Dat zijn twee heel verschillende zaken...

Hilde: Soms weten mensen ook niet goed waar hun voorkeur ligt: ik ben bezig in Zundert waar men een gebouw wil dat past in de omgeving en die omgeving is landelijk, boerderijen – een architect kwam met een heel ander modern ontwerp en toch was men daar zeer van onder de indruk – kortom, men wist het eigenlijk helemaal niet van te voren... je kunt mensen best verrassen en meenemen in iets heel nieuws...

Alex: Dit pretendeert niet wetenschappelijk te zijn, voor ons is het vooral een tool om duidelijker met elkaar in gesprek te raken, niet om verrassingen uit te sluiten, wel om elkaar beter te begrijpen; het is een communicatiemiddel...

Maar goed, verder: de hoofdkenmerken van het programma zijn een intensiever contact met buiten, met de natuur, met de wijk, dat heeft een sociale component maar gaat ook heel concreet over het buiten les kunnen geven – en: landschappelijkheid je gebouw binnen durven laten: 'zoek je plek maar in dat gebouw, timmer maar een hut op de vloerplaat, zet maar een boom in de aula, dan kun je lesgeven onder de boom'. (*Open de doos en legt een schetsmodel op tafel*) Hier zijn we aan het verkennen hoe die plattegronden, hoe dat zou kunnen gaan werken en dat is echt nog *work-in-progress*, maar ik zie hier een model met de volgende hoofdkenmerken:

- 1 - een optimum zoekend tussen compactheid en joyeus in de omgeving liggen
- 2 - een modulair gedachte structuur bestaande uit
- 3 - een centraal cluster met gemeenschappelijke voorzieningen overlappend met een cluster voor kinderopvang, een voor basisonderwijs, een voor twee jaren pré-middelbaar onderwijs... en een van die clusters kan ook een theater zijn of een buurthuis
- 4 - naar binnen gericht op clusters én naar buiten gekeerd naar leerterrassen: inside-outside-in - het gebouw is compact en pakt (de ruimte eromheen): het is compact maar extrovert
- 5 - een gebruiksdak als leer-les-speel-ontspanningsdak

Sibo/Jan Willem: Wat is de maat? Het lijkt een VO school...

Alex: Het is een hybride, we willen die grens juist over! Wij voegen een extra cluster aan deze school toe en dat zijn twee pré-jaren van het middelbaar onderwijs. Wij willen kinderen niet op hun twaalfde al uit deze omgeving halen – en als twee jaar politiek niet haalbaar is dan is dit de brugklas...

Sibo: Grappig, mijn zoon heeft net deze leeftijd en hij was er helemaal klaar mee, met die lagere school

Alex: In Zweden zitten kinderen tot hun 15^e op die school!

Sibo: Het is wel interessant en het is goed om het er aan toe te voegen want daarmee kies je positie: een aantal middelbare scholen hebben een Junior-College: een kleinschaliger gedeelte van de school om leerlingen niet meteen in de massaliteit van de bovenbouw te storten...

Jan Willem: Het is natuurlijk een model en het heeft geen plek maar in het model moet ruimte zitten om het de interactie met zijn omgeving aan te laten gaan... hoe ziet de interactie met de omgeving eruit? Want het moet in een wijk waar het gaat landen ook aan kunnen sluiten op die omgeving...

Berit Ann: Nou, je ziet nu drie clusters rond een centraal cluster maar je kunt je afvragen: moeten ze wel allemaal aan elkaar vastzitten? Of is het mogelijk dat je in een wijk, in een dorp, die clusters van elkaar loskoppelt, gekeken naar de sociale structuur van de plek? Welk programma-onderdeel past daar dan het beste bij? Verder is de vraag of het allemaal nieuwbouw moet zijn: met een of meer clusters naast bestaand vastgoed kan een impuls gegeven worden...

Hilde: Ik zou zeker de relatie leggen tussen onderwijs en opvang en dat maakt ook gebruik van elkaars ruimte. Als je units gaat maken ga je tegen de huidige ruimtebehoefte in. Voor de buitenschoolse opvang is nabijheid belangrijk, die wil graag gebruik kunnen maken van lokalen.

Alex: Misschien is het goed om te besluiten dat het centrale deel het ruimste deel is: we beginnen met een lichthof waar een zone omheen ligt voor multifunctioneel gebruik, daar kunnen speelzones in liggen maar ook gewoon lokalen! Daar kleef je satellieten aan, die schuif je daar als het ware in maar je gaat uit van het gezamenlijke... nog even over het gebouw zelf. Dat heeft een houten constructie met steenachtige vloeren en het hele ding is gebaseerd op frisse lucht: natuurlijke ventilatie, lucht rondom naar binnen halen en door dat centrale deel weer afvoeren: een frisse lucht school vanuit gezond verstand!

Sibo: Wij hebben in Nederland een hele rijke scholenbouwcultuur! Ik heb wel een paar voorbeelden van scholen die vanuit een vergelijkbare visie zijn gebouwd. In Ter Apel heb je een school die diezelfde vorm kent (basisschool De Vlinder door De Zwarte Hond), het Christiaan Huygens College in Eindhoven van Thomas Rau kent een meanderende vorm, het Sterren College in Haarlem van Mecanoo is van het landschap uitgegaan, die hele school is groen waarbij paviljoens als het ware uit het groen op-

rijzen. Het kent aparte paviljoens voor de sectoren die ondergronds bij elkaar komen in een ontmoetingscentrum. Kijkend naar bestaande voorbeelden is dit model een statement maar niet 100% vernieuwend, alhoewel... die leerterrassen, dat binnen/buiten spel op die terrassen, dat vind ik wel heel erg leuk! Maar zo'n dak, in de mij bekende gevallen werkt het niet.

Alex: In de Scandinavische situatie is dat allemaal getackeld om een voorbeeld te noemen: ze kennen daar de *grovgarderobe*, de grote garderobe waar je je natte kleren in verwarmde kasten te drogen hangt en de *fingarderobe*, waar wij ons colbertje ophangen en kinderen hun vest...

Sibo: Wat mij in evaluaties opvalt is dat hele praktische beheerskwesties idealistische ingrepen vaak weer teniet doen...

Berit Ann: In gesprek met gebruikers gaat het steeds over de snelle leerlingen die last hebben van de voortdurende aandacht van de leerkracht voor langzamere leerlingen en dat bracht ons op de gedachte dat een klein centraal instructielokaal van waaruit leerlingen uitwaaiieren naar plekken waar ze zelf (alleen of in groepjes) aan het werk gaan veel effectiever kan werken dan een groot gezamenlijk lokaal waar een deel van de leerlingen vrijwel niet verblijft en dat een veel te groot beslag op de ruimte legt. Die ruimte waarin leerlingen zelf of in groepjes aan het werk gaan kan gedeeld worden met andere klassen, dan wordt hij nog groter en nu kunnen de groepjes ook leerlingen uit verschillende klassen bevatten – vanuit deze visie op onderwijs kom je tot een geheel andere ruimteverdeling.

Alex: Wat we hier onderzoeken is ook het praktische nut; kun je in zo'n compact model met die interessante verbindingen en ruimtelijkheid, kun je daar toch die doos in kwijt? Dat is de zoektocht hier en ik zeg niet dat het al gelukt is.

Hilde: Wat je aangeeft dat klopt helemaal: wat je steeds meer ziet is dat er deels klassikaal maar veel meer op de gang of in verwerkingsruimte in kleine groepen wordt gewerkt. Je zou kunnen gaan kijken bij basisschool Wittering in Rosmalen, daar werken ze helemaal niet meer met lokalen, ze noemen het een 'fancy fair' model. Ze hebben overal plekken gemaakt waar de kinderen naar toe kunnen voor instructie, voor een opdracht, voor verwerking: je hebt geen vast honk meer maar zwerft als het ware door het gebouw heen. Het is een van de weinige scholen die ik ken waar dat zo gebeurt.

Jan Willem: Is dit vooruitstrevend of is het anders? Hoe algemeen is de klacht van snelle leerlingen die hinder hebben van de langzame als ze allemaal in een lokaal zitten? Mijn dochter heeft het niet...

Alex: Daarom is het nog niet klaar, als je al die doosjes eruit denkt hou je dat leerlandschap over, ik denk dat dat niet wenselijk is dus we denken na over hoe je daarin dan toch een ruimte kan...

Berit Ann: Dat loopt dan stuk op toezicht...

Hilde: Leerkrachten willen overzicht, willen toezicht blijven houden. Leerlingen in de onderbouw mogen dan niet te ver het gebouw in zwerven, er moet altijd 'zicht' blijven...

Alex: Het gebouw moet ook nog ergens gecompartmenteerd worden...

Berit Ann: Mijn ideaal is een instructielokaal, optimaal ingericht op instructie: geconcentreerd met goed zicht op het smartbord en dat je daarna in een wat collectievere ruimte komt die misschien wel te compartmenteren is ten behoeve van de verschillende groepjes en dat je daar dan alleen kunt werken of samen met anderen. Dat je veel meer gaat naar het nieuwe werken: verschillende plekken...

Alex: Kunnen dat ook zones in een cirkel zijn? Een centrale zone is dan lichthof en wat zou je dan in die eerste ring doen?

Berit Ann: Ik zou dan zeggen: een instructieruimte hoeft niet heel veel daglicht te hebben

Alex: Ha! De eerste ring is dus een instructie-ring, en aan de gevel heb je dus een klassikale...

Berit Ann: Nee, daar werk je! Geconcentreerd of samen! En daarvan kun je de ruimte van de leerterrassen hangen. Dat leerdeel, dat zou ik ook weer graag onderverdeeld zien in verschillende 'sferen'...

Sibo: De Cultuur Campus Leidsche Rijn werkt met leerdomeinen voor ca. 90 lln. waar je alles vindt wat je nodig hebt: in digitale zin (laptops) maar ook leerkrachten, er zijn specifieke ruimtes voor het aanleren van 'skills' en 'labs' voor het doen van onderzoek... in dat leerdomein heb je plekjes waar je kunt afzonderen, waar je kunt overleggen met anderen, waar je kunt chillen, waar instructie wordt gegeven... Überhaupt deze vorm doet me ook weer denken aan die basisschool in Ter Apel, meanderend gebouw, elk lokaal is anders, groot en gericht op ontmoeting en instructie op de gangen. Braambos heeft een prijs gewonnen omdat er in de gangen overlap is tussen ICT-leerplekken en de werkelijke klaslokalen, het is eigenlijk een soort 'oneindige school', je kunt werkelijk overal leren... ik zie natuurlijk in het kader van de scholenprijs heel veel scholen voorbijkomen en alles is er all!

Alex: Akkoord, maar het gaat om de combinatie van...

Sibo: Juist! En ontleend aan Scandinavië. Ik zit trouwens in een Europees forum over

scholen en ik vind Nederland het meest vooruitstrevende land qua onderwijsideologie en -gebouwen. Eigenlijk heeft Nederland Scandinavië ingehaald, in Scandinavië zijn scholen niet vanuit de exploitatie ingericht, grote ruimtes, veel overheid, weinig economie, in Nederland zie je nu slimme economische programma's...

Alex: Het gymnasiummodel spreekt dat wel wat tegen...

Sibo: In Nederland heb je heel veel interessante gebouwen en wordt veel meer vanuit exploitatie, vanuit ondernemerschap gedacht en ontworpen: hoe kun je aantrekkelijke gebouwen realiseren die vraag-gestuurd zijn en fijn zijn om te komen/gebruiken. Desalniettemin: dit prototype komt voort uit je bevindingen in Scandinavië, van Scandinavische gebouwen en dat levert een totaalbeeld op van wat het zou kunnen zijn. In onze review zullen we schrijven dat een aantal dingen al bestaan in NL dus je moet je afvragen wat jouw studie toevoegt - is het 'demonstrare': kijk daar en moet je eens zien dat? of jongens: wat daar gebeurt is revolutionair en in Nederland nog nooit vertoond en hier schets ik nu een prototype waar alles inzit? Jullie moeten echt naar een aantal Nederlandse scholen toe! Wat voegt het toe? Binnen/buiten maar veel zgn. buiten scoort heel slecht na verloop van tijd... de leerdomeinen (in Leidsche Rijn) zijn groot - maar het uitwaaieren heeft ook een tegenbeweging nodig die het weer bij elkaar brengt in het gebouw... Wat zou je doel hiermee zijn?

Alex: De subtitel luidt: het schoolgebouw dat aan de binnenkant groter is dan aan de buitenkant - dat geeft aan dat de gebruiksmogelijkheden opgerekend worden: satellieten in de omgeving, kan dat? Dit rekent de grenzen op van hoe we basisonderwijs afbakenen ten opzichte van voortgezet onderwijs, dit legt andere verbanden - houdt kinderen daarmee langer in één multifunctioneel leerlandschap... een hybride, een open landschap waar maatschappelijke functies aan gekoppeld worden... dus het model verlegt toch een aantal grenzen en biedt daar een mogelijk beeld van...

Sibo: Ok, Hertzberger werkt ook volgens zijn eigen filosofie, heeft meer dan 50 scholen opgeleverd vanuit die visie, is dit dan de Onix-filosofie?

Alex: Laten we daar nog maar even mee wachten: de Finse scholen doen het zo goed omdat ze daar de kinderen langer bij elkaar houden, de goed lerende en de wat minder goed lerende - het democratische principe is daar dat de kinderen elkaar versterken en het is niet waar dat het ook het omgekeerde impliceert, dat de snellere leerlingen geremd worden...

Sibo: 70/30 snelle/langzame leerlingen - boven deze verhouding gaat het mis,

Alex: Prachtig, je hebt dus een kerngroep nodig...

Hilde: Dit doen we toch al in ons onderwijs?

Sibo: Over differentiatie...

Alex: Het statement is niet een aanval op het Nederlandse systeem maar kinderen in Scandinavië zitten tot hun 18^e in hetzelfde gebouw! Tot je 15^e is het basisschool en daarna heet het gymnasium en daar worden architecten en timmerlui opgeleid, secretaresses en juristen en het werkt!

Sibo: Het is een ideologie... maar het kan ook dat theater zijn...

Berit Ann: We moeten het scherper inzetten: een cluster voor 0-6 jaar waar je gaat leren lezen, rekenen zodra je daar aan toe bent. Dat betekent dat die groep 0-6 misschien wel een andere relatie met buiten heeft, dat ze spelen en spelenderwijs leren. Dan krijg je 7-12, dat is wat we midden/bovenbouw noemen en daarna heb je 13-15 wat nog weer anders, misschien op een meer Technasium-achtige manier... ik denk dat dat beter is dan wat het nu is...

Jan Willem: Is het gebouw daar dan de oplossing voor? (Dat een kind leert lezen zodra het daar klaar voor is, dus te vroeg/laat volgens het schoolsysteem) of zijn dat de vaardigheden van die leerkracht? Het is toch niet gebonden aan de ruimte dat je leert lezen zodra je daar aan toe bent?

Berit Ann: Dat ben ik helemaal met je eens, je hebt de onder-, de midden- en de bovenbouw. De onderbouwlokalen daar zitten nog allemaal hoeken in: de bouwhoek en de poppenhoek, in de middenbouwlokalen wordt het dan wat serieuzer - ik vraag me dan af: wil je die scheiding gebouw-wijs zo hard maken? Of deel je die speelfaciliteiten bijvoorbeeld met de kinderopvang en op je vijfde zesde kun je daar nog steeds gaan spelen als je dat wilt, maar als je vier bent kun je ook al meedoen aan de instructies. Dit heeft sowieso invloed op hoe de ruimtes erbij staan en vooral ook of je er harde scheidingen in aanbrengt. Dus op het moment dat je zegt: dit is de kinderopvang dat is de school heb je een scheiding aangebracht, dan kan het al niet. Door iets meer te zeggen van: ik maak een kindcentrum voor kinderen van 0 tot 6, van 7 tot 12 jaar wat meer instructie, van 13 tot en met 15 jaar minder instructie en meer samenwerking. In die clusters zou je accenten kunnen aanbrengen

Sibo: Ik denk nu heel erg mee vanuit de *unique selling propositions*: waar we in Nederland tegenaan lopen is de harde scheiding, en daar hangen wet- en regelgeving omheen en methodes en cao's. Bij jullie worden die scheidingen zacht - jullie vertalen dit naar zachte overgangen en daar gaat het toch steeds meer naartoe: kinderopvang, een speellokaal in de gymzaal, de gymzaal ook deels een ontmoetingscentrum - maar wat ook interessant is - de Scandinavische samenleving wordt gekenmerkt door een bepaalde ideologie, die wordt vertaald in een bepaalde structuur/organisatie en dat

heeft gevolgen voor je ruimtegebruik. Dat is hoe je het aanvliegt, dat is *Learning from Scandinavia* - en omdat dat zo is zie je, we hebben een aantal scholen bezocht en lopen tegen een aantal basiskenmerken en hoofdkenmerken aan en die vertalen we, inclusief de ideologie, alhoewel die niet per se noodzakelijk is, die vertalen we in zachte overgangen die tot een nieuwe ruimtelijke ordening van het onderwijs leiden en dat is het nieuwe en heel veel gebeurt al maar dan als slimme oplossinkjes binnen een specifieke opgave...

Alex: Dus dit kan toch een meer geïntegreerd model worden wat die denkwijze als het ware illustreert op een consistente wijze, het probeert het door te denken...

Sibo: Neem de bezuinigingen op het bibliotheekwezen: die gaan naar de basisscholen toe - de harde scheiding bieb/school wordt een zachte overgang - het werkt dus af en toe al zo! De maatschappij is al bezig zich zo in te richten... die basisschool wordt een ontmoetingsplek...

Alex: Wat is het momentum van zo'n statement? Hoe we de bestaande grenzen langzaam weten op te rekken en nieuwe verbanden weten te creëren en hoe dat trage processen zijn... Het statement zou zijn: kun je dit eens steviger neerleggen? Waarbij je al bij voorbaat grenzen wegdenkt, doet of er geen grenzen meer zijn en wat kun je er dan mee?

Sibo: Dat zeg je heel goed en er speelt op een ander niveau ook de discussie mee waarin Marlies Rohmer zei: de MFA (multi-functieel accommodatie) wordt de nieuwe kathedraal in de wijk... de burger moet van consument producent worden van activiteiten in de wijk, hij moet weer plekken hebben in zijn omgeving die betekenisvol zijn. Ook die binnen/buitenproblematiek hoort hierbij, dat organische, dat je verbinding met buiten maakt en die toevoegt aan de productie van diensten en activiteiten

Alex: Dan is er nog een weg te gaan om ook leerkrachten te laten zien met voorbeelden en in gesprek te raken over dat het een toegevoegde waarde kan zijn aan die onderwijsproductie - dus kom nu eens niet meteen met de praktische bezwaren maar denk mee over wat de toegevoegde waarde kan zijn van die Scandinavische kindertjes die altijd buiten zijn - welke kansen biedt deze aanpak??

Berit Ann: Ik zag die foto met dat eten. In Nederland eet je tussen de middag je boterhammetje en eind van de middag halen je ouders je op en die moeten dan nog warm eten gaan maken. Waarom zeg je niet: ik maak hier een daktuin die productie oplevert: groenten en je maakt ook ergens een centraal kookpunt, een keuken, waar niet alleen de kinderen warm kunnen eten maar s'avonds ook anderen uit de buurt terecht kunnen...

Sibo: Den Haag heeft een Kookschool in de wijk, een samenwerking tussen verschillende scholen waar van tijd tot tijd ook voor de wijk wordt gekookt en leerlingen zo ervaring opdoen, niet alleen in het koken, ze leren daar proeven, ze maken hun eigen recepten - dit zou zo maar een van de clusters in jullie model kunnen zijn, een wijk-cluster als schakel tussen school en wijk...

Alex: Dit is een zinvolle gedachte - je kunt de clusters ook als schakels zien! elk cluster heeft zijn eigen vertrekpunt (kinderopvang, 0-6 jaar, theater/podium, restaurant/ keuken) maar de clusters schakelen ook - het zijn schakels tussen de verschillende programma's - bestaande grenzen komen ook langs deze weg op de tocht te staan en dit opent tegelijk inhoudelijk nieuwe domeinen volgens mij - de ligging van clusters ten opzichte van elkaar heeft gevolgen voor wat er gaat of kan gaan gebeuren...

Jan Willem: Hier liggen kansen voor de relatie tussen school en wijk! Het plan moet dat in zich hebben - je moet functies kunnen toevoegen maar ook gemakkelijk eruit kunnen halen...

Alex: In de centrale ring zit een aparte 'loop' die het dak met de omgeving verbindt - je kunt er ook avond-aktiviteit programmeren en het is afsluitbaar...

Sibo: We komen uit een tijd dat er voor functies werd gebouwd waarvan de exploitatie van tevoren vaststond - een school, een theater, een zwembad en dat werkt dus niet meer zo door individualisering en vergrijzing en nog een paar factoren. Ten tweede is er de veranderende rol van de overheid die faciliteerde met subsidies en met vastgoed: ook dat is nu voorbij! De burger krijgt het weer voor het zeggen en die moet weer belang krijgen bij het beheer van zijn/haar eigen omgeving - we gaan aktiviteitenfabrieken in de wijk krijgen die van kleur kunnen verschieten waarbij de wijk een soort stripkaart van activiteiten afneemt zodat de exploitatie altijd geborgd is - een wijk heeft behoefte aan welzijn, cultuur, een bakker, fysiotherapeut, onderwijs, ..., ... - die wijk belegt in die voorziening - anders bouw je iets, de functie vervalt - leegstand - verpaupering. De wijkmotor moet gekoppeld worden aan deze voorziening - het kan nu onderwijs zijn maar het kan straks ook iets anders zijn - of een deel van het gebouw wordt anders gebruikt - de burger is weer aan zet - je moet het niet als schoolgebouw aanvliegen maar als motor van de wijk!

Berit Ann: De essenties uit Scandinavië tillen en één ervan is het ondernemerschap bij de Kunskapskolen...

Alex: Dan zou het een soort fantastische samenvoeging kunnen zijn van nieuw ondernemerschap juist gekoppeld aan een herformulering van onderwijsidealen - dan zou

je er bijna een verhaal over kunnen schrijven dat onderwijs past binnen ondernemerschap en buurtfunkties zonder dat je je idealen in de uitverkoop gooit - je schuift het in elkaar als...

Jan Willem: Doel: kinderen afleveren die functioneren in de maatschappij - een maximaal stimulerend gebouw! De leerling verlaat op een gegeven moment dat gebouw om de maatschappij in te gaan...

Alex: Kinderen die functioneren in de maatschappij? Goed, maar die ook in staat zijn die maatschappij te veranderen zou ik zeggen en: de leerling verlaat dit gebouw nooit of nu al want dit gebouw is al de maatschappij! *The school has left the building...*

Sibo: Vanuit de wijk kunnen praktische competenties maar ook intellectuele competenties ingebracht worden - ouders zijn bereid een aantal uren per week te investeren maar niet meer een aantal avonden per week - het gebouw staat open voor deze competenties...

Alex: De cirkel is rond want dit hoort thuis in de cultuur van Zweden waar ouders op deze wijze betrokken zijn bij de school!

Jan Willem: Hoe eigen je je het gebouw met elkaar toe?

Alex: Ja! de grens tussen thuis en schooldomein wordt ook verzacht...

Sibo: Het gebouw als productiemiddel voor de wijk en de wijk als facilitator van het gebouw.

Alex: Jij zegt het...

Sources

Internet

www.lararnashistoria.se
<http://www.businesshuman.se/KAZAMKanslanavsammanhang.htm>
<http://salutogenes.nu/OMkasam.shtml>
http://www.hemoskola.se/index.php?option=com_content&view=article&id=108:var-tids-skola
<http://www.lararnasnyheter.se/forskolan/2011/02/02/titta-tre-nya-designforskolor>

Books

Lena Bodström, *Från undervisning till lärande*. 1998, Stockholm, Brain Books.
Patrik Bjurström, *Att förstå skolbyggnader*. 2004, Stockholm, Kungliga Tekniska högskolan, Arkitekturskolan.
Howard Gardner, *De sju intelligenserna*. 1983, Harper Collins Publishers.
Olle Stahle, *Arkitektur och skola: om att planera skolhus*. 1999, Stockholm, Arkitekternas forum för forskning och utveckling.
Onix, *wachten op betekenis/awaiting signification*. 2005, Rotterdam, NAI Publishers.
Onix, *Wood Works Onix*. 2009, Rotterdam NAI Publishers.

Unpublished papers

- Maria Axelsson & Caroline Ljungquist, *Fysisk klassrumsmiljö - en studie över pedagogers och elevers uppfattningar om sitt klassrum*, 2008.
- Kristina Brink & Viktoria Karlsson, *Klassrumsmiljö - viktigare än man tror. En studie om lärares syn på klassrumsfysiska miljö och dess påverkan på elevers lärande*. 2008.
- Ylva Buskqvist, *Utomhuspedagogik - en studie om förkollärares kunskap om och inställning till utomhuspedagogik samt hur detta omsätts i praktiken*.
- Linda Malmberg, *Klassrumsmiljö och lärande - ur ett elev- och lärarperspektiv*. 2010.
- M. Vercesi & D. Fortini, *The needs of the urban child*. 1996, Milan, Università degli Studi di Milano & Politecnico di Milano

Reports

- Pia Björklid, *Lärande och fysisk miljö - en kunskapsöversikt om samspelet mellan lärande och fysisk miljö i förskola och skola*. 2005, Stockholm, Myndigheten för skolutveckling
- Mona Mourshed, Chinezi Chijioke & Michael Barber, *How the world's most improved school systems keep getting better*. 2010, London, McKinsey&Company

PISA study, 2009

Reports from Skolverket

- Attityder till skolan 2000, Skolverkets rapport 2000
- Skolverkets lägesbedömning 2010 - Del 1 - Beskrivande data
- Skolverkets lägesbedömning 2010 - Del 2 - Bedömningar och slutsatser

Colophon

Alex van de Beld (<i>Onix architect</i>)	- main author, ideas and texts
Karolina Linderoth (<i>Onix architect</i>)	- research and illustrations Scandinavian School Studies
Charlotte Stuveback (<i>architect</i>)	- research Scandinavian School Studies, implementation and design
Berit Ann Roos (<i>Onix architect</i>)	- coach programmatic research
Professor Anders Jakobsson	- conceptual and scientific input Scandinavian School Studies
Karolina Zätterberg	- renderings
Marjenke Nijmeijer (<i>Onix stagiair</i>)	- modelbuilding
Hep Beetsma (<i>Onix</i>)	- financial controller
Peter de Kan (<i>graphic designer</i>)	- coach overall content, concept publication

© 2012

Thanks to: Stimuleringsfonds voor Architectuur - the management of the Swedish schools we visited -
Allart Vogelzang - Marie Marth Prins - Silvie Beugels (Mecanoo) - Andre van Zon - TUD students Ruben
Stravers and Max Brobbel - Sibo Arbeek, Hilde Mulder en Jan Willem van Kasteel of ICSadviseurs.

