Lesedi Nhahle Training Crèche
Kindergarten
Haenertsburg/Südafrika
Design: BGH-Students
09.2007 - 03.2008

Baugestaltung Holz (BGH) FH Salzburg
Projectleader: Arch. DI Dr Prof Dustin Tusnovics
Job Captain: Marlene Wagner
Structure: DI Dr Norbert Burger
Realization: BGH-Students in 6 weeks

01_General view north, Créche1, Preschool 2, Kitchen, Accommodation

Lesedi Nhahle Training Crèche - Haenertsburg, Limpopo, South Africa

Building specifications:

The **building site** is situated on a 1800m high plateau near Haenertsburg, in the Limpopo province in the north of South Africa. Instead of the grassland we expected, we were surprised by humid jungle and woodland. The site was levelled by means of an excavator in order to enlarge the building site. The ground is humid, sandy, and clayey and therefore we used gravel to solidify the site. The earthworks for the foundations, drainages and sanitary and electrical accesses were done by hand.

The **foundation** consists of 62 m3 reinforced ready mix. The 368 m2 foundation was realized in 9 steps/units.
The **frame-structure** is statically and architectonically separated from the actual building shell and is entirely built in Pinus Patula (pine-species) that a local sawmill supplied. The frames were manufactured on-site by hand, put up manually and finally fixed with anchors to the concrete slab.
The **roofing,** with a surface of 420 m2, is mainly done with zinc-plated corrugated iron sheeting, whereas translucent coloured corrugated plexiglass is used above the open spaces.
On the exterior the 159 m2 of **brick walls** is insulated with 10 cm thermal insulation and a black net forms the background for the horizontal façade. The Interior is plastered and painted in natural colours.
The **"DOKA-shelf-units"**, constructed of shutter board in a grid of 50 cm and cover a surface of 22m2.
The **timber frame walls**, with frame studs cladded on both sides with 3-layerboard and filled with insulation, have a surface of 135 m2. On the outside black net is used behind the horizontal façade, the inside is a treated wooden surface.
The **sanitary installation** consist of the water heating system, accomplished by means of an electrical boiler. The wastewater of the 4 toilets and 2 showers are connected to a "septic tank".

Floor space summary:

Useable surface			**116.3 m²**
	Kindergarten 1:	**32.3 m²**	
	Kindergarten 2:	**24.2 m²**	
	Sanitary units:	**6.1 m²**	
	Kitchen:	**9.2 m²**	
	Accommodation:	**44.5 m²**	
Open space:			**287 m²**
Foundation (floor):			**368 m²**
Roof:			**420 m²**

02_East view, Crèche

03_South view, approach to building from existing building

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04_Team, Students BGH and local worker Franz (left side)

Lesedi Nhahle Training Crèche - Haenertsburg, Limpopo, South Africa

South Africa – An unforgettable building site

It was September last year, when our project-leader Dustin Tusnovics surprised us students with a special offer. Already for the second time since the founding of the Salzburg University of Applied Sciences in Kuchl, a group of students from the 3rd semester of Timber Construction and Design (BGH) was supposed to travel to South Africa in order to realize a Kindergarten project, which had to be planned during the next three months. Immediately 30 enthusiastic students, as well as two exchange students and two further volunteers were found, who – from the beginning of the 3rd semester onwards - invested a lot of time and nerves, found sponsors and were on the scrounge for thousands of Euros, as well as building materials, in order to make the dream of our own building site in South Africa come true. Immediately after Dustin Tusnovics' exploratory visit to the Thušanang Centre, Limpopo, the first basic information and clues concerning the existing buildings of the training centre for Early Childhood Training were processed and the design of the desired kindergarten started.

05_West view, Accommodation

Initially the so-called core-team was formed, and everybody of these 12 students was working on their own project. But very soon we put a lot of effort in the selection of the best ideas and the merging of these different approaches into one collaborative project. That this procedure is anything else but easy and that working together as a group of 12 "would-be" planners is quite tricky, we found out very early in the process. And especially in the final planning stage in December and the beginning of January, all people involved, students as well as lecturers, were close to a nervous break down! On the 16th January 21 nervous students started off to South Africa, on the self-financed journey they had been eagerly awaiting, believing that the donated building materials in the container had already reached their destination.

The arrival was truly overwhelming, finally seeing for ourselves the building site, we had so long just imagined from photos and sketches. TIA – this is Africa, this motto was internalized from the very beginning, neither container or meaning tools, nor sand or concrete, were – as we had hoped – available. Thus 21 diligent students for a start had to be kept busy with digging, digging and still more digging.

Backup and the material arrived two and half weeks later and from this point on the work got really going. More than 60 m³ of concrete was poured by hand in less than 3 days, at the same time in the courtyard of the centre the production of the furniture started. And while we were still working on the slab, the frames for the roof structure were produced. We worked from 7:00 am to 6:00 – 8:00 pm in the first weeks, but were able to relax on the weekend excursions, for example on a trip to Johannesburg or to the Krueger National Park. When we seemed to run out of time, on some occasions we also burned the midnight oil.

06_West view by night, Accommodation

That all the work was really worthwhile became really obvious on the 1st March, when the almost finished Lesedi Nhahle project was officially blessed and opened at the presence of all project collaborators, nursery teachers, children, neighbours, members of the local community, friends and many other people.
Back home and with a certain distance to all the things happened in the past few weeks, we students are still overwhelmed by all the impressions and the intensity of our stay in this multi-faceted country. Merely being away from home for a period so long and working so hard, for most of us was an experience we wouldn't like to miss in our live.

Eva Schuh, student withi BGH

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07_Excavation works


08_Concrete works


09_Mounting the roof construction


10_Laying brick- and wood- walls


11_Facade- works , interior fittings


12_Getting finished

Project idea:

Realize a poverty relief project in a needy community of South Africa is a very noble cause and have European students design and build a training crèche in a far away country is a fantastic experience. The sustainability issue though becomes a major aspect to evaluate, as the ecological foot print of everybody involved is everything but sustainable where as the social sustainability aspect is to be seen under a very positive light. The experience and the result show that projects of this kind embrace the idea of being a cognitive approach and a tool of teaching/learning 'architecture' in a hands-on way, learning by doing.

Goal:

The basic goal of this design studio was to design a training crèche as part of the curriculum of the second year program. But what followed was to raise the money for the building materials and eventually fly to South Africa at the end of the third term to realise with their own hands in only six weeks an entire building from the foundations to the roof. This obviously goes beyond the goals of our faculty. This experience today is not part of any curriculum but the result lets one envisage this as compulsory to an often very theoretical approach of very concrete problems within the architecture field. Where the curriculum as such can be very valid is in educating young people with what we call soft skills and social awareness and exactly this is what this program envisages. The second year enables students of Timber Construction and Design to comprehend all aspects of the planning process for an ever more complex building process. The projects need to challenge the ability of every student to learn how a building is developed from the original brief, the first idea through all planning stages down to 1:1 detail drawings, accompanied with the necessary theoretical inputs from statics to project management through technical physics, building materials and down to design theory, all aspects are addressed. Only then using exactly these plans and transform theory into reality makes the difference.

Final thoughts:

Imagine bringing 27 young students from Europe to Haenertsburg, a rural area some 380 km from Jo'burg, to realise a social poverty relief project; that was an enormous challenge. It took us some 12 months to prepare and develop the initial idea, design the training crèche, raise the money, get all the permits and eventually arrive in South Africa having six weeks to build some 400 square meters in an unknown country. The incredible energy of these foreign 'white' students soon spread to many people in the township and we got more than a great hand during the entire building process. This exchange of ideas and experience finally enabled the project with its facilities to be the initiation for a series of activities and initiatives.
I believe the Zulu word 'ubuntu' perfectly describes the phenomenon that a project can only be realized through the collaboration of all participants and a perfect involvement at all levels.
We all had an amazing opportunity for an unforgettable experience and I wish to really thank everybody involved for their aid at various levels and at various times and I may say: let's do it again!'

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Building Specifications:

Earthworks:	Levelling of building site:	excavator
	Foundations:	manually
	Sanitary and electrical lines:	manually
	Drainage:	manually
Foundation:	Reinforced ready mix	62 m³
Handling:	9 fields	
Surface:		368 m²
Slab beneath buildings:		15 cm
Slab beneath open space:		8 cm
Gravel substructure 12/18:		20 m³
Frame construction:	Wood species: Pinus Patula, unplanned	
Quality:	Structural S5	
Dimensions:	(SA- standardized measures) see statics	
Structural system:	framework	
Fasteners:	zinc-plated screws	
Base point:	footings anchored to concrete slab	
Installation:	frames manufactured and put up by hand	
Roof covering:	Surface area:	13m x 32m
	Corrugated iron sheeting:	380 m²
	Coloured corrugated Plexiglass:	40 m²
	Total	**420 m²**
Brick walls:	**U-Value = 0,3**	**159 m²**
	Battens:	3.8 cm
	Net:	
	Studs/Insulation:	11.0 cm
	Bricks:	14.0 cm
	Plaster:	1.5 cm
	Total construction:	30.5 cm
"DOKA"– shelving:	Total:	22 m²
	Depth :	25, respectively 50 cm
	Height:	200 cm
	Glazing:	ESG 4 mm
Timber Frame Walls:	**U-Value = 0.3**	**135 m²**
	Battens:	3.8 cm
	Net:	
	Board:	2.3 cm
	Studs/Insulation:	11.0 cm
	3-layerboard	2.3 cm
	Total construction:	19.5 cm
Ceiling:	**U-Value = 0.3**	**110.2 m²**
	Clearance/beam of frames	
	Net:	
	Particleboard V 100 G:	1.6 cm
	Studs/Insulation:	11.0 cm
	OSB:	1.5 cm
	Total construction:	14.1 cm
Floors	**Total area:**	**96.5 m2**
	Laminate:	0.6 cm
	Cork:	0.4 cm
	Particleboard:	1.9 cm
	Wooden substructure/insulation:	5.0 cm
	Total construction:	8.0 cm
	Foundation:	15.0 cm


13_Facade Kitchen south


14_Doka-boxes, Preschool Facade south


15_Openspace, between Crèche and Preschool


16_Preschool, view inside


17_Dokashelves, Preschool facade north.

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Project description:
The Lesedi Nhahle Training Crèche project consists of a kindergarten, a kitchen and the accommodation for the trainer. Both kindergarten rooms, preschool and nursery area open up towards each other and forming a covered intermediate space. In front of the kitchen with its huge counter window is a sheltered common area for the children. The coloured translucent roof areas let the light seep through to the generous open space, but still protect from the weather.
The sanitary units, a closing-off on the back of the building, serve as static stability and protection from the weather.
The central idea of the entire building is one big self-supporting roof construction with the buildings freely put underneath, clearly separated from the frame structure.
The static concept is based on an innovative T-shaped column construction to respond to the wood quality, the slenderness of the construction being the aimed target.


18_Roof detail

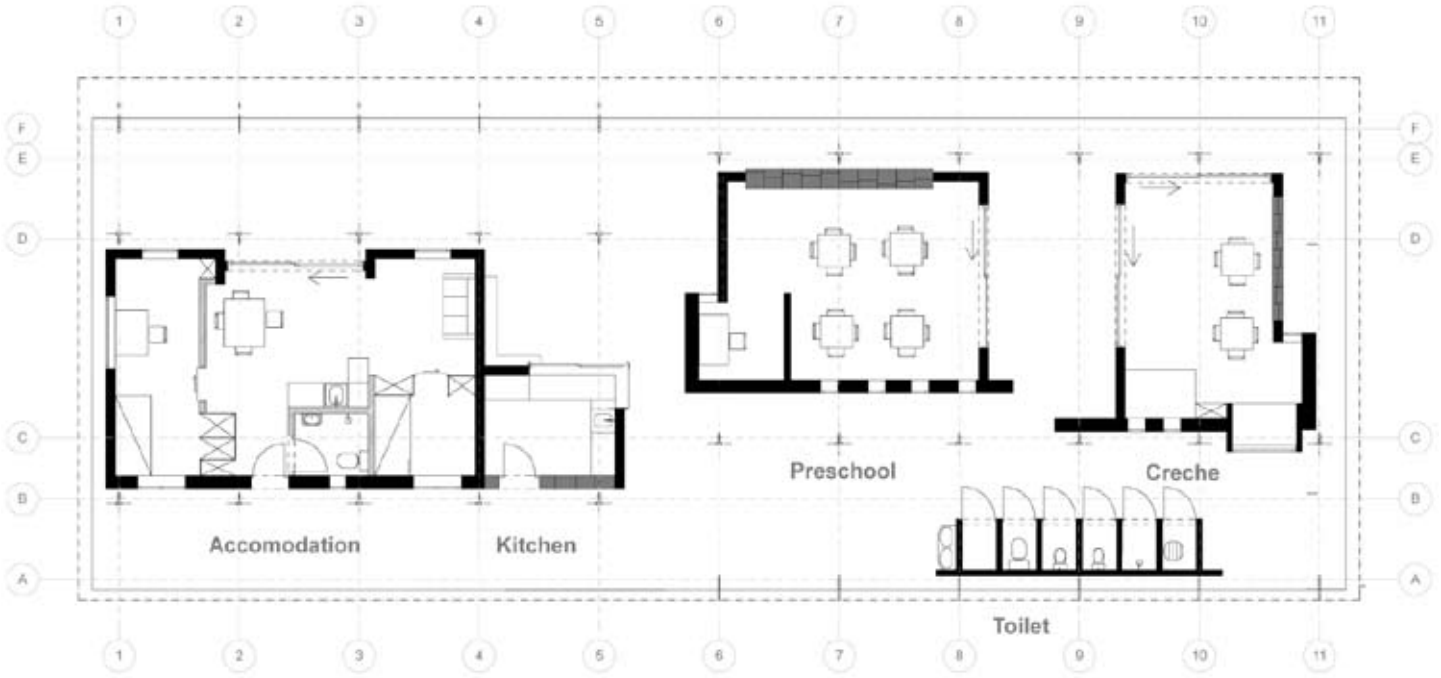

19_Roof construction detail


20_Footing detail


21_Detail Kitchen window

Space program:

Kindergarten 1: Babies (8-10 kids)
Kindergarten 2: Children from 1 to 5 years (15-20 kids)
Sanitary units (baby toilets and showers)
Kitchen for Kindergarten and eating area
Apartment for trainer
Covered areas



22_Floorplan

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