

PRECEDENT STUDIES

- 01 INTRODUCTION
- 02 DESIGN DISCOURSE
- 03 CONTEXT
- 04 PRECEDENT STUDIES
 - 04.01 SUSTAINABLE DESIGN & APPROPRIATE BUILDING TECHNOLOGIES
 - 04.02 CREATING A NEW VERNACULAR
 - 04.03 STRAW BALE AND COB CONSTRUCTION
 - 04.04 LODGES

- 05 BASELINE CRITERIA
- 06 TECHNICAL INVESTIGATION
- 07 TECHNICAL DRAWINGS
- 08 APPENDICES
- 09 REFERENCES

04 PRECEDENT STUDIES

04.01 Sustainable design & appropriate building technologies

04.01.1 Blouberg Cultural Village, by Crafford & Crafford Architects

(Blouberg Cultural Village 2004 p.96-97)



fig.04.01a



fig.04.01b

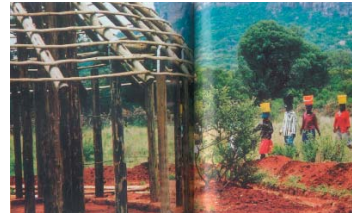


fig.04.01c

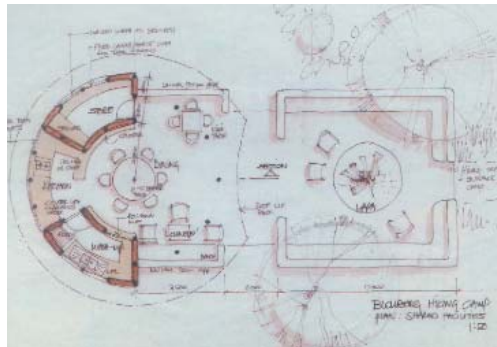


fig.04.01d

In an effort to generate employment and income for the local community, a 12-bed overnight facility was built, which serves as a base camp for a hiking trail in the Blouberg Mountain. (Figure 04.01a) The traditional local village orientation was utilized and modified to accommodate site restrictions and tourist needs, such as gas-operated geysers and fridges.

Simple effective building methods were needed, as fewer than 25% of the laborers were skilled. Because the site was so secluded, all the construction materials had to be carried uphill to the site, thus considerably influencing construction methods and the weight of the materials which were used. The contractor produced adobe blocks on site from locally excavated materials, while packed rock foundations replaced conventional concrete footings.

Vertical poles smeared with mud with 'windows' made up the traditional wall construction, utilizing a combination of welded mesh, rocks and mortar, which allowed for large openings that allowed sufficient light into the rooms. (figures 04.01b,c) Openings were covered using canvas, roll-up canvas doors were affixed to the timber pole supports of the roof structure. All working drawings were done freehand, as they were better understood by the contractor and were faster to produce. (Figure 04.01d)

Important design issues relevant to the development of Mkhonda Lodge:

1. Utilizing and educating the local community, transferring skills
2. Materials acquired on site, e.g. cut grass for production of straw bales, timber poles as structural elements and mud for plastering
3. Using local villages as precedents in terms of flow of spaces, orientation, arrangement of functions and construction methods

04.01.2 Kalahari Tent Camp, Northern Cape, by Crafford & Crafford Architects

(CRAFFORD, N. 2003 p.88-89)

The brief called for a design that would give visitors a 'tent experience' with a design that blends into the environment and makes use of the sand in the area as a building material. (figures 04.02a,b) The view had to be of the river, but not directly to the west and privacy had to be provided for outside braai areas. In the Kalahari, heat is a critical climatic factor and therefore an important design

consideration. By utilizing lightweight materials, daytime heat is retained and then transmitted back to the interiors at night. Decks are constructed from Rhodesian teak boards with poles of treated pine. Solar panels provide electricity, while gas geysers provide hot water. The stove and fridge are also gas fired. The end result sported an architectural style true to its surroundings, called 'camp architecture'.

Although the context of this project in the Kalahari differs greatly from Madola's context, the concept of utilizing and designing for everything that is found on site, offers useful design guidelines to Mkhonda Lodge.

These guidelines include:

1. Using available local materials (sand) as main structural material. At Madola, straw and timber are in abundance and will be best to incorporate these as main building materials.
2. Capitalizing on views
3. Design reacts to wind conditions – 'tents' are orientated to be screened from prevailing winds, where different buildings within Mkhonda Lodge will be placed and orientated to take advantage of prevailing winds to allow for natural ventilation.
4. Using sustainable resources, e.g. solar panels to generate electricity that can sustain lighting requirements. Cottages within Mkhonda Lodge will make use of solar water heating systems with electrical geysers to serve as back-up system.

04.01.3 North Island, Seychelles by Silvio Rech & Lesley Carstens (DU PREEZ, K. 2004 p.148-159)

North Island is a new eco destination in the Seychelles that includes a main lodge and 11 villas. In 1998, the island's government made a commitment to restore the local ecosystem. Architects Silvio Rech and Lesley Carstens shared this vision to rehabilitate the island and create an eco-tourist destination. They had an enviable task: In order to come up with the best solution, they lived on the island for 2,5 years, familiarizing themselves with annual beach and weather conditions, therefore creating a refined architectural language that is specific to the island. (figures 04.03a,b,c,d) Existing buildings are restored and the uses thereof maximized. As the design developed, the use of material was carefully considered so as to find the most appropriate and sustainable solution for each individual scenario. For example, the local trees afflicted with disease are felled and turned upside down to be used as structural elements or columns (figure 04.03b); rocks are used to support table tops and balustrades are made from curved branches. In a symbiotic play with nature, many a time the design encircles existing trees (figure 04.03a).

This precedent is an important guideline for the development at Madola, as it portrays a design solution, which has absolute respect for the site. It illustrates the importance of getting to know a site and its context thoroughly to be able to design optimally.



fig.04.02a



fig.04.02b



fig.04.03a



fig.04.03b



fig.04.03c



fig.04.3d

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- 03 CONTEXT
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- 07 TECHNICAL DRAWINGS
- 08 APPENDICES
- 09 REFERENCES



fig.04.04a



fig.04.04b



fig.04.04c



fig.04.04d

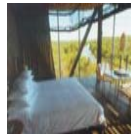


fig.04.04e



fig.04.04f



fig.04.04g



fig.04.04h

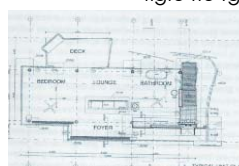


fig.04.04i

04.01.4 Singita Lebombo, Kruger Park, by OMM Design (Singita Lebombo, Kruger Park. 2004 p.132,133) & (VAN DER MERWE, E. 2003 p.138-147)

Singita Lebombo strived to differentiate itself from other lodges and the environmental design principles applied during the project were to have as little impact on the site as possible. The structures are integrated into the vegetation and topography with a unique blend of natural light and panoramic views. (figures 04.04a,b,c,d,e,f,g,h,i)

However, both Singita Lebombo and North Island's target market differs from that of Mkhonda Lodge in that it caters for the elite of society. Finishes and products used for interior spaces are of the highest standard. Mkhonda Lodge will not neglect the importance of great detailing and finishes, but will opt for a more economic solution. This will provide a larger portion of society with the opportunity to experience an eco destination showcasing good and sustainable design.

04.01.5 Wallers Camp, Mavhulani, by Peter and Sean Waller (KNOLL, C. 1998 p.19)

Designed by the owners, Peter and Sean Waller, Wallers Camp is situated close to where the borders of South Africa, Zimbabwe and Mozambique converge. The owners showed great respect for the site. Although they are not classically trained architects, much can be learned from their approach to design. The fact that they have no problems with crime, as apposed to some other resorts, is proof that the community views the lodge as an asset.

Design issues relevant for the development of Mkhonda Lodge include:

1. Getting to know the site - the Wallers camped on each individual site to experience the local conditions, wind direction, views and shading.
2. Creating a unique lodge - they did not look at any other lodges and did not use any of the conventional thatched roofs or tent structures.
3. Using local materials - they opted for sisal, for it was locally available, lasted longer in the very dry climate, is a good insulator (noise and temperature) and is not prone to borers and termites.
4. Not disturbing the natural surroundings - the entire lodge is built on stilts above the ground. Not a single tree has been removed.
5. Involving local communities - the Wallers undertook to employ only locals, as they believe in working with and encouraging the community.

04.02 CREATING A NEW VERNACULAR

04.02.1 House in Johannesburg, by Silvio Rech & Lesley Carstens
(VAN DYK, M. 2004 p.96-105)

The significance of this Johannesburg home is the manner in which the owners/architects incorporated nature into the house in a unique way. The functions of the buildings are placed randomly on the site with the bedroom blending in with its natural surroundings. (figure 04.05) A tree reaches through the roof; roughly finished timber poles are used as is with thatched roofs and windows placed strategically to allow for natural light penetration and glimpses of the forest beyond. Silvio and Lesley have succeeded in opening up new possibilities for homes in terms of aesthetics and function.

This concept of producing a **new vernacular** forms part of four of the main design directives in the development of Mkhonda Lodge, which is discussed later.

04.02.2 "Glorious Mud", by Herta Sturmann
(CREMER, A. 1999 p.44-50)

Herta Sturmann's latest clay-and-straw house is built on the farm Athena at The Craggs near Plettenberg Bay. (figures 04.06a,b,c,d) The house has a basic cob construction, like her first house at Crystal Kloof outside Hermanus. (figures 04.06e,f)

What is interesting about both designs and of relevance to the design of Mkhonda Lodge is the way in which the builder had freedom of expression throughout the building process and used only locally available materials. Views are framed and organic shapes and forms outline the building's footprint and facades, creating an informal building which portrays a **new vernacular style** where form is the direct result of the different functions of each building.

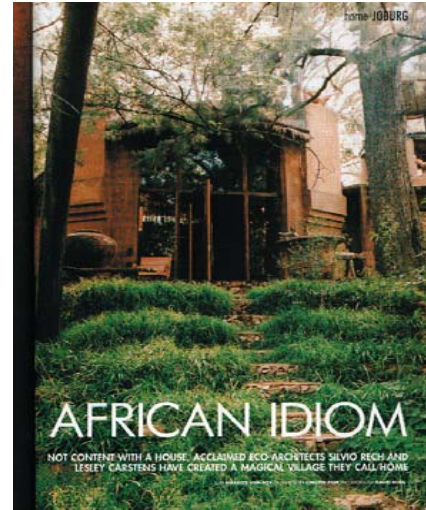


fig.04.05

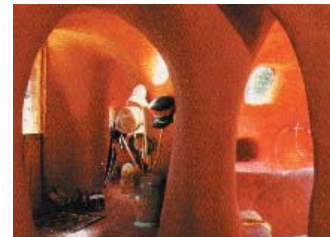


fig.04.06a



fig.04.06c

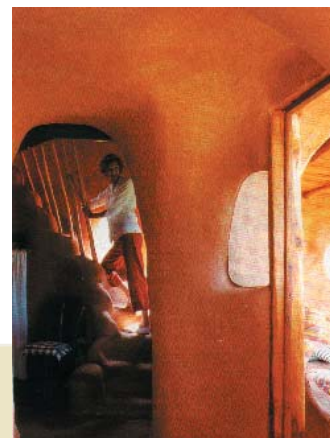


fig.04.06b



fig.04.06d



fig.04.06e



fig.04.06f

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- 03 CONTEXT
- 04 PRECEDENT STUDIES
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- 05 BASELINE CRITERIA
- 06 TECHNICAL INVESTIGATION
- 07 TECHNICAL DRAWINGS
- 08 APPENDICES
- 09 REFERENCES

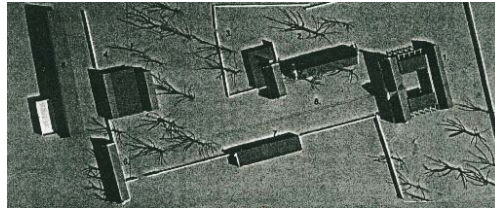


fig.04.07a



fig.04.07b



fig.04.07c

04.02.3 “Nieuwe Sion Farmstead, Simondium, Western Cape”, by KrugerRoos Architects (Nieuwe Sion Farmstead, Simondium. 2004 p.130-131)

In the reconstruction of the farmstead on the farm Nieuwe Sion in Simonium, KrugerRoos architects made a study of local Cape farmstead settlement patterns, which guided the design process. The different typologies studied delivered significant factors that can contribute to this specific Cape vernacular. The architecture of Nieuwe Sion is therefore an attempt to work within the given language and materials of the Cape Vernacular where the challenge lies in reinterpreting these elements (figures 04.07a,b,c) in a contemporary way.

In the same way, a study of local farmsteads in the Mpumalanga region has revealed a set of prominent characteristics for typical Transvaal architecture, which is discussed in the Design Discourse.

04.03 STRAW BALE AND COB CONSTRUCTION

Through communicating with experts on the field of straw bale construction and studying various articles and websites, the required specifications and design guidelines have been obtained. Some of the case studies include:

04.03.1 Straw bale housing, Blanco near George, S.A. (CREMER, A. 1999 p.44-50)

The design has in-fill walls with a post-and-beam design. Less reinforcement is needed in the walls, because instead of simply stacking and then reinforcing the straw bales to carry the full load, a series of treated poles forms the structural support system for the roof. The owners used local materials. The wheat for straw bales and the rocks for the foundations came from a community in the area and the walls were plastered with a layer of cob, which is a mix of straw, clay and sand. By choice, the plastering was not done traditionally, but followed the contours of the straw bales. (figures 04.08a,b,c)



fig.04.08a



fig.04.08b



fig.04.08c

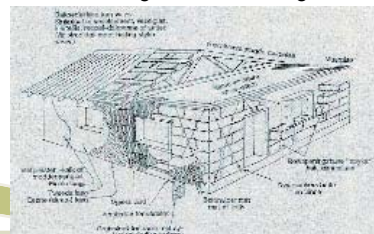


fig.04.09

04.03.2 Inexpensive houses from straw bales

This illustration (figure 04.09) of a simple housing unit gives a detailed version of how to construct your own straw bale wall.
(Landbouweekblad 1995 p.46-47)

04.03.3 Straw House, Wales

Welsh farmer Brian Stinchcombe, who wanted a house that was both cheap and environmentally friendly, built this house. This ended up being the first straw house built in the UK. The walls were from extra large straw bales, 2.5m x 1m and 600mm high. (GLAKIN, M. 1997 p.38-39)



fig.04.10a



fig.04.10b

04.04 LODGES

Lodges in general have recognizable appearances, building techniques and use of materials. Different precedent studies on lodges can open up new possibilities in order to create a lodge with an unconventional and fresh appearance. (Information on the following precedents were collected from brochures given out by the individual lodges.) Elements which contributed to the design of Mkhonda Lodge briefly include:



fig.04.11



fig.04.12

04.04.1 Jaci's Safari Lodge n Madikwe Game Reserve

The design of Jaci's Safari Lodge is flexible in terms of hosting a variety of required functions i.e. outdoor spaces are turned into outdoor dining areas at request or specific, weather permitting, nights or days. (Figure 04.11)



fig.04.13a



fig.04.13b

04.04.2 Makanyane Safari Lodge

This precedent is relevant in how it handles its outdoor pool area in order to provide it with sufficient seclusion. A solid wall screens off the pool / deck area and guests can therefore enjoy the swimming pools in all privacy. (Figure 04.12)



fig.04.14a

04.04.3 Etali Safari Lodge in Madilow Game Reserve

The design gives special attention to the last detail. Rooms are very interactive with their surroundings and have large glass doors that open up the room onto an outdoor private deck area. (Figures 04.13a,b)



fig.04.14b



fig.04.14c

04.04.4 Mateya Safari lodge, within Madikwe Game Reserve

The design successfully layers different spaces and functions. Interiors are well lit because of glass facades that allow natural daylight to freely penetrate the interiors. The timber structure is completely exposed with timber poles as main structural elements. (Figures 04.14a,b,c)