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# MAMRE GOES BACK TO THE FUTURE

Connecting sustainable building practice and heritage conservation helps to revitalise an original eco-village.





The village of Mamre, just 60 km outside of Cape Town, has sadly fallen off the radar of most South Africans. It is a rural community with exceptional historical significance as a cultural and natural landscape. It also has considerable untapped tourism potential. Older members of this remarkable community are passionately proud of their heritage and – after years of neglect – are bursting with aspiration to follow through on a hands-on sustainable building and restoration project.

Groenekloof, as Mamre is often referred to, lies near the coast just north of Cape Town. It dates back to 1692, and was established in 1808 as the second oldest Moravian mission station in South Africa, by Moravian Missionaries to give the indigenous Khoi people shelter, employment in agriculture and a Christian education.

These settlements sought to achieve a degree of self-sufficiency and became model rural prototypes for other missionary societies in the Western Cape. The form of residential buildings on missions in this region was often prescribed by the missionaries and employed a common language of formal architectural elements such as white, lime washed clay-brick walls,

pitched thatched roofs, gable end walls and low front boundary walls. There was an integrated relationship between the village and the church nucleus (or *Werf*), as well as individual houses.

Depicting a typical Moravian village, the linear form of Mamre was clearly determined by the physical context of the Mooymaak River with allotment gardens along the fertile riverbed and buildings in the middle of the town. This model illustrates an exceptional blueprint for sustainable settlements. However, few of the historic buildings are still intact, the urban form has degraded extensively, and due to many insensitive alterations and additions to dwellings, Mamre's vernacular architecture is steadily being lost.

Typically, authorities proclaim areas of historic significance as urban conservation areas to overview and guide proposed changes and improvements to the built form, but until recently, only the Moravian church *Werf* and Mamre water mill had been declared provincial heritage sites. Mamre itself had no such status, and it was difficult for Cape Town authorities to compel owners to ensure that proposed alterations and additions acknowledge and harmonise with the town's historic fabric.



As a result, people built without approval, and even demolished some of the protected structures older than 60 years old. In order to protect the historic buildings which remain in the town and on the *Werf*, The Mamre Heritage Revitalisation Project was established in 2001 by the City of Cape Town's Heritage Department.

In addition, to ensure that any new building work will be sympathetic to the unique character of Mamre, heritage guidelines for Mamre itself were compiled to rectify this situation and in September 2007 a revitalisation programme<sup>1</sup> was launched to build a traditional structure and restore two heritage buildings in Mamre as a vehicle to reintroduce traditional construction skills and create employment opportunities.

Knowledge of appropriate building technology empowers owners and residents to interact with their

environment and ensures that they identify with it, preventing the intellectual alienation or gentrification of urban restoration projects that turn buildings into shells of the past rather than enduring envelopes of contemporary life.

While most architects and heritage practitioners sympathise with this line of thought, they seldom pursue it. Both primarily focus on definitive expression of character and not the method of construction and therefore it was vital for the City to find practitioners who would ensure that Mamre's historic fabric, which has its roots in vernacular architecture, was honoured. They appointed sustainability architect Andy Horn of Eco Design Architects (EDA) to design the new Information Centre as well as to perform the task of training and revitalising Mamre's community in traditional building techniques. Architect and Heritage

<sup>1</sup> All the restoration work and heritage construction has been designed to dovetail with the City of Cape Town's recently launched Mamre Heritage Revitalization Initiative, Custodians of Rare and Endangered Wildflowers (CREW) and Sustain Property Development (Pty) Ltd, a private company appointed by the National Department of Tourism as implementer for the Western Cape Tourism Development Programme for Atlantis, Phase 2 (a two-year project with a total budget of R10 million). The focus is on developing a tourism product that is sustainable, contributes to job-creation, and the transfer of skills through training programmes and in-job training.





consultant Graham Jacobs of ARCON Architects & Heritage Consultants was appointed to assist with the restoration works at the *Werf* – the *Akkerhuisie*, church and *Langhuis*.

Horn's knowledge of sustainable building practice and focus on the use of local natural materials, user participation and on-site training resonated strongly with the City's vision. His philosophy centres on preserving and rekindling an appreciation of traditional building techniques in order to ensure that the knowledge of how a community can preserve its own built form is retained within its people rather than in books or museums. This placed the local Mamre community at the forefront of the revitalisation project, making the people themselves custodians of the town's and, ultimately, their own heritage.

As a heritage architect by definition, Jacobs' approach to this project revolves around issues of sustainability. He had previously been involved in the rescue restoration work to the historic Mamre water mill. "Over the years, I have become very aware of how closely the objectives of good conservation practice match the objectives of environmental sustainability. This applies particularly when working with vernacular buildings, as is the case here at Mamre," Jacobs told us.

## LEARNING FROM THE MASTERS

**HERBERT ARENDS (67)**, *thatcher and builder with natural building skills, which he learnt from his grandfather*

**Memories:** "The mud bricks we made ourselves. I made a two-brick mould using the sizes I got from the old mud bricks. The mix for the mud bricks is made of local clay and cow dung. The bricks take three days to dry. Lintels and sills were made from local poplar trees which are very bitter and therefore insects don't like the taste. On the ridge of the thatched roof, a metal capping is used or black clay is fetched and mixed with cow dung to get a darker colour.

The clay and cow dung mix is then used to seal the ridge of the thatch. The plastering was done with a mixture of clay, cow dung, a bit of sand and some lime. The clay, dung and sand were mixed in a big pit and left to stand overnight. The next day the lime was added and mixed together very well before plastering. Lime wash was applied with a homemade brush made from *matjieriet* (reeds).

The second coat was usually applied four to seven days later, depending on the weather."

**MANNIE ADAMS (85)**, *retired builder and thatcher with a wealth of knowledge of reed ceilings, under thatching, mud brick making, dung floors, roofing and carpentry*

**Memories:** "I helped with the restoration of the old church buildings, but then somebody else came in to do it. If the under thatcher is not doing his job properly, the roof can pull skew and the thatch is not laid properly."

**Comments:** "I am tired and can't manage to build any more, but will be willing to show others how to do it."

**Dream:** "It would be nice to see the thatched roofs coming back."

**BARRY (OOM BARRIE) TROUT (85)**, *local thatch cutter*

**Memories:** "I've been a thatch cutter for 40 years. The straw we got from harvested rye stalks that grew in the gardens."

**Comments:** "Thatch cutting is hard work, the young people go to town to find better paying jobs. I will teach the young, it's in my blood."

**MARIA LOOCK (90)**, *lives in an original mud brick and thatch roof home*

**Memories:** "We used paint made from clay, and sometimes, if we could afford it, from lime. The church used to remind people when to whitewash their houses. Our floors were made of cow dung; we (the women) used to collect cow dung on Fridays and wash the floors with diluted cow dung while the children were at school. The washed cow dung floors prevent dust from forming on the floors.

"There used to be a vegetable garden behind the *Kupper* and *Akkerhuisie*, and there used to be a beautiful rose hedge around the *Werf*; when the roses started to bloom, it was the time to have a children's day celebrating the youth.

"Washing was done by the river and we collected water: we didn't have taps inside our homes. We also had lots of horses, cows, pigs and chickens.

"Three different colours of clay were collected for the house – white, red and ochre. The lime we got from Pella. We got some clay behind the school as well as at the graveyard and we made our own mud bricks." \*

\*Currently zoned public open space and used as a playground

There is a common belief that the focus on rekindling traditional building skills holds a strategic advantage, as many towns' historic buildings are deteriorating rapidly due to a lack of appropriate traditional building skills and this will increase heritage-sensitive repairs and maintenance of historically significant buildings. The city addressed this by initiating the heritage revitalisation project that ran from 2007 to 2011. The objective was to provide training courses on heritage sensitive restorations and alterations, the use of natural materials, indigenous building methods as well as permaculture gardening.

Mamre is fortunate to have a few old masters of indigenous building methods who are able to share information and demonstrate building with earth bricks, lime and dung plaster finishing, thatching and dung lime clay thatch capping, adzing of timber beams, and the laying of reed and clay ceiling as well as peach pip and clay/dung floors. They also know where to find and harvest the local thatching reeds and how to cut them.

### THE INFORMATION CENTRE

On 16 April 2011, four years after the September 2007 revitalisation programme launch, the Mamre Information Centre was officially opened under the direction of Horn.

What is remarkable is that, although the building is brand new, it looks and feels historic. The earthy, quiet trace of straw, clay, dung and raw wood evoke a feeling of belonging in its environment.

The project only used locally-sourced materials and the building was designed according to eco-friendly principles by EDA. Alien gum and poplar trees were harvested in close proximity to the site according to moon phase<sup>2</sup> harvesting principles. The lime dung plaster mix was used from a traditional recipe that a local resident – 60-year-old Herbert Arendse – had learnt from his grandfather and the thatch was harvested locally by Mamre's last remaining skilled thatch cutter, 80-year-old Oom (uncle) Barrie Trout who helped to train a local team in the craft.

The granite for the plinth was quarried locally and the 30 000 adobe bricks were made in Mamre by members of the community who formed part of the training programme<sup>3</sup> initiated by the City of Cape Town and EDA, which formed the initial phase of the broader project.

### CHALLENGES AND TEETHING PROBLEMS

Logistics and tendering issues delayed construction of the Information Centre and training the builders slowed down the building process.

<sup>2</sup> Moon Phase Harvesting is an ancient method of preserving timber by cutting wood (in this case poplar and gum trees) according to the phases of the moon. The wood is cut when the sap is lower, which is in the autumn & winter months i.e. hibernation period. Cut during the 3 days before the New Moon, but only between the Autumn Equinox & Winter Solstice. During these months the sap in the tree is at its lowest in the days before the new moon. The lack of sap therefore is a natural protection that prevents insects & fungus from infesting the wood & thus increases its durability. For more info please go to: <http://www.ecodesignarchitects.co.za/faqs/moon-phase-timber.html>

<sup>3</sup> Trainees also received certificates listing all relevant skills learnt, to facilitate further training and employment opportunities on other projects.

### MUD BRICKS (ADOBE BRICKS)

- dates back to 4 000 BC – ultimate sustainable technology
- longevity (100 – 400 years plus proven vs. modern bricks 25-50 years)
- locally sourced, natural building materials – mud, clay and straw
- flexible – moulded and shaped when wet
- can be carved, shaved and sawn when dry
- low embodied energy component
- low thermal mass helps to regulate temperature
- non toxic, non allergenic
- controls humidity
- fire, rot and termite proof
- great sound isolation





### MAMRE INFORMATION CENTRE – SUSTAINABILITY FEATURES

- local community participation
- stone for the foundations
- wood for roof beams and carpentry harvested from local alien trees
- moon phase harvested timber
- L-shaped plan provides protection from the western sun
- light shades made from recycled paper
- disposable LED light bulbs – controlled by sensors
- local clay and straw bricks
- locally harvested reeds and grasses for thatching
- natural lime dung plasters
- lime wash
- together with the thatch roof, these provide excellent thermal performance with good thermal mass and humidity modification
- thin skylight to illuminate the interior without overheating it
- interruptible flushing toilets and waterless urinal
- a pergola with deciduous grape vines on the north facing walls provides shade in the summer and allows sunlight through in winter
- plans to include a rainwater tank



The mud bricks made at the beginning of construction were initially stored in a building provided by the Moravian church. Those had to be removed when the church needed the space again and some of the bricks had to be re-made, causing additional delays.

Under the general tender conditions of government, a contractor who was not a local Mamre thatch cutter won the thatch cutting tender as he had submitted the lowest price. The awarded contractor took shortcuts like tying thinner bundles and failed to properly cure the thatch before bundling it. As a result, 80% of what was harvested subsequently rotted. The community stepped in and local craft masters solved the problem.

“To ensure that potential local contractors were not disqualified from the tendering project due to relevant knowledge on producing traditional materials, we collected and prepared these materials separate from the building contract,” Horn explains.

Unfortunately, the City’s institutional requirements still frustrate the desired involvement of local skills.

### WHAT WENT WRONG AND WHAT NEXT?

Mamre once epitomised the original eco-village. The inhabitants’ livelihood was sustainable and people lived off the land: everybody used to have their own livestock and kitchen gardens. Unemployment was unknown – in a conventional sense. Nobody was employed, but everyone worked.

Alas, the organic growth of the town around the allotment gardens was brought to a halt in the Apartheid era and during the 1970s authorities expanded the town significantly to the southwest, but along modern town-planning paradigms with



## SOURCEBOOK

- **Sustainable Architecture** Andy Horn Eco Design Architects 021 462 1614 [www.ecodesignarchitects.co.za](http://www.ecodesignarchitects.co.za)
- **Architect and Heritage consultant** Graham Jacobs ARCON Architects & Heritage Consultants [arcon@megaserve.net](mailto:arcon@megaserve.net) 083 658 5636
- **Building contractor** Feroza van Reenen C Van Reenen Builders [Feroz786@telkomsa.net](mailto:Feroz786@telkomsa.net)
- **Custodians of Rare and Endangered Wildflowers** (CREW) South African National Biodiversity Institute [info@sanbi.org.za](mailto:info@sanbi.org.za) 021 799 8800 (Cape Town Office)
- **Sustain Property Development** (Pty) Ltd Charles Titus [charles@sustaingroup.co.za](mailto:charles@sustaingroup.co.za), 079 197 9573
- **Environmental & Heritage Management** City of Cape Town 021 400 6454 / 021 550 7564 [www.capetown.gov.za/environment](http://www.capetown.gov.za/environment). This e-mail address is being protected from spambots. You need JavaScript enabled

a suburban character. In addition, Atlantis was developed 5 km South of Mamre to house people removed from District Six. After 1994, the town was again extended by authorities, this time to the North-West, with the addition of an RDP settlement which introduced yet an additional influx of displaced “foreigners”. In time, a new culture of crime, drugs and a disregard of the heritage and culture of the original village took root. Today, Mamre consists of three disparate areas – each with a character of its own. In the late 1990s Atlantis and Cape Town absorbed the labour force and created a local skills void. Currently, Mamre experiences high unemployment figures, due to the economic downswing and closure of many factories in Atlantis.

Consequently, Mamre has a relatively large

population, including an idealistic youth who currently does not share the vision of the old townsfolk and sees no value or potential in taking an old broken-down place and turning it into something new. This typical adolescent Mamre generation wants to explore opportunities associated with contemporary societies far removed from ruins, heritage, poverty and religious guidelines.

Ironically Mamre has, in its historic precincts and scenic settings, considerable potential to generate income for its inhabitants. Although there is a drug and gang culture within the area, there is also a very strong church influence. This has been a significant factor in preventing the broader community from fragmenting. About half of the population of Mamre is still Moravian, and the church therefore has a key role to play in the socio-economic upliftment of the community – not only as spiritual provider, but also as development agent through the creative use of historic landholdings.

Perhaps, to ensure the future of Mamre as a collaborative culture, it would be sensible for any revitalisation project to broaden its objectives to integrate the future generation of Mamre with a focused purpose to continue in the legacy of an endangered society. “It’s more than preservation of a knowledge base. It’s about reviving it. If the jobs are there, a lot of [youths] will stay,” concludes Jacobs.

With its rich history, traditional values and commitment from so many dedicated individuals, notwithstanding ubiquitous bureaucracy, the settlement of Mamre deserves the opportunity once more to blossom into the thriving eco-village it once was. ◉