THATCHERS ASSOCIATION UP AGAINST ILLEGAL STRUCTURES

The present economic climate creates a challenging environment for the Thatchers Association's members. A tendency that appears to surface more and more is that in spite of the difficult times, respected contractors do succeed in getting contracts. There is however those contractors trying to earn a quick buck through taking shortcuts with dire consequences for himself and his client who wants to save money.
The result is thus EXACTLY what they paid for.

The myth that thatch roofing is much more expensive than tiled roofing has been turned on its head. Simply compare the cost of a thatch roof to that of a conventional tiled roof with all its various components such as trusses, roof tiles, ridging, gutting, ceilings, insulation, paint of ceilings and one will be pleasantly surprised.

Roofs thatched with immature grass requires more maintenance and combing. This reduces the lifespan of the roof drastically. If these roofs are also sprayed with a fire retardant product, the life span of the roof is then much more influenced.

In a dry climate, a properly thatched roof with quality grass with the right compaction and a minimum slope of 45 degrees, should last thirty odd years with servicing only 2 to 3 times during its lifespan. Reed roofs may only be combed twice in its lifetime. There are reed roofs at present aged 60 years and never been combed, still in excellent condition.

Roof after TASA member rebuilt it

Shocking workmanship

A line has to be drawn. Thatched roofs that do not comply with the SANS 10407 (Thatched Roof Construction) specification requirements reflect very badly on the Thatching Industry as a whole and it is one of TASA's main responsibilities to improve the quality of thatched roofs in the RSA.

- TASA will not tolerate the misuse of its logo by Contractors who are not members of the Thatchers Association of South Africa. A letter of Attorney has already been sent to those guilty of the afore said abuse. We call on all our members, government authorities and the public to report on any infringements noticed.

- It is the responsibility of our members to set an example. We subscribe irrevocably to the norm "THE MARK OF EXCELLENCE" as expressed by TASA's registered Trade Mark.

Complaints received involving TASA members receive immediate attention. If considered necessary a meeting is arranged with the parties involved and the matter resolved as amicably as possible. Decisions taken to rectify faulty workmanship are also followed up.

The above actions taken by TASA build a relationship of trust with the public and our clients which in turn promote the business interests of TASA members prepared to comply with the specification demands

Illegal structures

REPAIRS UNDERTAKEN ON THATCHED ROOFS BUILT BY OTHERS

As a result of the pressing economic circumstances, clients tend towards the cheapest quotations with dire consequences. Another contractor is then approached to save the roof which in most cases fails to achieve the required results. A written agreement which would normally state the extent of repair work and standards to which the contractor must comply as well as the certification of the work undertaken, is often found lacking. Consequently payment is claimed for bad workmanship.

TASA members are reminded to enter into written agreements with clients stipulating clearly the work to be undertaken. Every roof constructed or repaired by a TASA member must comply with the legal requirements and acceptable engineering practices and standards even if the roof was not originally built by himself. We recommend with urgency that whenever a TASA member undertakes to repair a roof constructed by someone else, the following should be considered and ensured:

- Consider seriously what you are letting yourself in for
- Provide for consulting engineering fees
- A detailed and signed contract stipulating clearly what is to be done.
- The person responsible for the engineering certificate
- That the building plans have been approved prior to commencement of the project
- Compliance with Municipal and National Building Regulations
- Compliance with SANS 10407:2006 (Thatched Roof Construction) Specification requirements

Every TASA member has signed the Code of Conduct and Ethics whereby he is obliged to act within the limits of the laws, specification requirements and business ethics. The document "Choice of a Thatched Roof Contractor" as well as important information is available to clients on the TASA website.
If in any way a client or contractor are in doubt of the integrity of a structure or require advice, a professional engineer must be involved in the project.

Plans must be submitted and approved for ALL thatch roofs.
Only in instances where the example provided in the SANS 10407:2006 Annexure B is used exactly as it is (for a maximum span of 6 meters) then alone, it is not a requirement for a professional engineer to design the roof.

Some of the most common cons in the thatching industry
Many clients, architects and engineers cannot identify common cons in the industry. Some of the most common are as follows:

1. THE MEASUREMENT OF POLES.

A typical pole size is given as 100-125mm x 3.6m. 100 designate the minimum diameter on the thin end of the pole and 125 designate the maximum diameter on the thick end of the pole.

The thick end diameter of the pole varies, but an accepted norm is that the pole tapers by 5% per meter. Many roofs are built with undersized poles and the responsible person is unaware as they are led to believe a pole is measured on the thick end. Keep in mind the minimum pole diameter that may be used for thatch structures is 100-125mm, as per SANS 10407.

Illegal structures

Illegal structures

Legal structures by TASA members

2. THATCH LAYER THICKNESS

Many Thatchers will lay an eaves layer that is 200mm thick, then taper the layer to the ridge where the thickness ends up as little as 75mm. It is not obvious once the roof is complete as all that changes is a slight change of angle on the thatch surface. Gable ended roofs are more difficult to cheat as the taper then becomes obvious. On completion of the thatching the thatch layer thickness should be checked randomly over the entire roof surface. SANS 10407 specifies a minimum layer of 175mm.

Wrong pitch and thatch layer poor

Illegal structure

3. THATCH LAYER COMPACTION

All Thatchers thatch to varying densities and can be controlled by a simple hook scale test.
Hook around twine pull until twine parts from lath and take reading. The tension should be greater than 8 kilograms. The above test should be performed soon after completion of a roof after all scaffold poles have been removed

Poor compaction, loose and thin over hip

Twine tension test

4. BOLTED STRUCTURAL CONNECTIONS.

Structures are built and on inspection it seems that the main stress connections are bolted, however on closer inspection it is sometimes found the connection is actually a 150mm wire nail fitted with a washer and nut. The fraud connection is very often not seen from ground level but seen only on closer inspection.

Bolted structural connections.

Bolted structural connections.

5. RAFTER SPACING

SANS 10407 dictates a maximum centre to centre spacing of 900mm. Many roofs are built where this maximum is exceeded.

6. LATH SPACING

The spacing of laths is determined by the average length of grass used. SANS 10407 tables the maximum lath spacing for a given grass length. Closer spacing than tabled is acceptable. The more often a bundle is stitched to the structure the more durable the thatch layer.

7. STITCHING

Only tarred sisal twine or stainless steel wire is to be used with a maximum spacing of 100mm. (Below)

8. ROOF SLOPE

The minimum general roof slope is to be a minimum of 45 degrees. The reason for this is that any valley or hip is always approximately 10 degrees flatter than the general roof slope giving the minimum roof slope of 35 degrees allowed. The general roof slope impacts dramatically on the slope area of the roof. A major saving can be made by the Thatcher by building the roof a few degrees flatter than specified.

Roof slope 45 degrees

Roof slope 50 degrees

9. FREE STANDING ROOFS.

These roofs are supported by columns. The footings of these columns affect the overall stability of the roof and adequate footings, preferable specified by an engineer, be installed. Many columns are planted in the ground too shallow and without the necessary concrete footing the size of which is determined by the roof load and soil conditions. Concrete footings should not encase the bottom of the pole as this will accelerate rotting by not allowing drainage.

10. BAD DESIGN

Never allow overlapping thatch surfaces. The drainage water falling from the higher roof onto a lower thatch surface accelerates rotting on the lower surface as the penetration of water into the layer is deeper and takes longer to dry.

In general the drainage of water from thatch roofs is an important factor in the design of thatch roofs as all drainage areas such as valleys will degrade faster that general roof slopes.

Good design. Open valleys and no overlapping of thatch surfaces

11. THATCH ROOFS WITH CEILINGS

Many Thatchers will not install a ceiling or "spray" layer in thatch roofs fitted with ceilings. This results in an under surface with the fines of the thatch bundles exposed which in the advent of a fire will accelerate burning. Ceiling grass should always be installed irrespective of normal ceilings being fitted.

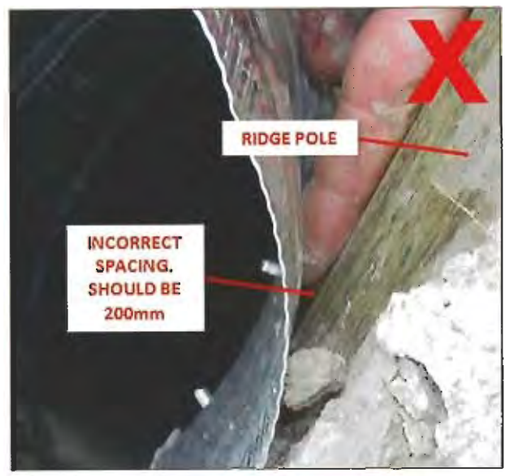
12. WRONG CHIMNEY DESIGN

In all my experience I have yet to come across a builder who knows the correct way to construct a chimney. The worst is there are very few, if any at all who will climb to the top of the chimney, they merely ask their labourer to check and see if it's alright. The labourer normally answers yes, he knows what you want to hear.

I always send someone up to look and take a photo and 95% of the time it is wrong. The builder then instructs his labourer to sort it out. When queried again the bricklayer says he has sorted it out, only to find nothing has been done at all.
On one site the chimney was inspected by my management and condemned no fewer than 4 times. When we arrived on site the 5th time the chimney was closed up! So who knows what they did?!

Correct chimney design

Fire hazard



Fire hazard

13. WRONG INSTALLATION OF RIDGE

Correct installation of ridge

Correct installation of roof window

14. POOR CONSTRUCTION OF ROOF WINDOW

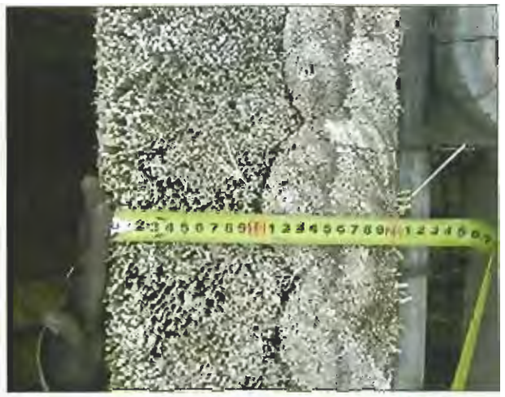
15. SERVICING OF THATCH ROOFS

Wrong method: Short little bundles of thatch are pulled out, cut and pushed back again or short little bundles of grass are pushed into the thatch layer.

THE CORRECT METHOD OF SERVICING A THATCHED ROOF

One needs to understand the technical detail of a thatch roof before you merely let a unqualified thatcher comb a roof. Every combing process unless properly done, reduces the functional thickness of a roof and thus lifespan.
The correct procedure is to inspect the general length of the thatch or reed. If found long enough, the next step is to pull down the thatch layers

The binding twine then needs to be tightened on the underside of the roof. Only then can the combing process begin.
It is advisable that this process is well supervised as a lazy thatcher will take the shortcut and ultimately destroy the roof.



Functional thickness of thatch above sways not less than 70mm.
Total thickness not less than 175mm

Pulling down of thatch layers.

Tightening of twine after pulling down of outer layer of bundles.

Roof's life drastically reduced due to combing without first pulling back the thatch beforehand as required

Roof before service.

Roof after service.

RECOMMENDED PROCEDURE TO FOLLOW IN THE CONSTRUCTION OF A THATCH ROOF

Steel frame rondawel

1. THATCH ROOFS ARE FAR MORE FLEXIBLE IN THEIR DESIGN THAN OTHER ROOF MEDIUMS

There are however basic principles unique to thatch roofs that need to be adhered to. To obtain the optimum life span from the roof, certain criteria, not obvious to non-specialists need to be followed such as roof angles, the position and angle of valleys relative to other features of the initial concept. The floor plan and elevations of the building affect the structural design of the roof often affecting the structural stability of the roof especially where there are varied ridge heights and roof junctions. These junctions do not allow for the placement of effective bracing and very often there are no support walls to counter the lack of efficient bracing.

STEEL FRAME RONDAWEL

Given the above, the architect, at sketch plan stage, should consult with an authority in the industry to rectify or modify the design ensuring optimum stability of the structure and to maximise water run off due to correct roof slopes and position of valleys in relation to the overall roof design.

2. VIRTUALLY ALL PROPOSED THATCH ROOFS EXCEED THE

minimum criteria stipulated in the National Standard SANS 10407 and as such require the services of a qualified specialist structural engineer.

To analyse a thatch structure the engineer will require a structural design of the proposed roof to calculate pole sizes and the number and diameter of bolts required for the varied connections.

Very often today thatch roofs are constructed without structural drawings and analysis and as a result are, after the fact, difficult and expensive to modify, sometimes impossible. With detailed drawings the architect can also assess the aesthetics of the structure and in conjunction with the engineer alter the detail to the benefit of the client.

3. PRICING

One of the most common anomalies in the thatching industry today is that the client, architect or quantity surveyor cannot assess the variance in tender pricing due to the lack of a detailed bill of quantities specifying all items and their specifications in accordance with SANS 10407.

The benefit of a detailed certified structural drawing is that all poles, their diameters and all connection sizes and quantities are determined from this drawing. A good bill of quantities should detail every item required for the construction of the roof including items such as twine, laths, nails and grass, stipulating the diameter of the bundles which ultimately determines the total volume of grass required for the surface area to be thatched according to the density specified in the Standard.

The thatching industry is no different to any other form of contracting in that there are many short cuts that can be taken to reduce the overall cost of the thatch roof.

A detailed Bill is therefore imperative to ensure the construction of a proposed thatch roof complies with the Standard to maximise the longevity of the construction.

4. ON COMPLETION ...

of the structure the detailed structural drawing and detailed Bill of Quantities makes the assessment of the roof an easy task eliminating the need for an arbitrator in the event of a dispute. The area of contention either complies or does not comply. Should the roof structure approved by a structural engineer fail due to incorrect design the engineers professional liability insurance will cover the costs of the repair/modification, insurance which generally thatch roof contractors do not carry.

In summary it is imperative that the client ensures that the proposed thatch roof project is handled professionally from inception to completion reducing the risk of failure to a high capital investment.

THE CHOICE OF A THATCH ROOF CONTRACTOR

QUESTIONS THAT CAN BE ASKED ARE: WHETHER THE CONTRACTOR:

1. Is conversant with the sans 10407:2006 edition
   1.1 Specification
2. Is conversant with the national building regulations
3. Is member of the thatchers association of south africa
4. What is his membership number
5. Is the contractor registered for vat
6. How long has his firm been in operation
7. Has references from inter alia :
   A. Architects
   B. Engineers
   C. Clients
8. Projects completed
9. Has the necessary infrastructure and trained staff
10. Will provide a written contract for the acceptance of both parties
11. Of whom is it expected to provide the necessary structural drawings, and building plans and arrange for the approval thereof by the relevant and appropriate authorities
12. Arrange for the required inspections and obtain the necessary and required clearance and engineering certificates
13. Who will take responsibility for insurance during construction

PROCESS TO BE FOLLOWED

1. Structural drawings or a plan drawn up by an architect / structural engineer and approved by the appropriate authorities must be provided.

(Municipalities will not issue an occupation certificate without approved building plans and transfer of property will not take place in the absence of the above.)

1.1 In quoting for the project the contractor must be well aware of what is expected from him.
1.2 The contractor must ascertain whether the drawings or design is practicable for the construction of a thatch roof
1.3 The contractor must comply with all requirements / specifications as determined by the structural engineer or architect so that a final certificate of approval can be obtained from them on completion of the project.

2. SPECIFICATION

Construction must comply with the requirements of the SANS10407: 2006 Edition 1.1 Specification.

Thatched roofs are more flexible in design

3. WRITTEN CONTRACT

A written contract accepted and signed by both parties is a prerequisite before commencement of the project.

4. COMPLAINTS AND COMMUNICATION

4.1 Frequent and constructive communication between both Client and Contractor is encouraged.
4.2 Proper, complete and clear documentation regarding requests and alterations is of utmost importance throughout the project to avoid misunderstandings.

5. WHAT IS EXPECTED FROM THE CONTRACTOR

5.1 Effective and frequent feedback during progress
5.2 Clients must be made fully aware of the work to be undertaken as well as specification and legal requirements.
5.3 Clients must be provided with a detailed document indicating the price as well as payment requirements. This includes estimates and written quotes.
5.4 Clients must also be provided with detailed time estimates as well as the expected date of completion. A complete timetable must be provided.
5.5 Clients must throughout be advised of any changes that may affect the proposed completion date and update the timetable accordingly.
5.6 The Contractor must accept responsibility for the actions of his workers/staff inclusive of sub-contractors, advisors or agents appointed by him.

6. CLIENT RESPONSIBILITIES

6.1 Timely progress payments and final payment as agreed.
6.2 Co-operation and assistance as needed.

THATCH GRASS & REED CUT DURING THE GROWING SEASON

A FEW UN-REFUTED FACTS

- The layer of resin like substance forming on the outer surface of the grass protecting it from rotting only occurs at the ripening stage.
- This layer protects the grass from moisture entering and ensures a longer lifespan.
- Breaking at the nodes also occurs with pre-mature grass.
- Grass cut after the first frost occurrence is devoid of seed, leaves are dry and curl. This allows for better cleaning
- Methane gas forms in the hollow parts. This encourages rotting and cannot be biologically degenerated. This rotting is especially relevant at glass fibre ridges wrongly installed as well as dormer windows with an inclination less than 34 degrees... (Therefore Rounded Glass fibre ridges are preferred which can be tightly tied down preventing hollow forming which traps gas in contrast with sharply edged glass fibre ridges)
- It is an established fact that grass and reed roofs with the correct slant, compaction, ridge and thatched with mature material that can breaths, prevent gas forming. Wind can breaths through these roofs and the latter is not easily destroyed by the wind as air is allowed to pass through it.
- Roofs thatched with immature grass requires more maintenance and combing. This reduces the lifespan of the roof drastically. In a dry climate, a properly thatched roof with quality grass should last thirty odd years with servicing only 2 to 3 times during its lifespan. Reed roofs may only be combed twice in its lifetime. There are reed roofs at present aged 60 years and never been combed, still in excellent condition.
- A massive loss in seed production is realised when grass is harvested too early. This obviously impacts negatively on the potential harvest of the following year.
- Reed could still have a greenish shine with little sun exposure. This however does not indicate premature harvesting.
- The same as above can be said of grass in the event of late rains - this however is a slight green shine and does also not indicate premature harvesting. The difference between mature grass with the resin layer visible and stiff nodes compared to immature grass is easily recognizable.
- The practice of dipping immature grass in a fire prevention product to provide it with a yellow shine to disguise the green tinge is totally unacceptable.
- Rotting occurs when immature grass is sprayed with a fire retardant product which shortens the lifespan of the roof drastically.
- During dry spells when grass is finer and shorter, spacing between support structures must be adjusted.
- practice and the market for it should be erased to stop this mal practice which is to the detriment of the Industry.

Good quality thatch reed

Good quality thatch grass

- On request from inland contractors green reed is cut and delivered. This reed is still full of seed and dead leaves. Masses seed drops in transit and is lost.

This Valuable information is available on TASA's website: www.sa-thatchers.co.za
Please contact the Thatchers Association of South Africa

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THATCHERS ASSOCIATION OF SOUTH AFRICA
DEKKERSVERENIGING VAN SUID-AFRIKA