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February 2018 // Wood Southern Africa & Timber Times
In the blink of an eye...

So much has happened in the few weeks since the January issue of Wood SA was published!

President Cyril Ramaphosa was finally sworn in as the country’s new leader, and his maiden State of the National Address was an attempt to reassure local and international business owners and investors.

However, while he confirmed the importance of the agricultural sector as a key platform for transformation, growth and job creation, he also said the government is “determined that expropriation without compensation should be implemented”. In this issue we report on Forestry SA and Agri SA’s responses to this development, as well as the national minimum wage.

Exalting the worth of a tree

On an entirely different track, I have just finished reading a book I missed when it was first published in 2015, and which should be on the reading list of all forestry and woodworking students: The man who made things out of trees, by Robert Penn and published by Penguin.

I am including an extract from page 11 that describes his approach to the ash tree, and which I think gets to the heart of everyone who works with and is passionate about wood:

“I would find a tree in a wood close to my home. It would be milled at my local sawmill. The best timber would be distributed to artisans and makers to be converted into artefacts and products.

“I could get a writer’s desk and a table made. I would turn some of the less valuable timber into panelling for my office and worktops for my kitchen. There would be chopping boards, bowls, the rims or felloes of wooden wheels, spatulas, arrow shafts, catapults, tent pegs, coat racks, laths for coracles and a paddle.

“I could saw the larger branches up for firewood and kindling and use the smaller branches to make charcoal. I could even smoke food with the sawdust. The brash and some of the branches would be left behind on the woodland floor, to slowly rot away and eventually return to the earth as humus.”

The book pays homage to trees, the soil they grow in, and presents the history of the art of woodworking that prompts the author to promise that “Every part of my ash tree would be used: a zero-waste policy would fence the project – to exalt the worth of a single tree. How many different uses could I get from one tree, I wondered?”
Forestry sector is a key custodian of Africa’s water factories

Wetlands, also known as “water factories”, are the most biologically diverse of all ecosystems, and in South Africa are the most threatened of all our ecosystems.

“Sadly, 50% of South Africa’s wetlands have been lost because of human and urban impact, and only a fraction of those that remain are being conserved,” says Jane Molony, president of the International Council of Forest and Paper Associations (ICFPA) and executive director of the Paper Manufacturers Association of South Africa (PAMSA).

“For decades, the forestry and forest product sector has been working alongside scientists and conservationists to rehabilitate and conserve wetlands on forestry-owned land,” she says.

“Tissue, tables, pencils, paper and cellulose come from farmed trees. Without these products, our urban lives would be less than ideal,” says Molony. “While it meets these needs, the industry regards looking after the land on which trees are farmed as a business, social and environmental imperative.”

According to the National Water Act, wetlands are defined as “land which is transitional between terrestrial and aquatic systems where the water table is at or near the surface, or the land is periodically covered with shallow water, or would support vegetation typically adapted to life in water saturated soils”.

By linking land and water bodies, wetlands protect coastlines, prevent flooding, filter pollutants and act as giant sponges that soak up rainwater and release it slowly over time. This makes them one of the most important freshwater storage systems on earth. Wetlands also store carbon dioxide (between 10 and 20 times faster than terrestrial ecosystems), thus slowing the impact of climate change.

Timber plantations share land with wetlands and grasslands, and environmentally sound plantation design and management is crucial to effective water stewardship.

Such efforts include conserving freshwater ecosystems, like wetlands, rivers and banks, all of which serve as vital habitats for freshwater plant, animal, insect bird, and aquatic species.

“More than 28,000 hectares of wetland have already been identified on forestry-owned land,” says Michael Peter, executive director of Forestry South Africa.

“Among our wetland conservation efforts are the removal of alien and invasive plant species and where necessary, our trees,” he says, pointing out that forestry companies continually reduce their plantation areas in riverine and other ecologically-sensitive areas.

A number of flagship programmes are managed by forestry, paper and packaging companies, among them Mondi and Sappi.
Mondi Wetlands Programme
Mondi owns and leases about 250000 hectares, including 20000 hectares of wetland. The company funds the World Wildlife Fund-Mondi Wetlands Programme which marked its 26th anniversary in 2017.

As one of the country’s longest-running, privately-funded conservation programmes, it has helped move wetlands to the top of conservation agendas, especially for the forestry, sugar and dairy industries. It has also pioneered the way wetlands are identified, restored and protected across sectors, in South Africa and beyond.

Shafton/Kusane wetland rehabilitated by Sappi
The Karkloof catchment in KwaZulu-Natal consists of highly productive agricultural land. Not only is the area rich in wetlands, it serves as a water catchment for the greater Durban and Pietermaritzburg areas. Intense land use over the years makes the protection of the area and its rich biodiversity extremely important.

Sappi owns and manages approximately 170 hectares of a large floodplain where the Karkloof, Kusane, and Mnalweni rivers meet. The Shafton/Kusane wetland in the upper Umgeni catchment area, has been assessed and is in good health owing to rehabilitation efforts undertaken by Sappi. The company is exploring opportunities to improve the ecosystem’s functionality still further through weed and bramble control, and the preventing of encroachment by poplar, wattle, pine and gum trees.

We are all stewards
Wetlands, just like working forests, absorb excess carbon dioxide, and provide clean air water and climate regulation. It’s up to each of us to be stewards of our environment.

How to do it
If you have any wildlife or nature photos captured on forestry-owned land that can be used please send them to: info@forestryexplained.co.za. Please provide as much information as possible including a caption for the image, where it was taken and who we should credit.

You can also get involved in promoting forestry on Instagram by:
• Following @forestry_explained
• Posting your forestry-related images and tagging @forestry_explained
• Using the hashtag #discoverforestry on all your forestry posts

Your contributions could be reposted Instagram on #forestryfriday, and #discoverforestry

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AfrEquip recently launched the Tigercat 480B tracked mulcher fitted with a 4061-mulching head in South Africa, and the results of initial trials on different terrain types are excellent.

AfrEquip is the supplier of Tigercat’s range of forestry equipment in South Africa. The company that is testing the 480B with AfrEquip has been mulching for a few years and has used different brands and types of equipment to perform this tricky application efficiently.

“The feedback on the 480B and 4061-mulching head has been great and we are confident that it will be in demand in 2018,” says Brendan Moore, AfrEquip’s business development manager. Moore explains that the forestry industry is moving away from burning stump and brush lines and the benefits of mulching can be seen in the overall tree growth-harvest cycle.

“Mulching introduces nutrient rich green material back into the soil to be broken down. It adds to the retention of moisture in the soil and allows for the planting teams to go in field straight after the mulcher, rather than having to wait for the compartments to be burnt.” The mulching head can also be fitted onto the Tigercat M762G wheeled mulcher with the same excellent results.

**Tigercat 480B Tracked Mulcher**

The next generation Tigercat 480B track mulcher and the Tigercat 4061 mulching head form part of Tigercat’s ever-expanding off road industrial product line.

The Tigercat 480B tackles the toughest terrain with ease and offers superior durability and high uptime for large-scale, time-sensitive right-of-way and site preparation projects.

With a power rating of 411kW (550hp) at 1800rpm, the Tigercat (FPT) C13 12.9 litre Tier 2 engine offers quick load response, low operating costs and high-power density, combined with excellent fuel economy. The FPT engines are backed by Tigercat warranty and support.

The efficient, responsive closed loop track drive system delivers powerful tractive effort and performance with greater hydraulic efficiency in challenging terrain. The high-lift boom geometry means high productivity in slopes and gullies.

The cab interior is quiet, and instrumentation has been placed to optimise productivity. The electronic control system interface uses a high-resolution, 180mm touch screen.

The 480B is equipped with a comfortable, heated and cooled seat with air-ride suspension. Excellent cab insulation translates to reduced noise levels, so operators can take full advantage of the Bluetooth sound system with hands-free calling.
CONFIDENCE **BY DESIGN.**

The Tigercat 4061 mulching head is a perfect match for the high performance 480B track mulcher. With a 411 kW output from the Tigercat FPT Tier 2 engine it has more than enough power to take down rows of stumps and brush lines. Tigercat provides confidence with high production and high uptime for the toughest applications.

Choose Tigercat for performance, power and support.
Contact AfrEquip to find out more.

---

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**Tigercat**
www.tigercat.com
Tigercat M726G Wheeled Mulcher

The M726G mulcher achieves the highest machine availability rates for excellent productivity in a variety of high duty cycle land clearing, right-of-way and site preparation applications.

Moore explains that an optional multi-function hydraulic system and quick attach boom adapter allows the machine to be quickly and easily switched from a mulcher to a feller buncher for increased versatility and the ability to fell large or merchantable timber in forestry applications. The M726G mulcher is equipped with the Tigercat FPT Tier 2 engine configuration.

Key Benefits

- Large attachment pump providing high flow to the mulching head
- Optional multi-function mulcher/feller buncher hydraulic system and quick attach boom adapter for increased versatility
- Standard equipped with boom float system so that the mulching head automatically follows terrain contours
- High-lift boom geometry for improved performance on sloped terrain
- High capacity cross-flow cooling with automatic variable speed for improved fuel efficiency; automatic reversing cycle to purge dust and debris
- Compartmentalised design and layout separates the cooling system, engine and hydraulic components
- Super-durable, long-life centre section is constructed with thick steel plate, large diameter pins and tapered roller bearings
- Clear access to engine, hydraulic components, filters and other service points for painless maintenance routines.

Tigercat 4061 mulching head

Moore says the new mulching head offers excellent durability and reliability in a package ideally suited to the capabilities of the Tigercat 480 and M726 series mulchers.
The 4061 is manufactured to Tigercat’s exacting high standards for robustness and quality. The housing features reinforced side covers and abrasion resistant skis. The housing is optimised with debris door cylinders mounted internally for protection and contains position references to aid in ski alignment.

Timing belts eliminate belt slip and provide efficient power transfer to the rotor, lowering maintenance time and costs associated with conventional v-belts.

Service and maintenance are a snap, maximising uptime. The Tigercat-designed tooth and holder system uses a taper lock interface that requires no torque wrenches, which Moore explains greatly reduces changeover time. The teeth are extremely durable with carbide tips and carbide inserts for increased life. Unlike competing mulching heads, the 4061 wear-liner requires no welding and the rotor does not need to be removed when servicing.

There are also reversible and interchangeable shear bars for quick servicing. In addition, a tapered housing shields debris from potential build-up and easily accessible grease points make daily servicing even more convenient.
Described for professional forestry applications, the new MS 651 chainsaw from STIHL offers excellent value and impressive performance in an easy-to-operate and straightforward to maintain machine.

This no-nonsense model builds on the success of the company’s MS 650 / 660 chainsaws and is ideal for harvesting large timber and de-stumping.

The machine is equipped with STIHL’s 2-MIX technology, which means that this machine offers high engine power, excellent power-to-weight ratio, and exceptional torque development for high cutting performance and pulling power.

A major plus is that fuel consumption is reduced by up to 20% compared to conventional two-stroke engines that don’t have 2-MIX technology.

Despite its power, engine emissions are very low per the strict emissions requirements of the EU.

Another advantage is the easy-to-maintain design that means that it can be easily cleaned by the operator. Features of the MS 651 include:

- Improved 5kW power with all the benefits of the two-stroke power unit with 2-MIX technology
- Operator comfort thanks to reduced weight and a significantly improved anti-vibration system that cuts down on vibrations by around 50%
- A double bumper spike for enhanced guiding rigidity
- HD2 filter system with radial seal that helps protect against the finest dust for longer intervals between cleaning, and reduced servicing
- Captured bar nuts on the chain sprocket cover ensure that bar nuts cannot get lost or jammed, can be tightened individually, and are always in the correct position when fitting the sprocket cover
- A standard roller-chain catcher for low wear and lower service costs
- E-matic S oil pump: the end stop can be recessed so that oil flow rate can be increased to suit the specific working environment conditions and type of wood being cut
- The unit can be used and maintained effectively, even in remote areas

According to STIHL SA, the MS 651 is a tough, powerful chainsaw that has been specially designed for forestry and agriculture applications. "Now timber contractors have an uncomplicated, high quality machine that offers top-of-the-range performance and fuel efficiency with easier, cost-effective maintenance."
Uncomplicated FASTfell and Skogger harvesting machines in demand

Matriarch Equipment, based in KwaZulu-Natal, manufacture two purpose-built timber machines that, when working as a team, fell and extract at equivalent rates to offer a well-balanced felling and extraction system to feed a roadside processor.

The Matriarch FASTfell felling and bunching machine and the Skogger timber extraction and loading machine, are distributed and supported by Bell Equipment, and are aimed at operations with higher cost sensitivities that require a simpler system with low capital outlay, and ultimately, lower cost per tonne.

Ashley Bell of Matriarch Equipment explains that the concept behind the two machines is to offer equipment that is not too complicated, thereby providing customers with a simple, mechanised system for their harvesting and extraction operations. “Our machines are easy for an operator to

The Skogger is a choice for foresters who need a felling machine in steep terrain, or in wet or undulating compartments, where the four-wheel driveability is a huge advantage.

Robust and comfortable protection from STIHL

The new STIHL FUNCTION Basic Helmet offers robust head gear for professional users at an accessible price. This upgraded, lightweight yet tough helmet has several user-friendly features that include ventilation holes on top for enhanced air flow and a longer neck section for added protection from the sun. The wider nylon visor allows for enhanced eye protection with no loss of visibility: with light transmittance of 55-65%, operators can see what they’re doing while their eyes are protected. The visor has elastic sealing at the brim to ensure that no dust or dirt can enter.

Slim-line ear muffls help shut out the noise. The sweatband is made of absorbent fabric instead of plastic, and a 6-point harness with easy pin-lock fastening ensures that this well-balanced helmet stays in place while the operator is hard at work.

The FUNCTION Basic Helmet—an affordable personal protection that works hard to keep the wearer safe and comfortable all day, every day.

Like any premium item, STIHL products are only available at specialised dealers nationwide for expert advice and superior after-sales service.

www.stihl.co.za
adapt to and learn to operate. We’ve also spent time and effort to ensure that they are easy for mechanics to service and maintain due to good service access for major components as well as for daily maintenance."

A large percentage of common components and service parts between the Skogger and FASTfell results in less stockholding being required and further impacts positively on the ease and cost of maintenance.

Both machines are powered by JCB engines which, in addition to having a high percentage of common componentry, also benefit from being modern yet fully mechanical engines, to further enhance ease of maintenance and reliability. Bell adds: "The torque peaks low down in the rev range of these engines and our machines can operate in that range for optimum fuel efficiency. It also means that the engines aren’t working at their upper limit, which promotes longevity."

**New felling head for Skogger coming soon**

Since its introduction in mid-2017, the Skogger has gone into operation in Swaziland, Mpumalanga and the Eastern Cape, and the first export units will leave the country in March. During this time the machine has been tested in various applications including the extraction of full tree lengths in a traditional skidder operation and the extraction of cut-to-length timber that had been processed infield. "The timber lengths were 5,8m and were extracted about 200m to roadside. At this distance the Skogger proved to be very viable," says Bell. "We’ve also tested the loading ability of the Skogger loading trucks with 16m transmission poles."

A Skogger has also been fitted with Matriarch’s MT50FH felling head and is currently performing well in the Cape region with a roadside processing operation with trees of 0,5m³ to 0,6m³. In this application the Skogger is felling at a rate of three trees per minute.

Due to the suitability of the Skogger to felling, Matriarch is in the final stages of designing an up-scaled felling head, the MT70FH, which has a larger grapple than the MT50FH standard head and is able to handle trees with a maximum diameter of 700mm compared to the 525mm capability of the MT50FH.

According to Bell, the Skogger is a choice for foresters who need a felling machine in steep terrain, or in wet or undulating compartments, where the four-wheel driveability is a huge advantage. Heavier than the FASTfell, and featuring a stable platform, the Skogger is also suited to larger trees up to 1m³.

**FASTfell delivers good performance**

Commenting on the FASTfell, Bell said that this niche product is based on the same principles as Bell Equipment’s popular Fellerbuncher that was in production some years back. "Our objective was to develop a simple, low cost felling and bunching machine by building on the past success of the Bell Fellerbuncher. We’ve taken that concept and modernised it; made it more ergonomical for the operator and improved the visibility for easier extraction and increased productivity."

Fitted with the MT50FH harvesting head, the FASTfell has a pivoting rear axle with two castering wheels on
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Why we should love and respect trees

In her introduction to the February issue of the Southern African Institute for Forestry (SAIF) newsletter, the chairman, Hannel Ham, shares some interesting stories about why we should love and respect trees.

- The oldest living tree is about 4700 years old and still actively growing in the USA, while some redwood trees are so big that miniature forests grow on their upper branches.
- There is also a 157ha tract of virgin-old growth forest in central Pennsylvania. It features ancient hemlock trees and 6.1m Rhododendrons. This area was conserved because of a land dispute between logging companies in the 1900s.
- There is an ancient old growth forest bordering Poland called Białowieża Forest. It resembles what most of Europe looked like before the 14th century.
- Another story reports that a man called Jadav Payeng single-handedly planted a forest bigger than Central Park to save Majuli Island in Northern India from erosion.
- A formation of larch trees in the shape of a swastika was discovered in Germany in 1992. The formation, only visible in autumn, went unnoticed for 60 years. After that discovery, other forest swastikas were found in Germany and beyond.
- There is a tree named Pando that is technically an entire forest. It is a clonal colony of 4700 Aspens in Utah that all share the same root system.
- Hurricane Katrina uncovered an underwater forest off Alabama Coast that is 50000 years old.
- There is a 2400-year-old giant “honey mushroom” in Oregon, covering 890.3ha, slowly killing off the trees in the forest. It is claimed to be the largest living organism on the planet.
- Hang Son Doong in Vietnam is the largest cave in the world. It houses a rain forest in its largest chamber. The cave was not discovered until 1991, and not explored until 2009.
- China has planted the biggest artificial forest in the world to stop the spread of the Gobi Desert, and plans to expand it to 4506 square kilometres by 2074.

In the meantime Matriarch is working with Bell engineers to achieve ROPS/FOPS certification of the Skogger and FASTfell cabs, to improve the safety rating of the machines and broaden their acceptance.

Uncomplicated FASTfell and Skogger...

Skogging is growing in popularity locally and the first units will be exported in March.
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The arrival of the new Hino 500 Wide Cab models not only marks the first full model change of the 500 Series in 14 years, but also fills several important gaps in the overall Hino truck range in South Africa.

Hino has been a significant player in the local truck market for the past 45 years and is now gearing up to become an even stronger competitor with an enlarged product range, including the availability of 6x4 models and automatic transmission in the 500 model line-up.

Other new features for the 500 Wide Cab models include long and super long wheelbase options on the 4x2 and 6x2 models, and steel springs or airbag suspension on 6x2 models. They have also added three 6x4 models, available with on- or off-road cabs and suitable for use as freight carriers, tippers and mixers.

The new 500 Wide Cab, which went into production at the Hino assembly plant in Prospecton, near Durban late last year is an important addition to the Hino South Africa arsenal as it extends the 500 Series offering from 16-ton GVM upwards from five to 12 models.

Although the Wide Cab 500 trucks are all-new, they were designed and developed with Hino’s traditional quality, durability, and reliability (QDR), very much in the forefront of objectives set by the product engineering team,” says Ernie Trautmann, vice president of Hino South Africa.

"When these new 500 models are delivered to customers in South Africa they will have the full backing of the international Hino Total Support programme, which involves building close relationships between Hino Japan, Hino South Africa, its dealers and customers. This strategy is bearing fruit in South Africa for several years already, with Hino coming out top in both customer and dealer surveys,” adds Trautmann.

Change overview
Changes compared to the previous Hino 500 models are extensive. They start with an all new chassis frame which is bolted rather than riveted and has a hole pattern on the web surfaces for easy body mounting, while the frame is wider in the engine compartment area for the fitment of larger and more powerful engines.

The high strength web frame is common for all models, to simplify replacement part availability. The layout of the ancillaries on the chassis has been revised to give more utility space for customers.
The Hino 500 series with Automatic Transmission is the perfect vehicle for any business.

Reliable at every turn means that this impressive vehicle gives you the peace of mind to go the distance in an unpredictable landscape. Available in both the 4X2 and the 6X2 models, this automatic medium duty truck enables drivers to focus their attention on the road and what’s ahead. These comfortable and efficient driving conditions contribute to improved fuel consumption, reduced wear and tear and a better working environment for drivers in the road transport industry.

For your convenience, our range of freight carriers, tippers and mixers are now available in a 6X4 model. With a reputation of quality, durability and reliability, Hino is the perfect business partner with the widest dealer network in Southern Africa. Hino strives to support your journey from start to finish.

www.hino.co.za
A new, wider front axle provides increased load ability and a 7% tighter turning circle. The adoption of a trunnion rear suspension system improves durability and allows the fitment of a cross-differential locking system for 6x4 models.

Three engines are now used in the 500 range, all with more power and torque than the engine fitted to the previous 500 models. New Hino manual transmissions are specified, either the six-speed MX06 or nine-speed M009OD/DD, with the option of Allison 3000 or 3500 fully automatic, six-speed transmissions for certain models.

A new rear differential with increased torque rating is fitted, which improves reliability and durability. Another new feature that improves QDR is a 65 mm wider radiator core for improved cooling.

The larger cab has new exterior and interior styling with an extra step for easier cab ingress and egress. There are two cab mounting methods, depending on the model, one semi-floating and the other full-floating (6x4 models) for enhanced comfort.

Enhanced performance
The new 500 models all offer better performance without sacrificing fuel efficiency, with higher gear ratios resulting in lower engine revolutions. There are improvements in hill climbing, pulling off on a slope and acceleration.

Safety and security
Several important safety and security features have been incorporated in the new 500 range. These include a driver’s side airbag, seatbelts with emergency locking retractor, substantially improved headlight illumination on low beam, anti-skid (ABS) brakes, Hino Easy Start with adjustable brake release timing for pulling off on a slope, an engine immobiliser and central locking.

Comfort and convenience
The dashboard and instrument panel have been redesigned for improved ergonomics. The instrument panel uses both analogue and digital instrumentation. Standard equipment includes air conditioning, cruise control, power windows and a radio/CD audio system. Access to the cab is made easier with additional sure-grip steps for both the on- and off-road cabs as well as a much larger inside cab grab handle. The driver and front passenger seats are adjustable, while the driver’s seat has air suspension for added comfort. The cabs use either semi-floating or full-floating mounting of the cab to the chassis to contribute to the comfort of the occupants.
Professionals registered with the ITC-SA under the designation of Timber Roof Truss Designer can now receive recognition in contracts documentation and are recognised by statutory organisations as “competent persons” in their specific field of operation.

“Timber Roof Truss Designer”, a working category of the Institute for Timber Construction South Africa (ITC-SA), has been registered by the South African Qualifications Authority (SAQA) as a professional designation on the National Qualifications Framework (NQF).

The registration of the professional designation officially took place on 6 December 2017, when the SAQA Board registered ‘Certified Timber Roof Truss Designer’ as a professional designation on the NQF.

“Thanks to the newly-assigned professional status, professionals registered with the ITC-SA under the designation of Timber Roof Truss Designer will now receive due recognition in contracts documentation and will be recognised by statutory organisations as competent persons in their specific field of operation,” explains Amanda Obbes, national coordinator of the ITC-SA.

Competencies required for membership

To secure and maintain membership status with the Institute, Timber Roof Truss Designers must be able to demonstrate specific competencies in line with the category of roof structures for which they are permitted to design.

The designer is to assume the manufacturer’s responsibility for translating a roof and truss design into an actual roofing solution that is both safe for the client and manufactured in a cost-effective manner by the fabricator.

In recommending material options for the roof design, the designer should demonstrate an understanding of the industry and have knowledge and understanding of design, terminology in roof engineering, the characteristics and properties of material used for structural design in roofing, the organisational and sector requirements as well as manufacturing tolerances and limitations. Quality control capabilities are also needed as demanded by context.

The designer should be able to name and describe different materials used in roofing, identify structural...
properties, non-compliance of timber and steel, structural connectors and their application, and be able to differentiate between the advantages and disadvantages of the different structural materials specified.

An understanding of the theory of structures and the load bearing characteristics of roofs is essential. This includes the triangulation of members in a truss and the transfer of the load to the foundations; load definitions, identify the difference between, and impact of, the different types of structural forces, identify the strength and impact of materials on a structure; and describe the methods of connections used in the design and manufacture of trusses.

The designer should be able to construct or manufacture specialist timber formwork and trusses for roofing in line with safety legislation, the National Building Regulations and requirements, based on specification drawings. At all times an understanding of design and industry safety conventions is crucial.

The Timber Roof Truss Designer should be able to define the design responsibilities of the various role players within the organisation involved in the preparation, submission, review and approval of each truss design drawing and estimate. Contractual requirements as well as an appreciation for the impact of design and manufacturing inefficiencies and the handling of trusses are also competencies of this designation.

In promoting and designing green roofs, the designer should use design principles to optimise a green roof’s performance and align with client objectives, determine major functions and components of a green roof, be able to describe the characteristics and assess various advantages of different green roof systems, and be able to use an integrated design process in a project for maximum benefit.

CPD opportunities

“Members across all designations are to be confirmed as competent in work for which they are registered. The Institute shall ensure that Continuous Professional Development (CPD) opportunities are offered to these registered designations in a bid not only to drive and enhance competence in the sector, but to reduce consumer risk in enlisting the services of a registered professional,” says Obbes.

“Members that are found to have brought the ITC-SA and/or the industry into disrepute will be dealt with in terms of the ITC-SA’s disciplinary procedure and may even be removed from the register of practicing professionals.”

Obbes says the registration of Timber Roof Truss Designer as an additional professional designation in the portfolio of professions overseen by the ITC-SA is of great benefit, not only to the Institute and its members, but to the construction sector at large and contributes to skills development and professional service delivery in South Africa.
ARE YOU IN THE TIMBER ROOF TRUSS BUSINESS?
DO YOU NEED TO BRUSH UP ON YOUR SKILLS?

Hone your roofing skills with the ITC-SA’s Roofing Specialist Level 1 Course. The programme is specially designed to offer you online study materials and tests to boost your skills in this sector. Here’s how to get started:

- Register with the programme at http://portal.itc-sa.org
- Log in and view our available courses
- Review the study material provided in your own time
- Take the online test when you’re ready

You don’t have to be a member of the ITC-SA to enrol. A certificate of completion will be issued upon successful completion of the course.

Please note, courses may not include official certification.
Please see our terms and conditions.

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BRANCHES
South / Eastern Cape | KwaZulu-Natal | Western Cape
TF Design, with its unique South African developed timber solutions, was selected to provide turnkey expertise to improve the timber drying process at the TWK Shawco sawmill in Swaziland.

TWK Agri, as it is known today, developed from a co-op in 1938 to a highly diversified group of companies. The company has its roots in timber and is owned by 2300 shareholders through its TWK Holdings and TWK Investment shares which trade on the ZARX stock market. Today the growing, processing and marketing of timber are still central to TWK’s business, contributing some 30% of their total turnover.

TWK’s timber business philosophy is based on adding value to timber wherever possible and supplying diversified markets in South Africa, Swaziland and Mozambique. One of the TWK owned and operated sawmills, Shawco, is located on the Shiselweni Estate close to Nhlangano, Swaziland.

The sawmill processes timber for the structural market with annual production figures reaching 28000 cubic metres. In the past, air drying was the only means by which the sawmill could condition the timber from wet-off-saw, to below fibre saturation point. The air-drying period varied greatly with weather conditions and drying could take as long as six weeks in winter, to 12 weeks in summer. This variance resulted in unreliable drying quality.

After analysing the capacity of the sawmill, TF Design proposed a turnkey solution to provide drying capacity of 3480 cubic metres of pine per month. The sawmill did not have steam or hot water production facilities on site and a solution was designed that incorporates a biomass-fired steam boiler system.

The biomass fired steam boiler system is designed to combust all types of timber waste including wet sawdust and bark. The boiler is capable of delivering 8.5 tonnes of saturated steam per hour at 9 bar (G). Steam from the biomass boiler system is supplied to two independent timber drying kilns to produce 1160 cubic metres per month from a two-stack double-track kiln and 2320 cubic metres per month from a four-stack double-track kiln.
The TFD drying room is equipped with a full aluminium containment shell ensuring high resistance to the corrosive timber drying atmosphere inside the kiln. Fully reversible and highly efficient fan units are used to ensure equal air velocity distribution through the timber while keeping electricity consumption to a minimum.

The steam-operated, TFD timber drying kilns are able to reduce TWK’s drying time for 38mm timber from the estimated 6 to 12 weeks to 40 hours, irrespective of prevailing winter or summer conditions.

Not only do the new TFD kilns save time, they also enable TWK staff to accurately plan and react to changing market conditions, which enhances the mill’s ability to stay competitive. Another competitive advantage is the quality of the kiln dried timber. They moved from Mill Run timber to SABS Approved SS structural timber quality.

The installed TF Design solution features a robust control system with integrated human machine interfaces (HMI) and a central supervisory control and data acquisition (SCADA) system. Operators can monitor the boiler and kilns from a central location while management teams can access the system remotely to assess alarms and overall system performance.

The TF Design solution provides TWK with a safe, effective & robust steam production & timber drying facility that will augment their overall effectiveness. TF Design is proud to have been of service to TWK and looks forward to a long & lasting relationship with the organisation.
JZ Gerber Houtwerke, a pallet and wood products manufacturer in Upington in the Northern Cape, has significantly increased production capacity by investing in a new double-head resaw machine.

The owner of the company, Zak Gerber, has installed a Wood-Mizer HR500 double-head resaw to take advantage of cost savings resulting from buying hardwood cants instead of cut-to-size planks to convert into pallets and crates for the area’s fruit and dried fruit producers.

Export quality pallets and bins
Gerber is one of the many successful grape and raisin farmers that have farmed in the area over several generations. All the farmers depend on timber drying racks, pallets, crates and packaging to dry fruit, and transport their produce to markets overseas and in other provinces.

He experienced the same frustrations as all the other farmers in the area who were dependent on pallets and crating that came by road from suppliers several hundred kilometres away. The transport costs and delays to get ready-made pallets ate into budgets and made planning difficult.

The Northern Cape is extremely hot and dry and the biggest river in South Africa, the Orange River, is the lifeblood of the area and its capitol, Upington.

The town and the agriculturists in the valley use the Orange River’s water to sustain them and produce desert wines, table grapes, dried fruits and animal feed for livestock farming. The baking desert sun concentrates grapes into super sweet wines, while the heat dries millions of tons of fruit into dried fruit products that are exported globally.

Olive wood drift
Upington was originally called Olyfenhoudtsdrif (Olive wood drift), due to the abundance of olive wood trees in the area, but renamed early in the 1870s after Sir Thomas Upington, attorney-general and then short-lived Prime Minister of the Cape. Unfortunately, the abundance of indigenous olive wood is long gone.

This lack of locally grown and processed timber, and the high demand for timber packaging to ship produce from the area to end-users, gave Gerber the idea to start manufacturing pallets, crates and drying racks in Upington.
Top Specifications
- 300 mm max cant width
- 2, 4, or 6 head configurations
- Single track steel conveyor belt
- THIN KERF blades
- Minimum cutting height = 6.0 mm
- Feed rate 0–25 meter / minute
- 11 kW electric motor per head

HR 500
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www.woodmizerafrica.com
Wood-Mizer resaw

JJZ Houtwerke’s new Wood-Mizer HR500 resaw has decreased the company’s timber costs and increased their production capacity significantly.

The HR500’s material processing capacity of 300mm (wide) x 400mm (high) allows them to seamlessly resaw the hardwood cants that arrive at the factory into several precisely resawn boards in one pass.

The HR500’s heavy frame, steel belt conveyor and hold-down roller system cut hard wood with tension into accurately resawn boards. The easy-to-use electric head up-down control unit ensures consistent sizing and increased output.

The HR500 is a modular machine, and at this stage Zak has opted for two heads and will later add a second frame to increase production even further. The units are pre-wired to allow for easy installation and expansion to a maximum of six heads.

The HR500 comes standard with a blade lubrication kit, which together with the hydraulic blade tensioning are centrally located to increase productivity and access. Zak also invested in a Wood-Mizer BMS200 bandsaw blade sharpener and BMT250 blade setter to service the blades used on the HR500.

Zak and his businesses are now in a position to deliver the assembled crates and bins and to offer transport solutions to his customers with his fleet of Scania trucks.

JJZ Gerber’s fleet of Scania trucks delivers the wooden pallets and bins to farmers in and around Upington.
Dan Kriek, the president of Agri SA, has written a personal letter to fellow farmers saying, “It is now time to stand together. Become involved in your provincial or commodity organisation so we can fight the battle of protecting your proprietary rights and to ensure the continued existence of the agricultural sector.”

Kriek wrote the letter on 5 March and says “I write to you as a fellow farmer who is concerned about the possibility that farmland can be expropriated without compensation.

“Although little information is available at this stage, we do know the following: the operations of the Constitutional Review Committee are described in rules 98 to 103 of Parliament’s rules. The committee will hold public hearings on the matter where all interested parties can make submissions on their viewpoints on the possible amendment of section 25 of the Constitution.

“After this, the committee will compile a report and make a recommendation to Parliament. The process must be finalised by 30 August 2018. Agri SA will fully take part in this process and will consult with the best expertise in the compilation of our inputs. The committee can support or reject the motion. Should the committee support the motion, the amended wording of section 25 would have to be formulated and published again in the form of a Bill for inputs. Section 74 of the Constitution regulates this process.

“Then both houses of Parliament will have to vote on the bill. The Constitution requires a two-third majority in the National Assembly and that six of the nine provinces must vote in favour of such an amendment. The motion that was accepted by Parliament stipulates that the Constitutional Review Committee must review section 25 of the Constitution, where necessary, and make amendments where it might be applicable. The ANC insisted that the conditions in respect of food security and the economy that should not be impaired had to be written into the motion.”

Agri SA is a federation of diverse agricultural organisations and consists of nine provincial- and 24 commodity organisations. Forestry SA (FSA) is one of the commodity organisations, and Roger Godsmark, FSA operations manager, says the organisation supports Agri SA.

In his letter, Kriek says Agri SA is campaigning to mobilise the private sector, the public and other countries against the amendment of the Constitution. “In the process, we will highlight the value of the agricultural sector, as recognised by our country’s president, and indicate the negative effects of land expropriation without compensation, as well as the negative impact on investment in the sector.”
Automated materials handling systems and the Internet of Things (IoT) are here to stay

The Biesse Inside focused event at the company’s campus in Pesaro, Italy, and visits to six different Italian woodworking companies, provided a group of South African business owners with the unique opportunity to see material handling systems and information technology at work.

Leon Fourie, Austro’s national sales manager, says machines that can replace tedious and unergonomic materials handling practices with seamlessly integrated panel handling and moving are the only way in which a company can transform its production and health and safety processes.

The established success of Biesse in the design and production of systems and solutions is confirmed by the fact that the company has achieved the revenue objectives set out in its three-year plan a year ahead of schedule, with more than 100 projects completed in a single year.

Skipper

The Skipper 100, for example, has already found favour amongst South Africa’s kitchen and shop fitting manufacturers. It is a flexible boring centre that allows the panels to move on an air floatation table in an easy and fast way. “In this way panels with different dimensions can be machined without interruption, the machine can work the panel from above and below at the same time and can produce two identical or mirrored panels per cycle with no difficulty,” says Fourie.

Winner

The Winner automatic loading and unloading systems can be customised to suit the needs of different factories. The range includes the:

- Winner 1: for loading and unloading panels for high performance automated lines. Best suited for square edge banding and boring lines. The top of the range machine can produce 1000 pieces per shift.
- Winner 2: the compact solution for medium-high performance loading and unloading lines where high handling speed and security of panel detachment are important for loading continuity. Ideal for flexible boring processes where productivity of 22 – 26 panels per minute are needed.
- Winner 3: Loading and unloading panels in lines, with high machining flexibility to manage project stacks
- Winner 4: perfect for integrating with single-sided edge banding machines, allowing operators to automatically manage the handling of the panels to be edge banded. The graphical interface is intuitive and easy to use and has a touch screen panel.

Gripper and Lifter

Other material handling solutions include the Gripper unloading system for angular cutting systems, and the Lifter system for panel saws that is extremely quick and flexible and can manage several sub-formats. Biesse’s Turner PT panel turners that can rotate panels by 90 degrees and the Turner OT can rotate panels by 180 degrees.

Winstore

The Winstore is an automated magazine for the optimised management of panels for large contract, mass production manufacturers. It reduces production times and costs, and can be integrated into nesting and sizing cells with a significant increase in productivity.

Biesse says it is possible to get return on investment within one year with the Winstore system. It delivers a 35% reduction in product delivery time and a 10% reduction in raw materials compared to conventional solutions. It is therefore the ideal tool for the implementation of lean manufacturing.

SOPHIA

SOPHIA, the internet of things (IoT) platform created by Biesse in collaboration with professional service company Accenture, enables its customers to access a wide range of services to streamline and rationalise their work management processes.

It is based on the connection to a cloud service and special sensors applied to the Biesse machines. The information and data on the machines in use can be recorded and sent in real time to optimise performance, prevent malfunctions and increase the productivity of machines and systems. SOPHIA will be available in South Africa in January 2019.

“Automated materials handling systems and the Internet of Things (IoT) are here to stay. We are all part of the fourth industrial revolution and Austro strives to keep our clients up to date with solutions that will improve efficiencies and competitiveness. It is all about building and maintaining a strong and collaborative partnership with our clients, for this reason Austro has now employed a software technician to support the new trend.”
Italian woodworking solutions manufacturer, Biesse’s annual Inside event is internationally recognised to be one of the main points of reference for the world’s wood and wood products industry, and the 2017 edition, held in October at the company’s headquarters in Pesaro, was attended by over 600 people, including a group of 11 South Africans.

For the sixth year in a row, Biesse gave Austro’s clients an opportunity to visit Pesaro to participate in the 2017 Biesse Inside event. Working closely with Austro, Biesse also arranged an exclusive post-event tour of Italian furniture, shop fitting and cabinet manufacturers for the South African delegates. Biesse ensured that there was a learning experience for everyone, no matter the size of their business.

The owners of nine companies from Johannesburg, Durban and Cape Town decided to put aside the pressure of year-end production targets and to invest in the week of intense learning. Three of the companies brought an additional member of their management team with them. The group was accompanied by Austro’s National Sales Manager, Leon Fourie, and Chris Dirker.

“It was our biggest tour yet, and the professional camaraderie that developed between the members of the group contributed to its success,” comments Fourie, the tour leader. “We appreciate that it is difficult for business owners to be away for a week, however everyone who has attended over the years agree that it is a not-to-be-missed opportunity.”

Austro believes the event gives South African manufacturers who attend an advantage over their competitors. “They get a hands-on feel and, most importantly, an understanding for new trends and innovations in manufacturing and industrial design. The opportunity to visit six factories to see the technology at work in various configurations is an invaluable experience.”

The focus of the 2017 event was on the internet of things (IoT) and Industry 4.0. Fourie says Biesse’s skilled technical and sales personnel were available to answer questions about the demands and needs of the evolving manufacturing world. “Biesse is at the forefront of harnessing and developing the rapid growth of technologies that make it possible to remotely monitor, measure and execute every step of the production process.”

Biesse opened its modern industrial premises to their clients to test and experience the machinery, automated systems, advanced software, and interconnected technologies capable of optimising manufacturing processes and digitalising factories.

At the Tech Centre they were introduced to SOPHIA, the Biesse platform that originated as an IoT project and which makes it possible for companies to achieve maximum efficiency, while streamlining and rationalising operations. Fourie says SOPHIA will be launched by Biesse in October 2018, and will be available locally as of January 2019.

Biesse also informed the international visitors about developments in the field of manufacturing execution system (MES) software. BAVANT, is designed by BiesseSystems for the integrated and efficient management of the flow of production and in-line machining requirements.

Three complete production lines and various solutions dedicated to the automated handling of panels for the processes of cutting, nesting, square-edging, and boring were demonstrated.”

Fourie says ‘Inside’ and the post-event tour, are significant because they demonstrate the new business to business relationship between, on the one hand, technology and machine manufacturers, their principal suppliers, and the end user, their clients.

“We are all part of the fourth industrial revolution and Austro strives to keep our clients up to date with solutions that will improve efficiencies and competitiveness. It is all about building and maintaining a strong and collaborative partnership with our clients, for this reason Austro has now employed a software technician to support the new trend”.

Inside Biesse is a not-to-be-missed annual event
THE ART OF SANDING
Designed and manufactured to produce quality finishing, in the hand-crafted tradition of old. The S211 is the most compact, high-performance machine for calibrating and sanding in its category, ideal for smaller, artisan workshops. The S211 meets all small-scale calibrating and initial smoothing requirements.
Kleiberit PUR adhesives becoming a market standard

PUR adhesives have taken the woodworking world by storm with its superior quality and the fact that it allows manufacturers get rid of those pesky glue lines that have plagued the industry for so long.

Since the introduction of local board manufacturer, PG Bison’s high gloss line in 2016, hesitation has waned and machine manufacturers now bring out as a standard, edgebanders equipped for the application of PUR adhesives.

According to Bradly Larkan from Kleiberit Adhesives, one of the leading suppliers of Hotmelt PUR adhesives in South Africa, the goal of the furniture manufacturing industry has always been to reduce glue lines as much as possible and thereby create a product that is water resistant, and resistant to other environmental factors such as temperature and steam.

This is exactly what Kleiberit’s line of PUR hotmelt adhesives do. “The elimination of the glue line on edgebanded board does as much for the aesthetics of the board as it does for the overall quality of the product,” says Larkan.

“This means that one now has a completely water resistant material that is impervious to environmental factors and will, as a result, last much longer than materials bonded with the traditional EVA adhesives.”

The fact that the material is completely water resistant has also opened up a number of doors for wood board in non-traditional sectors where wood could not previously be used due to the fact that it was not water resistant.

“It also looks much better as the old glue lines would quickly become an eyesore with dust and grime collecting in the glue lines over time,” continues Larkan.

Initially, producers in this segment marketed their products at a premium and considered the invisible glue line as a mark of true quality, but as end users in the market became exposed to this exciting new material, it has almost become the standard within the industry.

This was further proofed by Turkish manufacturer Kastamono’s purchase of a brand new HotCoating line – their second - from Kleiberit in 2017. The purchase was announced at Ligna 2017, with Kleiberit CEO Dr Achim Huebener commenting at the time that the success of the first line, and the fact that they had invested in another, was a great success for the Kleiberit and further proof that Kleiberit HotCoating PUR adhesives is becoming the new standard in furniture manufacturing worldwide.
New Trends require New Solutions! Specific adhesives for extreme demands

The PUR Specialists - Zero Glue Line

**Edge Banding**
- Invisible glue line
- Superior water resistance
- Very high temperature resistance
- Excellent processing
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Mention the name Roy Williams and, in the woodworking industry, the immediate reaction is “wood finishing”, while South Africa’s paragliding fraternity immediately think of “Major Dad” and his flying site in the Southern Cape.

Roy has been “under canopy” since he first got his paratrooper wings in early 1963, and he carries the energy and adrenaline-rush of his sport with him into his other lifelong mission, which is to offer the best possible quality wood finishing equipment, after sales service and advice to the woodworking industry.

Roy has decades of experience working in the wood finishing materials and equipment fields, including working for Dulux from the mid-70s to the mid-80s as the Industrial Sales Director and the Marketing Manager Wood Finish Southern Africa.

In January 1985, Roy founded his own company, Woodfinish Management, and it has remained a family owned business. His sons, Trevor and Gareth, both worked in the company at various times, and Gareth has remained in the business to step into his father’s shoes.

“I started the business so that I could put my experience to practice and to make it stand out from the rest. The philosophy of this business is to specialise in technologies that are different to the run of the mill types of machinery being sold in South Africa. To do this we have succeeded in only offering the best quality equipment available in these range of products, and to back them up with the best possible after-sales service,” Roy explains.
The company represents a wide variety of woodworking machines and equipment. On the finishing side it carries many of the "Rolls Royce" product lines, high-tech coating, drying and sanding finishing systems, including:

- Heesemann’s range of widebelt, profile, edge and surface sanders
- Venjakob high-end automatic spray machines and equipment
- Barberan roller coating, curtain coating, offset printing, drying, profile wrapping, laminating, post forming, and continuous digital printing equipment, and complementary machines
- Hymmen specialised continuous double belt presses for continuous production of HPL, CPL and melamine laminated boards

Wood SA discussed a few wood finishing topics with Roy:

**What type of abrasive and what sequence of grits do you recommend?**

The best thing is to consult the abrasive manufacturers to find out which abrasives are suitable for a particular application. The range of grits used depends on the final finish you want. Never jump more than two grit sizes as this could result in scratch lines that will still be apparent in the final finish. For example, P80 – P120 – P180 are appropriate steps, whereas P60 – P120 – P220 often results in bad surface quality.

**You are an advocate of cross-belt sanding, when should it be used?**

Absolutely! Cross sanding is critical to achieve a high-end finish, particularly on soft woods such as pine, and on veneers. The first step is to ensure that the board is calibrated, preferably by using a top quality wide belt sander fitted with a steel calibrating roller. The boards are then cross sanded to evenly remove fibres, protect the flatness of the board, and prevent wash-out. After cross sanding, the final wide belt electronic pad sander only has to sand out the very fine cross sanding lines.

The best results are obtained from intensive sanding performed by Heesemann machines. This wide belt sanding machine is fitted with an electromagnetic sanding system that senses tolerances in the board's surface and automatically reduces or increases sanding pressure in milliseconds to ensure a high-quality surface.
In addition, if you want to produce top quality high-gloss or super-matt surfaces, always use a cross belt sander. Grits of 600, 1800 and 2000 can be used for final sanding depending on whether the next step is top coating or polishing.

Is it possible to under-sand components?
Yes. If the surface is to be stained and is sanded using a grit size that is too coarse, it will result in poor blotchy staining and a poor quality finish.

What are the most common surface preparation faults?
- Incorrect selection of abrasive grits
- “Washing out” of soft areas, particularly on soft woods such as SA pine.
- Sanding through veneer
- Dubbing the edges of panels
- Allowing belts to get clogged, and using clogged belts
- Sanding over and rounding solid wood profile edges.
  Rather use a linear sander for profiles, edges or rabbets

- Glue marks. Don’t get adhesive onto areas that need to be stained or that will be seen. Wipe or sand it off as soon as possible without spreading it.
- Incorrect selection of primer, which could result in belt clogging and defects on the panel surface

Is there a difference in the surface finish of different finishing chemicals?
Yes, it all depends on what you want to achieve with the look and feel of the final product. Today there is an enormous variety of finishing materials available, however not all are available locally. Generally South Africans tend to use:

- Single pack nitrocellulose lacquers: It is the easiest lacquer to apply, especially in difficult spraying conditions, it dries quickly, and is easy to touch up and repair. However, it is thermoplastic and not resistant to solvents and will mark easily. It also has relatively poor abrasion resistance.

- Acid-catalysed (AC) lacquers: They are generally resistant to solvents and have good physical properties and appearance. The big downside is the fact that it contains free formaldehyde and releases a strong odour when spraying and drying.
Polyurethane (PU) lacquers used in the furniture industry are two-part materials and cure into hardwearing, tough and high-quality finishes that is chemically resistant to solvents.

Water-based finishes: They have a less smooth texture than solvent-based finishes. Internationally, there is a wide range of water-based lacquers, some which produce very high quality finishes. Follow the supplier’s application and sanding instructions.

What should manufacturers consider when deciding on a spray booth or system?

Try to plan ahead and install a spray booth that can be extended if you need to because your product range or volumes could change or increase.

The choice of finishing system should be based on measurable results. For instance, when you are spraying 800 – 1000 square metres of surface area, or more, per eight-hour shift, then it is time to consider investing in an automatic spraying machine. This machine will normally do the work of four spray painters and their helpers.

It is important to buy an automatic machine from a reputable company and to include essentials like an air dryer for compressed air lines, and the following should be installed in front of the machine:

- a dedusting unit to remove all the dust on the work pieces
- a de-ionising unit to remove static charge build up from the work pieces
- an infrared preheating unit. All dry and wet coating equipment and materials have optimal working temperatures and it is critical for the workpieces to be at the right temperature to achieve the desired results

Do you have any additional comments or tips about wood finishing?

- It is important to note that AC lacquers are cured with an acid catalyst that can react when it meets metal. The reaction is gradual and over four to six months the lacquer can appear to change colour. I advise users of AC lacquers to only mix and store it in plastic containers.
- It is essential to follow the requirements of the Occupational Health and Safety legislation as well as the information contained in the material safety data sheets (MSDS) from the suppliers.
- Focus on quality and train and retrain your staff to ensure that bad habits are eliminated. Of course, this comes at a cost but in the long run it is a small investment to get good returns.
- When working with airless or air assisted airless spray equipment great care should be taken to ensure that the spray nozzles are in proper operating condition. A worn nozzle causes changes to the spray pattern and delivery rate of lacquer, which results in poor quality and greatly increased lacquer costs. New nozzles should be considered to be a consumable so that they can be changed regularly.
No two trees are identical, and even plantation-grown pine trees each have their own characteristics and properties shaped by their genes and environment. No one knows this better than Pierre Cronje, whose love for natural wood and skilled use of finishing processes and materials compliment the natural character of the sold wood furniture he creates.

The Pierre Cronje factory in Lansdowne in Cape Town is the source of contemporary, country and classic styles of hand crafted solid wood furniture. The consistent quality of the furniture is a result of attention to detail throughout the manufacturing process, and especially in the finishing department.

Pierre is always ready to share his skills, experiences and knowledge. When Wood SA asked for an interview about wood finishing, he went the extra mile and contributed the following overview on why and how to finish high-end solid wood furniture.

**Design and quality**
The desirability - and hence saleability - of high-end furniture depends on the following factors:
1. The choice of timber: the type, grade and plank selection
2. The design: is it a modern or classic piece, what are its proportions and is the timber suitable?
3. The quality of manufacturing: the joints, the ability of craftsmen, and the
4. Finishing technique: stained, oiled, lacquered, and the level of gloss required.

Very often manufacturers get the first three factors right but do not give enough attention to the finishing.

**Why do we apply a finish to wooden furniture?**

1. **Protection**
Wood is porous and thus absorbs dirt, stains and oil if it is not sealed to slow down the movement of moisture into and out of the timber. Timber absorbs and releases moisture with changes in relative humidity. When timber absorbs moisture, it expands across the grain, and contracts when releasing moisture.

In Cape Town the average ambient moisture content (MC), which is the weight of water over the dry weight of timber is 12%, but this varies from summer to winter. If the MC changes too quickly for example when a berg wind blows hot dry air for two days, timber tends to crack or warp. Similarly, furniture made in Cape Town and delivered to Johannesburg has a much higher chance of cracking if it is not sealed, unless it is a very stable timber.

2. **To enhance the natural beauty of timber**
Different timbers respond differently to different finishes.

Mahogany looks best when stained, preferably with a chemical or penetrating stain, and the French polished or oiled.

Oak can be left natural or washed with a thin block or white stain and sealed with an ultra-matt non-yellowing Polyurethane. Alternately it can be stained with chemical or penetrating stain to a rich brown and finished with oil and then wax.
3. To protect outdoor furniture from harmful effects of weather
Outdoor finishes are typically lacquers which last longer but are difficult to restore. Oil finishes do not need to be stripped when re-finishing but need upkeep more regularly and tend to darken and make lighter timbers yellow.

What do we expect from a finish?
First of all, it must be durable, secondly it must enhance the beauty of the piece. Thirdly, it must provide minimal upkeep of the furniture piece.

Polyurethane lacquers tend to be tough and need minimal upkeep except for a wipe with a damp cloth or a cloth with some washing up liquid when grubby.

Wax finishes (over oil) need to be re-polished regularly but do build up a great patina. Use a solvent based wax and not a spray-on or water-based wax. Apply very sparingly and immediately after application buff well, preferably with the grain.

Lastly there needs to long term consistency/stability of the finish. Most lacquers tend to yellow with time, which is not suitable for lighter coloured pieces unless they are already yellow.

What does finishing entail?
Sanding
Use the correct grit of abrasives. Yellowwood, for example, requires a finer grit than Oak as it has a very fine grain which shows up scratches, whereas Oak has a coarser grain. Sanding removes glue marks, machine marks, scratches and stains that happen during manufacturing.

Staining
This can be chemical stain which oxidises the wood, or penetrating stain. These are both applied to the raw sanded timber and tend to enhance the grain. Matching stain is normally applied between coats of lacquer and makes the individual planks similar in colour and enables you to achieve an exact colour.

Matching stain tends to hide the natural beauty of timber. Staining includes the application of white or black pigments to lighten or reduce the yellowing of the timber.

“The choice of finish depends on the desired effect. At our factory all furniture we produce carries my signature as the marque of quality,” says Pierre Cronje.
Often the staining process includes more than one of the above to achieve the correct tone, colour and matching of the individual planks and to enhance the beauty of the timber. It is the most difficult process in finishing of timber and requires a great deal of experience and a feel for the timber and the required effect. The result should be enhanced beauty of the product without the beholder being able to tell it is stained. A lot of people lose the plot.

How do you choose the techniques and products to use?
This depends very much on the desired effect, and there are many. For example:

- **High gloss, satin or matt finish can be obtained using lacquers, ideally water-based polyurethanes or oil-based finishes. The ultra matt finish gives the effect of raw timber – which is popular today.**
- **More durable finish for high wear areas such as bar tops or restaurant server and table tops where the item must maintain a new or clean look. This is normally achieved using water based polyurethane lacquers. These are expensive to re-finish as they typically must be stripped, re-stained and re-lacquered, when worn or damaged.**
- **Less durable oiled finish. It can acquire a lovely patina which enhances the natural beauty of wood with time and wear, especially if polished with a wax polish. Oiled finishes are generally less resistant to water damage, unless you properly understand them and know how to apply them.**
- **Sometimes no finish is required at all, as in outdoor furniture made from durable timbers like Iroko, Mahogany, Kiat, and Teak. The wood weathers to a superb grey-weathered finish, but only if fully exposed to rain and sun. These items will absorb oils like olive oil and grease from braai fat, but the rain and sun tends to wash this out with time. A raw finish is not recommended for indoor furniture or patio furniture under cover.**

**Sealing**

- **Water-based lacquers**
  There has been a lot of development recently in water-based lacquers. These are environmentally more suitable than solvent based lacquers and have the great advantage that they are non-flammable. Most woodworking factory fires are due to solvent based products. Other advantages are they tend to yellow less than solvent based lacquers.

- **Oil-based sealer**
  These are more difficult to get a waterproof seal than lacquers. Only use boiled linseed oil and never use raw linseed oil as it does not dry. Proprietary oils like Teak oil or Danish oil vary from manufacturer to manufacturer. An excellent oil-based sealer is Woodoc (I like Woodoc 10) because it is very tough and water/stain resistant. It is a linseed-based poly-wax and has a good drying time.

- **Wax based sealer**
  Most of these are not suitably water resistant on their own but can be used to enhance the piece if applied over an oil-based sealer.
The secret of a flawless coating lies in the core process of preparing wood and wood products with raw, uneven, and marked surfaces, by means of sanding to obtain an even or smooth material surface that is free from dust, marks, and protruding fibres, and will absorb coatings uniformly.

Sales director of Bulldog Abrasives, Jason Baynes, and his team, shared some of their expert knowledge with Wood SA during an interview on the how to achieve the best surface results using a wide-belt sander.

What are important factors to consider when using a wide-belt sander?
There are many variables that affect the wide-belt sanding process. These include the competency of the operator, mechanical failures, the calibration and adjustment of the sanding units, the choice of sanding speed and materials handling. In our experience we have found that effective machine sanding can be achieved if attention is paid to the abrasive belts.

Overall sanding costs can be minimised simply by choosing the most suitable product for each sanding operation. That means:

- choosing the right type of grit
- choosing the right type of coating
- using the optimal grit sequence
- avoiding sanding with finer grits than necessary

The lifespan of the belt can be further increased by ensuring that the sanding equipment is well maintained and operated by a trained technician:

- choose the right type of sanding machine for each sanding operation
- adjust the sanding machine correctly
- ensure the machine is properly maintained
- check that the dust extraction is adequate

How does a wide-belt sander work?
In general, the first sanding belt is used for stock removal, while the following belts are only used for creating an even surface finish. Typically, the first sanding unit consists of a contact roller made of materials such as steel or hard rubber. This roller, in combination with coarse grit belts of between P80-P100 are ideal for efficient stock removal of wood.

When it comes to producing an even surface finish, sanding units that incorporate soft rubber drums or sanding pads are normally used. In these units the grit range varies from P100 to P320. For sanding between coats or intermediate sanding, grits of P220 to P800 are most commonly used along with a very soft rubber drum or a graphite covered sanding pad.

What are the four steps in the sanding process?
The best way to describe it is to use a graphic.

---

Sanding process in 4 steps

Calibration  Cross sanding  Surface sanding  Lacquer sanding

Production flow
What is calibration?
This is the first step in the process where uneven surfaces are reduced to a uniform thickness. It also removes marks that could have been caused by the planer. It is important to note that sanding machines equipped with sanding pads are not suitable for calibration, and that the amount of stock removal is affected by the diameter and the hardness of the rollers. Our stock removal recommendations are:

<table>
<thead>
<tr>
<th>Wood</th>
<th>Conveyor meter/min.</th>
<th>Belt speed meter/sec.</th>
<th>Stock removal mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Solid soft wood</td>
<td>10 - 15</td>
<td>18 - 22</td>
<td>1.3 - 1.5</td>
</tr>
<tr>
<td>Solid hard wood</td>
<td>8 - 12</td>
<td>20 - 28</td>
<td>1.3</td>
</tr>
</tbody>
</table>

**Board production**

<table>
<thead>
<tr>
<th>Wood</th>
<th>Conveyor meter/min.</th>
<th>Belt speed meter/sec.</th>
<th>Stock removal mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Chipboard / MDF</td>
<td>20 - 30</td>
<td>25 - 40</td>
<td>0.5</td>
</tr>
<tr>
<td>Plywood</td>
<td>20 - 30</td>
<td>25 - 35</td>
<td>0.5</td>
</tr>
</tbody>
</table>

What is cross-sanding?
This is the second step. Cross sanding is sanding across the grain of the wood. It removes fibres and removes veneer tape, glue and filler to give a plain surface to the softer and harder parts of the working piece. Importantly it also reduces sanding costs since the cross belt prolongs the life time of the wide belts.

Our machine settings and stock removal recommendations for the various raw materials are:

<table>
<thead>
<tr>
<th>Wood</th>
<th>Conveyor meter/min.</th>
<th>Belt speed meter/sec.</th>
<th>Stock removal mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Solid soft wood</td>
<td>10 - 15</td>
<td>16 - 22</td>
<td>0.2 - 0.3</td>
</tr>
<tr>
<td>Solid hard wood</td>
<td>8 - 13</td>
<td>16 - 22</td>
<td>0.2</td>
</tr>
<tr>
<td>Veneer</td>
<td>12 - 25</td>
<td>16 - 22</td>
<td>0.15</td>
</tr>
<tr>
<td>Chipboard / MDF</td>
<td>12 - 25</td>
<td>16 - 22</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**Board production**

<table>
<thead>
<tr>
<th>Wood</th>
<th>Conveyor meter/min.</th>
<th>Belt speed meter/sec.</th>
<th>Stock removal mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipboard / MDF</td>
<td>20 - 30</td>
<td>18 - 24</td>
<td>0.06</td>
</tr>
<tr>
<td>Plywood</td>
<td>20 - 30</td>
<td>18 - 25</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Now for the nitty gritty, please describe surface sanding
The most common wide-belt sanders have two belts or three sanding belts. The purpose of the second, and third and, where fitted, the fourth belt or pad is to achieve the required surface without large stock removal.
Ultimax
Professional Wide and Narrow Belt Sanding

Manufactured using a unique production process called ‘Selective Coating® Technology’, Ultimax features a series of tiny cavities designed into the abrasive material which work to efficiently prevent clogging. This innovative technology, along with special abrasive grains, produces aggressive performance and excellent edge wear resistance while keeping the sanding surface cool. Together these features provide a longer lifespan and reduced material usage per job.

Technical Specifications

<table>
<thead>
<tr>
<th>Grain</th>
<th>Aluminium oxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backing</td>
<td>Antistatic F-weight</td>
</tr>
<tr>
<td>Bonding</td>
<td>Resin over resin</td>
</tr>
<tr>
<td>Grit Range</td>
<td>P90; P100; P120; P150; P180; P240; P320</td>
</tr>
</tbody>
</table>

Tiny cavities designed into the abrasive material work to efficiently prevent clogging.
This is particularly important when the purpose is to sand between the layers of lacquer. The lacquer must be well cured, and the sanding pressure should be as low as possible to reduce friction. When sanding hard lacquers, a product with grains of aluminium oxide is recommended.

We have found that over the years the employees in finishing departments have become comfortable with their methods and do not think it is necessary to make changes. However, everything is constantly changing today. It is thus important for them to read the machine, abrasives and coatings manufacturers’ manuals, instructions and recommendations when it comes to sanding materials and processes.

We advise our clients to ask us if they would like to make certain that they are using the correct combination of settings, lacquers and abrasives to meet the needs of their target markets. The information in the table above is a guideline for the best feed speed and product to use with the various types of lacquers.

<table>
<thead>
<tr>
<th>Wood</th>
<th>Conveyor meter/min.</th>
<th>Belt speed meter/sek.</th>
<th>Stock removal mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>Solid soft wood</td>
<td>10 - 15</td>
<td>18 - 23</td>
<td>0,4 - 0,5</td>
</tr>
<tr>
<td>Solid hard wood</td>
<td>8 - 13</td>
<td>18 - 23</td>
<td>0,4</td>
</tr>
<tr>
<td>Veneer</td>
<td>12 - 25</td>
<td>18 - 23</td>
<td>0,3</td>
</tr>
<tr>
<td>Chipboard/MDF</td>
<td>12 - 25</td>
<td>18 - 23</td>
<td>0,25</td>
</tr>
</tbody>
</table>

**Board production**

| Chipboard/MDF         | 20 - 30             | 20 - 26               | 0,25             | 0,18            | 0,07            | 0,05             | 0,04             | 0,03             |
| Plywood               | 20 - 30             | 18 - 25               | 0,25             | 0,18            | 0,07            | 0,05             | 0,04             | 0,03             |

<table>
<thead>
<tr>
<th>Type of lacquer</th>
<th>m/min</th>
<th>m/s</th>
<th>Grain</th>
<th>Stearate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrocellulose NC</td>
<td>6 - 12</td>
<td>2 - 7</td>
<td>320 - 400</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Polyurethane DD/PUR</td>
<td>6 - 14</td>
<td>4 - 8</td>
<td>320 - 400</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Hydroground</td>
<td>6 - 8</td>
<td>1 - 4</td>
<td>240 - 320</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Acrylic UV</td>
<td>6 - 25</td>
<td>1 - 6</td>
<td>320 - 600</td>
<td>yes / no</td>
<td></td>
</tr>
<tr>
<td>Polyester UV</td>
<td>6 - 32</td>
<td>4 - 12</td>
<td>320 - 1000</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Melamine</td>
<td>4 - 8</td>
<td>6 - 10</td>
<td>180 - 320</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Water based lacquer</td>
<td>10 - 15</td>
<td>1,5 - 4</td>
<td>280 - 320</td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>

We advise our clients to ask us if they would like to make certain that they are using the correct combination of settings, lacquers and abrasives to meet the needs of their target markets. The information in the table above is a guideline for the best feed speed and product to use with the various types of lacquers.
Standard lacquer trends in South Africa have not seen many major changes in the last 30 years, with acid catalysed (AC) lacquers dominating this market mainly because of ease of use, cost effectiveness, good durability and, to some extent, resistance to change.

This is according to Mike Draper, managing director of Technipaint, the manufacturer and distributor of the Elvolac coatings brand of finishing products. He says that since the country entered the international arena his company has experienced a sharp increase in requests from manufacturers who are focusing on the export market for specialised paints that conform to international specifications.

“Although AC lacquers make up 80-85% of the South African lacquer market, they do have their faults. Some of the factors prompting the growth and move towards better quality lacquers are: AC lacquers contain urea formaldehyde resin and there is a lingering odour of urea formaldehyde fumes after application onto furniture, which has caused it to be banned in many overseas countries. They also tend to yellow in a fairly short time,” explains Draper.

“Accelerated yellowing is noticeable in new developments / houses and is caused by the alkaline and ammonia substitutes used in both cement and decorative paints. This is worsened when both the fresh lacquers and damp cement / decorative paints are together in the same area. This is especially true at the top-end markets, like kitchens, built in cupboards and shop fitting. This does not happen with polyurethane (PU) lacquers.”

Consumers see, feel and experience the final finish of the products they buy. “Kitchens can be expensive, with some costing upward of R300 000, and manufacturers have to carefully consider whether to use an economical lacquer or invest in the correct lacquer system. The finishing process contributes approximately 8-12% to the manufacturing costs of furniture, and it is a small price to pay for satisfied customers,” he explains. Communication between lacquer manufacturers, furniture manufacturers and their customers are key to ensuring the best quality lacquer is used for their customers’ product.

“Thanks to our customers’ requests we at Technipaint / Elvolac coatings have developed a number of new products and lacquer systems over the last couple of years. Having our own in-house resin plant has ensured that we can manufacture the correct lacquers from the base resin instead of trying to modify an existing product which, in the long term, does not always work out. This also enables us to tailor make a paint or lacquer system to suit any of our customers’ requirements.”

The company manufactures and supplies a comprehensive range of lacquers, stains and solvents for wood finishing and industrial applications. In an interview with Wood SA, Draper discussed a few of Technipaint / Elvolac coatings experiences and developments:

Polyurethane coatings
The most positively received new lacquer system in South Africa to date is PU coatings. We offer two main options, ELVOTHANE 2:1 PU high solids lacquer, for both high gloss and matt finishes, and ACRYLAC low solids modified PU coating, which is very fast drying for more open grain effects. The technological developments in these lacquers have seen great improvements in drying times for over-coating, packaging and installation. These finishes offer excellent durability and wear resistance, are odourless after application and their non-yellowing properties have seen many happy manufacturers and their customers.

Pre-catalysed lacquer
The demand for pre-catalysed (pre-cat) lacquer is gaining ground in the SA market. Pre-cat means that it has a built-in catalyst that initiates a chemical reaction as the coating dries. It retains the best qualities of traditional lacquers and provides a hard and durable surface coating. There are less issues with pot life and it is very easy to use with little wastage because it does not gel.

It is also the perfect finishing system for start-ups, small businesses and for large volume users. It can be easily applied using conventional, airless, and
Woodworking

It is based on our ACRYLAC modified PU lacquer and conforms to DIN 4102 B2 requirements for fire retardant paints. This lacquer system is ideal for interior wood coatings as it retards the ignition / open flame point, which allows more time for firefighting attempts and for exiting a building. It is perfect for shop fitting in commercial spaces, doors, office furniture, and large coated areas.

UV coatings
Sales of ELVOCURE, our solvent UV coatings range is growing in popularity. It’s mainly for the very high production companies who have the equipment and is mostly limited to flat panels. It works out to be very competitive because of the low application weights of about 20g per square metre, versus AC and other lacquers at 120-140g per square metre per litre.

Water based coatings
Here the company offers HYDROLAC STD, an economical cross-linking acrylic coating, and HYDROLAC PU that is a water-based PU coating for when a more durable coating is required for table and counter tops. Although the sales of water-based lacquers in SA is still slow, we see a growing demand from end users who are requesting this type of lacquer system, and technology is getting better and better as overseas technology comes to SA. We also have a water-based roller coating system for applying a colour coat to particle board.

Fire retardant lacquer
Another lacquer system that is growing in interest particularly from the shop fitting, office furniture and boat building manufacturers is our new fire-retardant lacquer.

National Minimum Wage could lead to retrenchments

The Department of Labour has announced that the minimum wages for farm and forestry workers has increased by 5.6% from 1 March. The hourly wage is up from R15.39 to R16.25, and the daily wage from R138.52 to R146.28. The weekly wage is now R731.41 and the monthly wage R3,169.19.

Roger Godsmark, operations director of Forestry South Africa (FSA), says the implementation by the government of the national minimum wage (NWM) is going to have a sizeable impact on the industry.

“The NWM is a done deal. There will be a further period for public participation, but this will not change anything,” says a concerned Godsmark. It will take effect on 1 May 2018 and is based on an hourly rate of R20. The agricultural sector will initially have to pay 90%, that is R18 per hour.

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The 2018 implementation date is now a year earlier than initially announced

“I have already received reports from our commercial farmer members that retrenchments are likely to occur as the increase in wages from the beginning of March was 5.6% to R16.25 per hour, and when the NWM takes effect it will increase by a further 10.8%,” comments Godsmark.

Neil Hamman, who chairs Agri SA’s Labour Committee, says “Agri SA places a high value on the labour force in the agricultural sector. This sector is still afflicted by drought in many parts of the country and various farmers have not yet recovered from the impact thereof.

Godsmark says FSA is working closely with Agri SA, and its comments are along the lines of those articulated by Agri SA.
SCT: it’s all about efficiency

With a history of more than 30 years of supplying and servicing spray equipment to the wood finishing industry, Surface Coating Technologies (SCT) has built up a reputation as one of the foremost experts in the field.

According to Markus Mandlein, managing member at SCT, the wood finishing industry has become a lot smaller and much more complex over the years. The increased complexity is due not only to the increased requirement for flexibility of product finishes, but also the ever-increasing number of finishes that have become available to furniture manufacturers over time.

“It’s all about transfer efficiency,” says Mandlein. “The fact is that in today’s difficult economy, one needs to look at the amount of paint that comes out of the spray gun as opposed to what ends up on the product, in order to decide on the ideal spray solution for your application. It is totally uneconomical to buy R50 000 worth of paint and only achieve a 30% transfer rate - which is generally what you get with a standard cup gun system. This ultimately results in R35 000 worth of paint product going down the drain.

“Transfer rate is one of the biggest decision factors in buying equipment for the finishing process. While cup gun systems still work well for many small, project-specific applications, there is an urgent need to upgrade spraying equipment as production volumes increase.”

One of the reasonsthat many companies prefer to stick to the traditional cup gun way of doing things, according to Mandlein, is the fact that as technology is upgraded, a skills upgrade is needed. You have to train staff to use the new technology...

But, according to Mandlein, it is still cheaper to upskill staff or to hire more skilled labour than it is to have to endure a 70% loss on paint due to an inefficient transfer rate. Outdated, low-cost equipment can end up costing you a whole lot more than the price you actually paid for it.

“Companies are often loathed to spend money on their finishing lines,” says Mandlein. “It is ironic that the finishing department is often the most neglected department in a furniture manufacturing company, when the first thing customers look at when they buy furniture is the product finish.

“The finishing department is often seen as the dirtiest department in the factory - when it could and should actually be the cleanest. A lot of managers and decision makers don’t want to spend time there as they risk getting paint on their clothes and shoes.”

“It is not uncommon for companies to pay millions for new woodworking machines such as CNCs and the like. Yet, when it comes to the finishing department, very little, if anything is spent on equipment upgrades.”

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Woodworking
Mandlein says that the vast amount of paints available on the market today is impressive, but the variety is also underutilised due to the cost of paint, and the lack of skilled labour required to handle the more modern paints such as polyurethanes.

“Simplicity of use is still a very big deciding factor within the industry as it eliminates the need for further training and development of staff.”

The furniture industry has also become increasingly competitive. “With tight economic conditions, the need to remain competitive becomes a big focus. Investing in new equipment may enable you to up your production capacity, but it is still a capital outlay that may force you to increase your prices.”

As in most industries today, there is a lot of cheap equipment available. But as the old adage goes, you get what you pay for. The cheaper equipment is often of poor quality, and the technology outdated.

According to Mandlein, many companies opt to use cheap alternatives simply because they are much less expensive. “Cost should never be the sole factor taken into account when you buy equipment. Especially in the finishing industry where the correct finish as well as the quality of the finish is so crucial.

“While there are some very reasonable alternatives on the market, there is also really low-end, bad quality equipment which results in ongoing replacement rather than servicing, and poor transfer efficiency.

SCT has recently acquired the agency for a more affordable range of spraying equipment, being fully satisfied that the quality of these products was up to standard. With access to more than seven suppliers from six different countries, SCT is able to mix and match products for customised, cost-effective solutions.

In terms of the future, Mandlein is optimistic, saying that the company continues to provide expert solutions for efficient and high quality finishing applications.

Whilst the core of SCT business originated and continues in the furniture industry, the company has expanded their expertise across a number of different fields. This has enabled SCT to adapt equipment deemed successful in other industries to the furniture industry.

“While the economic conditions remain tough in the industry, we are positive that 2018 and beyond will continue to see us growing and expanding our product ranges to ensure that we have the right solution for any application that our customers may need.”
An increasingly competitive market place and the world acceptance of lean manufacturing is forcing business owners to take stock and work to eliminate waste in all its forms. Although the finishing department is the final value-adding point in the manufacturing process, it is also an area that generates a great deal of waste.

This waste in the sanding and finishing departments is not only in the form of sawdust. It includes careless and incorrect use of sanding paper, sanding machines, and the mixing, use, disposal and storage of finishing chemicals. It also lies in rework due to poor quality caused by poor surface preparation.

Ekamant, the Swedish manufacturer of abrasives, says the objective of sanding wood is to remove all flaws, marks dents and gouges from the surface of the wood so that chemical, oil or wax coatings can be applied to enhance the appearance of the product. However, every application and result is different, even when using the same wood type, machinery or coatings.

When it comes to the selection and correct use of abrasives, many of the world, and South Africa’s, furniture and wood products manufacturers turn to Ekamant for professional products, advice and service that will help them get the best results and reduce the waste in the sanding areas.

We approached Andrew Doubell and his team from Ekamant South Africa to help us get to grips with the art of surface preparation.

**Abrasives and grits for hardwoods**

Planing machines are normally used by furniture manufacturers to prepare wood pieces for sanding.

Where heavy calibrating is required belts coated with Zirconia, and grit sizes 24, 36 and 40 are recommended. Zirconia is an extremely hard mineral that is sharp and tough enough to easily remove a large amount of hardwood in a short time.

For normal calibrating we recommend aluminium oxide abrasives with grit sizes 50, 60 and 80, and for fine sanding grits of 100, 120, 150 and 180 are ideal for removing scratches and marks to get an even surface without too many wood fibres. For very fine sanding with grits 220 and 240, we recommend using a silicon carbide grain, which is the sharpest type of grain available and achieves a very good scratch-free surface without wood fibres, which is ideal for working with water-based coating systems.

The grit size should be as fine as possible, but coarse enough to remove just the right amount of stock without using excessive pressure.

"Well sanded is half lacquered"
SANDPAPER IS COMMODITY. EKAMANT MAKES IT AN EXPERIENCE.
Abrasives and grits for softwoods and other materials

When it comes to softwoods, MDF, chipboard, veneers and plywood, the characteristics of the materials are different to hardwoods, and different abrasives are needed.

<table>
<thead>
<tr>
<th>Material</th>
<th>Type of grain</th>
<th>Best sequence of grits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softwood</td>
<td>Aluminium oxide</td>
<td>24, 40, 60, 100, 150, 220</td>
</tr>
<tr>
<td>MDF, HDF, Chipboard</td>
<td>Silicon carbide</td>
<td>24, 40, 60, 100, 150, 220</td>
</tr>
<tr>
<td>Veneers</td>
<td>P80-180</td>
<td>80, 120, 180, 240</td>
</tr>
<tr>
<td></td>
<td>Aluminium oxide P220-P240 Silicon carbide</td>
<td></td>
</tr>
<tr>
<td>Plywood</td>
<td>Aluminium oxide</td>
<td>36, 60, 100, 150, 220</td>
</tr>
</tbody>
</table>

**Hand sanding**

We recommend the following for hand sanding:

- Select the right abrasive for the job. The wrong choice will waste the sanding material and produce uneven or scratched surfaces that will affect the application and appearance of the finishing coatings.
- Use a sanding block for edge and surface sanding.
- Fold the paper in an economical way to sand small profiles.
- Do not press too hard as it clogs and wastes the abrasive quickly.
- Never use a heavy paper and a stiff cloth for hand sanding, use a light paper (A/B/C) or a flexible cloth backed abrasive.
- Successful sanding is the result of patience and perseverance. It is important to work out how much time is needed for this step as the more time taken the happier you will be with the final result.
- The best pressure with the hand is about 300g. To check if you use too much, use a scale and press your hand on it until you reach 300g. If you cannot finish your sanding job with about 300g pressure, then you must change the grit size to a coarser one.

**Using power tools**

Power tools often cause scratches and uneven surfaces. To avoid this, we recommend:

- Let the sander and abrasive material do the work.
- It is better to change the sand paper more often than to press hard to try to get more work from a dull sheet of paper.
- The backing pad should be clean and in good shape.
- The right backing pad material is very important. Too soft or too hard a pad for the work you want to do causes problems with the finishing and shortens the lifetime of the sanding material.
- Do not pass the sander too fast over the material.
Woodworking

“Well sanded is half lacquered”

- Always start the sander when it is in contact with the work piece.
- Always stop the sander off the work piece. This will eliminate the possibility of the sander ‘walking’ across the surface and causing scratches.
- Do not sand at an angle to the work piece. This will cause gouges that are difficult to remove.
- Use a slow overlapping when sanding. Sanding in only one direction will change the finish and the colour after staining.
- Sand with the grain of the wood whenever possible.
- Sanding with an orbital sander is about one grit finer than a belt sanding operation.
- Clean the surface well between grits.

Using a wide-belt sander with a pad
- Never use a grit coarser than P100 on a segmented pad.
- Before sanding, check the graphite cloth and the felt.
- The stock removal should be as little as possible and not more than 20% of total removal.
- Too high pressure increases the heat and reduces the lifetime of the graphite and the performance of the sanding belt.
- The right graphite cloth is very important for the finishing and the lifetime of the sanding belt. As a rule, use a softer graphite cloth for coatings sanding and a harder graphite cloth for veneer, board products and solid wood sanding.
- The grit size of the abrasive belt of the last sanding head defines the finish.
- Always use anti-static sanding belts to avoid a static charge between the workpiece and the saw dust.

Using a wide-belt sander with a contact roller
- Never use a segmented sanding pad and a soft contact roller for calibrating.
- The hardness and the diameter of the contact roller should be suitable for the sanding material you want to sand.
- For softer wood it is better to have a steel roller to avoid the ‘wash-out’ effect.

Using a stroke sander
A stroke sander is a good inexpensive sanding machine for a small solid wood products company.
- You can also sand profiles with a stroke sander using flexible belts and profiled pads with a thin paper backing, or flexible cloth-backed abrasive material.
- Graphite cloth should be used under the hand block and the sanding pad to reduce friction heat and to achieve a longer lifetime of the sanding belt.
- The grit should be the same as those of the following wide belts, or not more than one grit coarser.
- Use a cloth backed abrasive to avoid belt damage when it is very hot and humidity is high.

Doubell emphasises the importance of producing test pieces and consulting sanding technicians to find the best and most effective solutions for surface preparation. He quotes the Swedish saying “well sanded is half lacquered” and explains that this means that a well sanded and prepared surface lays the foundation for the application of finishing lacquers, oils and waxes.
Spray painting is sometimes deemed to be a straightforward skill that just needs practice, Dale Engelbrecht, sales director of Vermont Sales, says it is not that simple. Here he discussed spray guns and spray systems with Wood SA:

**What are the differences between the main spraying systems?**
When buying a GAV spray gun, start with the paint first. Most paint manufacturers have data sheets available on their websites which give valuable information on what spray gun is recommended, what the nozzle size should be or what the viscosity and mix ratio of the paint needs to be.

Each spray finishing technology has their own benefits and drawbacks.

- **HVLP – High Volume Low Pressure.**
  - Benefit – high transfer efficiency
  - Drawback – requires constant high airflow compressor ± 453l/min or 16 cfm

- **Gravity feed**
  - Benefit – Small quantity of paint can be used with less wastage.
  - Drawback – Requires hook stand to prevent it from falling on side and spilling – Solution: AIRCRAFT HD102.

- **Bottom feed/suction feed**
  - Benefit – Easy to refill
  - Drawback – Heavy and a not able to siphon up all paint.

- **Pressure pot**
  - Benefit – Able to spray upside down and large quantity of paint can be sprayed without the need of refilling frequently.
  - Drawback – Clean up

- **Airless-airmix**
  - Benefit – Doesn’t need a compressor.
  - Drawback – 50% transfer efficiency

- **Airless-Air-Assisted**
  - Benefit – Better transfer efficiency compared to Airless
  - Drawback – Requires a compressor

**How important is it to clean the spray gun?**
In most cases, spray guns need to be cleaned immediately after use. The reducer of the paint is normally the cleaner. A spray gun service kit contains the accessories needed to clean a spray gun. It is a good habit to service the spray gun after every use.

**What does a spray gun filter do? Is the filter the same as the needle packing?**
A spray gun filter is also known as a strainer. It is a disposable filter located between the cup and the gun body and is designed to filter the paint before it is sprayed. Foreign bodies, however minute, could ruin the finish. The needle packing seals the needle in the spray gun and it needs to be lubricated to prevent it from getting stuck.

**How important is it to check the viscosity of the lacquer?**
The viscosity determines how thick or thin the paint is. There are specific spray guns and nozzle configurations for different viscosity paints. Refer to the paint manufacturer’s data sheet.

To do a viscosity check use a visco cup also known as a Ford 4 cup and a stopwatch. Scoop the paint with the visco cup and start the stopwatch when the paint starts to flow from the bottom of the cup. Stop the stopwatch when the steam of paint breaks. This will determine the viscosity of the paint.

**Is there a rule of thumb when spray painting?**
- The rule is “hand span fan”. The spray pattern width should be the length of a hand and the spray gun needs to be a hand distance away from the surface.
- When the spray gun is moved too slowly, runs will appear on the surface.
- The paint should be evenly distributed on the spray pattern. Paint concentrated only on the sides means the pressure is too low pressure. Paint focused in the middle and little on the sides means the pressure is too high pressure.

**Do you have any tips, comments, observations you would like to add?**
- Use the same brand of reducer as the paint.
- Use the correct filtering equipment when using spray equipment that requires a compressor. Use high quality GAV filters, regulators and fittings.
- Maintenance is extremely important. Spray guns are instruments and need to be handled as such.
- Refrain from using silicon-based products near a spray booth. The silicon could settle on the finish leading to defects such as “fisheyes”.

The rundown on spraying systems

Dale Engelbrecht
It is generally agreed that the key to a successful finishing job is the preparation of the surface, and, that the quality of the final product often influences the price of the item. Unfortunately, there is a tendency in the furniture and joinery industries for the wood finishers to take short cuts, rely on bad habits entrenched over time, to be over confident when spraying, or to not have the required skills and knowledge.

In an interview with Wood SA, Dale Engelbrecht, sales director of Vermont Sales, answers some of our questions on this important topic:

Briefly, what does sandpaper do?
Generally speaking, the type of abrasive for hard wood is aluminium oxide. The sandpaper is used on the surface of the wood in a “cutting” process, wearing away at the surface in minute particles. The abrasives do get blunt over time and need to be replaced.

Unfortunately, many operators jump grits, or do not follow the correct sequence. This will shorten the life expectancy dramatically as the sandpaper needs to work much harder.

What is the difference between sanding hard and soft woods?
There are different power tools used with abrasive sandpaper. Softer materials do not need an aggressive sanding motion, for example a geared eccentric sander. A Festool ETS EC 150/5 random orbital sander is much better suited for softer materials like plywood and
veneers where the surface layer is very thin. The sequence of grit will play the same role with hard wood as with soft wood. The results will show quicker on soft wood compared to hard wood.

What happens if the wrong abrasive is used?
Predominantly there are two different abrasive types, namely aluminium oxide and silicon carbide. These abrasive types have a very high hardness and are suitable for surface preparation. These abrasive particles have sharp edges that do the work of wearing away at the surface.

The edges on the silicon carbide particles don’t get rounded as in the case of aluminium oxide because the edges flake off, exposing more sharp edges. This makes it perfect when working on natural stone.

However, when working with wood, steel and painted surfaces, it is recommended to use aluminium oxide abrasives. Using the wrong abrasive, will make the sanding process less effective and give the abrasive a shorter life expectancy.

Is it possible to over-sand a surface?
The operator should stop as soon as the desired finish is achieved. This is when the previous sanding marks are removed by the use of a sequence of abrasive grits.

When sanding clear coat, the thickness is only a few microns thick, and it is possible to remove layers of paint by over sanding. When the colour of the base coat is visible on the sandpaper the operator should know that the clear coat was removed and will thus need to re-spray.

What is the best equipment to use for surface preparation?
Portable and hand finishing equipment is used in almost all woodworking factories. We recommend the following:

- Cabinet sandpaper and sanding blocks for hand sanding: Refer to the Tork Craft catalogue 2017/2018 page 80
- Geared eccentric sander for aggressive sanding (solid wood): Festool RO 150 FEQ

What are the most common sanding faults?

- **Hand sanding**
  When hand sanding dry (without water) using Tork Craft cabinet sandpaper, it is advised to sand in a circular motion. When hand sanding wet (with water) using Tork Craft waterpaper, it is advised to sand in a linear motion.

- **Using power tools**
  Swirl marks are a common fault and are usually a result of having dirt/debris stuck on the sandpaper. This acts like a high spot and can cause swirls on the surface.

  The other reason is by applying too much pressure when sanding. Remember that sanding is a cutting process, and not a rubbing process.

- **Using the wide belt sander / stroke sander / oscillating belt sander.**
  These are large and heavy stationary machines with sanding belts. These belts can get clogged by the resin inside wood, which reduces its effectiveness. We recommend using the Tork Craft sanding belt cleaner T BC32324 to prolong the life of the belts.

How do I deal with or avoid glue marks?
When using steel clamps like quality Bessey clamps, the steel on the clamp should not make contact with the glue on the wood, as this will leave a black line on the surface of the wood, which is difficult to remove.

Always try to wipe off excess glue when assembling a project.

Less rework saves time.

- Do you have any tips, comments, observations you would like to add? Rushing a project will lead to a poor finish. Take time to finish a project.
- Do research on the material and the power tools first, before attempting a project. Make sure you know the limitations of the power tools and the abrasives, and how to use them safely.
- Use quality and reputable brands and products.
A common ingredient in wood finishing products, stains and varnishes, linseed oil has been used in South Africa for decades. It remains one of the most common ingredients for wood treatments both locally and globally.

While it is widely known and acknowledged as an excellent product, few companies in South Africa are aware of the apparent dangers of using linseed oil, or products containing linseed oil.

Well known for the fact that it dries slowly and shrinks very little upon hardening, linseed oil is a popular treatment in South Africa for everything from garden furniture to gun stocks and even guitar necks.

The fact that it penetrates both the visible and microscopic pores of the wood helps protect wood from deterioration while leaving a shiny - but not glossy - surface that shows off the grain of the wood has earned it the reputation of an excellent product.

But a lesser known fact about the product, is that extreme care should be taken to correctly dry and store, or dispose of applicators after applying linseed oil to your products.

Very few products in South Africa carry a warning about the dangers of linseed oil, but in most overseas markets, the product is clearly marked as a potential fire hazard, due to the possibility of spontaneous combustion of applicators - in most cases rags - used for the application of linseed oil.

Linseed oil is obviously not nearly as combustible as petrol or some other commonly used products, but the fact that it cures via a chemical reaction means that special care has to be taken in the storage of the product as well as in the storage or discarding of applicator materials like rags.

The heat generated by the chemical reaction as linseed oil cures can be intense and in a case where used rags are left in a bundle, for instance, can result in a fire, as it has in numerous well documented instances around the world.

The oxidation of linseed oil is an exothermic reaction, meaning that it generates a lot of energy in the form of heat as it cures.

The most common instances of linseed oil causing fires, is from rags wadded up and left in a heap. The heat from the exothermic chemical reaction builds up slowly and can reach temperatures high enough for the rag to spontaneously combust within hours.

Thus linseed oil always has to be stored in a metal container and application materials - most often rags - should be laid flat on a non-combustible surface well away from any flammable materials until it is completely dry.

Rags can also be placed in a metal container filled with water.
CHEP Europe recognised as an industry leader in corporate social responsibility

CHEP Europe, the supply chain solutions company, has once again been ranked in the top 1% of all suppliers assessed for sustainability by independent rating agency EcoVadis. This is the third year in a row that CHEP Europe has earned an EcoVadis Gold Recognition Level, the highest level available.

This Gold Level was awarded to CHEP Europe for its environmentally conscious development and achievements in areas concerning the environment, labour practices, fair business practices and supply chain.

EcoVadis’ methodology is built on international corporate social responsibility standards including the Global Reporting Initiative, the United Nations Global Compact and the ISO 26000, covering 150 spend categories and 140 countries. EcoVadis assesses 35,000 suppliers from 99 countries across 150 business sectors.

CHEP is part of the Brambles Limited Group, a supply chain solutions business that was ranked in the top position in its global category (Commercial Services and Supplies) on the Dow Jones Sustainability Index. It is also one of only six companies to be placed on the 2017 Forests A List by CDP the non-profit environmental disclosure platform which recognises global leaders in fighting deforestation. These recognitions are the result of Brambles implementing the circular economy, at a global scale. The company is also a signatory to the UN’s Global Compact and has 2020 Sustainability Goals that are closely aligned with the United Nations’ Sustainable Development Goals (SDGs).

“We are extremely proud to receive yet another recognition for our efforts in corporate social responsibility. We are a sustainable business and, as the global leader in sustainable supply chains, our actions don’t go unnoticed. CHEP has the scale and expertise to help our customers generate efficiencies in their supply chains and hit their sustainability targets,” says Iñigo Canalejo, CHEP’s director of sustainability for Europe, Africa, India & the Middle East,

“This is all thanks to our share and reuse business model, end-to-end collaboration with key partners and the passion of our employees for making the world a better place.”

CHEP is a global provider of supply chain solutions serving the consumer goods, fresh food, beverage, manufacturing and retail sectors in more than 60 countries. It offers a wide range of logistics and operational platforms and support services that are designed to increase performance and lower risk while improving environmental sustainability.

The company employs 11,500-plus employees and produces more than 275-million pallets and containers to support more than 500,000 customer touch-points for global brands such as Procter & Gamble, Sysco, and Nestlé.
The owners of KZN Boards in Durban, Kwa-Zulu-Natal, Farouk Khan and his son Zunaid, have completed an extensive repositioning of their company that includes expanding their showroom and their production abilities, and they are already experiencing a sharp increase in sales.

The new showroom was launched in October 2017 and coincided with new contracts put in place with German board supplier MS Schuon for high gloss acrylic finishes, and Italian board manufacturer Cleaf, for textured and deep embossed finishes. They have added 2000 square metres to their factory which now covers 8000 square metres.

Farouk explains that local pricing on imported boards was always out of reach for the average middle-class South African homeowner’s budget. The new agreements offer excellent pricing and affordability on the high-quality products from Europe. At the same time, board suppliers in Europe have seen the potential in the South African market and have partnered with KZN Boards to supply the latest woodgrain and texture boards.

He adds that consumers are realising that buying a cheap kitchen doesn’t pay in the long run and that a good quality kitchen and built in cupboards in any home or development improves the value of the property.

With the arrival of the high-end panels from Europe the next stage for the company was to upgrade the factory and equipment to service the volumes and maintain the high-end quality required in the market. At the initial meeting with the national sales director of the CMC Group, Cecil Schickerling, it was confirmed that an additional beam saw and CNC machine as well as a polyurethane (PU) glue edgebander were needed to push the volume and quality into the correct direction.

Cecil says the Khans took his advice and ordered a Cehisa edgebander. This edgebander is renowned for its quality and reliability in the market for over 40 years and is equipped with the latest dual hot melt glue patented drain system, which is perfect for the PU application and high gloss edging needs at KZN Boards.

CMC confidently recommended the KDT range of high production heavy duty panel processing saws because they have installed over nine units in the province in the last eight months.

The KDT beam saw is standard with an 15kw main motor-on-saw carriage and is available in 3200mm, 3800mm and 4500mm. This machine series comes standard with single user back office programming and a label printer. KDT also offer free Team Viewer support online in the event of software or electrical problems. In addition, the CMC group’s trained technical teams are ready to assist in any event including training and setup.

Cecil also noted that the stability and raw weight of these machines, including the anti-vibration technology allows them to produce single and multiple cutting cycles in high precision and speed, and cutting quality is of the highest degree.

The final machine for KZN Boards needed no introduction and Farouk immediately opted for the AES Extreme CNC nesting machine because they have been running one in the factory for three years. This time Farouk opted for the latest model with double vacuum pumps. This eliminates movement of small components during
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- Full Optimisation.
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**PANELSAW** KS-132K KS-138K
- Auto lubrication.
- Cut list program.
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**BORING MACHINE** KDT-6052
- High speed drilling.
- Magazine feed for small components.
- Digital position indicators.
- HMI touchscreen.
- Auto-return.
- Easy setup.

**EDGEBANDER** KE-468JK
- Auto lubrication.
- 23 m/min inverter speed.
- ARS / Veneer / High gloss edge types.

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**KWAZULU-NATAL (Head office)**
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Tel: 011 672 7264
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**CAPE TOWN**
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Email: cmcct@cmcsa.co.za
the cutting cycle as the latest tooling allows clients to profile and cut doors on MDF in a single pass. This saves on tooling and time in production.

Cecil says the CMC Group is proud to supply KZN Boards and their associated companies with the machinery and equipment needed to deliver all the requirements for their customers. “We stand by our clients and treat and respect their businesses as if they are our own. We make ourselves available to service and supply our clients to the best of our ability,” comments Cecil.

The Khans and their team at KZN Boards are inviting all their existing clients and any one else interested to visit their showroom in Jacobs, Durban to view the new competitively priced panels in the acrylic and textured/deep embossed melamine market.

“We believe in going above and beyond to ensure that we provide the market with the most up to date products from the best suppliers in the world, which represents the highest quality and standards in industry,” explains...
PG Bison launches their 2018 range

Board manufacturing giant PG Bison kicked off its 2018 season roadshows called Gallery Two at the Modderfontein Golf Club on 13 February, showing off their newest range of designs and finishes that is sure to make a splash on the local market.

With four brand new themes that encompass the different elements of the modern world and those that live in it, and is sure to have a look for every individual need, PG Bison are traveling around the country to introduce their clients to these exciting new ranges.

PG Bison marketing executive, Justin Berry, introduced the ranges, calling the development, a year-long labour of love.

Berry outlined the company’s strategy of continual investment in their manufacturing capability, saying that with the new ranges, they are bringing positivity back into the market, and along with the new ranges of products and finishes, the company is working hard at improving their already impressive track record of excellent service.

“In addition to the new ranges, we are recommitting ourselves to listening to and engaging with our clients by making it easier to do business with us, watching our service levels, reducing the complexity of the ranges and by ensuring that we do not fall short when it comes to the availability of stock.”

Berry also touched on other issues like the speed at which edging matches are made available to the market saying that edging for the new ranges will be complete by the end of February. He advised clients to engage more closely with edging suppliers regarding the availability of edging matches.

Showing the company’s brochures and advertising materials for the new ranges, Berry emphasised the importance of giving their clients the most effective and practical tools to help them sell their products. He said that in addition to working as sales tools, PG Bison’s various online platforms are designed to make it easier and quicker to do business with them.

“We have created these online channels to help speed up communication with our clients. Instead of having to phone or email your representative at PG Bison, you can now submit your question via one of the online platforms and you will receive an answer in short order,” says Berry.

“The intention is not to make your experience working with PG Bison less personal, but to help ease the way in which you do business with us and to make communication quicker and more effective.”

The company’s newly upgraded website focuses on the latest trends and on project ideas. It also has a dedicated Pinterest channel and the On Trend digital magazine.

In addition to reviewing and upgrading their client engagement and communication, the company has also undertaken to ramp up their service in terms of delivery, having scored a 95% satisfaction rate in terms of on time and in full deliveries in 2017.

“Our focus is now firmly on product range management,” says Berry. “The idea is to promote brand awareness and reduce the complexity of our ranges, to effectively meet demand across the value range.”

Berry concluded by urging stockists to upgrade their showrooms to showcase the different ranges supplied by PG Bison. “We have seen massive impact on sales in cases where clients have invested in their showroom, with sales growing between five and 20%.”

Product marketing manager at PG Bison, Jason Wells, explained the trends and the processes that contributed to the creation of the new ranges, saying that as part of their research, they look at international and local trends and see what is most likely to work in South Africa.

He emphasised the fact that international trends do not necessarily take in South Africa and that it is never easy to predict what the trends will be. “There is definitely a trend toward simplicity, with people trying to find a break from the complexity of their lives.

In the modern world, there is so much information being thrown at them every day that they tend to surround themselves with elements of simplicity at their homes and even at the office.

“The fact is that more people live in cities now than ever before, and with the complexity of their lives, there has been a definite trend toward simplicity. The new ranges are all about simplicity and natural warmth.
The Free State is known for its wide-open spaces and often unpleasantly dry, hot, windy, cold or wet weather, and terrain that can be hard and rocky or heavy clay, all of which makes timber frame construction the ideal solution when it comes to building a home for all seasons.

Eco Log Homes built a home designed by architect Izelle Weilbach for clients on a cattle farm just outside Memel in the Free State. The result is a spacious house with a loft area and a large central hall from which bathrooms, open-plan kitchen, a bedroom, dining room, indoor and outdoor braai and entertainment areas, extend. It was built according to the SANS 10400 XA Energy Usage in Buildings standard, and SANS 204, which covers the energy efficiency in buildings.

CCA-treated to hazard class 3 (H3) and 38mm x 114mm S5 strength-graded structural SA pine was used to build the walls and floors of the house. This complies with the National Building Regulations’ South African National Standard (SANS) 10082, which covers correct timber frame building in South Africa.

Wall cavities were packed with 102mm cavity batt insulation, with internal walls finished with 15mm fire-stop gypsum board prior to plastering. Exterior walls are finished with a waterproof membrane and 11mm thick oriented strand board (OSB), adding to both the insulating value of the walls as well as the structural bracing and integrity of the house. Woodgrain textured fibre cement planks complete the exterior cladding.

The roof structure, most of which is exposed throughout the house, was manufactured and installed by Truss Mecca, an Institute for Timber Construction South Africa (ITC-SA) accredited fabricator and erector and the roof is insulated with a combination of glass-wool and IsoBoard insulation.

Werner Slabbert Jnr, managing director of Eco Log Homes, says timber frame building was the construction method of choice for the client, given the extreme clay conditions of the soil, which had already seen the existing brick and mortar farm house cracked and falling apart.
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Donald Fuchs Woodworking Machinery has, over the years, become a cornerstone of the South African woodworking machinery market with their top of the line Homag range of machines.

Recent changes at Homag in Germany has seen some of the former machine lines, previously sold under different brand names, dropped and incorporated into the Homag range. According to Iain Fuchs, former Homag brands Weeke, Brandt and Buffering are among those now solely under the Homag flag.

“There are tremendous developments happening at Homag, especially in the software and automation segments, and we are very excited to bring these to our clients in South Africa.

“We are expecting a strong year as we are seeing signs that the economy is slowly getting back on track. Of course, this will not happen overnight, but there is a lot of board being sold and there is a growing number of board manufacturers as well as furniture manufacturers.

“We have made big commitments this year with a lot of machines on the water and are sure that we can handle anything that this year can throw at us.”

Fuchs, who recently took over from his father and industry stalwart, Donald Fuchs, says that the transition has been good. “While my father is a very hands-on person and will never be out of the picture, he is taking it a little slower and leaving more and more of the day-to-day running of the company to us.”

Another Fuchs son, Jason, recently back from two years studying and working abroad, has also now joined the ranks in the family business and will be concentrating on marketing as well as the company’s digital online profiles, and his strong administration background makes him the ideal candidate to ensure that the company’s administration and planning is up to scratch.

Donald Fuchs Woodworking Machinery, in addition to being the official Homag suppliers in South Africa, has also been doing a lot of work north of the country’s borders, with recent installations in Tanzania, Zimbabwe, Mauritius, and even as far as Nigeria.

According to Donald Fuchs Senior, one of the key focus areas this year will be the further investment in the training and development of current technical staff, as well as identifying and training of new technical staff.

“One thing that is becoming a problem within the entire machine supply industry, is the availability of suitably skilled and trained technical staff,” says Fuchs. “Supplying the machine is the easy bit. As a company, especially one dealing in the relatively small South African market, you build your reputation on the quality of machines that you sell, and on the quality of the after sales service that you provide.

“We are committed to ensuring that our hard-earned reputation for swift and effective service remains intact, and to do that, we need to invest in the future of our technical department.”

Iain Fuchs agrees. “We will be pushing a lot to ensure that our after-sales service remains top-notch. As we are confident that Donald Fuchs Woodworking Machinery will continue to grow in the years ahead, and we have to ensure that our ability to give great service to our clients grows along with the sales.”
The Lion Match Company has launched a new safety match that is double the length of a conventional safety match and ideal for those wishing to access hard-to-reach areas such as gas burners or to light multiple candles without singeing their fingers.

Although not a world first, it is the first product of its kind in South Africa. Gora Abdoola, the executive chairperson, says the longer match presents an opportunity for Lion Match to produce a product suited to the upper end of the market Living Standards Measure (LSM) 8 to 10. The existing Lion Safety Match is sold primarily to the lower LSMs (1 to 5).

Automation
A R2-million investment using in-house engineering at its Rosslyn match factory resulted in a semi-automated line that will allow the company to test the market. Further investment to completely automate the production process depends on customer uptake of this new product, group CEO, Basie van Wyk adds.

Matches make up just under 40% of the diversified Lion Match group’s turnover. The company currently produces 7-million boxes of matches daily, five days a week. The existing automated process delivers around 30-million matchsticks each day.

Alternative materials
Abdoola says the company is working closely with a research university on a far-longer-term project into the development of a synthetic alternative to wood in the manufacturing of match splints.

“Given the high price of timber and the expected shortage of timber for match splints, it is not sustainable to continue to make matches using timber, so we needed to find an alternative. “We started an initiative working with the university to try to come up with one – an extruded product that is environmentally friendly. But that process takes time. Nevertheless, we hope that, in the next three to five years, we will not need timber to make matches,” Abdoola says.

Timber to make matches is currently sourced from its own timber operation in Ermelo and others in the forestry industry.

Initially, offcuts of wood that were not suitable for match manufacture were sold to sawmills. However, an opportunity to set up its own sawmilling operation in Ermelo 18 months ago has now proved a runaway success.

According to Van Wyk, the operation was profitable from day one. “As a result, we’ve optimised and automated. A lot of this plant was also built in-house. Now we are reaching critical mass and we can’t supply enough timber in-house, so we need to start buying in timber to run this sawmill. He says further investment in increasing capacity at the Ermelo sawmill is imminent.

Diversified products
Lion Quality Shoe Polish, which is the third-largest shoe polish brand in South Africa, is also produced from the Rosslyn Match factory. In addition to local manufacturing equipment, the group also recently imported new equipment from Europe to manufacture panty liners at the group’s top performer, personal care products manufacturer NSP Unsgaard, in Cape Town. This followed the installation of a R20-million automated line to manufacture wet wipes in 2016. A R100-million investment programme that is expected to include additional equipment to make diapers and sanitary pads is planned for the near future.

NSP Unsgaard produces brands such as Cherubs, shaving brands Lion Duel and Loving Touch, as well as Comfitex feminine care products, and is growing at an annualised rate of 22%, with turnover having increased from R40-million to R240-million in just five years.

Abdoola says that the value of the Lion Match brand has gone way beyond lighting fires. “If you look at our base – matches – you find them in every retailer, right from spaza shops to hypermarkets. This pipeline provides a sound foundation for the introduction of other products. The more products you get into the retail spaces, the more efficient you become.”
Furniture is a commodity that is needed by everyone, and the concepts of "function follows form" or "form follows function" are widely discussed and are not confined to furniture designers, architects, interior designers, industrial engineers and artists and design students.

In South Africa there is a vast range of design magazines, websites, social media pages, indabas, exhibitions, design competitions, TV shows and other media and opportunities dedicated to interior and exterior furniture designs and everything that goes with them. For various reasons, however, these local events are costly for exhibitors, expensive to attend, and often have a narrow focus.

International trade shows, such as those regularly held in Europe, offer South African designers and manufacturers an opportunity to experience and learn from a much wider spectrum of exhibitors.

The 41st China International Furniture Fair (CIFF) that will be held in Guangzhou over a period of eight day at the end of March, is an example of an import and export fair targeting every form of furniture and furniture components. This includes the raw materials, fixings, fittings, architectural hardware, materials, and new manufacturing technologies, and will emphasise ergonomics, cost effectiveness, changing work and living spaces, the need to reduce the environmental impact of our activities, and the integration of technologies to form "intelligent" furniture.

The 41st CIFF will cover 750,000 square metres for more than 3800 exhibitors from over 30 countries and districts and will be attended by more than 160,000 professional visitors from over 190 different countries and districts.

In fact it is so big that it has been divided into two stages. The first phase on 18-21 March will showcase home furniture, home decor, home textiles, outdoor furniture and leisure products. The second phase on 28-31 March will include office furniture, hotel furniture, public furniture, furniture machinery and raw materials.

As the biggest office and commercial furniture event in the world and the most influential furniture manufacturers’ fair in Asia, CIFF will offer business opportunities and vitality for the development of the world’s furniture industry.
In today’s uncertain economic climate, it has become essential for companies to take into account more than just what is tried and tested when it comes to purchasing new machinery.

Long gone are the days when one would simply look at what is available from the large and well-known European manufacturers and order a new machine from a local supplier.

Banks have become loathe to finance new machines, especially to SMEs and startups, which may not have the healthy bank balances of some of the bigger players in the market. And in recent years, even some of the big players are struggling to get their new assets financed.

Affordability has become at least as important as top quality when it comes to choosing new machines, and Chinese manufacturers are slowly but surely starting to overcome the perception that their machines, despite being much more affordable than those of their European counterparts, are of inferior quality.

In fact, many of the top European machine manufacturers are now opting to have their machines manufactured in China. And with the steady rise in production costs in China, some Chinese manufacturers are even outsourcing these manufacturing jobs to Taiwan or India, both of which is rapidly evolving into manufacturing hubs due, among other factors, to the fact that labour costs are still relatively low compared to China, where the average factory worker now receives the equivalent of around R10 000 per month in remuneration.

But, although Chinese machine brands have been available in South Africa for many years now, aggressive marketing strategies, an emphasis on massively improving the quality of their machines, and their continued...
affordability compared to their European counterparts, have led to an upsurge in the popularity of Chinese machine brands globally.

And South Africa is no exception. Though nowhere near to posing a threat to the traditional European machine market yet, Chinese machines are definitely gaining popularity within the South African and African markets.

Companies like N&D with their very popular Nanxing range of machines, and FOMA Southern Africa, are making inroads into the market with their very popular and sturdy machines that have proven their mettle in South African working conditions beyond a doubt.

Add to that the fact that these suppliers also provide comprehensive and highly effective technical back up and maintenance services, and it may not be that long before some of the Chinese machinery ranges start to encroach on the territory traditionally held by the European machine ranges.

Even Geerlings, one of the country’s foremost machine suppliers with their superior Cefla and SCM ranges, now offer the very popular Taiwanese Holytech range of machinery.

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According to Donald Fuchs junior from local Nanxing supplier, N&D, there is still a lot of inferior machinery emanating from China, but some of the more reputable ranges are definitely set to give European ranges a run for their money.

“The Europeans are leaps and bounds ahead in terms of automation and software offerings,” says Fuchs. “But the Chinese are gaining rapidly in the mid-range markets that have been largely neglected by the European machine manufacturing industry.

“Chinese machine manufacturers have also come a long way in debunking the perception that their machines are inferior - and with much more than just lip-service. They have invested heavily in importing European expertise to help them with both innovation and to address issues of quality.

“Thus there are has been a significant increase in good quality, well priced Chinese machine ranges.

“The fact is that as a small to medium company, you can either buy a good quality edgebander, for example, for around R450 000, or you can opt for a top European machine for approximately R3.5 million.

“Factors to take into account is simplicity of operation, especially in the South African context, repair and maintenance, and the availability and cost of expertise to maintain the machine.

“The fact is that the European machine manufacturing sector has fallen asleep at the wheel, neglecting the growing middle range market and throwing all their resources toward only the top segment of the woodworking industry.”

Wood Southern Africa & Timber Times will be visiting the China International Furniture Fair / Interzum China in Guangzhou from 28 to 31 March to see what all the fanfare is about.

Founded in 1998, the event is seen as Asia’s most comprehensive woodworking machinery, furniture production, and interior decor trade fair, it is sure to be hotbed of Chinese innovation and the perfect opportunity to see what all the fanfare is about.

Watch this space for updates.
Despite being a relative newcomer in the local woodworking machinery market, N&D is making quite an impact with its very popular Nanxing range of machines.

According to Donald Fuchs Jnr, who is at the helm of N&D, the popularity of the Nanxing range of woodworking machines is due, in part, to the affordability of the machines, and the sturdiness and superior quality of the range.

"It has come down to price versus quality at the end of the day," says Fuchs. "There is a huge gap in the local furniture and board manufacturing markets for good quality and affordable machines.

"The European machines that traditionally were the most popular in South Africa, have become too expensive, especially for small and medium-sized businesses. "At the same time, companies cannot afford to compromise on the quality of product that they supply. Thus, began my search for affordable alternatives.

"The obvious choice for a place to start looking was China, but one has to be very careful as there is, despite tremendous Chinese effort in dispelling the perception that their machines are inferior, still a lot of bad quality machines that emanate from there."

Fuchs’ search eventually took him to leading Chinese machine manufacturer, Nanxing, which has one of the world’s largest woodworking machine manufacturing plants. So large in fact that the manufacturing plant puts out a new panel saw on average every eight minutes.

According to Fuchs, there are approximately 200 Nanxing machines already working in South Africa, and future prospects are looking good.

“We are definitely making inroads into the market and the machines really do speak for themselves.

“The fact is that the affordable prices, superior quality, and ease of operation makes these machines the ideal option for African furniture manufacturers. All of this is backed by our very effective technical repair and maintenance services, which offers our clients peace of mind when buying one of these machines.

“Another factor that really impressed me, especially from a company the size of Nanxing, is the fact that they are very flexible and always open to suggestions. While looking for machines that would be ideal for the South African and African markets, we made some suggestions and Nanxing immediately implemented these in the machines destined for South Africa.”

The latest converts to the Nanxing range of machines, is Boksburg-based kitchen and door manufacturer, Universal Kitchens and Universal Doors, where a brand new Nanxing NB7CJ automatic edgebander and two MJK1132F1 numerical control precision sliding table saws were recently installed.

The NB7CJ sports an aluminium pressure beam which provides high precision and excellent stiffness. The up and down movement of the beam is electronically controlled for accurate positioning.
The pre-milling unit’s high-speed motors and high-quality diamond cutters ensure precise milling of panels, and the teflon coated glue pot is designed for EVA hot-melt glue.

One pre-pressure roller and four post rollers press the edge tape firmly onto the work piece. The end trimming is quick and precise due to a linear rail and high speed motors.

A rough trimming unit trims out top and bottom excess edge and a fine trimming unit equipped with radius cutters, sports adjustable cutter positioning with numerical reading indicators.

The corner trimming unit sports high speed motors and linear rails to ensure precise corner trimming of the edge tape. The machine also sports a scraping unit to scrape the edge, while air-blast nozzles blow scraps into the inlet of the dust extraction system.

The mechanical parts of the machine are completed by a buffing unit to polish the top and bottom edges.

The whole system is managed from a touch screen system, with an English intuitive and simple to operate interface.

“Another plus is that all the electrical components on the Nanxing machine range are top quality and well known international brands that are easy to procure if and when needed,” adds Fuchs.

The MJK1132F1 table saw sports automatic up and down motion on both the main saw blade and the scoring blade, and electronically controlled tilt and angling through the digital display unit.

According to Clinton van Breda from Universal Doors and Universal Kitchens, the decision to go with the Nanxing machines, was a relatively simple one.

“Of course, price was a factor, but at the same time, we could not afford to compromise on the quality of our work. The Nanxing machines are able to give us the best of both worlds with the affordability as well as the quality of the machines.”

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FOR SALE: ARLINGTON FARM

The farm
The farm is situated on the Old Curry’s Post Road the Natal Midlands timber growing region.

This 891.1 hectare farm boasts 665 hectares of FSC Patula Pine Plantations and includes three homesteads, a secure log cabin, five dams, and a waterfall. Regular wildlife and bird sightings have been recorded.

A 16-year rotational Silviculture programme is followed and is bolstered by a staff training programme.

Water is pumped from one of the dams into a concrete reservoir and gravity fed to two storage tanks on the sawmill site, which feeds the sawmill building, offices, ablutions, change rooms and fire fighting equipment.

Sawmill
A 4800m² building houses the sawmill. An office block, ablution facility, and accommodation for fire crews is built within a secure four hectare site. There is also an adjacent log yard outside the facility.

There is no surface water on the site which boasts an efficient storm water management system. There is a vegetation screen around the sawmill perimeter and along the northern boundary fence.

Processing line
Saw logs are conveyor-fed into the sawmill. Non-conforming logs are resized and fed into the feed chain. Up to 100 tons of logs can be processed per day.

The flexible line can cut to any thickness from 3mm up to 250mm in multiples of 2.440mm. All sawmilling and processing operations function within the sawmill building.

Break out section
This section facilitates non-conforming and imported processed lumber. The extraction system can facilitate full scale processing of pallet or furniture components. All wet saw dust, bark and cross cut wood waste is incinerated.

Pallet assembly line
The three pallet assembly lines can of produce 900 pallets daily. Spray painting is performed in the adjacent drying area.

The sale of this farm is open to everyone

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