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HANDYMAN
May/June 2018 • Vol 28 No 5

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The Home Handyman is published bi-monthly (6 issues per annum) by WJ Lindeque cc t/a BB Print (CK99/23366/23)

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Digital subscriptions www.mysubs.co.za
Online www.homehandyman.co.za

Layout & design dee@stormdeezigns.co.za
Printing House of Print | 011 474 8750
Distribution Republican News Agency | 011 248 3536

About *The Home Handyman* magazine:
The Home Handyman magazine is a specialized D.I.Y. publication and caters for a well-defined niche market since November 1993. The magazine equips its ever-growing readership with relevant D.I.Y. information, knowledge and skills.

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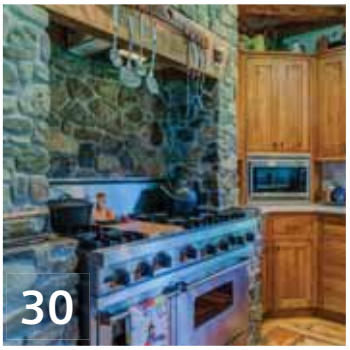


Cover Photo courtesy of Home Fires, Pretoria

The Home HANDYMAN

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2018 SUBSCRIPTON FORM

Subscription Fees:

South Africa	Printed	Digital
Back Copy	R31.90	R27.95
6 issues	R190.00	R159.00

Neighbouring countries: R505.00 for 6 issues

Overseas by Air Mail: R594.00 for 6 issues

Subscription fees are valid until 31 December 2018

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MAGZTER

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Born in 1996 and going strong again

We are very excited to bring you the second edition of the re-launched Home Handyman magazine and are most appreciative of the numerous messages of encouragement received from our readers and supporters in this regard. Thank you for your words of motivation. It makes our endeavours worthwhile.

I would like to take this opportunity of "introducing" you to our new publishers Hannes and Wilma Lindeque who are no strangers to the publishing industry. They have been publishing the "SA Bass" magazine since 2001, and have achieved international acclaim in the fishing community. Besides publishing the magazine they have been involved with organising fishing tournaments both locally and internationally. And they will be bringing their experience to bear on Home Handyman as they take the magazine into the future. For more information on "SA Bass" visit the website www.sabass.com

It is our mission to continue delivering useful advice and tips on home maintenance and DIY projects to our readers and we welcome it when you share your experiences and contribute to our various columns. We encourage you to send us your DIY Projects, Bright Ideas, Letters & Questions for our DIY experts. In addition you are also invited to send us your views and opinions for our "Voice your Views" column. We love hearing from you.

A good number of our former subscribers have re-instated their subscriptions, and for those who haven't yet taken up the reduced price offer, please consider the discounted subs form alongside and take advantage of the savings.

As you will have realised from the front cover our focus in this edition is on dealing with the challenges of winter. One of our regular feature writers over the years – Gina Hartoog – has prepared a comprehensive article on getting ready for the cold with tips and advice on fireplaces and how to optimise them. There is much more on keeping warm with articles on "Home Fires" and "The Heat is On (making fireplace tools)". In addition we also have an article on insulating and heating your home through the floor. There is also advice on maintenance for gas stoves and geysers.

Another of our contributors Denis Lock demonstrates how to prevent 'the panel of doom' in his regular woodworker's diary; often-time contributor Clifford Roberts (and Andries Eygelaar) tell us how to solve a décor eyesore with a dummy bookcase, and Reuben the Screwman amuses us with his tug of war with a sander.

We trust you find the contents of this edition useful and informative and hope you enjoy the read.

Allan Swart – Associate Publisher

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VOICE YOUR VIEWS

Do you have any thoughts or comments on DIY issues?

Home appliance fix

Since getting married six years ago I have become a convinced Home Handyman reader ready to save money by repairing my own appliances. It was soon after moving into our home that I discovered that home appliances, which would normally be thrown away after being labelled "beyond repair, or uneconomical to fix", still have many years of life left. For example my wife wanted to throw away an old Microwave oven that my parents gave to us, but now six years later the R200 that we spent on fixing it proved to be the right choice.

Here are some ways I have saved myself lots of money:

- There was the broken jacuzzi that we were selling which only required me to cut loose a popped capacitor and taking the sample in to the local television repair shop for a replacement. The new capacitor legs were soldered in place the Jacuzzi was soon working like new again.
- My DeWalt 10.8V drill/driver, which is pretty much the core of my business, charger stopped working. This only cost me opening the unit and finding the melted component. After another visit to the same old television repair shop I saved R1200, which is the cost of a new charger.
- Another successful repair was made to a Builders Express China special gate motor, which after a closer inspection revealed another blue capacitor which appeared to be popped. After a new replacement was installed it saved me buying and installing a new gate motor.
- Then there was our brand new Trimtec electric lawnmower which, once again just needed a capacitor replaced saving us R799.
- Some of the things I repair make their way to my bench more than once like my DeWalt drill driver. My overdependence on the tool caused me force large coach screws into wood when I burnt out the motor. Fixing it only cost me R210 for the replacement motor an R80 courier fee from Rutherford, Johannesburg to my home.

So, I do believe that it is worth being handy at the end of the day.

Johan Burger, by email

Back on the shelves

It is great to see my favourite magazine back on the shelves, I was elated to learn about your return. I want to wish you and the team at *The Home Handyman* everything of the best for the future. If your April issue is an indication of what is to come you are on the right track, the content is excellent and makes for informative reading.

Douw Kruger, by email

Living with a DIY gremlin

I have been a subscriber to *The Home Handyman* for years and whilst I have enjoyed every issue, there is one thing that has troubled me. Each issue is quickly scanned for some reference, some mention, some hint of his existence... but nothing! I am now getting very worried – I was hoping that other DIY'ers would have one as well but, alas, I seem to be the only one. What I am referring to is nothing other than a live DIY gremlin. I am not superstitious but I am convinced I have one living with me. I even know when and how it arrived; in the early 1980's I was renovating an old Victorian house and a chap came to the door looking for work. I needed someone, so I employed him, and it was an absolute disaster, and when he left, he left his 'pet' behind.

My life has been hell; my tools go missing at an alarming rate, when I tackle a job I have to make use of four tape measures, three set squares, 12 pencils, four hammers and multiples of numerous other tools. He seems to have a particular passion for these smaller items and working in a smaller area does not help as he still manages to hide my tools. He is also very passionate about ropes and electrical leads - I roll them up and pack them away and within a day or two they will have knots in them of which a sailor would be proud.

I live on a farm now and he really seems to be loving it. I am faced with an ongoing list of small jobs that create marvellous opportunities for things to go wrong; I see a fascia board that needs two nails and when I get there he causes one of the nails to fall in the long grass, and don't bother looking for it, you will never find it, it's easier to just walk the 500 metres back to the tool shed. Trying to outfox him by taking three nails does not help either, then he really gets angry and I find I have to go back anyway and get longer nails which I just happen to have run out of... our hardware store is 50km away. I have long since given up making lists of the tools I need for a job, because as sure as tuppence, when I get there the one thing that I need will not be there and I will spend the rest of the day trying to find it.

My wife secretly suspects I am the culprit but I know he exists. Sometimes, if I listen very carefully, I can even hear him laughing as he sets me up for some new irritation. If anyone is interested, I am willing to swop him for anything you might have, but you will have to catch him yourself.

Take care and thanks for a great magazine.

Bruce Roberts-Baxter, Klein Karoo

When is a square, square enough?

After not working with wood for some years, I recently started playing around with some small projects again and came across your magazine again too. For a try square, I used a square that I had bought some twenty years ago, and I quickly found that I had trouble maintaining right angles in my work.

I already have a number of other squares; a big steel builder's square by Stanley as well as a Stanley QuickSquare which both tested accurate, the abovementioned twenty-year-old try square (which proved to be about 2mm out of true over the length of its 300mm blade), and two combination squares which were far less accurate than any of the others. I probably bought junk to begin with, but the combination squares are really only good for straight-edges!

As you can imagine, the builder's square was a bit unwieldy to use with small projects, while the Stanley QuickSquare was a bit too small for some bigger jobs. So off I went, hard earned money in hand, to shop for an accurate try square. My first purchase was a try square with a 150mm blade of brand 'A'. This one was not too bad, being out of true by about 0,5mm over the length of its 150mm blade. But, you know how it is when the accuracy bug starts biting and I went in search of more accuracy and bought another try square with a 300mm blade of brand 'B' – all blued steel, brass and 'rosewood'.

They say that if you cannot say something good about somebody you should say nothing at all – I guess that also goes for woodworking tools. I returned the square to Builder's Warehouse, and on the advice of one of their assistants exchanged it for a Stanley (all steel) square with a 300mm blade, at a slightly lower price. Problem solved – I can find no inaccuracies here!

In my search for an accurate square, I found ones on shop shelves that had loose joints between the fences and blades – and those were not adjustable squares either! Now all of these squares could most probably be repaired, but I cannot help but think that since I do not pay with money that has to be 'repaired' before being banked, I should not have to repair measuring tools before getting accurate results. The question still remains though – how square is square enough? Was the brand 'A' square, square enough? What about my old square – am I just too damned finicky?

One thing though – this episode taught me to buy quality tools. I've since bought several hand tools from Stanley's range, and have been very happy with all those purchases, as these tools actually do what they are designed to do very well, and without needing to be 'repaired' first!

Thanks for your quality magazine.

Jan Stander, Mondeor

Selling your Investment Property

A decision to sell a long term asset such as a property can sometimes be a challenging decision for an investor, especially a novice. "Every property investor will be confronted with this question at some point in their investment journey. Therefore, knowing when to sell or hold your investment property is essential when building a portfolio. The general rule is that property should at least be held for five to ten years to allow the investor enough time to study market conditions and further assess the viability of their portfolio," says Praven Subbramoney, CEO of Private Bank Lending at FNB.

Praven unpacks some of the reasons why investors end up selling properties:

- **Exit strategy** – some investors venture into property having already developed an exit plan, which consists of selling the properties and using the funds for alternative business interests.
- **Recycling equity** – this involves selling a property and using the equity to buy a better performing one. When going for this strategy, it is essential to take into account the costs involved in selling and acquiring a new property and whether the returns will be better in the long-term.
- **Poor performance** – if a property fails to provide good rental yield and capital returns for at least five to 10 years, it may be considered to be performing poorly and eventually sold.
- **Diversification** – property investors may sell some of their properties to unlock capital and diversify their financial risk into another asset class, such as listed equities.
- **Deteriorating neighbourhood** – selling property due to unfavourable changes in the neighbourhood is common for inexperienced investors who did not conduct proper research when acquiring the property. This could also have been the investor's former place of residence, which they decided to rent out after moving out.
- **Life changing events** – major life changing events like getting married or having children may lead investors to sell their properties and seek a new direction in life.
- **Market timing** – new investors who do not adequately understand how the property cycle works may be tempted to sell when market conditions seem unfavourable.

"There are many circumstances and underlying factors that may lead you to consider selling or holding your investment property. The decision should ultimately be based on your current circumstances, investment strategy and what you aim to achieve," concludes Praven.

Urgent Product Recall

Customer safety is of vital importance to TAL and as a precautionary measure, we have taken the decision to voluntarily recall our TAL GROUT SEALER, alternatively known as TAL GOLDSTAR GROUT SEALER. The decision was made in March 2018 after three isolated incidents occurred where the product was not used in accordance with the prescribed directions i.e. with a face-mask and in a well-ventilated area which is concerning. TAL has, therefore, decided to investigate the possible reformulation of the product as our first consideration is to safeguard customers. All existing stock has been removed from our stockists.

Consumers with a can of TAL GROUT SEALER are advised to contact TAL on 0860 000 825 and TAL will arrange for collection and a full refund – a receipt is not required. No other TAL products are affected. TAL has been trusted by tilers in South Africa for decades and we would like to apologise to our customers for any inconvenience caused by our decision to recall the product.

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Rutherford gets Bigger

Rutherford, a wholly owned subsidiary of JSE-listed Hudaco Trading (Pty) Ltd, has relocated its Johannesburg headquarters to a bigger, and better equipped premises in City Deep. "Due to continued support from our broad customer base, we have outgrown the premises that we have occupied for several decades", says Martin Peterson, Rutherford CEO. The new facility has been refurbished to suite the specific needs of the four divisions, each one a leader in its category. The move was carefully orchestrated and seamlessly executed over the December 2017 period, minimising disruption to customers.

Established in 1998, its marine division has sole distribution rights for the Mercury range of outboards engines and MerCruiser inboards, along with an extensive range of related accessories. "Our new premises have been customised to include a state-of-the-art workshop, training facility, a test tank and installation bays for our boat programme – all of which will add value to the products customers receive." Rutherford has three other divisions namely; Makita Industrial Power Tools, FTS Fasteners and Fittings and VI Instruments – suppliers of various brands of surveying equipment. Their contact numbers have not changed and Rutherford remains committed to providing their customers quality innovative products and exceptional customer service.

For more information
Visit: Rutherford.co.za
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Season 4 – Design for you

Design for You, on DStv's Home Channel, is a show where you can draw home decor and design inspiration from some of South Africa's top interior designers. Whether we live in a mansion or a bachelor pad, we all plan and decorate the interior of our homes the way we know best, but we could always do with a bit of help from the experts. So if you need assistance with figuring out the best place to put your couch, or guidance in creating design features in your home that best suit your space, then this show is for you.

Join host Pilani Bubu as she chats to a range of interior design experts about everything from space, colour and texture, to fabrics, furniture and lighting. Along the way we'll be showcasing an array of beautiful home interiors for you to draw inspiration from. The fourth season starts to air on 04 June and will end 02 September 2018 with new shows every week with priority slots on Mondays at 16:00 and Wednesdays at 20:00.

For more information
Visit: www.thehomechannel.co.za

Ready for the Cold?

If you have a fireplace in your home, it's time to do some maintenance before you light your first fire.

>> Gina Hartoog

Temperatures are dropping quickly and winter will soon be upon us. Open fireplaces as well as closed combustion units and gas heaters are popular ways to heat the home in winter – and much cheaper than electricity. A fire also provides a wonderful ambience in the home which cannot be matched.

Pre-winter checks for an open fireplace

Before you light the first fire in winter a full inspection is necessary for safety reasons. There are number of problems that can develop during summer and these must be addressed.

- Check the draw – if your fireplace is leaking smoke into the house this is dangerous for the inhabitants. A simple way to check that smoke is not entering your house is to light a small section of newspaper and watch to see if the smoke pulls up through the chimney. If smoke comes back into the house, the chimney may be blocked.
- If you have a blockage or aren't sure when last your chimney was swept, consider hiring a chimney sweep to remove soot and creosote from the walls. Creosote is flammable and a build-up on chimney walls is a leading cause of chimney fires. Professionals advocate a yearly sweep.

- Inspect and replace the fire basket if sections are burned through.
- If you have recently moved into your home and have never used the chimney before, call in a chimney sweep to fully inspect the unit and give it a good sweep. Some people may also brick up a chimney or cut off the pipes, so it is worth having a professional check.
- Check all mechanisms within the unit. Make repairs if necessary. The damper is operated by a lever, handle or chain on the side of the flue (chimney) and should open easily. Check for a soot build up and clean so it seals properly. You may need to use a wire brush to loosen debris. A mirror can be used to see hard to reach places.
- Climb on the roof and do a manual inspection of the chimney. Remove any built up debris or bird's nests.
- Also check that tree limbs are not in close proximity to the chimney as this may restrict flow of air around your chimney stack.
- Chimneys area a common area for leaks to occur and should be inspected annually. The flashing (stamped sheet metal) at the base of the chimney prevents leaks and moisture penetration. Check flashing – it may be lifting, rusted, warped or perhaps even missing. Depending on the condition, flashing may need to be replaced. If the sheet is intact but loose, you can reseal it with a suitable waterproofing product.
- Check and lubricate moving parts of the cowl to ensure that it is functioning properly. A faulty cowl will cause a down draught because it is unable to maximise airflow.
- Clean the fireplace regularly throughout the season – don't allow the ash to build up. Wood ash (provided the wood is untreated) can be used in the garden.

Focus on Fuels

Wood is often a first choice, especially for open fires, because it lights so easily. It is very economical with a good heat output and easy maintenance. Choose seasoned wood (dried for at least six months). Green wood should be avoided as it increases the build-up of creosote on chimney walls. Hard woods burn for longer and offer a more sustained heat than softwoods. Wood is a renewable energy source because the trees used can be replenished with new ones. In addition, photosynthesising trees consume carbon dioxide and release oxygen as a by-product. Logs or pellets made from compressed biomass (sawdust and other wood waste) can be burnt in a pellet stove.

Anthracite is a type of coal used in closed combustion units. It burns with a low, blue flame and without much smell or smoke. It also burns longer, hotter and cleaner than other types of coal but it can be more difficult to ignite. Some units are designed to burn a combination of wood and anthracite.

Winter Fire Safety

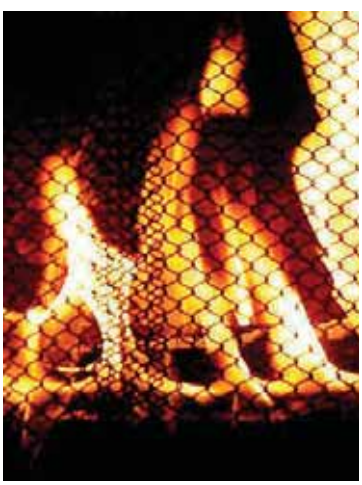
Overloaded plug sockets and faulty appliances are just some of the reasons why winter means an increase in residential fires. Depending on the conditions, a small fire can quickly get out of hand. Fire poses grave danger to the lives and property of those inside the home, but heat, smoke and gasses emitted from fire can be just as lethal.

Here are some tips to stay safe this winter season:

- Never run a portable heater or electric blanket directly out of storage. Do a thorough inspection of the cords and make repairs if necessary. Look for frayed or exposed wiring and check that the plug and control unit is in good condition. Position your blanket in a place away from flammable materials or valuables and then turn it on and allow it to heat up. Run it under supervision before placing sheets and a duvet on the bed.
- Check your gas heater thoroughly and replace cylinders older than 15 years.
- Never leave a fire place, electrical or gas heater unattended. Turn off all heaters when you leave the house or go to bed. Turn off electric blankets when you go to bed. Do not leave them on to heat up the bed if no one is home.
- Think safety every time you make a fire. Check that furniture, pillows, curtains or blankets are well away from the unit. Use a fire screen to prevent stray sparks. In open wood burning units, split logs into smaller manageable sizes.
- Never burn scrap wood, especially painted or varnished wood, in your fireplace. A number of toxic chemicals are released into the air. These can be especially damaging to your lungs.
- Have smoke detectors installed in your home and ensure that you have at least one fire extinguisher and a fire blanket. A Dry Chemical Powder (DCP) fire extinguisher is suitable for home use. They are used for Classes A, B and C fires.

Checks for a closed combustion fireplace

- The same newspaper test can be done in a closed combustion fireplace to check for blockages. Close the door and check that the smoke is being drawn up and out of the chimney.
- Clean and check for cracks in the glass. The glass may seem loose to you, but don't be tempted to tighten the screws. The fit is loose for a reason – glass expands when it heats up. If you tighten it too tightly, the glass can break. If you need to replace the glass, rather call in a professional to ensure that the correct glass is used.
- Use heat resistant spray paint for touch ups or to revive an older fireplace or flue pipe inside your home. Place newspaper or sections of cardboard behind the flue to keep paint off the surrounding walls.
- Remove soot from the glass throughout the season by cleaning with a damp cloth or damp newspaper and a little cold ash from the fireplace. Dip the cloth or newspaper into the ash and use circular motions to remove built up soot. Wipe down with fresh water and a paper towel when done.



Post-winter maintenance

- By late August the weather takes a turn for the better and most people will burn their last fires within the first week or two of September. Now is the right time to complete your post-winter fireplace maintenance and then sit back and enjoy the warmer weather.
- Give the unit a complete clean out and use a wire brush to remove all traces of ash, soot and flaking paint on the unit. Remember to check the damper plate for build-up soot and remove it.
- Wash down metal and masonry units using warm water and dishwashing liquid.
- Take the fire basket and tray outdoors and give it a thorough clean. Also, clean and ready tools like fire poke, spades and forks for storing during the summer.
- If you have an open top chimney, you can opt to close it for the summer. This will prevent birds from building nests inside the chimney which can cause a blockage and problems next season.
- For a new look, give the unit a coat of paint. Remove all traces of flaking paint and rust before applying the paint. The fire basket and tray can also be painted. If you paint the outside of the unit leave your doors open for some time when your first fire is lit.
- Those living in summer rainfall areas, should check the roof seal (as indicated above) and make repairs before the summer rain.

SOURCE

Additional information courtesy of Zelda Lubbe of The Fireplace Shoppe

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Keep the Home Fires Burning

A warm and welcoming fireplace can keep the winter cold and gloom at bay

Your fireplace is likely to become the main focal point in the room, so to make it really stand out with an attractive surround

Nothing warms a home, literally and figuratively, quite like a flickering fire. While the flames create physical warmth, their orange glow creates a sense of comfort on a cold winter's day. If you are thinking of installing one this winter, take into consideration the type of fuel you wish to burn, the size you want, the style and where you will position it.

Choose your fuel

Firstly, consider whether you want to use wood, gas or biofuel – the most popular options today. To help you decide, below is a list of the pros and cons of each:

Wood

Pros: There is nothing to beat the romance of a crackling, wood-burning fire. Wood also produces excellent heat. Wood is a renewable energy source as new trees can be planted, and it is CO^2 neutral as the CO^2 emitted during burning equals the amount of CO^2

absorbed by the tree during its life. Can be fuel efficient, especially with the new designs that use about half the wood of older fireplaces.

Cons: You need to buy a supply of wood and you need a place to store it to keep it dry. Wood-burning fireplaces also need to be cleaned after every fire. Fire in open units can be a hazard, and flying sparks can damage flooring. Wood-fuelled fires cause creosote to build up in your chimney, which needs to be removed regularly by a professional to prevent chimney fires.

Gas

Pros: A gas fire is very quick to light and convenient for the busy homeowner, requiring a flick of a switch to start a fire. There is no ash to clean up or wood to replenish and store, and no chimney is needed as it is smokeless. Gas fires are available in a variety of contemporary styles, with clean lines, ideal for the modern home. They have a high heat output.

Cons: It lacks the cosiness of a wood fire, but nowadays fireplaces with realistic looking logs are available. Gas fires contribute to global warming as gas is a fossil fuel and releases additional CO^2 into the atmosphere.

Biofuel (Ethanol)

Pros: An environmentally friendly option as it is a renewable energy source and the fire burns cleanly. It is maintenance free, cost-effective and easy to use. No chimney is needed as no smoke is produced and these fireplaces are usually portable.

Cons: Not as cosy as a wood fire, but ideal for the modern home.

Size considerations

The size of fireplace you need will depend on the size of the area you need to warm up. Measure the room in which the fireplace is to be installed and inform the supplier of your fireplace of the dimensions and ask for recommendations.

"Take into account the height of the room; does the room have a double volume roof? Also, are there any windows, doors or open passages leading from the room?" advises Francois van Huyssteen of Megamaster.

It is also advisable to think of other factors, such as type of roof, proximity to valuables and children when deciding on the style of fireplace you want, and the type of fuel you want to burn.

Closed combustion free-standing fireplaces are among the most popular options when it comes to selecting a fireplace

Gas fires are available in a variety of contemporary styles, with clean lines, ideal for the modern home

Cladding is a popular option for a stylish, modern fireplace surround

Choosing a style

According to Francois, there is a variety of fireplaces to suit the look, feel and size of any home. "These vary from conventional free-standing fireplaces, closed combustion free-standing fireplaces, built-in flue-less gas fireplaces and conventional wood-burning built- in fireplaces."

Wood-burning fireplaces

Here you can choose a free-standing type or a more traditional built-in type. "These units are usually the most affordable and offer the opportunity of experiencing an open, wood-burning fire combined with a classic look," says Francois.

Closed combustion

These fireplaces, or wood stoves, are very efficient with a high heat output. "Closed combustion free-standing fireplaces are among the most popular options when it comes to selecting a fireplace. They are far more effective than conventional fireplaces, and usually have heat resistant glass doors, giving the homeowner the ability to enjoy the ambience of open flames."

According to Tony Jones of the Fireplace Warehouse, closed combustion fireplaces are rated at 70-80% efficiency, compared to open fires, which are around 10-35%. They also use about half the wood of an open fireplace. Steel or cast iron units are available. Cast iron units heat up and cool down more slowly. "Cast iron units are the biggest sellers, though, as these units offer a classic look combined with everlasting durability," reveals Francois. Steel units are available in more contemporary styles.

Flue-less gas

These units offer you the ability to simply switch the fireplace on and off as you please. "These units tend to have high heat outputs and are very effective as no heat escapes through the chimney. These units burn a very clean flame and there is no smell of smoke in the room," says Francois.

There is nothing like the comfort of a crackling, wood-burning fire. Wood also produces excellent heat and is a renewable energy source

Stylish surrounds

Your fireplace is likely to become the main focal point in the room, so to make it really stand out with an attractive surround. The surround is installed after the fireplace installation and the wall and floor finishes are completed. The style and material of the surround you choose will depend on the room's design. You can construct your own using bricks, tiles, stone cladding, or choose a ready-made surround made from stone, concrete, granite or wood.

Follow Tony's guidelines when choosing a surround:

- Consider the size of the fireplace itself, as the surround needs to be in proportion to the fireplace.
- What type of fireplace is it? Some fireplaces, such as closed system fires, generate more heat than others and can affect nearby appliances. For example, if a flat screen television is to be installed above the fireplace, a mantle on the surround is a necessity.
- Where a chimney breast (the portion of wall that projects forward over a fireplace) exists, the width of the breast may limit the width of the mantle of the surround.
- Take note of the proximity of doors, windows and other fixtures. The height of the fireplace above the finished floor should also be checked if a hearth (horizontal base) is required.

SOURCES:

Megamaster, 012 802 1515, www.megamaster.co.za
Fireplace Warehouse, 011 794 6000, www.fireplacewarehouse.co.za

NOTE:

Fireplaces can pose a danger if not installed properly and can even lead to fires and serious injury.

Installing a built-in fireplace

"Although a DIY installation is not recommended, there are instruction manuals in each unit supplied by Megamaster to guide you through the basics of fireplace installation. Installation should be done by a professional installer; fireplaces can pose a danger if not installed properly and can even lead to fires and serious injury," advises Francois.

Below are some installation guidelines from Megamaster for built-in fireplaces:

Step 1: Construct brick support walls for the unit to your desired height. Concrete lintels can be used for the base support.

Step 2: Position the unit and cover the back, sides and top with insulation, and then brick in the unit. Any type of glass wool or ceiling insulation can be used.

Step 3: To allow for expansion, ensure a gap of 20mm between the back and sides of the body of the unit and the brickwork.

Step 4: It is recommended that one steel flue pipe is installed. The remainder of the chimney can be constructed from bricks. You can choose to use more than one flue pipe.

Step 5: The inner dimensions of the chimney must not be less than the flue outlet opening on the top of the unit, for example, 230mm x 400mm. The height of the chimney is important to ensure the correct draw of smoke. The height of the opening of the chimney should be at least 0.5m above the apex of the roof. If the horizontal distance between the chimney opening and the roof apex is more than 3m, the vertical height may be made less. Note that wind conditions in certain areas may affect the draw of the chimney and the vertical height may need to be extended.

Step 6: Steel flue linings provide a smooth surface for better draw and protect the brickwork against heat corrosion.

Step 7: Use standard flashing materials and procedures to waterproof the roof around the chimney.

Step 8: The flue can be offset to avoid obstructions, providing sufficient support to prevent sagging. You can usually find 45˚ bends from suppliers.

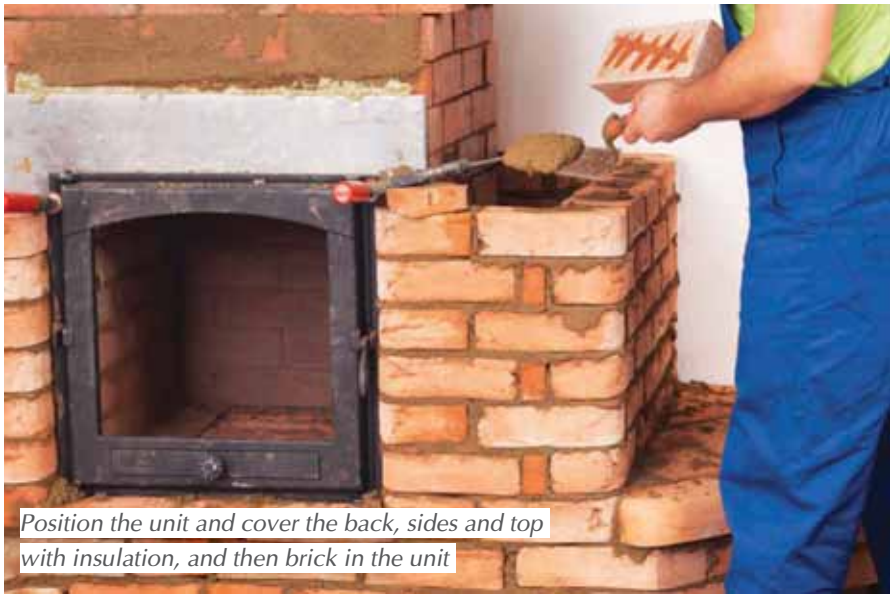
Step 9: A rotating cowl is necessary to prevent down draughts on windy days and will prevent rain from entering the chimney. The chimney and the cowl must be 100% level and the gap between the lowest part of the cowl and the chimney must be minimal. A bolt-on base can be purchased for the unit.

Step 10: After installation, paint all exposed parts of the chimney and rotating cowl with good quality, heat resistant, black enamel paint.

Step 11: Grease the rotating cowl axle regularly to avoid rust. The cowl is supplied with two stainless steel ball bearings to allow the cowl to rotate freely. Slide these two bearings into the hollow round tube of the base.

Step 12: Before having your first fire, a normal size fire must be made and burned until no paint smell remains. Open all doors and windows to allow the smell to vent properly.

Construct brick support walls for the unit to your desired height



Position the unit and cover the back, sides and top with insulation, and then brick in the unit

Fireplace safety

When you have finished enjoying your fireplace, it is best to put out safely. Fire is always a danger and smoke can cause oxygen deprivation while you sleep.

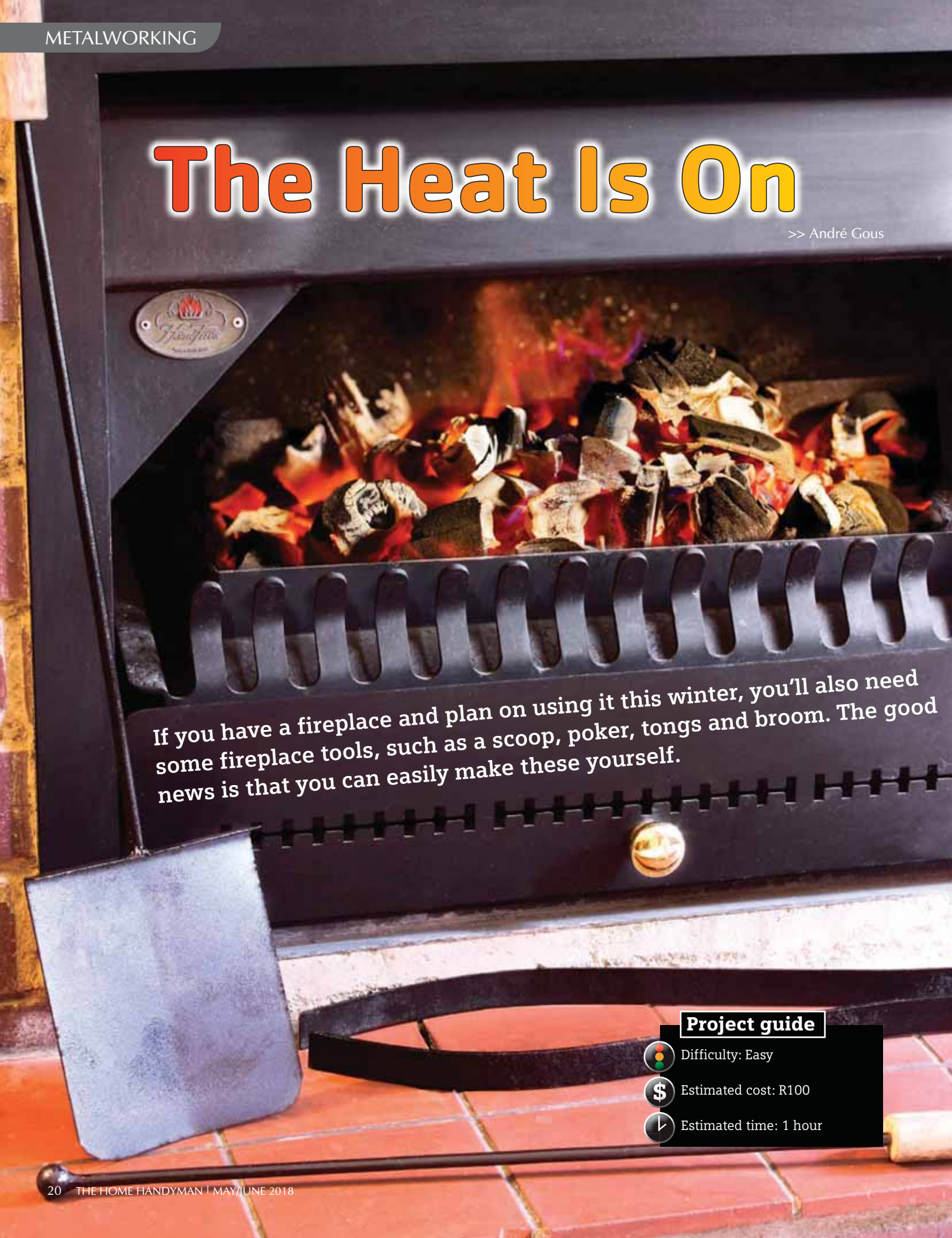
As the time you wish to spend at the fire draws to an end, do not fuel it any further. Pouring water on it will cause smoke to billow, causing a mess and perhaps even smoke damage. A fire extinguisher is simply out of the question, but should always be close by in case of an emergency.

Use the fireplace poker and tongs (as seen in the metalworking article on p20) to spread out the still burning wood and larger embers. Separate them as much as possible. Then, use a fireplace shovel and cover any flaming logs or hot embers with ashes. If your fireplace has a glass door, close it tightly (do not close the damper).

If you are in a hurry, you can cover the fire and hot embers with sand. However, keep in mind that you will need to clean out the sand before using the fireplace again.

The Heat Is On

>> André Gous



If you have a fireplace and plan on using it this winter, you'll also need some fireplace tools, such as a scoop, poker, tongs and broom. The good news is that you can easily make these yourself.

Project guide

- Difficulty: Easy
- Estimated cost: R100
- Estimated time: 1 hour

A Step-by-step guide

Scoop

Step 1: On the piece of sheet metal, mark out a rectangle measuring 220mm x 150mm, then cut out the piece of sheet metal. The easiest way to do this is with a guillotine, but if you don't own one it doesn't matter because a small angle grinder can do the job just as well.

Step 2: Determine the centre of the 150mm ends and make a slight bend in the scoop.

Step 3: Measure 20mm inwards from one side on the 220mm ends and draw a line between these two marks. Place the piece of sheet metal in a bench vice or a bending machine and make a 90° bend in the scoop on the line.

Step 4: To achieve a better finish, round off the corners (the ones that aren't bent) of the scoop using an angle grinder or tin scissors.

Step 5: Take one of the 760mm lengths of round bar and weld it onto the 20mm bent side of the scoop.

Step 6: Finally, take a piece of offcut wood and drill an 8mm hole down its centre and then fit the piece of wood over the end of the round bar.

Poker

Step 7: Weld the metal ball onto one end of the remaining 760mm length of 8mm round bar. Fit the remaining piece of wood over the other end of the poker to serve as its handle.

Tongs

Step 8: The tongs are made from a single piece of 25mm x 3mm flat bar. To make them, take the

Mark out the rectangle on the sheet metal

Cut out the sheet metal for the scoop

Bend it slightly in the centre

Make a 90° bend 20mm inwards on one of the 150mm sides

Round off the corners of the other end

Weld a 760mm length of round bar to the scoop

Drill an 8mm hole in an offcut piece of wood

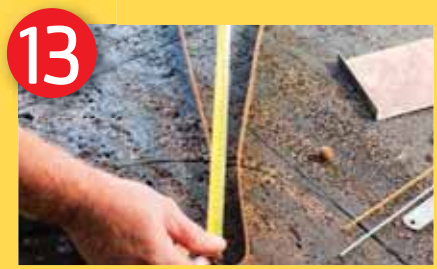
Fit the wood over the other end of the scoop to serve as the handle

Weld a metal ball onto one end of the remaining 760mm length of round bar

Determine the centre of the 1 250mm length of flat bar

Bend the flat bar into a U-shape

Measure 150mm downward from the bend



Bend the flat bar outward on the 150mm marks

Measure 400mm downward from the bend and bend the flat bar in again to give it some spring action

Bend one end of the 500mm length of round bar to 45° for the broom

1 250mm length of flat bar and determine its centre (625mm). Next, bend the length of flat bar in half. Now you have a U-shaped piece of metal.

Step 9: Measure 150mm downward on both sides from the end that is bent. On these marks, bend the flat bar outwards. It should resemble the shape of a split pin.

Step 10: For this piece of flat bar to function as tongs, two more bends are required.

Measure 400mm downward on both sides from the bent end and on these two marks bend the flat bar inward to give the tongs a spring action and allow the user to pick up coals.

Broom

Step 11: Take the 500mm length of round bar and bend one of the ends to 45°. Next, weld this bent end of the round bar onto a 100mm piece of flat bar. Make sure it's in the centre. Drill two holes into the flat bar on either side of the round bar. Screw this round bar handle onto the brick layers broom. To finish the broom, fit a piece of offcut wood over the other end of the round bar.

Step 12: Give the fireplace tools three coats of Xylazel Metal Heat Resistant Paint available from Oxirite Metal Paints.

Materials

- 2 020mm of 8mm round bar
- 1 350mm of 25mm x 3mm flat bar
- One metal ball
- Three offcut pieces of wood for handles
- Sheet metal
- One bricklayer's broom

The finished tools

Tools

- Drill and 8mm drill bit
- Tape measure
- Angle grinder
- Tin scissors
- Mallet

Cutting list

- Two 760mm lengths of 8mm round bar
- One 500mm length of 8mm round bar
- One 1 250mm length of 25mm x 3mm flat bar
- One 100mm piece of 25mm x 3mm flat bar
- 150mm x 220mm piece of sheet metal

CONTACT

For more information on this or other metalworking projects, contact André Gous on 082-303-4830.

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Take to the Floor

Winter is on our doorstep and soon the cold will start to penetrate our homes, including from underneath. Here's all you need to know about insulating and heating your home through the floor.

How does underfloor heating work?

Heat rises – this simple scientific fact explains why underfloor heating works.

The trick to having an effective underfloor heating system is how to manage this rising heat.

All heating systems utilise the principle of rising heat.

However, this principle produces several heat management challenges:

- Heat management that ensures the floor temperature is slightly warmer than the head to optimise the comfort levels (when the human body is most comfortable).
- Producing a radiant heat (infrared) which results in comfort levels at lower temperatures than with air heating.
- Producing a consistent temperature that is evenly spread throughout the entire room.
- It needs to allow you to set and manage a comfort and economy level that fluctuates with the hot and cold periods of each day.

Floor heating is the most comfortable way of heating your home because the warmth is generated at your feet and it creates a comfortable, even temperature without creating a draught or uncomfortable hot areas. Because floor heating is mainly radiant heat (infrared), comfort levels are reached at much lower temperatures than with air heating, which also means reduced heat losses.

Type of floors for heating

The burning question is always: Is it possible to heat through all types of floors? It is possible to heat through the following:

- Ceramic and porcelain tiles
- Natural stone, slate or marble
- Coloured and natural cement finishes
- Solid engineered and laminate wood
- Fitted carpets and rugs
- Vinyl floor coverings
- Stone carpet
- Resin flooring

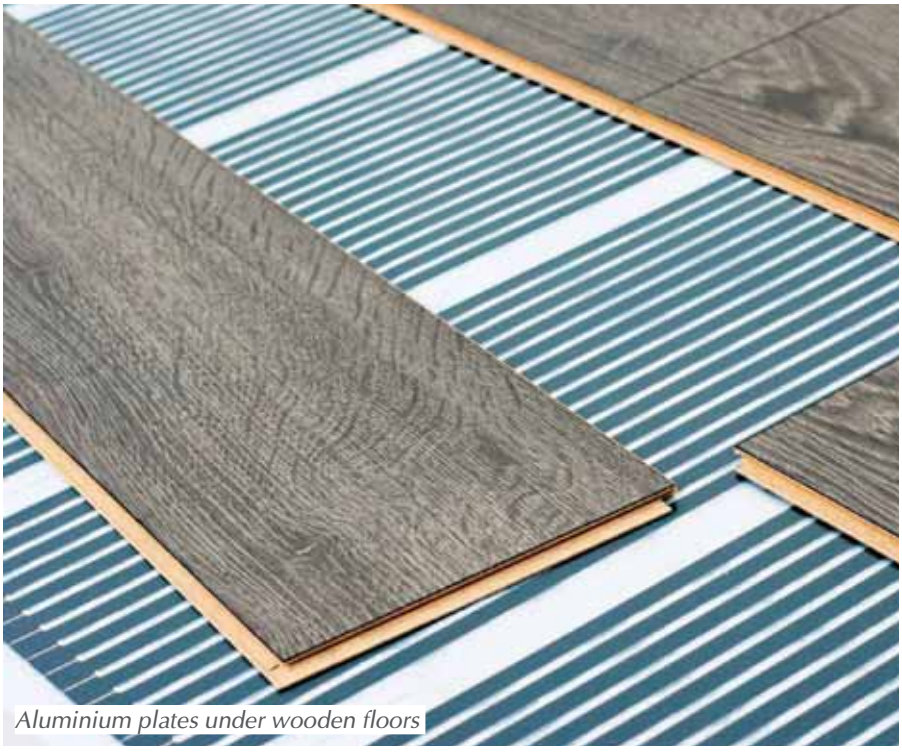
Electric floor heating

Electric floor heating is one of the many comforts of modern times. Instead of placing heaters all over your home during winter, you can elect to install one of these systems for a more effective heating solution. These also promote a more even temperature throughout the home. With underfloor heating, the strong and durable cables can be installed under wood, tiles or carpets and generally cover from 50-80 percent of the surface.

Virtually any thermostat can be integrated with the underfloor systems. Two main types are the programmable digital that can be set to change temperature automatically and the standard analogue where a dial is turned manually to choose the desired temperature. The underfloor electric heating options include cut-in underfloor heating, original underfloor heating, under carpet heating, under laminated heating pads and under tile heating systems.

With the cut-in electric floor heating option, heating cables are countersunk by 8-10mm into the floor screed and covered lightly with a self-levelling substance, which promotes longevity, safety and aesthetics. This is ideal for all floor types. A free wire system is used as opposed to mats, which means that the heating wires are placed strategically in areas where heating is required – for instance, the area under cupboards is avoided.

The underfloor system, as referring to the original underfloor heating solution, conversely involves installation of cables prior to application of floor screed over these cables. Application is primarily for suspended wooden floors, cemcrete finishes and pigmented screed floors and where heating close to the surface can adversely affect the colour or damage the floor finish. Heat release is regulated with this installation, while protecting the floor and allowing even heating.



Aluminium plates under wooden floors

Unlike using traditional heaters, underfloor heating produces a consistent temperature that is evenly spread throughout the entire room

Under carpet electric floor heating can be installed before, or even in cases after, the carpets have been fitted. Aluminium covered heating mats are used under carpets and not wiring. Once again heat is not wasted on little used spaces, such as under furniture, but assorted shapes of mats are selectively placed where the family needs them the most. These mats cover about 50 percent of the floor space and heat is distributed through the rooms quickly with this system.

For the purpose of electric floor heating that is fitted under lamination, heating mats that are also covered with aluminium are used. These under laminated heating pads of nine sizes are customised for floating wooden or bamboo laminated floors. The system is developed so that heat is released at a slower pace than other methods and, like wood surfaces, the area that can be heated is higher.

When a client wants to install an electric heating system under tiles, installers make use of heater cables that are placed directly under the tiles. At about 3mm, the thickness of these cables does not affect the completed floor height. Application can be made on screed floors or existing tiles to be retiled as long as it is clean and free from any non-cementitious substances.

The area that can be heated is about 50 percent of the available floor space and this also excludes areas where no heating is needed. Earth screened cables are used in wet areas such as bathrooms as a safety precaution. The economy of this electric floor heating system beats the traditional underfloor systems and this can still be improved with use of floor insulation. Under tile heating also uses a regulator or thermostat since it is a responding heating system.

Direct heating in wooden floors

There is no need to worry about heating your wooden floor. Wood is a natural material which contracts or expands depending on the temperature. It is essential that the underfloor heating system distributes the heat in a gentle and controlled way. Usually the wooden floor manufacturers prescribe a maximum temperature of 27 degrees, which must not be exceeded.

Product suppliers and installers should just make sure there is very precise heat control, especially where wood is involved. A proper computerised thermostat has a floor sensor to ensure that the temperature in the floor construction is always in accordance with the tolerance level that the manufacturer has recommended. The floor will be nice and warm, and never too hot to risk any damage.

The importance of insulation

With a good underfloor heating system, you should consider underfloor insulation, and, if possible, throughout the rest of the house. Air naturally tends to move from warm areas towards colder areas and insulation restricts this natural movement. So, during the cold season, insulation prevents cold from coming into the house through the ceilings or walls; and it works the same way during the hot summer months by keeping the cooler air inside the house and blocking it from moving towards the warmer area outside.

Thermal insulation in buildings is an important factor to achieving thermal comfort for its occupants. It is an important aspect to consider if you are installing underfloor heating, if you will be making use of solar heat energy or a heat pump. Insulation reduces unwanted heat loss or gain and can decrease the energy demands of heating and cooling systems, which makes solar energy or a heat pump more efficient. It does not necessarily deal with issues of

A good underfloor heating system will safely warm and regulate your comfort in the bedroom

Floor and tile heating solutions let you warm the floor, and the walls if you like, to create the perfect bath time environment

adequate ventilation and may or may not affect the level of sound insulation. In a narrow sense, insulation can just refer to the insulation materials employed to slow heat loss, such as cellulose, glass wool, rock wool, polystyrene, urethane foam, vermiculite and earth or soil. But it can also involve a range of designs and techniques to address the main modes of heat transfer – conduction, radiation and convection materials.

Insulation should be installed in any barrier (wall or ceiling and floor) that stands between cold air and warmer air or unheated spaces and heated spaces. In a typical home, the most important areas to have well insulated are the ceiling, the walls and the basement. Crawl spaces and garages are also areas where insulation can be added to reduce heat loss.

Rooms to heat

· Bedroom

We spend at least one-third of our lifetime in the bedroom. A good underfloor heating system will safely warm and regulate your comfort in the bedroom by measuring air or floor temperature, time control, or a combination of all three to provide the ideal room temperature at all times.

· Bathroom

Floor and tile heating solutions let you warm the floor, and the walls if you like, to create the perfect bath time environment. Products such as Speedheat have a build-up height is only 3mm, so the system can be retrofitted into areas where the carpets are being replaced with tiles or wood flooring as it does not seriously affect the floor level.

It has a full earth screen and is always connected via an earth leakage circuit breaker (ELCB), which makes it absolutely safe in wet areas such as bathrooms, utility rooms and spa baths.

· Hallway

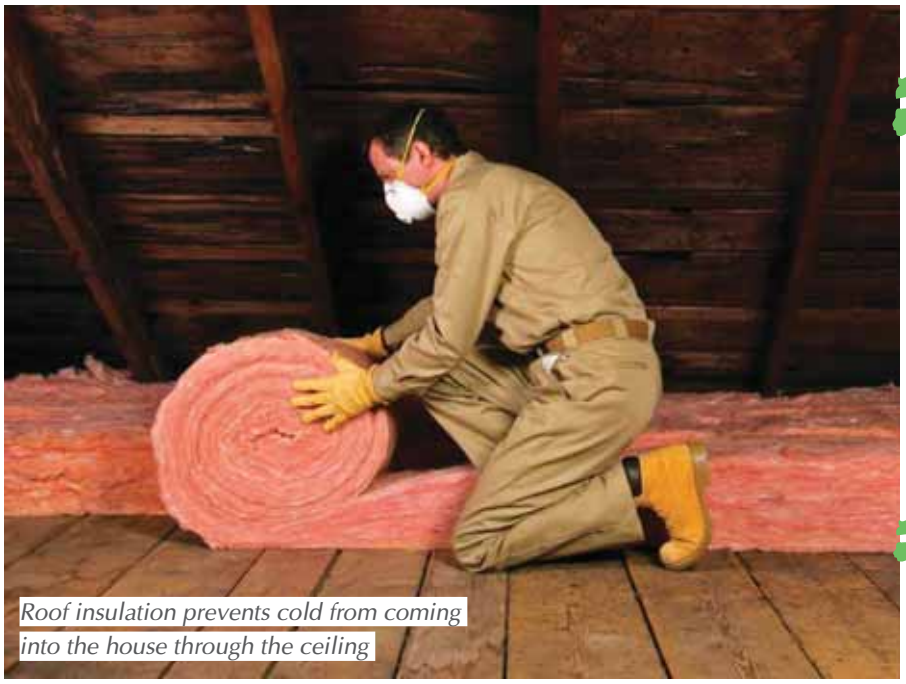
Create a comfort zone in the hallway and make the most of your home space with an integrated system that connects all the rooms together.

· Kitchen

A place for cooking is a space for living; just add the ingredient of comfort to your kitchen with floor heating. There are many ideal forms of heating for stone, tile, wood and vinyl flooring, it is fully waterproof and is covered by a second layer to protect your underfloor system, so you have no worries about accidental spillages. These systems are also perfectly safe even in the event of a flood.

Economy tips

- Most people are comfortable with a room temperature of 20-22˚C. We recommend that you test to see what temperature is most comfortable for you. A lower temperature setting



Roof insulation prevents cold from coming into the house through the ceiling

on the thermostat results in lower electricity consumption.

- It is best to use a manual thermostat for rooms that are used infrequently. For rooms that you use regularly, a programmable thermostat would be a better choice as this will help you save energy.
- When a room is not occupied, it is recommended that you leave the thermostat on a low setting rather than switching it off. Your heating system will use less electricity when you next need it to reach comfort temperature and the room will heat up faster.
- Switch off the heating system in rooms that are infrequently used. This does, however, mean that you will have to wait longer for the room to heat up.
- If you turn the thermostat higher than the temperature you prefer, the system will not heat up any faster. Simply set the thermostat to the comfort temperature and the heater will use maximum power until the room reaches the specified temperature.
- Keeping heat loss to a minimum with insulation will make the heating system more efficient and consume less electricity.

Some ways in which you can help reduce heat loss include:

- Keep doors and windows closed (as much as possible).
- Close curtains in the evening.
- Install effective thermal ceiling insulation.
- Close openings to chimneys and fireplaces not in use.

In new or renovated buildings:

- Have cavities built into the outer walls and filled with insulation.
- Install double glazed windows as this will help insulate from both the heat and cold, eventually paying for themselves in energy savings.
- Insulate your floor slab since a lot of energy could be wasted heating the slab unnecessarily.

SOURCE:

For more information contact 0800-11-22-15 or visit www.speedheat.co.za.

Gas Stove Maintenance

With electricity tariffs increasing many people are looking for alternative ways to feed the most energy intensive fixtures in their homes, such as stoves.

>> Aarifah Nosarka

How a gas stove works

A gas stove consists of a burner assembly attached to a manifold connected to the main gas line. The surface burner knobs on your stove control the burner valves. When you turn a knob, the valve opens, allowing gas to flow from the manifold. Gas travels through burner tubes before entering the burner where it combines with oxygen to create a mixture necessary for combustion.

In units fitted with a flame failure device (FFD), knobs have to be pressed downwards and and turned to the first setting, holding the knob depressed for 5 seconds to allow the thermocouple (a device for measuring temperature) to heat up and send a signal to the electromagnetic valve to stay open. There is a sparker on one side of the burner that sends a small spark to ignite the oxygen and gas mixture as it flows through the burner holes. When the knob is turned to a higher heat setting, the flow of gas and air is increased, creating a larger flame.

Purchase and installation

Gas stoves sold in South Africa must comply to and be tested by the National Test House of the South African National Standards for approval. A permit and permit number from the Liquefied Petroleum Gas Safety Association of Southern Africa (LPGSASA) will then be issued. The permit number is displayed on a technical data label found on the body of the appliance.

Did you know?

LPG is a liquid and cylinders can only be filled to 80% liquid LPG of its capacity. The remaining 20% of the volume is for 'boiling off' vapour gas. 'Flash point' of this vapour requires 10% oxygen mixed with LPG vapour to ignite.

Always buy gas from a reputable gas dealer

Note: The explanation of how a gas stove works applies to low pressure cylinders (2.8kPa).
For safety reasons all freestanding, slide-in and DIY gas stove installations are low pressure. Low pressure fires can be contained by depriving the fire of oxygen. This is done by throwing a water soaked towel or blanket over the fire.

The most important maintenance is keeping the burners and burning housing clean

Alternative cleaning methods

Clean burners by following three simple steps using vinegar or baking soda:

Vinegar

Step 1: Fill a spray bottle with white vinegar. Remove burners and spray each burner, coating it with vinegar.

Step 2: Leave the vinegar on for about 10 minutes, or longer if necessary.

Step 3: Wipe down with a clean cloth.

Baking soda

Step 1: Remove the burners and wash them down with soapy water.

Step 2: Make a thick paste of baking soda and water. Coat each burner with the paste and leave to stand for about 15 minutes.

Step 3: Use a sponge to remove residue and rinse thoroughly.

When looking for a gas stove, select one with a flame failure device (FFD) fitted to each burner. Alex de Clerck, owner of Delta Engineering, says, "This is a safety precaution and is designed to shut off a burner if there is a flame-out." These stoves should be installed by an authorised gas practitioner possessing a valid South African Qualification and Certification Committee (SAQCC) Gas Practitioner registration card.

Currently, an indoor free-standing unit, without FFD, can be bought and installed, but this is set to change. The gas cylinder is usually no more than 19kg and situated closer to or about 300mm away from the free-standing stove. Alex says that a revised SANS 1539 will be out soon and freestanding stoves without FFD will no longer be allowed in South Africa.

Advice

Always buy gas from a reputable gas dealer. Alex warns against rogue illegal fillers. "These cylinders are filled illegally and do not get their required inspections and purging to remove the heavy residue inside." He says that these cylinders contain dirty gas and give off a strong combustion smell, damaging the regulator and clogging the jets. There should be a branded plastic seal covering the cylinder valve. Cylinders with a clear, unmarked seal or without a seal indicates illegal filling.

If necessary remove the control knobs and wash them in warm, soapy water


Burner flames should be almost completely blue. A yellow-burning flame is an indication of a blocked jet

Grease/oil inside burner housings can present a fire hazard and require regular cleaning.

Maintenance

Gas appliances don't need a lot of maintenance. The reinforced pipe connection to the gas cylinder is referred to as the pigtail. When changing cylinders, check that there are no cracks along the pipe (pigtail). By law it is required that pigtails be replaced every five years. Pipes exposed to direct sunlight will have a shorter life span. Also check the nose cone sealing washer on the pigtail for deformation and cracks. Replace if necessary as it can cause a high pressure leak, which is very dangerous.

"The most important maintenance is keeping the burners and the burner housing clean." According to Alex, burners become dirty when appliances spill liquids that end up settling in the burners' housing. Greasy burners affect your cooking, age your appliance and present a fire hazard.

Alex recommends cleaning with a tough kitchen degreasing liquid and non-abrasive scouring pad for hard burnt-in residue.

Warning

The main gas jets that supply the fuel to the ignition system reside underneath the burners. Exercise caution when cleaning, as there should be no liquid entering the gas stove jets.

Signs that a jet is blocked

An unequal or yellow-burning flame is an indication of a blocked jet. Burner flames should be almost completely blue with a small hint of yellow in the centre of the flame. Alex warns against attempts to unblock a jet using a sharp object. "This can increase the jet size and cause a yellow flame." Instead he recommends replacement of the jet.

Before removing or replacing jets, unplug the stove from the wall outlet if it has an electrical cord. Locate the gas valve inlet behind the stove and shut it off to prevent gas flowing into the stove while you work on it.

"Immerse the jet in clear vinegar. Leave it overnight. Blow it clean and replace it on the stove. Do not over tighten the jet as this can strip if you apply excessive force."

When the jet is replaced, replace the burner housing and burner cap in the correct position. It helps to note how it was positioned before you removed it or, better yet, refer to the manufacturer's instruction manual for the correct fitment. "Failing to do this can result in either failure to get ignition on the burner, or a yellow flame."

Tips for cleaning surfaces and pot holders

Different surfaces require different cleaning methods. 'Always refer to the manufacturer's instruction manual before using your appliance."

Here are some guidelines:

- Use a soft cloth and dishwashing liquid.
- Avoid using abrasive cleaners or harsh scouring pads; they will scratch the surface and can wipe off the setting allocations on your stove. A useful tip is to polish the stainless steel model's surface with baby oil to keep it nice and shiny.
- Clean grid build-up from the flame failure thermostat. This can be found next to each burner on the stove.
- Clean the auto ignition situated next to the thermostat on the side of the burner. Be careful not to break the ceramic insulation.

Gas stoves sold in South Africa must comply to and be tested by the National Test House of the South African National Standards for approval

Some gas stove tops have sealed burners, and these burners are not meant to be removed. A stove top with a sealed burner means spillage does not enter the burner box, so it is not necessary to remove burners. This is a job for professionals during installation and service.

Control knobs

If necessary, remove the control knobs and wash them in warm, soapy water. Replace the knobs after cleaning and turn each one briefly to ensure it has been correctly replaced.

Flame settings

There are flame settings on valve controls of most reputable gas stove brands. Normally the gas practitioner adjusts this setting in the presence of the client, according to client requirements. "Settings can be carried out by the owner but, because the methods of setting valve controls differ, I recommended that the manufacturer's instruction manual be read and adhered to in order to set it accordingly."

How to check for leaks

Use a spray bottle with a 50/50 solution of water and liquid soap. Spray the liquid on all gas connections and joints. Bubbles will be noticed around areas that are leaking. It is imperative to call a technician to fix the leak.

Gas stove owners are not allowed to work on the gas line. If there is a leak or you smell gas, take the following precautions:

- Turn off the gas immediately at the cylinder and then at the secondary valve located near the stove. Avoid touching the stove valves in case of possible ignition.
- Do not smoke, strike matches or operate electrical switches or devices.
- An indoor leak necessitates ventilation. Open all doors and windows if it is safe to do so.
- Stay away from the affected area until the gas dissipates.
- Contact your gas fitter or installer to inspect the appliance.

Always...

- Choose a reputable retailer to purchase appliances.
- Choose a specialised gas retailer with competent personnel to assist.
- Source companies that have reasonable repair turnover times.
- Opt for brands that support their product with repairs in a minimum timeframe and back up their service with integrity.

Safety advice

Egoli Gas shares some suggestions on using gas safely:

- Use the correct ignition procedures.
- Do not use paper to light the stove.
- Flame first, then open the gas valve.
- Turn pot handles away from the stove edge.
- Wear tight-fitting sleeves when cooking.
- Do not store oil or any flammable or combustible materials under, above or next to the stove or grill.
- Do not use cooking appliances as heaters.

Light a match first and then open the gas valve

Geyser Myths, Maintenance and Safety

Why proper geyser maintenance and assessment saves more than money

>> Gareth Greathead

Geysers are pressurised hot water cylinders and can lose efficiency and even become dangerous if not maintained correctly. There are several built-in protection mechanisms, including a pressure release valve, to release pressure should over pressurisation occur. It's extremely uncommon for all safety mechanisms to fail, but incorrect installation or inadequate maintenance can increase the likelihood of this happening. In the interest of safety, only specialists trained to work on pressurised vessels are permitted to work on hot water cylinders.

Serviceable components

South Africa's water supply is inherently high in lime content, measured in parts per million. This causes lime to build up on the components inside your geyser. Cobra Watertech's national training manager Patrick Gordon says, "Municipalities add chemicals in an attempt to balance the pH but this does not remove the lime content. Having the geyser set above 60°C will also cause lime to build up faster than usual. In Thabazimbi we went to do an assessment on a geyser and found that it was installed according to specification. However, in only three months the internal components had built up a thick deposit of lime, causing problems with the system. Generally speaking, you should get your geyser assessed by a plumber every two years, but geysers in some regions may need to be assessed more regularly."

Self-sacrificing anode

The sacrificial anode may need to be replaced every two years – anode rods are screwed into the inside of geysers and are generally made of a magnesium alloy. This anode, or rod, prevents corrosion inside the geyser by 'self-sacrificing' its metal, which prevents corrosion and build-up of lime scale. When there's no sacrificial metal left on the anode, components inside the tank will begin to corrode. How often it needs to be replaced will depend on water quality and usage.

Element

Element Over time, lime will build up on the element, inhibiting the transfer of heat to the water, reducing efficiency and potentially burning out the element as it cannot disperse the heat.

Thermostat

Thermostat There is also the possibility of the thermostat gathering lime build-

up. This will cause the thermostat to take incorrect readings, resulting in the overheating of water inside. This causes abnormally high temperatures, which could result in purging of water from the safety valve, wasting both water and energy because lost water is replaced with cool water that has to be heated to the set temperature.

Solar geysers

Solar geysers often require more maintenance than element geysers. Check the following components.

Tempering valve

Solar panels and evacuated tubes can heat water to over 100°C. A tempering valve mixes cold water to bring down the temperature before it reaches the thermal point of access.

Pumps

Some solar systems (where the geyser is below the panel) need pumps, which may require changing every five years.

Collectors

Dust and dirt on the surface of the collectors will affect the absorption of radiant energy from the sun. Collectors need to be cleaned monthly with dishwashing liquid or sprayed down with a hose if inaccessible.

Safety checks

Check that the cover over the thermostat and element is screwed closed as sometimes this is left open after servicing. The cover is there to prevent accidental shock, so remember to turn off the power before replacing missing covers.

Check that the drip tray is positioned correctly under the geyser and is not obstructed so it will safely drain water in the event of a leaking geyser. Get a jug and pour some water into the tray to check that it is carried down the drainpipe.

Geysers need to be installed in a location that can withstand the weight of the tank. A leaking drip tray can affect the structural integrity of the supporting structure. Check that the beams supporting the geyser are sound.

Dispelling myths

Myth 1: Switching off your geyser saves money

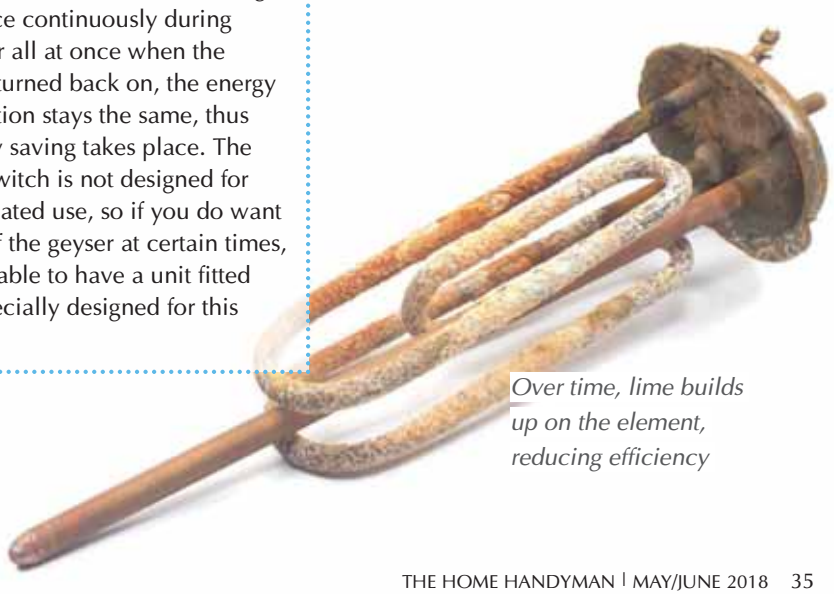
The idea that switching off your geyser to save money has several flaws; one being the measurement of related savings. At the same time by switching off the geyser you do help Eskom reduce load during peak hours. Patrick explains, "It takes X amount of energy to heat 1 litre of water by 1°C. Whether this heating takes place continuously during the day or all at once when the power is turned back on, the energy consumption stays the same, thus no energy saving takes place. The isolator switch is not designed for such repeated use, so if you do want to turn off the geyser at certain times, it is advisable to have a unit fitted that is specially designed for this purpose."

Myth 2: Switching off your geyser damages it

The theory is that the larger temperature variations cause abnormally high levels of expansion and contraction. It is claimed that this may cause the geyser to fail prematurely. In reality, geysers are designed to handle these variations and there should be no problem.

Myth 3: lower the temperature on your geyser

Patrick says, "The ideal working temperature is 60°C. In fact, a geyser that has its thermostat set too low can have serious health implications and may even cause death." Legionnaires' disease is a form of atypical pneumonia symptoms caused by any type of Legionella bacteria. The bacteria is found naturally in fresh water and can contaminate hot water tanks, hot tubs, cooling towers and large evaporative coolers on air conditioners. Symptoms may include a cough, shortness of breath, high fever, muscle pains and headaches. Nausea, vomiting and diarrhoea may also occur. These symptoms are usually evident between two and 10 days after exposure. *contd. overleaf*



Over time, lime builds up on the element, reducing efficiency

Solar geysers often require more maintenance than element geysers

Myth 3 contd.

Many people are not affected by exposure and those who are older, have a history of smoking, chronic lung disease and poor immune systems are most at risk. People who are affected are often hospitalised and receive a regime of antibiotics. Research in the field is not conclusive, but it has been estimated that 5% of the population may be at risk and 10% of those affected die. "Geysers should be set at 60°C. Settings lower than 58°C will not kill the bacteria that acclimates in geysers. Infection is normally caused by breathing in steam containing the bacterial spores in the shower. There was an outbreak in Scotland where a brewery was releasing spores from its towers. Of the 28 people found to be infected, four died."

Increasing efficiency

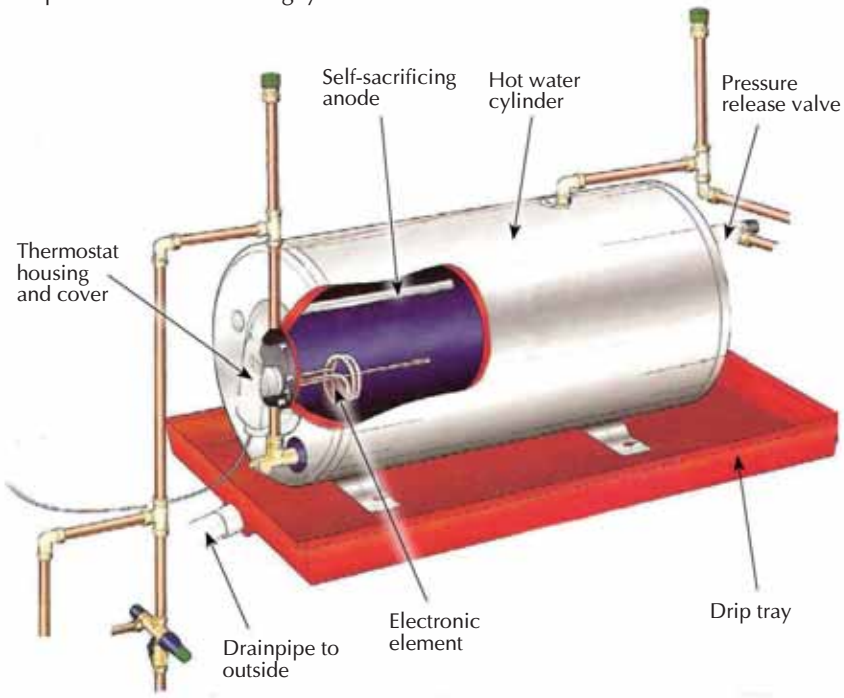
Possibly the cheapest and easiest way to increase the efficiency of your geyser is to insulate it with a geyser blanket. This will limit the transfer of heat from the hot water tank to the ambient room temperature. You will also need to insulate the hot and cold water pipes to and from the geyser. You can do this yourself if you are careful and follow all the instructions.

The Institute of Plumbing SA (IOPSA) and related industrial bodies have been pushing for legislation requiring the carrying out of a Certificate of Compliance (COC) before the sale of a home. "This legislation has been passed, giving homebuyers greater peace of mind and ensuring their safety. Within this is the requirement for insulation of both hot and cold water pipes," says Patrick. This was initiated to save both water and energy. For example in the summer, if you turn on the cold water, there is a delay before the water becomes cold – reducing this delay saves water. When you turn on the hot water again, you have to wait for the cooler water to be expelled. By insulating the piping carrying hot water you can save both water and energy.

There are DIY pipe insulation kits, but these do not meet the specifications listed in the National Building Regulations and Building Standards Act. Patrick says, "This means that a homeowner will not be issued a COC should they decide to sell. Pipe insulation requires the removal of plumbing and fitment of a fully enclosed sleeve according to specification. That said, some insulation is better than none."

Increase the efficiency of your geyser with a geyser blanket

Components of an element geyser



Make a Fire

Have you been doing it all wrong?

With this year's winter possibly being a bit nippier than last, many of us will be using our woodburning fireplaces in an attempt to stay warm. The bad news is that wood smoke is a pollutant and harmful. It contains particulates that damage the lungs as well as poisons. In developing countries, children's health is put at risk by open cooking fires, hence the drive to more efficient reduced smoke cookers.

Earth Probiotic CEO Gavin Heron shares a method to reduce the amount of pollutants emitted by burning wood. First, some basic science: When wood is heated, it releases gases. The first to be released is steam and then the flammable gases, which are visible to us as smoke. Traditionally, we make a fire and light it from the bottom. We start with the smaller pieces and then these light the larger pieces at the top of the fire. "We need to think of a piece of wood as a 'gas canister'. Heat from the bottom of the fire heats the top pieces and these release gases into the surroundings."

The top-lit updraft method

"An alternative is the top-lit updraft (TLUD) method." When using this method, heat from the top of the fire heats the bottom layers and these release gases. "However, instead of rising unencumbered to the atmosphere, the top layer burns away these gases. This equates to less smoke, less pollution and a more efficient process."

So, when you're thinking about lighting a fire, open or enclosed, reverse everything you've learnt and turn it upside down instead.

For more information
Visit: earthprobiot1c. co.za
Tel: 011-959- 1083

Paint Like a Pro

Planning on doing some painting, but don't know what equipment is needed for the job at hand? Here is a list of everything you'll need to successfully complete your project.

>> Roelof Strydom

A paint tray holds paint in the well to enable easy retrieval with the roller

TIP

Before using new long and medium pile paint rollers for the first time, wrap some masking tape all the way around the roller and then pull it off.

By doing this you'll get rid of any loose fluff, which can cause bumps to appear on the wall. This is especially helpful when using cheap paint rollers.

Paint roller

When painting large areas like walls or ceilings, it just makes sense to use a paint roller. It enables you to cover a large area in a shorter time span. There are various different paint rollers available and the one you need depends on what the area is like. If your interior walls are heavily textured, or if you want to paint exterior surfaces, then you need to buy a roller with an extra-long pile.

For smooth surfaces, like plastered walls, a mohair roller is the one to get. For surfaces that are neither smooth nor rough, a medium pile roller will do fine. If you intend on applying textured paint onto a surface or want to achieve a ripple finish, then you need to buy a textured foam roller.

For those who are not too keen on the idea of going back and forth between the paint bucket and the wall all the time, there is a solution for this and it is called the Bosch PPR 250 Electric Paint Roller. This paint roller feeds paint directly from the paint tin or bucket onto the roller. The innovative radio remote control ensures a constant yet controlled paint flow.

Paintbrush

Although paint rollers are better for larger areas, they can't get into small spaces, and that's why you'll also require a paintbrush. When buying a paintbrush, rather buy the one that is a bit more expensive. Nothing is more frustrating than paintbrush hair falling out and you having to remove them from the painted surface. It is a good idea to buy a few paintbrushes, each of a different size, like 12mm, 25mm and 50mm. The 12mm brush can be used to paint in corners while a 50mm brush can be used to paint a line around door frames as well as above skirting boards and underneath cornices.

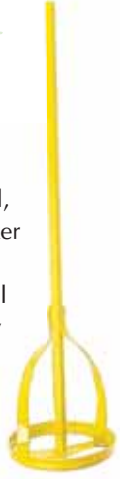
The Bosch Electronic Paint Roller automatically feeds paint to the roller

Gloves

Have lots of surgical gloves handy when painting

Whenever you work with paint, have lots of surgical gloves ready. These gloves will prevent paint from getting onto your hands, which you will struggle to clean off afterwards, especially if it is an oil-based paint that requires turpentine to remove. It might sound a bit crazy, but everything liquid that comes into contact with your hands penetrates the skin and your body then absorbs it. You should have a few surgical gloves at your disposal because they tear easily and if they get snagged on something sharp, they're of no use anymore, as liquids will then seep through.

Spiral paint mixer



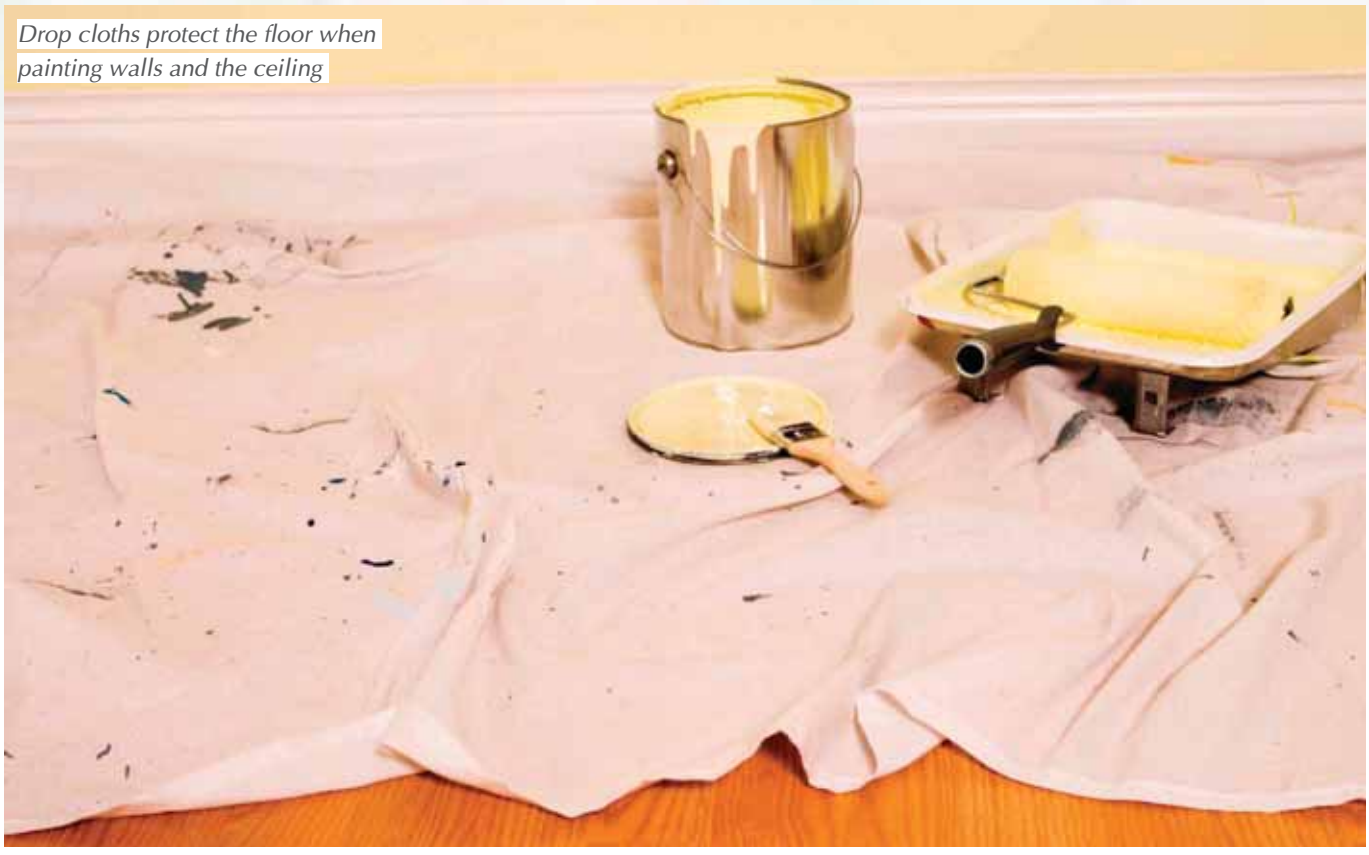
Mixing paint is a tedious task and most times you end up mixing the paint in the paint tin with an old broomstick or an off-cut piece of wood. Well, there is a much easier and faster way to thoroughly mix paint and all that's needed is a spiral paint mixer and a drill. Simply attach the spiral mixer to a drill and insert it into the paint. You might have to pour the paint into a larger container, otherwise it might spill when you mix it. To mix the paint, start the drill (preferably on low speed) and mix it for the time stipulated on the back of the paint tin.

Ladder

Even though there are extension handles available for paint rollers to enable you to reach high places, a ladder is still required to paint cornices, the immediate area underneath the cornice and in corners as well. When choosing a ladder, there are a few things you need to consider. A quick look on www.saladder.co.za tells you that you need to choose a ladder according to its application, how high a person needs to reach, the load capacity and the material of which it is made. To paint interior walls a step ladder will suffice. In terms of height, a 1.52m ladder will enable the average person (1.7m tall) to reach a height of 2.74m. For painting, domestic and garden work, a ladder with a load capacity of 90kg is fine, while a ladder with a load capacity of 100kg is a safer choice for light commercial work, painting and cleaning.

Lastly, you need to decide between an aluminium, steel or fibreglass ladder. All three of these choices are strong and corrosion resistant.

Choose a ladder that can take the required load and that enables you to reach your intended height comfortably



Drop cloths protect the floor when painting walls and the ceiling

The advantage fibreglass ladders have is that they are electrically non- conductive and are therefore the leading choice of professionals, but for painting purposes this is not required.

Drop cloths

These are essential when you're painting walls and ceilings so that you don't get any paint on the floor. When painting ceilings, large drop cloths are a must because the entire surface of the floor needs to be covered. When you're painting skirting boards and walls, drop cloths are still recommended, but they don't need to be so large. Drop cloths of about 1m–1.2m wide are enough to prevent paint from walls and skirting boards ending up on the floor. Here, preparation is key, so take the time and properly lay the drop cloths, especially when you need to paint skirting boards that are close to the floor. Place masking tape underneath the skirting board for its entire length and then stick it to the drop cloths. This is time consuming, but it is better than having to clean paint off the floor afterwards. Cleaning paint off tiles is easy, but not off carpets.

Masking tape

Masking tape is used to cover areas that should not be painted, like cornices and skirting boards, when you're painting walls, or vice versa. The adhesive on masking tape is made so that it can be removed from the surface without leaving any residue behind or damaging the surface.

Masking tape is used as a precaution and is not a guarantee that paint won't get onto a surface. Therefore try to avoid flooding masking tape with lots of paint because some paint is bound to get through the tape. Remember to press down the edges of the masking tape to prevent paint from settling underneath it.

Heat gun and scrapers

To remove old paint from skirting boards and door frames, one of the easiest and healthiest ways of doing so is with a heat gun and a paint scraper.

A heat gun makes quick work of stripping old paint

It is easy because most heat guns can be set to temperatures in excess of 600° C, making quick work of loosening old paint so that it can easily be removed with a scraper. It is healthy because, unlike with various paint strippers, there are no harmful chemicals to be inhaled. Each heat gun comes with a set of scrapers in various shapes and sizes. These enable a person to remove paint from small to medium surfaces with great ease. The only thing you need to be careful about when using a heat gun is the heat that is generated at the tip of the gun.

ARMA IURIS

Shield yourself/Pantser jouself

Laboria

Arma Iuris (Pty) Ltd (established in 2005), inter alia renders the following labour law services. Our services, known as Laboria, include the following nationally:

- A comprehensive **audit** of your business after commencement to ensure that you have all the standard documentation ie. disciplinary code, grievance procedures, charge sheets, etc. Revision of current documentation and/or drafting of all the required documents form part of our presentation.
- **Training** on a national base to all your managers or nominees to ensure the overall understanding of the process to be followed when compiling a charge sheet, serving of the charge sheet to the accused, and if necessary, with the accompanying explanation of his rights and witnesses needed.
- Conducting of **disciplinary hearings** at your designated workplace.
- In case of termination and referral to the **CCMA**, we object to the "Con/Arb" process and resume only with the conciliation for strategic reasons whilst we begin to prepare for the forthcoming arbitration.
- The arbitration is represented by us because both parties become a member of an employer organization the **GDPEO**.
- **Union Negotiations**.
- **Strikes** either legal/illegal, protected or unprotected.
- Referral of the **CCMA ruling** for **review** if there is merit in doing so.

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So, that flaky-looking wall has finally inspired you to do some home improvement work yourself. Here's how you can get a great-looking finish on your walls without having to call in the experts or spend a ton of cash.

Handy Hints for Novice Painters

If you take a little care and time when painting your walls, you'll get the most from your efforts – and the money you spend.

Choosing a paint

The first thing you need to do is choose a paint; there is a wide range of colours, types and textures. While the price on the tin is typically the first thing to catch your attention, there is more to it than that. Consider the coverage; you may find that the cheaper paint has a much lower coverage ratio, meaning that you'll have to buy more of it to do the same job. Consider also that some paints are textured, and others smooth – knowing what you want your walls to look like means choosing the right product for the job.

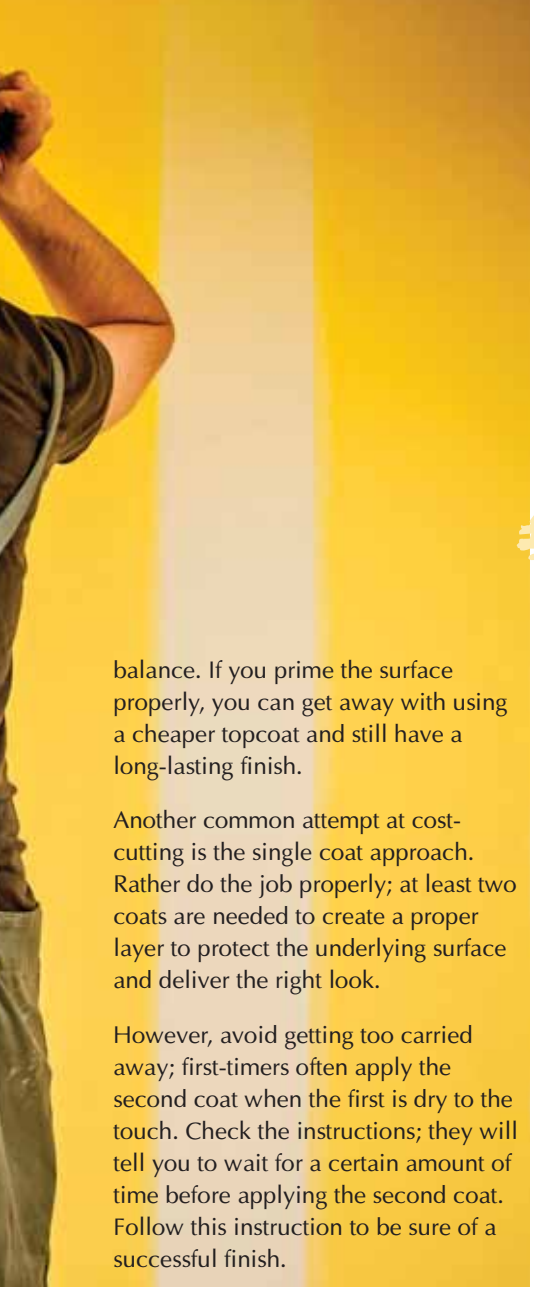
Follow the instructions

Read and follow the instructions on the paint tin. With the fast pace of modern life, there is a tendency to pop the lid and immediately get your hands dirty without paying any attention to the printing on the side of the tin. Skip this step at your own peril. The manufacturer puts a lot of care into those instructions and following them will help you achieve a great-looking finish and the best value from your paint.

Reading the instructions can prevent costly mistakes. For example, there is a common misconception that topcoats have a built-in primer. Believing that is a terrible mistake to make; you could end up painting an entire room, or worse, your whole house, only to find the paint peeling off months later. That's not the fault of the product if you haven't followed the instructions.

Topcoats and primers

Another common mistake is to put all the funds for a project into an expensive topcoat at the expense of the primer. Rather spend more on the primer and less on the topcoat if you must find a



balance. If you prime the surface properly, you can get away with using a cheaper topcoat and still have a long-lasting finish.

Another common attempt at cost-cutting is the single coat approach. Rather do the job properly; at least two coats are needed to create a proper layer to protect the underlying surface and deliver the right look.

However, avoid getting too carried away; first-timers often apply the second coat when the first is dry to the touch. Check the instructions; they will tell you to wait for a certain amount of time before applying the second coat. Follow this instruction to be sure of a successful finish.

Prepare properly before starting the job; if you are unsure of anything, ask your paint supplier for advice. Just gather as much information about the job you are planning as possible.

Painting small rooms

You can make a small room seem bigger by using the right colour paint, and by complementing the colour with careful furniture choices and placement. The simplest course of action is to paint the room in a lighter hue. This reflects light better and thus creates an expanding effect.

To do this, you don't have to go for white; explore the palette a little and you will find many lighter shades, like pale yellows, light shades of blue, sandy beige or pale sea green. Any one of these will provide some colour and character while still giving the impression of additional volume.

And don't stop at the walls. Painting all trims, skirtings, window frames and door frames in the same shade as the walls adds to the illusion of more space.

Covering flaws

Like make-up, an application of paint can conceal the minor imperfections that can otherwise ruin visual appeal.

Flaws can range from minor cracks in the underlying plaster to unsightly bumps or depressions. While the major damage should receive appropriate attention, many imperfections can be covered through the judicious application of the right choice of paint.

Where there are depressions, a filler is required, while unsightly bumps will require attention with sandpaper. Once smooth, any areas that have undergone filling or sanding will require spot priming before being painted over. Following this preparation, the choice of paint will have a substantial impact on just how good the final finish will look.

In high traffic areas, which are more likely to experience problems, a careful selection of the final coating for these walls is necessary. Whether it is in the kitchen or scullery, where the walls often get bumped, or in children's rooms, where posters are affixed to the walls with Prestik, flaws are likely to show up quickly. If the paint has become chipped through wear or it has been pulled off in areas where posters have been hung, consider sanding the damaged area down, before priming and repainting. This approach is sometimes better than using filler, especially when a number of layers of paint are already on the wall. Look for intermediate texture coats to cover minor flaws.

Take Painting to the Next Level

Painting is a tedious business that takes a lot of preparation, equipment and time. Ladders and scaffolds can be very handy and make the work easier and safer, especially in hard-to-reach places.

A few good ladders in different sizes and extension planks are all you need to make painting interior surfaces easier. Tall ladders are always safer to use; you can balance your body against the upper parts of the ladder. The downfall, however, is that taller ladders are more difficult to manoeuvre through a house and can easily chip corners with a light bump. Shorter ladders also have their place. They are lightweight, easy to move around and are safer than standing on random objects such as drums, chairs and tables.

When choosing a ladder, remember that you won't always be using it just for paint jobs. If you plan to use power tools, such as drills, while standing on your ladder, a metal ladder might pose a danger as it conducts electricity.

Proper selection

Select a ladder with a proper duty rating to support the combined weight of user and materials. Ladders are available with duty ratings of 95kg, 100kg, 115kg and 136kg. Your ladder should have a manufacturer's sticker that gives weight ratings and instructions for correct use. Read it carefully when shopping for a ladder. Remember that you may exceed the recommended weight limit when you carry heavy tools or materials up the ladder.

Ladders are designed for one person only. Do not use them in high winds, during storms or if you are in poor health. Wear rubber safety shoes and ensure that you keep your shoes clean. Shoes with leather soles should not be worn.

Inspection before use

Ladders can become a danger if they are not maintained. Although ladder maintenance is minimal, it is wise to inspect your ladder thoroughly for missing or damaged components. Never use a damaged ladder and never make temporary repairs. Inspect carefully for loose fasteners. Make sure all working parts are in good working order and lubricate if necessary. Always clean your ladder of all foreign materials, such as wet paint, mud, grease, oil, etc. This might save you from slipping in the future. Destroy the ladder if it is too badly damaged, worn or rusted.

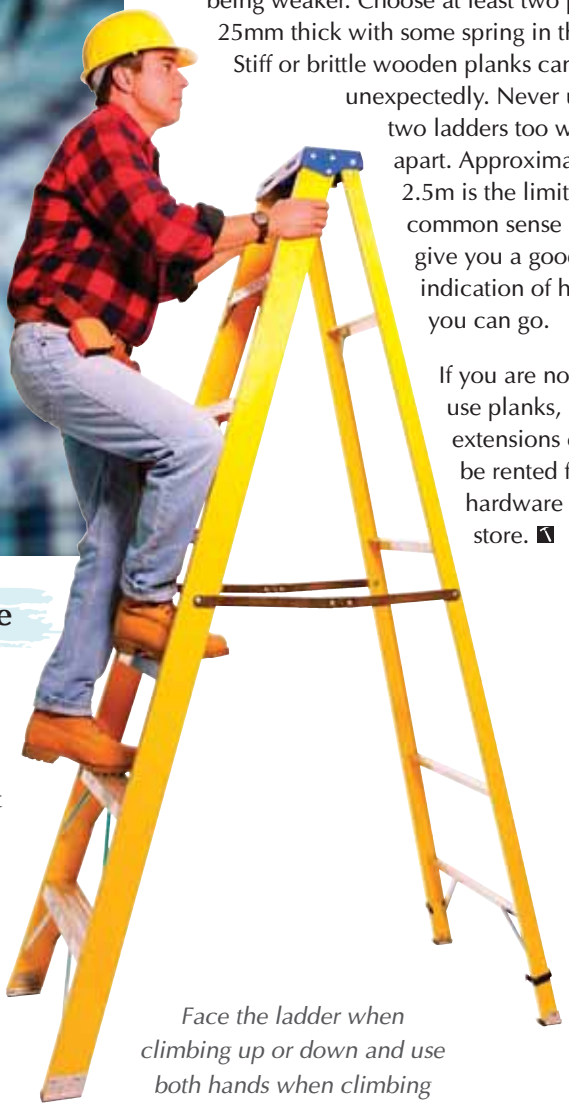
Storage

Hang your ladder on racks at intervals of 1.8m for support. Never store materials on the ladder and never drop or apply an impact load to your ladder.

Scaffolds

Using scaffolds between two ladders is perfectly safe if you follow a few basic rules. The very first is to use proper ladders and strong planks between the two. Worn out, damaged and old planks are not suitable for climbing onto. Large knots or splinters could also lead to planks being weaker. Choose at least two planks 25mm thick with some spring in them. Stiff or brittle wooden planks can break unexpectedly. Never use the two ladders too wide apart. Approximately 2.5m is the limit, but common sense should give you a good indication of how far you can go.

If you are not able to use planks, scaffold extensions can be rented from a hardware retail store.



Face the ladder when climbing up or down and use both hands when climbing

Proper set-up and use of stepladders

- Get help with setting up and steadying your ladder.
- Make sure the ladder is fully open, the spreaders are locked and the ladder is stable before climbing.
- Set all feet on a firm and level surface.
- Place the ladder where access is not obstructed.
- Do not place the ladder in front of unlocked doors.
- Ladders are not intended to be used on scaffolds.
- Secure the ladder from movement where possible.
- Climb only onto the front side of the ladder.
- Face the ladder when climbing up or down.
- Maintain a firm grip and use both hands when climbing.
- Keep your body centred between the side rails and do not overreach.
- Get down and move the ladder when needed.
- Do not climb, stand or sit above the second step from the top.
- Do not climb, stand or sit on the spreader braces, ladder top or pail shelf.
- Do not straddle the front and back and do not climb from one ladder onto another.
- Avoid pushing or pulling off to the side of the ladder. Do not 'walk' or 'shift' the ladder while on it.

OFF THE SHELF

Your guide to the latest products in the world of DIY

Wood Trimmer

Makita's new 18V Cordless Compact Trimmer DRT50ZJ is an awesome tool to add to your woodworking arsenal. It is powered by an 18V Lithium-Ion Battery and has a brushless motor that provides more power whilst increasing runtime and durability. It has variable speed control and a soft-start function that minimises start up shock. The trimmer has a no-load speed of 10,000 – 30,000 rpm and a collect capacity of 6.35mm. The DRT50ZJ will trim up to 100 metres, trimming 6mm at 4mm deep using a 6.0Ah battery. This model is supplied in a systainer case with a trimmer base only. There is also the option of purchasing the DRT50ZJX2 set which has the plunge and a tilt base.

The batteries and charge are sold separately and are compatible with all other 18V cordless tools in the range.

For more information:
Visit: www.makita.co.za
Tel: 011-878-2600

Superior Hand Protection

Whether in the workshop, the garden, or outdoors riding MX, trails, mountain paths or roads, Tork Craft has a pair of gloves for you. The range has been designed to offer superior protection at an affordable price. Cyclists are sure to appreciate the Blue Air Mesh and Spandex Red gloves that feature terry cloth on the back of the thumb. This is handy to give your goggles a quick wipe on the fly, or even to wipe away sweat when you stop for a break.

For more information:
Visit: www.vermontsales.co.za
Tel: 011-314-7711

Multi-purpose Accessory Sets

Make DIY tasks easier with Bosch V-Line accessory sets that come in cases. The range has five sets and contain between 41 and 91 accessories.

V-Line accessory sets:

- 41-piece drill and screwdriver bit set with angle driver.
- 48-piece titanium drill and screwdriver bit set with a magnetic stick.
- 68-piece drill and screwdriver bit set with angle driver, magnetic stick and folding knife.
- 83-piece titanium drill and screwdriver bit set with an LED torch and adjustable spanner.
- 91-piece titanium drill and screwdriver bit set with ratchet screwdriver and magnetic stick.

For more information:
Visit: www.bosch.co.za
Tel: 011-651-9854

Handy Wood Lathe

The Toni Wood Lathe TWL 100 is a stationary benchtop lathe ideal for spindle and bowl turning. It is a perfect match for start-up workshops or the DIY enthusiast. The highly adjustable variable speed allows the user to work on small as well as large workpieces and a variety of woods.

Specifications and special features:

- 400W motor
- Variable speed: 810-2480rpm
- Maximum cutting length: 1000mm
- Turning capacity: 350mm
- Dimensions: 1 490 x 450 x 140.5mm
- Weight: 25kg net

For more information:
Visit: www.newcopowertools.co.za
Tel: 011-315-1504

Fine Cutting Machine

The JET JSMS10L Mitre Saw is ideal for crosscutting both hard and soft wood up to 90 mm thick and up to 305 mm wide. With a base that can swivel and a head that can tilt up to 45 this makes it the ideal saw for decking, flooring contractors, roofers, picture framers and more. When fitted with the extension arms and end stops cutting repetitive lengths becomes a breeze. The machine is equipped with a laser light that shows the exact point of cut and the strong 1500W (230V) motor will cut mitres and compound angles with pinpoint accuracy.

For more information:
Visit: www.strandhardware.co.za
Tel: 041-585-6996

When Accuracy Matters

Stanley recently introduced two measuring tapes to its FatMax line of tools. These auto-locking models are available in 5m and 8m tapes with customisable hook systems. This enables you to connect an oversized or magnetic hook facilitating one-man operation.

Professional features such as 3.3m of standout on the 32mm blades and a manual mode to override the auto-locking mechanism complete the setup. The blades are coated in Mylar and feature BladeArmor coating for durability and long life.

For more information
Visit: www.stanleytools.co.za
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Self-Fusing Tape

Alcolin Silicone Tape is a self-fusing repair tape that, once wrapped, only sticks to itself. This versatile wrap creates a temporary or even permanent air- and watertight seal in seconds. It is ideal for electrical insulation, plumbing, gardening, household, automotive and other emergency repairs. It comes in 3m rolls and is available in black, white, red and green. Available at most hardware stores.

Applications:

- Wraps and secures anything without leaving a sticky residue.
- Creates non-slip grips by wrapping onto equipment and tools.
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For more information:
Visit: www.hardwarecentre.co.za
Tel: 011-782-6796

The Art of Restoration

>> Samantha Greathead

Haylee Dugmore considered starting a furniture restoration business three years before it actually became a reality. Her first project was an oversized wooden headboard made of different types of wood. She bought the wood for the project a full year before she started it. Yet, once she took the leap, there was no going back.

Moving to a small town helped Haylee find her passion. "It lead me to look for a project to fill my free time. I soon realised that I enjoyed restoration much more than my day job. It was a massive leap but I left my job and start restoring full-time."

Haylee opened 'Cassie's Workshop', named after her Jack Russell who now accompanies her to work. She chose furniture restoration because it transcends beyond the prescriptive nature of retail items. Restored furniture is more eclectic and brighter than the white or off-white options in stores.

A Love For Furniture

The aspect of furniture restoration that Haylee finds so satisfying is that all furniture has a story to tell. "Think of furniture which was inherited and thus has importance but little function. Reviving and rejuvenating that item is what I enjoy so much. This is especially true when it comes to wood. I also enjoy bringing something to life with bright colours."

When Haylee restores a piece of furniture, she draws on the world around her. "My inspiration comes from everywhere. It can come from a piece of fabric I find or even be a continuation of a recent project. Most often, I am motivated by colours. The variety of colour available is definitely a dominant and important feature in my inspiration."

Haylee's favourite piece of furniture to restore is armchairs. Its restoration involves selecting new fabrics and adding paint for an entirely different look. Other projects which she enjoys include chest of drawers which provide excellent creative outlets. She also enjoys restoring ball and claw furniture because of their incredible detail.

Lessons Learnt

From the start, building her business was a learning curve for Haylee. "The second piece of furniture I restored was an old white bench. I sanded it down and painted it with water-based paint. It didn't turn out as well because I should

have used oil-based paint. Nonetheless, I upholstered the top and I still have it today. Along with my headboard, it is one of the most influential pieces of furniture I have worked on."

With furniture restoration, everyday is a new day to learn. "Now I know the difference between oil-based and water-based paints, for example. One of my most valuable self-taught skills is spray-gun painting. I had lots of trial and error but I also came up with different recipes and mixes. I love the finish of a spray gun. Hand painting has its place but when you want a smooth surface, spray gun is best," says Haylee.

Another great learning curve for Haylee, is understanding her own value as an artist. "Most people appreciate you and will pay for your skills but be careful of unrealistic expectations. Every minute you spend on a project needs to be accounted for.

"When moving from a hobby to a business it's important to understand costs and make a mental switch. For example, you have time limits and you need to learn to be careful to not become obsessive; you're an artist not a magician. With costs, if you do additional work, you need to charge for this. Previously, if a chair wobbled, I just fixed it but these things take time."

Part of this involves managing client expectations. "From the start you need to make sure clients understand that projects can't be completed in two days. Both of us must understand the budget available too. Sometimes, you need to learn to say no when expectations are unrealistic."

Influencing Success

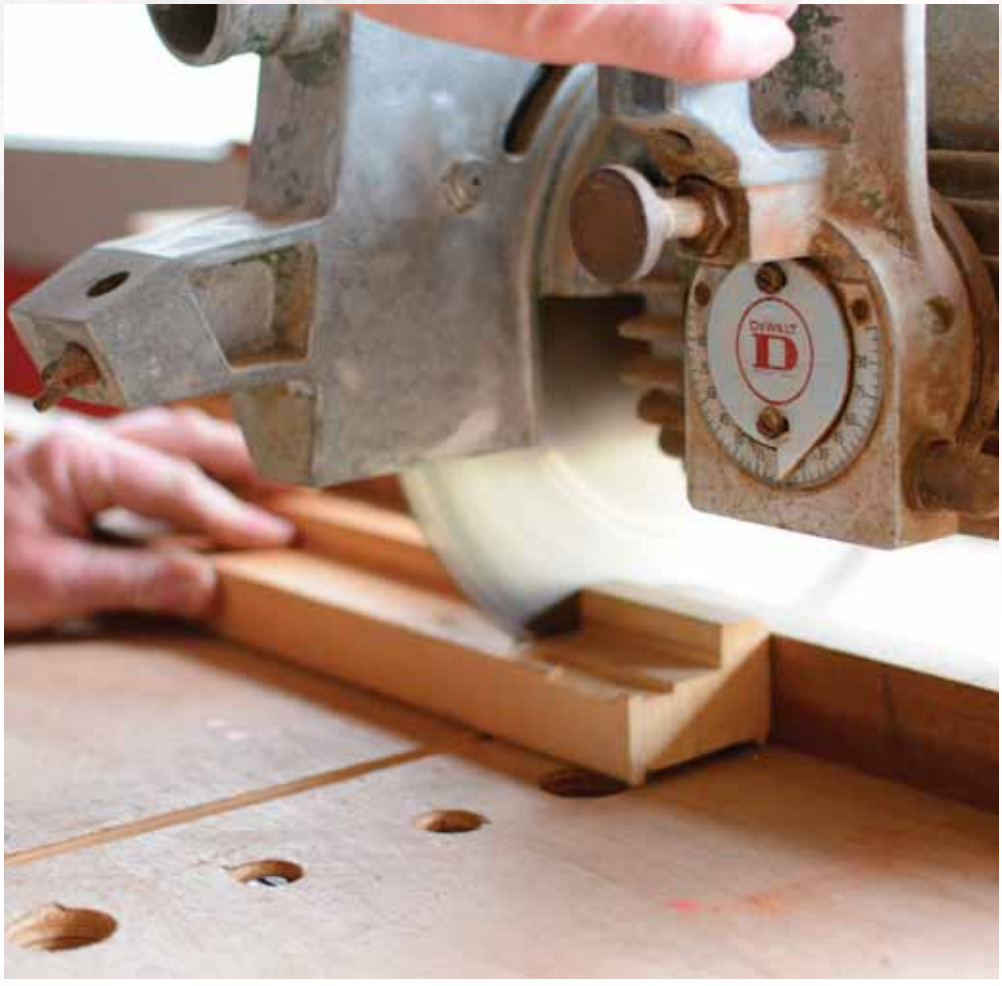
Haylee pinpoints two people within the furniture restoration industry as having the greatest influence on her. "One was a woman from the small town I used to live in who had a furniture store. We started to chat and I absorbed plenty of knowledge from her. She is one of the most influential people on my career and we still talk today. The second is Laetitia Viljoen who I did a course with. I often discuss projects with her. She is always supportive and willing to share."

Hayls and Cassie

Haylee's leap from one industry to another is one she has no regrets about. The opportunity to turn a hobby into a career, is something few people get to do and Haylee is doing it with flair.

Preventing the Panel of Doom

Denis Lock demonstrates how wooden tabletops can be supported and made to look more substantial without creating a "panel of doom"

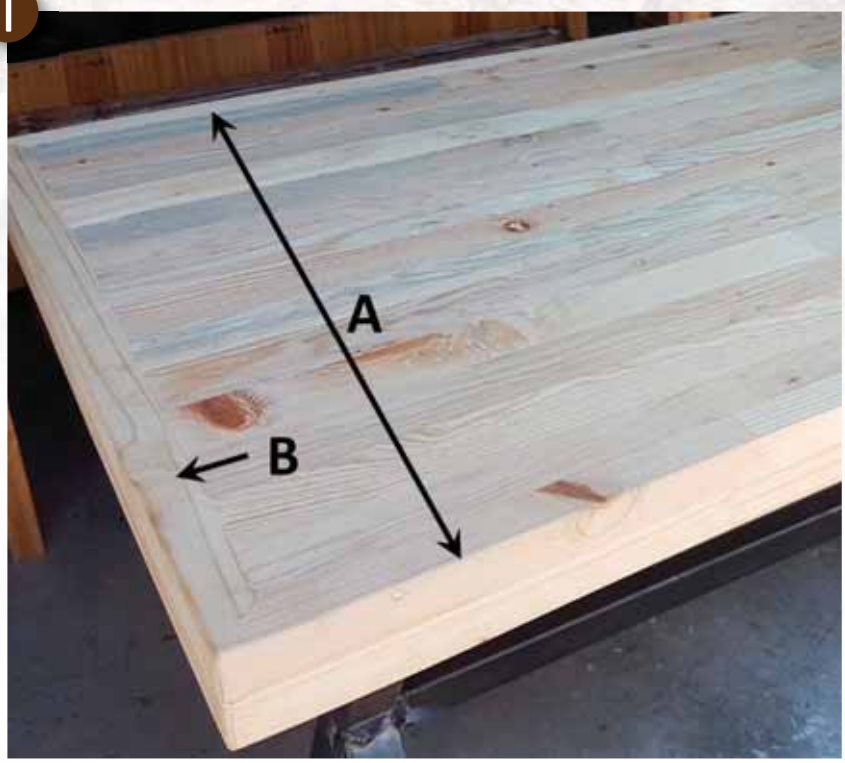


>> Denis Lock*

Do you believe in coincidences...? On the day that the April 2018 issue of *The Home Handyman* (THH) went to press I received a distressed phone call from a joinery works in Pretoria. They had experienced the "panel of doom" in a consignment of red-oak tables delivered to a local restaurant. The problem was identical to the one seen in figure 2 of my April article *The Panel of Doom*.

Two weeks later, on the same day that my copy of THH arrived in my post box, I was approached by one of the woodworkers with a workshop in the same complex as mine. He proudly invited me to come and see a table he had just completed (photo 1). I hated to tell him but had to – he had created a "panel of doom". I explained that over the next three months, as we move into the dry winter season, the boards that make up the top will shrink across their width and that dimension "A" will reduce. The long-grain (50mm x 25mm) mitred edging "B" will not shrink.

Since the entire table top, including the mitred edging is solidly glued together with no provision for wood movement something will have to give. Where it gives depends on where the weakest part of the construction is. It could be a latent



Looks good – but for how long?

crack in one of the boards or a badly glued joint. I clinched my bad news by showing him an almost identical table top (photo 2) on my workshop laptop. As the relative humidity reduced the boards that made up the table top shrunk across their width (A), but the long-grain edging (B) did not. Something had to give and in this case it was a badly glued joint between two boards. Photo 3 shows another possible outcome; here the weak point was where the edging had been glued on and the edging has split away.

In my April 2018 article I commented that woodworkers attach a piece of long-grain wood across the short-grain edge of a wide panel for one of three reasons. How do we make provision for wood movement and avoid the "panel of doom" in these cases?

Stiffening a panel

The textbook method of doing this is shown in photo 5 – the bottom of my 60-year old drawing board. Two long-grain cleats, only one is shown in the photo, are screwed across the underside of the board. No glue is used. The central screw is placed through a normal round hole while the outer screws are placed through elongated holes or slots. This allows the board to move (expand and contract) in relation to the cleats. As a

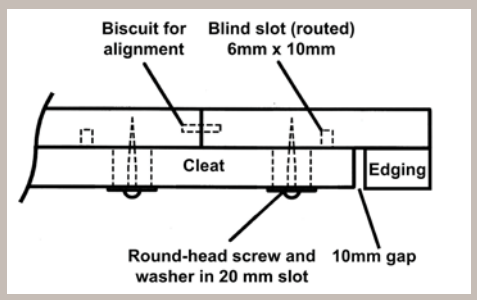


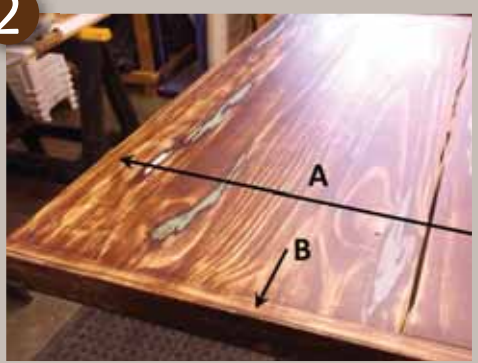
Figure 1: How to apply cross-grain cleats

Stiffening a panel step-by-step

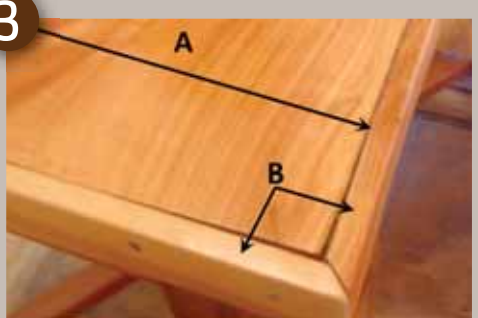
Step 1: I use biscuits to help align the boards during glue up.

Step 2: If after gluing the boards show any tendency to cup or twist I rout blind slots in the middle of each board – this makes the "cleats job" easier.

Step 3: The table top is sealed, an equal number of coats on each face, before the cleats are screwed in place without glue being used. Be sure to leave a gap between the cleat and any applied edging or it will be forced off when the top shrinks.



Split at board joint



Joints forced apart

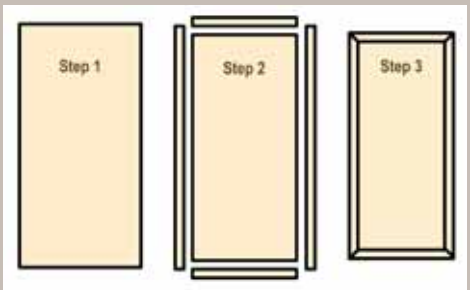


Figure 2: How to apply edging to thicken a board

Increase apparent thickness step-by-step

Step 1: Start by joining up a blank which is 130mm longer and 130mm wider than the desired finished size.

Step 2: Now rip a 60mm strip from each side and cross-cut a 60mm strip off each end. Remember to mark each piece so they can be returned to their original position. Be particularly careful with the two cross-grain pieces, if you drop one it will break into two or more pieces.

Step 3: Mitre the edges of the strips and glue them onto the underside to make the table appear more substantial. Be careful not to rotate any of the pieces – they must maintain their original orientation. Depending on the size of the panel you may want to add intermediate cross-grain cleats as shown in figure 1.

4

A 60-year old drawing board

5

A thickened dining room table top

result the board stays flat and there is no splitting. The easiest way to make the elongated holes is with a hand-held router, a 4mm or 5mm bit, a guide bush and a simple template.

Increasing the apparent thickness of a tabletop

What I hate about knock-down furniture is that everything is the same boring 16mm thick. Kitchen installers understand this and granite, or post-form tops are made to be 32mm thick. Solid wood table tops can be made from 32mm thick material but they are unnecessarily expensive and very heavy.

This is why we add extra wood edging; either on the side or underneath. I think I have provided enough evidence to convince you that this should not be done without provision for movement being made. If two of the four edging pieces have a serious cross-grain conflict sooner or later something is going to crack, or joints are going to open up.

The top half of photo 5 shows six 22mm thick Sapele Mahogany boards prior to step one. The bottom half of photo 5 shows the same six boards after step three. Note the perfect colour match of the glued edge on cross-grain piece. You can't tell the difference between this built up 44mm table top and one made from solid 50mm boards. The difference is it cost less than half and is just slightly more than half the weight. This eight seater dining room table top is now more than ten years old. It is as flat as it was when photo 5 was taken and not one of the joints has opened up.

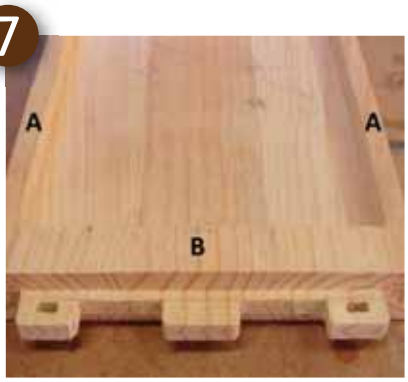
Hiding the end-grain of a panel

We have already seen (photo 2 and 3) that you must not solidly glue a long-grain edging strip to hide the end-grain of a panel. How then do

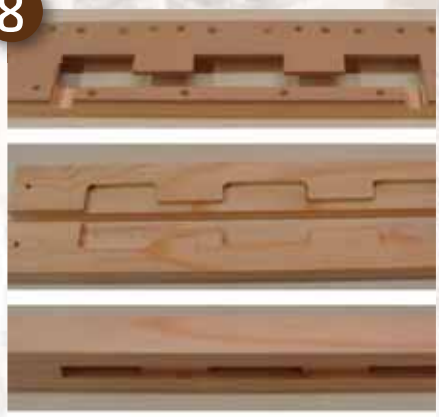
6

Breadboard end

7



Tenons to hold breadboard end



Making a breadboard end

You would never notice this

you hide end-grain? You only glue the middle 75mm (the 75mm rule) and leave the remainder to float. Some form of mechanical restraint needs to be added to keep the floating ends in position. Such a strip is called a breadboard end (photo 6). It is normally between 30mm and 100mm wide and often serves the double purpose of keeping the panel flat.

A simple way to keep the floating breadboard ends in position is a blind tongue and groove. I use mortice and tenons; three on a narrow top, five or even seven on a wide top. Photo 8 shows three tenons cut at one end of a panel that will become a bench top. The other end is cut the same way. Note the thickening pieces "A" and "B" and note that "B" is cross-grain. The two outer tenons have slotted holes 8mm wide.

Photo 7 shows how the breadboard end was made. The top part of the photo is a pattern routing template to be used with a guide bush. The middle part shows two pieces of wood routed with this template. These two pieces are glued together face-to-face to create one of two breadboard ends. An examination of photo 7 and photo 8 will show how the breadboard end fits onto the bench top.

The two outer mortices on the breadboard end are wider than the corresponding tenons and allow for seasonal wood movement. Only the centre tenon (less than 75mm) is glued. The two outer tenons are held by 8mm dowels (no glue) through the centre of the slotted holes. The breadboard length only matches the width of the top for a short period of the year. For the rest of the time it is shorter (wet season) or longer (dry season). This can be seen in photo 9. Most of the time it goes unnoticed (don't point it out to your visitors). They would, however, immediately notice the sort of crack or failed joint seen in photo 2 and photo 3.

Take the time to apply these techniques to your woodwork. Make furniture that lasts for decades not just a few years.

**Denis Lock runs a woodworking school and shop in Midrand, Gauteng. He can be contacted at denis.lock@worldonline.co.za or 082-267-5948. Visit his website at www.routingwithdenis.co.za*

JOINERY

One of the most common forms of joinery can be replicated at home with little skill and few tools

>> Gareth Greathead in association with Vin and Vernon Wilson

The Dowel Joint

One of the most common forms of joinery can be replicated at home with little skill and few tools.

Dowel joints are used in many places and can be strong and inconspicuous if constructed well. Just have a look at any piece of commercially manufactured ready-to-assemble flat pack furniture and you're sure to find dowels being used. Here the dowels provide 'locating points', aiding in assembly, and stability when used in combination with removable fasteners.

The primary use of the dowel joints in woodworking is to strengthen inherently weak joints such as the end grain butt joint. The reinforcement provided by dowels mean that glue can be used instead of screws to improve aesthetics in cabinet making.

At its most basic dowel joints can be constructed freehand with little more than a drill and some inexpensive drilling aids. However simple, accuracy remains important and some form of jig is needed. A jig makes it possible to drill corresponding holes in the butting edges of two pieces of wood that need to be joined. After holes are drilled a dowel of the correct diameter is glued into one side before the other side is attached.

5 infinty Tools dowel jig

Dowling Aids

There is hundreds of doweling aids and tools available market with the most basic costing less than R100:

- Not used so much today is the dowel plate. In years gone by woodworkers would machine their own dowel rods to a slightly larger diameter than required. After that, the rod is passed through a dowel plate with different sizes and sharp edges that skim away slivers of 'tinder'.
- You can make your own dowel pins by cutting your own from a length wooden rod of the appropriate diameter if you wish. Store bought dowel pins are fluted so that they can be more easily inserted into the blind holes. Some also have groves cut along their length to make space for the release of air and excess glue when being hammered home.
- Drill stops come in a variety of sizes that are matched with the size of the dowel pin and drill bit being used. The Allen holes located in the side of the drill stop allow you to move it down the drill bit to set an appropriate depth.
- When used with a drill stop a handheld drill block makes it possible to drill 90° holes into a piece of wood without the use of a drill press. Many also have a V-shaped grove that enables one to drill holes into a corner of wood.
- Dowling jigs take the basic drill block one step further and can be centred to drill 90° holes into the centre of a piece of wood like an edge.
- If the blind holes made in the two pieces of wood that need to be joined do not correspond perfectly there will not be a seamless joint. Dowel centres also come in different sizes; once you have drilled holes in the one piece of wood to be joined the right size pins are inserted and the other piece of wood is pressed against the pins to create marks on the corresponding faces.

Vin and Vernon Wilson achieve professional results using their own jig

Many people prefer biscuit joints over dowels because of the difficulty of producing accurate dowel joints. There is, in fact, a simple method of producing perfect dowel joints and we do it like this.

Firstly, one needs some form of 'jig' that will enable you to drill straight holes,

5 Universal doweling jig

edge-on, into a board. For this article we demonstrate the process using a Wolfcraft drilling attachment (photo 1). Any other kind of attachment that allows accurate drilling can be used.

Our Wolfcraft comes with a set of collar adapters to ensure that the drill bit is precisely aligned with the posts and hence centred with the edge of the work piece when used as shown (photo 3). Also, the posts of the Wolfcraft can be set to protrude below the base plate and this feature is ideal for precision edge-on drilling.

Join boards using dowels step-by-step

Step 1: To use our method one the two boards to be joined, the one which needs edge drilling must be 30mm longer, or wider than needed (photo 2). It could be wider but using this measurement is convenient when working with 60mm dowels. Later, after holes have been drilled for the dowels, a 30mm strip will be ripped from the board to act as a 'jig' or template.

Step 2: After setting the drilling depth, 60mm in this case, as many dowel holes as needed are drilled into the edge of the board. The hole spacing need not be accurate as the template will replicate the hole pattern on the 'face' of other board. It is only necessary to ensure that the depth of the hole matches the dowel length. If you use 40mm long dowels your depth would need to be set at 50mm which is half length of the dowel plus the 30mm strip.

Step 3: Set your table saw up to rip away the 30mm strip marked out in step 1 (photo 4). By this time it has holes drilled all the way through its edge and resembles a template.

Step 4: Clamp your template or 'jig' onto the butting face and use it to drill corresponding holes into the face of the second board.

Provided the template is positioned and held accurately the joint will automatically come out perfect (Below).


We used a Wolfcraft drilling attachment which allows accurate drilling


The one board must be 30mm longer, or wider than needed


Our Wolfcraft comes with a set of collar adapters to ensure that the drill bit is precisely aligned with the posts


Set your table saw up to rip away the 30mm strip marked out in step 1

After

Clifford Roberts and woodworker Andries Eygelaar show you how a dummy bookcase can solve a décor eyesore.

Make a Secret Bookcase

Before: *Our décor eyesore was a computer, modem and wiring in our guest bedroom - a dummy bookcase was just the thing to solve the problem.* ***After:*** *Hey presto! Our computer has vanished and been replaced by something far less conspicuous*

Thriller films often have trick bookcases that open into a secret passageway. While less spectacular homeowners often learn to live with an eyesore because we just don't know how to disguise it. It may be an ugly distribution board in your kitchen or a television decoder. Alternatively, you might want to create a nifty hiding place for your keys, or even disguise a safe. Our solution was to make a false bookcase out of an open front under counter shelf.

Our problem was a computer hard drive and modem in a guestroom. We didn't want it standing on a shelf for guests to see, so we devised a false bookcase to hide it. In essence, our false bookcase is a three sided box with the front being decorated with the spines of a few old hardcover books. The box slides into the existing shelf and is open at the back, eliminating obstacles for power cables and the like. The modem remains easily accessible – so long as you know what you're looking for, of course. Depending on your objective you might want to try alternatives, like colourful wallpaper.

Old books can be bought at flea markets for next to nothing

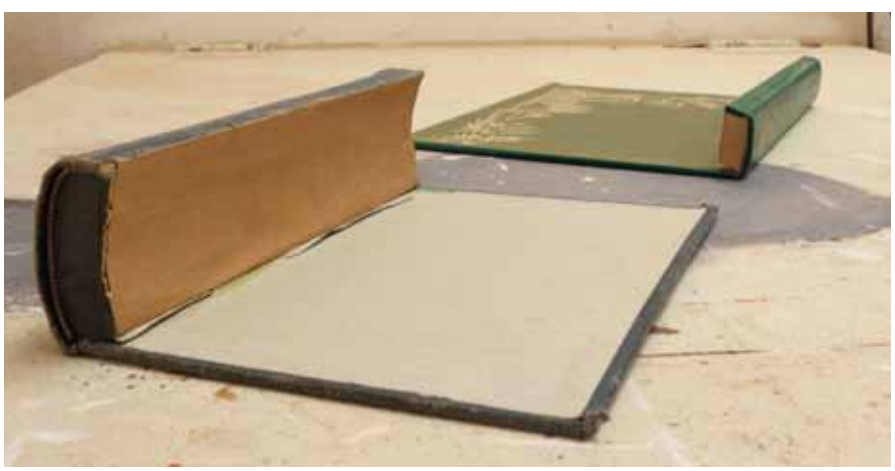
We used scrap wood to build our box and attached the sides using cold wood glue and screws

Step-by-step guide

Step 1: Our project assumes that the shelf on which the dummy bookcase will rest is already in place. Measure the inside dimensions of your shelf to determine the size of the box to be made. In this instance, the box needed to extend along the full depth of the shelf and close the front completely. Since the sides of the dummy bookcase will not be visible when the dummy bookcase is slid into place, the sides of the box need not be as high as the shelf sides.

Once your plan and measurements are down on paper, it's time to gather your material. Scrap wood is ideal, like the off-cuts of laminated flooring we used, because it is all hidden from view. The front panel is the most important part of this project because it will carry the disguise. Our disguise came in the form of some old books we bought at a flea-market. If you're taking this route, make sure they're books you're not keen to read because you'll be cutting them up for this project. As for the number of books you need, their spines side-by-side should match the width of the front panel on the bookcase.

Again, depending on your purpose, the authenticity you may want to get more creative.



Leave the left and right covers of the two outer books intact

Step 2: The assembly of the box is fairly simple because it doesn't need to be particularly strong – it's simply a disguise. Keep the ratio between the length of the sides and the weight of the front panel in mind. If the sides are too small, they may not be heavy enough to support the weight of the front panel and it may topple forward. If you encounter this, add additional weight to the sides by attaching more wood. Also remember, when sizing the sides of the box, that when complete the book covers should be flush with the shelf.

We attached the sides of the box to the front panel with a bead of cold wood glue and three screws on either side. On the side that will be exposed, paint the front panel black. Some advice here; the paint you use needs to be compatible with the surface you're painting as well as the glue you will eventually use to fix the books in place. At this stage, you might want to add some felt to the bottom of the box to add some stealth. We lightly sanded the bottom of each side leg to ensure a smooth surface.

Step 3: The success of this disguise relies on the books appearing real to those not in the know. To achieve this, the spines must sit snugly together and some of pages must remain visible when assembled. This means, you need to cut through the pages of the book, rather than merely remove the covers. We used a fine tooth circular saw blade to cut through the books. Measure 60mm in from the spine and mark your cutting line on the pages of each book – any smaller and cutting becomes impossible. Importantly for the two books picked for the sides is to leave the left and right covers intact. These will be stuck to the left and right sides of the false bookcase, completing the illusion.

You will need a clamp to hold the pages of the books together while cutting. We fashioned some from narrow strips of wood, machine screws, nuts and washers. First, we cut the wooden strip into lengths identical to the height of the books being used. These were loosely clamped along the cutting line and small holes were drilled, about 100mm apart and 20mm in, from the spine of each book. After that nuts and screws were used to clamp the pages together. Be patient – the pages tend to crumple with too much haste.

Our décor eyesore was a computer, modem and wiring in our guest bedroom - a dummy bookcase was just the thing to solve the problem

Step 4: Now, run some wood glue over the exposed pages and glue a sheet of brown packaging tape from top to bottom on each book. The glue and tape work together to keep the pages from separating when you're trying to fix the book to the front panel. Once the glue has dried, it's time to attach the books to the front panel. Before going any further remove the temporary wooden strip clamps and screws. Don't worry about the holes left as these will be covered when the books are arranged side-by-side. Start on one side and work your way across until all of the books are glued in place on the panel. Again – don't rush it – the pages and covers aren't steady. Remember to glue the end covers onto the sides of the dummy bookcase to add an element of authenticity.

Once the glue has dried, all that remains is to slip the box into place and your eyesore has disappeared.

Tools & Materials

- Brown paper packaging tape
- Cold wood glue
- Six wood screws
- A circular saw
- Scrap planks
- Black paint

Project guide

Difficulty: Beginner

Estimated cost: R100

Estimated time: 2 hours

Use a paint that works with the surface and the glue you will use. In our case, a paint and primer combo that bonds to plastic was needed

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Lighting the Way

The incandescent light bulb won't be available on stores' shelves much longer. We look at other available lamps and how they fair in terms of price and lifespan

>> Gina Hartoog

If you have experienced the inconvenience of load shedding recently, you'll know exactly why conserving energy is vital in South Africa today. One of the ways to cut back on your electricity usage is to take a look at how you light your home. Experts estimate that lighting makes up about 14% of your total monthly energy costs. The good news is that with advanced technology, you don't have to sacrifice illumination to use less power.

Understanding the terminology

A trip down the electrical aisle at your local supermarket can leave you wondering where to start. With the myriad products available today, you will likely have many questions. Which lamp is better? Which is more energy efficient? Am I getting value for money?

Most of us are very familiar with the incandescent 'bulbs' – a 60 watt bulb emitted enough light for the average room. If you wanted a slightly dimmer light, you selected a 40 watt. For brighter light, a 75 watt or 100 watt bulb would do the trick.

Today, things are a little different. The first step is to understand 'light bulb' terminology. Firstly, 'watts' refers to the amount of power used by the lamp, not how much light it emits. In today's market, the watt as an indicator of how bright a bulb shines is no longer relevant. Modern lamps are energy efficient – they use far less electricity, but can emit the same or even better light than their incandescent counterparts.

If you look at the lamp package, you will see the term 'lumen'. Lumens

Watts to lumens

Incandescent (Watts)	FLor LED (Lumens)
25	< 200
40	450
60	800
75	> 1100
100	1 600
150	2 700

GOOD TO KNOW

Lamp or bulb? The correct term for what we know as a 'bulb' is actually a 'lamp'. There's a saying: *Lamps glow and bulbs grow!*

are a measurement of how much light is emitted by an object. The higher the lumens, the brighter the light. For example, a 100 watt compact fluorescent lamp (CFL) produces around 1 600 lumens of light, but consumes between 18 and 23 watts of power. You may still see 'watts' or 'wattage' on the package, but this should be used only as a reference to how much power the lamp uses.

Also indicated on some lamp packages are 'kelvins' or a K-number. This refers to the colour of the light produced by the lamp. Warmer light has a lower kelvin number, while higher numbers are generally cooler. Warm white is 3 000K (more orange/red light), while cool white is 4 500-5 000K (low range of blue).

Comparing lamps

Incandescent

'Edison bulbs', named after inventor Thomas Edison, are the oldest and most common of all light 'bulbs'. When electric current passes through the tungsten filament, it heats up to a temperature that produces light. Incandescents have a simple structure and are cheap to manufacture – making them available to consumers at a very low purchase price. However, when it comes to energy consumption, incandescents don't fare well. They are the least energy efficient lamps as 90% of the energy used is converted to heat and only 10% to light. A global phasing out of these lamps was set for 2016.

Halogen

Halogen lamps cast a brighter light and last far longer than incandescent bulbs. The light they produce is of good quality, comparable to that of daylight. The lamp works in the same way as the incandescent bulb, with one addition – halogen. In an incandescent bulb, tungsten evaporates from the filament as it burns. This is what causes the blackening of the bulb glass. In a halogen lamp, halogen gas (usually bromine or iodine) inside the lamp reacts with the tungsten, returning some of it back to the filament and increasing thelifespan of the lamp. While they do burn very brightly, halogen lamps also produce heat and are hot to the touch. Halogen lamps offer a 30% energy saving when compared to incandescents. Some lamp manufacturers have produced halogen 'incandescent lookalikes' in the same shapes as incandescent bulbs, but with all the benefits and energy saving of halogen technology. Halogen lamps start up instantly and are dimmable. Lifespan: Up to two years/2 000 hours. Cost: R15 to 30.

Compact fluorescent lamps (CLFs)

CLFs have been around since the 1980s. They use about 80% less power than incandescent bulbs, with a much longer lifespan. CFLs comprise two sections – the ballast (either magnetic or electronic), which is housed inside a plastic casing, and a tube, which is filled with argon gas and mercury vapour. Electricity moves through the ballast and into the gas-filled tube causing it to generate ultraviolet light. The interiors of the tubes are coated with phosphor fluorescence, which produces more light.

Eskom says that CFLs can be used to replace most of the incandescents in your home. They are less suitable for applications where lamps are frequently switched on and off as this can reduce the lamp life. CFLS are available in various sizes and shapes, and fit a variety of light fixtures. Regular CFLs are not dimmable, but dimmable units are now available. Prices of CLFs have dropped significantly since they were first introduced into the market. Lifespan: Up to three years. Cost: R18-50.

Are CFLs safe?

While compact fluorescent lamps (CFLs) do contain some mercury, there should be no cause for concern about their safety in the home. They contain a very small amount – about 5mg, about the size of the tip of a ballpoint pen. A household thermometer contains about 500mg of mercury – equivalent to about 100 CFLs. During the lamp's usage some of this mercury is absorbed into components of the lamp, so if it does break at the end of its life, only a tiny amount will be available for release into the environment.

If you do accidently break a CFL, have everyone leave the room and open any windows and doors in the vicinity of the broken lamp. Don't vacuum up the glass. Sweep it together and place in newspaper or disposable towel inside a sealed plastic bag. Wipe the area with disposable towelling, taking care to pick up any tiny glass shards. Don't put used CFLs into your household garbage. Find an e-waste recycle disposal depot (check Pick 'n Pay and Woolworths) in your area and place the lamps into the provided bins. If you must for any reason place a CFL inside household garbage, place it inside a plastic bag first. Dispose of a broken CFL in the same way.
Source: Eskom

Light-emitting diodes (LEDs)

LED technology is rapidly developing to become a leader in energy efficient lighting. Today, most LEDs are more efficient than CFLs due to improvements in technology. They produce light differently to both incandescents and CFLs, and do not contain a filament or gas. LEDs are semi-conductor diodes and produce light through a process called electroluminescence. A heat sink plate moves the heat away from the heat sensitive diodes. LED lamps emit very little heat, making them cool to the touch. They contain no harmful materials.

LEDs have a long lifespan – over 100 times longer than incandescent bulbs and about 10 times longer than CFLs, with an 80% energy saving. The lifespan indicated on the packaging is usually based on three to four hours usage per day.

While the prices of LED have decreased, they are still considered an expensive choice. The long lifespan of the LEDs coupled with a decrease in electricity usage means they can effectively pay for themselves over a period. LEDs are a good choice in applications that require long burning hours or when changing the lamp is difficult. Also keep in mind that LEDs emit directional light, usually from the top of the lamp, making them unsuitable for some applications. Omnidirectional lamps have solved this problem and are more suitable for use in applications where a one directional top light is not desired, for example, a table lamp. LEDs are recyclable and environmentally friendly. Lifespan: 15+ years/30 000 hours. Cost: R80-R130.

Sources: Eskom; Eurolux; Philips and Osram

Highlights in light bulb history

1809 – Englishman Sir Humphry Davy develops the first electric lamp, called an 'arc lamp' and later a miner's safety lamp in 1815.

1879 – Thomas Edison patents his incandescent light bulb.

1920s-1930s – The first visible LED (red diodes) is invented by Nick Holonyak of General Electric.

1962 – Another General Electric employee, Edward Hammer, discovers how to bend fluorescent tube and the first spiral CFL is invented.

1976 – CFLs hit the retail market.

Mid 1980s – Blue diodes are invented, which leads to the development of white LEDs (blue diodes coated with phosphor).

1990s – First residential LEDs hit the market. As LED technology improves, they are adopted into TV sets, flashlights and robots.

2002 – Cuba becomes the first country to ban the incandescent bulb, followed by Venezuela, Brazil, and Australia (over the next few years).

2005 – Incandescent bulbs are no longer available in South Africa. A global phasing-out was also set for that year

2016

Source: Wikipedia & Energy.gov

The Not So Harmless Sander

Reuben the Screwman finds himself in a tug of war with his belt sander when tackling his to do list

>> Reuben Hart

For years I lived with the misguided belief that my belt sander was a fairly safe power tool to use. No protective clothing or safety glasses needed – or so I believed. Of course, I complied with the odd warning like; "not for children under the age of 12" and "do not use under the influence of alcohol". I thought myself as quite proficient with the belt sander during my lunchtime hour, that is, until an unfortunate incident that took place a little while ago.

It was a chilly winters morning in Barrydale; the mist, as thick as pea soup, hung over the little village and I had a list of DIY tasks as long as my arm. I'm sure we all have that ever so intimidating 'to do' list on the fridge door, or the one in your man cave, where only you are privy to its contents. Surely, it's not only me that subscribes to this torturous method of reminding oneself what a procrastinator you are.

True to form, I finely pick a task in the fourth column, sanding the small bathroom cabinet from the not urgent, not important column, and run with it. I take out the big daddy, 100mm, 1000 Watt belt sander. The sander is almost the size of the cabinet, which means, half the work in half the time. Some would describe the action as lazy but I see it as more productive.

Things were going too well and one side was sanded in absolutely no time at all. And then, with the sander in the lock-on position, motor running, I flipped the cabinet over. Just then the belt catches a fold in my jeans, just above the knee and with it pulls a chunk of loose flesh into the fold, a bit like a Mexican taco.

The pain was excruciating and I was still in a tug of war with the belt sander which was trying to add more flesh to the 'denim taco' building up between the belt roller housing. Through the deafening screech of the drive belt slipping over the pulley, I managed to release the lock and stop the sander. In a state of shock, I sat with a massive belt sander attached to my leg like an unwanted appendage .This was indeed a very disappointing situation I found myself in.

I sat motionless, too scared to remove the sander from my leg for fear I bleed out and die a lonely death in the garage without saying goodbye to my loved ones. Considering the fact that the nearest hospital is an hour's drive away, this was not entirely unfounded. I finally scraped enough courage to pull what was left of my thigh from the sander and to my absolute surprise, and joy, there was no blood.

Sure, my jeans were ripped and it looked like I was attacked by a Rottweiler, but my leg was intact and I got to live another day in paradise. My leg remained black and blue for months and I now have a healthy respect for the humble belt sander.

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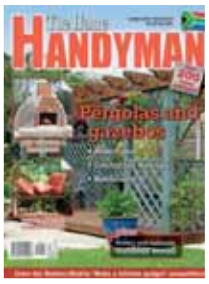

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