Flitch 'n Chips

Issue No. 204

June 2014

Presidents Report

Hi Fellow Woodies,

Another year half gone and it's been great, thanks to all of you.

The new lease for our site has been signed by the Club, but the MVA still has issues which will, hopefully, soon be addressed to everyone's satisfaction.

The clean up day at the Club, last Saturday, was an outstanding success thanks to everyone who helped out. The timber racks have now been cleaned up so please keep them that way.

Our July expo is now only a couple of weeks away on July 5 and 6, so make sure you have plenty to sell as the event is always well attended by the general public. Again, volunteers are needed for set-up on Friday 4th and packing up on the Sunday. Please put your name on the board. John Muller will be our coordinator for the event and will be grateful for any assistance you can offer.

Tara, our Treasurer, now lives in Brisbane so has had to relinquish her position. Brian Harris will fill this position until the AGM in August when all positions will be declared vacant.

Tara at her final meeting as Treasurer.

There are a number of very interesting courses on the notice board, so if you are interested, put your name down. If there's a course that you would like to do, or one you would like to run then please let Lionel or myself know as this is the very essence of our club,learning new skills and imparting knowledge.

Finally, remember to respect the machinery and make sure you pay for its use as well as the timber you use as we now have extra rent to pay to the MVA.

To any of our members not feeling the best at the moment, remember we are thinking of you and wish you all a speedy recovery.

Keep the wood pile low and the shavings high.

Happy Woodworking,

Frank McDonald
President

An appeal from the Training Dept….

There's a problem with missing DVD's and Videos that are used for training and accreditation.
A friendly (or otherwise) reminder to please check your DVD collection at home & bring back those you have forgotten to return.
.
We are missing bandsaw, table saw, drop saw & jointer DVD's mainly but there are others which I can't recall.

Lionel Tilley.

Tips and Tricks

By Warne Wilson

TIPS AND TRICKS by Warne Wilson
Last month I wrote about battery drills, and this month I want to extend their use, particularly their use when driving screws. “What?” You may say, “Just drive ‘em in. If the wood cracks drill a hole or try another spot.”
In soft wood, such as pine you might get away with it, but the harder the wood, the more careful you will have to be. Wood screws come in a variety of types: Phillips head, Slot head, Square drive, Countersink, Round head, Wood thread, Long thread, Bugle head, Hardened, Galvanised, Stainless steel, Self-drilling, and many others. However, for today I will concentrate on the Woodies favourite, the Phillips head countersink wood screw. These screws are generally gold coloured metal surfaced to resist corrosion and hardened to resist driving stress. The countersink head is in the form of a truncated inverted cone, designed to be driven below the surface of the wood to enable filling and finishing. The Phillips head, cross type slot accepts the Phillips driver, either hand or drill driven. If you have ever tried to drive a plain slot headed screw with a battery drill, you will know that it is impossible to stop the driving bit skidding out of the slot.
Next, if you look at one of these screws you will see a smooth shank below the head, and then the sharply cut spiral thread which diminishes down to a sharp point. The smooth shank is designed to rotate in the upper component of the two parts you are joining while the sharp thread winds down into the lower component to act like a vice, pulling the two components together.

NOW! This design will only work properly if you drill two holes: One large enough in the top component to allow the smooth shank to rotate without binding, and the second, down into the lower component to assist entry of the screw but small enough to allow the sharp thread to cut its gripping path into the wood. The head of the screw is often countersunk below the surface of the top component by using a countersinking bit, which will widen and deepen the surface hole enough to accommodate the head of the screw. Those with a technical bent can look up tables of millimetres or thousandths of an inch when selecting the drill bit for the lower hole, but as Woodies we don’t go to that extreme; we simply hold a drill bit up to the light with the screw behind it. If we can see the screw thread projecting beyond the bit, that will be the right sized bit.
A COUPLE OF LAST TIPS. Battery drills often have two or three speeds; select the slowest speed for driving screws. You will feel the screw bite home and you will avoid the Gatling gun rattle of the driver bit jumping out of its slot. Lastly, if you are screwing into hardwood, a spot of lubricant will work wonders. A drop of oil, even cooking oil, a touch of wax, or rub the screw thread on a block of soap.

Safety Notes

By Warne Wilson and Dave Banister

We received a report recently that a member had been cutting CCA treated pine on one of the compound saws. While opinions may differ about the degree of danger, (CCA is the acronym for Copper, Chrome, and Arsenic.) the committee decided long ago to disallow the working of CCA treated timber in the shed.

Another taboo which bears reminding about is the use of recycled timber. The obvious reason for this is the very real risk of discovering imbedded nails and screws after a machine has been damaged. The only exception to this rule is that the Shed Captain for the day must be consulted, and may, in his or her discretion, allow the working of recycled timber if satisfied that there is no risk to members or machines.

DUST! We had a wonderful day on Saturday June 22 with many willing workers in a series of teams which worked solidly all morning cleaning, sorting timber and preparing reject timber for the chipper. The constant mist, and sometimes clouds, of dust in and around the shed was a worry. Cheap masks are available in the meeting room and should be used. Wood dust has been proven to be carcinogenic, particularly the micro fine dust which can hang in the air for hours and lodge in the fine capillaries of the lungs. Those of us who are too tough to be effected by dust, noise, or UFOs should think of the long term effects.

Around The Shed

Ed and David Kruger work on some beautiful Mackay Cedar

Graham Shackell puts the finishing touches to his Intarsia Eagle.

A nice grain pattern for a cutting board.

Vicki heads outside to put the finishing touches to her stool.

Looks like we need another section at the July Expo Competition……. COOKING!

Dick Greaves treated the Wednesday group to Sticky Date Muffins complete with Caramel Sauce and Whipped Cream.

PUTTING THE "SERVICE" BACK IN CUSTOMER SERVICE:

I have become disillusioned lately with the service we've come to expect from Companies in the wood and wood-working tool supply industry that want our dollars and in return do not understand the meaning of "customer service". Phone calls not returned, orders not ready when we were told they would be, orders which are on backorder and cancelled but supplied after 8 months etc. etc. etc!

"Go to the web site" is the usual response; in other words "we really don't want to talk to you".

Well I have to tell you I have had a very rare experience recently which I want to share with all you Woodies out there.
It went like this:
I have always been on the lookout for a good quality combination square; happy to pay the right price but it has to be square. In other words, it has to do the job it was designed and purchased for. Simple is it not. To date, I've not been able to find one that reads square. So why buy one.

At the recent Working with Wood show in Brisbane, Dave Southern and I visited the Bench Standard stand; among other wood working products, they seem to specialize in measuring equipment and they stock iGaging combination squares. I was impressed with the solid feel, the quality and they quote a specification of accuracy over the length of the 300 mm blade of +/- 0.1 degree. American design and specification but built in China, as is most gear now days.

I bought one……
As with every square I have purchased in the past, when I got home I tested this one for accuracy and found it was out by 0.79 degrees. Probably no better than the Carba-Tec $ 29.90 combination square.

An email to the supplier and a response the next day saying send it back. Back it went. Two days later an email from Bench Standard saying; "yes it is out and more than 0.79 degrees."

The final result is I have a new accurate square.

But wait, there is more……

They also offered compensation for my trouble with an offer of a $30.00 tool to compensate me for the postage and problem.

Now that is what I call CUSTOMER SERVICE! This business deserves support so I have placed their catalogue in the lunch room.

Their web site is www.benchstandard.com.

John Muller
Vice President.

BENCH STANDARD

Lesson 1 in how to erect a Safety sign!!!!!

Understanding Wood Drying.

Wood is a hygroscopic material that contains up to 50% of green weight or 200% of kiln dry weight of water when freshly cut or 'green'. After milling, the moisture content of green wood will decrease slowly by natural air drying until equilibrium is attained with ambient conditions of temperature and atmospheric humidity. This is between 6% and 18% moisture content depending on location (arid, tropical, and temperate). Wood must be dried before use because it shrinks as it is dried, and wood moisture content should be in equilibrium with the atmospheric conditions so that the material is dimensionally stable while in service. Other properties such as strength, stiffness, electrical conductivity, treatability, resistance to decay and gluing properties also change as wood dries.

Wood comprises three principle chemical components, which are cellulose, hemicellulose and lignin. Water in wood exists as free and very loosely bound water, and water that is chemically bound very strongly to cellulose and hemicellulose structures that make up wood. Shrinkage occurs only when the strongly bound water is removed.

The moisture content at which bound water begins to leave wood is called the fiber saturation point (FSP), which is between 20% and 30% moisture content for most timber species. Free water is readily removed from wood under ambient atmospheric conditions. Removing bound water however requires long periods of natural air drying time or comparatively large amounts of controlled energy input over a shorter period. The process of natural drying is initially quite fast as free water is removed early in drying, and then slows considerably during the phase of bound water removal. As a rule of thumb, 12 months minimum air drying time would be allowed for each 25 mm thickness of sawn timber to attain a condition of equilibrium.

Because of its hygroscopicity, wood tends to reach a moisture content that is in equilibrium with the relative humidity and temperature of the surrounding air. The amount of moisture that remains in the wood at this stage is in equilibrium with water vapour pressure in the ambient space, and is termed the Equilibrium Moisture Content or EMC.

Wood retains its hydroscopic characteristics in service. It is then subjected to fluctuating humidity, the dominant factor in determining its EMC. These fluctuations may be more or less cyclical, such as diurnal changes or annual seasonal changes. To minimise the changes in wood moisture content or the movement of wood in service, wood is usually dried to a moisture content that is close to the average EMC conditions to which it will be exposed. These conditions vary for interior uses compared with exterior uses in a given geographic location. For example, according to the Australian Standard for Timber Drying Quality (AS/NZS 4787, 2001), the EMC is recommended to be 10% - 12% for the majority of Australian states, although extreme cases are up to 15% - 18% for some more humid places in Qld., Northern Territory, West Aust., and Tasmania. The EMC is as low as 6% - 7% in dry centrally heated houses and offices or in permanently air conditioned buildings.

To accelerate drying, wood drying kilns are used to supply energy to remove chemically bound water. In some instances, air-drying is undertaken initially, followed by kiln drying. In other cases, where the cost can be justified, wood may be kiln dried from 'green'.

Due to shrinkage in wood that occurs during drying, wood may be subject to substantial internal forces or stresses during drying. The magnitude of these forces and the distribution within a wood section is dependent in part upon the rate at which drying occurs. This in turn is dependent upon the conditions that are maintained inside the kiln.
For example, a convection kiln delivers heat through the surface of a board, and therefore the surface wood dries before the inner core of a section of a board. This results in shrinkage at the surface and the development of tension stress, while the core is compressed.

If the tension stress exceeds the strength of the wood, then splits or 'checks' may occur. In general, if a moisture content gradient develops across the cross section of a board, then shrinkage will vary with this gradient, and differentials in shrinkage lead to tension or compression forces distributed across the section.

Wood behaves like “plastic” to a certain degree, and can be permanently stretched by tension forces that develop during the early stages of drying. Tension at the surface stretches the surface wood, and the stretched form becomes permanent after drying is complete. This state is sometimes called 'tension set' or 'case hardened'. When drying progresses and the inner part of a section dries, it too shrinks, but is restricted by the stretched or “tension set” case. This leads to tension in the core and compression at the surface late in the drying cycle.

Stresses can remain after drying is complete and can result in dramatic changes in form when the timber is reworked by machining. Similarly, gradient in moisture content can equalize, leading to shrinkage or swelling after drying, also causing movement.

Long term exposure to high temperature (>100°C) causes densification and embrittlement. As a consequence, high temperature drying is inappropriate for large section material when drying times are very long.

Drying timber in the air, or in a convection kiln, requires control of drying conditions to prevent damage or degrade. Different species require different conditions to prevent degrade because some timbers, such as very heavy or high density timbers, are prone to development of much steeper moisture gradients and larger stresses. Some lighter more porous timber species can be dried more quickly at higher temperatures. However this becomes more difficult in larger sections. In all cases however, the drying conditions must be controlled to attain dry timber of the highest commercial quality.

Controlling the amount of heat in the kiln and the amount of vapor in the kiln atmosphere controls the rate of drying.

Several types of conditions can be attained. High humidity and high temperatures can be used to heat a charge without significant drying. High temperature and low humidity is applied during quicker drying phases.

Drying Systems. Convection drying systems consistently feature:-

- A source of energy to drive diffusion of water in wood and evaporation of water from the wood surface,
- A source of airflow to remove the evaporated water from the system.
- A source of vapor to provide control over humidity and drying rate.

In the air, the sun and wind provide energy and air flow. In a drying kiln, hot water, steam, hot oil or hot air may supply heat, which usually is distributed in the kiln chamber by a “heat exchanger”. A heat exchanger is a grill of pipes containing a hot medium, which exchanges heat with the kiln atmosphere. Air flow in kilns is provided by circulating fans. Vapor can be supplied by steam generators or by water sprays. To remove water from a kiln, vents are provided to release wet air and to take in dry air from the outside atmosphere.

Dried Quality.
Drying processes must produce material of consistent moisture content free of internal stresses. This is difficult to achieve when the material entering the process is initially variable. Variation can be derived from difference in wood properties (species, permeability), thickness and drying after sawing and before kiln drying. Other factors influencing dried quality:-

- Poor kiln design.
- Poor airflow.
- Poor process control, including kiln loading practices.
- Inadequate operator training can cause process variation.

Good kiln drying practice requires consistent processing practices applied to uniform material. The consequences of poor drying can be expensive. In some products e.g. structural sawn wood, moisture content at the time of utilisation may not be critical. However for some products such as flooring, the consequences can be serious. For example, the shrinkage rate, or 'unit shrinkage' of E. pilularis (Blackbutt), is 0.38% per 1% change in moisture content. If for example, 100mm wide strip flooring is laid down at 4% moisture content above the equilibrium for the site of use, and if the floor is 10 m wide. Then this floor will reduce in width by:

- Shrinkage = 4 X 0.38mm/100mm X 10m = 152mm

In such cases as flooring and other stability sensitive products (e.g. furniture), wood is often brought to equilibrium in the kiln by applying equivalent equilibrium temperature and humidity conditions to the proposed site of use at the end of a drying cycle.

Kiln operators use a psychometric chart to determine what conditions are required.

High Temperature Drying.

Drying of plantation grown softwood has been developed in Australia and New Zealand to deal with distortion that occurs due to the variation in grain angle associated with juvenile and mature wood. At the time of the first harvests of plantation grown softwood, drying processes at the time (primarily air drying or low temperature kiln drying) produced wood that was unusable due to distortion. During the 1970’s experimental work applying drying temperature above the softening point of lignin and large restraining weights took advantage of the viscoelastic properties of wood to produce straight timber. The process has undergone major development to the present day and is unique in world terms. Drying temperature up to 200ºC are applied in some systems, and material that is exclusively juvenile wood can be dried to a quality fit for use as structural framing timber.

Drying is difficult to manage because the process includes many variables which are difficult to measure. The behaviour of wood during drying varies with many fundamental wood properties. For example, the variation in density and grain angle in stems of plantation grown softwoods is reflected in moisture content and distortion results after drying. This is due in part to the difficulty in managing these stem based variations through a batch process such as kiln drying.

Where operations include more than one species and/or the material being processed is prone to drying defects, managing the variation imposed by wood properties is increasingly difficult.

Modern drying processes can assist in controlling the effect of variation in wood properties. Additional control is attained by pre-sorting of material prior to kiln drying so that batches are relatively homogenous with respect to wood properties and size. While this appears obvious, systems for measuring green wood properties in the mill and dealing with variation are not well developed. Consequently, the best drying systems are usually characterised by a homogenous resource and careful production management.

Moisture meters are used to measure the amount of water in the wood so that the woodworker can determine its suitability for the intended purpose. Building inspectors, carpenters, hobbyists, and other woodworkers often are required to have moisture meters. Wood flooring installers, for example, have to verify that the MC of the wood matches the relative humidity in the air of the building. If this step is skipped, a vast array of problems may appear: cracking, cupping, crowning, buckling, sunken joints, and cracked finishes.

The problems caused by varying degrees of moisture content in wood go beyond simple shrinkage in the dimensions of wood parts. Problems with distortions in the shape of the wood, such as twisting, warping and cupping, occur because of the difference in the degree of dimensional change in wood cells tangentially (perpendicular to the grain and parallel to the growth rings) versus radially (perpendicular to the growth rings).

The amount of overall shrinkage lumber will undergo in the drying process varies from species to species. The difference

between radial and tangential shrinkage also varies from species to species. Woods with a low ratio of tangential to radial shrinkage, such as teak and mahogany, are less prone to distortion due to changes in moisture content than woods with a high ratio, such as pine and open grained types. Species with both low overall shrinkage and a low tangential/radial shrinkage ratio are more stable and will react better to changes in moisture content.

For wood that is to be used in making furniture, for wood floors, in construction or for any building project, the ideal state is one of equilibrium moisture content (EMC). EMC means that the wood is in balance with the relative humidity it surrounding environment, and is therefore neither gaining or losing in moisture content. In reality, however, it is extremely rare for an environment to maintain a constant fixed relative humidity, and some degree of dimensional change along with seasonal changes in relative humidity is to be expected. A moisture meter gives a reading of the approximate moisture content of wood. The reading helps in determining whether the wood is suitably dry for its intended purpose. The moisture content reading can also assist in planning a project design that will accommodate future changes in dimension caused by changes in relative humidity.

For typical woodworking operations, two basic types of moisture meter are available. One type measures the electrical resistance of the wood fibres, which becomes increasingly lower as the moisture content of the wood rises. With the electrical resistance type of moisture meter, two electrodes or pins are pressed into the wood fibres parallel to the grain and the electrical resistance is translated into moisture content on the device's electronic or dial output. A second type of moisture meter is a pinless type, relying on the dielectric properties of wood, and requires only surface contact. It uses radio waves to create an electro-magnetic field penetrating the wood. The meter measures the reaction of the radio waves to the moisture in the wood. A moisture meter will provide meaningful readings only if the timber moisture content has stabilised throughout the piece.

Woodcrafters should be conversant with the hydroscopic behaviour of their selected species and be aware of the adverse results from using inadequately dried timber. Best results will be achieved with commercially dried timber. Dried 'yard' timber as encountered locally, will be of variable moisture content, and further storage under cover, loaded and closely stripped for a further six months minimum, is advisable to promote moisture content equilibrium. After fabrication, the work should be sealed and finish coated without delay.

Maintenance Report

by Brian Harris

2/5 #15 Lathe - New on/off switch fitted and the drive belt was replaced.

10/5 Jet Air Filters - All three primary air filters cleaned and replaced.

14/5 Blank Band Saw - Two thrust bearings renewed and new blade fitted.

21/5 20" Thicknesser - New Shelix spiral cutting head has been fitted to improve cutting and reduce noise from this machine. The cutter head has 100 x 15mm square inserts similar to that on the Jointer and the 15" Thicknesser.
Bearings and oil seals were also renewed. Two gears within the gearbox were found to be very worn and required replacing. Carbatec posted these parts to Montville Sports Ground instead of the Woodies and hence I did not receive them until two weeks later!

The machine is now up and running and is considerably quieter than before.

TOOLS AND HOW TO USE THEM ....

SKILL SAW:
A portable cutting tool used to make boards too short.

BELT SANDER:
An electric sanding tool commonly used to convert minor touch-up jobs into major refinishing jobs.

Shed Times 8.00 - 11.30	
Monday	General Activities
Tuesday	Turning & Carving
Wednesday	General Workshop & Toys
Thursday	Furniture & Joinery
Friday	General Activities
Saturday	General Act. & Demo's

Who's Who in BRWG Inc. 2013-14		
Patrons - Peter Wellington MP, Andrew Powell MP and Cr Jenny McKay		
President	Frank McDonald	5435 2495
Vice President	John Muller	
Secretary	Dave Edmond	5478 6932
Asst. Secretary	Jeff Harrison	
Treasurer	Brian Harris (Acting)	
Asst. Treasurer	Hugh McKenna	5476 1454
Newsletter Editors	Max Barrenger & Graeme Beaumont	0408 437 375
Website Editor	Dave Edmond	5478 6932
Publicity Officer	Gerry Zwart	5441 7433
Recruitment Officers	Dave Banister, Lionel Tilley, Tom Black, Jeff Harrison	
Activity Officers	Ray Curry, John Drew, John Clarke, Warne Wilson Dave Banister, Keith Muirhead, Brian Harris, Max Barrenger	
Safety Officers	Dave Banister, Warne Wilson	
First Aid Officer	Andrew Eberhard	
Events Organiser	Rick Vickers	5494 3555
Shed Managers	John Holland, Brian Harris	
Amenity Officer	Gill Blowers	
House Officer	Gill Blowers	
Purchasing Officer	John Holland	
Training Officer	Lionel Tilley	
Librarian	Brian Holdsworth	
Timber Management	John Holland, Frank McDonald, Ron Donald, Phil Gibson	

Shed Captain Roster - July 2014									
Monday		Tuesday		Wednesday		Thursday		Saturday	
		1	Tom Black	2	Hugh McKenna	3	John Holland	5	John Clarke
7	Dave Banister	8	Ray Curry	9	Leigh Boynton	10	Phil Krisanski	12	Keith Muirhead
14	Lionel Tilley	15	Frank McDonald	16	John Close	17	Ray Bryant	19	Graham Bradford
21	Brian Harris	22	George Blowers	23	Max Barrenger	24	John Drewe	26	Warne Wilson
28	John Muller	29	Tom Black	30	Hugh McKenna	31	John Holland		

**** All Fridays = Frank McDonald and George Blowers

Shed Captain Roster - August 2014									
								2	John Clarke
4	Dave Banister	5	Ray Curry	6	Leigh Boynton	7	Phil Krisanski	9	Keith Muirhead
11	Lionel Tilley	12	Frank McDonald	13	John Close	14	Ray Bryant	16	Graham Bradford
18	Brian Harris	19	George Blowers	20	Max Barrenger	21	John Drewe	23	Warne Wilson
25	John Muller	26	Tom Black	27	Hugh McKenna	28	John Holland	30	John Clarke