# Copper Clad Composite Panels

Austral Wright Metals now stock **larson metals® fr copper clad composite panels**, made in Spain. Combining the centuries of tradition of copper with up-to-the-minute technology, they offer outstanding panel flatness, workability and economy.

Used for signs, bench tops, kitchens, feature walls, shop fittings, copper walls, copper façades, general fabrication, they combine the strength of polyethylene with the appearance of copper. Wherever flat copper – or curved copper – is needed.

The **larson metals® fr panels** feature a tough, resilient, mineral filled low density polyethylene core, clad on both sides with a clean, uniform 0.3mm skin of copper. The panels are 1250 x 3200mm, with 4mm total thickness. They open a new world of possibilities – they can be curved, V groove bent to crisp folds or displayed as flatter panels than are practical with copper sheet.

The secret of the excellent performance of the panels is in the advanced manufacturing method used. There is extremely strong adhesion between the copper and the core. Thanks to this perfect bond between the layers, the panels can be machined easily, and when bent or curved the bond between the copper and the core remains intact.

These composite panels can be used for building façades. Designed & manufactured in Europe, the panels offered by Austral Wright Metals are the premium panels in the **larson metals®** range. That's why they are called **larson metals® fr panels** – fr stands for fire resistant. **larson metals® fr panels** are Codemark certified 'for non-load bearing applications for decorative and protective attachments for internal & external use', certificate number CMA-CM40093, current to 12th August 2017. The Codemark certificate gives the elements of the Building Code of Australia (BCA) complied with, ask us for a copy or visit www.abcb.gov.au and search for 40093.

## Sign of the Times


**HJ Richards, Coppersmiths** in Healesville VIC, have been working in copper by traditional methods since 1982. John from HJ Richards loved working with this light weight copper composite to make a sign for boutique gin distiller Four Pillars in the Yarra Valley. A supporting frame was not needed, and the sign came out exceeding expectations. The panel was easy to work with, and the brackets were soldered to the panel without problems. An outdoor double sided adhesive tape could equally have been used. John highly recommends the composite panel.

The letters were water jet cut by **WATERJET SOLUTIONS** in Bayswater, VIC. Gary had no problems and was impressed by the ease of cutting and the light weight of each sheet – easy to get onto the cutting bed. The clean and simple mounting of the sign letters, without a frame, contributed to the appearance – and helped keep the cost far below Four Pillars expectations.

Owners **Four Pillars** were delighted with the end result as the traditional look of the copper sign conveys the craftsmanship of their boutique range of high purity gins with innovative flavours – they use native botanicals Tasmanian pepperberry and lemon myrtle, the exotic Asian spices cinnamon, star anise, cardamom, plus, of course, juniper berries – otherwise they wouldn't be making gin!

Based on a strong belief people should drink better, not more, Four Pillars is leading the charge to elevate the craft of distilling and celebrate the craft of cocktail making in Australia. Their Rare Dry Gin is made in a truly modern Australian style, capturing the flavours of both Asia and the Mediterranean.

Four Pillars use a 450L purpose built craft still, made in Germany, named Wilma after the beautiful (but explosively tempered) late mother of one of the partners. Wilma is copper and stainless steel – the only metals that should ever distil a fine spirit. Copper reacts with the spirit to clean it, taking out some of the sulphides. Plus copper is a great heat conductor. But of course that's a job for solid copper, the composite panel does not conduct heat well and should not be used above about 80°C.

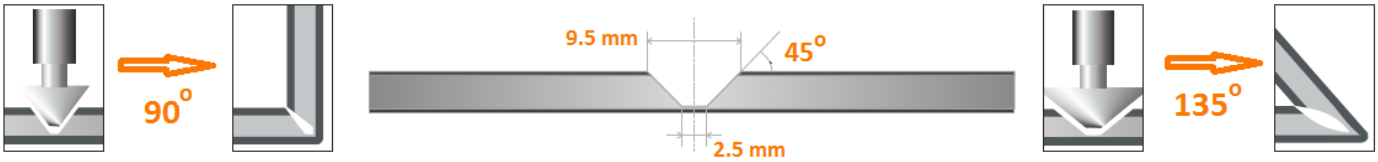
# Working with larson metals® fr Copper Clad Composite Panels supplied by Austral Wright Metals

## Cutting

The panels can be cut with a shear or guillotine, a circular saw or in a CNC machine centres, using the appropriate tools. They can also be water jet cut, but not by hot methods such as laser or plasma. Straight cuts can even be made like cutting glass – score through the copper on one side with a knife, then snap. See: https://www.youtube.com/watch?v=XcjjoOXHISs

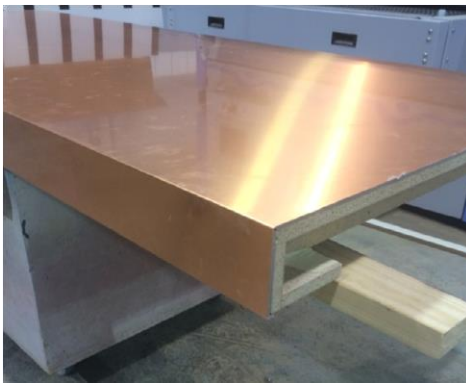
## Routing & Bending

The panels are easy to work on routing benches, conventional CNC centres and portable routing machines. Routing a groove in the back of the panel allows neat bends to be made easily:




← Back grooved, ready for bending

Neatly bent to a flat bench top and return →

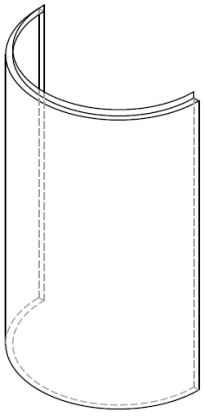


## Curving

The panels can be curved without difficulty in three or four roll curving machines.

The rolls must be in good condition, without pits or bumps, and be cleaned to avoid damaging the material. Curving should be done before removing the surface protection layer of strippable PE film the panel is supplied with.

The minimum radius achievable is 150 mm.



**larson metals® fr copper clad panels from Austral Wright Metals are ideal for prestige applications like foyers.**

## Drilling

**larson metals® fr copper clad panels** can be drilled with normal twist drills, and excellent drill life is obtained. Centre (aka spotting) drills can be used to avoid slipping and ensure perfect positioning.

## Fixing

The panels can be screwed or riveted. Copper or stainless steel fixings must be used. Aluminium or steel, including zinc plated, should not be used as they are likely to corrode galvanically in moist environments.

## Punching

The panels can be punched satisfactorily.

The bond between the copper and the LDPE remains intact, and there is no problem with delamination or corrosion.

## Surface Protection

Austral Wright Metals supply **larson metals® fr copper clad panels** with the surfaces protected by a strippable polyethylene (PE) film. As much work as possible should be carried out with the strippable film in place. Once stripped, wear clean soft cotton gloves – fingerprints react with the copper and after an hour or two the resulting stains cannot be removed without reworking the entire surface.

The strippable film should not be left on the panels in the sun for more than a few hours, as sunlight can break down the glue and make the film hard to remove without leaving a residue.

## Refinishing and Surface Protection

The copper surface can be used as supplied, or refinished by all the techniques used by coppersmiths. It can be polished to high gloss, or dulled, or anywhere in between. It can even be chemically treated to form a patina, green or blue coloured, for an antique weather beaten look.

When the finish required has been obtained, it can be protected by coating with Incralac, a clear non yellowing spray lacquer developed by the International Copper Research Association. It contains a specific corrosion inhibitor for copper. It can be obtained from Wattyl, who market it as **Clear Lacquer Finish**. Other lacquers can be used, although their life will be shorter.

All lacquer finishes break down eventually. Incralac indoors should be satisfactory for more than ten years, except in high traffic areas – the lacquer is soft. Ultraviolet in sunlight accelerates break down of the lacquer, but lives in excess of ten years have been achieved on outdoor statues.

An alternative is to use lemon oil, boiled linseed oil, or a wax such as those used when washing cars. These treatments need to be renewed, yearly indoors and more frequently outdoors.

Copper working surfaces can be kept clean by wiping over with lemon halves dipped in salt, then rinsing well. There are also proprietary metal cookware cleaners available, based on sulphamic acid.

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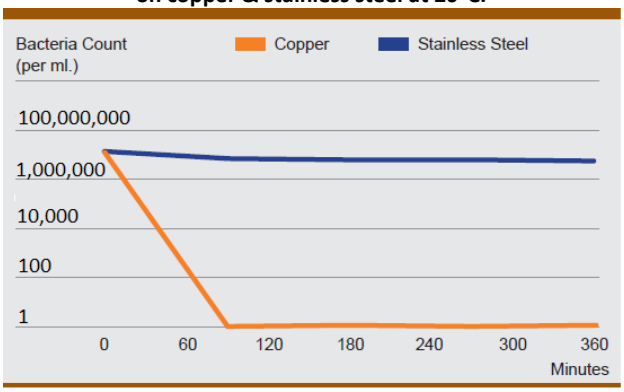
## Antimicrobial Properties

Copper is registered with the Environmental Protection Agency (EPA) USA as Antimicrobial™. Bacteria, viruses and fungi settling on the surface are rapidly killed.

As seen in the graph, more than 99.9% of the highly antibiotic resistant bacteria "golden staph" (MRSA) that are increasingly plaguing our hospitals are killed within two hours of contact with copper. Surfaces that are frequently touched, such as services panels in hospitals and health centres, benefit greatly from a copper surface.

To obtain the antimicrobial properties, the surface of the copper must be kept clean, and not obscured with lacquer, paint or wax.

**Methicillin-resistant staphylococcus aureus (MRSA) viability on copper & stainless steel at 20°C.**




## A Real Lightweight

Available as 4mm thick sheets 1250 x 3200 mm, with 0.3 mm copper cladding on both faces, mineral filled polyethylene core.

The panels are light in weight – less than 25% of the weight of 4mm solid copper. Density is 7.65 kg/m$^2$, (30.6 kg/sheet), compared to 36 kg/m$^2$ for 4 mm solid copper – just over 1/5$^{th}$ the weight.

Of course copper panels are usually much thinner – often 0.6 – 1.0 mm. But it is very hard to achieve flat panels in such thin copper sheet. **larson metals® fr copper clad panels** from Austral Wright Metals offer outstanding stiffness and flatness, made possible by the greater thickness and the high technology advanced manufacturing technique. The panels eliminate the need to use top grade backing boards, finely finished, which is required when copper sheet is glued to supporting boards.

# Performance of larson metals® fr Copper Clad Composite Panels in service

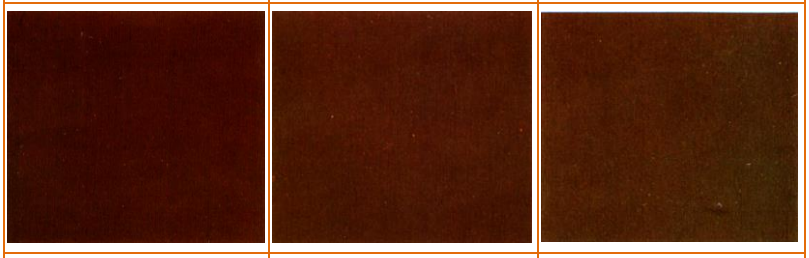
The copper cladding is a living metal and behaves exactly like the copper people have used for 10,000 years – it reacts with the atmosphere. The distinctive and attractive display of colour which appears on the surface over time in the wind and weather adds life to the surface.

How quickly the colour of the copper changes depends on the climate and weather. Rain, sunshine, salt near the ocean and atmospheric pollutants all play their part. Even indoors, the copper will darken, although green patina is unlikely to form except in special locations like swimming pool buildings. Of course the surface can be protected to prevent colour change – see the section on Refinishing and Surface Protection.

Thickness loss of the copper is not a problem. Even exposed outdoors in an aggressive marine atmosphere, the 0.3 mm cladding will give 15 years of service. Indoors, and outdoors away from the ocean, the life will be decades.

**This weathering cycle shows copper sheet exposed outdoors at a 45° angle towards the sun in a typical industrial city in northeastern Europe.**

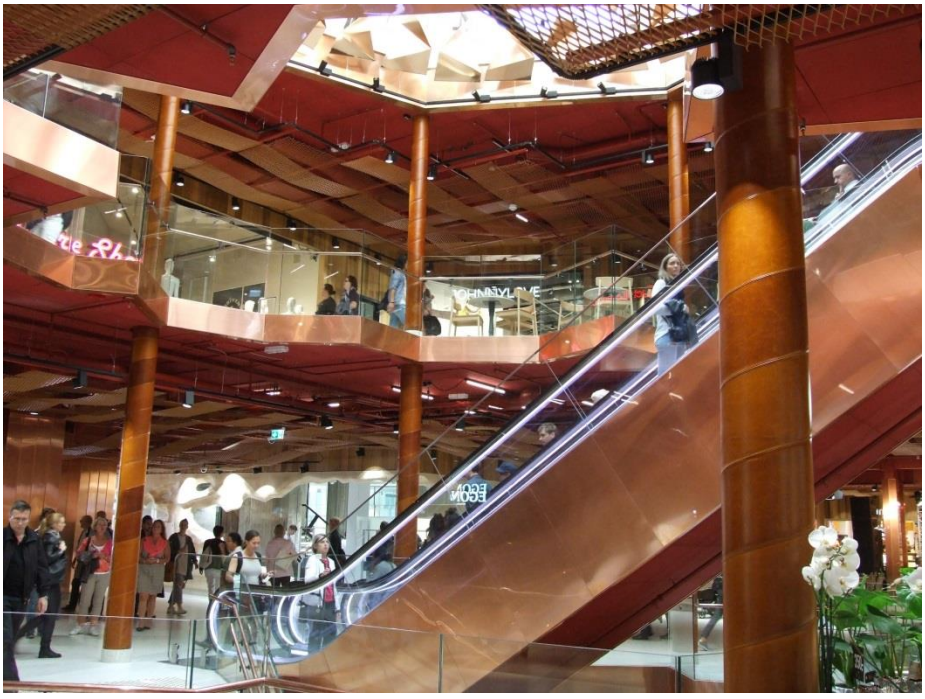
| Unexposed | 4 months | 8 months |
|---|---|---|



| 1 year | 2 years | 3 years |
|---|---|---|

| 4 years | 5 years | 7 years |
|---|---|---|

| 10 years | 15 years | 25-30 years |
|---|---|---|



**A high-end shopping mall in Oslo, Norway, uses copper panelling throughout to create a warm, relaxed ambience.**

**Copper clad panels were used for most of the surfaces, with copper strip used to clad the columns.**


Austral Wright Metals

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