

DORY PROJECT CHAT SHEET #2: PLYWOOD

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The Question of Which Type of Plywood

Here's a trap for unwary builders – when you start foraging for your basic materials, like plywood, listen very carefully to the denomination of quantity used in price quotes! Was that the price per *sheet*, or per square metre? One guy gave me the latter on some marine ply, claiming it to be the former, and I got very excited....until he learned his own error (with a smack from his boss). I got very disappointed, and more than a tad peeved, which was silly of me really, because my BS-radar alarm ought to have gone off, since his quote was less than half that of other quotes I had.

This Dory is no dinghy. At about 8.4 metres or 27+ feet hull LOA - or 7.2M/23.6 feet on the bottoms, which is the traditional way of measuring a dory - it needs a lot of plywood.

The topsides need 12mm (nearly half inch) thick ply, the pilothouse top needs a good 6mm 5-ply, while the superstructure sides need 9mm (old 3/8ths inch) thick ply. The bottoms will be made of a laminate of two layers of 9mm ply, coming to 18mm, which is getting towards the old three quarter inch.

Some folk may prefer two layers of 12mm on the bottoms, but I'm running with two of 9mm. The transom skin and cockpit decking need 12mm ply. The inner keelson plank will be laminated from two layers of 12mm ply. My first guesstimate of the number of ply sheets in various thicknesses required is 35. No, this is no dinghy.

Marine Grade Plywood

Lesson-in-life number one: Marine ply made to comply with Australian standard AS/NZS 2272, typically made using plantation grown but native species Hoop Pine, is bloody expensive!

That's because it has A-grade veneers on both front and back faces, has no core gaps in the inner veneers, and uses A-bond glue. It is 'AA-A' graded plywood. It is beautiful plywood and it is priced accordingly.

A 2400x1200mm sheet is about 2.98 square metres. For 9mm thick ply, think around \$75 per square metre - or *over \$220 per sheet!*

To create a quick comparison base for alternatives – let's adopt a quantity of 20 sheets: the cost of AA-A 9mm marine ply would be \$4400.

Alternatives to Australian-made Marine Ply

Imported marine plywood, such as Gaboon ply, satisfying British Standard BS1088, comes in between \$100-110 per sheet, so 20 sheets would cost around \$2000-2200.

Yep, Gaboon ply is about half the cost of AS 2272 plywood. It's also lighter, a sheet of 9mm Oz standard marine ply typically weighing in at over 17Kg, and a sheet of Gaboon 9mm ply coming in a bit over 13Kg. That sort of difference could really influence eventual power needs and towing weight of a boat. Is that a measure of the difference in quality, or simply the difference in types of wood used in the veneers? I searched but couldn't find any data on construction stress ratings for Gaboon ply compared with Hoop Pine ply.

There's also a bit of an issue with some imported marine grade plywood – you don't know where the veneer timbers are sourced, and there's the risk that they're made from timber, maybe even illegally cut timber, from old growth tropical rain forests from the island nations to

our north, and elsewhere in South East Asia, that really shouldn't be cut down. Buying it simply encourages them to keep doing it!

'Exterior' Grade Plywood

The alternative to using marine grade ply is to use 'exterior' grade plywood, which is made to AS/NZS 2271, utilises plantation-grown hoop pine, and uses the same A-bond glue used for marine ply.

It is described as being 'suitable for marine use', but its inner veneers are not necessarily to the same standard as full-immersion grade marine ply. Interestingly, in the North American market for DIY boat builders, use of 'exterior grade' ply is very common, combined with full sealing treatments using epoxy resins.

Now here's the thing: if you use A-bond AA grade marine plywood, are you going to leave it bare, unsealed, and unpainted? No, of course you are not. You're going to fully seal marine grade ply anyway, saturating it with epoxy resin, then applying either a high UV resistant varnish, or a paint, over the epoxy. That being the case, why wouldn't you use A-bond exterior grade plywood?

Exterior ply most commonly comes with one A-grade face, and one C-grade face (thus AC), but can be acquired with B-grade veneers front and back (thus BB). The B-grade external veneers are, on visual inspection, of only slightly lower quality than the Rolls Royce level A-grade veneers, and they are primarily clear of faults – whereas a C-grade veneer will typically have knot voids and other blemishes. For a boat that's to have all of the plywood surfaces epoxy sealed then painted over – with no natural wood surfaces left clear under a varnish-type finish, an A-grade surface veneer is actually a waste. Using BB sheet will give a better interior surface finish than a C-grade surface.

Basically, BB exterior grade ply in hoop pine is a very, very good option.

Continuing our base comparison, at around \$85 per 9mm sheet, it is very price-attractive. Twenty sheets of Australian made BB-A exterior grade hoop pine plywood (manufactured to AS/NZS 2272, the same standard as for marine ply) would cost \$1700 – which is a huge saving compared to full marine ply at \$4400, and it still works better than imported BS1088 Gaboon at \$2200 for the 20 sheets we've used for comparisons.

That is why I decided to use A-bond BB-surfaced exterior grade hoop pine plywood to construct this boat. Extra care in the epoxy saturation process will compensate.