



IMPORTANT - wear gloves before handling the block.

Commonly Aluminium Honeycomb is supplied as an unexpanded block. This is for two reasons, firstly because expanded honeycomb would be expensive to ship, and secondly because in its expanded un-stabilised form, the honeycomb is very susceptible to damage and would unlikely survive transport intact.

In large scale manufacturing, a specialist expanding machine is used to expand the honeycomb. However, for smaller applications and one off jobs, such machinery is prohibitively expensive and large thus an alternative method is needed. The aim of this guide is to show you a simple method that can be used to successfully expand the sheet by hand.

Step By Step Guide

Equipment needed

You will need 2 wooden battens, both as wide as the sheet you are expanding and stiff enough not to flex too much. 2" by 4" wooden battens are usually ideal and easily obtained. You will also need a bag of wood nails. They need to be long enough so that they can go through both the wooden batten and still protrude enough to go through the honeycomb.

For cutting honeycomb you need a steel ruler and a sharp Stanley type knife with a blade long enough to cut through the honeycomb to its full thickness in one go.

Making tools to aid expansion

Take one of the battens and mark out a series of dots on the wood along the batten's length spaced at approximately 50mm intervals.

Once marked, hammer the nails through the dots marked on the batten (taking care nothing is underneath!).

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The final result should be a batten with regular nails poking through.

Repeat for the second batten so you have two identical battens with nails sticking out. You now just need a flat surface to work on and an assistant to help you expand the honeycomb.

Expanding the honeycomb

The first step is to lay the honeycomb onto a flat surface and by hand tease out gently the first few cells. Take care as you work across the sheet to ensure you do not pull too much out in one go as otherwise the honeycomb will kink making it harder to work.

The reason for expanding the first few cells by hand is to give the nails enough material to pull out the sheet without just ripping through the cells at the edge. The sheets are deliberately cut oversize to allow a little waste at each end due to expansion.

Repeat on the other side of the honeycomb.

At this stage you will need an assistant. Insert the batten tools into each side of the honeycomb. With one person holding each batten, slowly apply tension to expand the honeycomb.

If you find it is just ripping through the cells you have teased out by hand, then stop, pull out a few more cells by hand then start the process again. Expect the cells at the edge to distort and stretch as the sheet expands.

As you build up tension the honeycomb will begin to expand. Be careful you don't put on too much force and distort excessively the honeycomb as it expands. Gentle but firm is the method to use.

Continue to apply the tension to the battens to expand the whole sheet, taking care as it expands to keep the sheet as straight as possible. Once you are happy the honeycomb has been expanded sufficiently, then you can remove the battens and then use the honeycomb for your project.

Cutting the honeycomb

You will need a sharp Stanley type knife and a metal ruler. The blade needs to be long enough to cut the cell foils in one action for the chosen thickness of honeycomb.

The method is relatively simple. Measure the sheet out and use the metal rule as the cutting edge. Working from one side of the planned cut, individually cut through each cell foil from top to bottom using the knife. You need to ensure each foil is fully cut before moving onto the next one, so that when you try to separate the honeycomb, it comes apart neatly and doesn't catch or distort the cells.