



What you need to know when working with 100 % recycled plastic lumber.

Recycled plastic lumber is an amazing product when used in the right applications. Used in the wrong applications can lead to customer disappointment and possible product failure. Please keep in mind that there are lots of products that claim to be 100 % recycled plastic lumber when in fact they are not. In many situations Wood Composite materials are often confused with 100% recycled plastic materials. Know the composition of the material you are working with prior to considering many of our suggestions.

These recommendations can generally apply to most 100% recycled plastic products. It is suggested though that you contact the manufacturer directly as each brand has a mixture of plastics used in it's composition which can effect some of the outcomes and recommendations stated below. Our experience has been primarily with the Cascades re-plast brand.

Here are some tips we have found in the last 10 years while working with the material to work with consistency. When I refer to the word "material" I'm referring to the "Cascade Brand re-plast 100 % recycled plastic lumber".

1-The material does not have a structural component in its design and if not properly supported will sag under its own weight over time.

- A- We have found spans of up to a maximum of 18" on 2" material and 12" on 1" material have worked well with little or no deflection.
- B- Overhanging the material on the end of a surface should be kept to a maximum of 4". We have seen that the ends of the boards can snap with force in cold weather. As well we have also noticed that the boards can even sag making the edge appear not straight.
- C- When storing the material on a rack or the ground, it must be supported at least every 24" with a maximum of 12" distance from the end of the board to the first support

- D- If the material has sagged you can straighten it out by warming it up and flipping it over till it straightens out. Don't put it in direct sunlight.

2- The material expands and contracts in the temperature it is subjected too and allowance for movement needs to be made when working with it.

- A- Its good know approximately the temperature of the material when you are working with. If it's cold you know that it will expand and if it's warm it will contract. On a deck application for instance you make the gap between the ends of the boards tighter if the boards are warm so when they cool down and contract you are not left with a large gap. Alternatively if the material is cold you need to make a larger gap so when it expands it has room to move. We have seen boards snap the heads off fasteners when not given the room to move. On a 2 x 6 10 ft board a $\frac{1}{4}$ gap when warm and $\frac{1}{2}$ gap when cold has worked well in -20C-+35C.
- B- When bolting the material down to a surface there needs to be movement around the shaft of the fastener to allow for expansion and contraction. The head of the fastener holds is what holds the material down. We have found that the hole should be 2-3 sizes larger than the shaft of the fastener. If the shaft of the fastener is $\frac{1}{2}$ inch then the hole size should be $\frac{5}{8}$ inch to $\frac{3}{4}$ inch
- C- When lag bolting the boards to a metal frame the hole in the frame should be oversized so that the fastener has room to move. We recommend a slotted hole with a washer on the lag bolt. The metal does not expand as much as the plastic and the material can move freely.
- D- Only one fastener in the center of the board is recommended. The material does not cup like wood and one fastener is more than enough to hold it in place. The more fasteners used can restrict the movement.

- E- When bolting the material we recommend using stainless steel fasteners and Loctite. Don't over tighten as you need to allow the material to move. The Loctite keeps the nut from not backing off. Not using Loctite can be a problem. With the expansion and contraction of the material over a couple years the nuts have been known to back right off compromising the connection.
- F- In indoor applications the material needs to be acclimatized to the temperature of the room. If you don't do this, the material will be either expanding or contracting while cutting it and when you go to install all the lengths will appear to be either shorter or longer than each other. We recommend up to 24 hours if the material has come from a below freezing environment. The boards should be separated allowing as much air as possible around them. This can be achieved by separating the boards in each row with a spacer.

3- Most wood working tools can be used when working with this material. Where problems can occur is when it is overheated and melts.

- A- When cutting the material, a carbide blade with fewer teeth is better. A regular all purpose blade works well. Do not use a finishing blade as it will melt the plastic and make process very difficult and messy. When using a table saw push down hard and fast on the blade, making the cut in a board with two passes. Slow movements can cause melting of the plastic.
- B- The material when cut can have a sharp edge. To soften the egde either a small hand router or a wood file can be used. It also has a way of masking the any movement between boards that are expanding and contracting at different rates. You don't notice the variation as much as if it was a sharp edge.