# How to Work with ECOR

Bio-based Fiberboard

**Guide for Fabricators**



ECOR®

**Introduction**

Thanks again for your interest in ECOR. In this information package we provide answers to the most frequently asked questions specifically on how to work with ECOR. This information package is made for designers, engineers, builders and fabricators who turn ECOR into amazingly beautiful products or applications.

ECOR is a composite material (an alloy) formed from cellulose fibers, pressure, water and heat. The raw panels can be made from residuals such as old paper, cardboard, coffee ground, hemp, cotton, paddy straw, any type of plant material.

Inspired by nature, ECOR is versatile and offers you an elegant and innovative way to harness the power of cellulose. This natural binder combined with our technology enables you to design and deliver unique furniture, interior or exhibition solutions.

**Why choose ECOR Technology?**

- Extract value from cellulose byproducts
- Ensure a more reliable supply chain
- Support the Circular Economy
- Gain ESG points and Enhanced Sustainability

## How to machine cut ECOR


### Cutting ECOR with a table saw

When cutting ECOR with a table saw, use an ultra-fine circular blade with 90+ teeth on a 300mm disc. Using this ultra fine blade prevents ECOR from shredding, enabling a cleaner cut.

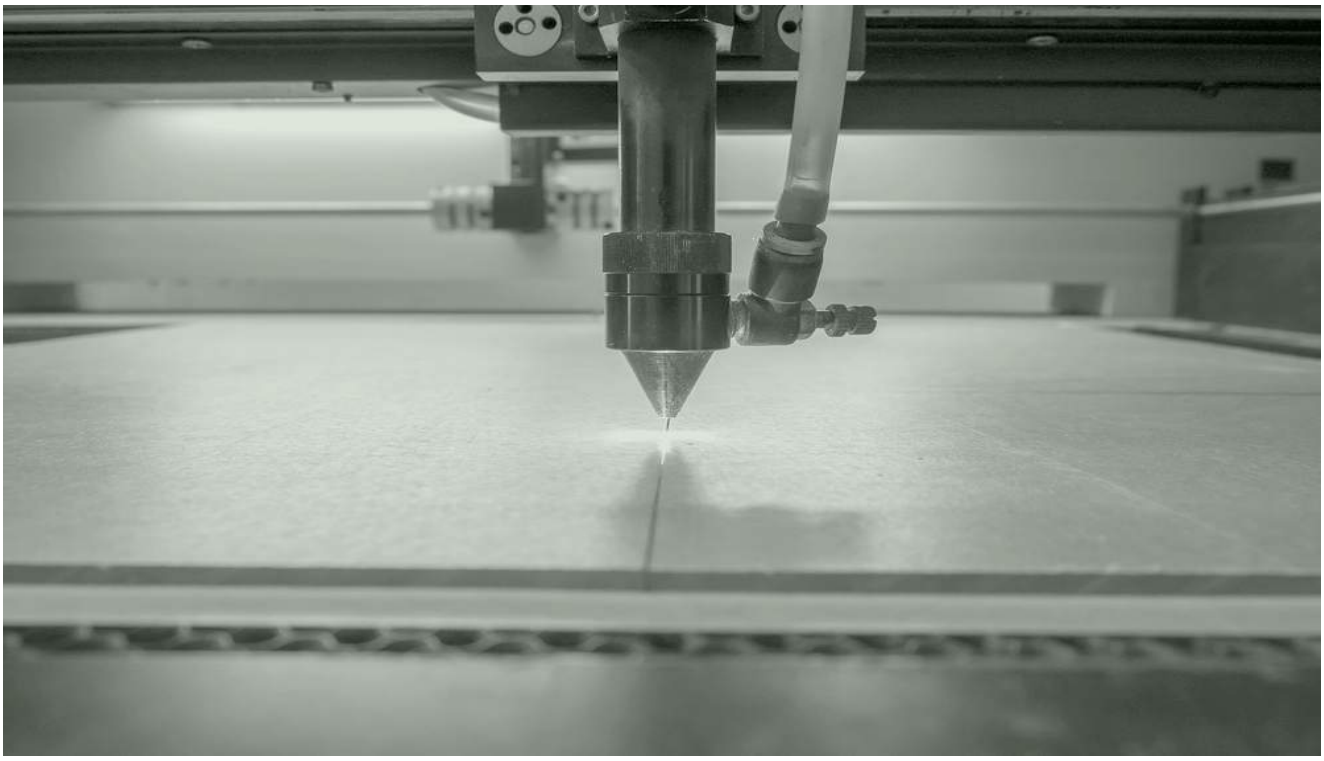
| Blade diam. | Kerf width | No. of teeth | RPM |
|---|---|---|---|
| 300 mm | 0.13 in | 90+ | 4,000–8,000 |

### Cutting ECOR with a CNC machine

Cutting ECOR with a CNC machine is similar to any other alternative board at the same density. We recommend using a downward/upward flute router bit, which prevents ECOR from shredding and enables a clean cut.

| Tool | Tool diam | RPM | Speed |
|---|---|---|---|
| up/down-ward flute router bit | 1/8” – 3/8” | 20,000 | 15,000 mm/min |

## How to laser cut ECOR



### Cutting ECOR with a laser

We recommend a 150 watt+ laser and cutting at 25mm per second with 95% intensity. This wattage is typical on most industrial lasers. If laser wattage is 400+, test different velocities and intensities to see which cuts completely through ECOR. For lower wattage lasers we recommend running two or three passes with the laser.

| Laser | Watts | Intensity | Speed |
|---|---|---|---|
| Industrial Laser | 150+ | 95% | 25 mm/sec |

## How to laminate onto ECOR

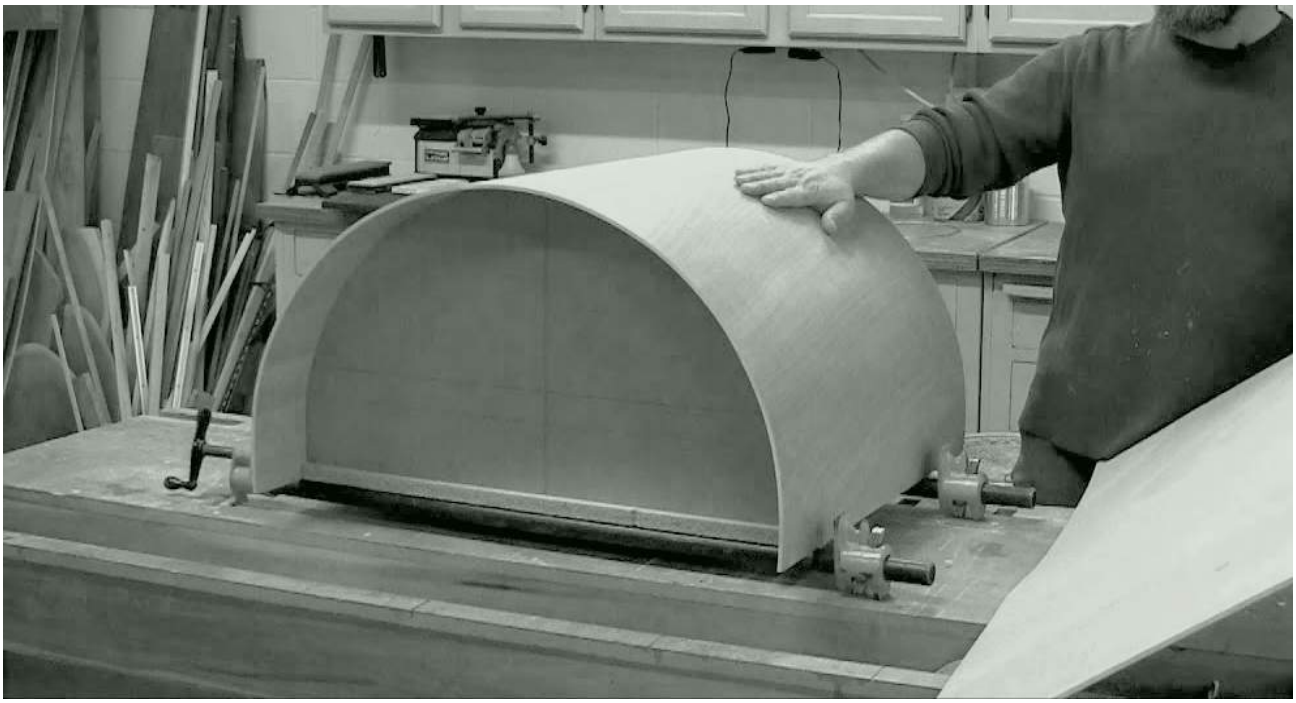
## Laminating veneer or HPL onto ECOR

When laminating ECOR onto flat-board, use Titebond 5177 adhesive and a cold press. To avoid warping place a backer, veneer, or coating onto the back of the panel to balance the sheet. When producing a 3D product, fabricate product first, then apply veneer onto ECOR. This helps to hide any visible hardware or seams.

| Press | Temp | Adhesive | Pressure |
|---|---|---|---|
| Industrial Press/Laminator | Cold Press | Titebond 5177 or Formica 7709TG | -1,000 psi +/- |

| Press | Temp | Adhesive | Pressure |
|---|---|---|---|
| Industrial Press/laminator | Hot Press | Formica 7709TG | -1,000 psi +/- |

## Bending ECOR

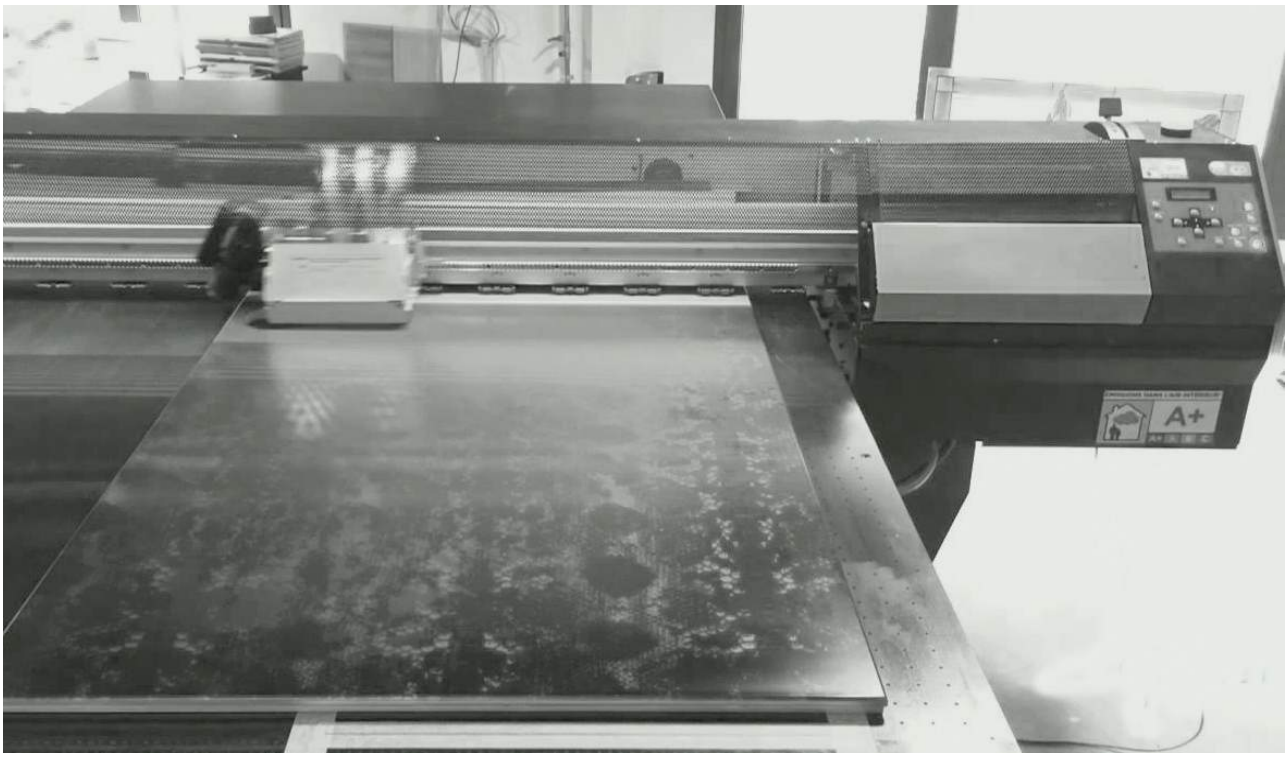


## Bending ECOR manual or with jig

ECOR is great for bending and curving. For large radius or curves, ECOR will curve or bend perfect raw. For smaller radius curves, you can achieve this by using a spray water bottle. While spraying and bending slowly you can reach the desired radius. Create your unique curved structure using ECOR and apply desired finish.

| Manual Large Radius Bend | Jig Large Radius Bend | Manual Small Radius Bend | Jig Small Radius Bend |
|---|---|---|---|
| No spray water needed | No spray water needed | Spray water bottle recommended | Spray water bottle recommended |

## Direct print onto ECOR




## UV Printing ECOR

When direct printing onto ECOR, we recommend using a UV direct printer with a full bed vacuum. This holds down a 4x8 ECOR sheet flush to bed, avoiding head strikes. To avoid ink absorption and dust we recommend using coated ECOR.

| Printer | ECOR finish | Inks | Vacuum |
|---|---|---|---|
| UV Direct printer | Coated | Green / Solvent | Full bed |

**How to apply edge band onto ECOR-1PLY**


**Machine and manual edge banding**

Adding edge band to ECOR you must first create a dimensional panel or use our ECOR-1PLY. Once a dimensional panel has been produced, adding edge band can be achieved by using a hand router for smaller projects and a benchtop edge banding machine for larger projects. Use the same adhesive, and techniques used for standard material.

**Coating ECOR with water or fire-retardant treatment**

**Water resistant treatment**

ECOR can be water and humidity resistant but must be treated first. Treatments recommended would be biobased and non-toxic solutions such as GRAPHENSTON, BIOTECTA or DSYSTAR. A full coating must be applied to the front, back, and sides to balance the ECOR sheet.

**Fire retardant treatment**

Untreated ECOR panels are not fire retardant, but they do conform to the minimum EU requirements classified as D, S1, d0. We also have US documentation which holds B untreated and A treated with MAGMA Firestop coating. To assure product integrity and safeguard the ability to recycle in the future, we suggest biobased and non-toxic fire retardant solutions such as Bioteca (B1, S2, d0) or Bioretard (B1). When testing fire retardancy, it matters how the panel is used.

(*Please contact: Renerangel@ecorglobal.com if you have questions about fire retardancy and water resistance for specific applications.)*