C COMPUTER **A** AIDED **D** DESIGN

C COMPUTER **A** AIDED **M** MANUFACTURING

Advantages of CAD	Disadvantages of CAD
Ideas can be drawn and developed quickly	Expensive set up costs
Designs can be viewed from different angles with a range of materials	Needs skilled workforce
Easy to share designs to gain feedback	Difficult to keep up with changing and improving technology

Advantages of CAM	Disadvantages of CAM
Fast and accurate production	Expensive set up costs
Machines can run constantly	Reduces need for jobs

Efficient Working

Businesses try to look for ways to save money through different ways such as Just in time production and lean manufacturing. Some employ people specifically to look for efficient savings. For example by reducing energy consumption.

Manufactured Boards

Made from sawmill scraps, recycled wood, low grade timbers and even sawdust

Susceptible to moisture

Bound together using adhesives

Boards are rigid and supplied in large sheets

No knots

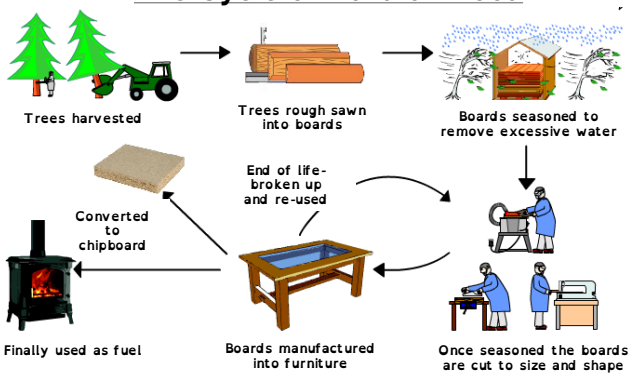
Wood joints difficult to make

CNC Laser Cutting

By cutting at different speed rates, laser cutters can burn through or etch the surface of a material and cut complex shapes out of a wide range of materials such as:

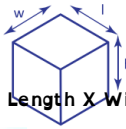
Polymers Timber Textiles Metals

Life Cycle of Natural Wood



Material costs

Timber is sold by volume, meter cubed (m3). To work out how much timber you need for a project you will need to calculate the volume of timber.



Volume

Length X Width X Height

Renewable Energy

Wind, wave, solar, geothermal, tidal and biomass

Energy is used in residential, commercial, industrial situations and for transportation

Non-Finite Materials

Non-finite resources include those that are unlikely to be exhausted, or those that are replaced faster than we can use them. These include::

Oxygen

Fresh water

Timber

Leather

	MDF Medium density fibreboard	Chipboard Particle board	Plywood
Appearance and characteristics	Smooth, dull, veneered options, Edges hard to finish well. Dense	Pale grey/brown with no grain. Frequently covered with laminate such as melamine formaldehyde. Edges chip easily. Not water resistant.	Made up of alternative rotated layers of glued wood veneers. Thin flexible versions available (flexi-ply)
			
Properties	Rigid, stable, absorbent, tough.	Good compressive strength	Very stable in all directions.
EG	Flat pack furniture, toys, kitchen units, internal construction	Flooring, low end furniture, kitchen units and worktops	Furniture, shelving, toys and construction

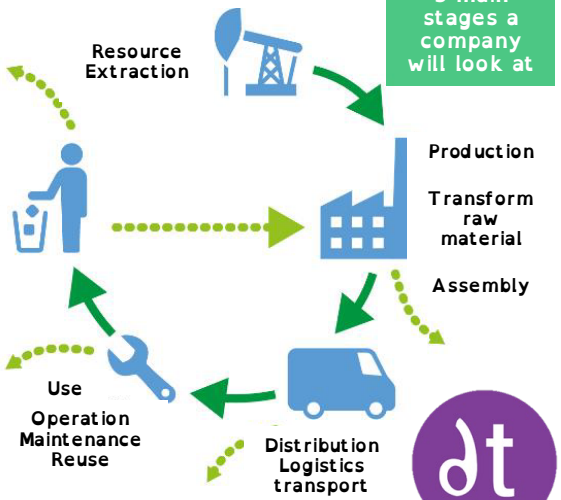
Life Cycle Assessment (LCA)

Companies conduct an LCA to help them assess the environmental impact a product has during the different stages of the products life.

A big part of a LCA will focus on energy used and CO_2 emissions at each stage.

Once a LCA has been done they can decide how to take positive action to reduce environmental impact.

A LCA has 5 main stages a company will look at



design technology: intelligent design using appropriate technology to make better solutions