Product and Industrial Eco-Design | Quick Guide

Minimise environmental impacts

**Design brief**
The brief provides the foundation for the entire design process. It shapes the environmental impacts of the product across its life cycle.

- Ask the client to integrate environmental considerations into the brief.
- Provide an eco-design option in response to the brief – even if the client hasn't requested it.
- Provide alternative design solutions in response to client's who ask for disposable products.
- Be innovative in your suggestions.

**Concept development**
Innovation and creativity flourish during brainstorming. However, if environmental impacts are not considered at this stage decisions can result in environmentally problematic outcomes.

- Consider the impacts of your product throughout its life cycle.
- Develop design solutions that seek to minimise resources, impacts and waste production.
- Create products that work with existing systems.
- Design to extend the product's life or give it a second use.
- Create longer-lasting products fit for upgrades rather than disposable products.
- Consider incorporating systems around products that promote reuse and recycling.

**Prototyping**
Prototyping is vital to success. It also provides an opportunity to test eco aspects of the product.

- Make prototypes out of recyclable materials.
- Avoid waste. Only make what you need.
- Develop prototypes that can be modified if design changes are made to reduce the amount of prototyping required.
- Prototyping until you are happy with the design is a better approach than having to mass produce it more than once because the design is changed slightly.

**Material selection**
The types of materials used and how they are combined will dictate environmental impacts in the extraction of the material and the end of life options for the product.

- Select low impact materials that will promote longevity in your product.
- Avoid coupling materials that can not be recycled.
- Preference materials that can be recycled in the country the product is intended for.
- Use design techniques such as honeycombing to reduce the amount of material needed (while retaining the strength of the product).
- Ensure the materials used can be reclaimed and recycled at the end of life.

**Manufacturing**
Manufacturing can be resource intensive, using energy, water and materials producing waste that can be environmentally hazardous.

- Select manufacturers who have environmental management certification systems in place.
- Try to close the loop by reusing waste materials and minimising virgin material inputs.
- Ask suppliers to provide you with environmental information and look for those that have a low environmental impact.

**Transportation**
Transportation invariably relies on fossil fuels to move products around the globe.

- Flat pack your products so that minimum cargo space is required.
- Preference shipping for international transport and rail for interstate and local transport needs to reduce carbon emissions.
- For small items use the regular post instead of couriers.
- Combine orders to reduce shipping needs.

**Packaging**
Protecting your product is paramount. However, excessive packaging involves avoidable impacts.

- Preference recycled materials for packaging products that can in turn be recycled.
- Design packaging to have a second life.
- Avoid over packaging.
- Talk to sustainable packaging designers about new packaging options.

Ask these questions

- Has the client prioritised the product's functions and objectives in the brief so I can accommodate these with eco-preferences?
- How can I preference environmental outcomes in our response to the brief?
- How can I make the product last longer?
- Can I make it smaller?
- Can I design the product to have a second life after it has served its initial intended use?
- Does it have to have a multitude of features?
- Can we design it to be entirely recyclable?
- What are we making the prototypes out of?
- Can we use recycled materials?
- How can we reduce the likelihood of mistakes in production through prototyping?
- Can we lightweight the materials used?
- Have I selected low impact materials that promote the longevity of the product?
- Can we design our product in a way that will promote recycling at the end of life?
- Can I manufacture this product locally?
- Does the manufacturer employ eco-efficiency measures and consider alternative energy options?
- Are manufacturing workers treated ethically?
- How can we reduce the amount of space required for transportation?
- Can we combine our shipping requirements to reduce emissions?
- Have we given preference to the least impacting method of transportation?
- How can we reduce the amount of packaging and still protect the product?
- Will the packaging materials be recycled at the product's destination?

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