

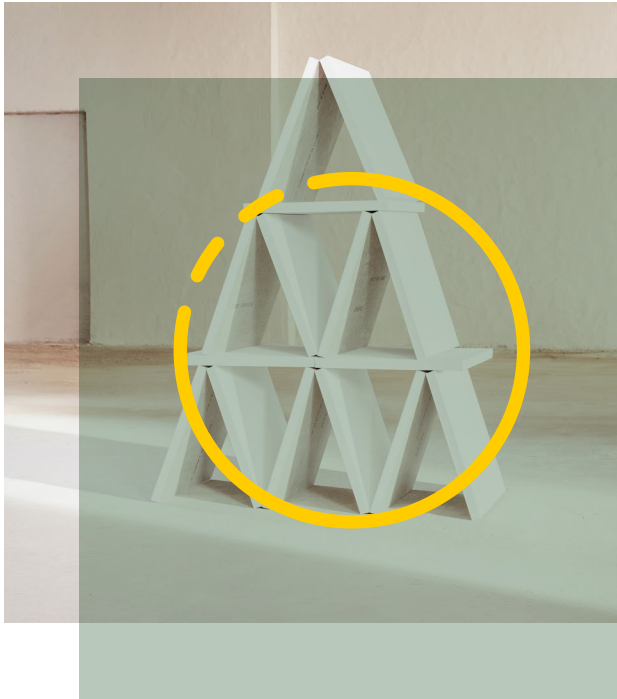
REUSE WITH ECOPHON



Ecophon
SAINT-GOBAIN

INTRODUCTION

The building industry generates of Europe's largest waste streams, and in total about 38% of global greenhouse gas (GHG) emissions¹. Recognizing our collective responsibility to reduce environmental impacts, manufacturers, regulators and other stakeholders are beginning to put in place actions that will lead to the EU goal of Net Zero by 2050. The industry has a responsibility to change, and academia, regulators and market stakeholders are working hard to reach the EU goal of net zero by 2050.



CIRCULARITY

is a key approach for a more sustainable industry.

REUSE

is a real game changer as it promotes lower waste, reduced energy usage, and provides products with extremely low environmental impacts and carbon footprint.

Circularity means working towards what is defined as a circular economy. The Ellen MacArthur Foundation² defines the concept of a circular economy as 'based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.' The number of steps included in this principle varies. In general, the steps that have to do with designing out waste, reinventing production and reproduction are mostly our responsibility, and we are working tirelessly to improve and develop new solutions.

The extension of a product's useful life as post-consumer disposal is a joint effort. With this guide we want to help extend the life of Ecophon's products and assist by extending the use of acoustic ceiling products.

Moreover, reuse is increasingly becoming part of the routine in our society and it is no longer seen as a symbol of poor economic health. On the contrary, it is actually a great design opportunity to showcase in a playful way how old and new can cohabitate, as is often done with furniture.

1. 2021 Global Status Report for Buildings and Construction. UN Environment Programme: <https://globalabc.org/resources/publications/2021-global-status-report-buildings-and-construction>

2. <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

REUSED PRODUCTS: THE LOWEST POSSIBLE CARBON FOOTPRINT

Every product requires energy in order to be manufactured. This means that everything that is purchased new has an impact on the environment. This is also true for construction products.

One way of significantly cutting back the carbon footprint of your building and the associated environmental impact is to purchase previously used materials. By doing so you extend the lifetime of the product, avoiding landfilling and the energy used to manufacture something new. You also reduce the need for virgin raw materials. Reusing can therefore be even better than recycling, which often involves processes that require a significant amount of energy.

When applicable, reusing is a win-win: less waste, a lower impact on the environment, a decreased carbon footprint, and reduced resource and energy consumption.

FROM THE LINEAR ECONOMY TO THE OVAL ECONOMY

The linear economy is defined as a model where we take raw materials, make a product, and dispose of it (landfilling). Unfortunately, this widely adopted model is not sustainable in a world of limited resources and space. The approach of the circular economy is gaining increasing traction. This means that systemic solutions need to be found to reduce our waste, rethink, and redesign our products, reuse them and, at the end of their life, recycle them.



RAW — DESIGN — MAKE — USE — DISPOSE — LANDFILL

Figure 1: The linear economy

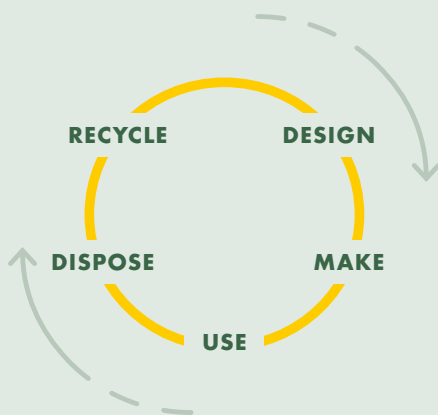


Figure 2: The circular economy

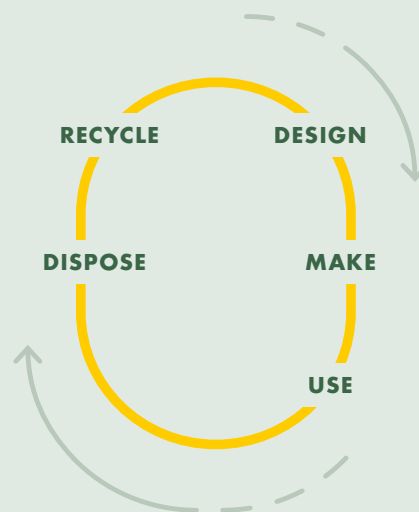


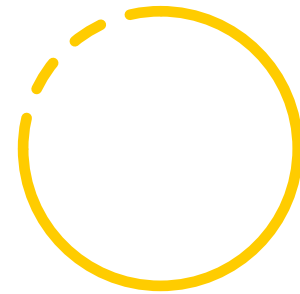
Figure 2: The oval economy

At Ecophon, we believe that we need to add a time dimension to the circularity concept. The products should spend most of their life in the use phase as this is where they have the lowest impacts (see next section). This is what is called the oval economy³, in contrast with the concepts of linear and circular economy.

ECOPHON ACOUSTIC SOLUTIONS: WHY ARE THEY CIRCULAR?

DURABILITY

For a product to be reused, it needs to stand the test of time. Ecophon products are engineered to last longer than the average life of the interior materials of a building. And their acoustic performance is maintained with time. Generally, the ceilings are not thrown away because they are unusable anymore but because the rooms are redesigned and refurbished to meet new needs.



MODULARITY

Most of our acoustic solutions are modular, meaning that they are designed to be easily demounted and remounted. You can also decide to change only parts of it without having to scrap the entire system. They are also lightweight, which enables the panels to be easily moved and facilitates reuse.

EMISSIONS

Healthy indoor spaces and wellbeing are of high importance when it comes to designing interiors. Therefore, Ecophon products have been designed to meet or exceed the strictest emission standards in Europe, and do not contain any harmful substances.

CLEANABILITY AND MAINTENANCE

Ecophon products are designed to have a long lifespan, but with proper maintenance it is possible to extend their use even more. Indeed, depending on the product range, the absorbers are designed to withstand various types of cleaning (from regular water and cloth to high-pressure spraying). Cleaning and maintenance tips are presented on the [Ecophon website](#).

3. As defined by Mattias Axelsson of the Stockholm School of Economics: <https://www.aktuellhallbarhet.se/alla-nyheter/debatt/bortom-cirkular-ekonomi--fordelarna-med-en-oval-affarsmodell/>.

MATERIAL – WHAT TO KEEP IN MIND

1. KEEP WHAT YOU ALREADY HAVE

When redesigning or refurbishing a room, keep the ceilings you demount, they can be reused. When doing so, keep in mind:

- Compared with direct-fixing, a suspended ceiling is the easiest to demount (when on grids or screwed). Glued products are hard to remove without damage.
- Once demounted, the back of the panels should be dusted, and the products stored in a dry and cool place (see section about storage).
- Edges A, E, Ez are the least sensitive edges and therefore very easy to reuse. When working with the edges Eg, Lp, Dg or Ds, be more careful while demounting and storing as the edges are more fragile.
- Any panels that are slightly damaged can be used for perimeter tiles.
- The amount you should be able to save for reuse will vary depending on the lighting integration, ventilation etc.

You can [contact](#) your Ecophon representative for more assistance.



OUR CEILINGS

are very good candidates for reuse due to their durability, modularity, and long lifecycle.

We provide advice and documentation helping to ensure that our solutions are reused in the best possible ways, please see our Reuse Maintenance Guide, Reuse Demount Guide and Identification Guide.

2. WHAT ABOUT THE GRIDS?

Grids are a vital part of any ceiling system, and when refurbishing, you can typically reuse a grid as long as your tiles have similar installation methods (an example could be systems with visible grids). You can then leave the grids up and only change the tiles. The grids can be cleaned or carefully painted if needed, but generally retain high quality throughout their lifetime. When it comes to remodeling or demolition, in most cases, the grid system can be tricky to demount without damage. We therefore currently recommend that demounted grids are recycled at a metal recycling station.

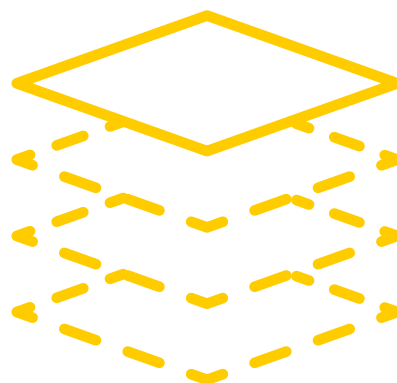
3. STORE APPROPRIATELY

Appropriate storage is vital to protect the products before they are reinstalled.

After demounting, you might need first to remove the dust that could have accumulated over the years from the back of the tile, using a brush for example. You can then stack tiles on top of each other in cardboard boxes with the painted surfaces facing each other to avoid damage to the visible parts with a potentially dirty back side.

It is recommended to keep the tiles in boxes in a dry and cool place.

For a full description of how to store Reused Ecophon panels, please see our [Reuse Demount Guide](#).



4. WHAT YOU CAN'T KEEP, RECYCLE!

Products that have been damaged during demounting, such as panels that have been glued, can be used for extra absorption when placed in the plenum of another suspended ceiling.

Products that cannot be kept because they are not fit for reuse can be disposed of through our recycling service SoundCircularity, to avoid landfilling. More information on this service can be found on [our website](#).

5. MAKE SURE YOU HAVE ENOUGH

Reused products come with their own set of challenges. The first challenge is to ensure that you have the amount you need. That's where it comes in handy to have saved some from various refurbishments or demolition sites. You can also contact your Ecophon representative to see if you can source the correct reused products together, or even supplement them with new ones. Designing with different products ranges and ages is tackled in the next chapter.

If you don't have enough to do a full wall-to-wall ceiling (which provides the best acoustic results), you can also consider creating free-hanging islands. Please, [contact](#) your Ecophon representative to make sure that the installation is able to provide the desired acoustic characteristics.

6. UNITY OF THE DESIGN

When working with reuse you might end up with products that are of different ages or have been used differently. They might therefore differ in colour, or even products that are not from the same range. Your first thought should be: do I really need to hide it? It can actually be a great design opportunity to showcase in a playful way how old and new can cohabitate, as is often done with furniture.

Note that it is often easier combine products that are mounted on a similar grid system, for example, a visible grid system vs concealed grid system.

If you want a uniform ceiling appearance, we recommend reusing products that have had the same use and are of similar ages. If that is not possible, you can print a pattern or colour on the tiles. This should be done according to a specific method in order to avoid damaging the acoustical and fire properties. You can contact your Ecophon representative for more advice on printing reused panels.

Smaller elements in a grid arrangement can be used to create consistency throughout an installation consisting of different products with different formats and finishes. Despite the non-uniformity of the ceiling, the grid will help to structure and enhance the installation from a visual standpoint.

7. ADD SOME NEW TILES

In your design, don't be afraid of mixing old with new. Some free-hanging units to complement the older wall-to-wall ceiling tiles, a new grid system, some wall panels, some spots of color... The design possibilities with reuse are even wider when combining with new products. You can get some inspiration for the many design options on our [website](#).



CONTACT

Douglas MacCutcheon, PhD

Global Concept Developer for Sustainability,
Saint-Gobain Ecophon

Douglas.MacCutcheon@ecophon.se

ecophon.com
