

# METALS FOR BUILDINGS

## Essential & fully Recyclable



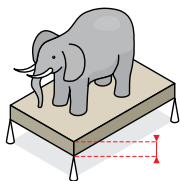
# METALS ARE ESSENTIAL IN BUILDINGS

Due to their intrinsic properties, metals are widely used in the building and construction sector. They are a first choice material for structures, reinforcements, cladding, roofing, window frames, plumbing, heating equipment and many other applications. Metals can be found in old and historic buildings as well as in new, modern architecture.

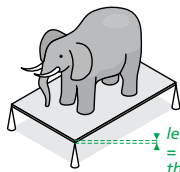
The following three performance properties make metals essential for buildings:

## DOING MORE WITH LESS

Due to their high strength, metals can bear high loads with less material or be used to reinforce other materials.



non-metallic material

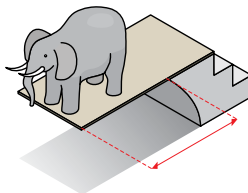


metal

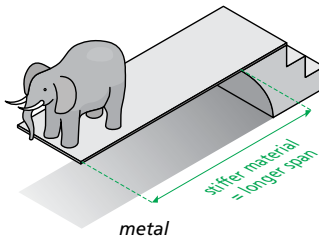
less material  
= reduced  
thickness

## FREEDOM FOR DESIGNERS

Thanks to their high stiffness, metals can span greater distances, allowing more design freedom.



non-metallic material



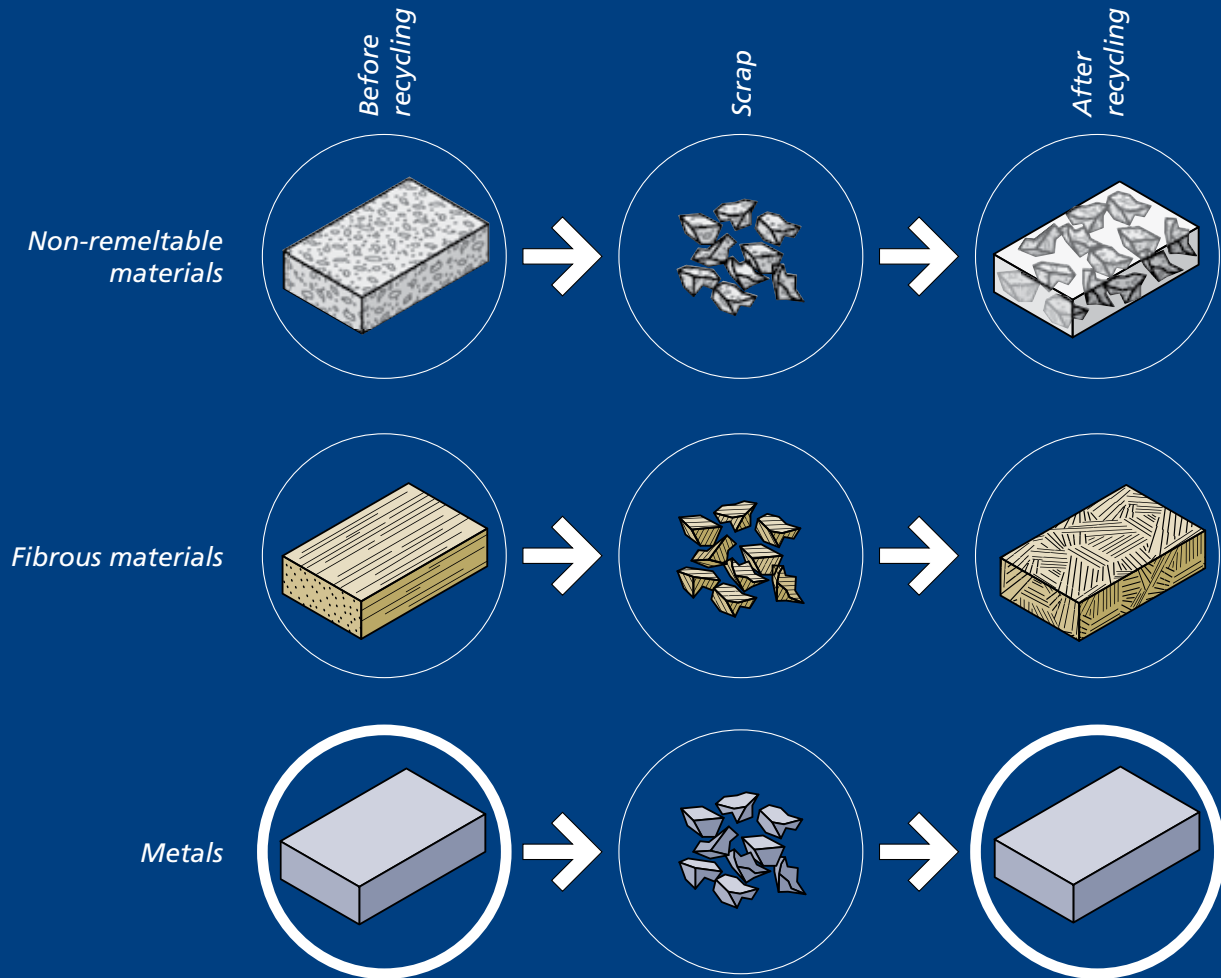
metal

stiffer material  
= longer span

## DURABILITY

Metal building products, with appropriate surface treatment when necessary, are weatherproof, seismic proof, corrosion resistant and immune to the harmful effects of UV rays, ensuring a very long service life without degradation.





Metals can be recycled without loss of quality. Because metallic bonds are restored upon resolidification, metals continually recover their original performance properties, even after multiple recycling loops. This allows them to be used again and again for the same application. By contrast, the performance characteristics of most non-metallic materials degrade after recycling.

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METALS  
REMAIN METALS

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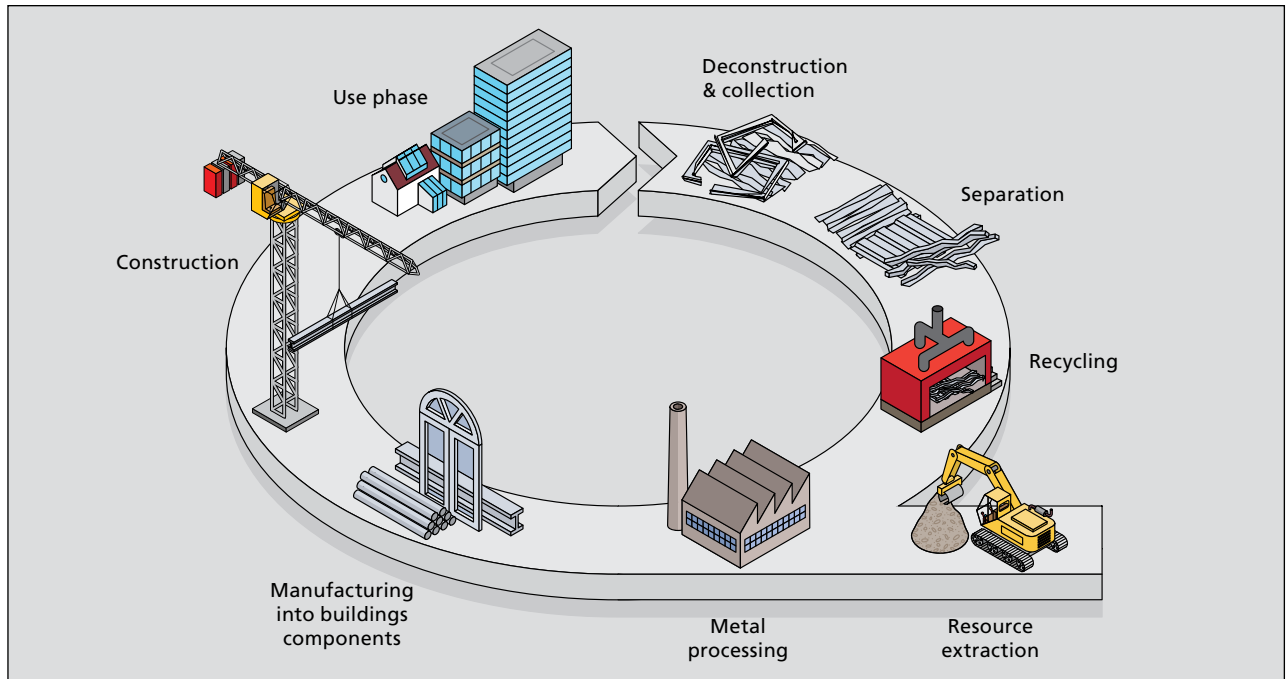
## METALS ARE REUSED OR RECYCLED

When a building reaches the end of its life, a considerable proportion of its metallic products can be directly re-used, as currently happens with metal-framed buildings. Being flexible and adaptable, the functional life of these parts can be extended.

When a metallic building product reaches the end of its life, it can be fully recycled. Already, today, more than 95% of the metallic products used in buildings are collected at end-of-life. Small and medium-sized companies play a key role in the collecting and processing of metal-containing

products, on their journey to metal-recycling installations. High economic value is the main driver for this systematic collection and recycling. As metal recycling provides energy savings of between 60% and 95% compared to primary production, depending on the metal and the metal-bearing product, metal recycling creates a win-win situation for both the environment and the economy.

The reuse or recycling of metallic building products saves resources.



# HOW TO BEST MEASURE THE RECYCLABILITY OF METALS

Valid recyclability-measurement approaches are necessary for the various stakeholders. Governments need them for assessing metal-commodity markets, industry to identify improvement potential, regulators to measure the fulfilment of targets in waste and recycling legislation, academia for system analyses and sustainability experts to assess the environmental impact of products. Today, two indicators are typically used: “recycled content” and “end-of-life recycling rate”.

## **RECYCLED CONTENT: inappropriate for metal products**

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Recycled content looks at how much recycled material is used in the production of a new product. Situated at the beginning of the supply chain, i.e. at the manufacturing stage of a product, it is an indicator that may make sense for products containing materials for which recycling industry is not profitable and/or the market is not yet mature. In these circumstances, a requirement for high recycled content in new products may stimulate recycling for materials or products that would otherwise be landfilled or incinerated.

Conversely, this indicator is not appropriate for metal building products since they are already efficiently collected and recycled within a well-established recycling market.

Hence, the recycled metal content does not reflect the intrinsic recycling performances of a metal product in the building sector. Thus, this indicator could be used only to reflect the average share of recycled metal in the overall metal supply chain.

## **END-OF-LIFE RECYCLING RATE: the most appropriate for metal products**

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The End-of-Life (EOL) recycling rate compares the actual amount of metals obtained from recycling with the amount of metals theoretically available at the end of the life of a product. Including metal losses during collection, scrap preparation and melting, it directly reflects the specific recycling performance of a metallic product independently from market growth or its lifespan. Hence, it is the most relevant indicator for metal products in buildings in order to maximise and preserve metal

availability for future generations as explained in the common [Metals Declaration on Recycling](#), published in 2006.

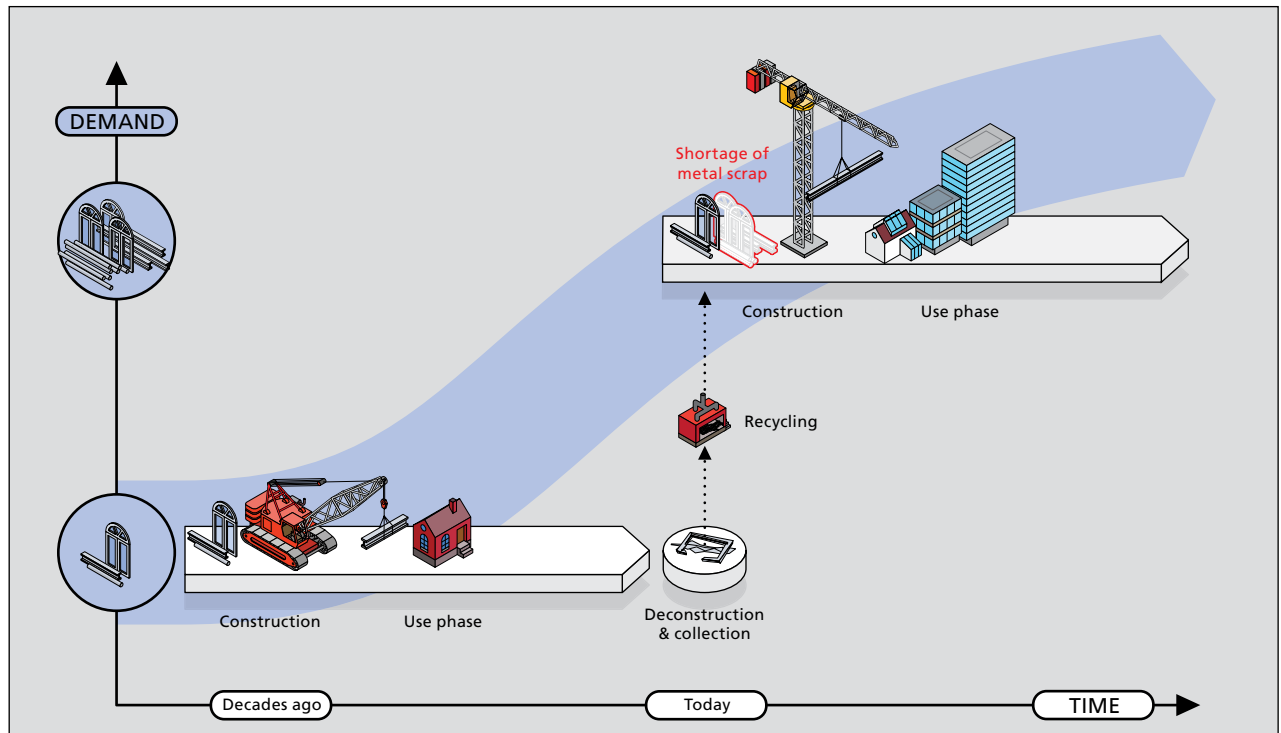
This indicator is widely accepted in the scientific community (UNEP SETAC, ILCD), is in line with the approach used by academia (Yale University) and is used by internationally known experts (United Nations Panel on Resource Management).

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# "RECYCLED CONTENT" VS. "END-OF-LIFE RECYCLING RATE" – WHY CAN THEY DIFFER?


The upper limit of what is recycled today is governed by what was produced in the past. The rapid growth in the use of metals over many years and the fact that metallic building products typically have a service life of decades means that there is an actual shortage of metal scrap coming from buildings. As there is insufficient recycled

material to satisfy the growing demand, virgin material has to be introduced into the supply chain. So, in spite of an efficient collection and recycling of metal products at the end of their life especially in the building sector, the average recycled content in metal supply is still relatively low.



Hence, recycled content is not a relevant indicator to predict, today, which product will be most recyclable in the future. Instead, any environmental assessment of a product using recycled content as an indicator at its production stage must be complemented by information related to the end-of-life recycling phase. Only then, will society and regulators see the complete picture of the whole metallic product lifecycle.

# THE FUTURE ENCOURAGEMENT OF RECYCLING



As it is economically attractive, metal collection and recycling are already performed to a high degree. Throughout the whole value chain, there is, however, still potential for improvement.

Besides industry's own investigations, joint activities are being conducted with research institutions and academia to assess losses throughout the lifecycle and see how they can be minimised. This work will help to further understand this complex business and define adequate measures for further improving metals recycling.

This publication has been developed by **METALS FOR BUILDINGS**, the alliance of European Metals Associations active in the building sector to promote the unique strengths of metal products for recyclable and sustainable buildings.



[www.metalsforbuildings.eu](http://www.metalsforbuildings.eu)