

Copper Continues to be a Sustainable, Recyclable Material Widely Used in Various Building Applications

Copper's High Recyclability Makes It a Resource-Efficient Building Material

In an era of increased focus on sustainability, copper is king. It's durable, reliable and often outlives its aluminum, plastic and other metal counterparts. Copper has functioned as a staple building construction material for thousands of years having been used in architecture, plumbing, mechanical, electrical and even healthcare applications throughout the world.

Copper's unlimited recyclability, low maintenance and longevity make it one of the most resource-efficient building materials today. Copper is such a sustainable product that once it has fulfilled its duty in one setting, it can be used again in another.

Building products made from copper — such as plumbing tube, electrical wire, roofing and gutter systems — are all recyclable. This means that the copper itself rarely makes it to the landfill; rather, it's reintroduced and reused to serve a new purpose in another form.

The recyclability of copper is nothing new. In fact, for thousands of years, humans have melted down cannons, church bells, statues and other objects to make tools more suited for the times.

Each year in the U.S., nearly as much copper is recovered from recycled material as is derived from newly mined ore. Excluding wire production, which is mostly made from newly refined copper, more than three-fourths of the copper used by mills, ingot makers, foundries, powder plants and other industries comes from recycled scrap.

Almost half of all recycled copper material is old post-consumer scrap, such as discarded electric cable, junked automobile radiators and air conditioners and cartridge cases from the military. The home is another source for products made from recycled copper. For example, copper architectural and plumbing products typically consist of 60 to 90 percent post-consumer recycled content. Copper tube and sheet products can be recycled over and over without losing their engineering properties.

At present, copper is one of the most used and reused of our "modern" metals.

"Copper is very prevalent in our everyday lives. The high demand has resulted in an industry that relies in part on recycling surplus copper and scraps," said Janice Jolly, a copper industry consultant with more than 35 years experience. Jolly recently authored *The U.S. Copper-base Scrap Industry and Its By-products* report for CDA. "In many cases, it makes more economic sense to use recycled copper — whether it's re-refined for purity or used with 'contaminants' for such purposes as manufacturing feedstock."

Copper is recycled in one of three ways: it can be reused in its existing state, melted and diluted to reduce impurities and returned to its existing composition or re-refined using conventional techniques in order to gain even higher purity composition.

The most important factor to consider is copper purity. Depending on the purpose, copper can contain trace amounts of other elements without jeopardizing its properties. For example, if copper is used for

electrical conductivity, the purity threshold is much higher than it would be for other applications, like plumbing and roofing.

The recycling process is rigorous, but the end result is a highly-functional material. Copper alloys, or combinations of copper with other elements to form a new material, such as brass or bronze, also can be recycled.

It's no surprise that copper has been around for a long time and continues to be used, reclaimed and reused. Copper's superior engineering properties, such as its thermal and electrical conductivity, demand that it be chosen for use in today's energy- and resource-efficient applications; its durability and longevity ensure that use will be long-lasting, maximizing and leveraging those efficiencies; and its unlimited recyclability guarantees those efficiencies will be realized in many future uses. This makes copper and its alloys truly green materials perfect for building a sustainable world.

For more information about copper's use, recycling copper or to download the CDA report, visit www.copper.org.