

STANDING SEAM SPOTLIGHT

An Educational Bulletin for Metal Roofing Professionals

Recycled Materials in Metal Roofing

By Clinton Hollister

Recycling, green buildings, sustainable design, LEED credits, ozone layer depletion, global warming, depletion of energy resources, environmental protection ... These are not just the trendy buzz words, but absolutely relevant to the fundamental quality of our lives and the lives of our children and grandchildren. The need to conserve our resources is not an option but a necessity.

Metal has been used in roofing for centuries due to its strength and durability. And as public demand for environmentally friendly, sustainable resources grows, metal's "recycle-ability" makes it an increasingly attractive material. While other roofing materials that use oil derivatives typically end up in a landfill, the metal industry has been recycling material for centuries with ever-increasing efficiency.

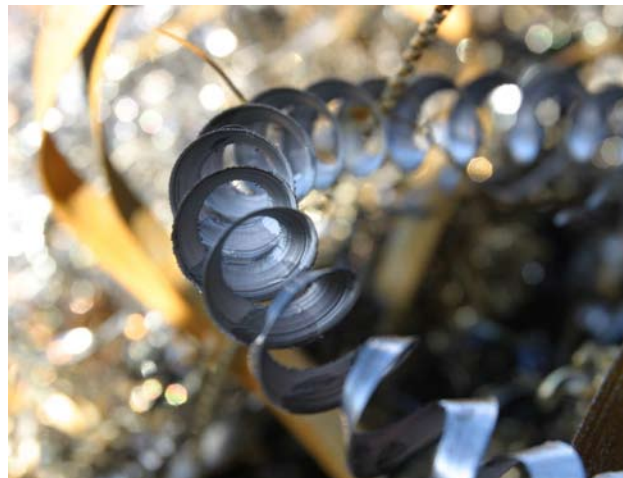
According to the Steel Recycling Institute, 50 percent of the steel produced in the past 50 years has been recycled. Recycling of metal not only lowers the cost of the product, but more importantly conserves our earth's finite resources and reduces environmental damage caused by solid, liquid and gaseous wastes.

Recycling Trends

Steel

Steel, the world's most recycled material according to the Steel Recycling Institute, was recycled at a rate of approximately 76% in 2005. The steel industry divides recycled steel into two components:

- **Pre-consumer (or post-industrial) steel**
Manufacturing scrap or steel that did not result in a used product
- **Post consumer steel**
Steel that has been produced into a product sold to a consumer and is now being recycled



Steel is primarily produced using the Basic Oxygen Furnace (BOF) process or the Electric Arc Furnace (EAF) process. According to the Steel Recycling Institute and the American Institute of Steel Construction, Inc., the BOF product uses on average 23% post-consumer steel and 7% pre-consumer. The EAF process yields approximately 59% post-consumer steel and 33% pre-consumer scrap.

The percentage of recycled material used varies according to the source, and figures from individual mills are often unavailable. Conservatively, The Metal Initiative reports use of 25% recycled steel, which was reaffirmed in the February 2006 issue of *metalmag*. Some individual mills report a higher percentage of recycled steel. The Metal Construction Association (MCA) reports that new steel made with recycled material uses as little as 26% of the amount of energy that would be required to make steel from iron ore.

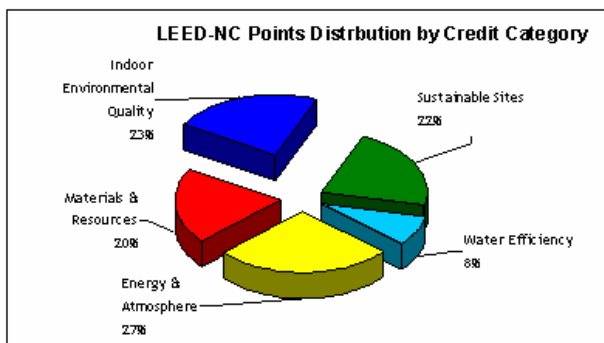
Aluminum

Aluminum, which has the reputation for greater longevity is a close competitor to steel (based on the total square footage produced of IMETCO's standing seam product). The Aluminum Association web site lists the recycled content of the material at 80 - 85 %, approximately one-half of which is from post-consumer sources. Production from scrap uses only 5% of the energy required for production from bauxite ore.

Copper

According to MCA, copper recycling is at about 45 %. However, these figures are a bit skewed with respect to metal roofing since copper wire, the largest consumer of copper, must be pure. Copper roofing is estimated to contain approximately 75% scrap, 50% of which is post-consumer.

LEED-ing the Way



Much credit should be given to the US Green Building Council's Leadership in Energy and Environmental Design (LEED®) Green Building Rating System. This rating system, which is being adopted by several federal agencies and states, provides "points" for recycled content. The system makes buildings more attractive to owners with cost savings through better energy efficiency and potential tax reductions. Currently, up to two LEED points are awarded when 10% recycled material is used throughout the building envelope, and an increase to 20% is forthcoming.

Metal roofing contributes substantially toward LEED points and the environmental goal of sustainability, a concept whereby society meets its present needs while preserving the ability to meet future needs. Materials used in metal roofing differ in the average of recycled content according to the base metal.

For LEED purposes, the percent of recycled material is calculated by adding the percent of post-consumer content plus ½ of the pre-consumer (post-industrial) content. The LEED rating system presently does not take into consideration that the metal used for a building project has the potential to be almost 100% recyclable when that time arrives.

Beyond the Mill

We as individuals can play a part. Here are some suggestions:

- Urge your communities to support recycling by offering curb-side recycling services.
- If collection services are not available in your area yet, find out where your local recycling center is and contribute your recyclables when you "can."
- Organize a simple recycling program at work by placing bins for recyclables next to the trash cans and, if no collection service available, ask for volunteers to sign up for drop the bins off at a nearby collection center.
- For larger offices, your waste management company may offer a recycling program - find out how to take advantage of the services available to you.



As a sales professional, I am certainly not an expert on the subject of metal recycling. But with an ardent desire to help preserve our limited and precious resources, I have compiled this article from several available sources. If you have any comments, suggestions, or corrections, your contributions are most welcome.