

Another Shade of Green



By *Keith Lindemulder*

Keeping score is never as simple as “yes” or “no”. The rules of the game will determine whether a baseball that goes over the outfield fence counts as a home run or a foul ball or even a ground rule double. Similar rules decide whether a “score” in football counts as a 6 point touchdown, a 3 point field goal, a 2 point safety or an extra point (or two)! The green building programs in use today have rules too! Depending on the program they determine whether your “score” adds up to more points or fewer points or even if it counts at all.

The intent of the Recycled Content credits (LEED – New Construction Credits MR 4.1 and 4.2) is to increase the demand for recycled content materials in turn reducing the impacts resulting from extracting and processing virgin materials. A second important benefit is reducing volume of materials that end up in landfills. Credit 4.1 awards one point for 10% recycled content and credit 4.2 awards an additional point for 20% or more.

The trick is determining exactly how much recycled content is included in the various materials required to build a structure. To further complicate things, the rules only give you half credit for “pre-consumer recycled content”. Pre-consumer waste is material diverted from the waste stream during the manufacturing process. An example is any steel that is produced and scrapped for some reason before it leaves the steel mill. Cars and appliances would be considered “post-consumer” waste.

Let’s look at an example to try and understand the “rules” a little better.

Let’s say we’re building a hotel which would cost \$30 million when it’s complete and we need to decide whether to frame it out of Cold-Formed Steel or wood. For our example, we’ll assume the mechanical, electrical, plumbing costs are just under \$8 million, so we have a structure that’s “worth” a bit more \$22 million.

If all the decisions regarding materials had been made we would make a complete list of materials with the verified pre- and post-consumer recycled content and the cost of those materials. However in this example, we’re just trying to determine the impact of framing out of steel or wood. The credit includes a ‘short-cut’ which allows us to take 45% of the total construction costs (hard costs) to estimate the “Total Material Costs”. Using the numbers above, 45% of \$22 million is about \$10 million. To be awarded MR credit 4.1 we need at least \$1 million (10%) recycled content. As we learned above, a second point is available if we use at least \$2 million (20%) of recycled content.

Let’s say to frame the hotel would cost \$3.5 million. All the rest of the materials would be the same and would contain 4% recycled content (or \$317,400 – or just over 3% of the total construction costs). If we source the steel sheet from the Nucor mill in Hickman, AR the recycled content for 2007 was 55% post-consumer and 8% pre-consumer.

So, the *recycled content value* of the Cold-Formed Steel is –

\$3.5 million x post-consumer recycled content (55%)	= \$1,925,000
plus \$3.5 million x ½ pre-consumer (8%)	= 140,000
<hr/> Total Recycled Content Value for CFS	<hr/> = \$2,065,000

Adding that to the rest of the materials would be a total Recycled Content Value of approximately \$2,382,400 (or nearly 24%). For this example, we would achieve both points for credits MR 4.1 and 4.2. For the wood framed structure we would only have the recycled content value of the remaining materials which is just over 3% of the total costs.

Steel is the only material recognized by LEED as a material with consistently high recycled content. It gives steel an overall default rate of 25% if no specific recycled content documentation is available. In our example above, using an overall 25% rate would total \$875,000. Added to the other materials would total just under \$1.2 million (or about 12%) which would only get the project one point for MR credit 4.1.

In reality the calculations are much more involved and more detailed but the premise is the same. The higher recycled content materials used means less virgin material and a lower burden on our landfills. Nucor leads the way as the nation’s largest recycler!

Have a SAFE and Sustainable week!

Reduce!

Reuse!

Recycle!



STEEL
IS THE NEW GREEN.



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