VOL. 1 ISSUE 4

Steel Framing Alliance™

Steel. The Better Builder.

STEEL IS GREEN: RECYCLED & RECYCLABLE

There is much to talk about in construction today, but no subject is more compelling and will instigate more widespread change in the next few years than "green building". Recently defined and thoroughly analyzed in Building Design and Construction's (BDC) "White Paper on Sustainability", green building is "the practice of 1) increasing the efficiency with which buildings and their sites use energy, water, and materials, and 2) reducing building impacts on human health and the environment, through better siting, design, construction,operation, maintenance, and removal – the complete building life cycle.*"

Interestingly enough, BDC tracked milestones in sustainability as far back as the mid 1800's, with London's Crystal Palace and Milan's Galleria Vittorio Emanuele II, which used passive systems, such as roof ventilators and underground air-cooling chambers, to control indoor air temperature. Since then, several major events and trends in sustainability have transformed the process and outcome of construction, significantly affecting the buildings we inhabit.

USGBC LEED

Today, the U.S. Green Building Council (USGBC), a successful nonprofit membership organization leading the charge in sustainable construction, has more than 900 projects registered in its LEED (Leadership in Energy and Environment Design) program, representing nearly 140 million square feet of space. With broad appeal, LEED, is a green building rating system that awards certification points for compliance in five categories related to siting, water conservation, energy, materials, and indoor environmental quality, plus an innovation and design category.

Under LEED, projects earn points based on credits achieved in each of the categories; a minimum 26 points certifies a project as "green" and allows the owner to tout the building's environmental superiority. LEED Silver, Gold and Platinum status levels are designed to encourage friendly competition among construction industry participants, and bring a markedly high distinction to the building and/or builder.

Steel Value in LEED

The use of steel building products enables builders and designers to earn points under Credit 4.1 and 4.2 (as required by LEED Version 2.1). The recycled content value of the steel produced in facilities that use basic oxygen furnace (BOF) technology exceeds the 5% and 10% goals in LEED. The same is true for steel produced in facilities that use electronic arc furnace (EAF) technology.

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"Recycled and recyclable – steel closes the loop on the way toward more sustainable construction."

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Steel Recycling

Let's take a step back to see how steel qualifies as a recycled and recyclable building material. The Steel Recycling Institute reports over 70 million tons of steel were recycled or exported for recycling in 2002. Steel, the world's most recycled material, has been recycled in North America for over 150 years, through 1,800 scrap processors and 12,000 auto dismantlers. The BOF process uses 25% to 35% old steel to make new steel; the EAF process uses virtually 100% old steel to make new steel.

Translated into facts we can grasp:

- Each year, the North American steel industry recycles millions of tons of steel scrap from recycled cans, appliances, automobiles, and construction materials. This scrap is re-melted to produce new steel.
- 64% of all steel products are recycled – more than any other material in the U.S. including glass, paper, plastic and aluminum, combined.
- Steel recycling programs reduce the solid waste stream, resulting in saved landfill space, and help to conserve our natural resources.
- Steel recycling saves the energy equivalent of electrical power for about one-fifth of U.S. households (or about 18 million homes) for one year.
- Every ton of recycled steel saves 2,500 pounds of iron ore, 1,400 pounds of coal, and 120 pounds of limestone.
- All light gauge steel framing contains a minimum of 25% recycled steel.

At a glance, the major environmental benefits of steel framing include: a 25% minimum recycled content and 100% recyclability; minimal job site waste due to standard quality (2% for steel vs. 20% for wood); life cycle energy savings due to the air tightness of the structure; and a long structure life reducing the need for future building resources (zero depletion of iron resources).

If we examine the total life cycle assessment, regarding energy consumption, steel does not rely on "recycled content" purchasing to incorporate or drive scrap use. It already happens because economically, it is cheaper to use recycled steel than to mine virgin ore and move it through the process of making new steel.

As a result, recycled content for steel is a function of the steelmaking process itself; after its useful product life, regardless of its BOF or EAF origin, steel is recycled back into another steel product. Thus steel with almost 100% recycled content cannot be described as any better to steel with 30% recycled content. The recycled content of EAF relies on the embodied energy savings of the steel created in BOF process. So steel is truly the most recycled material.

For more information about steel and its inherent recycled content, visit the following sites:

Steel Recycling Institute, www.recycle-steel.org

US Green Building Council, www.usgbc.org

Building Design & Construction, www.bdcmag.com

Steel Framing Alliance, www.steelframingalliance.com

*As defined by the Office of the Federal Environmental Executive

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