Waste from the manufacturing process of any steel product can be recycled into structural steel. Pre-consumer waste stream

In 2010 an estimated 3.9 million old automobiles were recycled into new structural steel products. Mills typically use scrap collected from within 400 miles. The majority of scrap is shipped by rail or barge to the mill.

Electric Arc Furnace

The Structural Steel Mill

Productivity has increased from 12 labor hours per ton in 1980 to one half hour per ton today.

Continuous Casting

Deconstruction

Beams and columns removed from a building can be re-fabricated for use in new structures without having to be melted and rolled. Structural steel has an industry average recovery rate of 98%.

Electric Supply

85% of the energy used in the steelmaking process comes from electricity. As the electric grid becomes more renewable, steel’s carbon footprint will decrease.

Ladle

Construction Waste

Structural steel generates virtually no on-site construction waste, and any “waste” that is generated flows back into the scrap stream instead of a landfill.

The Cradle-to-Cradle Life Cycle of Structural Steel

Construction/Erection

Steel is fabricated offshore to strict tolerances and can be erected quickly in the field, meaning fewer workers on the job site, safer working conditions, shorter construction schedules and reduced emissions from construction equipment.

Emissions

Steel's greenhouse gas emissions have been reduced 38% since 1990 and overall emissions have been reduced by 67% since 1980.

Water

The steel production process has a water recyling rate of 96%, resulting in the consumption of only 60 net gallons of water per ton of steel produced.

Efficient transportation and maximization of loads helps reduce trips and fuel usage.

Post-consumer waste stream

Construction Waste

All fabrication waste is reused or recycled.

Mills typically use scrap collected from within 400 miles. The majority of scrap is shipped by rail or barge to the mill.

Emission

Steel's greenhouse gas emissions have been reduced 38% since 1990 and overall emissions have been reduced by 67% since 1980.

Natural Gas Supply

Steelmaking's overall energy usage has decreased by 66% since 1980.

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Home Scrap

Fabrication Waste

The steel production process has a water recycling rate of 96%, resulting in the consumption of only 60 net gallons of water per ton of steel produced.

The Cradle-to-Cradle Life Cycle of Structural Steel

Building Operation

Building Modification and Reuse

Steel framing systems are easily adaptable when it comes to building expansion or adaptive reuse projects.

Emissions

The thermal capacity of a structural steel building has been shown to be comparable to that of buildings constructed with alternative framing system materials.

Build Design

Building design and structural steel fabrication are closely integrated through the use of Building Information Modeling (BIM) and collaborative design processes resulting in materials being used more efficiently, fewer field changes and a reduced environmental impact.

Careful design and detailing can avoid the challenges presented by issues such as thermal bridging.

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Energy

Steel framing allows easy integration of mechanical systems, resulting in low floor-to-floor heights, less building volume and lower energy consumption. It also allows for large window areas, resulting in plentiful natural lighting, higher occupant comfort and reduced electricity consumption.

While other construction materials cannot be recycled or are only recycled into lower quality products (down-cycled), steel can be recycled over and over again and remade into new steel members without any loss of quality (multi-cycled).

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Sustainable Structural Steel

There's always a sustainable solution in steel.

Sustainability has become a major factor in the construction market. The domestic structural steel industry has been lowering emissions, increasing the use of recycled materials, optimizing energy consumption and improving the performance of our products for decades.

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