

Structural Steel: The Backbone of Modern Society



Steel is the backbone of modern society. Steel enables us to reach further, build higher and stay safer—while remaining the quintessential green building material. Structural steel is the leading material for buildings and infrastructure in North America, with nearly a 50 percent market share for non-residential and multi-story residential construction.

BY DEPLOYING NEW STEELMAKING TECHNOLOGIES, AND THROUGH THE INNOVATIONS OF THE WORKERS ON THE PLANT FLOOR, THE INDUSTRY HAS REDUCED ENERGY INTENSITY PER TON OF STEEL SHIPPED BY 31 PERCENT AND CO₂ EMISSIONS BY 36 PERCENT PER TON OF STEEL PRODUCED SINCE 1990.

★ Steel plants

Today's steel plants produce steel using steel scrap to save energy, conserve resources, minimize emissions and promote economics of steelmaking. Steel scrap is a vital ingredient in making new steel; melting the scrap to make new steel is fundamental to energy and emissions savings and resource conservation. At the end of the long life cycle of a steel structure, 100 percent of the steel can be recycled—making steel the premier choice for sustainable structural projects.

★ Steel plate

Steel plate is used in the construction of both bridges and buildings and is produced in North America in both electric arc and basic oxygen furnaces. The steel industry has invested billions of dollars in new technologies to increase the efficiency and environmental performance of the steelmaking process. By deploying new steelmaking technologies, and through the innovations of the workers on the plant floor, the industry has reduced energy intensity by 31 percent and CO₂ emissions by 36 percent per ton of steel produced since 1990.



680 Andersen Drive, Pittsburgh, PA 15220
412.922.2772 | recycle-steel.org



The steel industry remains the world leader in the use of recycled material and end-of-life recycling, with the recycled content of the structural steel beams and columns produced at North American mills averaging 90 percent and a recovery rate of 98 percent.

◆ Productivity

Industry productivity has also increased significantly over the past 40 years. The average number of man-hours required to produce a ton of structural steel has decreased from 12 man-hours/ton in 1980 to just over 2.1 man-hours/ton today. The steel industry remains the world leader in the use of recycled material and end-of-life recycling, with the recycled content of the structural steel beams and columns produced at North American mills averaging 90 percent and a recovery rate of 98 percent.

◆ Benefits

In addition to the recycling benefits, steel's contributions to material efficiency have far-reaching advantages. Steel offers lower erection costs, being faster and lighter to install than competing materials. Steel is also ideal for short-span bridges because of its durability, ease of maintenance and ease of construction. Steel is strong, resilient, lightweight, durable, impact-resistant and has long-life expectancy. For example, in bridges, a steel girder requires less depth than a corresponding girder of concrete, providing clearance and geometrical advantages.

AT THE END OF THE LONG LIFE CYCLE OF A STEEL STRUCTURE, 100 PERCENT OF THE STEEL CAN BE RECYCLED—MAKING STEEL THE PREMIER CHOICE FOR SUSTAINABLE STRUCTURAL PROJECTS.

◆ About structural steel

Steel is the material of choice for our modern society, and its sustainability ensures that both the structures and conserved raw materials will be available for generations to come. For more information on the applications of structural steel, visit the American Institute of Steel Construction at www.aisc.org.

◆ About the Steel Recycling Institute

The Steel Recycling Institute (SRI), a unit of the American Iron and Steel Institute, educates the solid waste management industry, government, business and, ultimately, the consumer about the economic and environmental benefits of recycling steel. SRI works to ensure the continuing development of the steel recycling infrastructure.

Steel Recycling vs Other Materials

