UNDERSTANDING THE STRUCTURAL STEEL SUPPLY CHAIN AND LIFECYCLE

INFRA-METALS

Understanding the Structural Steel Supply Chain and Lifecycle

The structural steel supply chain connects producers that handle raw materials with service centers responsible for distributing structural steel to fabricators. Designers and contractors work within this supply chain to meet project specifications and develop functional designs.

Steel is considered the world's most recyclable material, as it can be recycled repeatedly without losing its beneficial properties. It has a circular lifecycle, returning to the beginning of the supply chain once it reaches the end of its service life in a particular application, resulting in considerable cost savings on resources.

As a highly respected and well-known structural steel service supplier, Infra-Metals offers a vast range of top-quality steel products, with distribution centers tailored to meet regional demands. We are dedicated to providing our clients with prompt, high-quality, and cost-effective products and services.

Read on to learn more about the supply chain and lifecycle of structural steel.

1 Steel Mills

Working with a dependable steel mill is essential to the supply chain management of structural steel. These vital steel producers turn raw materials into various components for a vast range of construction applications.

Steel mills take on the following responsibilities in the structural steel supply chain:

STEELMAKING.

Using a base material of iron ore for producing steel, mills incorporate elements such as carbon and manganese to achieve the material's desired properties. Steel mills process these raw materials through various melting and refining techniques to create molten steel.

SHAPING STEEL.

Molten steel can be formed into various standard shapes, such as beams, columns, angles, channels, and plates. The casting adheres to all relevant industry requirements to ensure the utmost quality for seamless integration into complex construction applications.

HIGH-VOLUME PRODUCTION.

Producing at scale, steel mills use powerful technology and equipment to meet the increasing demand for structural steel products.

Types of Steel Mills

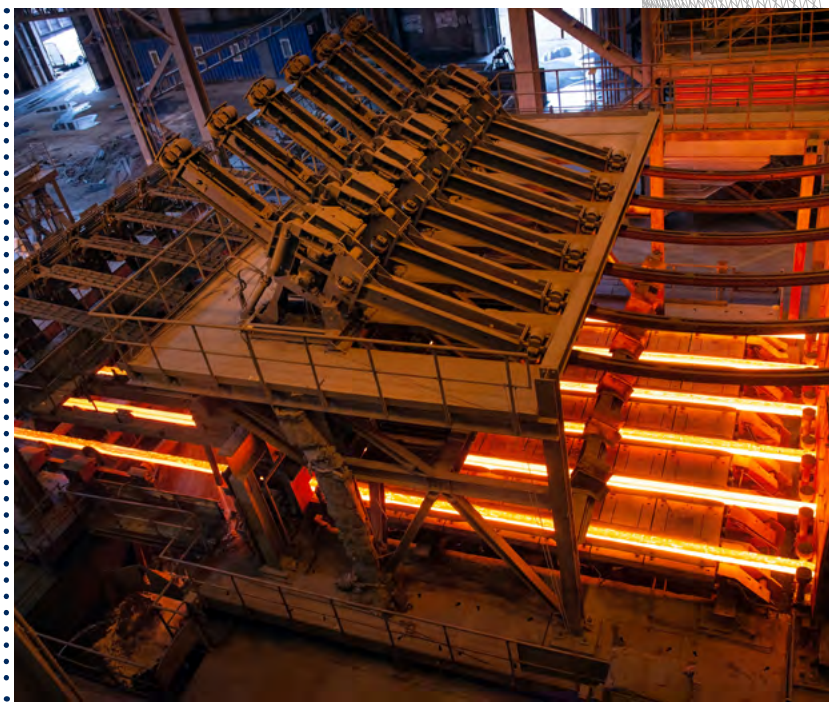
Two main types of steel mills are:

INTEGRATED MILLS.

These high-volume producers use basic oxygen furnaces (BOFs) to process large quantities of materials, maintaining total control from mining iron ore to delivering the finished product. In the BOF, integrated mills melt iron ore, coke, limestone, and steel scrap at temperatures of about 3,000 °F to create molten steel. The molten steel is then cast into slabs, rolled into coils, and finished.

MINI MILLS.

These small-scale specialized producers use electric arc furnaces (EAFs) to transform scrap steel into new products and components. Because they only process scrap, mini mills are smaller and less reliant on natural resources. For these reasons, they are often built closer to customers for greater flexibility and quicker turnaround times based on market demand.



2 Service Centers

Service centers are responsible for efficiently processing, distributing, and storing various structural steel components. They can also help reduce costs and increase production schedule speeds to meet industry demand.

Service centers maintain warehouses with advanced preprocessing capabilities so they can deliver steel components ready for fabrication. Stocking two to three months of inventory allows them to supply a vast majority of the steel utilized in construction projects and fabrication applications that require just-in-time (JIT) delivery.

3 Fabricators

Fabricators have locations across the United States. Receiving steel directly from a service center allows fabricators to cut, weld, and assemble materials based on precise shop drawings and specific engineer requirements. Common examples of fabricated components include structural steel beams and columns. Here's an overview of common tasks handled by fabricators:

INTERPRETING DRAWINGS.

Fabricators study the engineering and architectural blueprints to understand the exact requirements of every steel component.

SELECTING AND PREPARING MATERIALS.

This phase involves choosing the right types and grades of steel and preparing them for fabrication.

FABRICATION

Common fabrication processes include bending, forming, drilling, welding, and cutting (with lasers, saws, plasma torches, and more). Using any combination of these techniques, fabricators shape and assemble individual steel pieces into larger components, such as columns, beams, trusses, and plates.

QUALITY CONTROL.

Throughout fabrication, they perform visual inspections and non-destructive testing to verify that all components meet the required dimensional, tolerance, and welding standards.

FINISHING.

After fabrication and quality control testing, fabricators finish the components by painting, sandblasting, and/or applying protective coatings.

DELIVERY.

Fabricators often deliver the final steel components to the customer's preferred location. Occasionally, fabricators also perform onsite installation.

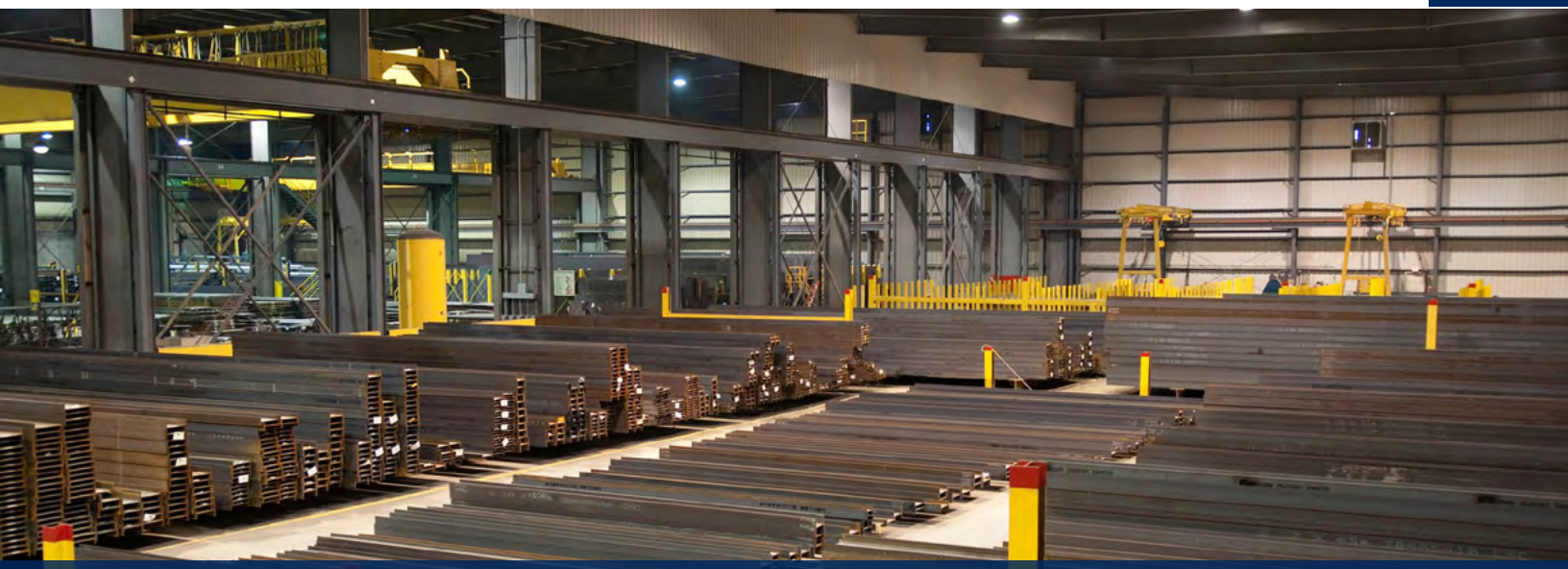
4 Erectors

Erectors create frames out of fabricated steel pieces. Using existing construction documents as a guide, erectors bolt and weld the structural components onsite, ensuring compliance with industry standards and precise specifications.

5 Contractors

General contractors work in a project management capacity, coordinating every stage of the supply chain and overseeing the entire project. The contractor performs detailed inspections before accepting the delivery of any structural steel component, verifying that it meets all application requirements. General contractors then hire subcontractors to perform electrical, HVAC, plumbing, and other specialized installations during construction.

Alongside fabricators and contractors, design engineers help oversee the design process and integrate the structural steel parts into a well-supported and functional final product.



The Lifecycle and Sustainability of Steel

Steel has a circular lifecycle, which holds far-reaching implications for sustainability. As the world's most recycled industrial material, steel is unique in that it retains its original properties regardless of how many times it gets recycled.

Recycling scrap materials in steelmaking can significantly reduce carbon emissions and conserve natural resources. Although there is not enough scrap to meet the current global demand for steel components, recycled steel supplements iron ore-based manufacturing to meet this demand.

Residual products formed through steelmaking processes are recirculated internally or processed for external sale whenever possible. The small portion of residual steel materials that cannot be recirculated or sold is sent to landfills.

High-strength structural steel is much stronger than regular standard steel. This equates to less steel needed in certain construction applications, which lowers the assembly's overall weight. By using high-strength structural steel, customers can produce products that offer the following benefits:

- Stronger
- Lighter
- Lower material costs
- Improved efficiency

Strengthen Your Supply Chain With Structural Steel From Infra-Metals

Founded in 1990, Infra-Metals is a trusted provider of structural steel in customers' supply chains, offering an extensive selection of steel products and service capabilities. As one of America's largest structural steel service suppliers, Infra-Metals provides a wide variety of top-quality structural steel products, such as:

- ANGLES
- CHANNELS
- EXPANDED METAL
- FLATS
- PIPING
- PLATES AND SHEETS
- ROUNDS
- SQUARES
- STRUCTURAL BEAMS
- TUBING

Our processing capabilities add significant value to our product offerings:

- BLASTING AND PRIMING
- DRILLING
- CAMBERING
- FORMING/ PRESS BRAKE
- MILLING
- PLATE BURNING
- SAW CUTTING
- T-SPLITTING

As a one-stop shop, we provide our clients with the inventory and services they need to complete their projects on time and within budget. As part of the Reliance, Inc. family, Infra-Metals is a consolidated source for processing and materials, streamlining our clients' procurement procedures. We deliver high-quality products in the correct form, ready for integration into our customers' applications.

Contact us or request a quote to get started on your next project.

About Us

Infra-Metals was founded in 1990 intent on becoming the premier steel service center servicing the structural steel market. Since our inception, all efforts have been focused on that objective.

The bulk of our growth has been achieved through strategically located green-field facilities designed specifically for the products and services we provide. We offer an extensive inventory, maintain a substantial array of processing equipment and provide just-in-time delivery. We also have a strong parent company, which allows us to continuously invest in state-of-the-art processes and uphold a high level of service and quality throughout our organization.

GET A QUOTE

CONTACT US

INFRA-METALS

Infra Metals Co. 6 Penns Trail Suite 201, Newtown PA, 18940

Tel: 800-899-3432

Fax: 215-741-5973

info@infra-metals.com