



A FUTURE OF STEEL

Design Perspectives on the Benefits of Steel

Steel has been a dominant material in high-rise and commercial construction for several decades, but there have been many changes to the material that add to its advantages. Modern steel is probably more sustainable, reusable, and cost effective than you think.

100% recyclable when the building is dismantled. Furthermore, nearly all of the steel manufacturers have pledged to cut greenhouse gas emissions by 2030 with the goal of being carbon neutral by 2050. HED has signed a similar agreements with the American Institute of Architect (AIA) with the same guidelines.

Environmentally Responsible Design

If the consideration is toward a more environmentally responsible design, you must take into consideration some facts about steel. Inherently steel is made of materials mined from the earth, primarily iron and carbon. In addition, there can be many additional materials that can be added to the mix to make alloys and other "steel" products. The manufacturing process takes a significant amount of resources, including water, electricity and natural gas.

Steel is one of the most recycled building materials. Per the American Institute of Steel Construction (AISC), structured steel used in our buildings consists of 93% recycled material and is

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HED architects find that some of the most beautiful buildings in the world are either constructed of steel or have exposed steel as an artistic expression. Showcasing how the building is put together illustrates the great relationship between the architectural form and steel frame and makes evident the complexity of the structure.

ADVANTAGES OF MODERN STEEL BY AISC

Cost Effective

Compared to other framing materials, structured steel brings greater value to a project in terms of initial cost as well as reduces costs in other areas, such as foundations, general conditions and facade systems.



Accelerated Schedules

Structural steel is fabricated off-site while preliminary site preparation and foundation work are being performed. It is then brought to the site and rapidly erected, accelerating the overall project schedule. This is a major advantage, as the structural framing system is always on the critical path of the project regardless of material.

Increased Usable Floor Space

Structural steel is both light and strong, allowing for long spans and open column-free spaces.

Aesthetically Pleasing

Structural steel frames provide designers with a wide range of options for addressing a project's aesthetic requirements. Structural steel can be rolled, curved and integrated into irregular building shapes. At the same time, its small footprint contributes to a sense of transparency for the building.

Future Adaptability

An existing steel frame can be easily modified to address changing building requirements and uses.

Quality and Predictability

Structural steel is fabricated off-site under controlled conditions, ensuring a high-quality product and reducing the number of costly fixes at the job site. This also allows for just-in-time delivery, which accelerates the overall project schedule.

Ease of Design

Structural steel is produced to precise tolerances and consistent strength levels, which, when combined with an established, well-documented design approach, can greatly simplify the design process.

Enhanced Productivity

Structural steel leads the construction industry with a fully integrated supply chain that uses advanced technologies like computer-aided manufacturing and building information modeling (BIM) at all stages of design and construction. These technologies have been proven to reduce or eliminate errors, improve safety and lower project costs.

Green

Today's modern steel mills produce steel containing an average of 90% recycled material. At the end of a building's life cycle, 100% of the steel frame can be recycled (the current recovery rate for structural steel is 98%). With low environmental impacts on a per-square-foot-of-construction basis, steel is the premier choice for environmentally conscious, sustainable projects.

Always a Solution in Steel

No matter what specific project challenges arise, structural steel framing systems can meet them. Learn more about how HED can help you design with steel [here](#).



Todd Drouillard AIA, NCARB is our National Manufacturing and Product Development Sector Leader with HED. He can be reached at tdrouillard@hed.design.