



CUSTOM IRON

strength in creative metals

DETAILS & PROCESSES

details & processes

Material details

Surface variations in the metal are a natural result of metalworking. The surface texture, color, and uniformity affect the finished appearance of the metal piece that will also vary depending on the coating selection.

The three main categories of steel and iron material that we use at Custom Iron are: hot-rolled steel, cold-rolled steel, and malleable iron.

Hot-rolled (or "mild") steel is formed in the foundry using heat and pressure. Hot-rolled steel is more easily bent than cold-rolled steel and therefore, many of Custom Iron's products use hot-rolled steel. When the hot-rolled steel used to create panels and railing systems arrives from the foundry, it is covered in mill scale, a scaly oxidized surface on the steel that results from heating and hot rolling. Additional handling at the factory (twisting, bending, heating, etc.) removes the mill scale from the handled areas, producing mill scale variations on the surface.

Cold-rolled steel is formed without heat, using intense pressure. Cold-rolled steel does not have mill scale and the material therefore has a smoother and more uniform surface. However, cold-rolled steel is not easily formed and it is not used for twists, scrolls, and other bent and embossed products that Custom Iron produces.

Malleable iron is a sand cast annealed iron purchased from a casting foundry. The malleable iron alloy is melted and cast in forms. Once cast, malleable iron loses some of its malleable characteristics. Malleable cast iron is stronger and less brittle than traditional cast iron. Custom Iron offers malleable iron balusters in custom lengths and with various levels of finish grades.

Metal processes

Custom Iron offers embossed surface textures for most sizes of square bar, rectangular bar, square tubing, and round bar.



Hand-forged embossing is done the old-fashioned way with hammer and anvil. Hand-forging is a time consuming operation that produces the classic irregularities associated with traditional iron products.

Most Custom Iron product textures are produced with special dies. Embossing with a die produces fairly uniform patterns or textures in the raw material. The appearance of the embossing differs depending on the type, size, and shape of the raw material. Power hammering is an alternative to hand-forging and it most closely resembles hand-forged material. When power hammering, the hammer operator initiates the hammer drop with a foot pedal for the length of the bar.

For more information about Custom Iron's embossing options, see the Options tab.

Polished surfaces reveal a brilliant glossy finish through a tumbled and mechanical process. Custom Iron's brass baskets are most often polished in this way. Brushed surfaces have a matte finish that shows the "sanding" marks.



Mill scale on twist baluster



Hot rolled steel with one cold rolled round bar



Brushed and polished bases