

Sheet Metal Fabrication

Press components / machined components processing will be welded to suit the fabricated design in various applications.

USES:

Metal fabrication is the building of **metal** structures by cutting, bending, and assembling processes.

It is a **value added** process that involves the creation of machines, parts, and structures from various raw materials. A fab shop will bid on a job, usually based on the **engineering drawings**, and if awarded the contract will build the product. Large fab shops will employ a multitude of value added processes in one plant or facility including welding, cutting, forming and machining. These large fab shops offer additional value to their customers by limiting the need for purchasing personnel to locate multiple vendors for different services. Metal fabrication jobs usually start with shop drawings including precise measurements, then move to the fabrication stage and finally to the installation of the final project. Fabrication shops are employed by **contractors**, **OEMs** and **VARs**. Typical projects include loose parts, structural frames for buildings and **heavy equipment**, and stairs and hand railings for buildings.

PROCESS :

Cutting is done by [sawing](#), [shearing](#), or [chiselling](#) (all with [manual](#) and [powered](#) variants); torching with hand-held torches (such as [oxy-fuel torches](#) or [plasma torches](#)); and via [numerical control](#) (CNC) cutters (using a [laser](#), [mill bits](#), torch, or [water jet](#)).

Bending is done by [hammering](#) (manual or powered) or via [press brakes](#) and similar tools. Modern metal fabricators use press brakes to either coin or air-bend metal sheet into form. CNC-controlled backgauges use hard stops to position cut parts in order to place bend lines in the correct position. Off-line programming software now makes programming the CNC-controlled press brakes seamless and very efficient.

Assembling (joining of the pieces) is done by [welding](#), binding with [adhesives](#), [riveting](#), [threaded fasteners](#), or even yet more bending in the form of a crimped seam. [Structural steel](#) and [sheet metal](#) are the usual starting materials for fabrication, along with the welding wire, flux, and fasteners that will join the cut pieces. As with other manufacturing processes, both human labor and [automation](#) are commonly used. The product resulting from fabrication may be called a fabrication. Shops that specialize in this type of metal work are called *fab shops*. The end products of other common types of metalworking, such as [machining](#), [metal stamping](#), [forging](#), and [casting](#), may be similar in shape and function, but those processes are not classified as fabrication.