

MANUAL -vs- AUTOMATED FABRICATION

In today's building industry, cold-formed steel truss and wall panel manufacturers are given several options of equipment and tools to choose from when setting up their production facility. The intention of this article is to provide a comparison of two options: automation versus manual fabrication. When deciding between manual and automated fabrication, one will find there to be advantages and disadvantages of both.

The manual fabrication process begins with the retrieval of stock length stud and track products from an inventory yard, that are then taken into the shop for cutting and measuring, and then to the jig table for layout and assembly. One advantage manual production provides is the ability for the manufacturer to reach the demands of commercial building designs involving higher load requirements. The equipment and tools required for manually fabricating are minimal, which in turn provides the owner with a low capital cost upon entry to the market. However, the labor costs can be quite extensive because personnel are required for each step of the lengthy above mentioned process. Not only does the manual process include increased personnel, but a very high skill level is also required with this type of fabrication. Other disadvantages include a higher risk of human error, increased material waste, and overall increased labor time.

Automated framing begins with pre-designed and engineered plans where files are then electronically submitted directly to the automated production equipment. The end product is then rolled out from the automated roll forming equipment and fabricated at assembly speed, just as the members roll out. When compared to the minimal tools and equipment needed for manual fabrication, automated fabrication does require a greater amount in capital costs. However, the user will quickly realize the savings from labor, raw material, and scrap. Unlike the manual process, the automated system forgoes the labor and time required to pull from stock length inventory- allowing up to 50 percent less personnel to fabricate. Raw material cost for the automated system is 50 percent less than buying the stock length because the upfront costs of outsourcing the roll formed product are eliminated. Scrap from the automated fabrication is 2%



or less, compared to the 7% or more when manually fabricating. Because the design software communicates with the roll forming software, the chance of human error in the plant is limited, unlike with manual fabrication. The members from the automated system are produced like a puzzle piece in that they only fit together one way. This provides a much faster learning curve for personnel, which is an advantage when compared to the very highly skilled labor required with manual fabrication.

Although there are advantages and disadvantages to both manual and automated fabrication, the automated systems from Nuconsteel have proven to provide greater success in regards to reduced human error and mistakes, as well as a faster learning curve for the personnel. These benefits along with the reduced labor, time, and scrap are the reasons Steve Miller, Automated Framing Systems Manager say this of automated fabrication, "These automated systems are a continuation of Nuconsteel bringing to the market the fastest, most economical method to produce light gauge cold-formed steel framing in the market today."

