

# What Is A Cold Form Steel Building?



## How Cold-Formed Steel is Made

- **Production Process:** Thin-gauge steel sheets (often pre-galvanized for corrosion resistance) are passed through a series of rollers at room temperature.
- **Forming Techniques:** These rollers progressively shape the steel into C-sections, U-sections, or Z-sections
- **Finishing:** The material is cut to precise lengths, minimizing on-site waste.

## Key Benefits and Characteristics

- **Strength & Durability:** CFS has approximately three times the strength-to-weight ratio of wood and can be up to 20% stronger than hot-rolled steel due to work hardening.
- **Consistency:** Because it is factory-manufactured, it is precise, straight, and does not warp, shrink, twist, or split.
- **Resistant:** It is non-combustible (fire-safe), termite-proof, and moisture-resistant.
- **Sustainability:** It is highly recyclable

**Lightweight | Contemporary | Economical**

## How Red Iron I Beam Is Made

Hot rolled steel is carbon steel processed at temperatures over 1,000°F (>540°C) is greater than 540 raised to the composed with power C (>540°C), allowing it to be easily shaped into large pieces, such as structural I-beams, railroad tracks, and sheet metal. It has a rougher, bluish-gray, scaled surface with looser tolerances compared to cold-rolled steel, making it ideal for, and commonly used in, construction and automotive applications where precision is less critical.

### Key Characteristics and Uses

- **Production:** Steel is heated and passed through rollers at high temperatures, allowing for, and necessitating, cooling in the air, which results in a material with little to no internal stress.
- **Appearance/Finish:** Features a scaly, rough finish, often with slightly rounded edges on bars.
- **Cost-Effectiveness:** Generally less expensive to produce than cold-rolled steel.
- **Applications:** Ideal for structural components, sheet metal, agricultural equipment, and construction projects (e.g., trailers, fencing).





# Guide To The 3 Main Building Types

COLD FORMED is an alternative to Structural Steel (Red Ox, PEB, Weld Up) or Post Frame (pole barn or stick frame). Where do COLD FORMED buildings sit in the marketplace?

**COLD FORMED suit**, the 20 to 90+ foot clear span (subject to component availability) ideal for domestic out buildings, barn homes, and commercial. Easy to add lean-to's, mezzanine floors, and overhangs. Strength of structural steel without the weight. Galvanized frame for a lifetime.



**Structural Steel** can be built at any size but start to become more economical for spans over 50'. Ideal for very large spans (Walmart), tall buildings, buildings that need cranes, large unsupported overhangs, open riding arenas, large doors such as airplane hangers



**Post Frame** suited to 24' to 60' spans with typical maximum height of 16'. Wider spans and large doors quickly add cost. Ideal for smaller more domestic style buildings, barn homes, and smaller commercial buildings



## Could Cold Form Steel Be A Good Alternative For You?



- Delivery
- Timeframes

COLD FORMED buildings are produced in factories using roll forming machines by taking large steel coils and running those through a series of rollers to form them into shapes used in COLD FORMED buildings.

COLD FORMED building manufacture is the fastest of the 3 types of building. **Delivery to site from order is typically 3 weeks.**

Unloading by forklift.  
16' post/column 97-117#



Structural Steel buildings main frames are processed in large factories with cranes, heavy machinery and welding equipment. The secondary framing purlins and girts are manufactured using roll forming machines.

Delivery to site from order is typically 8 to 16 weeks.

Unloading will typically require a crane or heavy forklift.  
16' column 200-250#



Post Frame buildings are a combination of factory manufactured and built on site. The roof system of Post Frame buildings are built in factories using presses and jigs to form large roof trusses. The walls are typically random lengths of lumber which need cut on site by contractors.

Delivery to site from order is typically 6-8 weeks. Unloading by forklift.

Oregon pine 16' 6x6 post 122-142#



**Could Cold Form Steel Be A Good Alternative For You?**



# Save Thousands On Concrete

COLD FORMED buildings bolt to the foundation (slab, piers, strip) using steel base plates and drill in anchors supplied with the building.

Anchor bolts are installed after the concrete is complete.

Engineered foundation plans are supplied with the building.

**Cost savings as COLD FORMED floors typically have 20-25% less concrete than a Structural Steel building.**



Structural steel buildings bolt to the foundation (slab, piers, strip) typically using cast in anchor bolts which are not supplied with the building kit.

Anchor bolts are installed before the concrete is poured. Accuracy during installation is critical.

The engineered foundation plan are typically not included with the building and need sourced from a local structural engineer.



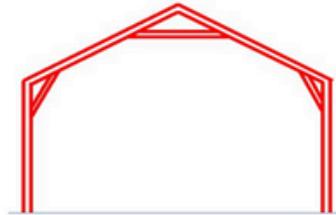
Wood buildings typically have posts that are extended into the ground in an augur drilled hole. The bottom of the hole can have a pad of concrete for the post to sit on and then the rest of the hole is filled with either concrete or with dirt compacted around the post.

The foundation is not typically engineered.

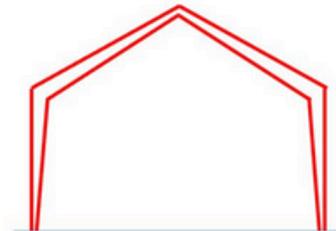


## Could Cold Form Steel Be A Good Alternative For You?

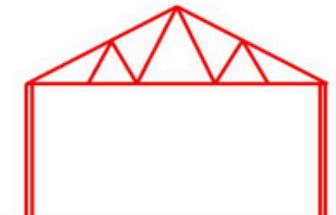
The COLD FORMED building frame consists of posts (column), rafters, knee and apex braces. The columns and rafters are straight.



The Structural steel building frame consists of columns and rafters. The column and rafter are typically tapered being narrow at the foundation and peak and wider at the rafter/column connection.



The Wood building frame consists of post and trusses. Posts are straight and trusses form a triangle.



## Could Cold Form Steel Be A Good Alternative For You?



## Finishes

- Galvanized
- Red Oxide



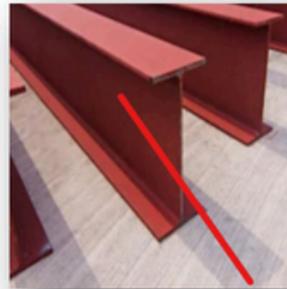
COLD FORMED buildings come with either a galvanized or painted finish. The galvanized finish comes direct from the steel mill and is an integral part of the steel, without a doubt the best option.



Structural steel has a painted finish, typically red, although it can come in many colors. The paint is intended only to protect the steel during construction and transport and is easily damaged.



Post Frame type, color, grain, finish (rough/smooth) will vary over a building. Timber moisture content varies. Post Frame has been treated with chemical preservatives to prevent it from decay and insect damage.



**Could Red Iron Cold Form Be A Good Alternative For You?**



- Options
- Erection
- Sizes
- Green

### Options

COLD FORMED IS the best most economical choice for buildings with added options;

- Mezzanine floors
- Eaves
- Lean-tos

Options can be quickly and easily priced, engineered, and supplied. Options can be more difficult with Structural Steel and Post Frame.

### Erection

Experienced COLD FORMED building Crew of 3;

- 4 days to erect 30'x40'x10' Gable
- 14 days to erect 60'x80'x14' Gable
- 15 days to erect 40x50x14 American Barn

Wood carpenters, steel erectors, roofing contractors are all good options for erectors.

Erection is not as physically difficult as a Structural Steel building due to the individual components of a COLD FORMED not being as heavy.

### Disclaimer

There are many methods to construct a building. This document does not set out to cover every option available but instead what the author has sought to do is highlight some differences. All photographs taken on typical building sites across the US.

### Building Sizes

At the writing of this document.

- design building in as little as 1/16" increments for width, height, length.
- Length: no limit
- Width: typically 10' to 90' clearspan dependent on the manufacturer providing the COLD FORMED building.
  - 4' smallest width provided.
  - 96' widest width provided.
- Height: typically 8' to 20'.
  - 4' smallest height provided.
  - 30' tallest height provided.

### Green

COLD FORMED components are 100% recyclable.

**Could Red Iron Cold Form Be A Good Alternative For You?**