

ACCELERATED

BUILDING SYSTEMS by ACI

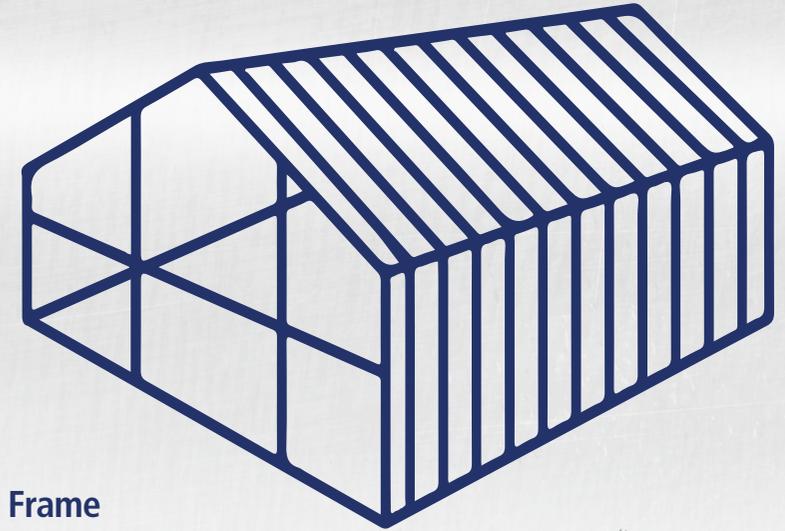
COLD FORMED

Structural Steel

Post Frame

The basic guide to the differences between building types

Where **COLD** **FORMED** Fits



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

COLD FORMED suit the 20 to 60+ foot clear span (subject to component availability) ideal for residential, commercial, and agricultural applications.. 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 starts 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.



DELIVERY



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.

The manufacturing of **COLD FORMED** buildings is the fastest of the 3 types of builds. 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#



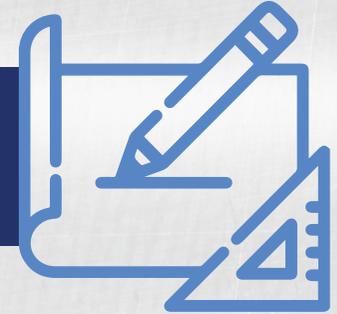
Post Frame buildings are a combination of factory manufactured and built on site. The roof system of **Post Frame** buildings are built in factories using press's and jigs to form large roof trusses. The walls are typically random lengths of lumber which need cut on site by contractors.

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

Oregon pine 16' 6x6 post 122
142#



FOUNDATION



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

Anchors 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 is typically not included with the building and need sourced from a local structural engineer.

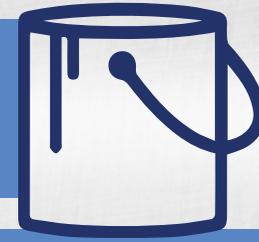


Wood buildings typically have posts that are extended into the ground in an augur drilled hole. The bottom of the hole can have a pad of concrete for the post to sit on and then the rest of the hole is filled with either concrete or with dirt compacted around the post.

The foundation is not typically engineered.



COMPONENT



FINISHES



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 doubt the best option.



Structural steel has a painted finish typically in red although 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.



COMPONENT



SIZES



COLD FORMED components are engineered specifically for the building location. The main frame steel will vary from 4" to 24" in depth and 2 ½ to 5" wide, the gauge varies from 16ga to 10ga.



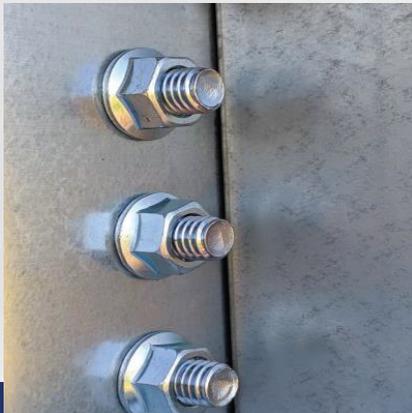
Structural steel components are engineered specifically for the building location. The main frame steel will vary in size and there is really no limit to the size of the frame. Used for the largest span buildings.



Wood building components are not engineered specifically instead, standard codes determine size, species and grade of lumber required. Roof trusses will be engineered.



CONNECTIONS



On site **COLD FORMED** main frame is typically both bolted and screwed together using pre-drilled plates. **COLD FORMED** buildings can require some cutting/coping and drilling of braces on site.

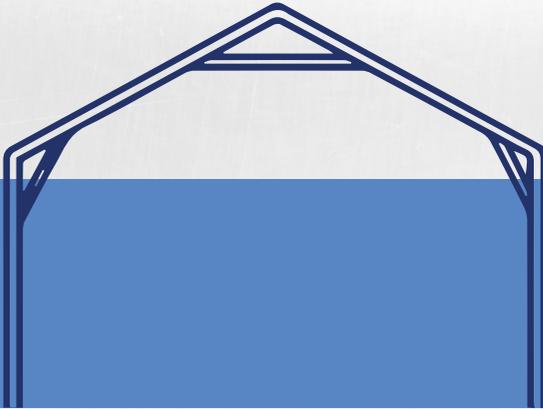


On site a **Structural Steel** main frame is typically bolted together with plates already welded in place in the factory. **Structural Steel** buildings can require some welding and drilling on site.

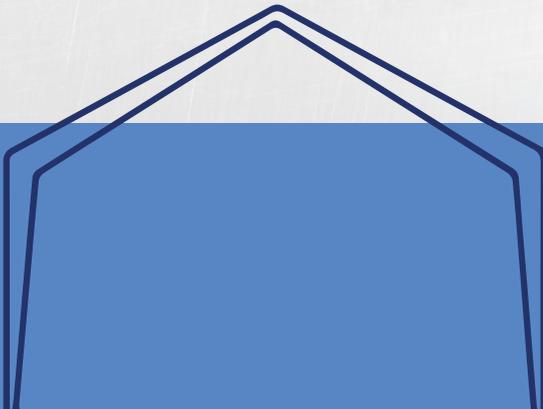


On site a **Post Frame** buildings main frame is typically connected using steel fastenings and plates. Many connections need to be cut and assembled on site.

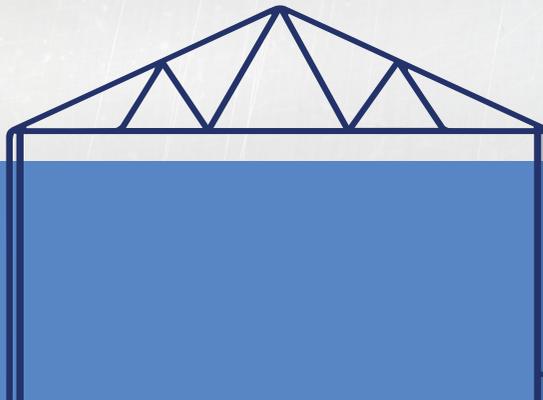
THE FRAME



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 while wider at the rafter/column connection.



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



OTHER



INFORMATION

OPTIONS

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

- Mezzanine floors
- Eaves
- Lean-to's

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;

- 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.

BUILDING SIZES

- 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 are 100% recyclable.

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.