



# Steel Building Info Guide

Your foundation for a  
Stronger Future



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Why Choose Steel?

# AN OVERVIEW OF STEEL BUILDINGS

Steel buildings, often called prefabricated or pre-engineered steel buildings, have been popular for decades. These durable structures are most commonly used as storage buildings, warehousing units, airplane hangars, retail storefronts, garages, workshops, homes, complexes for sports, agricultural buildings, and as recreation centers, but every building can be tailored to fit your specific needs.

Modern steel buildings have come a long way from their simple structured counterparts of the past. They're supremely customizable, and can be designed to match the aesthetic of virtually any kind of conventional building.

Explore our guide below to find out why so many people around the world choose steel buildings for their next project:



## Our History

# A BRIEF HISTORY OF STEEL BUILDINGS

All-steel buildings first became popular in the early 20th century. At this time, the steel industry boomed. Steel became the building material of choice because of its tensile strength and cost efficiency. Later in the century, computer software came into existence that could effectively design steel trusses and full buildings. Such software would expand the capabilities and utility of steel buildings. This allowed them to be designed to handle different loads, and even allowing for clear-spans of up to 300 feet.



Why Choose Steel?

# ADVANTAGES OF STEEL STRUCTURES

Steel Buildings are extremely cost-effective, easy-to-assemble and durable. A steel building can be erected in just a few days without a specialized crew. All the elements of our steel building kits are prefabricated and designed before they reach the site, allowing for an incredibly painless installation process. Overall costs of construction can be reduced up to 60% when compared to conventional structures. Steel also offers a superior weight-to-strength ratio, and can support a great deal of stress without the need for additional support struts or pillars. In addition, steel does not burn, warp, shrink, rot or crack — it's far more structurally sound than wood. Also, there are no pests that can infest steel. You need not worry about borer bees, termites, carpenter ants or any other damaging infestation. Steel doesn't breed mold, and it doesn't emit volatile organic compounds (VOCs).

- **Durable**
- **Long-Lasting**
- **Easy-To-Assemble**
- **Low Maintenance**
- **Cost Effective**
- **Rust Resistant**
- **Customizable**



Why Choose Steel?

# MATERIAL DURABILITY

Steel is one of the most durable building materials on the market today. Many people are surprised to learn that, despite its density, it is actually lighter than timber to transport and handle. It's capable of standing up to earthquakes, hurricanes, and storms due to its high ductility. It doesn't rotate, distort, warp, split, or buckle. This means that steel offers an outstanding value for the cost. Always remember that you get what you pay for — as John Ruskin said, **“Good things are seldom cheap, and cheap things are seldom good.”**

Steel is the best investment you can make in terms of a building material. It's better than wood in terms of strength and environmental friendliness. It will add value to your property and offer the best possible protection for whatever you wish to store within. If you're looking for the best options in steel buildings, turn to Buildway. Contact us today for more information or to place your order.



Why Choose Steel?

# ECO FRIENDLY BUILDING MATERIAL



Most steel buildings are processed using recycled steel. Steel is the only materials that retains all of its properties when reused and recycled. There's no deterioration or weakening in second or third generation steel products. In addition, consider that up to 50 trees can be used to build a 2000-square-foot wooden building, whereas if you use steel, the same building can be erected by recycling six scrapped automobiles.

Some have criticized the steel industry for creating carbon emissions. In truth, the steel industry has been a leader in developing technologies to create and further environmentally-friendly methods of manufacturing. They have reduced carbon emissions significantly, and many other industries have adopted techniques pioneered by the steel industry.



## TYPES OF STEEL BUILDINGS

There are a broad variety of straight-wall and arched steel buildings available today, each with its own uses. These include RIGID FRAME BUILDINGS, OPEN WEB TRUSS, QUONSET HUTS, HYBRID BUILDINGS, TUBE FRAME, AND LIGHT GAUGE FRAME BUILDINGS.

At Buildway, you'll receive buildings constructed of AZ180 Galvalume Plus™ Steel. This comes with a 30-year factory warranty to protect against corrosion. This kind of steel also ensures that your materials will neither deteriorate nor require replacement.

- **Rigid Frame Structure**
- **Quonset Huts**
- **Open Web Truss Buildings Hybrid**
- **Structures Tube Frame Structures**
- **Light Gauge Frame Buildings**

## Types of Steel Buildings

# RIGID FRAME STRUCTURES



Rigid frame structures are also called I-beam buildings or red iron buildings. They are most commonly used for industrial and commercial applications. Rigid frames are set on piers or footing, and are often situated on optional concrete slabs. Trusses are normally placed on 25-to 30-foot centers. Erecting these kinds of buildings requires heavy equipment, as the trusses are bolted together before being lifted and put in place.

Secondary framing members in a rigid-frame building are made from large C- or Z-shaped sections. They are spaced every five to seven feet, with sheet metal attached using stitch screws wherever no secondary framing is available. The problem with rigid frame structures comes in that while they can be designed to withstand heavy snow and wind loads, their shallow roof pitch can create zoning issues unless the buildings are located on industrial land. These pitches are generally between 0.5:12 and 2:12, and the frames are available with clear-spans of up to 300 feet. They can, however, be erected quickly and are available in a broad range of colors. Depending on the manufacturing, some drilling and field welding may be required. These buildings are best for sporting arenas and other large commercial uses. They are exceptionally cost-effective as non-insulated, large buildings, but if they aren't insulated, they might sweat, which can cause dripping and condensation inside.



## Types of Steel Buildings

# QUONSET HUT

Quonset huts are also called arch buildings. They possess a curved or rounded shape, and are best known for their use as military barracks. However, today they are used in just about every application you can imagine, including garages, barns, hay storage, livestock shelters, and even residential homes. If there's a type of steel structure with virtually limitless possibilities, it's the Quonset hut.

They are usually less expensive than other varieties of steel buildings, making them perfect for do-it-yourself projects or for those in need of an outbuilding fast without putting an undue strain on their wallet.

These buildings have a wide variety of available options in terms of size, type of steel, thickness, tensile strength, and coatings. Most come with a rust warranty ranging up to 30 years, and like other kinds of steel structures they can be finished to look like a conventional building if you like.

## Types of Steel Buildings

# HYBRID STRUCTURES

Many steel buildings on the market today are hybrid buildings. They combine the strength of an open web truss, and combine it with lumber to create a wood secondary frame. This offers a unique, cost-saving versatility to construction. The secondary frame eliminates issues of condensation and creates a natural thermal break. The primary web truss frame still maintains the strength benefits of this form of building. Some people prefer wood for the ease of custom interior finishes, and appreciate how easy and inexpensive it is to insulate these buildings. In fact, these hybrid structures are unique in that they can be insulated either when erected, or in the future. It's an outstanding alternative to a pole building and features rigid frame wood trusses combined with heavy steel frames spaced 25 feet apart, with secondary framing composed of five to seven foot centers. It shares the same limitation of an open web truss, that it has a maximum clear-span of 100 feet.

## Types of Steel Buildings

# OPEN WEB TRUSS BUILDINGS

The open web truss construction style was first created in the 1950's. It's commonly seen structured around a bar joist in large retail stores because of its strength. When used in this fashion, they make buildings much easier to construct. The roof pitch for these structures typically ranges from 0.5:12 to 4:12, but they can be engineered to support pitches from 5:12 to 12:12 without compromising truss integrity. In fact, the ability to have steeper roof pitches allows these buildings to adhere to residential zoning conditions much more easily. The overall weight of building materials in an open web truss structure tends to be heavier than in other steel buildings, but the placement of the secondary framing on two foot centers, and the close bay spacing of the trusses results in unparalleled strength and rigidity to stand against snow and winds. The steeper roof pitch also allows for multi-floor structures for storage, living space, or the height for heavy equipment like hoists and automobile lifts. Such designs tend to have stiffer standard deflections than other types of steel buildings. Windows and doors can be located during construction for perfect arrangement, and the style allows for superior strength and bay spacing. If there is a limit to an open web truss design, it's that there is a 100-foot width clear-span. If more space is required, however, half-trusses and self-supporting overhangs can be added to accommodate such needs.



## OTHER TYPES OF BUILDINGS

### Tube Frame Structures

These buildings, in general, are used for carports, garages, and RV covers. They are, however, seeing increased use in fabric buildings. They are constructed of galvanized steel or aluminum, tend to be very lightweight, and are appreciated by budget-minded consumers in need of a storage shed or inexpensive garage. Fabric buildings on tube frames are often used for riding arenas and grain storage areas. However, they tend to have shorter warranties and don't carry the same strength as other varieties of steel structures.

### Light Gauge Frame Buildings

Light Gauge Frame Buildings are most often used for light utility storage or mini storage areas. Such buildings are generally comprised only of secondary framing members, which are screwed together to form a truss system or walls. If a foundation is used, it is generally a simple slab. Some packages are designed to go up very fast, and they're extremely cost-effective. Their limitations are that they have very low clear-span widths, there are limited options available, and they don't have the tensile strength of other forms of structure.



# THINGS TO CONSIDER WHEN PLANNING YOUR BUILD

There are many factors to consider when starting a new building project. These include your budget, timeline, aesthetic preferences, desired design, supplier, warranties, and more.

## **Aesthetic Concerns**

One of the greatest advantages of steel buildings is that they can be designed to fit virtually every aesthetic. If you're looking for a single steel building design with a wood, brick, stone, stucco or siding fascia, or you're looking for a custom complex that requires architectural or engineering support, we will help you to work out exactly what you need, and make sure it gets done within your time frame. We have over 30 years of experience building custom steel buildings, and we are confident that we can create the building of your dreams.

## **Building Timeframe**

How soon are you going to need your building? Traditional wood framed buildings can take a year or more to build, while steel buildings can be designed and assembled in anywhere from four to six weeks. This is still a fairly long lead time, so if you are going to need the use of your building within the next couple of months, you should start your order process as soon as possible. However, the construction process is exceptionally fast. They are designed to go together by simply lining up the components and attaching anchor bolts to the structure. Experienced contractors and "do-it-yourselfers" can erect steel buildings quickly and easily, using the step-by-step erection guides and assembly drawings to help you understand the entire process.



# THINGS TO CONSIDER WHEN PLANNING YOUR BUILD

## Functionality

Of course, you'll need to be absolutely clear about what you need out of your building. Make a note of the exact dimensions you need — length, width, internal area, etc. Will you eventually need to expand the building? What doors and windows will you want? How large will they be and where will they need to be situated? What function will they serve? Do you need walk doors? Overhead doors? Ventilation windows? Large windows for lighting and view? Do you need insulation for the building, and how will it be heated and cooled, if at all? What roof pitch do you need?

Consider all of these factors and others to be sure your design meets your exact needs. One of the greatest benefits of a steel building is that it can be designed exactly to your specifications.

## Budgeting Your Purchase

When creating your budget, there are a number of factors to consider. There will be land costs, the costs of building permits, labor costs, the cost of the building package itself, insulation costs, and the costs of building. The base cost of erecting a building will range from \$6 to \$11 per square foot. Creating a foundation will run between \$4 and \$9 per square foot, and the cost of erecting the building can run anywhere from \$3 to \$10 per square foot. Accessories and incidentals can run anywhere from zero cost to up to 30% of the total building cost or more.

## Design Requirements

Before you place your order, check local building codes. While most steel buildings can be created and designed to suit just about any building code, it's important to know the regulations and statutes you need to follow. In addition, local codes may limit your options in terms of budgetary considerations and what's practical. Once you've educated yourself on building codes, snow, and wind-load requirements, and similar regulations, you'll need to determine whether you're going to build it yourself or hire a crew. If looking to go the DIY route, you'll need to make sure that your building is designed for DIY construction.



Why Buildway?

# WARRANTY AND COST CONSIDERATIONS

While steel prices fluctuate constantly, if you work with a reputable dealer, like Buildway, you will always receive price protection and transparent communication about all cost factors. This will ensure that the delivery of your building occurs on time, and on budget. These buildings are prefabricated and certified by an in-house engineer before leaving our warehouse, allowing them to be assembled anywhere with ease, requiring less labor to erect. In addition, you won't be surprised by hidden costs or delays in construction. The process of erecting a steel building is fast, efficient and easy.

Another concern is warranty. Steel buildings come with a broad range of warranty options, and you'll want to ensure that the warranty you receive is among the best on the market. All of our building kits come with a standardized 30-Year Complete Warranty. In addition, you should always be sure that you get your warranty in writing to back up the promises made. All of your designs, drawing and warranty information will be electronically sent upon order completion.



Why Buildway?

# CHOOSING THE RIGHT COMPANY

There are tons of steel building manufacturers on the market today, and far too many use pressure tactics and dishonest tricks by their salesmen to close a deal. They might try to pass off a canceled building as an outstanding deal that you can get if you buy right now when, in fact, this is just a trick to get an unwanted product off their hands.

In reality, if a company is pushing a canceled building on you, the question you should ask is "why are they saddled with canceled buildings to begin with?" In addition, if a company waffles on delivery time, that's a red flag. You should always be given information about the complete package you're getting, including framing, sheet metal, trim, closures, framed opening materials, and fasteners. If you're also buying doors from the company, make sure you have complete information about the kind of doors you're getting before finalizing your purchase.

Certainly you're interested in the cost, but that shouldn't ever be your first consideration. Putting cost ahead of other questions will often result in a final product with which you won't be satisfied. There are many different options and styles available with steel buildings, and you need to ask the right questions to get the best results. In the end, always remember that you get what you pay for, and going with a discount provider almost always results in receiving a substandard product.

For more information, or to get started designing your new steel building, contact Buildway Building Systems today!



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