



Chapter 10

Outbuildings

Inexpensive work and storage space

Having acreage allows space for outbuildings. What are outbuildings? Outbuildings are any buildings other than your house. That would include barns, garages, workshops, sheds, carports, and others.

Outbuilding materials and construction covers a wide range from rustic shelters barely adequate to keep the rain off a tractor to elaborate steel structures rivaling traditional home construction. Typical rural outbuildings cost only small fraction per square foot of enclosed area as compared to that same space attached to a house.

Our barn

Our earliest plans included having a garage/shop building. We elected to have this building in place to live in until our house was built. That became one of our vacation work projects. We had a thirty by fifty foot steel building built with twelve foot high sidewalls. It is big enough that we just call it our barn.

That turned out to be one of the better ideas we had. We lived in it for over seven months until our house was ready for us to move in. In spite of what we like to call an “Early Prisoner of War Camp” motif, our garage/shop building was comfortable, though it was seriously cluttered. We had all our earthly possessions in there with us.

Our garage/shop/barn building is an insulated, all steel structure on a concrete slab. We contacted a steel building contractor during a spring trip to our property and made arrangements with him to build our building when we came back in the fall. That made for a busy fall visit but since all the work was done by the contractor, not difficult.

Our contractor normally builds large commercial steel buildings. He built ours using techniques and materials somewhat sturdier than typically found in small structures. We could safely hang an engine hoist from the building’s central beam if we ever need to. It is insulated and weather tight. The best part was that it was \$8.50 per square foot in 1999 dollars.

Hiring a steel building contractor is only one possible way of adding outbuildings. I cover some of the more common construction methods below.

Outbuilding construction methods and materials range from very primitive to very elaborate and ornate. The range is limited only by the imagination of the builders. Most of us, however, are simply looking for utility versus cost when considering what kind of building to construct.

Pole Barns

Probably the most common type of construction is the metal pole barn. Wooden poles or tall posts are set in holes in the ground to make up the vertical supports for the sides and roof of the building. Horizontal boards are bolted to the posts for attaching the sheet metal siding. Trusses are connected to tops of the poles to support the roof.

Pole barn construction is probably the least expensive method of building outbuildings. It is simple and the materials used are commonly available. They are great for sheltering machinery, tools, and animals from rain and wind. Though there are complex variations on pole building construction that are good enough for home construction, the typical pole barn is difficult to weatherproof and insulate.

Pole barn floors are often bare dirt or gravel. There are advantages to this if a building houses animals, or machinery that drips oil. Pole barns can also have concrete floors. Treated wood planks are attached to the poles at ground level to act as forms for the concrete. The concrete is poured and leveled inside the forms. Experienced concrete workers can do this even after walls are up on the barn.

In spite of their limitations, pole barns and buildings are more than adequate for most rural outbuilding applications. A pole barn will easily last 20 years or longer. We'll discuss building them a bit later.



Steel buildings

All steel outbuilding construction is similar to pole barn construction. The differences are that steel buildings are typically built on concrete slabs and use steel supports instead of wooden poles. Those differences, however, make an all steel building easier to weather seal and insulate.

Pole barns are all pretty close to the same strength. Steel buildings can vary from flimsy to extremely strong. That makes evaluating steel building prices difficult. Cheaper prices may mean lighter sheet metal and fewer support members are used.

A good quality steel building can last 50 years or more. Most modern factories and warehouses buildings use all steel construction. They are also commonly used for office, workshop, and store buildings. This can be an advantage in that there is likely to be multiple steel building construction companies available to build your outbuilding.

Stick built and conventional construction

As noted above, outbuildings may be built using more familiar methods such as stick built, Canadian wood frame construction. Concrete block and brick construction is also used. The choices are limitless.

Wood frame outbuildings are usually more expensive than pole barn or steel building construction but the availability of either cheap materials or cheap labor can offset the difference. Wood frame construction is often used for smaller buildings.

Concrete block is used for security and long life. Brick construction is used for aesthetic effect. Both are expensive but sometimes justified. They are generally not required for typical rural property outbuilding applications.

Build it yourself?

One of the first questions that come up when considering adding a new outbuilding is whether to build it yourself. Outbuilding structures are fairly simple. Often they are just a frame and sheet metal skin. As with many kinds of construction projects, that simplicity can be misleading. The first time you build one is a learning experience. It isn't until the second or third building that it starts to be easy.

Smaller structures, in the 100 square foot range or smaller, are easy enough to build that owner built projects are practical. Over that size, the lumber or metal becomes very difficult for a lone person to handle. With only one or two inexperienced people working on a barn or workshop project can take weeks to complete.

Exactly what size structure becomes unwieldy for do-it-yourself construction will depend upon the builder's skill level and the availability of necessary construction equipment. The basic rule is: if in doubt, hire it out.

There are two ways to go about do-it-yourself outbuilding construction. The first is to design it, buy all your materials, and then build it. The second is to buy a kit consisting of the plans and materials necessary for you to construct your building.

If you have never designed and built a building before, it would be a very good idea to get some help, either from a friend or neighbor or at least from a book on construction. Your first project should be something small, something in that 100 square feet or less range mentioned above.

Here are some books on outbuilding construction I found useful:

How to Build Small Barns and Outbuildings

Monte Burch
A Garden Way Publishing Book
Storey Communications, Inc.

Practical Pole Building Construction

Leigh W. Seddon
Williamson Publishing Company

Building a Multi-Use Barn

John D. Wagner
Williamson Publishing Company

Kit buildings

Outbuilding kits are available from many companies. Both pole building and steel building kits are manufactured. A kit simplifies your outbuilding project by supplying you with a completed design and all the necessary materials.

Keep in mind though that a kit does not reduce the difficulty or amount of work to construct your building. A full size barn kit is not a good beginners project.

A kit building works out well when you have several people available to help you with the construction. The manufacturer's plans help everyone understand what is to be built and how it is supposed to go together. Having all the materials available on site eliminates construction delays.

Some companies that supply metal building kits are listed below. There are many others:

National Barn Company – nationalbarn.com

Rhino Steel Building Systems – www.rhinobldg.com
American Steel Span - americansteelspan.com

Manufacturer built buildings

Some building kit manufacturers can supply crews for construction. These are usually traveling teams of workers who have considerable experience with their employer's designs and materials. They are able to put up one of the kit buildings in a fraction of the time need for a less experienced crew.

Some manufacturers don't even bother with kits. Their buildings are sold as "built on site." How they operate is that they send a crew out with a load of materials sufficient to construct your building. The crew unloads the material and builds the building.

You are responsible for preparing the building site prior to the crew's arrival. The metal building company will tell you what is needed. That preparation usually consists of leveling the ground. If the outbuilding is to be built on a concrete slab, you will be responsible for the concrete work.

An interesting thing that I noticed while researching outbuildings is that the price for a barn built on site by the manufacturer was often cheaper than what we would have had to pay for the raw materials. The manufacturers obviously buy their materials in large enough volume to receive substantial price discounts.

Some of the companies that supply built-on-site or turnkey metal buildings:

BCI Barn Builders – www.bcibarns.com

Duncan Construction – Stilwell, OK

ROB-BILT – www.rob-bilt.com

USA Barn – www.usa-barn.com

Contractor built outbuildings

Yet another choice is hiring a local metal building contractor. We chose this route for our garage/shop building. The price worked out to be about twenty percent higher with the local contractor than what was quoted by a manufactured building dealer. However, the materials were much sturdier than those used by the building manufacturers. Also, that price included full insulation, a roll up equipment door, a steel walk out door, and two windows. The local contractor also worked as our general contractor, arranging for the concrete and plumbing rough-in work.

Our plan was to build a bedroom and bathroom inside our garage/shop building. We wanted to be living on our property while our house was built. We planned to do that work ourselves so all our metal building contractor was responsible in that regard for was providing rough-in for the bathroom in the concrete floor.

We were surprised to learn that though our metal building contractor usually built factories and warehouses, he was happy to do smaller jobs like barns and houses. They are good filler jobs between the large commercial jobs. The smaller jobs take only a few days and he gets paid right away. It often takes ninety days to receive payment for big commercial jobs.

Insulation

Most rural outbuildings are not insulated. It makes little difference to a tractor or bale of hay whether the barn they are in is hot or cold. There can be a problem, though, if your outbuilding is not insulated and not well ventilated. Any moisture that builds up in the structure will condense on the ceiling and walls when outside temperatures drop. It can actually rain inside a large hay barn.

A step taken in some barn construction to minimize moisture condensation under the roof is to lay half-inch foam plastic insulation panels under the roofing sheet metal. That is enough to eliminate the condensation without a large increase in construction cost.

Any building you think you will be working in during harsh weather should be insulated. A small portable heater and a window air-conditioning unit is all it takes to make an insulated workshop comfortable year round. R19 class insulation is generally adequate for workshop buildings.

Skylights and sidelights

A common feature mentioned in steel building advertising is skylights. These are places where individual sheet metal roofing panels are replaced with translucent fiberglass panels. They are intended to let sunlight into the building, which they do under most conditions. Snow usually blocks the light.

The problem with skylights is that they cannot be insulated or the sunlight they are supposed to let in would be blocked. This allows moisture to condense on their inside surfaces. That problem is easily avoided.

Instead of skylights, I would recommend using insulated windows to let sunlight into your building. If the cost of windows is too steep for your budget, consider sidelights as an alternative. Sidelights are constructed the same way as skylights. Sidelights though, are placed in walls instead of the roof. We elected to have sidelights installed in our garage/shop building. Though the lack of insulation on those spots no doubt increase the building's heating and cooling costs, that has been of little concern to us. We only heat or cool the building when we are using it and that is often only a few hours per week.

What color?

The last thing most of us think about when planning an outbuilding is its color. We usually don't care as long as it doesn't look obnoxious. I can offer a little advice about choosing colors.

If your building is to be built in a wooded area, in among the trees, use dark brown or green colors. The darker earth tones blend in with the foliage much better than bright colors. Dark brown is especially good in deciduous forest areas where the trees are bare and brown half the year. Both brown and green go well in evergreen woods.

The colors for buildings standing in the open should be chosen to draw a viewer's eye either toward or away from it. Buildings in open scenic areas should tend to the medium and darker colors such a light brown or barn red. Buildings in cluttered yards or surroundings scarred with excavation should have light, bright colors to draw people's attention away from the ugly stuff.

In most cases, you stick with earth tones for your buildings. That is, unless you really want to draw people's attention to your building. Most of us, though, want our buildings to blend in with Mother Nature's designs, not clash with them.