

## Building a Greenhouse

By Susan Camp

I am sitting at my laptop, looking out the window at a couple of acres of frozen snow, but I am daydreaming about springtime, and thinking about what we will build in the spaces vacated by the two redbud trees and the disappearing daylily beds.

With the trees removed, we have a large open area filled with sunlight that will be a perfect spot for raised vegetable beds. The one thing we never have had is a place to set flats for growing seedlings in late winter. Last week, I resurrected the half-forgotten idea of building a greenhouse in the field. We had tabled the project because the area grew too shady over the years. I mentioned greenhouse to Jim, and he enthusiastically agreed that we should explore the idea.

I soon discovered that there is no shortage of greenhouse kits and plans, many of them free, on the internet. Google “free greenhouse plans”, and you will get about 700,000 hits! Further searches reveal millions of kits and plans for cold frames, low and high tunnels, hot beds, row covers, and cloches, varied according to size, desired style, materials, cost, and planned usage. These structures collectively are known as “season extenders.”

Before you build a greenhouse, decide how you want to use it. The function of a proposed greenhouse will dictate its setting. If you want to start transplants in the winter, place the greenhouse in full sun. Partial shade is a good location for a greenhouse used to propagate plants during the summer. Access to a water source and electricity are necessary in either setting. Good air circulation will help prevent fungal diseases; don't place your greenhouse in a stand of trees or shrubs.

Decide on the size of your greenhouse. The inside temperature fluctuates less in a larger structure, partly because of the larger amount of soil that warms during the day. A smaller greenhouse will lose more heat in winter when the door is opened.

Whether you purchase a kit or decide to build a greenhouse from a plan, use building materials that will withstand both summer heat and humidity and winter wind, snow, and ice. Read online reviews of kits for consumer opinions on ease of assembly, durability, and amount of annual maintenance necessary.

Build the frame of galvanized steel, aluminum, or wood that has been treated with an environmentally safe preservative, not creosote or pentachlorophenol. According to several online sources, a well-constructed frame should last at least 5 to 10 years. After you have leveled the site, anchor the frame at the four corners with 4x4 posts to prevent or minimize damage from high winds. Consider building a greenhouse with a peaked roof to decrease snow buildup.

Tempered glass, which is 2 to 3 times stronger than regular glass, makes an excellent cover material; however, glass is expensive, breaks easily, and requires a strong steel or aluminum frame because of its weight. High-grade, transparent or translucent fiberglass weighs less than glass and provides good light penetration.

Sheets of double-walled, rigid polycarbonate or acrylic coated with a U-V light inhibitor to slow down degradation by sunlight can be used as cover material. Polyvinyl chloride (PVC), polyethylene (PE), copolymers, and other plastic compounds are available as plastic film. Depending on the grade, these cover materials last from 12 months to 3 years.

NC State Extension Gardener Handbook “Appendix E. Season Extenders and Greenhouses” offers detailed information on various backyard structures, as does Virginia Cooperative Extension (VCE) Publication 426-381 “Season Extenders.” NC State Extension publication “A Small Backyard Greenhouse for the Home Gardener” includes a building plan, photos, and the materials list for a 168-square foot greenhouse.

Jim and I know from experience that building something from the ground up isn’t always as easy as it looks on “This Old House”, so we are considering purchasing a kit, even though it may be more expensive.

January 11, 2018