

Select the Best Type of Greenhouse

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Greenhouses can be built of wood, steel tubing or aluminum extrusions. Low cost glazing with film plastic is generally best for small operations where the greenhouses are used seasonally or for a grower just entering the business. Rigid plastic or tempered glass is best for year-round use where high light levels are needed.

The most common styles of greenhouses are free-standing and gutter-connected. A free-standing greenhouse is independently erected, set apart from other structures and has either a pitched or arched roof. A gutter-connected greenhouse is a series of free-standing structures joined at the eave by a drain gutter. A short review of the advantages of each may help you make the right choice.

Free-Standing Greenhouse

- Usually the best choice for the small grower planning on less than 10,000 square feet of growing space. You can start with one house and add on as the business grows.
- Easier to provide separate environments as each house is controlled by its own heating/cooling system. One greenhouse can be operated warm for propagation; others can be run cooler for growing.
- Individual houses can be shut down for periods when not in use. For example, where annual plants are grown, many hoop houses are closed down for the coldest part of the year to conserve energy. Gutter-connected houses are usually heated to prevent freezing.
- Best suited to heavy snow areas, as multispan houses need to melt snow from the gutter.
- Good for nonlevel sites. Although not as efficient as on a level site, many ranges have been built on sloping sites. Areas need to be terraced and drainage provided.

- Individual greenhouses are easier to build and maintain. Access for repairs, recovering and reglazing is more convenient.
- A free-standing greenhouse is usually less expensive than a gutter-connected one because of a number of factors. Site preparation and erection costs are lower, less expensive unit heaters can be used and structural members can be smaller.
- Expansion of growing area is easier without disturbing plant production. Additions to gutter-connected houses require removing endwalls or sidewalls and the expansion of utilities.
- Because of the smaller area, ventilation can be more uniform. Both natural ventilation systems and forced air fan systems are more effective because the distance the air has to travel is less.

Gutter-Connected Greenhouses

- Most cost effective for growing areas of 20,000 square feet or more.
- A major advantage of the multi-span greenhouse is reduced heating costs as compared to the same amount of growing area under single span greenhouses. As heat loss is directly related to the amount of greenhouse surface area, the elimination of the sidewall area that is associated with single span greenhouses can result in up to a 25% lower heating cost.
- Less land is needed. Up to 30% more growing space can be placed on the same amount of land area.
- Greater labor efficiency. Carts and conveyor systems adapt easier because all the growing area is under one roof. Moving bench and tray systems also adapt more readily.
- Better labor control. With all growing space under one roof, it is easier to supervise workers.
- Utilities are easier to install. Electric service and water supply are centralized, making installation and maintenance easier.
- Heat can be centralized. A single boiler is easier to install and maintain than the multiple heaters needed in a free-standing range.
- Easier to adapt to computer environment control. Installation costs are less.

Research in both the U.S. and U.K. has shown that given the same location, equal light at plant level can be obtained from either type of greenhouse. Differences occur from the type of glazing, size of structural members and the orientation.

The right selection of a greenhouse system is an important decision that will affect the profitability of a business. Consider all the options that are available before you make your choice.