USDA United States Department of Agriculture

NRCS

Minnesota Fact Sheet 672
Building Envelope Improvement

Purpose

The purpose of this practice is to implement improvements to reduce or improve energy efficiency of on-farm energy use.

Agricultural Facilities

Insulation Materials

Agricultural facilities are often high moisture, dusty environments. The requirements for insulation and vapor barriers installed in agricultural facilities can differ from those of residential buildings due to temperature extremes and the moisture and dust present in agricultural buildings.

Requirements for U-Values, insulation materials, vapor retarders and ignition or thermal barrier requirements are provided in ANSI/ASABE S401.2. Care should be taken when selecting insulation materials because some materials, such as spray foam or blown insulation, may not meet vapor barrier or ignition requirements in this standard.

Sealant

Professionally installed sealant can be effective in reducing seasonal heat loss and heat gain in agricultural buildings. Sealing gaps in exterior walls serves to reduce the need for heating and cooling equipment to operate, resulting in a decrease in energy consumption.

Greenhouses

Greenhouse Screens

Mechanically operated energy screens consist of a system of motors, controls, support cables and screening materials. These systems can be operated in order to improve the heating and cooling efficiency of the greenhouse. In the winter or at night they can be used to reduce the amount of space inside of the building that needs to be heated and to reduce heat loss from the greenhouse. They can also be used to reduce solar heat gain by providing shade in the summer.

Greenhouse Insulation

Cellulose or bubble type insulation can be installed in greenhouses in order to reduce seasonal heat loss or heat gain from uninsulated buildings.

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