Practice: 672 - Building Envelope Improvement

Scenario: #1 - Attic Insulation, Blown-In

Scenario Description: Install a minimum R-7 insulation in addition to existing attic or ceiling to reduce heat transfer. Increased insulation reduces seasonal heat loss and heat gain which reduces the respective need for heating and cooling equipment to operate. Typical scenario assumes 2" of cellulose insulation will be added to the attic with typical dimensions 40'x500', thus yielding 3333 cubic feet.

Before Situation: An agricultural facility with an inefficient building envelope with limited wall insulation.

After Situation: A more effective and efficient building envelope can be created through addition of, or increased, attic insulation. Associated practices/activities: 122-AgEMP - HQ and 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Scenario Feature Measure: Cubic Feet of Attic Insulated

Scenario Unit: Cubic Foot

Scenario Typical Size: 3333

Total Scenario Cost: $2,884.48

Scenario Cost/Unit: $0.87

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
Materials						
Insulation material, cellulose	2272	Cellulose insulation. Unit is a measurement of the in-place volume after being blown. Includes materials only.	Cubic Foot	$0.77	3333	$2,563.36
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$20.07	16	$321.11

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Scenario: #3 - Building Envelope - Wall Insulation, Batts

Scenario Description: Enclose both sidewalls and endwalls from ceiling to floor in one of two manners: 1) metal exterior, 3.5" fiberglass batts (R-11), vapor barrier, &interior plywood or OSB sheathing, or 2) closed-cell polyurethane foam application (minimum 1" thickness (R-7) of 2.5 lbs/cu.ft. or higher density, (3.0 or higher density preferred) with a form of physical protective barrier on lower 2' (may be 6 lbs/cu.ft. or higher density 1/8" thick foam, or treated lumber). Based on a 40' x 400' poultry house.

Before Situation: An agricultural facility with an inefficient building envelope with limited wall insulation.

After Situation: A more effective and efficient building envelope can be created through addition of, or increased, insulation. Associated practices/activities: may include 122-AgEMP - HQ and 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.

Scenario Feature Measure: Area of Wall Insulated

Scenario Unit: Square Foot

Scenario Typical Size: 5770

Total Scenario Cost: $8,800.04

Scenario Cost/Unit: $1.53

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total

Materials

Insulation, Panel, R-11 with sheathing	1197	Insulated wall panel typically 3.5" fiberglass batts (R-11), vapor barrier and OSB sheathing, or equal, includes materials, equipment and labor to install.	Square Foot	$1.53	5770	$8,800.04