



Building Envelope Improvement

(Insulating Poultry Houses)

Louisiana Job Sheet No. LA672



Definition

Proper exterior insulation of a poultry house provides an improved bird rearing environment and ensures minimal heat losses, thereby saving the poultry farmer on their utility bill. Proper insulation can also add to the “tightness” of a poultry house; improving ventilation, moisture control, and bird health.

General Information

The ceiling of a poultry house should be the first consideration during an insulation retrofit. Ceiling insulation problems must be corrected first.

Sidewalls of older poultry houses can have very little insulation (curtain houses) or minimal insulation (lumber). Techniques have been developed to insulate these type walls to provide insulation values in the R-8 to R-12 range.

Farmers cannot receive federal funds from two sources to pay for insulation.

Installation

For older high-ceiling, open truss poultry houses make sure the ceiling is tight. Foaming the ridge cap and the underside of the exterior eave juncture and repairing missing or damaged board insulation

are probably the only affordable retrofits. In drop ceiling houses, insulation may have shifted or settled resulting in excess heat loss. For these houses it is imperative to get a complete blanket of insulation (blown fiberglass) in the ceiling that gives a minimum R-19 protection.

Replacing un-insulated curtains with solid insulated sidewalls can be a complicated process. It is especially difficult in steel truss houses with post supports on 10 ft. centers. Dropped ceiling houses with posts on 4 or 5 ft. centers make it easier to create cavities in the wall for insulation. When insulation batting is used, exterior metal siding must be installed over the curtains. Insulation batting is placed in the wall with a 4-6 mil vapor barrier and covered with pressure treated wood, OSB (not in contact with the litter), or plastic sheathing (blown cellulose in wall is not recommended since it can slip down over time). A newer option is to secure the curtain that is in good repair with lumber, apply 1 to 1 ½ inches of spray-on closed-cell polyurethane foam insulation (minimum 3 lb./cu.ft.) to the interior of the curtain

and sidewall lumber from floor to ceiling. With the spray foam option, protection must be provided around the base against pecking, beetle damage, and physical equipment damage. This is best accomplished by installing treated lumber boarding (scrape boards) at the bottom of the wall with clean gravel backfill between the boards and 3 lb. spray foam. If scrape boards and gravel are not allowed, the 3 lb. spray foam must be coated using a higher density (6 – 10 lb.) spray foam at the bottom of the walls.

Insulation of end walls may be needed too. Always ensure that cracks and leaks are properly sealed.

Poultry houses that are properly sealed and insulated should be able to achieve a static pressure of 0.15 inches of water when vacuum tested.

Operation and Maintenance

Ceiling insulation should be visually inspected at least yearly for shifting or excess settlement. Infrared cameras (if available) can pinpoint problems with insulation. Occasional vacuum

checks on the house can insure house “tightness” and help pinpoint leaks.

References

NRCS LA Conservation Practice Standard, Code 672 – Building Envelope Improvement

Poultry House Energy Retrofits for Fuel & Cost Savings, Newsletter no. 43, National Poultry Technology Center, Auburn University, September 2006.

Controlling Sidewall Energy Losses, Newsletter no. 46, National Poultry Technology Center, Auburn University, March 2007.

Is Shifting Ceiling Insulation Running Up Your Gas Bill?, Newsletter no. 63, National Poultry Technology Center, Auburn University, January 2010.

Choosing Sidewall Insulation, Newsletter no. 75, National Poultry Technology Center, Auburn University, January 2012.

INSULATION

USDA Program Participant: _____ Parish: _____ Date: _____
 Field Office: _____ Number of Houses: _____
 Farm No.: _____ Tract No.: _____ Assisted By: *(field office personnel)* _____

House No(s). _____

Ceiling:

Area of attic: _____ ft. (Length) x _____ ft. (Width) = _____ sq.ft.
 Insulation Added: _____ in.
 Number of Buildings: _____ Are all buildings the same? _____ If yes:
 Total Insulation of Attic = _____ (# of Buildings) x _____ sq.ft. (Area of Attic) = _____ sq.ft. total
 If no, make same calculations for each house.

Walls:

WALL NO.	AREA, Sq. Ft. Length, ft. x Height, ft.	SUM OF NON-INSULATED AREAS* Sq. Ft.	AREA INSULATED Sq. Ft.
1			
2			
3			
4			
TOTAL			

*Note: Non-insulated zones include fans, panels, doors, etc.,.

Total Area of side walls to be insulated: _____ sq.ft. total
 Are all houses the same () yes () no. If no, make same calculations for each house.

Linear Footage of Sealant : _____ ft.

Total Insulation and/or sealant(all houses):

<u>Planned</u>	<u>Applied</u>
Ceiling: _____ sq.ft.	Ceiling: _____ sq.ft.
Side Walls: _____ sq.ft.	Side Walls: _____ sq.ft.
Sealant: _____ ft.	Sealant: _____ ft.

USDA Program Participant Certification:

I certify that I am not receiving other federal funds for insulation and to the best of my knowledge all local and state building codes have been followed, plumbing and electric codes have been followed as well as manufacturer and/or suppliers requirements. (attach certification from certified installer)

 Signature Date

NRCS Acceptance:

All insulation and sealants installed through EQIP on this farm were completed per NRCS standards/ specifications and the Accredited Energy Audit.(Photographs of installation, label and manufacturers information are on file)

I have EJAA Class:

Signature Date