CONSTRUCTION SPECIFICATION

672. BUILDING ENVELOPE IMPROVEMENT

1. SCOPE

The work shall consist of furnishing materials and installing selected components prescribed in an On-farm Energy Audit completed through a Conservation Plan and/or ASABE Standard S612 as outlined in this specification and the attached drawing and details.

2. EQUIPMENT AND MATERIALS

Equipment and materials installed shall match the type and size recommendations found in the On-farm Energy Audit.

Materials and applications shall meet the American Society of Heating, Refrigerating and Air conditioning Engineers (ASHRAE) Handbook – Fundamentals or as otherwise set forth on the drawings and in Section 5.

3. INSTALLATION

Installation shall conform to all applicable codes, laws and regulations.

Installation shall be a per manufacture's requirements.

Installation shall be by a qualified professional (Manufactures Representatives, Equipment Companies, Ag Building Companies, Electricians, etc.), unless otherwise approved by NRCS or the design TSP.

4. SPECIFICATIONS

Ensure insulation materials and vapor retarders exposed to the interior of the building will meet specifications described in ANSI/ASABE S401.2.

Insulation materials not meeting the requirements specified in the above paragraph and any insulation materials located directly adjacent to electrical panels, devices, and welding operations must be separated from the interior of the building by an ignition or thermal barrier in accordance with ANSI/ASABE S401.2.

Attic Insulation
This improvement provides for the *addition* of insulation providing the R thermal resistance specified in the audit. A minimum settled depth of 4 inches of blown-in cellulose provides an R-15 thermal resistance. R-15 shall be achieved unless drawings indicate different insulation requirements and depth.

Wall Insulation
The sidewall curtain or other flexible wall material must be removed. A permanent exterior siding must be installed across the former window opening. The new siding must be sheet metal or material equivalent to the existing siding, and the new siding must be lapped with the old siding or sealed in an appropriate manner to prevent water intrusion.

The wall shall be reinsulated from the top of the footing to the eave, and the insulation shall receive appropriate physical protection. Insulation and protection options currently include the following:

1) Fiberglass batts, 3.5" thick (R-11), along with a vapor barrier and a protective barrier of interior plywood or OSB sheathing; all three components installed from the top of the footing to the eave.

OR

2) Fiberglass batts, 3.5" thick (R-11), along with a vapor barrier and a protective barrier of interior plywood or OSB sheathing or a combination of the lower 4 feet with plywood or OSB and a woven PE fabric (Tri-poly Canvex or equal) to the top of

the eave.

All areas of curtains or flexible walls, except those functioning as tunnel ventilation inlets, shall be converted to permanent walls to complete this improvement as a comprehensive certifiable installation.

Attic Heat Recovery Vents
These manufactured vents or inlets allow dry warm air form the attic to be circulated throughout the building. Each vent is wired for remote opening and closure. Control system integrated with building environmental system. The concept and number of vents shall be approved by integrator. Vents to fully seal when closed.

Sealant
This improvement is the interior-face sealing of agricultural building. The improvement is not intended to provide additional insulation on the flat planes of the existing building panels. The improvement must seal the cracks which exist at the linear junctions of the flat planes and to seal miscellaneous holes. In a poultry house with a dropped ceiling, the typical sealing lines are the junction of the exterior walls with the footer plate and the junction of the ceiling with the endwalls. In a poultry house with open truss-work, the typical sealing lines are the ridge cap, gable ends, eaves, and the junction of exterior walls.

The sealing shall be performed by a qualified professional using sealant approved by poultry production facilities integrator. The type, quality of work, quantity required prohibits the use of foam sealant merely from an aerosol can. Sealant above bird reach (typically 2') must be a minimum of 10 lbs.cf polyurethane or equivalent. Before application of the sealant, the lines or areas must be reasonably cleaned with compressed air or mechanical means. The lines or areas to be sealed must be reasonably cleaned with compressed air or mechanical means.

3. SAFETY

Electrical wiring shall be installed to meet national, state, or local electrical code, whichever is more restrictive. The work must be done by a qualified professional. Existing services requiring upgraded or extension shall be done at owner's expense.

Equipment shall be installed with all required safety shields and warning signs.

Components exposed to humid or wet conditions shall have additional moisture protection.

Components with liquid systems shall be protected from freezing.

4. SUMITTALS

The producer shall provide invoices that verify the type, material, or size of component being installed. This can include manufactures literature.

If applicable, the producer must provide a copy of an approved revision for a change in the original audit recommendation by their TSP.

The producer shall provide verification that modifications for facility are approved by integrator, if applicable.

The producer shall provide a certification from the qualified professional that the installation was installed as per manufactures requirements and meets applicable building codes.

Qualified professional includes Manufacturer's Representatives, Equipment Companies, Ag Building Companies, Electricians, etc.

5. ADDITIONAL CONDITIONS WHICH APPLY TO THIS PROJECT ARE: