



Farmstead Energy Improvement

North Carolina Practice Job Sheet 374

Natural Resources
Conservation Service

Prepared for: _____

Prepared by: _____

Farm: _____ Tract: _____ Date: _____

DEFINITION and PURPOSE

Development and implementation of improvements to reduce or improve the efficiency of on-farm energy use.

REQUIREMENTS

Proposed energy improvements shall be listed, referenced, and thoroughly described in a current energy audit (within the last 3 years) performed in accordance with *ASABE S612, Performing On-farm Energy Audits*. Additionally, ALL energy audits shall meet the NC Audit Criteria to ensure Tables 1 and 2 are provided and are in an acceptable format.

The following data shall be provided in Table 1 for each proposed improvement:

- Estimated energy savings.
- Estimated installed cost and energy cost savings.
- Simple payback period.
- Estimated emissions reductions for CO₂, N₂O, CH₄, SO₂, and NO_x.

All components, including their installation and workmanship, shall meet or exceed all federal, state, and local standards and guidelines.

All components shall be designed and installed in strict accordance with all manufacturers' recommendations and guidelines.

Proper disposal of all outdated components, considered hazardous or potentially polluting material, shall be in accordance with all federal, state, and local standards and guidelines.

Written certification by a licensed professional shall be obtained for all work completed as part of this practice unless noted otherwise. Any required permits or inspections from city, county, or state governments shall be obtained by the participant. See **Appendix A** for licensing requirements for each payment scenario and **Appendix B** for a template of an installation certification statement.

Prior to any required excavation activities, dial 811 if calling within North Carolina boundaries (or 1-800-632-4949 otherwise). Requests can also be submitted online at <http://www.nc811.org/>.

ENERGY AUDIT INFORMATION

Auditor Name: _____

Date of Audit: _____

Recommended Measure(s):

(Also provide a reference to where the measure is listed in the audit, e.g. Table 1, Page No., etc.)

EQUIP CONTRACT PAYMENT SCHEDULE

Component	Unit Type	Contract Quantity
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ADDITIONAL REQUIREMENTS

(If applicable, list below any specific technical requirements that may be required by the payment schedule, industry standards or other relevant documents).

PLANS AND SPECIFICATIONS

Plans and specifications shall describe the requirements for properly installing all components to achieve their intended uses. **Plans and specifications shall be developed by the participant or the participant's supplier. NRCS shall not be tasked with or responsible for completing designs related to this conservation practice standard.**

Prior to installation, the participant shall provide the following deliverables to NRCS:

- Written specifications and installation instructions.
- Description of the existing system/components **and** replacement/retrofit components.
- Plan view showing location of components in relation to other structures.
- Detailed drawings showing location and details of structural components.

The deliverables listed above shall be submitted to NRCS for a general concurrence review for conformance with this standard.

Concurrence of the above deliverables must be obtained by NRCS prior to the start of installation.

PRECONSTRUCTION CERTIFICATION (Required Prior to Installation)

*The participant certifies the deliverables provided meet the requirements of this conservation practice standard and does not hold the NRCS responsible for any damages that may result from their installation. The participant also certifies that all improvements that will be made as part of this practice have been coordinated with and approved by their **integrator (when applicable)**.*

Participant Signature

Date

Authorized NRCS Agent Signature (Must have appropriate EJAA)

Date

OPERATION AND MAINTENANCE

All components shall be operated in accordance with all manufacturers' recommendations. In addition, all warnings and cautions shall be observed. Repair or replace all items, as needed, to maintain the system in good operating order.

Installation records, including certifications, and all manufacturers' installation, operation, maintenance and user guides shall be retained and a copy provided to NRCS.

Documentation of maintenance conducted on any components shall be retained.

Maintain records to document energy improvements for a minimum of 5 years from the beginning of operation. Records shall include monthly utility bills and fuel purchases.

PRACTICE CERTIFICATION REQUIREMENTS

The following documentation is required prior to practice certification:

- Copy of all receipts and invoices.
- Photographs (either hardcopy or digital files) of completed work. As a minimum, include a wide-angle exterior view of the structure where improvements are installed and a picture of each installed component from a distance of 5-30', as appropriate. Multiple pictures of the same component (bulbs, heaters, etc.) are not necessary.
- Certifications, as required. See **Appendix A** for licensing requirements for each payment scenario and **Appendix B** for a template of an installation certification statement.

The participant certifies that the receipts, invoices, pictures, and certifications presented as documentation represent the materials and workmanship necessary for the equipment to fully function, and he or she does not hold the NRCS responsible for any damages associated with the installation, operation, and maintenance, of such components.

Participant's Signature

Date

CHECKOUT

The NRCS certifies that all plans and specifications have been met for the installation of this conservation practice standard, including examination of the required documents and photographs.

Authorized NRCS Agent Name (Please print)

Title

Authorized NRCS Agent Signature (Must have appropriate EJAA)

Date

Appendix A: Licensing Requirements for Installation¹

Payment Scenario	Specialized Components	Work Discipline	Provider of Installation Certification Statement ^{2,3}
#1 - Lighting, CFL Bulbs	None	Electrical	Licensed Electrician or Landowner
#2 - Lighting, LED Bulbs	None	Electrical	Licensed Electrician or Landowner
#3 - Lighting, Linear Fluorescent Fixtures	Lighting Fixtures, Wiring	Electrical	Licensed Electrician
#8 - Ventilation, Exhaust	Fans, Wiring, Controls	Electrical	Licensed Electrician
#9 - Ventilation, Horizontal Air Flow (HAF)	Fans, Wiring, Controls	Electrical	Licensed Electrician
#12 - Variable Speed Drive > 5HP	VSD, Wiring, Controls	Electrical	Licensed Electrician, Equipment Supplier
#13 - Automatic Controller System	Wiring, Sensors, Controls	Electrical	Licensed Electrician, Equipment Supplier
#14 - Motor Upgrade > 100HP	Motors, Wiring, Controls	Electrical	Licensed Electrician
#15 - Motor Upgrade 10HP-100HP	Motors, Wiring, Controls	Electrical	Licensed Electrician
#16 - Motor Upgrade >1HP and <10HP	Motors, Wiring, Controls	Electrical	Licensed Electrician
#17 - Motor Upgrade <1HP	Motors, Wiring, Controls	Electrical	Licensed Electrician
#18 - Heating, Radiant Systems	Heaters, Gas Lines, Wiring, Controls	Electrical/Gas	Licensed Electrician, Licensed Fuel Piping Contractor ⁴
#20 - Automated Attic Inlets, Heat Recovery Vents	Carpentry, Vents	Carpentry	Licensed General Contractor or Landowner
#21 - Building Envelope, Attic Insulation	Carpentry, Insulation	Carpentry	Licensed General Contractor or Landowner
#22 - Building Envelope, Wall Insulation, Fiberglass Batts	Carpentry, Insulation	Carpentry	Licensed General Contractor or Landowner
#23 - Building Envelope, Wall Insulation, Spray Foam	Carpentry, Insulation	Carpentry	Licensed General Contractor or Landowner
#24 - Building Envelope, Sealant	Carpentry, Insulation	Carpentry	Licensed General Contractor or Landowner
#27 - Insulated Curtains/Sidewalls for Poultry Houses	Carpentry, Insulation, Curtains, Motors, Wiring	Carpentry/ Electrical	Licensed General Contractor, Licensed Electrician, Equipment Supplier
#28 - Grain Dryer	Grain Dryer, Motors, Fans, Wiring, Controls, Gas Lines	Electrical/Gas	Licensed Electrician, Licensed Fuel Piping Contractor ⁴ , Equipment Supplier
#29 - High Efficiency Heat Exchange System for Tobacco	Boiler, Heat Exchangers, Controls, Wiring	Electrical/Gas	Licensed Electrician, Licensed Fuel Piping Contractor ⁴ , Equipment Supplier
#30 - Tobacco Barn Motor Retrofit	Motors, Wiring, Controls	Electrical	Licensed Electrician

Notes:

¹ This appendix should serve as a recommendation and may not apply to every possible situation. The person with Engineering Job Approval Authority should use the above table as a guide to determine which installation certification statements are required.

² Any highly specialized equipment that is installed should be certified by a technical representative from the equipment supplier/vendor/manufacturer. The above table indicates this is required for Scenarios 12, 13, 27, 28, and 29; however, this should be applied to all scenarios if a non-standard item is being installed. The Area Engineer reserves the right to require a supplier/vendor/manufacturer certification statement when deemed necessary to ensure an acceptable installation.

³ All licenses must be current and issued in the state of North Carolina for commercial construction (residential licenses are not allowed).

⁴ A licensed plumber or licensed heating contractor (Group 1/Class1, Group 2, Group 3/Class 1) is also qualified to install fuel lines and components.

Appendix B

Conservation Practice Standard 374 - Farmstead Energy Improvement

Installation Certification Statement

PARTICIPANT INFORMATION

NAME: _____

ADDRESS: _____

PHONE: _____

BRIEF DESCRIPTION OF WORK COMPLETED (Type, Quantity, Units, Etc.):

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I hereby certify that all components installed or modified were in accordance with the manufacturer's recommendations and meet or exceed the requirements of all applicable building codes and standards.

NAME (print): _____

TITLE: _____

SIGNATURE: _____

DATE: _____

(Note: If the installation was completed by the participant, the below items are not applicable).

LICENSE TYPE: _____

LICENSE NUMBER: _____

COMPANY NAME: _____

COMPANY ADDRESS: _____

COMPANY PHONE: _____