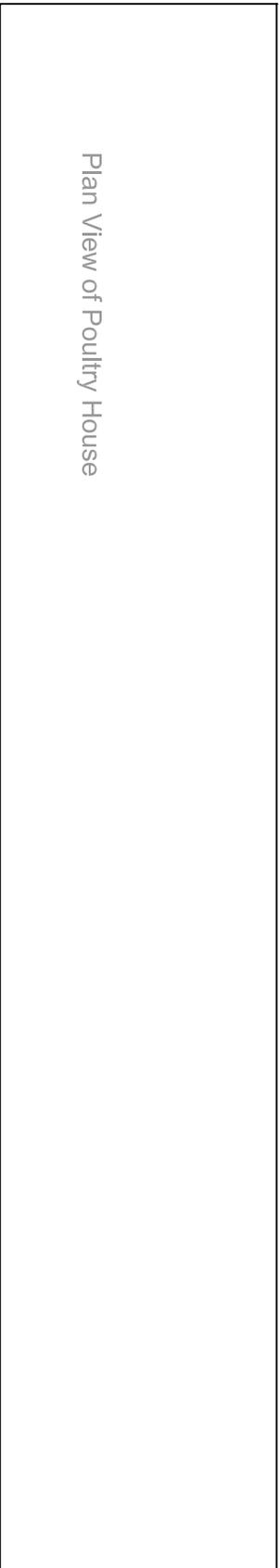


Zone Diagram: Use the plan view below to indicate general zones of similar construction and insulation that will be improved at this time. Label A, B, C, etc. as needed.



Description of Existing Building Envelope

(Circle items as appropriate or write-in. You need only describe existing building envelope which will be improved at this time. Make note of zones from above as appropriate.)

Attic/Roof Insulation

- 1) blown-in cellulose, 2) blown-in fiberglass, 3) paper-faced batts, 4) Styrofoam layers, or 5) _____
- What is typical thickness? _____
- Typical condition: good, light damage, major deterioration

Wall Structure

- 1) framing is the only lumber present in the wall, 2) continuous layer of two-bys, plywood, OSB, or 3) _____
- What is typical thickness? _____
- Is a window opening present? _____

Exterior Building Panels

- 1) corrugated sheet metal or 2) _____

Wall Insulation

- 1) nothing, 2) paper-faced batts, 3) sprayed-on cellulose, spray foam, or 4) _____
- What is typical thickness? _____
- Typical condition: good, light damage, major deterioration
- Insulation Protection: nothing, plywood or OSB, dense spray-foam, or _____

Sealant has been applied to:

- 1) nowhere, 2) junction of wall with stem wall (footing), 3) eaves, 4) gable ends, 5) ridge cap, 6) miscellaneous holes, 7) around door frames, 8) around fan housings, 9) _____

Additional Information

Design and Description of Improvements

Provide specification sheet to producer and discuss.

- How will the attic/roof insulation be improved?
- How will the wall structure and insulation be improved?
- Where will sealant be applied?

Include here any design guidance details, such as the required added R-value for the attic (and the associated inches or bags of insulation required) etc.

Confirm the producer's desired method of wall insulation or sidewall renovation. Initiate engineer concurrence if necessary.

Producer and Contract No.

Location and ID of Poultry House

Use PLSS to within 40 ac. GPS coordinates, or attach map.

United States Department of Agriculture
Natural Resource Conservation Service

CPS374 Farmstead Energy Improvement Jobsheet
Poultry House Building Envelope

Front

Revision: 2014/07/18

CPS374 Farmstead Energy Improvement Jobsheet
Poultry House Building Envelope

Back

Revision: 2014/07/18

Width: _____ (ft) Length: _____ (ft)

Area: _____ (sf)

FEATURE MEASURE:
NOMINAL AREA OF BUILDING IN SQUARE FEET

Checkout Actions

Attic Insulation

- 1) Review the practice specifications.
- 2) Verify and record the nominal length, width, and area of the building.
- 3) Determine the average depth of added insulation across the building attic using one of the following methods:
 - a. an estimate of the blown-in-place volume of each bag, a tally of the number of bags used for the house, and a calculation of the average depth across the attic, OR
 - b. an in-the-attic ruler measurement of the average depth of insulation added.

Installed Depth of Attic Insulation

Tables for required depth of insulation to add for common attic loose-fill insulation materials have been calculated and filed in eFOTG. For un-common materials, request Application Coverage Chart from packaging or material spec sheet. If R15 depth is not on table, ask engineer for worksheet to interpolate for R15 depth and the associated in-place volume (CF/bag).

Number of Bags Blown into Building	x	In-Place Volume (cf/bag)	/	Building Area (sf)	x 12 =	Average Depth Across Building (inches)
					(in/ft)	

Wall Insulation

- 1) Review the practice specifications.
- 2) Verify that substrate to which insulation was attached is in good condition. This means that degraded insulation, lumber, other materials, and dust was removed before installation of new insulation.
- 3) Verify that a layer was installed to provide physical protection for the insulation.
- 4) Measure the length and vertical height of the walls insulated, and calculate the total area. Exclusions which are equal to or smaller than a single common door or fan need not be deducted.

FEATURE MEASURE:
WALL AREA REBUILT/REINSULATED IN SQUARE FEET

Sidewall Renovation

- 1) Review the practice specifications.
- 2) Verify that a permanent exterior siding was installed
- 3) Verify that rotten or degraded insulation was removed and replaced with new insulation.
- 4) Verify that a layer was installed to provide physical protection for the insulation.
- 5) Measure the length and vertical height of the walls renovated, and calculate the total area. Exclusions which are equal to or smaller than a single common door or fan need not be deducted.

FEATURE MEASURE:
WALL AREA REBUILT/REINSULATED IN SQUARE FEET

Sealant

- 1) Review the practice specifications.
- 2) Verify that that sealing lines or areas were cleaned before application of the sealant.
- 3) Verify that that sealant within reach of animal production is resilient to animal pecking and biting.
- 4) Verify and record the length of the house.

FEATURE MEASURE:
NOMINAL LENGTH OF BUILDING IN FEET

Roll-Up (Vehicular) Door

- 1) Review the practice specifications.
- 2) Verify that frame of door was caulked or sealed to house frame, and verify that door members (or layers) seal to door frame.
- 3) Note quantity of doors installed.

FEATURE MEASURE:
NUMBER OF DOORS

Checkout

Pictures are recommended to supplement the documentation of installations.

I certify that I have visually confirmed on-site that the conservation energy improvement(s) was installed and that the improvement(s) meets NRCS minimum specifications. I have examined invoices for the materials purchased and work performed and filed copies in the participant case file.

Authorized NRCS Agent

Date

Existing Equipment Diagram: Use plan view below to indicate general locations of heater, fans, etc. that will be improved at this time. Label different types as A, B, C, etc. as needed.

Plan View of Poultry House - Existing

New Equipment Diagram: Use plan view below to indicate general locations of new heaters, fans, etc. Label different types as needed.

Plan View of Poultry House - New

Description of Existing Heaters, Fans, Etc.

(Circle items as appropriate. You need only describe items which will be improved at this time.)

- forced air space heater
- conventional brood heater
- direct-drive exhaust fan
- other (write in)

quantity and capacity (BTU/hr, cfm, etc.):
 type and manufacturer:
 quantity and capacity (BTU/hr, cfm, etc.):

Description of New Heaters, Fans, Etc.

Provide specification sheet to producer and discuss.

- (Circle items as appropriate.)
- radiant tubes
- radiant ovals
- radiant quads
- radiant brooders
- ceiling fans
- basket fans
- exhaust (tunnel) fans
- automatic controller
- other (write in)

quantity and capacity (BTU/hr, cfm, etc.):
 type and manufacturer:
 quantity and capacity (BTU/hr, cfm, etc.):

Producer and Contract No.

Location and ID of Poultry House

Use PLSS to within 40 ac. GPS coordinates or attach map.

United States Department of Agriculture
 Natural Resource Conservation Service

CPS374 Farmstead Energy Improvement Jobsheet
 Poultry House Heat and Ventilation

Front

Revision: 2014/07/18

Width: _____ (ft) Length: _____ (ft)

Area: _____ (sf)

FEATURE MEASURE:
RADIANT HEAT CAPACITY
IN 1000 BTU/HR

Checkout Actions

Radiant Heaters

- 1) Review the recommendations of the energy audit and/or requirements of the integrator for the number and size or total capacity of radiant heaters.
- 2) Review the practice specifications.
- 3) Verify the rated output of the heaters from model plate, packaging, or product information sheets.
- 4) Determine the total capacity of heaters and record at right.
- 5) Determine the average capacity per square foot for the whole house and separately for the brood chamber. The typical order of magnitude is 40 to 70 btu/hr-sf

Whole House:

Brood End:

Tunnel Exhaust Fans

- 1) Review recommendations of energy audit and/or written requirements of integrator for the number and size or total capacity of tunnel fans.
- 2) Review the practice specifications.
- 3) Verify that new fans meet minimum efficiency requirements. This is the cfm output per Watt electricity used: _____ cfm/Watt.
- 4) Count number of new fans installed and record at right.

FEATURE MEASURE:
NUMBER OF FANS

Circulation Fans

- 1) Review the recommendations of the energy audit and/or requirements of the integrator for the number and size.
- 2) Review the practice specifications.
- 3) Count the number of fans installed and record at right.

FEATURE MEASURE:
NUMBER OF FANS

Automatic Controller System

- 1) Review the recommendations of the energy audit.
- 2) Review the practice specifications.
- 3) Verify that the controller panel(s) is stably mounted, will operate, and will operate the controlled sub-systems. Controlled sub-systems, wiring, breaker switches, etc. must be installed and functional.
- 4) List the sub-systems controlled:

FEATURE MEASURE:
NUMBER OF CONTROLLERS

NOTE that while sub-systems may have backup (or fail-safe) controls, a production unit (ie., a broiler house) can only have one automatic integrated controller system.

Checkout

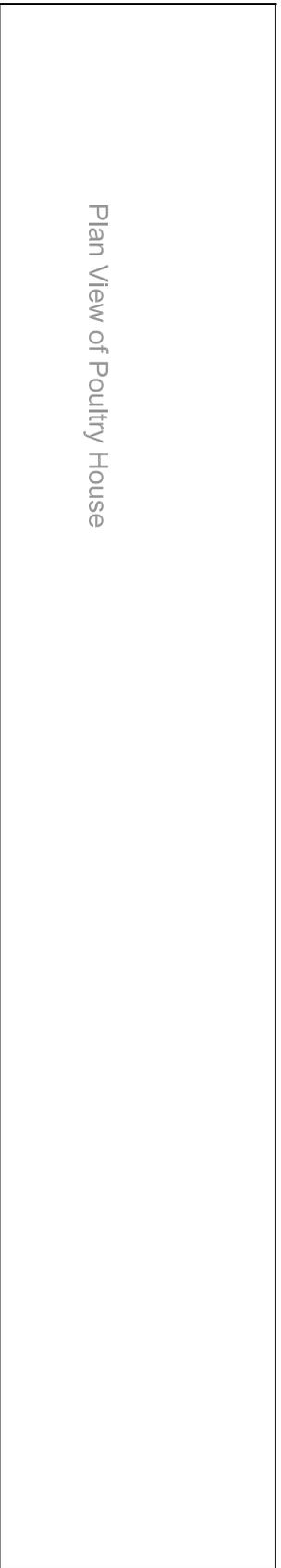
Pictures are recommended to supplement the documentation of installations.

I certify that I have visually confirmed on-site that the conservation energy improvement(s) was installed and that the improvement(s) meets NRCS minimum specifications. I have examined invoices for the materials purchased and work performed and filed copies in the participant case file.

Authorized NRCS Agent

Date

Lighting Diagram: Draw in simple lines to illustrate rows of lights, and label as row 1, row 2, etc. Or, where needed, draw circles or rectangles to indicate individual fixtures. Be sure to provide specifications sheet to producer and discuss.



Plan View of Poultry House

Existing Lighting System								
Row	Dim mting	Type	Qty	Approx Spacing	Bulbs per Fixture	Typical Lumens per Bulb	Type of Controls	Additional Information
Row 1								
Row 2								
Row 3								
Row 4								

New Lighting System								
Row	Dim ming	Type	Qty	Approx Spacing	Bulbs per Fixture	Typical Lumens per Bulb	Type of Controls	Additional Information
Row 1								
Row 2								
Row 3								
Row 4								

General Notes for Lighting Tables

Dimming: Yes or No (Y/N)
 Type: Incandescent (INC), CFL, LED, linear fluorescent (LF-T12, LF-T8, LF-T5), etc.
 Efficacy - is the amount (lumens) of visible light produced per Watt of electricity burned.
 Bulbs per Fixture: Most fixture types use only one bulb. Some such as linear fluorescent use two or more.
 Lumens per Bulb: For old lights, estimate based on efficacy multiplied by bulb Wattage. Typical efficacies: 15 lm/W for incandescent, 50 lm/W for CFL, 55 lm/W for LED.
 For new bulbs, do not estimate, instead get value from packaging.
 Type of Controls: manual switches, clock timers (for lights only), whole-house integrated controllers (controls all systems), etc.

Producer and Contract No.

Location and ID of Poultry House

Use PLSS to within 40 ac, GPS coordinates, or attach map.

United States Department of Agriculture
Natural Resource Conservation Service

CPS374 Farmstead Energy Improvement Jobsheet Front
 Poultry House Lighting

Revision: 2014/07/18

Width: _____ (ft) Length: _____ (ft)

Area: _____ (sf)

Checkout Actions

LED or CFL Bulbs

- 1) Review the recommendations of the energy audit report and/or the requirements of the integrator for the number and size of light bulbs.
- 2) Review the practice specifications.
- 3) Verify that bulbs meet minimum specifications, most importantly efficacy (the lumens per Watt), from packaging or product information sheets.

- 4) Verify that the lighting controls can dim the bulbs, if bulbs are installed on dimming circuits.
- 5) Count the number of bulbs installed and record at right.

FEATURE MEASURE:
NUMBER OF BULBS

Linear Fluorescent

- 1) Review the recommendations of the energy audit report for the number and size of light fixtures and bulbs.
- 2) Review the practice specifications.
- 3) Verify that fixtures and bulbs are T5 or T8, the ballast type is electronic, and the verify the bulb length.
- 4) Count the number of new fixtures installed and record at right.

FEATURE MEASURE:
NUMBER OF BULBS

Checkout

Pictures are recommended to supplement the documentation of installations.

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Authorized NRCS Agent

Date

Plan view of farm or facility. Indicate old equipment and planned location of new equipment. Indicate length, width, and area of buildings.

Plan view of farm or facility.

Replacement or conversion of an engine has a special jobsheet available.

Describe Old Equipment

include manufacturer, model, capacity, quantity, etc.

Describe New Equipment

include manufacturer, model, capacity, quantity, etc.

Producer and Contract No.

Location and ID of Poultry House

Use PLSS to within 40 ac, GPS coordinates or attach map.

United States Department of Agriculture
Natural Resource Conservation Service

CPS374 Farmstead Energy Improvement Jobsheet
General Applications

Front

Revision: 2014/07/18

Width: _____ (ft) Length: _____ (ft)

Area: _____ (sf)

Checkout Actions

Checkout

Pictures are recommended to supplement the documentation of installations.

I certify that I have visually confirmed on-site that the conservation energy improvement(s) was installed and that the improvement(s) meets NRCS minimum specifications. I have examined invoices for the materials purchased and work performed and filed copies in the participant case file.

Authorized NRCS Agent

Date

GreenFiber Brand Loose Fill Cellulose Insulation

R-Value	Minimum Thickness		Max Coverage SF per bag	In-Place Volume CF per bag	Installed Depth in	Minimum Bags, no framing House Size, 1000 SF		
	Installed	Settled				1	16	20
	in	in				bags	bags	bags
R13	4.1	3.7	55.4	18.9	4.1	18.0	288	360
R15	4.7	4.3	47.4	18.6	4.7	21.2	339	424
R17	5.3	4.8	41.2	18.2	5.3	24.4	390	488
R19	5.9	5.4	36.2	17.8	5.9	27.6	442	552
R22	6.9	6.2	30.7	17.7	6.9	32.6	522	652
R25	7.8	7.0	26.6	17.3	7.8	37.6	602	752
R30	9.3	8.4	21.7	16.8	9.3	46.1	738	922

Normal Bag Weight of 22.55 lb/bag

For checkout, we are concerned about Installed Depth.

Note that as desired thickness of insulation increases, the installed density of the insulation increases because the insulation compacts on itself.

CertainTeed Brand Fiber Glass Insulation

R-Value	Minimum Thickness		Max Coverage SF per bag	In-Place Volume CF per bag	Installed Depth in	Minimum Bags, no framing House Size, 1000 SF		
	Installed	Settled				1	16	20
	in	in				bags	bags	bags
R11	4.5	4.5	190.5	71.4	4.5	5.3	85	106
R13	5.3	5.3	161.7	70.7	5.3	6.2	99	124
R15	6.1	6.1	138.6	70.3	6.1	7.2	116	145
R17	6.9	6.9	121.1	69.8	6.9	8.3	132	165
R19	7.8	7.8	107.4	69.4	7.8	9.3	149	186
R22	8.8	8.8	92.9	67.7	8.8	10.8	173	216
R26	10.3	10.3	77.9	66.5	10.3	12.8	205	256
R30	11.8	11.8	67.1	65.7	11.8	14.9	238	298

Nominal Bag Weight of 31 lb/bag

For checkout, we are concerned about Installed Depth.

Note that as desired thickness of insulation increases, the installed density of the insulation increases because the insulation compacts on itself.

For other types of insulation, other R-values, or thickness, a Design and Checkout Calculator has been prepared. See eFOTG or call your engineer.

Revised: 2014/07/08

Attic Insulation Calculator

Producer

Location and Id of Poultry House

Interpolate In-Place Volume from Manufacturer Tables

R-Value	Minimum Thickness in	Max Coverage SF per bag	In-Place Volume CF per bag
13	4.1	55.4	18.9
15	4.7	47.4	18.6
19	5.9	36.2	17.8

*Use unsettled (as-installed) values.

Get these values from chart

Enter design R-value

Get these values from chart

Design and Checkout Numbers

Width ft	Length ft	Area SF	Design Amount bags	Amount Installed bags	Approximate Depth in
40	500	20000	422	430	4.8

Notes

Look for this Attic Insulation Calculator if the pre-calculated tables do not meet your needs.

374 – Farmstead Energy Improvement Job Sheet for Engine Replacement or Conversion

Identification of Systems

Existing Combustion System

picture of S/N plate attached

Make & Model _____ Year of Initial Service _____

S/N _____ Model Codes _____

Purpose of engine has been to power: pumping plant, dryer fan, or other (briefly describe) (circle one)

Principle location of power unit (use PLSS to within 40 ac, GPS coordinates to within 50 ft, or attach map)

Method of Improvement

(circle one)

re-power of pumping plant, dryer fan, tractor, off-road vehicle, or mechanized tool

conversion to electric motor

New Combustion System or Electric Motor

picture of S/N plate attached

Make & Model _____ Mfg Date _____

S/N _____ Model Codes _____

EPA TIER Class _____ Rated Power (@1800 rpm) _____

Note: It is appropriate, and necessary for many installations, to attach design sheets from CPS 533 Pumping Plant.

Improvement in Energy Efficiency and/or Emissions (to meet CPS 372)

Energy Usage of Existing Combustion System

average hourly fuel usage (gal/hr, kW, or cu.ft.)	annual hours of use (two/three year average is permissible)

Annual Fuel Energy Use in BTUs (see NEH650 (EFH), Ch. 20 for energy content of fuels)

multiply fuel usage x hours of use x fuel energy content

Energy Usage of New Combustion System or Electric Motor

average hourly fuel usage (gal/hr, kW, or cu.ft.)	annual hours of use (two/three year average is permissible)

Annual Fuel Energy Use in BTUs (see NEH650 EFH, Ch. 20 for energy content of fuels)

multiply fuel usage x hours of use x fuel energy content

Reduction in Annual Energy Use

Change in Annual Energy Use (in BTUs) and Affirm whether change is an increase or decrease.

Percentage change (divide above value of change by annual energy use of **existing** system)

Pumping Plant Performance (to meet CPS 533)

Explain or document how new system meets Nebraska Pumping Plant criteria

Disablement of Existing System

Key Actions:

- Dispose of engine fluids (properly)
- Acquire view-filled pictures of each side of power unit before and after disablement (total of 4 pics)
- Crush entire engine or create 6-inch hole in oil pan rail
- Store on-farm or deliver to commercial recycler (obtain signature of recycler agent)

I certify that the engine identified above (in Existing) was permanently disabled on _____ (date), by method of:

Creation of a 6-inch minimum hole in block, to include a portion of the oil pan rail (sealing surface)

Crushing of the entire engine.

Subsequently, the engine was:

Stored on-farm at _____
(use PLSS to within 40 ac, GPS coordinates to within 50 ft, or attach map)

Delivered to commercial recycler: _____

The participant understands that the disabled engine or a receipt from the recycler, with the following certification and signature of recycler agent, must be kept on-hand for three years.

I further certify that no component parts were or will be parted-out, sold as parts, or used in any way to rebuild other engines, with the exception of the following parts on power units: starter battery, alternator, trailer or transport frame, radiator, gages and throttle controls, and PTO clutch.

Owner or Authorized Agent of Ultimate Disposition

Date

Checkout

I certify that all plans and specifications have been met for the application of this conservation practice standard, including examination of the installation, required documents and pictures.

Authorized NRCS Agent

Date