



Date: February 13, 2015

**Report for the period thru February 15, 2015
Submitted to
Department of Business and Professional Regulations
Office of Codes and Standards**

Grantee Name:	University of Central Florida/Florida Solar Energy Center		
Grantee Address:	1679 Clearlake Road, Cocoa, FL 32922		
Grantee's Grant Manager:	Jeffrey K. Sonne	<i>Telephone No.</i>	321-638-1406
Reporting Period:	Through February 15, 2015 (Interim)		
Project Number and Title:	Investigation of the Effectiveness and Failure Rates of Whole-house Mechanical Ventilation Systems in Florida		
<p><i>Provide a summary of Project accomplishments to date. (Include comparison of actual accomplishments to the objectives established for the period. If goals were not met provide reasons why.</i></p> <p><u>Project Overview</u></p> <p>The purpose of this research project is to investigate the effectiveness and failure rates of whole-house mechanical ventilation systems installed in Florida homes over the last 15 years and seek to determine the reason(s) for any issues identified.</p> <p>The study will be conducted in 20 homes around the state that had mechanical ventilation systems installed and include:</p> <ul style="list-style-type: none"> • A homeowner survey for each home to assess awareness of the ventilation system and its purpose and maintenance practices • Inspection and testing of each home's ventilation system to assess its operational status, level of ventilation it is currently providing and likely reason(s) for any issue discovered. 			



The outcome of this research will be a report detailing project activities and ventilation system effectiveness and failure findings. Recommendations based on the research results will also be made to help provide direction for future Florida Code airtightness and ventilation requirements and whole-house ventilation education in the state.

Interim Progress Report

Work on the project to this point has included fulfilling all Institutional Review Board (IRB) requirements, developing necessary study documents and materials and initial homeowner outreach. Specific tasks have included:

- Project PI and other key staff completed required IRB Human Subjects research courses and registration
- Developed IRB-approved homeowner recruiting postcard (see Appendix)
- Created postcard mailing address list from Florida Energy Rating registrations database—a total of 937 addresses were collected
- Developed IRB-approved 27-question Homeowner Survey
- Submitted study materials for IRB review (study approved January 26, 2015 as Exempt Human Research)
- Developed project web page (see Appendix)
- Developed “Incoming Phone Call Guide” to be used to screen potential participants
- Developed Homeowner Agreement (approved by UCF February 6, 2015)
- Created project teams, including participant scheduling and home visit teams
- Postcard mailing
- Developed draft testing protocol (see Appendix).

Postcards were mailed out on February 11th to the 937 addresses gathered from the Energy Rating registration database. While the Rating database includes many additional addresses that may have whole-house ventilation systems, to better target appropriate homes the addresses used for the mailing were limited to homes that have a mechanical ventilation system capable of meeting energy code in terms of system type (so runtime ventilation without controller/minimum on-time was not included).

Most Energy Rating registrations in the state have occurred over the past two years. To try to make sure that older homes are well represented, if response from homeowners in older homes is low, these homes will also be contacted by phone. A second postcard mailing will be made by early March, if necessary.

A scheduling team will collect contact and additional qualification information from perspective homeowners who respond to the postcard (based on the February 11th mailing date, we expect to start getting response calls shortly). The team will then send Homeowner Agreements to selected homeowners. It is anticipated that house visits will begin the first week in March and continue through mid-April. *As noted above, a homeowner survey has already been completed*

and a ventilation test procedure is now being finalized in preparation for these visits (draft test procedure attached).

Data analysis, final report writing and development of any recommendations is planned for the end of April through May.

Deliverables Update

Deliverable #1 Interim Report

Completed with submission of this February 13, 2015 Interim Report.

Deliverable #2 Final Report

Due June 1, 2015.

A. Provide an update on the estimated time for completion of the project and an explanation for any anticipated delays.

No delays in meeting deliverable due dates are anticipated at this time.

B. Provide any additional pertinent information including, when appropriate, analysis and explanation of cost overruns or high unit cost

No cost overruns are anticipated.

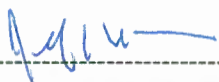
C. Identify below, and attach copies of, any relevant work products being submitted for the project for this reporting period (e.g. report data sets, links to on-line photographs, etc.)

See progress report and attachments.

D. Hours and budget update

Not available at this time.

This report is submitted in accordance with the reporting requirements of Work Authorization for \$45,000 dated November 3, 2014.



Signature of the Grantee's Grant Manager
Jeffrey K. Sonne

February 13, 2015

Date

APPENDIX

Homeowner Recruiting Postcard

Ventilation Study Web Page

Draft Test Protocol

HOMEOWNERS:

Participate in an energy research study,
conducted by FSEC at the University of Central Florida,
and earn \$150 for participating!

Participation involves taking a 15-minute
survey, and allowing FSEC to test your
ventilation system's performance.

For more information,
call 321-638-1422 or visit
www.fsec.ucf.edu/go/ventstudy

UCF



Stands For Opportunity

Don't miss out!

BLDG-55-R3



FLORIDA SOLAR ENERGY CENTER

Creating Energy Independence



RESEARCH

| CONSUMER | EDUCATION | **RESEARCH** |

| TESTING & CERTIFICATION |

Home > Research > Buildings > Vent Study

WANTED:

Florida homeowners to participate in a home ventilation study conducted by the Florida Solar Energy Center (FSEC), a research institute of the [University of Central Florida](#).

What is this study about?

FSEC is conducting a study funded by the [Florida Department of Business and Professional Regulation](#) to learn about the performance of home ventilation systems installed in the state over the past 15 years.

What does participating involve?

Participation involves taking a 15-minute survey and allowing us to test your ventilation system's performance. The total visit should take less than three hours.

Why should I sign up?

Testing your ventilation system would allow us to confirm if your system is operating properly and inform you about the results. You'll also receive a \$150 participation incentive.

Does my home qualify for the study?

If you received this postcard we believe your home qualifies for the study:




Home ventilation system outdoor air intake grille under roof eave (intakes can also be found in other locations).

HOMEOWNERS:

Participate in an energy research study, conducted by FSEC at the University of Central Florida, and earn \$150 for participating!

Participation involves taking a 15-minute survey, and allowing FSEC to test your ventilation system's performance

For more information, call 321-638-1422 or visit www.fsec.ucf.edu/go/ventstudy

UCF  **Stands For Opportunity**

Don't miss out!

If you haven't received the postcard, you may still qualify for the study if you have a single family Florida home that has a whole-house ventilation system with a control that turns the system on and off on a regular basis.

To find out more or sign up for the study, contact Cookie Cook at 321-638-1422 or e-mail at cookie@fsec.ucf.edu.

[Privacy Policy](#) | [Terms and Conditions](#) | [Legal Notices](#)

© 2007-2014 University of Central Florida. The Florida Solar Energy Center (FSEC) is a research institute of the University of Central Florida.

For more information about FSEC, please [contact us](#) or [learn more about us](#).

Find us on [Facebook!](#)



DRAFT DBPR VENTILATION STUDY TESTING PROTOCOL

Address _____

Test Date _____

- Record ventilation system make and model _____
- Record ventilation system type (e.g. exhaust only, supply only, balance w/ or w/o ERV, HRV)

- Diagram ventilation system (separate sheet). Note which portions that are within the thermal and air barrier of home. Done
- Record and photograph ventilation system component location(s) _____

 - Photos taken
- Record how the ventilation system is controlled (e.g. remote control, wall panel) _____

- Determine if air flow balancing damper is present and note setting (approx.. % open) _____

- Record vent system interior duct diameter or cross sectional area _____
- Note type and thickness of vent duct system insulation if any _____
- Record ventilation system operational status / control setting (on, off, disconnected, deactivated, timer setting, ventilation rate setting, etc.) _____

- Record and photograph filter location and condition _____

 - Filter photo(s) taken
- Tested as-found airflow rate(s) _____

-
- Test method _____
 - Testing photo(s) taken
 - Measure in wrt out dP with:
 - No HVAC on _____
 - Only house mech.vent system on (may require turning central ducted system on if no independent mech . vent fan) _____
 - Mech vent system on + all central ducted cooling systems _____
 - Mech vent system on + all central ducted cooling system+ all bath and kitchen exhausts _____
 - Record any testing problems _____
 - Record any ventilation system issues discovered and likely reasons for them (e.g. missing insulation, potential pollution sources near air intake, poorly installed or disconnected ducts, unbalanced HRV or ERV) _____

 - Is there evidence of occupant adjustments to the system or flow rates _____

 - Other observations / notes _____

 - VENTILATION SYSTEM FILTERS AND SETTINGS LEFT AS INITIALLY FOUND DONE

[This section is not part of testing protocol, but provides guidance on potential vent system flow rate measurement methods.]

Potential tools: small flow hoods (FlowBlaster), Solomat hot wire and vane anemometers, tracer gas and gas analyzer.

OA intake at soffit area ducted through attic and into central ducted system return plenum

Use low flow FlowBlaster (limit to under 300cfm) at OA intake grille.

If intake/discharge grilles cannot be accessed:

Could use tracer gas OA fraction measurement technique once with OA intake open and second measurement with OA closed (may have inline damper).

OR pitot tube traverse in duct.

Powered fan OA with grille at outside soffit area, side wall or through roof and then ducted to some indoor location(s) terminating either into central duct system or at one or more grilles. This system

could be either an exhaust or supply air system depending upon the installation of the OA fan.

Use FlowBlaster at intake grille outside if safely accessible. Use FlowBlaster at indoor grilles if accessible. (Do both indoor and outdoor measurements if possible).

Do not walk on ceramic tile roof to measure through roof intake / discharge.

Exhaust fan pulling from one or more intake locations

Use low flow FlowBlaster (limit to under 300cfm) at OA each intake grille. If more than one ducted exhaust vent system, identify each intake grille for each system.

ERV

Measure flow at intake and discharge grilles.