

# EnergyGauge USA 6.0.00

## Release Notes

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The latest release of EnergyGauge USA, Version 6.0.00 includes 2017 Florida Building Code, Energy Conservation, 6<sup>th</sup> Edition performance code and bug fixes.

### KEY FEATURES ADDED

- Florida Building Code 6<sup>th</sup> Edition (2017) Energy Conservation performance calculation implemented
- Added mechanical ventilation option of "RuntimeVent w backup" that models a supply side runtime ventilation system when cooling/heating system is on and a supply/exhaust or balanced fan when cooling/heating system is not on.
- Updated software to allow extensive entries of walls and systems for large houses with multiple spaces.
- ENERGY STAR Rev. 09 changes have been implemented (Rater versions).
- Manual S Procedure has been expanded (SizePro versions).
- Sped up the save, calculation and load ENB functions.
- Sped up the hourly report generation.
- Smart ventilation features expanded.
- Added database version on Help -> About.

### WINDOWS VERSIONS SUPPORTED

*Windows Vista, Windows 7, Windows 8, Windows 8.1 or Windows 10.*

### GENERAL BUG FIXES/ENHANCEMENTS

- Check for available updates no longer causes an error message when an internet connection is unavailable.
- Summary screens following calculations brought to front (In some cases they were hidden)
- Program now populates duct tightness results, if entered, on duct leakage test reports printed from EnergyGauge.
- Title of message associated with "total of wall, window and door area seem small" was changed from an error to a warning.
- Title of message associated with "total window area seems large" has been changed from an error to a warning.
- The window screening on the Window page is now enabled in all versions of software and does not require Parameters and Schedules to be enabled.

- Highly efficient tankless water heater calculation limit has been fixed and may result in minor change of result.
- Removed non ascii characters that might be entered or come with file import to reduce calculation/reporting or rater registration issues.
- Test Date on Infiltration page is now enabled after selecting Clear Date.
- Interior walls should no longer cause a file to crash.
- Changing building status will not cause a project to be deleted.
- Improved error checking when entering a mechanical ventilation system.
- Window orientation error should not display after changing the building orientation and then saving file.
- Range Check error should not display when viewing reports after calculating FL Code and other calculations for additions.
- The term "Location" on the lighting screen no longer partially obscured by selection field.
- Added through 2018 to "year of construction" selection.
- Removed "Number of Bathrooms" from Input Summary Report as entry had already been removed.
- Additions no longer require AC SEER input for None (Baseline Assumed).
- Add error checking for all lighting, fans and appliances during calculation that verifies name of each space exists on the spaces page. Avoids error that might occur if space was deleted after selecting it.
- Added an error check for doors assigned to interior walls.
- Added error checking for negative area in garage ceiling under unconditioned space field
- Updated labels on input summary form.
- Added error check limiting the depth below grade of walls.
- Added error checking if the multiple heating/cooling box is selected that there are entries in the multiple system entry form.
- Calculation error when different duct systems were assigned to heating and cooling was fixed.
- Limited the Tested Coil Airflow significant digits
- Input summary includes impact column for windows.
- Fixed a bug giving erroneous results for homes with multiple mechanical ventilation systems.
- Fixed a bug regarding the project query on the search screen.
- Project screen label "model" no longer obscured by other data.
- Fixed database verification error user received.
- Utility cost data was updated.
- Pennsylvania average utility selection no longer causes Energy Gauge to freeze.

## FLORIDA CODE CHANGES AND OTHER FEATURES

Anticipated code changes in 2017 that may impact result relative to 2014.

2017 Florida Building Code, Energy Conservation, 6<sup>th</sup> Edition effective date Dec. 31, 2017.

Component	2014 FEC	2017 FEC	Anticipated Effect
Reference Skylight	None	Included	Less Stringent (if applicable)
Reference Air Exchange Rate	7 ACH50 (post 2016 Supplement)	7 ACH50	No Impact from EGUSA version 5.003
Proposed House Thermal Distribution System Efficiency (untested)	DSE = 0.88	$Q_{n_{out}}=0.080$ (now leakage level specified instead of DSE)	Impact between codes will vary based on roof/attic configuration, duct location, -on some houses no changes, on others may be more or less stringent (applicable to all non-tested duct systems)
Reference glazing (window) area for multifamily projects	0.56 "Backstop"	0.80 "Backstop"	Less Stringent (if applicable)
Reference Gas Furnace Efficiency	0.78 EF	0.80 EF	More Stringent (if applicable)

- 2017 Performance code available in this version, ERI and prescriptive coming soon.
- Worst Case Summary under reports no longer displays an error if selected after running FL Code 2014 Performance calculation.
- Set the FL Code 2014 Std Ref SEER to 12 when a user building has a small duct high velocity system and set the FL Code 2014 Std Ref heat pump HSPF to 7.7 when a user building has a small duct high velocity system.
- Skylight with zero tilt should not cause a window orientation error on rotation of building and running FL Code calculation.
- FL Code prescriptive path 402 should pass when Proposed Leak Free duct leakage is selected
- An unvented attic should pass FL Code 2014 prescriptive if the roof deck is insulated to the mandatory value.
- Fixed error where FL Code 2014 calculation would crash with concrete roof and framing fraction of 0.00.
- Change error message on FL Code calculation to require proposed ACH50.
- IECC climate zone removed from detailed input summary and R405 Input summary reports; Florida climate zone remains in header of report.
- Florida additions corrected to use  $Q_{n_{Total}}$  as the duct leakage requirement.
- Removed choice of "Alternative (new)" from hot water selections for additions.
- When selecting heating system of type heat pump and subtype "single" requires an HSPF of 8.0, not 8.2.

## IECC CODE CHANGES AND OTHER FEATURES

- Climate zone is now included on IECC reports.
- Added a default DHW for IECC calculations if one is not entered and displays a message to user. "No hot water system entered, a default one will be entered for the required calculation (OK, Cancel)."
- 2009 IECC requirement for unconditioned basement walls should pass with insulation on walls or floor. It was only passing with insulation on floors. This should also be allowed for ENERGY STAR.
- Removed Heat Trap/Insulation from IECC 2015 Reference home.
- IECC 2015 - R-Value menu item was missing the closing bracket after (402

## HOURLY REPORTS

- Fixed bug related to selecting natural gas for heating on hourly report generator.
- Speed of creating hourly report greatly increased.

## SMART VENTILATION (for annual simulation calculations only)

- Changed name from Ventilation Override to Smart Ventilation
- Smart ventilation changed to "none" during HERS or code calculations (No change from earlier)
- This feature now allows the user to choose from four different procedures for calculating the smart ventilation energy use including direct entry of fan wattage at different ventilation rates
- Bar charts on smart ventilation page show when system will turn on or off
- Preset entries specific for each type of control system by selecting the plus button.
- No need to enter total fan capacity for smart ventilation.

## HERS RATERS CHANGES AND OTHER FEATURES (Rater versions)

- ENERGY STAR Rev. 09 changes have been implemented
  - SAF is eliminated from Energy Star 3.1 calculations,
  - Gas furnace AFUE is 0.80 for reference in Climate Zone 3 ,
  - Reference tankless gas water heater should be 50 gallon gas
  - Reference home 0% efficient lighting in exterior and garage.
- ENERGY STAR - IECC 2009 now allows unconditioned basement walls or floor over the basement to be insulated on Total UA calculation.
- HERS Rated home now uses the same clothes washer as the reference home if there is no clothes washer entered. It was set to default new clothes washer which was better than the reference home which uses a 2006 model. The effect of this change is considerably greater dryer energy use if there is no clothes washer entered. This increases the HERS index for homes without clothes washer entries.
- Removed message on loading project that the entry is being set to HERS2014.
- Exposed floor area XXX compared to ceiling area XXX violates RESNET limit should not display if they are in range.

- RFIIN/RTIN is now displayed on verifier page on project site tab.
- Input summary will not show incandescent as light bulb type based on qualified fixtures.
- Add an error check for a hot water system for HERS calculation. The message could be ignorable.
- Modified the ENERGY STAR Compliance Check to allow for ASHRAE 62.2 2010 or 2013.
- Updated RESNET Disclosure form to one amended on 3/20/17.
- Add a duct system with DSE of 0.80 to the rated home if cooling and/or heating are missing.
- Unconditioned basements had double lighting loads, this has been fixed.
- HERS Reference home should always have lighting in main space, there were instances where it was not.
- Change Input Summary title to Display Rated Design Summary Report when the HERS Rated Home is viewed. Also added a signature page on the last page.
- Change Input Summary title to Display Reference Design Summary Report when the HERS Reference Home is viewed. Also add a signature page on the last page.
- Crash on calculation due to incorrect duct size entry has been fixed.
- HERS Summary report accounts for mechanical ventilation energy as separate from heating and cooling [This may impact HERS index for homes with mechanical ventilation systems].

## HERS REGISTRATION SYSTEM RELATED (some of these changes already implemented)

- A space at the beginning or end of the project title or address or rater name in the RGU should no longer result in audit with cause.
- Replacing of pdf files with updated ones should not delete files if project does not complete registration process.
- Added error check to ensure Verifier Name and/or Verifier Task are not empty.
- Error checking added for saving rgu files with non ascii characters.
- Disabled the manual entry of the ENERGY STAR version from the create RGU process. This has caused the registration to fail RESNET upload if it is not entered correctly.

## MANUAL S (SizePro versions)

Manual S entry and reporting features are now more detailed. The software allows you to enter specific equipment and save that equipment for further home entries. Once completing the Energy Gauge Manual J calculation (step 1) the software guides you through the remaining four steps (steps 2 -5 below). See the software HELP system for more information.

- STEP 1: Determine heating and cooling loads for each room in the building
- STEP 2: Estimate Airflow Temperatures
- STEP 3: Enter the AHRI Heating and Cooling Equipment information for this project
- STEP 4: AHRI Heating and Cooling Capacities and Efficiencies at AHRI Test Conditions
- STEP 5: Original Equipment Manufacturer's (OEM) Specifications at Design Conditions