

Wrightsoft response to FSEC comments. 5/25/18

Comments on Wrightsoft R406 software

Comment #1

Wrightsoft seems to calculate ERI as a field labeled as e-ratio. It appears to be an e-ratio of just heating cooling and water heating. There should also be appliances and lighting. I see nowhere what the lighting and appliance energy use is. Can't verify any outputs on spreadsheets without that.

Wrightsoft:

The calculated ERI includes lighting and appliance (L&A) energy use. This is seen when making changes to L&A. This is also seen in the HERS method results spreadsheet. We will change the results dialog to include the L&A energy use. We will make the displayed ERI more prominent and not expressed as an e-Ratio. We can also add dialogs for end use loads (EULs) and internal gains for proposed and reference building to allow additional verification.

Comment #2

I also notice that the R406 screen does not offer the mechanical ventilation tab indicated in the instruction manual.

Wrightsoft:

The software will be updated to address mechanical ventilation, which was omitted from the compliance screen for Florida R406.

Comment #3

Florida 406 - ERI-L1000-01

Right-Energy® Florida 2017 R406

Compliance Summary

| | Proposed | | | Reference | | |
|----------------|----------------|----------------|-------------------|----------------|----------------|-------------------|
| | Load (MBtu/yr) | Fuel (MBtu/yr) | Electricity (kWh) | Load (MBtu/yr) | Fuel (MBtu/yr) | Electricity (kWh) |
| Heating energy | 2.29 | 0.00 | 207.83 | 2.17 | 0.00 | 294.21 |
| Heating fan | | | 29.52 | | | 31.06 |
| Cooling energy | 25.41 | | 1519.78 | 37.45 | | 3208.69 |
| Cooling fan | | | 289.38 | | | 560.37 |
| DHW | 5.72 | 0.00 | 478.76 | 6.26 | 0.00 | 2042.42 |
| Total | 33.43 | 0.00 | 2525.27 | 45.89 | 0.00 | 6136.74 |

Project name: ERI-L1000-01-a
Run date: 05/23/2018 13:24:25

PASS

| | Prop. | Ref. | e-Ratio |
|---------|-------|-------|--------------|
| Heating | 1.59 | 2.17 | 0.730 |
| Cooling | 17.98 | 37.45 | 0.480 |
| DHW | 1.47 | 6.26 | 0.234 |
| Total | 21.03 | 45.89 | 0.573 |

PDF

OK Cancel

Ventilation: MJ8

Heating (cfm)

Cooling (cfm)

Multiple issues with the reference home report generated:

1. Heating system has HSPF of 8.5 instead of 7.7
2. Cooling system has SEER 16.0 instead of SEER 13.0
3. Air Source Heat Pump (EF 3.2) selected for hot water system for 50 gallon system? Standard 301 formula yields an EF of 0.904
4. Ducts percent leakage 6.00 and Qn of 0? Standard 301 calls for DSE of 0.80
5. Temperature should be 68 and 78 for ERI method, not 72 and 75
6. Should not have programmable thermostat
7. There may be others

If this is the reference home they use, then they are not correct. If isn't the reference home they use then how does one get the data needed to verify their test results?

Wrightsoft:

The reference home report was incorrectly referencing the proposed building; this is why it matches the rated home report. This will be fixed to correctly reference the reference building.

The project can be saved as a reference building, which allows inspection of the reference building.

| HEATING SYSTEM | | | | | | | | | | | | | | |
|----------------------------|----------------------------|------------------------------------|---------------------|--------------|--------------------|--------------|---------------|--------------|-----------------|-----------|-----------|------------|------------|----|
| # | System Type | | | Subtype | Efficiency | Capacity | Block | Ducts | | | | | | |
| 1 | Split air source heat pump | | | | HSPF: 8.5 | 24.0 kBtu/hr | 1 | sys#1 | | | | | | |
| COOLING SYSTEM | | | | | | | | | | | | | | |
| # | System Type | | | Subtype | Efficiency | Capacity | Air Flow | SHR | Block | Ducts | | | | |
| 1 | Split air source heat pump | | | | SEER: 16.0 | 24.0 kBtu/hr | 258 cfm | 0.70 | 1 | sys#1 | | | | |
| HOT WATER SYSTEM | | | | | | | | | | | | | | |
| # | System Type | | Subtype | Location | EF | Volume | SetPnt | Conservation | | | | | | |
| 1 | Air source heat pump | | | | 3.20 | 50 gal | 60 gal | 125 °F | None | | | | | |
| DUCTS | | | | | | | | | | | | | | |
| # | Location | Supply R-Value | Area | Location | Return Area | Leakage Type | Air Handler | CFM25 Out | Percent Leakage | QN | RLF | HVAC# Heat | HVAC# Cool | |
| 1 | Entire House | 6.0 | 385 ft ² | Entire House | 77 ft ² | Proposed Qn | Entire House | 0.0 cfm | 6.00 | 0.00 | 0.00 | 1 | 1 | |
| TEMPERATURES | | | | | | | | | | | | | | |
| Programmable Thermostat: Y | | | | | | | Ceiling Fans: | | | | | | | |
| Cooling | [X] Jan | [X] Feb | [X] Mar | [X] Apr | [X] May | [X] Jun | [X] Jul | [X] Aug | [X] Sep | [X] Oct | [X] Nov | [X] Dec | | |
| Heating | [X] Jan | [X] Feb | [X] Mar | [X] Apr | [X] May | [X] Jun | [X] Jul | [X] Aug | [X] Sep | [X] Oct | [X] Nov | [X] Dec | | |
| Venting | [X] Jan | [X] Feb | [X] Mar | [X] Apr | [X] May | [X] Jun | [X] Jul | [X] Aug | [X] Sep | [X] Oct | [X] Nov | [X] Dec | | |
| Thermostat Schedule: | | Florida Building Code, 6th Edition | | | | | | | | | | | | |
| Schedule Type | | (2017) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Cooling (WD) | | AM | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| | | PM | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Cooling (WEH) | | AM | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| | | PM | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Heating (WD) | | AM | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| | | PM | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| Heating (WEH) | | AM | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| | | PM | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |

Comment #4

It appears that Wrightsoft may not be including appliance energy use. I see no output for appliances in the rated or reference homes. There is no output on the ERI pie chart for lighting and appliances.

Wrightsoft:

We are including L&A energy use in the ERI. We will add L&A to the ERI pie chart.

The sample reports in the 2017 TAM do not specify L&A in the rated or reference homes. We attempted to match the TAM, which was authored by FSEC, but now FSEC produces a different report, we will update our software to be consistent. We understand the TAM is not requirement, and unfortunately the reports in the TAM are misleading as they were not reproduced by the TAM's author.

Comment #5

There appears to be no way to do a HERS auto Gen test in the software provided for sites outside of Florida. The software vendor is to provide that ability for verifying test results. When I try to run Autogen test #4 it won't let me as it is a location outside of Florida. Yet there are results in the spreadsheet. How does one reproduce and verify those results?

Wrightsoft:

We submitted our software for Florida code compliance, which is limited to Florida. The weather location can be changed to Florida. We can update your license to include our Right-Energy HERS module (approved by RESNET), which would allow you to run HERS ERI and HERS Auto Gen tests.

Comment #6

Without a way to reproduce the results we did no further testing.

Wrightsoft:

FSEC requested licenses on 5/22 and 5/23 with comments due on 5/23, so no further testing may have also been related to getting a late start with reviewing our software. Thanks for the comments.