RESNET®
RESIDENTIAL ENERGY SERVICES NETWORK

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2019 QAD Roundtable

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Presentation Agenda

- Key Standard Amendments
  - File QA
  - Multiple Addenda to ANSI 301-2014
- Observations/Clarifications
  - Raters using Multiple Providers
  - EIA Utility Costs
- Lessons learned from Field Observations

ANSI/RESNET Standard Dates

Transition Period

The period of time beginning on the Effective Date, during which an amendment shall be **allowed,** but not required, to be used for any Dwelling Unit or Sleeping Unit.

Transition Period End Date

The date that concludes the Transition Period. An amendment shall be **required** to be used for a Dwelling Unit or Sleeping Unit whose Building Permit Date is after this date.

Minimum Requirements: File QA Reviews

- Current Reference to QA Data File Leaves the Requirement Dependent on a Definition Elsewhere in the Standards
- Addendum 36: Define requirements for File QA Review
  - Proposal Under Revision Due to Addendum N/Appendix B
  - Revised Proposal Could be Completed by 3/31/2018
  - Next Steps:
    - Send to SDG 00
    - Public Comment Period Later in 2019

Minimum Requirements: File QA Reviews

- Field Photos
  - Elevations
  - Mechanical Nameplates
  - Building Assemblies
- Plans
- Field Inspection Forms

ANSI 301-2014 Multiple Addenda

- Effective Now (can be used)
- Transition Period End Date is July 1, 2019 (must be used for homes permitted after this date)
- Blog Link http://www.resnet.us/blog/resnet-standards-update-resnet-ansi-approved-addenda-f-l-and-n-and-resnet-approved-minhers-addendum-39/
- (Note Addendum 39 is also included here because like the others, it addresses an issue now that is also addressed in the 2019 update of ANSI 301)

ANSI 301: Addendum N

- Replaces On-site Inspection Procedures From Appendix A of MINHERS
- Adds Photo and other specific documentation requirements
- Expanded to include Procedures for Multi-unit Buildings

ANSI 301: Addendum F

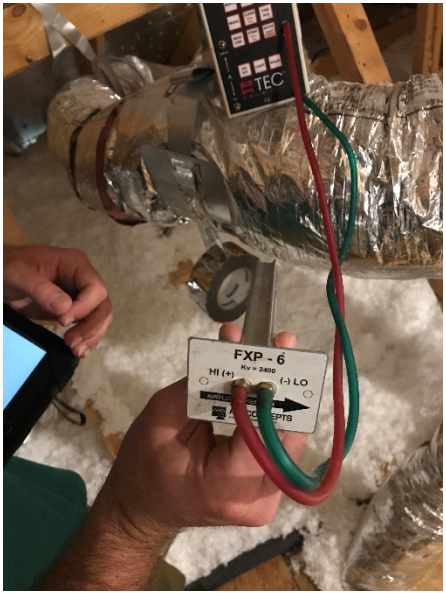
- Replaces Insulation Grading from Appendix A of MINHERS
- Adds New Grading for:
  - SIPS
  - SPF(open/closed cell)
  - Radiant Barriers
  - Insulated Sheathing

ANSI 301: Addendum L

- Revises Duct LTO Exception
  - Criteria Broader
  - HERS Reference Home Comparison Changed

MINHERS Addendum 39

- Interim solutions for:
  - MV Airflow that cannot be measured
  - MV Wattage that cannot be determined



Three's Company: 1 Rater, 2 Providers

Scenario 1: Rater Switches Providers

- Formal Interpretation 2013-02 Covers QA Responsibilities when a rater switches from one Provider to another.
  - Each Provider is responsible for completing QA to RESNET required levels for all rating work completed by the Rater under their Providership (i.e. 1% field and 10% file review).
- http://www.resnet.us/standards/Board_Interpretation_on_QA_Responsibilities_When_Rater_Changes_Provider.pdf

Scenario 2: Rater Uses Multiple Providers Concurrently

- Each Provider is responsible for completing QA to RESNET required levels for all rating work completed by the Rater under their Providership (i.e. 1% field and 10% file review).

Utility Costs

Utility Costs

Detailed State Data

Final annual data for 2017
Release Date: October 12, 2018
Next Release Date: November 2019
Re-released: January 15, 2019 Revision/Corrections

Electric Power
Release date: J
Next release da

Annual data		format
1990 - 2017	Net Generation by State by Type of Producer by Energy Source (EIA-906, EIA-920, and EIA-923)[1]	XLS
1990 - 2017	Fossil Fuel Consumption for Electricity Generation by Year, Industry Type and State (EIA-906, EIA-920, and EIA-923)[2]	XLS
1990 - 2017	Existing Nameplate and Net Summer Capacity by Energy Source, Producer Type and State (EIA-860)[1, 3]	XLS
2018 - 2022	Proposed Nameplate and Net Summer Capacity by Year, Energy Source, and State (EIA-860)[1]	XLS
1990 - 2017	U.S. Electric Power Industry Estimated Emissions by State (EIA-767, EIA-906, EIA-920, and EIA-923)[4]	XLS
1990 - 2017	Average Price by State by Provider (EIA-861)[5]	XLS
1990 - 2017	Number of Retail Customers by State by Sector (EIA-861)[5]	XLS
1990 - 2017	Retail Sales of Electricity by State by Sector by Provider (EIA-861)[5]	XLS
1990 - 2017	Revenue from Retail Sales of Electricity by State by Sector by Provider (EIA-861)[5]	XLS

Monthly data	
2001 - Present	N E
2001 - Present	F G

See also:
Electric Pov
Electric Pov
Electric Sal
Electricity s
Electric Pov

https://www.eia.gov/electricity/data/state/

Utility Costs

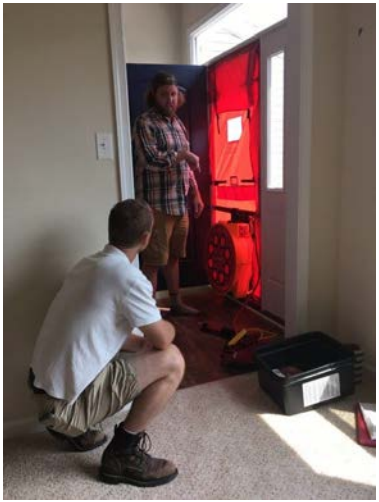
A3 | 2017

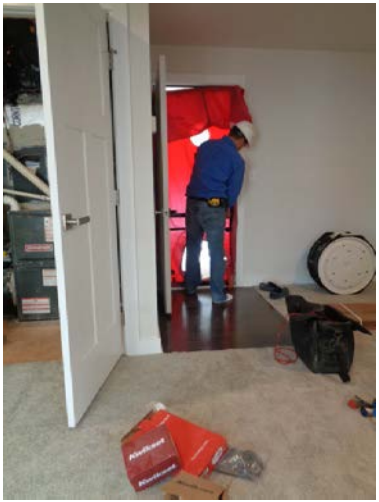
	A	B	C	D	E	F
1	Average Price (Cents/kilowatthour) by State by Provider, 1990-2017					
2	Year	State	Industry Sector Category	Residential	Commercial	Industrial
3	2017	AK	Total Electric Industry	21.27	18.89	16.34
4	2017	AL	Total Electric Industry	12.55	11.60	6.16
5	2017	AR	Total Electric Industry	10.28	8.51	6.07
6	2017	AZ	Total Electric Industry	12.44	10.50	6.45
7	2017	CA	Total Electric Industry	18.31	15.76	12.73
8	2017	CO	Total Electric Industry	12.17	9.89	7.50
9	2017	CT	Total Electric Industry	20.29	16.06	13.10
10	2017	DC	Total Electric Industry	12.94	11.66	8.23
11	2017	DE	Total Electric Industry	13.35	9.89	7.78
12	2017	FL	Total Electric Industry	11.61	9.35	7.83
13	2017	GA	Total Electric Industry	11.90	10.09	5.96
14	2017	HI	Total Electric Industry	29.50	26.77	22.92
15	2017	IA	Total Electric Industry	12.34	9.46	6.21
16	2017	ID	Total Electric Industry	10.04	7.98	6.66
17	2017	IL	Total Electric Industry	12.95	9.09	6.47
18	2017	IN	Total Electric Industry	12.29	10.54	7.54
19	2017	KS	Total Electric Industry	13.31	10.59	7.54
20	2017	KY	Total Electric Industry	10.85	9.85	5.72
21	2017	LA	Total Electric Industry	9.74	8.95	5.48
22	2017	MA	Total Electric Industry	20.06	15.94	13.88
23	2017	MD	Total Electric Industry	13.96	10.75	8.37
24	2017	ME	Total Electric Industry	15.97	12.12	9.20

https://www.eia.gov/electricity/data/state/

Best Practices

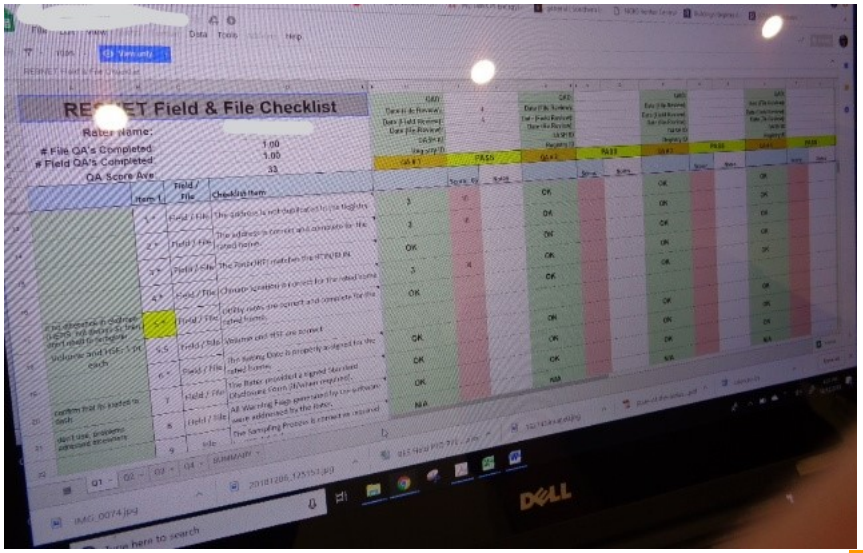
- Combination of ridealong redo QA and blind QA





Best Practices

- Using RESNET *Field QA Checklist*
  - And adding columns per home to follow field raters'/RFIs' trends



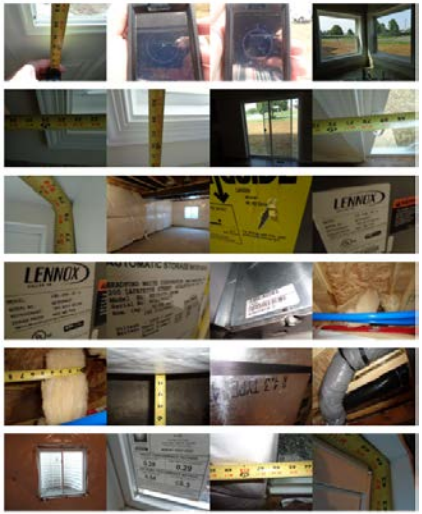
Best Practices

- Predrywall QA
  - Above and beyond the required # of final QA

Best Practices

- Full side by side comparison report with detailed QA notes and photos
- Regular calls or meetings with raters/RFIs to communicate QA issues

	Eae 555	Eae 626	point to 62
Heating Equipment Efficiency	93 AFUE	93 AFUE	OK
Heating Equipment Location	Conditioned area	Conditioned area	OK
Cooling Equipment Capacity	24.00 MMBtu	22.4 OUT	AHRI 8726589 No Change in HERS Index
Cooling EquipmentEfficiency	13 SEER	13 SEER	OK
Cooling Equipment Location	Conditioned area	Conditioned area	OK
Heat Pump - Pump Energy	N/A	N/A	
Heat Pump Energy Units	N/A	N/A	
DHW Capacity	50	50	OK
DHW Efficiency	0.93	0.91	UEF of 0.92 & EF of 0.91 AHRI 20009410 No Change in HERS Index
DHW Location	Conditioned area	Conditioned area	OK
DHW Type	Domestic water heating only	Domestic water heating only	OK
Mechanical Ventilation (MV) System Type	Exhaust Only	Exhaust Only	OK
MV Flow	56	71	20% Difference No change in HERS Index
MV Hrs/Day	24	24	OK
MV Wattage	13.6	Unknown	
Clothes Washer LER/kWh	704	Not installed	OK
Clothes Dryer EF	2.62	Not installed	OK
Clothes Dryer Fuel	Electric	Not installed	OK
Lighting % Efficient	87.5% Interior 100% Exterior 66% Garage	87.5% Interior 100% Exterior 80% Garage	Int = 21/24 = 87.5 Ext = 7/7 Gar = 2/3 66%
Dishwasher kWh/yr	270	Not installed	
Dishwasher EF	0	Not installed	
Refrigerator kWh/yr	709	Not installed	
Ceiling Fan cfm/watt	0	N/A	
Ceiling Type:	Area: 1354; 1354		
	R-Value: 30; 38		13" average of blown fg
Ceiling Type: Attic hatch	Area: 6.5		
	R-Value: 30	30	8" Panel Foam No Change in Index
Window Orientation: East	Area: 135.0	127	All Good
Window Orientation: South	Area: 9.0	9	
Window Orientation: West	Area: 154.0	150	



Best Practices

- Good practices to share with Raters/RFIs
  - At preinsulation inspections, spray painting seams and gaps
  - Selfie stick for taking photos of hard to reach items (lights, HVAC, etc.)
  - Mark up failure items on electronic plans to communicate to builders

Areas for Improvement

- Verify all minimum rated features available at final.
  - Inspect attic insulation, observe rater verifying MRFs (if ridealong)

Areas for Improvement

- Annual report of rater/RFI errors
  - minor “attention to detail” items that QADs discusses with rater, but does not include in the report to RESNET.
  - “pass, pass, pass”: perfect work or rubber stamping?
  - Continual improvement of quality of ratings

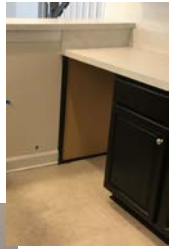
File Review Date	Field Review Date	Findings
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
2/12/2017		Pass
12/15/2016	12/15/2016	Pass
12/15/2016	12/15/2016	Pass
12/15/2016	12/15/2016	Pass
12/14/2016	12/14/2016	Pass
12/14/2016	12/14/2016	Pass
12/14/2016	12/14/2016	Pass
12/19/2016		Pass
12/19/2016		Pass
12/19/2016		Pass
12/19/2016		Pass

Areas for Improvement

- Correct Modeling of Lighting and Appliances (when not installed at final)
- ANSI 301-2014 4.2.2.5.2.8
  - either look up specs for installed unit or use the default
- If appliance is not installed at final, RESNET Standards state that appliance be modeled with the RESNET Default

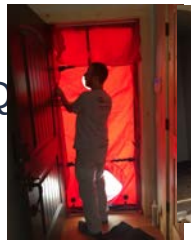


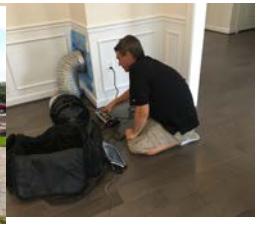




Areas for Improvement

- More blind QA
- More ridealong redo QA





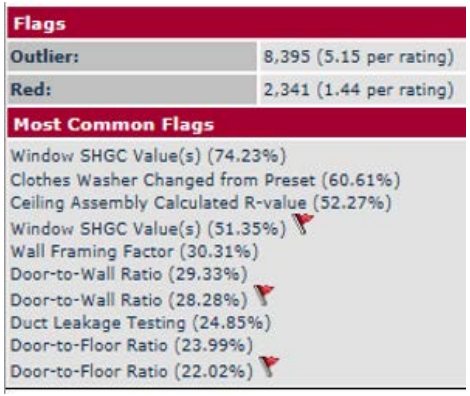
- TDL at rough instead of LTO at final; QAD can not QA duct testing
  - Need rough duct QA in these cases (will count as QA in 30)

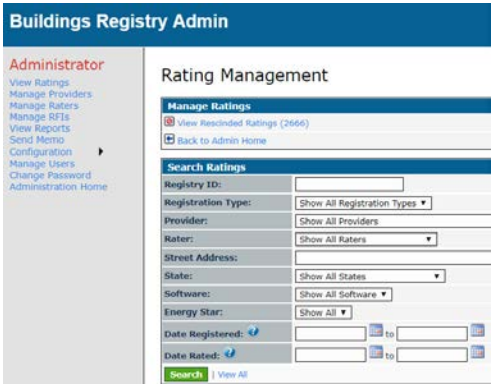

Observations & Follow Up

- Leveling the playing field goes in every direction; working to level the playing fields

Observations & Follow Up

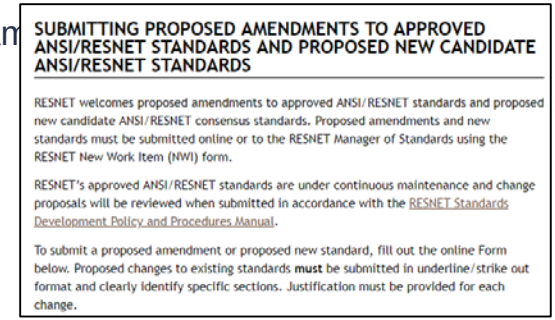
- Issues with QAG and modeling software; working with QAG to correct/adjust flags
- Issues with one modeling software when downloaded from the RESNET Registry; working with our IT folks and software vendor to remedy





Observations & Follow Up

- Standard Amendment proposal submitted:
  - Implementation issues with new ventilation testing. Needed guidance for untestable systems and where fan watts are not available
  - Needed more clear language on what supporting documentation to collect
  - Guidance on criteria for advanced fram



SUBMITTING PROPOSED AMENDMENTS TO APPROVED ANSI/RESNET STANDARDS AND PROPOSED NEW CANDIDATE ANSI/RESNET STANDARDS

RESNET welcomes proposed amendments to approved ANSI/RESNET standards and proposed new candidate ANSI/RESNET consensus standards. Proposed amendments and new standards must be submitted online or to the RESNET Manager of Standards using the RESNET New Work Item (NWI) form.

RESNET's approved ANSI/RESNET standards are under continuous maintenance and change proposals will be reviewed when submitted in accordance with the RESNET Standards Development Policy and Procedures Manual.

To submit a proposed amendment or proposed new standard, fill out the online Form below. Proposed changes to existing standards **must** be submitted in underline/strike out format and clearly identify specific sections. Justification must be provided for each change.

- Local codes and program requirements sometimes contradict RESNET standard; working with implementers to find way for rater to satisfy both

What RESNET QA Will Do Better

- Regular QA Genie reports to Providers/QADs to better inform your QA efforts.
- Inform QADs more completely about agenda and priorities in advance of these field observations and phone calls.
- Reports/action plans out sooner after field observation (while still fresh).

What RESNET QA Will Do Better

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Date Range:	to
Total Ratings:	31,200
Registration Type(s):	Confirmed Rating (21771 ratings) Sampled Rating (9429 ratings)
Home Type(s):	Single-Family (19930 ratings) Low-rise Multi-family (9085 ratings) Duplex (2185 ratings)
Climate Zone(s):	4A - Mixed - Humid (16932 ratings) 3A - Warm - Humid (14158 ratings) 5A - Cool - Humid (110 ratings)
Software(s):	RemRate (24763 ratings) Ekotrope (6437 ratings)

Flags	
Outlier:	91,080 (2.92 per rating)
Red:	6,031 (0.19 per rating)

Most Common Flags

Ratings in One Day (51.54%)
Clothes Washer Changed from Preset (30.76%)
Rating registered 30+ days after rated date (17.59%)
Ceiling Assembly Calculated R-value (16.77%)
Window Orientations (15.93%)
Mechanical Equipment Set to Default EAE (14.36%)
Blower Door Infiltration (13.88%)
Window Interior Shading (11.44%)
Estimate Return Duct Surface Area (10.53%)
Water Heater EF (10.27%)

Q&A

Thank you!

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