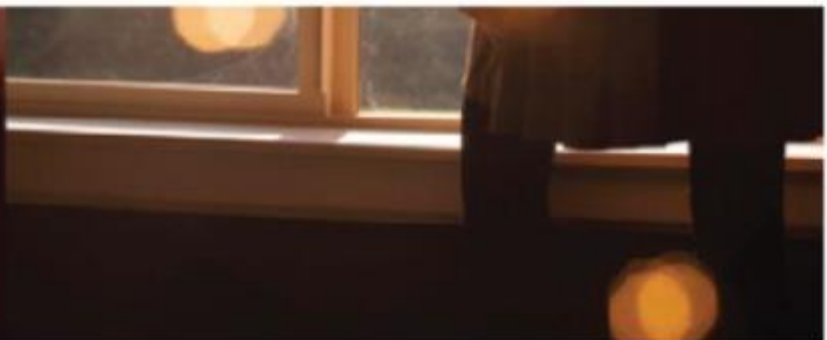


EXPANDING THE TOOLBOX

STRATEGIES FOR SUCCESSFUL RATERS

Neil Grigsby, NEEA | October 16, 2013





NORTHWEST 101

WHO IS NEEA?

Northwest Energy Efficiency Alliance (NEEA) is a non-profit org. using the market power of the region to accelerate the innovation and adoption of energy-efficient products, services and practices.

NEEA is supported by & collaborates with the Bonneville Power Administration, Energy Trust of Oregon and 100+ Northwest utilities.



NORTHWEST 101

PROGRAM GOAL

Drive market adoption of energy-efficient homes in new construction.

MARKET SNAPSHOT

22,000 Certified single-family homes since 2005

1,020 Multifamily homes

161 Builders

37 Rating organizations

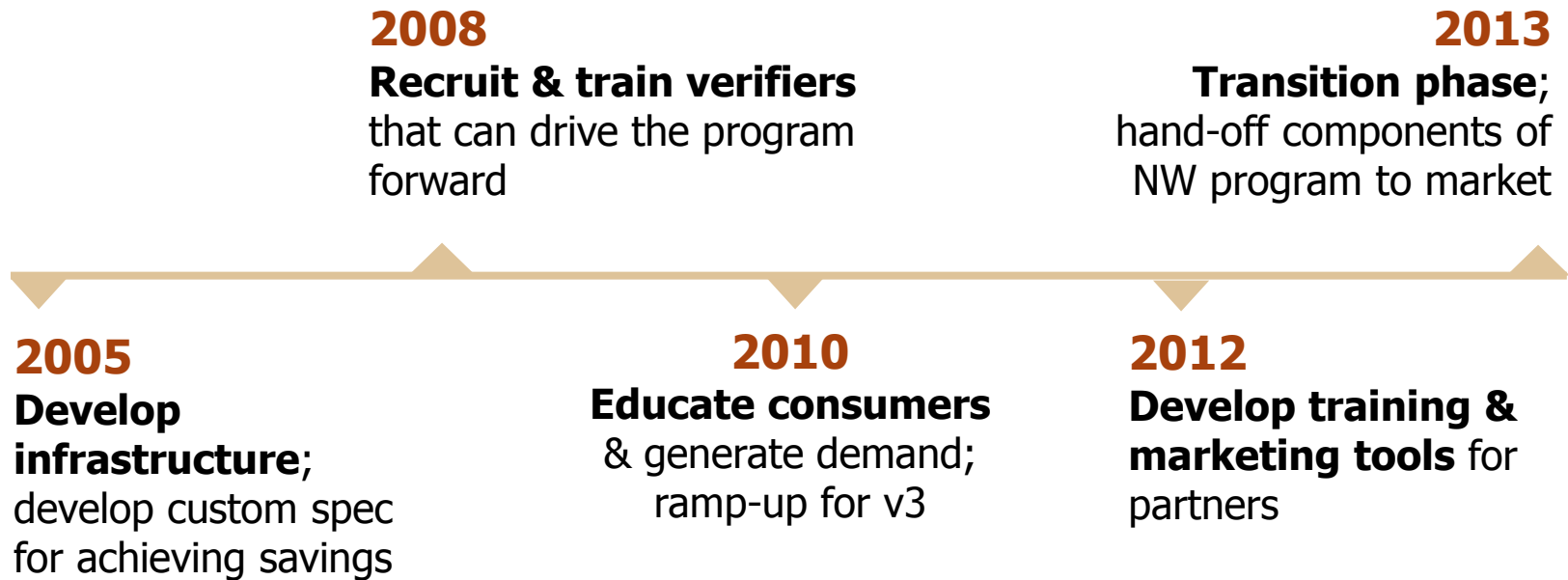




NORTHWEST 101

Be more at home.

PROGRAM PROGRESSION



WHAT WE'RE UP AGAINST

- Lack of incentives for builders
- Code & technical requirements more stringent in NW
- Inadequate recouped cost for upgrades
- Version 3, particularly HVAC
- Decrease in builder participation
- Transition to new data tracking system
- Provider model shifting to open market
- Transition to Performance Path model

2012-2013 VERIFIER STRATEGY

MARKET TRANSFORMATION

As NEEA looks forward to advanced building products and practices that will help shape the industry 10+ years from now, it is **handing off greater responsibility for the success and continued implementation of ENERGY STAR** to its Verifiers and Raters, including:

- Technical support
- Market development
- Training



2012-2013 VERIFIER STRATEGY

ALIGNMENT WITH NATIONAL PROGRAM MODEL

- Open-market Providers under RESNET purview
- Online Partner Agreements signed with EPA
- Access to EPA resources

**Committed to Building
100% ENERGY STAR**

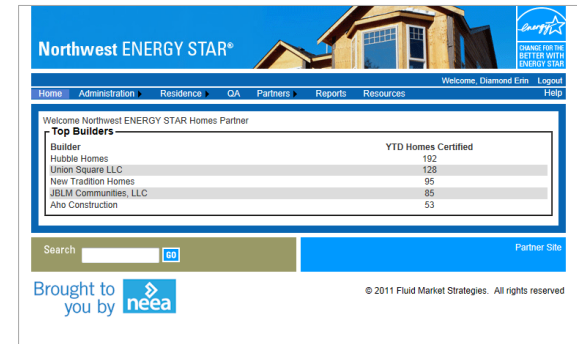


DATABASE TRANSITION

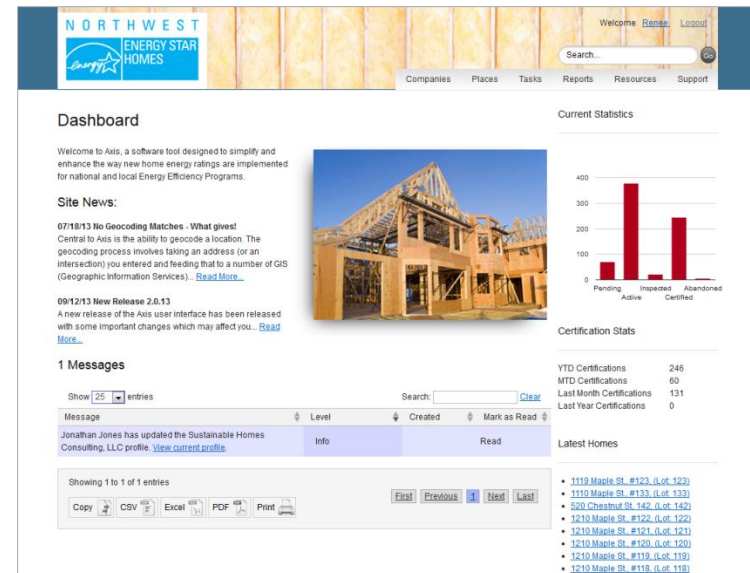
Adapted to better support:

- V3 requirements
- More granular data
- Evolving technologies
- Open-market Providership

Then



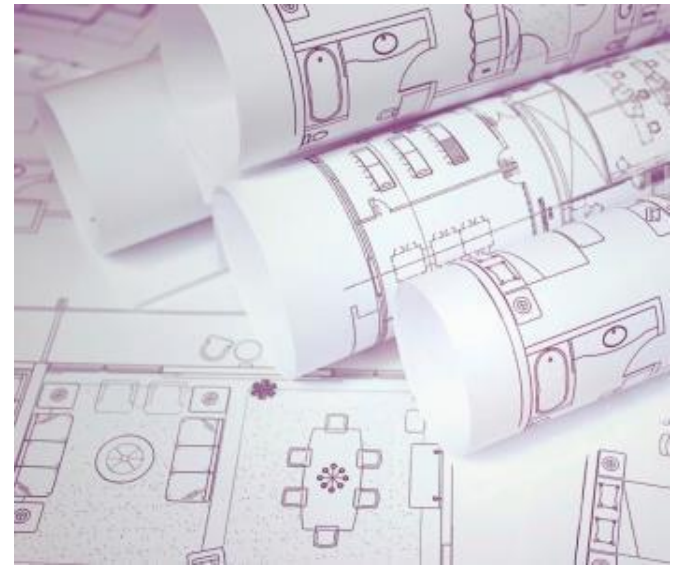
Now



INFRASTRUCTURE CHANGES

TRANSITION TO NORTHWEST PERFORMANCE PATH

- Relieves the administrative burden of trade-offs, code changes
- Increases builder flexibility
- Provides validated energy savings





INFRASTRUCTURE CHANGES

NORTHWEST REM/*RATE*TM

The problem:

- The Regional Technical Forum (RTF) won't accept savings on HERS Scores
- They use a tool they feel is more accurate to our climate & region

The solution:

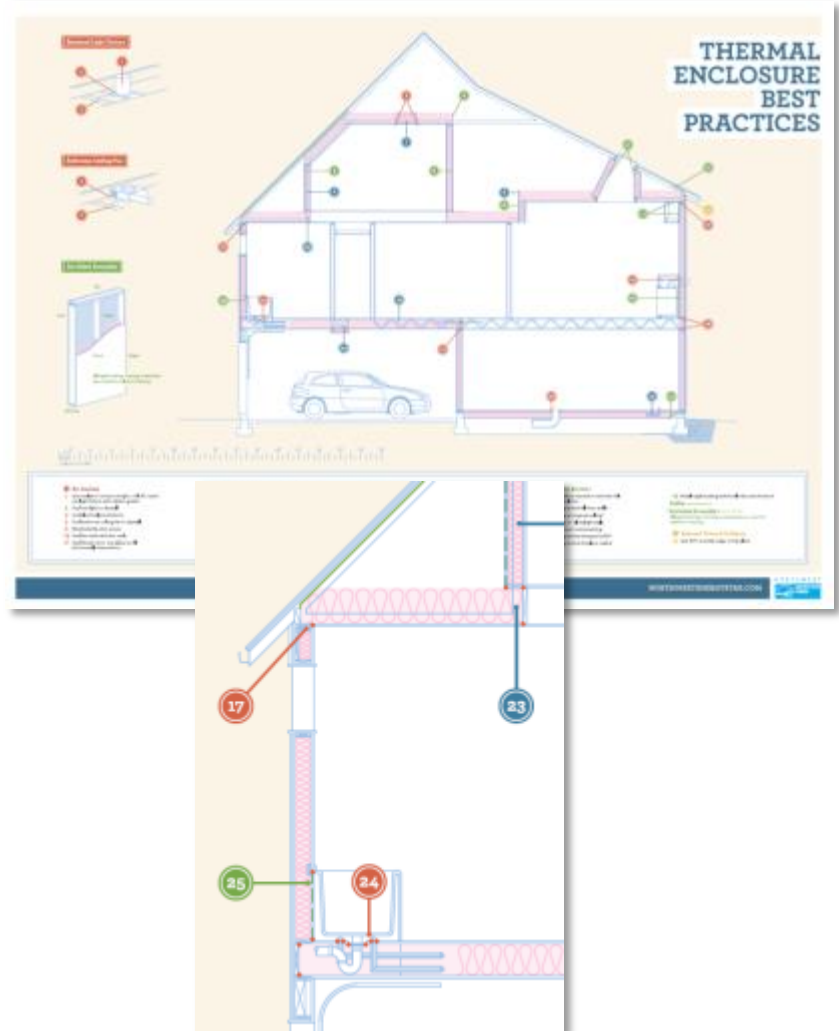
- Northwest REM/*Rate*TM can produce equivalent results

TECHNICAL TOOLS



THERMAL ENCLOSURE BEST PRACTICES POSTER

A weatherproof construction site poster that details thermal enclosure best practices for meeting the program checklists and ensuring a tight envelope.



ASHRAE WALLET CARDS

The fold-up infiltration credit look-up table is an HVAC contractor tool that eliminates the need for complex formulas or use of bulky manuals in the field.

How to use the Infiltration Credit tables

1. First, in the tables below, locate the nearest region to the home along the left column. Slide your finger across the row until it falls under the correct number of stories above grade (top row). This is the N-factor for the region where the home is located.

OREGON	STORIES ABOVE GRADE					WASHINGTON	STORIES ABOVE GRADE				
	1	1.5	2	2.5	3		1	1.5	2	2.5	3
Astoria	23.2	20.5	18.8	17.6	16.7	Olympia	25.6	22.6	20.8	19.4	18.4
Medford	29.4	26.0	23.9	22.3	21.1	Seattle	23.2	20.5	18.8	17.6	16.7
North Bend	21.9	19.4	17.6	16.6	16.3	Spokane	23.2	20.5	18.8	17.6	16.7
Portland	25.9	22.9	21.0	19.7	18.4	Yakima	24.3	21.5	19.7	18.5	17.5
Redmond	24.4	21.8	20.0	18.7	17.7						

2. Rounding to the nearest N-factor (where N = 16, 18, 20, 22 or 24), find the ASHRAE 62.2 Infiltration Credit table that is labeled in the upper left hand corner with the N-factor you identified.
3. Find the home's square footage along the top row of the table (grey).

4. Find the home's measured CFM.
5. Starting at the correct CFM, the correct square footage. Apply this credit when calculating.

Applied Example

2250 sq. ft. home; N-factor = 24

1. The minimum ventilation requirement is 2.5 CFM/ft².
2. Using the infiltration credit table, the infiltration credit is 2.1 CFM/ft².
3. The infiltration credit of 2.1 requirement (52.5 CFM-21).
4. 31.5 CFM is the home's corrected CFM (ASHRAE 62.2-2010).



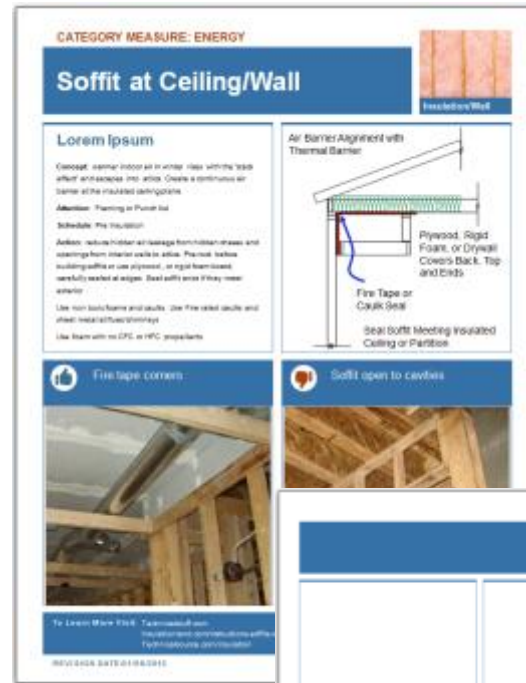
N=24	CONDITIONED FLOOR AREA OF HOME (ft ²)															
	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250
500	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
750	11	8	6	5	4	3	2	1	0	0	0	0	0	0	0	0
1000	16	13	11	9	8	7	6	5	4	3	2	1	0	0	0	0
1250	21	19	16	14	11	9	8	7	6	5	4	3	2	1	0	0
1500	26	24	21	19	16	14	11	9	8	7	6	5	4	3	2	1
1750	31	29	26	24	21	19	16	14	11	9	8	7	6	5	4	3
2000	37	34	32	29	27	24	22	19	17	14	12	9	7	6	5	4
2250	43	39	37	34	32	29	27	24	22	19	17	14	12	9	7	6
2500	49	45	42	40	37	35	32	30	27	25	22	20	17	15	12	10
2750	53	50	47	45	42	40	37	35	32	30	27	25	22	20	17	15
3000	58	55	52	50	48	45	43	40	38	35	32	30	27	25	22	20
3250	63	60	57	55	53	50	48	45	43	40	38	35	32	30	27	25
3500	68	65	62	60	58	55	53	50	48	45	43	40	38	35	32	30
3750	73	70	68	66	63	61	58	56	53	51	48	46	43	41	38	36
4000	78	76	73	71	68	66	63	61	58	56	53	51	48	46	43	41
4250	83	81	79	76	74	71	69	66	64	61	59	56	54	51	49	46
4500	89	86	84	81	79	76	74	71	69	66	64	61	59	56	54	51
4750	94	91	89	86	84	81	79	76	74	71	69	66	64	61	59	56
5000	99	97	94	92	89	87	84	82	79	77	74	72	69	67	64	62

Values determined on the basis of ASHRAE infiltration (2001) (CFM)

TECHNICAL TOOLS

TECHNICAL DETAILS TEMPLATES

Customizable and pre-formatted templates to help Raters create best practices and technical tools, positioning themselves as a subject matter experts to their builders.



<http://basc.pnnl.gov/>

TECHNICAL TOOLS

FREQUENTLY ASKED QUESTIONS RESOURCE GUIDE

A quick-reference guide for common technical questions in the NW. Developed to reduce program calls for tech support and put answers in the hands of Raters.



MARKET DEVELOPMENT TOOLS



MARKET DEVELOPMENT TOOLS

NORTHWEST ENERGY STAR HOMES 101

A presentation deck developed to help Raters explain and sell the Northwest program to prospective builders.

HOME ENERGY BILL BREAK-DOWN

Average home energy consumption:

Space Heating	31%
Appliances, Electronics, Other	26%
Cooling	12%
Water Heating	12%
Refrigeration	8%
Lighting	11%

Source: <http://www.eia.doe.gov/country/country.cfm>

A BRIEF HISTORY

- 1992**: EPA introduces the first ENERGY STAR qualified product line, personal computers & monitors.
- 1995**: EPA launches ENERGY STAR certified new homes that are more efficient than the energy code.
- 1996**: DOE joins the team in with the intro of household appliance labeling.
- 2002**: More than 100,000 new homes have earned the ENERGY STAR label nationwide.
- 2009**: Certified homes surpass 1M mark; 17% of all homes nationwide.

Saving enough energy to power more than **20 million** homes. Removing the emissions equivalent to those from **25 million** vehicles. Helping save Americans **\$14 billion**.

PROGRAM FEATURES

WHOLE HOUSE APPROACH

- 1 Windows & Doors
- 2 Tight Construction
- 3 Improved Insulation
- 4 Appliances & Lighting
- 5 Water Heating & Fixtures
- 6 HVAC Equipment

MARKET DEVELOPMENT TOOLS

PROGRAM TECHNICAL OVERVIEW

Illustrates program technical requirements and the house-as-a-system approach.

STANDARDS

High-Performance Heating & Cooling Systems
High-performance heating and cooling systems can reduce heating and cooling energy costs by up to 30 percent. For strong ENERGY STAR certified equipment, look for the ENERGY STAR label. Features ENERGY STAR certified furnaces, boilers or air conditioners, heat pumps, water heaters, and hot water circulation systems. All components of the system must be properly sized, installed and maintained.

Efficient Appliances & Lighting
ENERGY STAR certified appliances and lighting products feature the latest technology and have been performance tested to ensure they are energy efficient. Look for the ENERGY STAR label. Features ENERGY STAR certified built-in appliances, along with ENERGY STAR built-in and freestanding refrigerators, washers and dryers.

High-Efficiency Water Heating Equipment
According to the EPA, water heating represents approximately 20 percent of residential energy consumption. Water-heating equipment in ENERGY STAR homes meets high-efficiency standards, guaranteeing the water is heated and stored with less energy use and equipment that will last longer.

Performance Testing & Quality Assurance
For each ENERGY STAR home, a performance-based test is conducted to ensure that each home will perform at optimal levels for general durability and better maintenance. An outdoor-level blower door test is used to measure air leakage, and a building envelope test is conducted for each ENERGY STAR home. This test can help you determine if you have the ENERGY STAR seal.

Moisture Management
Because ENERGY STAR certified homes require a tight, sealed and well-ventilated envelope, moisture can cause mold and mildew. Features include moisture-resistant materials, proper ventilation, and moisture-resistant materials. These materials reduce mold and mildew growth, improve indoor air quality, and protect the health of the home's occupants.

DUCTLESS HEAT PUMPS

Benefits to builders, and homeowners, for going ductless in new residential construction.

GO DUCTLESS IN NEW CONSTRUCTION
A Cost-Effective Solution for the Whole Home

WHY DUCTLESS WORKS
Ductless heating and cooling systems offer the following building and selling benefits:

Lowers Your Design and Testing Costs

- Eliminates ductwork that can interfere with plumbing and wiring and unnecessarily fill space in the home, including in attics and between floors.
- Reduces design time and eliminates the need for Performance Tested Comfort System™ (PTCS) commissioning, duct testing or pressure balancing.

Provides a Whole-Home Energy-Efficient Solution

- Ensures properly sized equipment to meet the heating and cooling demands of the home.
- Provides energy-efficient heating and cooling solutions, resulting in greater monthly energy savings.

Reduces Homeowner Callbacks

- Cuts homeowner maintenance time and repair costs.
- Delivers clean indoor air with easy-to-clean filters that capture dust and other air pollutants.

Allow each room with an installed unit to be controlled independently, delivering air when and where it's needed.

For more information or to find a qualified contractor:
1-800-339-6268
northwestenergy.com/partners/home-builders

How It Works
Ductless heating and cooling systems utilize heat pump technology to distribute conditioned air, quietly and efficiently, heating and cooling your rooms without the need for complicated ductwork.

How It Works

- Ductless Unit
- Electrical Power & Control Cable
- Mounted Indoor Unit
- Remote Control

MULTIFAMILY SPECIFICATION

To help recruit low-rise multifamily builders/developers to join the program.

MULTIFAMILY CERTIFICATION
Now Available

THE CLEAR ADVANT. OF ENERGY STAR CI
The demand for whole-building energy certification helps builders and developers recruit comfortable and savvy on the job.

Stay Ahead of State Codes
With Energy Star CI certification, you will manage code compliance by ensuring that all units meet the highest energy efficiency standards.

Reduce Callbacks
By following the requirements of quality control and energy audits, you can ensure that your buildings meet the highest energy efficiency standards.

Eligibility

- Operating only in any jurisdiction building with the ENERGY STAR CI.
- Operating only in multifamily buildings with three stories or fewer above grade.
- Multifamily properties must be located in states, territories, and possessions that have adopted the National ENERGY STAR CI.

WHOLE-BUILDING ENERGY EFFICIENCY

Tight Thermal Envelope
Ductless heat pump technology is a key component of a tight thermal envelope. To ensure that all units meet the highest energy efficiency standards, you will manage code compliance by ensuring that all units meet the highest energy efficiency standards.

High-Quality Lighting & Appliances
High-quality lighting and appliances are key components of a tight thermal envelope. To ensure that all units meet the highest energy efficiency standards, you will manage code compliance by ensuring that all units meet the highest energy efficiency standards.

Control & Water Heating
Energy-efficient control and water heating equipment in ENERGY STAR certified multifamily buildings must meet ENERGY STAR high-efficiency standards.

Sealed Duct Systems
Ductless heat pump systems are a key component of a tight thermal envelope. To ensure that all units meet the highest energy efficiency standards, you will manage code compliance by ensuring that all units meet the highest energy efficiency standards.

The quality assessment takes into effect the building's energy efficiency, air quality, and indoor air quality. For more information, visit northwestenergy.com/multi-family/builders

MARKET DEVELOPMENT TOOLS

CUSTOMIZABLE MARKETING TOOLS

Sales collateral, advertising templates & messaging



TRAINING SUPPORT



TRAINING SUPPORT

VERIFIER BOOT CAMP



VERIFIER BOOT CAMP
**TOOLS OF
THE TRADE**

BUSINESS DEVELOPMENT TRAINING

- One-on-one support for Rater organizations
- Tailored to their needs, including:
 - Sales, marketing
 - Business development
 - Builder recruitment



HVAC QUALIFICATION TRAINING

- NEEA acts as NW H-QUITO
- Thorough qualification process:
 - Orientation webinar, quiz
 - 6-hr classroom training
 - Zonal-only training
 - Option to test out of classroom portion
- 5% field QA

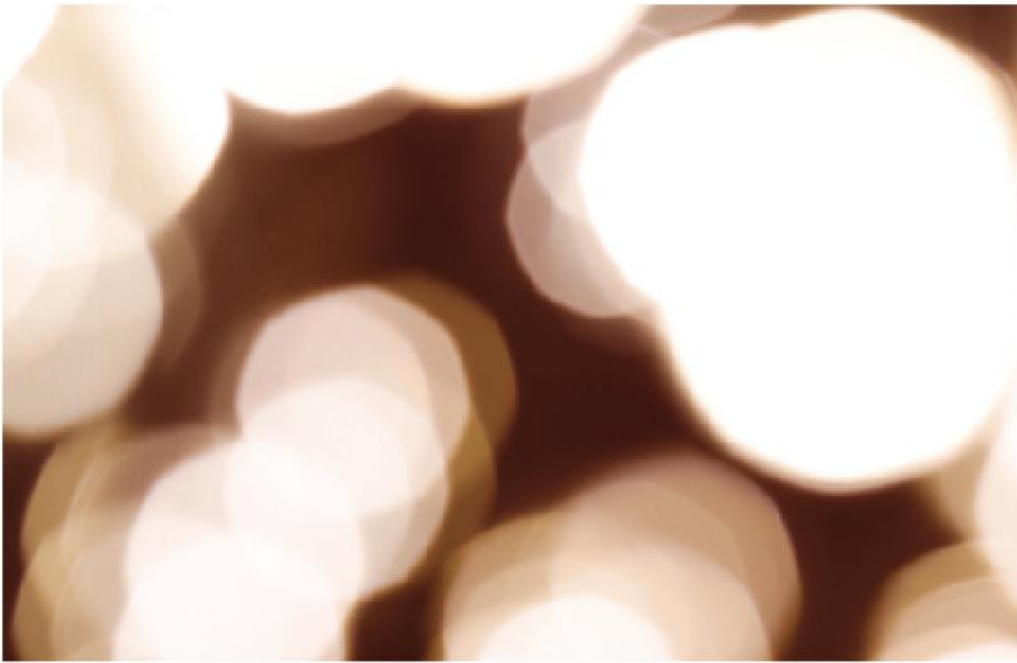




IN HINDSIGHT

WHAT WE LEARNED

- **There's no one-size fits all.** Rater skill sets vary by organization and no one tool fits every need.
- **One-on-one support still rules.** You can't replace it, but you can reduce or complement it.
- **Pick your battles.** You can't hand-off the program to the market and maintain control at the same time.



THANK YOU!

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