



WAP Innovation and Collaboration: Updates from NREL

Juliana Williams, National Renewable Energy
Laboratory (NREL)

National Association for State Community Services
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NREL Weatherization Support



Technical

- Standard Work Specifications (SWS)
- Energy auditor (EA) and quality control inspector (QCI) credentials
- Visualization tools
- Research and analysis
- Impact assessment.



Programmatic

- **NREL provides technical assistance and research to support high-quality work and highly qualified workers in the weatherization and home performance industry.**
- Continuous Improvement Workshops
 - Online programmatic trainings
 - Workforce development
 - Technical assistance.

Workforce Updates

Energy Auditor, Quality Control
Inspector, Crew Leader, and Multifamily

Scope/Job Description

An EA is an experienced professional who **evaluates the potential health and safety issues, durability, comfort, and energy use** of a residential building. An EA conducts advanced diagnostic tests, gathers and analyzes data, and creates energy models to draw conclusions and make recommendations for improvements.

A QCI is a residential energy efficiency expert who **reviews, inspects, and verifies the appropriateness, quality, and completion of energy retrofit work** by conducting site visits, performing diagnostic testing, and evaluating work practices and documentation to improve the indoor environment, safety, durability, comfort, and energy efficiency of the building for the client.

Overview of Weatherization Assistance Program (WAP) EA and QCI Requirements

Weatherization Program Notice 22-4: Quality Work Plan Requirement Update outlines how measures are inspected and credentialing requirements.

- ***All units completed by subgrantees must receive a final inspection.***
- Inspections must be led by a certified QCI.

Individuals approving subgrantee final inspections and grantee technical monitoring ***must have an active QCI certification*** or participate in a ***QCI mentorship model***. To earn the QCI certification an individual must first hold an active EA certification.

Island grantees are exempt from the QCI certification requirement.

QCI Mentorship Model

Under **the QCI mentorship model**, individuals pursuing QCI certification may perform final inspections, monitoring, and collection of field site data or energy model reviews under the supervision of a certified QCI.

Grantees **must submit their mentorship policy to their DOE project officer for approval**, which must contain the following elements:

- The mentee is a subgrantee or grantee employee or contractor pursuing QCI certification.
- A timeline and number of dwelling units for the mentee to complete training.
- At least one designated mentor who can review field inspections and provide on-the-job training and coaching. Use of video or virtual technology is encouraged.
- All work must be reviewed and approved by a certified QCI.

Poll Question #1

How have home energy professional credentials positively impacted you or your organization? (Select all that apply)

- a. Enhanced employee satisfaction/recognition
- b. Improved quality/fewer monitoring issues
- c. Improved client satisfaction/fewer callbacks
- d. Clearer understanding of job roles and responsibilities
- e. Not applicable, our organization has not observed any positive changes
- f. Other (open-ended).

Roles and Responsibilities

U.S. Department of Energy (DOE)

- Ensures WAP has robust workforce credentials to support quality work.
- Provides funding to establish permanent and sustainable infrastructure for a vibrant home retrofit market.

NREL

- Certification scheme owner.
 - Develops and maintains each scheme on a five- to seven-year cycle.
 - Selects scheme committee members.
 - Licenses certification schemes to qualified certification bodies.

American National Standards Institute National Accreditation Board (ANAB)

- Accreditation body.
- Ensures personnel certification programs are ISO/IEC 17024 standard-compliant.

Certification bodies

- License agreement with NREL to:
 - Develop and maintain written (EA/QCI) and EA field exams.
 - Administer exams aligned with EA and QCI certification schemes.
 - Issue personnel certifications.

Certification Body Update

- Since 2013 the Building Performance Institute has been the sole certification body for WAP EA and QCI certifications.
- The Building Performance Institute will continue to support the network and offer certification exams.
 - Existing exam questions are currently being improved/updated.
 - Detailed review and revisions by subject matter experts.
 - Exam questions will be translated into one language other than English.

Certification Body Update

- In June, DOE announced the Association of Energy Engineers as a new certification body.
- The Association of Energy Engineers will support the credentialing needs of WAP and the broader home performance industry.
- Written exams (EA/QCI) and a simulated EA field exam will be developed by the Association of Energy Engineers.
 - National rollout of new exams expected in early 2026.

Weatherization Assistance Program

Weatherization Memorandum 133: EA and QCI Certification Body Update

JUNE 28, 2024

[Weatherization Assistance Program](#) » [Weatherization Memorandum 133: EA and QCI Certification Body Update](#)

The U.S. Department of Energy is pleased to announce the Association of Energy Engineers (AEE) has entered into a license agreement with the National Renewable Energy Laboratory for the HEP, EA, and QCI certification schemes.

AEE will support the credentialing needs of a growing network of home energy professionals.

 [Weatherization Memorandum 133: EA and QCI Certification Body Update](#)

Photo from DOE

Current Maintenance Cycle Major Milestones



2022

Subject matter experts reviewed and updated EA/QCI schemes (complete)



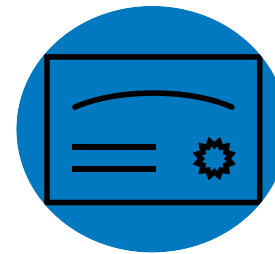
2023

EA scheme compliant with ANAB and EA and QCI Job Task Analyses (JTAs) published online (complete)



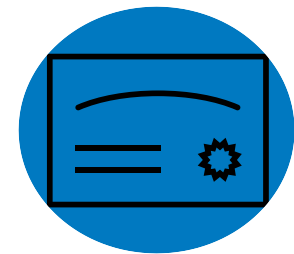
2024

Certification bodies planning for exam updates (Building Performance Institute) and exam development (Association of Energy Engineers) (in progress)



2025

Building Performance Institute national rollout goal



2026

Association of Energy Engineers national rollout goal

Certification Barriers We Have Heard

- Burdensome prerequisites.
- Limited access to training.
- Cost/time for certification.
- Field exam challenges.
- Written exam challenges (including language barriers).
- Recertification/maintenance.
- Continuing education units.
- Challenges with multifamily.
- No reciprocity with other similar certifications (EA).



Photo from Microsoft stock images

Improvements in the Works

- Certification cycle extended from three years to five years.
- Allowance of field exam simulation.
- Continuing education units streamlined, one hour = one continuing education unit.
- Prerequisites modified to be more inclusive of experience.
- Exam questions improved (existing certification body).
 - Exam questions will be translated into one language other than English.



Photo from DOE

Recent EA/QCI Resources

- 2023 EA and QCI JTAs
 - [EA JTA Report](#)
 - [QCI JTA Report.](#)
- 2018/2023 EA and QCI redline changes
 - [View the EA JTA redline document](#)
 - [View the QCI JTA redline document.](#)
- Weatherization Memorandum 126 (EA/QCI certification scheme updates)
 - [Read Weatherization Memorandum 126.](#)
- Weatherization Memorandum 133 (certification body update)
 - [Read Weatherization Memorandum 133.](#)

Access the JTAs and redline changes on the SWS website:



Upcoming Workforce Credential Updates

- Multifamily EA and QCI JTA updates.
 - Feedback needed for industry validation.
 - https://www.surveymonkey.com/r/MF_EnergyAuditor.
 - https://www.surveymonkey.com/r/MF_QCI.
 - Publication expected later this year.
- Crew leader JTA updates.

Multifamily EA
Validation Study:



Multifamily
QCI Validation
Study:



Poll Question #2

What feedback do you have for developing the EA simulated field exam? (Suggested topics: format, content, demonstration of proficiency, and user interface)

Resource Updates

Standard Work Specifications

The SWS are outcome-based installation standards to ensure work performed by the weatherization/home performance industry stays relevant, effective, and safe.

- The SWS are maintained on a five-year cycle.
- Currently in year four, receiving comments on the 2023 redline version.
- Comments on the redline version are **due Sept. 30, 2024** via <https://sws.nrel.gov>.

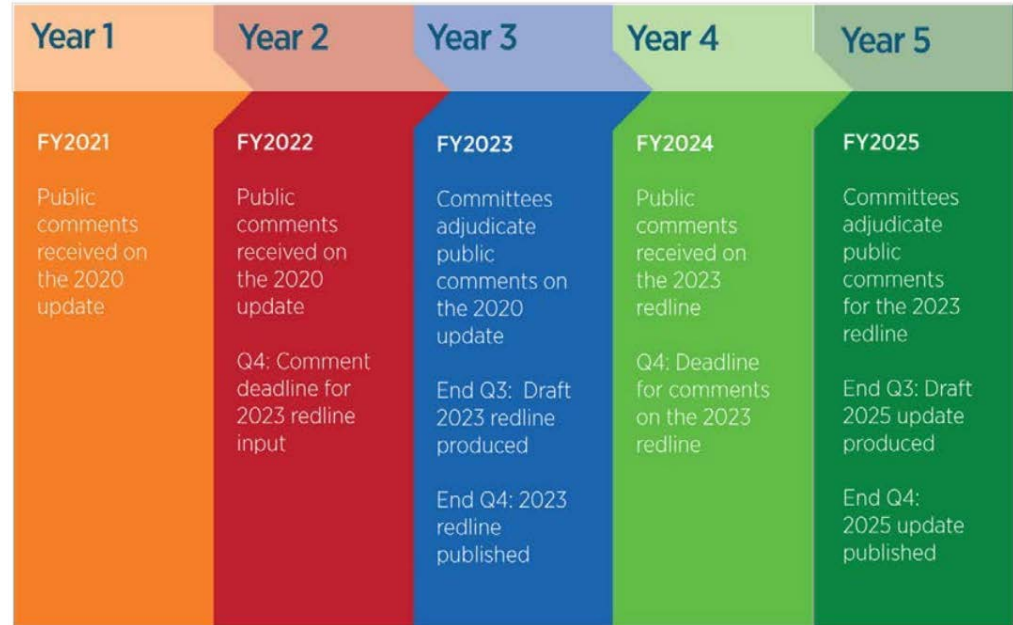


Figure 1. Five-year adjudication cycle

Source: Kurnik, Charles, Zachary Peterson, David Lovullo, Jal Desai, Cory Chovanec, and Alexa Carrera. 2024. *Guidelines for Home Energy Professionals: Standard Work Specifications (SWS) Maintenance Charter and Procedures*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-7A40-88826. <https://www.nrel.gov/docs/fy24osti/88826.pdf>.

EA Resources

New resource repository conveniently compiles resources to help EAs in the field, including:

- Insulation and building components
- Appliance and baseload
- Updated Refrigerator and Freezer Energy Rating Online Search Tool
- Diagnostic testing
- Health and safety and more.

<https://sws.nrel.gov/residential-energy-auditor-resource-repository>



You may need to click "Enable Editing" (above) in order for the Calculator to function properly.



Insulation De-Rate Calculator

Choose Insulation	Fiberglass
Choose Type	Batt
Installation Quality	Fair
Enter Depth (inches)	8
Calculated R-value	15

<= click cells to choose values

Click "Enter" or "Tab" after entering or changing the Depth (inches) value. Cells that change to red are irrelevant and will be ignored during the calculation.

Select or enter a value in the green cells, above. If the cell is red, skip that cell. Always start at the top. The colors may change as you change preceding cell values. Red cell values are ignored during the calculation.

Use the diagrams below to help determine the installation quality.

If there are multiple insulation depths (e.g., the blown insulation was not evenly applied or there are multiple spaces with different amounts) use the "R-Value - Weighted Average" Averaging Calculator on the preceding tab to determine R-value.

If you cannot inspect the insulation to determine installation quality (e.g., cathedral ceiling cavities), derate the R-value assuming a fair quality installation. If you cannot inspect the wall cavity insulation, please go to the next calculator tab, "Wall Insulation Defaults", and select your region to determine the wall insulation default R-value based on the age and region of the construction.

Weatherization Image Gallery

Weatherization Image Gallery

- Aligned with SWS sections
- Easily searchable
- Includes photo descriptions
- Free to download and use images with proper credit.

Gallery can be used for:

- Field guides
- Outreach materials
- Presentations, etc.

<https://sws.nrel.gov/image-search>



Air Sealing an Insulation-Contact Rated Fixture (2)

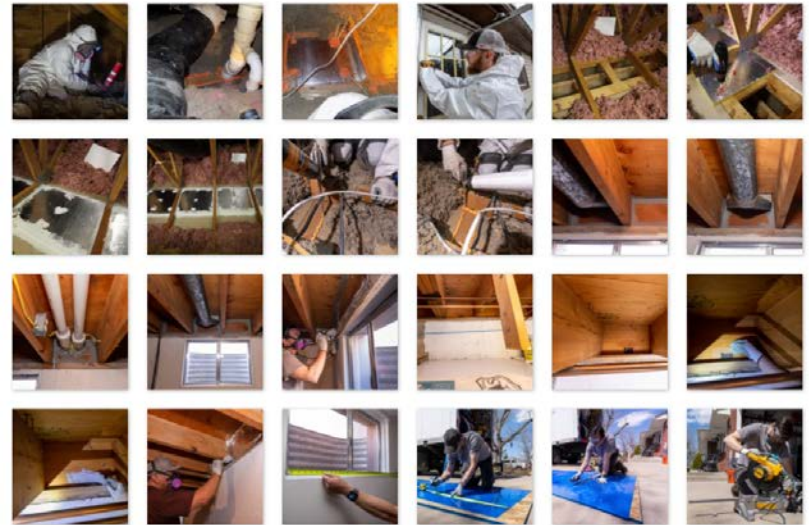
A weatherization installer begins to clear insulation away from a recessed light fixture in preparation for additional air sealing.

Air Sealing > General Pressure Boundary > General Air Sealing

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Credit: Werner Stocum, NREL



Solar Resources in WAP and LIHEAP

Weatherization Assistance Program

Solar Deployment Through WAP and LIHEAP



JUMPTO:

- [Decision Guide](#)
- [FAQs](#)
- [Implementation Toolkit](#)
- [Case Studies / Technical Report](#)



<https://energy.gov/scep/wap/solar-resources-wap-and-liheap>

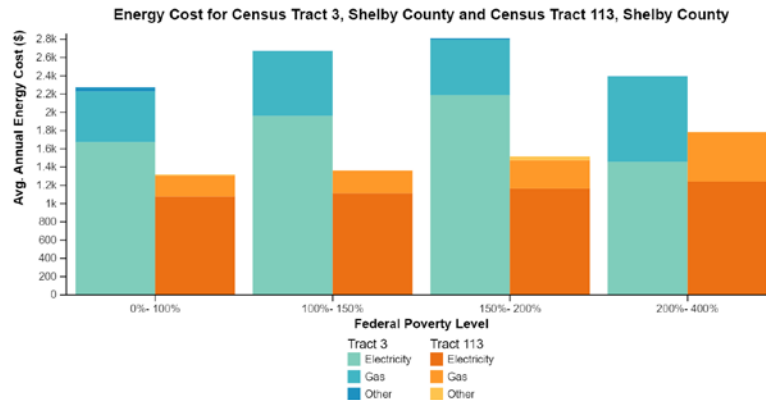
The Low-Income Energy Affordability Data (LEAD) Tool

What Is the LEAD Tool?

A website with detailed, nationwide energy data, designed to help communities create better energy strategies and programs by improving their understanding of low-income housing and energy characteristics.

Covers all 50 U.S. states, Washington D.C., and Puerto Rico.

Recently updated with American Community Survey five-year data from 2018-2022 and an improved user interface!



What Data Is in the LEAD Tool?

- State, county, census tract, city, and Tribal energy data (costs, burden, income).
- Household data broken down by income and housing characteristics (size, building age, fuel type, rent vs. own).

Poll Question #3

What other feedback do you have for DOE regarding workforce certifications or resources needs?

Thank you!

www.nrel.gov

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