Strengthening the ENERGY STAR Certification System's Quality Assurance / Quality Control Requirements

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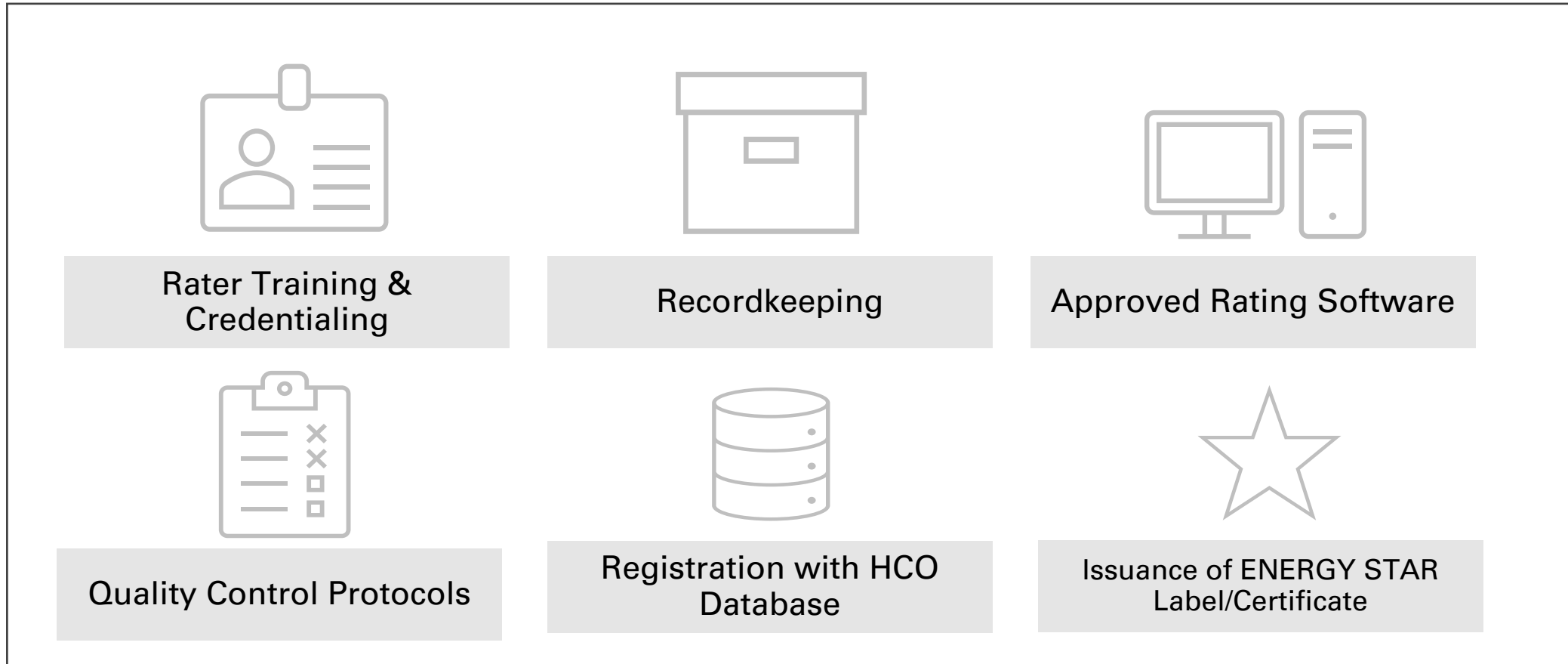ENERGY STAR Residential New Construction

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"Quality means that homes and apartments certified as ENERGY STAR meet <u>all</u> program requirements."

The "System"

ENERGY STAR Certification System

Rater Training & Credentialing

Recordkeeping

Approved Rating Software

Quality Control Protocols

Registration with HCO Database

Issuance of ENERGY STAR Label/Certificate

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History of ENERGY STAR Certification System

- Since its inception, EPA's ENERGY STAR New Construction Program has required third-party verification.

- In 2007, EPA developed a structure to formally recognize the independent organizations that provide oversight of the raters that performed the inspections and testing.

- In 2018, EPA revised the oversight recognition requirements and released the ENERGY STAR Certification System:

  – www.energystar.gov/partner_resources/residential_new/working/other_participants/hco/become_hco

- Mirrored historical QA/QC standards, but also allowed alternative proposals.

- Since that time, EPA has accepted applications and recognized two Home Certification Organizations (HCOs) with national scope, and two HCOs with California scope.

  – List of HCOs available at www.energystar.gov/hco

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Strengthening QA/QC Requirements

- In last 5 years, compliance matters have brought additional information to light that suggests opportunities to improve ENERGY STAR's quality assurance/quality control (QAQC) requirements.

- In addition, the Section 45L tax credit's linkage to the ENERGY STAR program is expected to put the quality and reliability of ENERGY STAR certifications under greater scrutiny than ever before.

- For these reasons, EPA is proposing enhancements designed to improve the effectiveness of current QAQC activities, give HCOs new tools to oversee participants, and ultimately create more confidence in the quality of ENERGY STAR certifications.

- This proposal will go out for full stakeholder feedback in December. Once finalized, HCOs will be asked to submit responsive policy and procedure updates and to implement required changes over an appropriate timeline.

What does this mean for HCO standards (e.g. MINHERS)?

- EPA is responsible for setting high-level requirements via the ENERGY STAR Certification System.

- HCOs have flexibility to work through implementation details and/or propose alternative equivalent methods.

- Note that the ENERGY STAR Certification System only sets the minimum bar, and HCOs are always able to go above-and-beyond.

- The ENERGY STAR Certification System only applies to ENERGY STAR and it will be up to HCOs to decide whether to align standards for non-certified ratings (e.g., MINHERS standards for a 'vanilla' HERS rating).
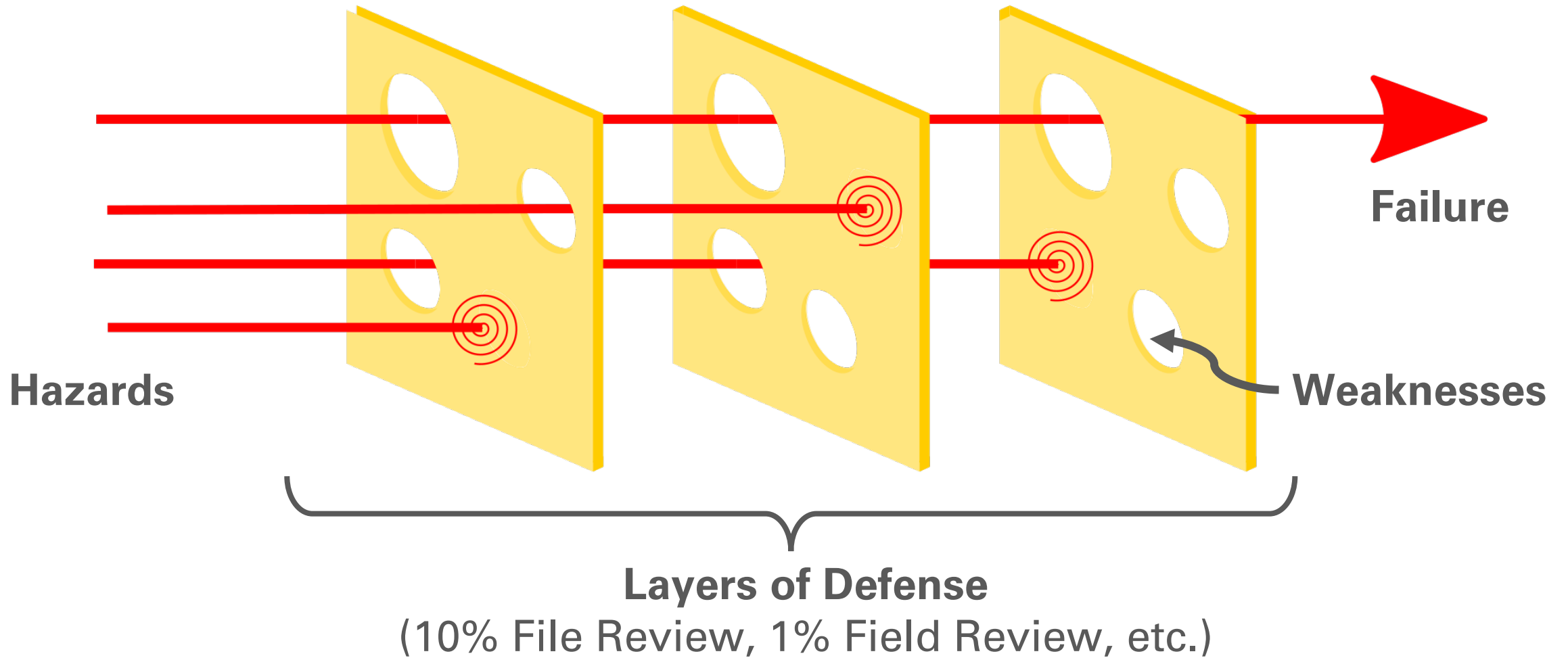
How were these ideas arrived at?

- The ENERGY STAR team performed a detailed analysis of program needs, current gaps, and opportunities for improvement.

  - Included failure analysis from compliance matters and certification reviews (a.k.a 'homeowner complaints').

- While our main prerogative is to meet the program's quality-level needs, we are attempting to do so in a practical manner that avoids unnecessary disruption. (Evolution, not revolution)

- The ENERGY STAR team is coordinating with the Zero Energy Ready Home and Indoor airPLUS programs, with the goal of ultimately having all three federal programs adopt an aligned QAQC standard.

- Also coordinated with all recognized HCOs and solicited early feedback.

- To be clear, EPA welcomes other ideas if there is a better way to achieve the underlying intent.
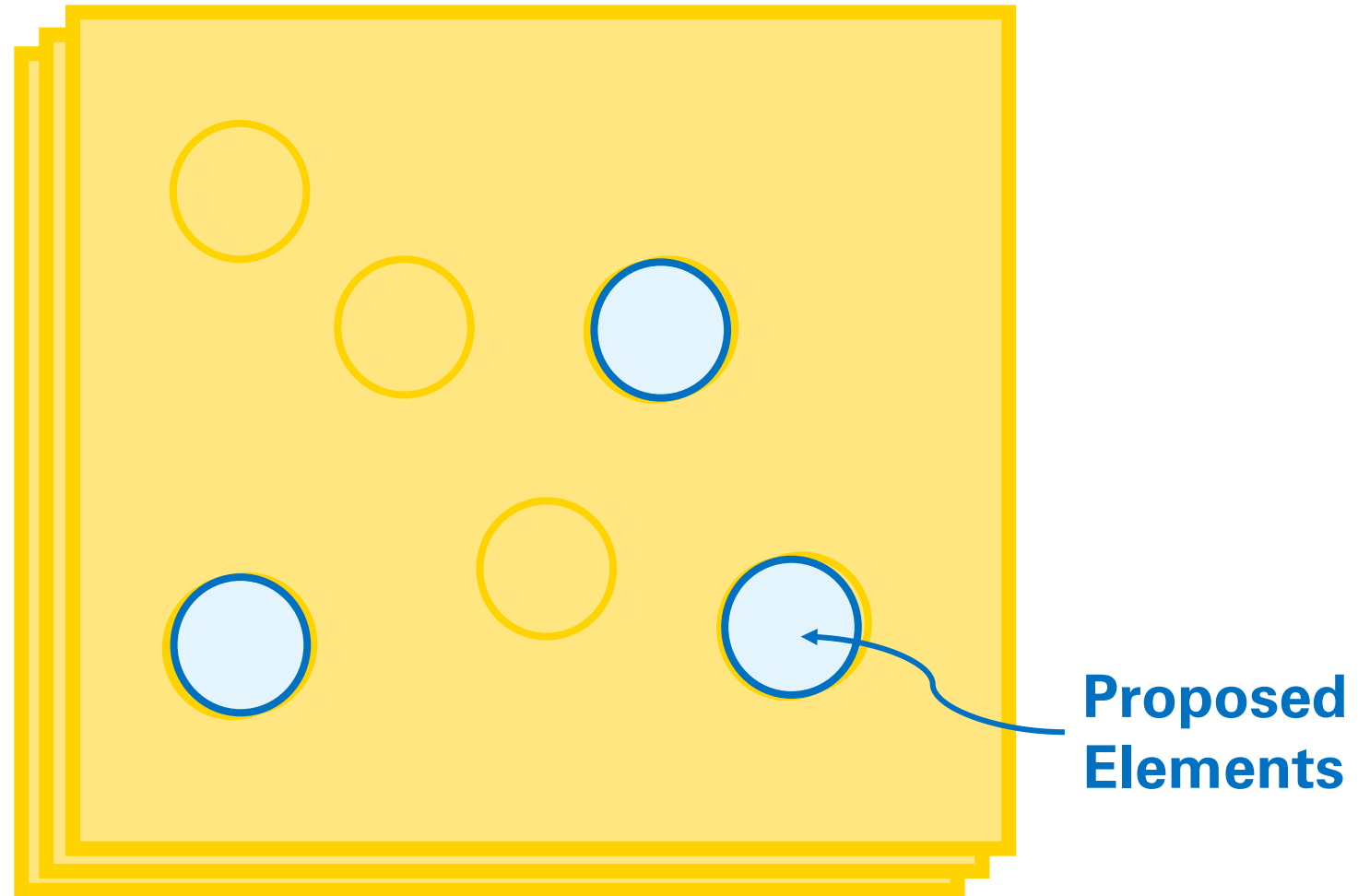
Proposed Enhancements

Swiss Cheese Model

Hazards

Weaknesses

Failure

Layers of Defense
(10% File Review, 1% Field Review, etc.)

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Swiss Cheese Model

Proposed Elements

Major Themes

- Taking better advantage of technology, particularly with digital data.

- Improving effectiveness of existing File/Field review activities.

- New oversight tools at the HCO level.

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Tools and Technology:
Centralized collection of digitized ENERGY STAR checklist data

- An HCO's database (such as the RESNET Registry) would collect digitized ENERGY STAR checklist data for 100% of homes at the time of certification.
- Approved Software Rating tools would be required to support user input and review of digital checklist data.
- It would be recommended, but not required, for software to enable data transfer with digital field collection applications.
- It would be acceptable for MFNC documentation to be submitted as a batch
- EPA would release a standardized data 'schema' with each year's program "revision" to support third-party software's implementation.

Purpose: 100% paperwork completion and retention, prevents against 'accidental' certification, enables more effective File Review, and creates credible threat of discovery.

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Tools and Technology:
Centralized collection of Rater photos

- HCO databases would also collect on-site photographs captured by Raters, including:
  - The ~5 photos and test results required by ANSI/RESNET/ICC 301 Normative Appendix B,
  - A new set of 10-15 photos covering ENERGY STAR checklist items.
- Includes common space measures, if applicable (e.g., in MFNC)
- HCOs would be required to retain photos for a minimum of three years.
- Photos could be downsized to a minimum resolution (to be defined later).

Purpose: Similar to prior slide – More effective File Review, and credible threat of discovery.

Tools and Technology:
Formalized list of automated validations in approved rating software

- A standardized list of validations would become mandatory in software, aligned with HCO database and EPA reporting system.
- Examples include:
  - Checklist items, like maximum duct leakage (already validated in practice),
  - Version eligibility based on a home's location and permit date,
  - Builder and Energy Rating Company ENERGY STAR partnership status using EPA's Partner List API.
- Validations list would be developed with input from HCOs and software developers.

Purpose: Take advantage of software's inherent logicality and scalability to have it check 100% of the 'black-and-white' machine-verifiable items. (If it can be checked by a computer, it will be checked by a computer)

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Tools and Technology:
Printing certificates & labels exclusively through approved rating software

- Moving forward, all ENERGY STAR labels and certificates would be required to be printed exclusively using approved rating software.
- Energy rating companies would be prohibited from using the now-sunset Excel template or proprietary IT systems to print labels/certificates.
- EPA is also soliciting feedback on the concept of eliminating the ENERGY STAR label or replacing it with a QR-code based "this home is pursuing certification" sticker linking to an HCO's address lookup website.

Purpose: Ensure that documentation of ENERGY STAR certification uses a consistent format and is only available for certified homes.

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File and Field Reviews:
Performing quality control of installed features during File Review step

- Photos would allow the File Review to more effectively assess whether certain checklist items were physically installed in homes.
- Homes would be algorithmically selected for review by rating software, ensuring truly random and unbiased selection.
- No change is proposed to existing File Review frequency of 10%/Rater/year.
- While EPA would strongly prefer this review occur prior to certification, it understands that may not always be possible. Caveats:
  - Review should happen as quickly as possible (no later than 10 business days).
  - HCOs would be required to have a 'claw-back'/recall system in case irresolvable errors are discovered.

Purpose: Take advantage of centrally collected photos to perform quality control of certain installed features during the File Review step.

File and Field Reviews:
Adding "skills and knowledge" check as purpose of Field Evaluations

- Despite some shortcomings (such as generally being pre-announced), the field evaluations still provide value as a quality control measure.
  - For this purpose, the goal is still to capture a roughly representative selection of builders, developments, construction types, etc.
- An additional purpose would be recognized: "skills and knowledge" check.
  - This purpose, especially, suggests covering both pre-drywall and final stages.
- Minimum proposed frequency of on-site checks:
  - Low-volume raters (≤100 certifications/year): 1/year, alternating between pre-drywall and final every other year.
  - High-volume raters (>100 certifications/year): 1 pre-drywall/year + 1 final/year.

Purpose: Recognize that, regardless of shortcomings with pre-announced home selection, value is provided by the skills and knowledge check aspect. Readjust minimum rates accordingly.

New HCO Oversight Tools:
Layering on HCO direct (non-delegated) quality control File review

- When the 10% File QC Review is delegated (e.g. to "QADs"), HCO personnel would be required to directly re-review 0.5% of certifications.
- At this stage, the intended scope is a detailed file review performed by HCO personnel, but EPA remains open to new technology solutions (e.g., AI) if equivalency can be demonstrated in the future.
- Would be split between files already 'File Review'-ed by a designee, and the other 90% not yet reviewed.
- A 'red flag' outlier analysis would be permitted to inform up to 50% of the home selection, though the other 50% should be random (at least for now).

Purpose: Ensure consistent application of standards amongst an HCO's designees (if QC activities are delegated) and provide HCO with more immediate feedback.

New HCO Oversight Tools:
Requiring Builders to facilitate HCO site visits

- ENERGY STAR Partnership agreement would be updated to require builders to facilitate HCO site visits, upon request.
- At this time, this is envisioned as an as-needed tool available to HCOs when compliance matters arise.
- EPA understands there are legal/liability issues at play and seeks stakeholder input on how to best structure this requirement.

Purpose: Give HCOs an additional investigative tool to assess homes when compliance issues arise.

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Next Steps

Next Steps

- **A six-week stakeholder feedback period commences today, December 11th, and will end on January 19th, 2024.**

- Visit the ENERGY STAR website for:

  – Redline draft changes to the Certification System

  – Companion document

  – Stakeholder Feedback Form

energystar.gov/partner_resources/residential_new/stakeholder_feedback

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Next Steps

- Once EPA policy finalized, HCOs will update their own policies and procedures and resubmit an application to EPA for approval.

- HCOs will inform their participants (e.g., Raters) of changes and implementation timelines through normal standards update channels. Implementations likely to begin in 2024-2025 range.

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Partner Meeting Webinar Series**

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Tuesday, December 12th 1 PM Eastern	**Just Launched: ENERGY STAR NextGen New Homes and Apartments Program**

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