
Subject: Public Comment – 7 DE Admin. Code 2101 / 2024 IECC Adoption (Docket #2025-R-CCE-0008)
Date: Thursday, December 18, 2025 at 9:32:34 AM Eastern Standard Time
From: Drew Motyka
To: HearingComments, DNREC (MailBox Resources)
Attachments: Outlook-bcfm1j4g.png, Outlook-ckziexdz.png

Re: 7 DE Admin. Code 2101 – Regulations for State Energy Conservation Code
Docket #2025-R-CCE-0008 – Adoption of 2024 IECC

My name is **Drew Motyka**, and I am a third-party residential energy rater and building performance consultant working throughout Delaware. I perform HERS ratings, ENERGY STAR, DOE Zero Energy Ready, and IECC code-compliance testing for multiple production builders in the state.

I **support** Delaware's adoption of the **2024 IECC**. My comments are focused on two practical issues I see every day in the field:

1. Ventilation in very tight new homes; and
2. Basic quality assurance when spray foam is used as the primary insulation.

---

1. Tight homes need modern ventilation

Since Delaware adopted the **2018 IECC**, shells have already been tight. In my own testing:

- I have personally tested homes **below 1.0 ACH50**, and
- Results **below 2.0 ACH50** have become very common as builders have learned how to air seal better over the years.

"Tight shells" are not a future goal – they are our current reality, and the 2024 IECC will keep us in that same tight range.

In a house this tight, indoor air quality is controlled mainly by **mechanical ventilation**, not by incidental leaks. At the same time, every new home contains numerous sources that can affect indoor air, including:

- Subfloor and construction adhesives
- Paints, stains, finishes, and sealants
- Carpets, pads, and other flooring products

- Cabinets, composite woods, and built-ins
- Cleaning products, personal care products, and air fresheners
- Cooking, combustion appliances, and general occupant activities

If we keep envelopes this tight but rely only on older, lower ventilation assumptions (for example, **ASHRAE 62.2-2010** thinking or a single bath fan on a timer), we leave occupants breathing more of these pollutants than necessary. In my field work, I have seen many homes where the installed ventilation flow is **significantly below** what even the older standards would call for—homes that are both tight and under ventilated.

It is also important to note that **supply-only whole-house ventilation can be just as problematic as exhaust-only** when it is poorly designed—for example, simply dumping outdoor air into a return duct without proper distribution, mixing, or control. Both exhaust-only and supply-only schemes of this kind are unbalanced, and neither provides the controlled, effective ventilation that tight homes require.

Newer versions of **ASHRAE 62.2** (2016, 2019, 2022) are designed to reflect this:

- If you design a **basic exhaust-only or supply-only system with poor distribution** (for example, one central fan trying to do everything), the newer standards effectively **push you toward significantly higher fan airflow** than what many people have been using under 62.2-2010 assumptions.
- If instead you design a **balanced system or ERV with good distribution**, the same newer standards allow you to meet the requirements at a **much lower nominal airflow**, because the outdoor air is better delivered and more effective.

That is the signal we want the code to send: balanced, well-designed systems are rewarded; minimal, exhaust-only or supply-only “band-aids” are not.

Neighboring **Maryland** is already ahead of us on this. Maryland is currently using **ASHRAE 62.2-2019** alongside the **2021 IECC**. As Delaware moves to the **2024 IECC**, the natural partner is **ASHRAE 62.2-2022**, which is the newest residential ventilation standard.

Request:
As Delaware adopts the 2024 IECC, please:

- Pair tight-envelope construction with **ASHRAE 62.2-2022** for whole-house mechanical ventilation in tight homes (at a minimum, ASHRAE 62.2-2019, but ideally 62.2-2022 to match the 2024 IECC); and
- Make it clear that older, lower ventilation rates such as 62.2-2010 are not enough for homes testing below 3 ACH50, especially now that sub-2 ACH50 and even sub-1

ACH50 results are common.

Separately, regardless of which ASHRAE version Delaware adopts, I strongly recommend:

- Requiring that the **TESTED whole-house mechanical ventilation rate** (CFM and operating schedule) be clearly listed on the **IECC compliance report / certificate (sticker)** posted in the home, so that county inspectors can verify that the installed system's measured flow matches what was submitted in the design documentation (including the Manual J/ventilation design package).

Even without changing the underlying ventilation standard, a clear on site CFM and schedule listed on the IECC sticker gives inspectors a simple, practical way to identify and correct under ventilated**, tight homes** in the field.

---

2. Spray foam as primary insulation needs basic QA – and many roof decks are not meeting R806.5

Spray polyurethane foam (SPF) is becoming very common in Delaware. My concern is not with small, localized uses (for example, a bump-out, a fireplace cavity, or a small area over a garage), but with situations where SPF becomes the **primary insulation for an entire level of the home**.

Examples include:

- Finished basement walls foamed directly on concrete,
- First- or second-floor exterior walls fully foamed, and
- Roof/attic levels where the entire roof deck is sprayed in an unvented assembly.

In **Climate Zone 4A**, when an unvented roof assembly has insulation in **direct contact with the roof deck**, the code (Table **R806.5**) requires a specific **minimum R-value of air-impermeable insulation at the roof deck**. The table is written with the expectation that an air-impermeable layer (such as closed-cell SPF or rigid insulation) will be provided at the deck before any air-permeable insulation (batts, blown, or open-cell foam) is added below.

In the field in Delaware, what I actually see are unvented roofs that:

- Use **open-cell spray foam directly on the roof sheathing** as the only insulation at the deck, with **no air-impermeable layer** meeting Table R806.5.

This condition fails to provide the minimum **air-impermeable R-value at the deck** that R806.5 is based on, and it significantly increases the risk of **condensation and roof-sheathing moisture problems**.

In addition, I routinely see **open-cell foam sprayed thin or unevenly** in sections of unvented roof assemblies. Even if the assembly is assumed to meet R806.5 on paper, thin open-cell foam below the deck can create cold spots and weak points in the total R-value. This greatly increases the risk of **ice damming and localized condensation** because minimum R-values are not being maintained consistently across the entire unvented roof assembly.

---

3. Wall assemblies: modeled R vs. installed R, and the role of the interior air barrier

Similar issues show up in walls when SPF is the primary insulation:

- In energy modeling and tools like REScheck, **spray foam walls are typically modeled as full-depth 2×6 cavities (5.5 inches)** at the labeled R-value per inch.
- In the field, **open-cell foam is often allowed to fall short of the drywall surface**, sometimes by ½ inch or more, and is not always trimmed flush. That means:
    - The actual installed R-value is **lower than what is modeled**, and
    - The insulation is no longer in full contact with the **interior air barrier** (drywall).

When there is a gap between the foam and the drywall, the interior air barrier becomes even more crucial and more vulnerable. Any leaks at penetrations (outlets, top/bottom plates, drywall joints) can allow air movement in that gap, undermining both comfort and performance and creating hidden convective loops.

It is also important to recognize that **open-cell foam's R-value per inch is very similar to a properly installed blown-in-blanket (BIBS) system**. The primary advantage of open-cell foam is supposed to be superior air sealing and full cavity fill, not dramatically higher R-value. When it is under-filled, pulled back from the drywall, or installed with gaps, we lose the main performance benefit while still taking on the added cost and chemical complexity.

---

4. Observed material quality issues with "closed-cell" foam

When spray foam is the primary insulation for a full level of the house, the performance of that level now depends on an on-site chemical process, with almost **no independent verification** of density, thickness, or coverage.

In the field, I have cut into foam labeled as "closed-cell" and found:

- Soft, easily compressed material that does not behave like 2-lb foam,
- Areas where the internal cell structure is noticeably expanded and/or discolored in ways that are not consistent with proper closed-cell foam, often hiding behind a

smooth surface skin, and

- Very uneven coverage on walls, roofs, and finished basement walls.

Once drywall is installed, these problems are invisible, but the house is still modeled and marketed as if it has compliant, uniform spray foam and, in the case of unvented roofs in CZ 4A, as if it meets Table R806.5 when it often does not.

---

5. Simple rule, installer certification, and QA

Simple rule:
If spray foam is the **primary insulation for any level of the home** (basement level, main living level, or roof/attic level), it should trigger **basic QA expectations and installer certification requirements**. If it is only used in small, localized spots, it should not.

A key gap today is that there is **no national requirement** for spray foam installer or company certification. Quality is highly dependent on the individual contractor and crew. To address this, states need to adopt practical certification expectations.

Request:

For any level of the home where SPF is the primary insulation:

- Require that the **company/installers performing the spray foam work hold and maintain a recognized third-party spray foam certification**, such as:
    - The **Spray Polyurethane Foam Alliance (SPFA)** Professional Certification Program, and/or
    - Relevant **Building Performance Institute (BPI)** certifications related to building envelope and spray foam installation.

  This gives Delaware a clear, state-level standard for installer qualifications in higher-consequence spray foam applications, rather than relying solely on manufacturer training or self-attestation.

- Require the **builder** to keep a simple record for each job that includes:

  This is minimal paperwork, but it creates a clear connection between the installed foam and the specific product and batch that were used.

    - Product name,
    - Lot or batch information, and

    - Date of installation.

- Make it clear that the **county / Authority Having Jurisdiction** is empowered to perform **random spot checks (including occasional core cuts or other destructive checks)** when foam installations look questionable in the field—for example, when thickness appears very uneven, the foam is unusually soft, or the exposed surface appearance suggests expanded or discolored cells inconsistent with proper closed-cell foam, especially in unvented roof assemblies in Climate Zone 4A under Table R806.5.

Localized foam (a small cantilever, bump-out, or over-garage area) would **not** trigger these extra expectations. This keeps the rule simple and focused only on levels of the home where spray foam truly controls the envelope.

I am **not** asking Delaware to ban spray foam. I am asking that when spray foam becomes the primary insulation for an entire level of the house—especially at unvented roof decks in direct contact with the roof sheathing in Climate Zone 4A—we treat it as a higher-consequence assembly and apply practical, state-level safeguards: up-to-date installer certification, simple product/lot recordkeeping, and targeted QA by local inspectors when installations appear questionable.

Summary

As Delaware adopts the 2024 IECC, I respectfully request that DNREC:

1. Recognize that since the **2018 IECC** was adopted, new homes in Delaware have already been consistently tight (often below 2 ACH50, with some below 1 ACH50), and pair that reality with **ASHRAE 62.2-2022** whole-house ventilation for tight homes (at minimum 62.2-2019, but ideally 62.2-2022 to match the 2024 IECC);

2. **Regardless of the ASHRAE edition adopted**, require that the **TESTED mechanical ventilation rate (CFM and operating schedule) be listed on the IECC compliance report/certificate**, so county inspectors can compare measured flow to the submitted design and identify under ventilated tight homes; and

3. When spray foam is used as the **primary insulation for any level of the home**, require:

    - **Third-party spray foam certification** for the installing company/crew (for example, SPFA and/or BPI certifications),

    - **Simple record-keeping by builders** (product name, lot information, and installation date), and

- Clear authority for county inspectors to perform **random spot core checks** or similar destructive checks when installations appear questionable, especially in unvented roof assemblies in Climate Zone 4A under Table R806.5.

Thank you for the opportunity to comment and for the work DNREC is doing to guide Delaware's code adoption. I would be happy to share field photos or additional detail from actual Delaware projects if that would be helpful.

Sincerely,

Drew Motyka

RESNET HERS Rater

Cell: 302-383-2022