



Unvented Attics

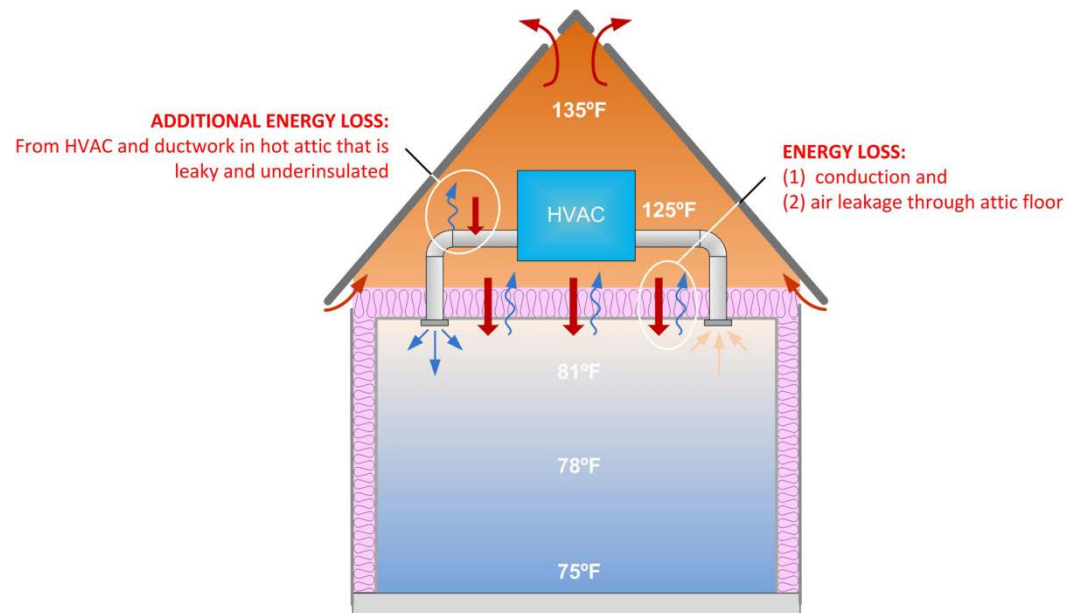
Things you should know

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 **ICYNENE**[®]
The Evolution of Insulation

Conventional Attics Have Problems

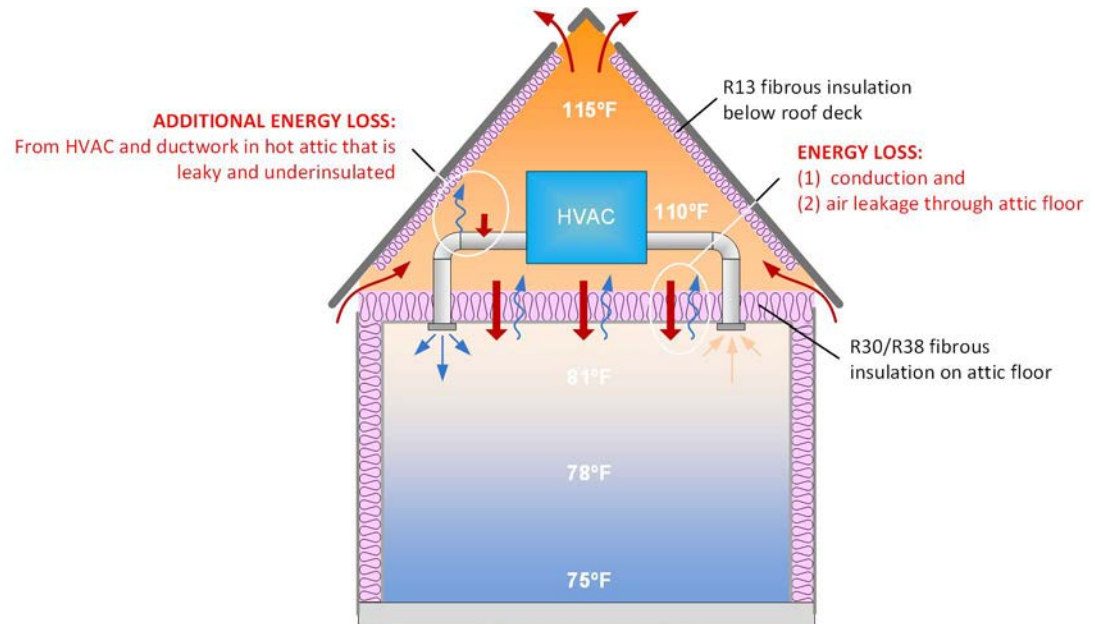
1. Floor of attic is riddled with penetrations that are not airtight.
2. Ductwork and mechanical equipment in the attic add to leakage and heat transfer issues.
3. HVAC systems in the attic are operating in adverse conditions and as such lose efficiency.
4. Venting has to be provided to control moisture and other problems.



How do you make a conventional attic “high performance”?

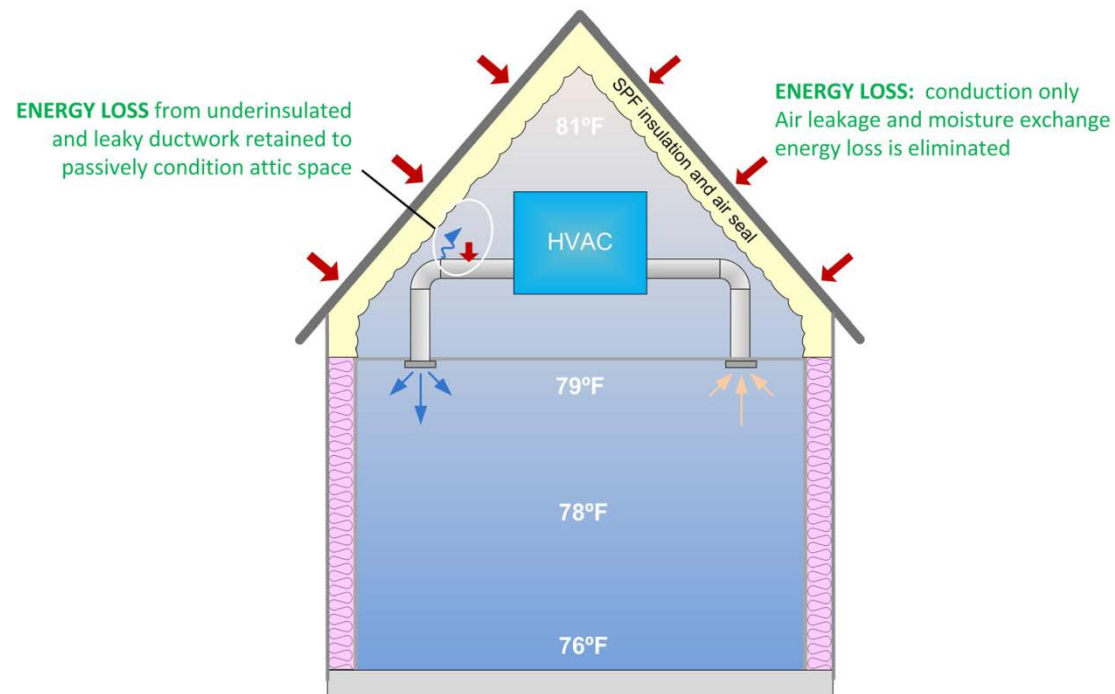
Title 24 Prescriptive Attic “B” Provides

1. Higher Levels of insulation to reduce heat loss/gain.
2. Insulation at the roof deck to moderate attic temperatures.
3. Attic remains vented because duct leakage and many penetrations through the floor of the attic still exist and leakage of moist air is still a concern.



Unvented Attic (UVA) Design Approach

1. Apply a plane of air tightness and insulation at the roofline versus the floor of the attic.
2. That plane has fewer penetrations and is easier to make airtight.
3. Venting of the attic is eliminated.
4. Because ducting and mechanicals are within the thermal boundary, direct duct leakage to the exterior is eliminated.



Barriers to Adoption of UVA's

MYTH 1: Title 24 Prescriptive Path does not describe how to do it so it can't be done.

- UVA's are allowed in the Performance Path but you have to be aware of some subtleties of how to implement one in the software (Energy Pro and CBECC).
- Some of the required inputs are not obvious.

Barriers to Adoption of UVA's

MYTH 2: Insulating at the roofline will cause shingles to get hot and deteriorate prematurely.

- Several building science studies have determined that the temperature rise in shingles is within 2-5 degrees of conventional insulating approaches.
- Much larger effects are seen as a result of varying the geographic location of the building, shingle color and orientation of the building versus whether the roof deck is insulated.

Barriers to Adoption of UVA's

MYTH 3: Insulating at the roof line will cause moisture problems with roof sheathing.

- A continuous air barrier is required to avoid air leaks and associated condensation.
- In colder climate zones, a vapor diffusion retarder (Class II) may also be required on the interior to limit vapor diffusion.
- The layer of air impermeable insulation actually protects the sheathing from damage

Spray Foam Options



Medium Density

- Lower expansion (~40:1)
- High R-value (R-5.0/in to 7.1/in.)
- Air impermeable
- Vapor Diffusion Retarder Class II at thicknesses at ~R-10
- Can be detailed as a Water Resistive Barrier.
- Spray in 3" or 2" layers
- Used in full foam and "flash and batt" applications.



Low Density

- High expansion (100:1)
- R-value (R-3.7/in to R-4.0/in)
- Air impermeable
- Allows Drying
- Water Leaks can be Found
- Spray in one pass
- Typically used in full foam applications

Latest Developments in Icynene Low VOC Products

- Icynene announces Greenguard “GOLD” certification for both our Classic Max Open Cell and Icynene ProSeal Closed Cell Spray Foam
- This certification is literally the Gold Standard for Low VOC/low emission products
- These products also features the 1 hour re-entry for trades / 2 hour re-occupancy homeowners



Barriers to Adoption of UVA's

MYTH 4: Because the roofline is a larger area than the floor of the attic, I will need more insulation / R-value.

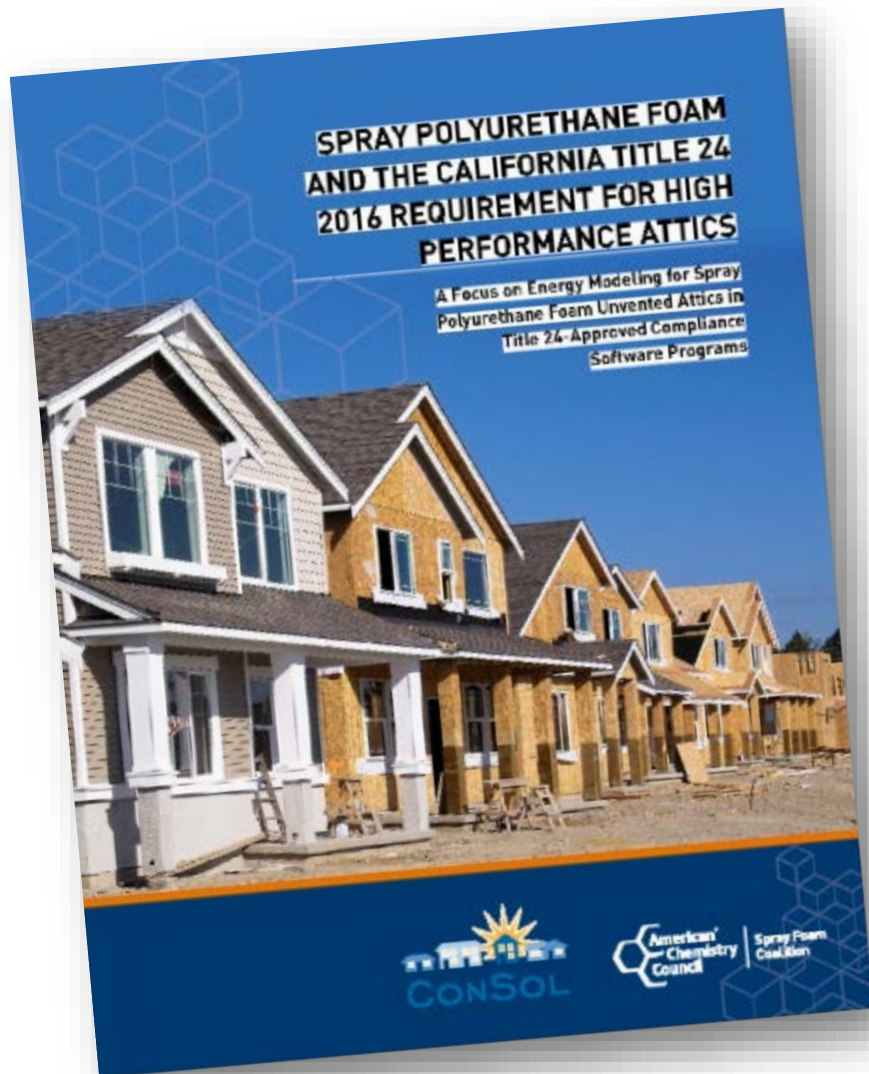
- UVA's typically outperform conventional attics where ducting and mechanicals are in the attic because duct leakage is eliminated, ducts and mechanicals are not operating in adverse conditions and air barrier and insulating details are more easily made continuous.
- Recent studies indicate that an R-28 UVA will out-perform a Title 24 (2016) conventional attic with total R-value of R-51 in all California Climate zones.

Barriers to Adoption of UVA's

Myth 5: UVA's are untested technology and should be avoided.

- California is one of the last jurisdictions to adopt unvented attics into the mainstream.
- There are literally millions of unvented attics (in all climate zones in other parts of the country) built over the last 20 years that are performing well!

Need Help? Want the facts?



- American Chemistry Council – Spray Foam Coalition publication
- Provides useful tips and latest research on incorporating SPF Unvented Attic into 2016 Title 24 Requirements
- Modeling guidance for both CBECC and Energy Pro Software

Want More Help? It's Easy

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