

# FOAM

EDUCATION ABOUT SPRAY FOAM **BOOK 1**

# BOOK

**INSIDE: WHY SPRAY FOAM? • SPF & HEAT TRANSFER • SPF & MOLD GROWTH**

**Bayseal™ Spray foam provides a continuous, protective air barrier that practically eliminates air leakage, the leading cause of building energy waste.**

### **Spray Foam Insulation:**

- Offers a High Insulation R-value
- Provides a Seamless Air Barrier
- Restricts Moisture Transmission
- Adds Structural Strength
- Minimizes Sound Transmission
- Does Not Shrink or Settle
- Promotes Better Indoor Air Quality



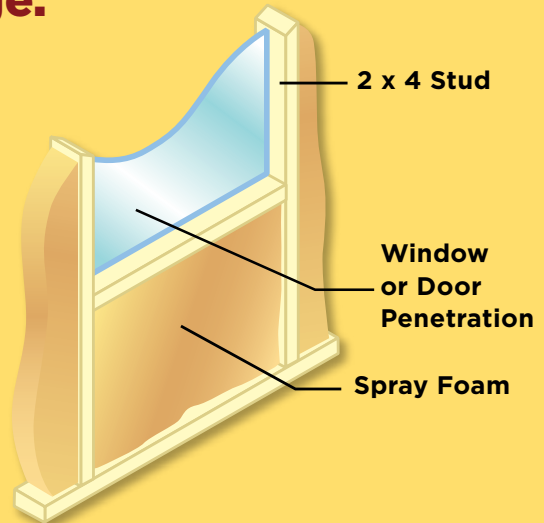
# SPRAY FOAM ELIMINATES AIR LEAKS

Air leakage can contribute to problems with moisture, noise, dust, pollutants, insects, and rodents.

**Small voids of 1-2% at the end of fiberglass batt insulation can result in a 25-40% reduction of R-value due to air leakage.**

Air leakage can account for 30% of a home's annual heating and cooling costs.

**Spray polyurethane foam seals the building envelope to create an optimal energy-efficient environment.**



**Only closed-cell spray foam is classified as an “acceptable flood resistant material” by FEMA.**

**“Flood-resistant Material” is defined as any building material capable of withstanding direct and prolonged contact with floodwater without sustaining significant damage.**

**Closed-cell foam is the only wall and ceiling insulation material classified as “acceptable.”**

**Fiberglass batt and blanket insulation are classified “UNACCEPTABLE.”**



## **Unvented attic with closed-cell spray foam resists roof uplift during high wind events.**

**“During high wind events, vented soffit collapse leads to building pressurization and window blowout and roof loss due to increased uplift. Unvented roofs - principally due to the robustness of their soffit construction - outperform vented roofs during hurricanes - they are safer.”**

**Lstiburek, “Understanding Attic Ventilation,”  
Building Science Corporation, 2003**

**Spray polyurethane foam is self-flashing and offers 100% adhesion without fasteners. Fasteners are a common point of failure in other systems. And spray polyurethane foam grips the building walls, thereby holding tight in the face of high winds.**

**Bayseal™ spray polyurethane foam contributes to healthy buildings by reducing air leakage thereby preventing condensation within the envelope.**

**Mold and mildew growth cannot occur in the absence of water. Spray foam prevents water vapor transported by air leakage from entering the building envelope thereby helping prevent mold growth.**

**Thermal bridging is a significant cause of energy loss. With no fasteners, joints or gaps, spray foam eliminates thermal bridging.**

**Spray polyurethane foam improves indoor air quality by reducing the transport of dust and pollen from outside.**

**Spray polyurethane foam reduces drafts and air movement.**

# R-value alone is NOT the answer!

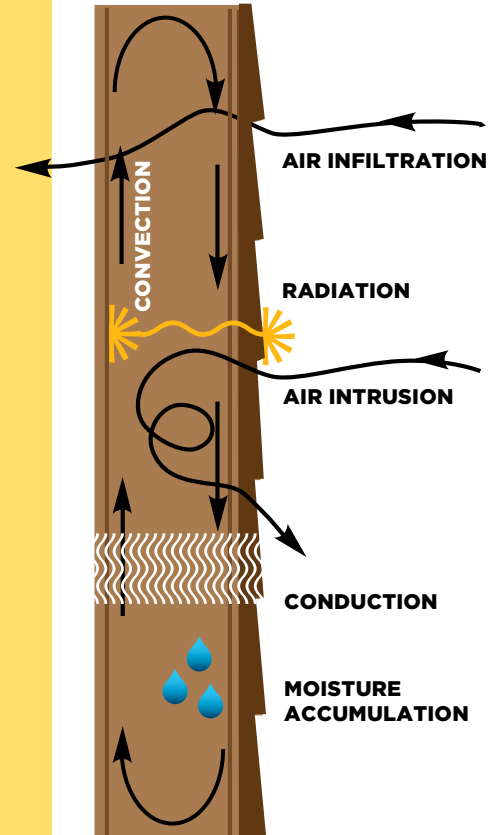
Heat loss or gain can occur through any element of the building envelope (wall, floor, or roof/ceiling) by three primary mechanisms:

1. CONDUCTION
2. CONVECTION
3. RADIATION

In addition, three secondary mechanisms can influence the heat loss/gain by affecting insulation effectiveness:

4. AIR INFILTRATION
5. AIR INTRUSION
6. MOISTURE ACCUMULATION

**R-value, the traditional measure of an insulation's effectiveness, measures only ONE of these six mechanisms. Spray polyurethane foam effectively prevents or blocks all six heat transfer methods.**



**MECHANISMS OF HEAT TRANSFER**