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CBIA and Energy Commission 2016 Standards Forum
High Performance Attics - Asphalt Roofing

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Objective

- ▶ **Provide an high level perspective of Insulated Roof Assemblies impact on Asphalt Roofing Products**

Topics

- ▶ **Introduction**
 - ▶ **Market Share**
 - ▶ **Impact of Insulated Roof Assemblies**
 - ▶ **Installation**
 - ▶ **Cost**
 - ▶ **Potential Market Barriers**
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Introduction

- ▶ **I am representing the Asphalt Roofing Manufacturers Association's (ARMA) perspective on Insulated Roof Assemblies**
 - ▶ **ARMA includes almost 95 percent of the nations manufacturers of asphalt roofing products**
 - ▶ **Please contact individual manufacturers for their individual position on Insulated Roof Assemblies**
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Market Share

- ▶ **The market share of asphalt shingles for new construction is between 20 and 30 percent**

Impact of Insulated Roof Assemblies

▶ **Warranty**

- **Manufacturers warrant against manufacturing defects in the shingle**
 - **Workmanship, Insulation and Roof Deck are examples of what is not covered**
 - **Key conditions include Ventilation and following Manufacturers Installation Instructions**
 - **Consult manufacturer for their specific warranty requirements**
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Impact on Insulated Roof Assemblies

▶ **Product life**

- **Several factors impact the service life of asphalt shingles**
 - **Higher temperatures reduces the age of asphalt**
 - **Service life of asphalt shingles are compromised with increase temperatures**
 - **ARMA has no service life studies on asphalt shingles to date**
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Impact on Insulated Roof Assemblies

▶ **Roof Deck**

○ **Fire Performance**

- **Most fire rated assemblies are tested without insulation**
- **Insulation type and design may impact fire rating**

○ **Moisture Control**

- **Proper ventilation is the most in field proven method**
- **Unvented modeling and laboratory research lack field validation**
- **Air leakage over time is a critical factor**

○ **Structural Design**

- **Additional decking to meet shingle substrate requirements**
- **Materials to create air space if ventilation is required**

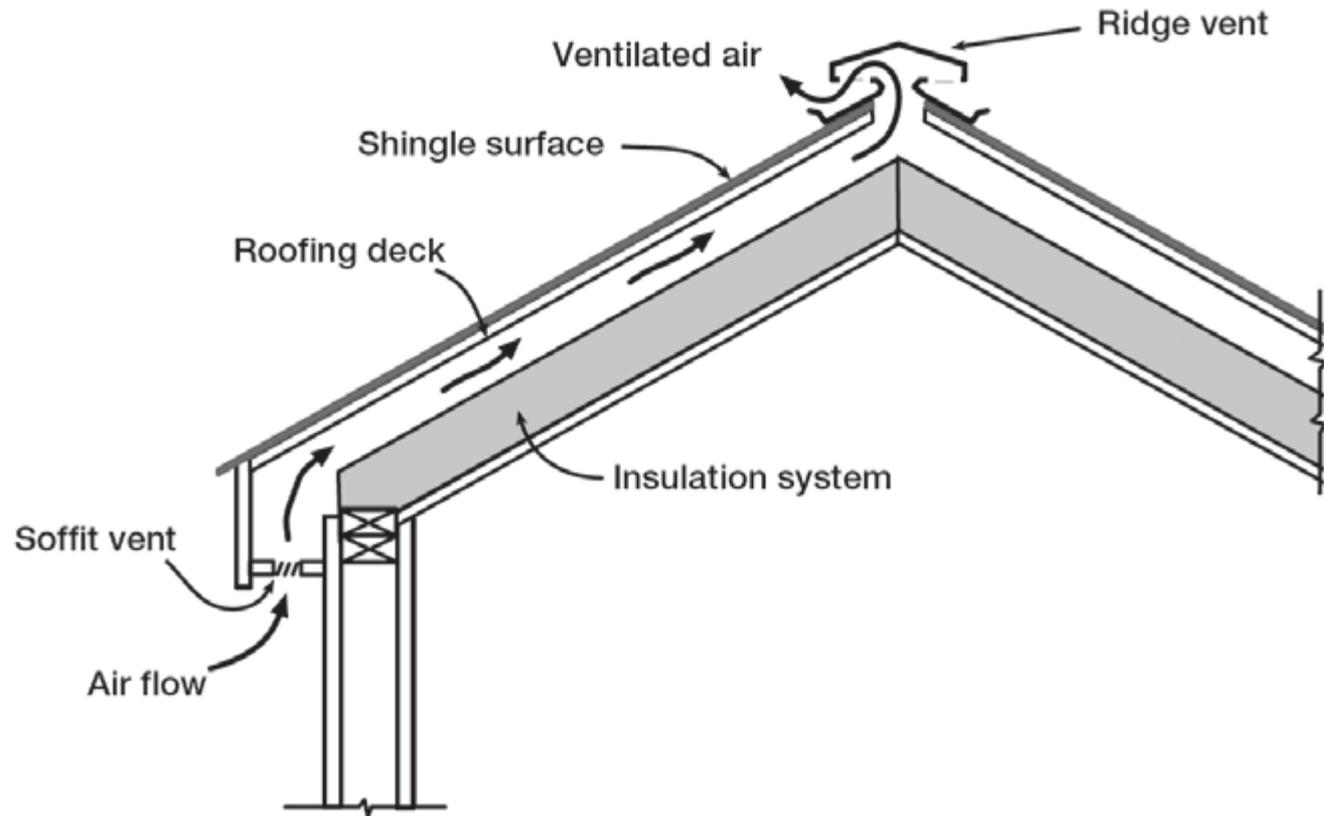
Impact on Insulated Roof Assemblies

▶ Installation

- **Below deck insulation**
 - **Insulation in accordance manufacturer instructions**
 - **Air space between insulation and deck if ventilation is required**
 - **Sealing critical areas for air leakage**
- **Above deck insulation**
 - **Attachment of insulation and additional decking**
 - **Attachment of materials to create air space if ventilation is required**
 - **Non-traditional flashing details may be needed**

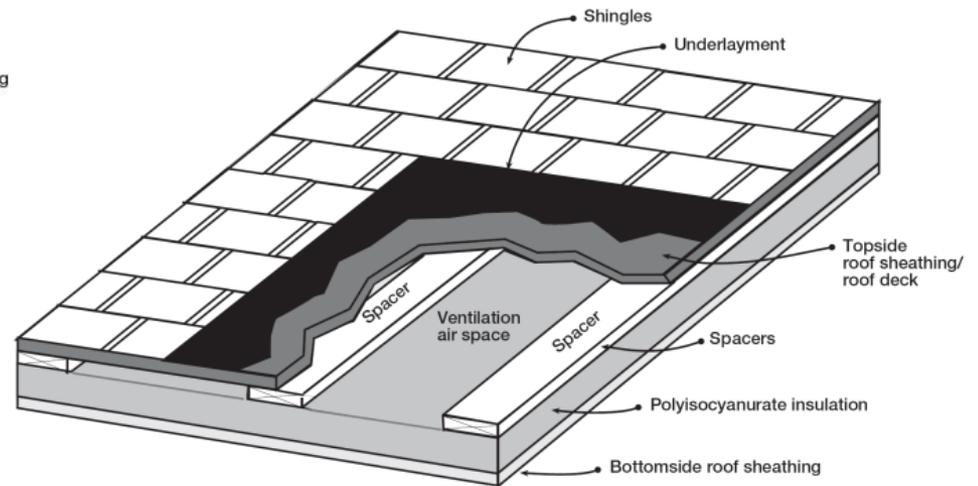
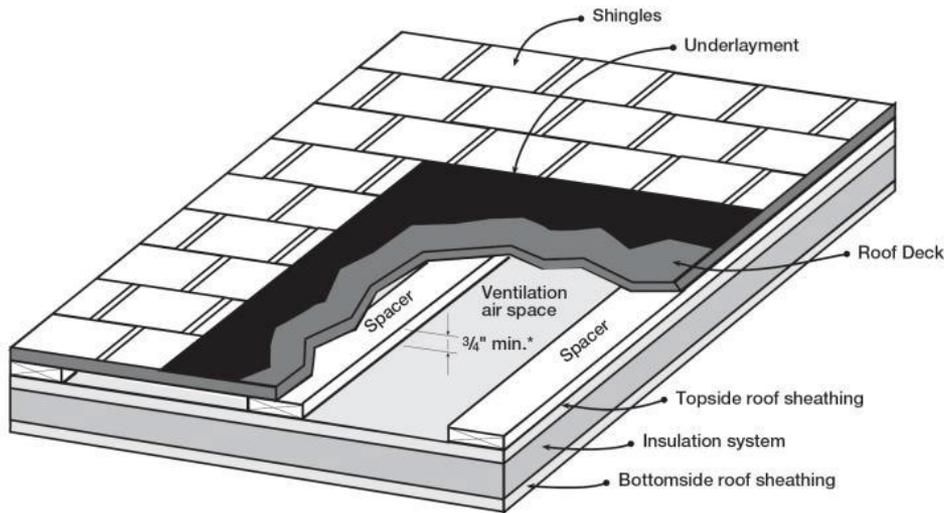
Below Deck Insulation – Vented Assembly

- ▶ Source ARMA



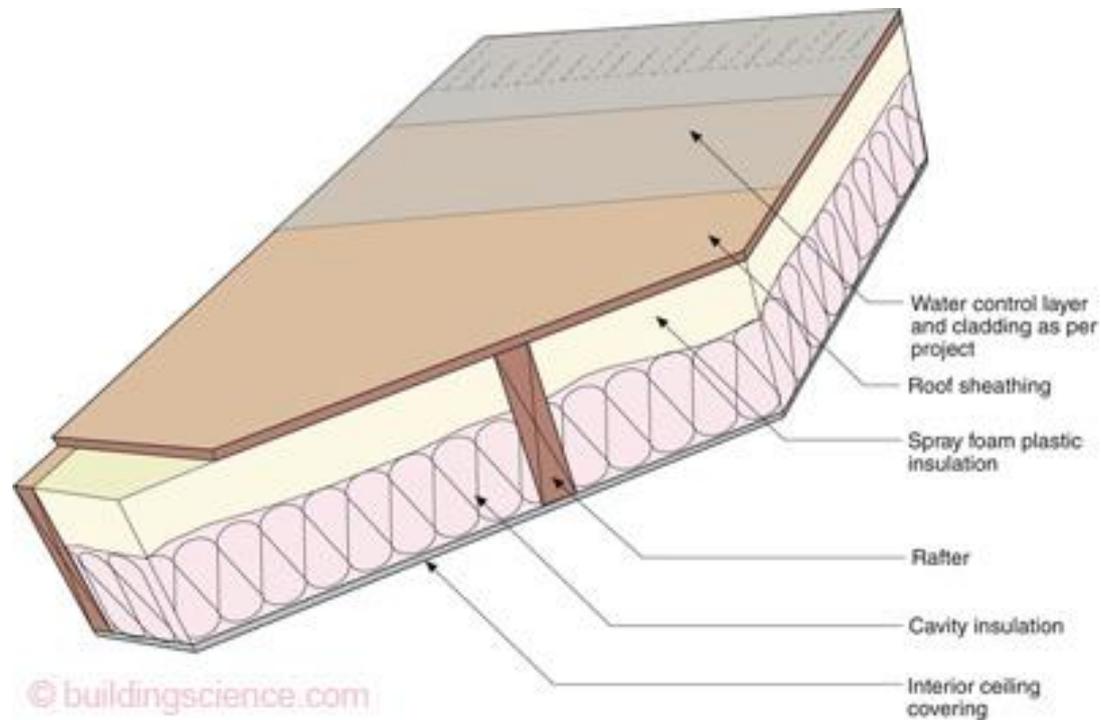
Above Deck Insulation – Vented Assembly

▶ Source: ARMA



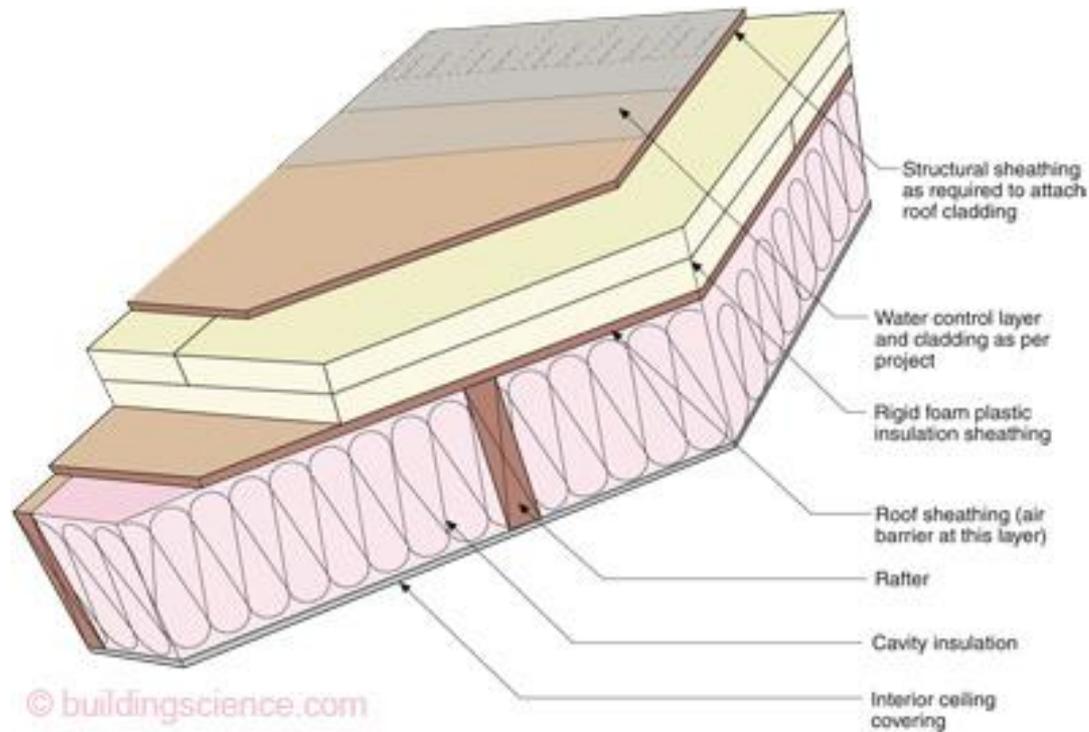
Below Deck Insulation – Unvented Assembly

- ▶ Source: Building Science Corporation



Above Deck Insulation – Unvented Assembly

- ▶ Source: Building Science Corporation

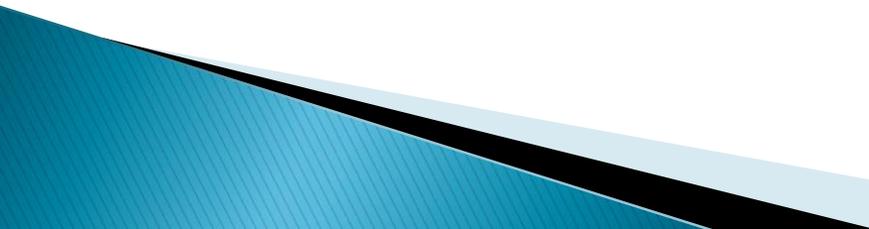


Cost

- ▶ **Below Deck Insulation**
 - **Additional Insulation**
 - **Create Air Space**
 - **Sealing Critical Openings**

 - ▶ **Above Deck insulation**
 - **Additional Decking**
 - **Create Air Space**
 - **Additional Insulation**
 - **Non-traditional Flashing Details**
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Potential Market Barriers

- ▶ **Manufacturer Requirements**
 - **Acceptable Decking, Ventilation and Installation**
 - ▶ **Training & Education**
 - **Non-traditional Installation and Design**
 - ▶ **Building Code Compliance**
 - **Fire Ratings, Structural, Vented and Unvented**
 - ▶ **Design Professional Responsibility**
 - **Architect, General Contractor, Builder, and Roofer**
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Thank You

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