technical bulletin

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Application of Asphalt Shingles Over Insulation, Insulated Decks, or Radiant Barriers

The Residential Roofing Committee of the Asphalt Roofing Manufacturers Association (ARMA) has established the following recommendations regarding the application of asphalt shingle products directly over insulation, insulated roof decks, or radiant barriers.

Shingle Application Directly Over Insulation:

1. Proper free-flow ventilation is impossible to achieve using this method. Heat build-up, which is typically a result of inadequate ventilation, may accelerate weathering and reduce the anticipated life of the asphalt shingles.
2. Asphalt shingles are likely to be damaged or punctured when nailed onto a non-rigid surface such as roofing insulation.
3. The nail-holding ability of the insulation is not adequate. Consequently, shingle damage and/or blow-off may occur if shingles are applied directly to insulation.
4. The fire ratings of various asphalt roofing products may be affected when applied directly over insulation. Individual manufacturers should be consulted to determine the effects on such ratings.

Shingle Application Directly Over Insulated Decks:

This type of application is not recommended unless an adequate free-flow ventilation space is created between the top of any insulation and the underside of a nailable deck. Proper ventilation must be provided to dissipate heat and humidity build-up under the roof top. (See ARMA Bulletin 209-RR-86 entitled *"Ventilation and Moisture Control for Residential Roofing."*)

In addition to affecting roof performance, direct applications of asphalt shingles over insulated decks without providing proper ventilation may void the shingle manufacturer's warranty. Individual manufacturers should be consulted to determine possible effects on their product warranties when such applications are utilized.

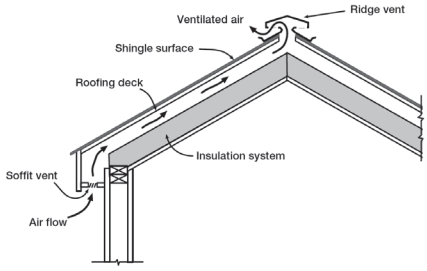

Figure A: Air flow through roof systems using soffit and ridge vents

(Most vent systems manufacturers recommend that ridge ventilation/ventilation ratios should be between 1/300 and 1/150 with a max. of 50% at the ridge.)

Shingle Application Over Radiant Barriers:

Radiant barriers installed underneath shingles interfere with proper ventilation underneath the roof deck. Adequate free-flow ventilation space must be created between the top of the radiant barrier and the underside of the nailable deck sheathing. Proper ventilation must be provided to dissipate heat and humidity build-up under the roof top.

Some methods for creating free-flow air space for proper ventilation are shown in Figures A, B and C.

Note: This document was prepared by the Asphalt Roofing Manufacturers Association and is disseminated for informational purposes only. Nothing contained herein is intended to revoke or change the requirements or specifications of the individual roofing material manufacturers or local, state and federal building officials that have jurisdiction in your area. Any question, or inquiry, as to the requirements or specifications of a manufacturer, should be directed to the roofing manufacturer concerned. THE USER IS RESPONSIBLE FOR ASSURING COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

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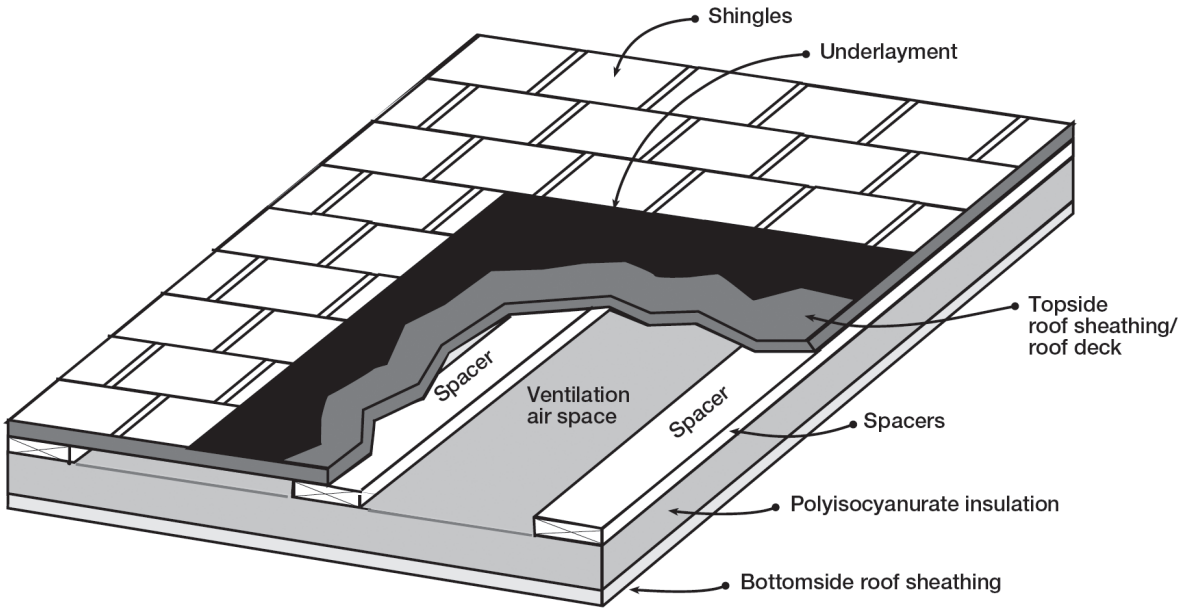

Figure B: Complete roofing assembly using a generic ventilated roof deck system

**(Factors influencing this measurement include: type of construction, roof pitch/run, temperature, humidity, etc. Consult the deck manufacturer, deck system designer and shingle manufacturer for specific requirements.)*

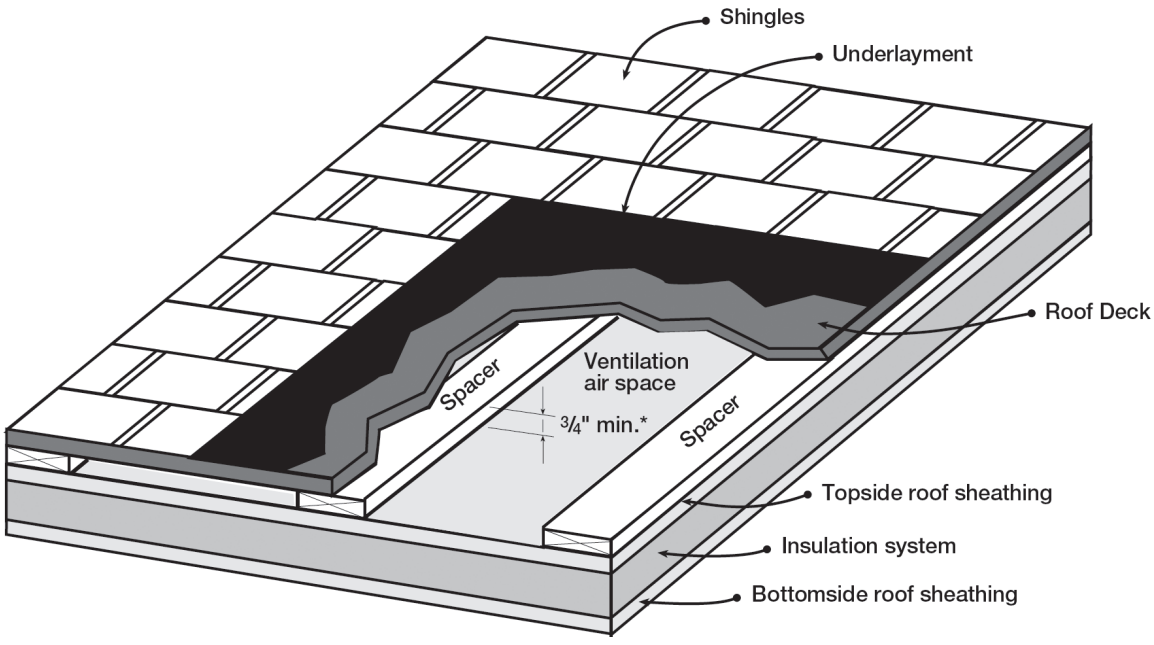

Figure C: Complete roofing assembly including spacers for ventilation

**(Factors influencing this measurement include: type of construction, roof pitch/run, temperature, humidity, etc. Consult the deck manufacturer, deck system designer and shingle manufacturer for specific requirements.)*