

ARMA Lightweight Structural Concrete Roof Decks Statement

Revised April 2021

While properly designed roof systems installed over lightweight structural concrete roof decks have performed successfully, moisture-related complications can be an issue when these roof decks are used as a roof substrate. Higher absorptive properties of aggregates typically used in lightweight structural concrete can result in an elevated moisture content in the concrete and slow down the rate of drying. These effects can amplify moisture-related issues impacting the performance of roof systems and make it difficult for the applicator to determine when the substrate is ready to receive the roofing system. Installing these decks over non-removable, form deck or other non-permeable substrates can exacerbate the issue. Utilization of bottom-side venting forms, moisture tolerant insulation systems such as lightweight insulating concrete, vapor retarders and/or venting base sheets are examples of ways to successfully manage moisture-related issues attributed to lightweight structural concrete decks.

Roofing stakeholders, such as designers, property owners, roofing contractors, and roofing manufacturers, should use caution when installing roof systems over lightweight structural concrete roof decks.

Design and installation considerations can include:

- Difficulty determining when a deck is ready for roofing
- Exterior application makes it difficult to measure concrete moisture content
- Impact of moisture on component adhesion
- Moisture tolerance of insulation facer
- Reduced R value
- Microbial growth potential
- Water-based adhesive stability
- Corrosion of roof fasteners and other ferrous-containing roof components

The selection and suitability for use of the deck material are the responsibility of the designer of record, who must make appropriate design accommodations to address high moisture content encountered with lightweight structural concrete decks. As with any substrate, the designer should consult the roofing system manufacturer's application and specifications guidelines for specific recommendations and requirements.



TECHNICAL BULLETIN

DISCLAIMER OF LIABILITY: 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.

Nothing contained herein shall be interpreted as a warranty by ARMA, either express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose or non-infringement. IN NO EVENT SHALL ARMA BE LIABLE FOR ANY DAMAGES WHATSOEVER, including special, indirect, consequential or incidental damages or damages for loss of profits, revenue, use or data, whether claimed in contract, tort or otherwise. Where exclusion of implied warranties is not allowed, ARMA's liability shall be limited to the minimum scope and period permitted by law.

Asphalt. The Roofing Solution.™

2331 Rock Spring Road, Forest Hill, MD 21050. • www.asphaltroofing.org

A member service provided by the Asphalt Roofing Manufacturers Association