



Roofing No. 3001

Subject: NRCA Polyiso R-value recommendation

Date: January 2008 (Revised January 2016)

NRCA has updated their R-value recommendation for polyisocyanurate roof insulation with the publication of updates to the 2015 The NRCA Roofing Manual: Membrane Roof Systems.

The new recommendation for R-value is based upon testing by NRCA on current generation polyisocyanurate roof insulations. The new NRCA R-value recommendation is as follows:

Polyiso R-value = 5.0 per inch thickness in all climate conditions.

Attached to this bulletin is a "Staying up to date" article published in Professional Roofing by Mark Graham, NRCA's Vice President of Technical Services.

To read other Professional Roofing articles about polyisocyanurate insulation's R-value and for links to the research referenced in this article, please visit www.professionalroofing.net.



Foam-Control EPS products are manufactured by AFM Corporation licensees.

Copyright © 2016 AFM Corporation. All rights reserved. Printed in USA. Foam-Control and Control, Not Compromise are registered trademarks of AFM Corporation, Lakeville, MN.

Staying up to date

NRCA is issuing interim updates to the manual

by Mark S. Graham

This month, in addition to *The NRCA Roofing Manual: Metal Panel and SPF Roof Systems—2016*, NRCA is publishing interim updates to the electronic versions of the 2014 and 2015 volumes. The electronic media delivery method allows NRCA to maintain the manual as an up-to-date reference for time-tested, successfully performing roof systems in a constantly changing roofing industry.

Updating the 2015 manual

Several sections of *The NRCA Roofing Manual: Membrane Roof Systems—2015* are updated and revised with this interim update.

NRCA has revised its design in-service R-value recommendation to 5.0 per inch thickness

In Chapter 4-Rigid Board Insulation, Section 4.3-Expanded Polystyrene (EPS), the classification table based on ASTM C578, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation,” and the text that accompanies the table have been revised to more clearly explain NRCA’s recommendations.

NRCA recommends EPS insulation intended for use as rigid board insulation have a minimum density of a nominal 1.25 pounds per cubic foot (pcf), such as that complying with ASTM C578, Type VIII, having a minimum density of 1.15 pcf. Designers may specify EPS with higher density and compressive strength values based on specific project requirements. EPS complying with ASTM C578, Type I (1 pcf nominal density) generally is not intended for use in roofing applications.

Section 4.4-Extruded Polystyrene (XPS) has been similarly revised to more clearly explain NRCA’s recommendations. Typically,

XPS insulation with a minimum compressive strength of 25 pounds per square inch (psi) complying with ASTM C578, Type IV is used in roofing applications where the insulation is placed below the roof membrane. NRCA does not recommend the use of XPS complying with ASTM C578, Type V (15 psi) in roofing applications.

Section 4.9-Polyisocyanurate also has been revised and updated to reflect a change in NRCA’s R-value recommendation for polyisocyanurate insulation. Since the January 2011 publication of *The NRCA Roofing Manual: Membrane Roof Systems—2011*, NRCA had recommended designers use in-service R-values of 5.0 per inch in predominant heating-climate conditions and 5.6 per inch in predominant cooling-climate conditions. With the publication of this interim update, NRCA has revised its design in-service R-value recommendation to 5.0 per inch thickness in all climate conditions. NRCA is making this change based on its R-value testing and testing by others who have validated NRCA’s results.

A new table has been added to the section comparing the Polyisocyanurate Insulation Manufacturers Association’s QualityMark^{CM} long-term thermal resistance values and NRCA’s design in-service R-value recommendation per board thicknesses.

Also, the note on page 160 applicable to the thermal resistance calculation procedure is updated to reflect NRCA’s revised design R-value recommendation for polyisocyanurate insulation.

In Chapter 10-Construction Details, at the end of Section 10.1-Information Applicable to All Construction Details, new application guidelines and figures for constructing corners and transitions in membrane flashings have

been added. Inside and outside corner configurations specific to built-up and polymer-modified bitumen, EPDM and thermoplastic membrane roof systems are provided.

Updating the 2014 manual

The interim update to *The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing—2014* revises and updates the manual’s Condensation and Air Leakage Control section.

Section 3.3-Unvented Attics has been updated to reflect changes in the *International Residential Code, 2015 Edition*.

Also, unvented attic provisions are included in the *International Building Code, 2015 Edition* for the first time. These also have been incorporated into the manual’s Section 3.3-Unvented Attics.

Getting current

NRCA member users who access The NRCA Roofing Manual using the NRCA app on their tablets and smartphones will receive push notifications providing them with updated versions of the 2014 and 2015 manuals, as well as the newly published *The NRCA Roofing Manual: Metal Panel and SPF Roof Systems—2016*.

NRCA members and those who have downloaded PDFs of the manuals can access updated PDFs at shop.nrca.net.

This interim update will be incorporated into the hard copy versions of the 2014 and 2015 volumes when they are republished in January 2018 and January 2019, respectively. 📧📱🌐

MARK S. GRAHAM is NRCA’s vice president of technical services.