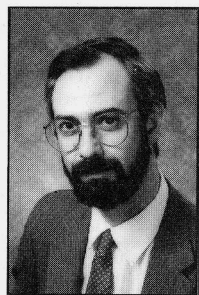


TECH TRANSFER

NRCA introduces steel deck corrosion bulletin

by Thomas L. Smith, AIA, CRC

In May, NRCA completed work on a new bulletin regarding steel-deck corrosion. Titled, "Corrosion Protection For New Steel Roof Decks," Bulletin 15-91 is directed toward building designers.



According to the bulletin, building designers are recommended to specify that the steel decking be factory-galvanized or factory-coated with aluminum zinc alloy for corrosion protection. (Aluminum zinc alloy is commonly known by the proprietary name, "Galvalume.")

Quoting from the bulletin: "When specifying galvanized protection, in the section of the specifications addressing metal decking, the building designer should specify a coating that complies with ASTM A 525 Class G-60 or Class G-90. A G-90 coating provides greater corrosion protection than a G-60 coating (the ASTM specification previously identified G-60 as 'light commercial' and G-90 as 'commercial')."

"When specifying aluminum zinc alloy protection, in the section of the specifications addressing metal decking, the building designer should specify a coating that complies with ASTM A 792. An aluminum zinc alloy provides greater corrosion protection than a G-90 galvanized coating."

The bulletin notes: "The above recommendation applies to most buildings. However, as noted in the *Steel Deck Institute Design Manual*, [1989 edition] in highly corrosive or chemical atmospheres, special care in specifying protective finishes

should be taken, and individual deck manufacturers should be contacted."

In the commentary section of the bulletin, it is noted: "Steel roof decks are typically painted with primer (prime coated) or they are galvanized. The *Steel Deck Institute Design Manual* (1989 edition) states the prime coat 'shall be considered an impermanent and provisional coating.' "

Purpose of the bulletin

As noted in the commentary, "This bulletin was promulgated because of the long-term need for structural integrity of steel decks. To achieve this, adequate corrosion protection should be specified by the building designer."

Because steel decks are quite thin, if they are attacked by corrosion, their structural integrity can be greatly diminished in a relatively short time. Without integrity, steel decks lose their ability to carry the roof's load, thereby resulting in a potential for collapse. Deteriorated decks may also present special concern to roofing mechanics performing reroofing work, because they may step through the deck and fall.

Adequate corrosion protection should be specified by the building designer.

As long as the deck is not exposed to water, there is little concern about corrosion. However, during the life of most roofs, deck exposure to water is possible. Water may enter the roof system because of inadequate condensation control (lack of a vapor retarder), or it may enter by leakage.

If the deck is exposed to water, and if it has a reasonably good corrosion-protection coating, the deck may not be harmed if the source of the water entry is identi-

fied and eliminated soon enough. *This is the underlying reason for the bulletin.* If the deck is galvanized or coated with an aluminum zinc alloy, the risk of deck collapse or worker fall-through is minimized. Likewise, costly deck replacement is minimized.

Was the bulletin promulgated because of phenolic insulation? The answer is an emphatic "no." However, the issue of deck corrosion related to phenolic insulation (see "Tech Transfer," March *Professional Roofing*, Page 74) did cause NRCA to look into the subject of deck-protective coatings. In so doing, it became clear that regardless of the type of insulation used, building designers should specify galvanized or aluminum zinc alloy coatings.

This assessment was further validated by a recent survey of NRCA contractor members. Four types of rigid insulation, as well as lightweight insulating concrete, were identified as the material adjacent to the deck by the contractors reporting corrosion problems.

Bulletin support

The following organizations support NRCA's new bulletin: the American Institute of Architects (AIA), the Asphalt Roofing Manufacturers Association (ARMA), the Institute of Roofing and Waterproofing Consultants (IRWC) and the Roof Consultants Institute (RCI).

NRCA hopes this bulletin will increase the awareness of building designers to deck-corrosion protection. If the recommendations in the bulletin are followed, the increased use of galvanized or aluminum zinc alloy coatings should ultimately benefit the building owner.

The bulletin is available at no charge (for single copies) from NRCA, O'Hare International Center, 10255 W. Higgins Road, Suite 600, Rosemont, Ill. 60018; telephone (708) 299-9070. **PR**

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