Do TPOs comply?

by **Mark S. Graham**

According to NRCA data, the use of TPO membrane roof assemblies has grown significantly in the U.S. roofing industry since their introduction during the late 1980s. At the same time, building code compliance for TPO membrane roof assemblies is unclear and should concern those involved with installing them.

Code compliance

The model building codes generally require roof assemblies to comply with specific criteria regarding materials, fire and wind-uplift resistances, and installation procedures. For most roof assemblies, these criteria typically are satisfied by applicable ASTM International material standards, FM Global approvals or Underwriters Laboratories (UL) Inc. listings regarding fire and wind-uplift resistance, as well as manufacturers' installation instructions.

Although FM and UL data and manufacturers' installation instructions exist for TPO membranes, model building codes do not provide specific approval criteria for TPO roof assemblies. This mostly is because there is no appropriate material standard, such as an ASTM standard, for TPO membrane products. Such a standard would provide a basis for satisfying the material requirements necessary for code approval. As a result, TPO membrane roof assemblies are not specifically approved by model building codes.

Alternative acceptance

Despite a lack of a TPO material standard, the model building codes contain provisions that allow building officials to accept materials, equipment, designs and methods of construction that are not specifically approved by these codes.

Manufacturer	Product(s)	Evaluation report(s)
Carlisle Syntec Inc.	Sure-Weld TPO and Sure-Weld GSD TPO membranes	ICBO ES Report No. ER-5527 NES Report No. NER-575
Firestone Building Products Co.	UltraPly TPO	None
GAF Materials Corp.	EverGard™	None
GenFlex Roofing Systems	GenFlex TPO	None
Johns Manville Roofing Systems	UltraGard® SRT	None
Stevens Roofing Systems	EP, EP-Plus, EP-Fleece and EP-B membranes	NES Report No. NER-599
Versico Inc.	Sure-Weld TPO and Sure-Weld GSD TPO membranes	ICBO ES Report No. ER-5527 NES Report No. NER-575

TPO manufacturers' evaluation service reports.

For example, in the *International Building Code, 2000 Edition*, these provisions are provided in Section 104.11, Alternative materials and equipment.

Typically, building officials will accept roofing products and roof assemblies that are not specifically code-approved provided an appropriate evaluation service report exists. For the model building codes, evaluation service reports are prepared by Building Officials and Code Administrators Evaluation Services Inc.; ICBO Evaluation Service Inc.; Southern Building Code Congress International Public Safety Testing & Evaluation Services Inc.; and National Evaluation Service Inc. (Additional information regarding evaluation service reports is provided in "ES reports and code compliances," December 2001 issue, page 36.)

Evaluation service reports for TPO membrane roof assemblies are listed in the figure.

Closing thoughts

Because TPO membrane roof assemblies are not specifically approved by model building codes, use of the alternative acceptance provisions of these codes appears necessary. Several TPO manufacturers have taken the initiative to obtain evaluation service reports for their products, which allows building officials to accept these products using the alternative acceptance provisions in the model building codes.

If you are involved with installing TPO membrane roof assemblies—whether as a contractor, designer, distributor or manufacturer—I encourage you to become familiar with the specific requirements necessary for building code compliance. Detailed code compliance information, including evaluation service reports, should be available from specific manufacturers.

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