



CROSSINGS



NEWSLETTER OF THE NATIONAL TIMBER BRIDGE INITIATIVE

Editor *Tinathan Royce*

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Wood Preservatives - Their Use and Application in Timber Bridges

Creosote has been banned. On the contrary. In 1985 the Environmental Protection Agency (EPA) concluded an eight-year review for all three of the major wood preservatives — creosote, pentachlorophenol (penta) and the waterborne arsenicals (which include ACZA and CCA.) It was determined after EPA's extensive review process that the benefits of these wood preservative chemicals far outweigh any potential risks.

Why is it not possible to find creosote and penta solutions in local hardware stores? In the past, small containers (quart and gallon units) could be purchased by an individual for home use. As a result of the reregistration process, the three major wood preservatives cited above are restricted use and thus, can only be sold to a licensed applicator. The minimum quantity of creosote available in a packaged container is 10 gallons (two five-gallon units can be purchased together.) Penta, ACZA and CCA solutions are not generally available for "field-use" application.

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Fiscal Year 1992 Timber Bridge Construction Grants Awarded

The Timber Bridge Initiative proposal Evaluation Panel met March 18-20, 1992, at Morgantown, West Virginia to review and recommend for funding the Fiscal Year 1992 timber bridge construction grant recipients. Panel members were:

- Edward Cesa*, Timber Bridge Initiative Coordinator, NA Representative
- Robert Westbrook*, Timber Bridge Initiative Coordinator, Southern Representative
- William vonSegen*, Timber Bridge Initiative Coordinator, Western Representative
- Stephen Bunnell*, National Forest System, Engineering, Washington Office Representative
- Russell Moody*, Forest Products Laboratory, Engineered Wood Products
- John Pasquantino*, NA Representative
- John Sebelius*, State and Private Forestry, Washington Office Representative
- Thomas Williamson*, Executive Vice President, American Institute of Timber Construction (AITC)
- Robert C. Wood*, Federal Highway Administration, Bridge Unit, Washington Office Representative
- H.M. "Mac" Lumphold*, Manager, Manufacturing Wood Products and member of Southern Forest Products Association
- Stephen C. Quintana*, Timber Bridge Initiative Program Director

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Your University at Work

West Virginia University - The Timber Bridge Quality Assurance and Inspection Manual has been completed. The coauthors; Julia Davalos, Ph.D.; Mike Wolcott, Ph. D.; Barry Dickson, and Jim Brokaw, are all affiliates of the Constructed Facilities Center at West Virginia University, Morgantown, West Virginia. After working for more than 12 months on the project, the final draft was submitted to the Pennsylvania Department of Transportation (PennDot) in February 1992.

The manual was written to fill a large gap in the supply of information available to timber bridge owners and builders. PennDot, like many other state transportation agencies, recognized the need for a builder's, inspector's and owner's manual. Pennsylvania is apparently the first state to take steps to meet this need. PennDot issued a request for proposals to write a quality control and quality assurance manual in the spring of 1990. The Constructed Facilities Center, one of several bidders for the project, was awarded the contract to write the manual.

The manual is composed of two major components. The first component, addressed in the first three chapters, consists of background information needed to understand the materials and mechanics of modern timber bridges. The second component of the manual consists of chapters on inspection of timber bridges before, during, and after construction. It was felt that by dividing the manual in this manner, it would be useful to persons new to timber construction, as well as to those experienced with timber but unfamiliar with the newer types of timber bridges.

Information for the manual was gathered from many sources, several of which are available to any researchers and a few of which are less easily obtained. But the experiences we accumulated from designing, constructing and testing timber

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Restricted Use. A further explanation concerning restricted use is important. In accordance with the EPA reregistration process for the three major wood preservatives, label modifications were mandated addressing the application, use and handling of the wood preserving chemicals. Thus, creosote, penta and the waterborne arsenicals can only be applied by an individual who has been properly trained which constitutes the restriction of the use of these wood preservatives.

Who is a licensed applicator? This is an individual who has completed a two to three day State (i.e., New York, Pennsylvania, etc.) training program. This program is an extensive review of the proper methods for applying the wood preservatives to the wood product.

Application of wood preservatives to wood (pressure and non-pressure methods.) With respect to lumber and timbers that are used as a bridge material, initially the wood must be pressure treated in accordance with the American Wood-Preservers' Association (AWPA) Standards C2 and C14 for pressure processes. During the erection of the bridge when bore holes and fresh cut areas may expose untreated wood and addition "brush" application of preservative must be made. During the pressure treating process, a licensed applicator must be involved in the treatment process for the wood.

Field Applications. There is an exception to the licensed applicator rule with respect to creosote when it is being applied (non pressure) at the construction site. Creosote may be applied by an individual who has reviewed an EPA training film which can be obtained from a creosote producer. In addition a non-restricted wood preservative, such as copper naphthenate (2% solution), can be used.

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This field application is performed in accordance with AWWA Standard M4, "Standard for the Care of Preservative-Treated Wood Products." In addition, or as an alternative, the wood surfaces may have applied to them a heavy application of a coal tar roofing cement meeting the ASTM D-4022 specification.

Is it necessary to be a licensed applicator to install treated wood products? The answer is no. Treated wood is not "a pesticide" and; therefore, installation of a timber bridge can be performed as a routine construction practice. However, there are certain precautions for the use and handling of treated wood. These are given in the Consumer Information Sheets (CIS) which can be obtained from the treated wood supplier.

Does the installation of treated wood products in direct contact with water (streams, lakes, etc.) present a concern for their effect on the environment? The answer is no. EPA specifically has indicated that the "incidental contact" of treated wood with water should be allowed and does not constitute environmental concern. Wood preservatives do not bio-accumulate, and there is not a

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Your University at Work ... continued from page 2

bridges in West Virginia may prove to be the most valuable resource we brought to the project. Many of the bridge construction and material problems we encountered in West Virginia and solutions we developed to solve these problems are discussed in the latter chapters of the manual. Acceptable construction tolerances, fabrication guides, assembly and erection methods, suggested specifications and many more items crucial to constructing quality timber bridges are discussed.

— **Barry Dickson**
West Virginia University
Morgantown, West Virginia

Fiscal Year 1992 Timber Bridge Construction Grants Awarded ... continued from page 1

Over 170 proposals were evaluated and 57 proposals were selected for funding for Fiscal Year 1992. Of the proposals funded, 45 bridges are vehicular and 12 are pedestrian bridges. The total dollar amount awarded was \$2,002,036. On page 4 is a list of the approved bridges. An asterisk "*" indicates the pedestrian bridges.

— **Tinathan A. Royce**
Editor
Morgantown, West Virginia



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significant potential risk to man, animals, fish or the environment when exposed to treated wood products.

Why use treated timber as a material in bridges?
Using preservative chemicals significantly extends the service life of wood. Treated wood products such as those utilized in a timber bridge can be used safely and without adverse effects. It is a wise use of a construction material because wood is a renewable resource. As a structural product this material — wood — can be harvested and replanted.

References

Ritter, Michael A. 1990. *Timber Bridges: Design, Construction, Inspection, and Maintenance*. USDA, Forest Service, EM-7700-8.

Consumer Information Sheets

Webb, D.A. and L.R. Gjovik. 1988. "Treated Wood Products, Their Effect on the Environment." *American Wood Preservers' Association Proceedings*, Volume 84:254-259.

— David A. Webb
Preservative Committee
NFPA Timber Bridge Task Group

Fiscal Year 1992 Timber Bridge Construction Grants Awarded ... *continued from page 3*

State	County	State	County
AL	Barbour	MS	Copiah*
AL	Hale	MS	Covington
AL	Tuscaloosa	MS	Jones
AR	Washington	MT	Ravalli
AZ	Coconino*	NH	Grafton*
CA	Monterey	NM	Union
CA	Yuba*	NY	Livingston
CO	Delta	NY	Schuyler
FL	Jefferson	NY	Washington
GA	Forsyth	NY	Wyoming*
GA	Gwinnett*	OH	Stark
KS	Franklin	OR	Morrow
KY	Boyle	OR	Umatilla
KY	Jackson	OR	Washington
ID	Lemhi	PA	Jefferson
ID	Washington	PA	Montour
IN	Scott	TN	Cheatham*
LA	Jefferson	TN	McNairy
MA	Barnstable	UT	Duchesne
MD	Calvert	UT	Iron*
MD	Charles	UT	Iron*
MD	Garrett	VA	Accomacki
ME	Somerset*	VA	Shenandoah
MI	Crawford	WA	Thurston*
MI	Montmorency	WI	Door
MI	Roscommon	WV	Harrison
MI	VanBuren	WV	Lewis
MN	Fillmore	WV	Pleasants
		WV	Webster*

* Pedestrian Bridges

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