

Assessment of the potential quality of preservative-treated pilings removed from service

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Abstract

Preservative-treated wood products are important construction materials. Preservative-treated wood pilings, after removal from service, constitute a major disposal problem for managers of waterfront facilities. For example, approximately 7,000 to 8,000 tons of mechanically or biologically deteriorated wood pilings are currently removed from U.S. naval facilities annually. While many of these poles are no longer useful for piles, a considerable amount of the wood in them may be used for other exterior applications. The key to using the sound wood in these poles is the development of a nondestructive

evaluation (NDE) method that can be used to assess the potential quality of wood in them.

The objective of this study was to investigate use of stress-wave NDE methods to assess used preservative-treated piles. Stress-wave NDE tests were conducted on preservative-treated Douglas-fir and southern pine pilings (both new and old ones removed from service). The pilings were then broken down into lumber. The modulus of elasticity (MOE) of the lumber specimen was determined using the transverse vibration NDE method. An empirical relationship between lumber MOE and piling MOE was developed.

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