

**Characterizing Properties and Products of Spent CCA
From Residential Decks**

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The amount of CCA treated wood being removed from spent residential decks is increasing at a tremendous rate. While most spent CCA treated wood is being disposed in landfills, further useful and environmentally beneficial alternatives have to be met. If the volume of CCA treated wood reaching landfills continues to rise, stricter disposal regulations and thus higher disposal cost may soon follow. This research estimated the percentage of recoverable lumber from spent CCA decks that can be recycled into other usable products.

Six residential decks were removed from service, by either demolition or deconstruction procedures. It was found that 86% of the CCA treated wood from the residential decks could be recovered as reusable CCA treated lumber. It was also found that deconstruction of a residential deck, rather than demolition, was not a factor in the volume of CCA treated wood recovered. The joists and decking were the most successful material recovered, at 95% and 93% respectively.

Chemical and mechanical properties of the removed CCA treated wood were also analyzed. The chemical retention of the deck material, through chemical assay, proved that most of the spent CCA treated wood could be used in above ground applications. The stiffness of spent CCA treated wood from residential decks was approximately equal to that of recently treated CCA wood. The strength properties were slightly lower than recently treated CCA wood probably due mainly to physical and climatic degradation.

Products were then produced that could be successfully utilized by recycling centers or community and government organizations, to reduce the burden of landfills and extend the useful life of CCA treated lumber. Products made included; pallets, picnic tables, outdoor furniture, residential decks, and landscaping components. Waste management, recycling, and government organizations were interviewed to determine what markets and barriers exist for recycled CCA treated products. Most landfill and recycling facilities do not currently sort or recycle CCA treated wood, citing the main reason is lack of a viable market, or were deterred to recycle due to the recent media assault of CCA treated wood. The results of the research should reduce the burden on landfills and on timber harvesting by extending the useful life of removed CCA treated wood from residential decks.

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Bob is an Associate Professor and Extension Specialist in Forest Products Marketing at Virginia Tech. He is the Director of the Center for Forest Products Marketing and Management. The Center is a collaborative effort among the forest products industry, trade associations, government agencies and the Department of Wood Science and Forest Products at Virginia Tech to promote marketing education and research for the forest products industry.

Bob holds a Ph.D. from Virginia Tech in Forest Products Marketing, a MBA from the University of Wisconsin at Oshkosh, and a B.S. in Wood Science from Michigan Tech. Bob teaches undergraduate and graduate courses in the areas of wood science and forest products marketing. He was raised in the hardwood lumber industry, where his father managed a hardwood sawmill in Michigan. Prior to completing his Ph.D., he worked for a major wood preserving company for 14 years as a quality control director, production manager and sales representative in the Midwest. His research efforts have focused in industrial marketing and the markets for treated lumber products. Bob has conducted extensive research in the recycling of solid wood products and in the areas of treated wood and wood residues produced by the forest products industry. Bob teaching wood products, marketing and sales continuing education courses throughout the US. He also teaches the wood preservation re-certification course for category 12 as required by the EPA for the Commonwealth of Virginia.

David Bailey

David Bailey received his Bachelor of Science degree in Wood Science and Forest Products at Virginia Tech in 1998 from the College of Natural Resources. After graduation Mr. Bailey accepted a position as Management Trainee with Champion International Corporation at Citronelle, AL. After eight months in this position Mr. Bailey accepted the position of Production Supervisor for Champion International Corporation in a softwood lumber production facility located at Whitehouse, FL. In May of 2001, Mr. Bailey returned to school as a Graduate Research Assistant in the Department of Wood Science at Virginia Tech, to pursue a Master of Science degree. Mr. Bailey's research in the Department of Wood Science is studying the feasibility of recycling spent CCA treated residential decks. Mr. Bailey plans to finish the requirements for a Master of Science degree at Virginia Tech in the winter semester of 2003. After graduation Mr. Bailey plans to gain employment in the forest products industry.

Phil Araman

Phil Araman is project leader for the USDA Forest Service, Southern Experiment Station located in Blacksburg, VA. He is also an adjunct faculty member in the Department of Wood Science and Forest Products at Virginia Tech. He and his research project are located the Brooks Forest Products Center at Virginia Tech. His project's research mission is to develop advanced tree evaluation and processing technologies, automated hardwood processing technologies, develop new or improved products made from low-and medium-grade hardwood sawtimber and nonselect species, and to develop effective wood product recovery, reuse, and recycling.