



## The Rock Doc

by Dr. E. Kristen Peters

### Doing the 180 pivot

I remember well when Barbara Mandrell and George Jones sang a fine country and western song about changes in public perspective. For those of you too young to remember, the lyrics of the chorus were:

"I was country when country wasn't cool/I was country from my hat down to my boots/I still act and look the same/what you see ain't nothin' new/I was country when country wasn't cool."

The song rocketed up the charts when the country twang had become the fashion in popular music — a testimony to how public opinion can turn on a dime because country music hasn't been popular outside its niche before nor since.

Here's another example of how public perspectives can radically change. It wasn't that long ago that most environmentalists viewed the wood-products industry as the enemy. The image of lumberjacks cutting down trees seemed to many like a picture of rapacious wolves gobbling down innocent bunny rabbits.

But opinions have changed about that, too.

"I think some of my green friends in the old days thought I was a 'lumber-Nazi.'" Dr. Karl Englund said to me recently.

Englund is an engineering researcher in wood products and their uses at Washington State University.

"But there's been a real 180 degree turn. Now people understand that wood products are a renewable and green resource," he continued.

Englund spoke to me as he gave me a tour of the research and testing facility where he works.

"You can think of wood as solid carbon dioxide, exactly what we need to take carbon dioxide out of the air and put it into 'sinks' where it will stay for a long time," he said while knocking — of course — on wood.

To be sure, there's nothing new about lumber. But what is new are the materials that people like Englund dream up and produce out of scrap wood, sawdust, waste plastic and other materials of little value.

Laminated veneer lumber, LVL, was one of the first products to come out of wood engineering labors. LVL is made of thin but large layers of wood that require a full-sized log. They are then pressed and glued together to form material that's stronger and more uniform than lumber. Oriented strand board, or OSB, is also useful because it's made of smaller strips of wood in layers that are oriented in alternating directions.

Another, newer material that's a topic of research is formed from short strips of wood that are heated and pressed into 3-D forms that create what engineers call a "complex geometric shape."

I'd call it a wood waffle. It's interesting stuff just to toss around.

Now think of such a waffle that has a thin veneer of wood on its top and bottom. What you have is a material that's lightweight, strong, and even traps air in its pockets, making it naturally insulating.

That's good engineering all around, the type of thing Englund and his colleagues are researching for possible transmission to the commercial sector.

But the story gets better from a green point of view.

Smaller pieces of waste wood can be ground up to material similar in size to whole-wheat flour. When combined in a giant extruder with plastic — including recycled plastics that otherwise would be waste — the fine wood fiber particles form the strength component of products like composite lumber decking. The material doesn't rot outdoors because the plastic seals the wood away from moisture. Add some coloring agents, and you have decking that looks fine and will never jam a splinter into your bare feet.

Good engineering isn't limited to wood products. When material is ground up to small sizes, wheat straw, rice straw and other agricultural by-products can be used in some basically similar ways.

Englund has a refreshing perspective on his engineering work.

"I'm a garbage guy," he said. "The point is to use people's waste."

Englund may work mainly within the wood-products industry, but it's clear to me he's really green. And he always has been.

Unlike public opinion, some things are a constant.

And yes, I'm still listenin' to country music — sometimes in my best western hat.

*Dr. E. Kirsten Peters is a native of the rural Northwest, but was trained as a geologist at Princeton and Harvard. Questions about science or energy for future Rock Docs can be sent to epeters@wsu.edu. This column is a service of the College of Sciences at Washington State University.*

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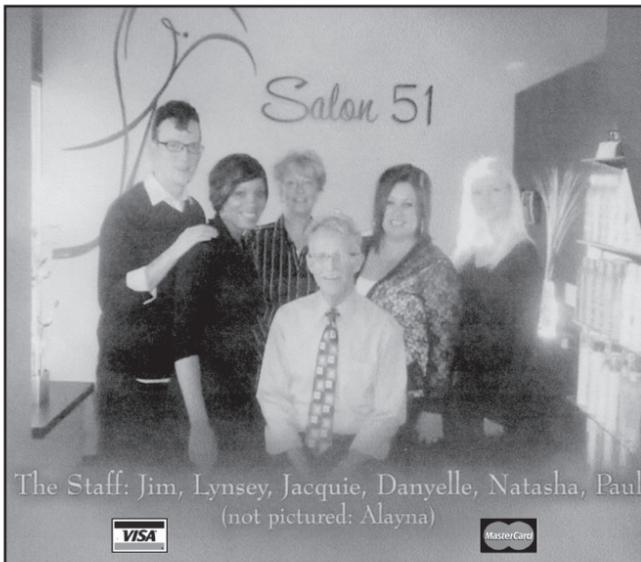
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