Meet the Engineer!

A materials engineer develops and improves materials that you use in your everyday life by understanding and altering the microstructure of materials.

Dr. Samuel L. Zelinka

Research Materials Engineer
Ph.D., University of Wisconsin-Madison
USDA Forest Service engineer

http://www.naturalinquirer.org

Important Engineer Characteristics:

People forget that scientists and engineers not only need to find and discover new ideas, but they need to communicate the ideas to other professionals and the public. I spend most of my working time writing technical articles that will get published in peer-reviewed journals.

Example of a simple question I have tried to answer: Where does water go in wood when wood gets wet? Bad things happen to wood when it gets wet (e.g., mold, decay, etc.). I am developing models of how water changes the wood's microstructure, which is the smallest level of a material's structure that we can see. These models could help improve wood.

Technology or equipment used in my work:

Materials engineers understand the microstructure of materials by using different types of microscopy. Scanning electron microscopy (SEM) enables us to see things that are even too small to see in common light microscopes.

Most Exciting Work

Recently, my colleagues and I discovered a link between a moisture-generated mechanical softening of wood and the movement of chemicals and ions through the wood. We believe that these related phenomena may be connected to the onset of wood damage.

When did you know you wanted to be an engineer? I didn't have a single moment that I knew I wanted to be an engineer. But, my 6th grade teacher and high school chemistry teacher challenged me to go above and beyond. What I do now doesn't relate to those classes, but the lessons I learned still fuels my passion.

www.fpl.fs.fed.us/people/bios/employee_level_bio.php?employee_id=30