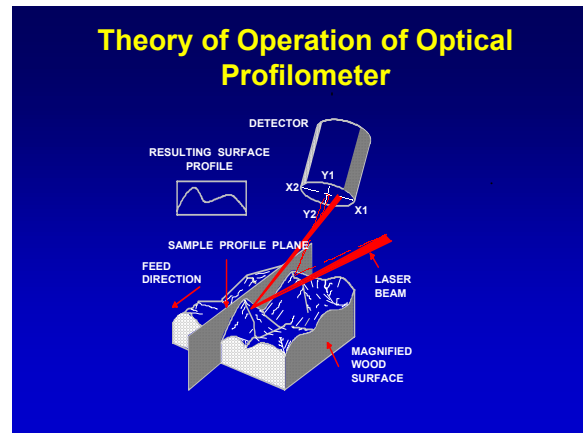
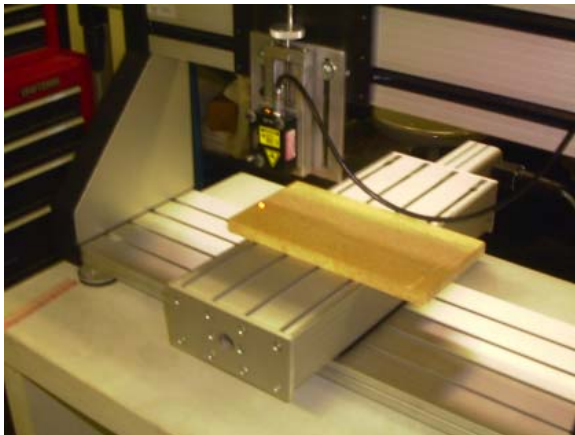


## WOOD MACHINING &amp; TOOLING RESEARCH

## SURFACE QUALITY RESEARCH - LASER PROFILOMETRY - UPDATE

Surface roughness is the primary quality characteristic for machined wood surfaces. On-line detection of surface quality for machines such as moulders, planers, routers and saws has great potential for improving product quality and identifying maintenance problems. Assessment, monitoring, and control of machined surfaces is one of the primary focuses of the research efforts in the WMTRP. Hardware and software that form the basis for an automated laser profilometer surface assessment system has been developed and extensively tested both in the laboratory and the field. A non-contact sensor is utilized in the system which is designed to minimize the effect of color changes associated with wood grain. Testing has shown that the system functions well in an industrial environment with minimal problems due to noise, vibration, and dust. On-line detection of surface quality at feed speeds of up to 1500 ft/min is possible with this system. A laboratory system has been developed that allows for automated surface scanning of specimens up to 5 inches per second.



Laboratory Automated Surface Assessment System

Schematic of Surface Profilometer

*The Wood Machining & Tooling Research Program (WMTRP) is a multidisciplinary program involving the fields of Mechanical Engineering, Industrial Engineering, Manufacturing Engineering, Material Science, and Wood Science. The program mission is to provide the woodworking industry with personnel educated in machining and tooling technology and provide applied research results aimed at improving efficiency and wood utilization. Major program support is provided by the U.S. Department of Agriculture.*

**For more information on WMTRP research activities please contact Mr. Richard Lemaster, WMTRP, Box 8005, NC State University, Raleigh, NC 27695. Phone: 919 515-1548, Fax: 919 513-3496 E-mail: richard\_lemaster@ncsu.edu. WMTRP web site: [www2.ncsu.edu/wmtrp](http://www2.ncsu.edu/wmtrp)**