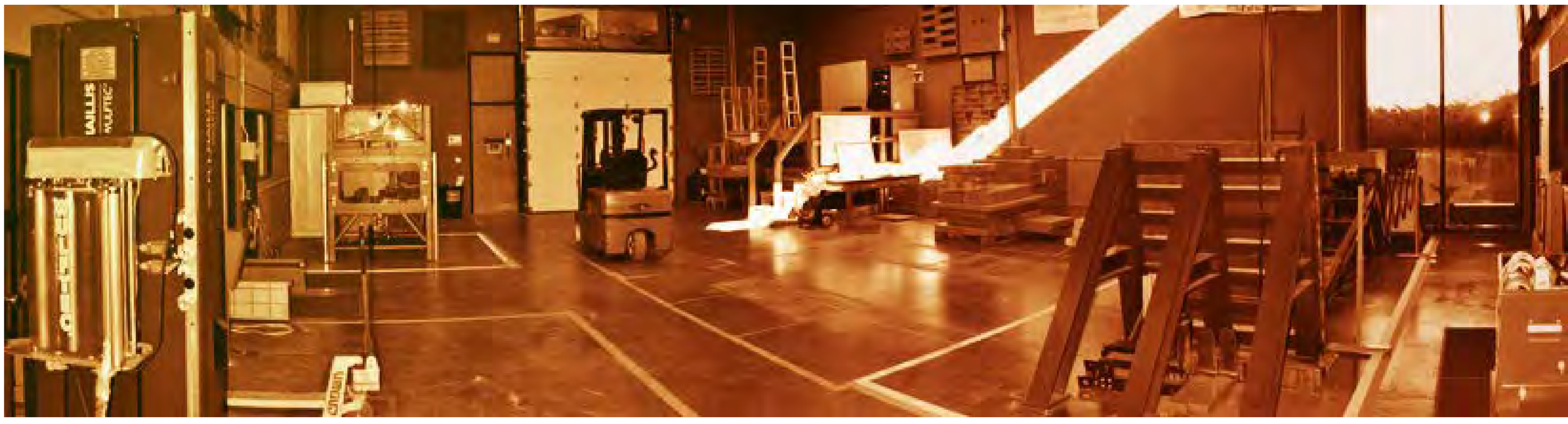
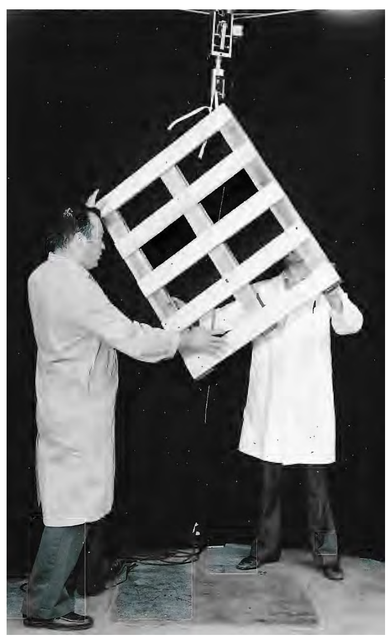


The William H. Sardo Jr. Pallet and Container Research Laboratory

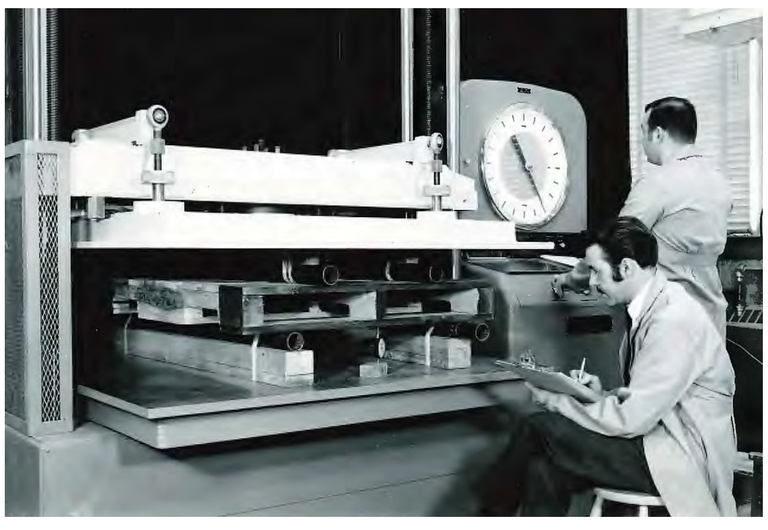
In the 1950's, Dr. George Stern, a refugee from Nazi Germany, came to VT and started working in the Architecture and Engineering departments. He researched and developed ways to assemble and disassemble wooden structures quickly - basically studying various fasteners that could be used in wood construction. He wanted to help the military with their troop movements by providing easily assembled and disassembled wooden buildings.

William H. (Bill) Sardo Jr., the president of the National Wooden Pallet Manufacturing Association (NWPMA), took notice of Dr. Stern's work in the 1960s and thought that it could be very helpful to his Association's industry members if they could apply Stern's research to the fastening/construction of wooden pallets.



At the same time Dr. Walter B. Wallin, with the USDA Forest Service, Forest Sciences Lab in Princeton, WV began collaborating with Dr. Stern and the NWPMA on wood pallet research. The Forest Service recognized the growing volume of wood being used for the manufacturing of pallets.

By the 1970s, Virginia Tech, the Forest Service, and the now called National Wooden Pallet and Container Association (NWPCA), had created a research initiative at VT to study the design and performance relationship of wood pallets.



The NWPCA donated money to build a pallet and container research and testing laboratory at VT and to keep it running for years into the future. Additional funding was donated by dozens of pallet manufacturers and their clients, as well as by the US Forest Service and the State of Virginia, for the equipping and running of the lab.

In 1976, the William H. Sardo Jr. Pallet and Container Research Lab, with 7,200 sq. ft. of testing, office, and conference space containing over half a million dollars of specialized equipment, was officially opened at a dedication ceremony. In 1979, the directorship of the laboratory was transferred to Dr. Marshall S. White upon Dr. Stern's retirement.

In 1984, in collaboration with NWPCA, Virginia Tech published the first version of a wood pallet structural design software called the Pallet Design System (PDS) based on the results of all the research and testing being done at the pallet lab. This software helped the pallet manufacturers and their customers use wood more efficiently for the movement of consumer and industrial goods from the manufacturer to their customers. PDS was particularly helpful in bringing about the creation of standards for pallet manufacturing worldwide. PDS is now managed and supported by the NWPCA, but it is still used extensively for undergraduate education at Virginia Tech.

In 1993, Dr. White created, in cooperation with NWPCA, The Center for Unit Load Design (CULD) as it had been realized that the material handling system used to move products to consumers would benefit from a more "systems" based design approach. A design approach based on an understanding of how the packaged product, pallets, and unit load handling equipment, mechanically interact.

The research focus of the Center was to understand the static and dynamic mechanical interactions as products move through supply chains and then use this new knowledge to further improve supply chain operational efficiency.

To expand the research and outreach missions of the Center, and to include the undergraduate and graduate education missions, the Department of Wood Science and Forest Products, established the Packaging Science undergraduate study option in 2004.

In 2011, Dr. Laszlo Horvath became the director of the Center. The research focus was further broadened to include primary and secondary packaging design. The name of the Center was changed to Center for Packaging and Unit Load Design (CPULD) to incorporate these new research areas. The Center has continued to expand and grow under its new leadership.

The Center works collaboratively with leaders in industry to develop technologies that will increase the sustainability and efficiency of product distribution and improve the quality of life of people in the Commonwealth and all over the world.