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SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP

THE
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IKD has pioneered hardwood cross-laminated timber

By [MATTHEW MESSNER \(@MESSNERMATTHEW\)](#) • January 5, 2018

<https://archpaper.com/2018/01/ikd-columbus-clt-plinth/#gallery-0-slide-0>

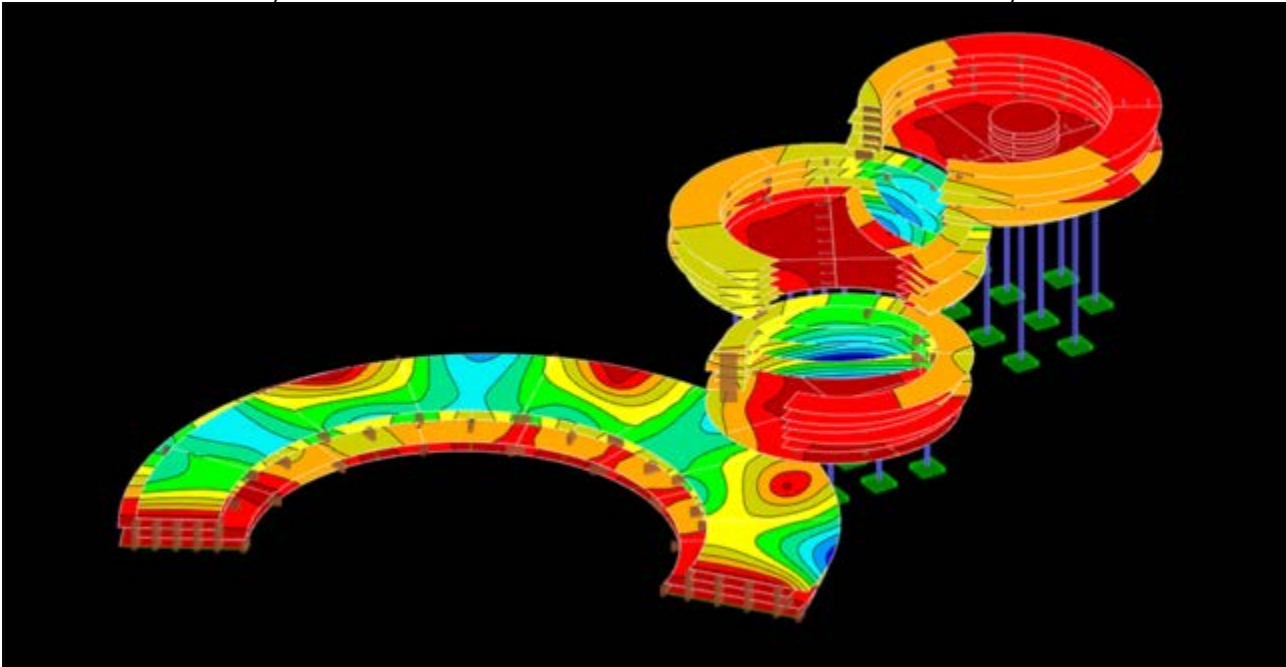
Thanks to a two-year, \$250,000 Wood Innovations Grant from the United States Forest Service, and with further support from the National Hardwood Lumber Association, Indiana Hardwood Lumberman's Association, and the Indiana Department of Natural Resources, [IKD](#) is currently working on an advancement that may completely change the [cross-laminated timber](#) (CLT) market. Currently, CLT is made primarily of softwoods, which have the advantage of being fast growing and inexpensive. IKD believes the future of CLT should also include hardwood, and now it just might.

As a [proof of concept](#), IKD has constructed a large installation, which stands as the first hardwood CLT structure in the United States. The project was built with an experimental CLT material made from low-value hardwood-sawn logs for Exhibit Columbus, the new architectural exhibition in the modernist mecca of [Columbus, Indiana](#). A reference to the conversation pit in the [Eero Saarinen](#)-designed Miller House, the IKD's Conversation Plinth is a multilevel occupiable installation in the plaza in front of the [I.M. Pei-designed](#) Cleo Rogers Memorial Library.

The motivations behind using hardwood are two-fold. Currently, over 50 percent of the 80 million cubic feet of hardwood harvested in Indiana each year is used for low-value industrial products. By integrating this wood into the higher-value CLT, it raises the value of what is already Indiana's largest cash crop. And from the perspective of designers and engineers, hardwood CLT provides the possibility of a more fire-resistant panel and a form-factor advantage.

"We are currently exploring a number of applications that could have larger scale building applications," IKD partner Yugon Kim said. "Since hardwood has superior mechanical properties, we believe we can achieve a panel that could be thinner to meet the same structural capacity of an equivalent softwood CLT panel." The Conversation Plinth is not simply an exhibition piece for IKD. It is a test of the hardwood CLT the firm developed with SmartLam, the first CLT manufacturer in the United States. Over the months, the project will be subjected to the varied and sometimes-extreme weather of south-central Indiana, providing firsthand data that IKD and SmartLam can use to advance their research on the material. From the beating sun of late summer through the sleet, snow, and ice of winter, the project will be monitored for durability as well as aesthetic and structural changes.

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With few precedents to follow, the hard-wood CLT Conversation Plinth in Columbus, Indiana, needed to be engineered from the ground up using the latest digital stress models. (Courtesy IKD)

“We are closely observing the mixed-species panels and seeing how they react in the extreme temperature and moisture fluctuations so that we can continue to refine the species mix within the panel, the adhesion process, and the finish application and approach,” Kim explained. “It is really interesting to see how differently hardwood moves from softwood when the moisture content varies, and we are looking deeper at the fiber structures and unique characters of species themselves as well to create a superior CLT panel.”

The project continues much of the timber research IKD has been doing, including its design for the Timber City at the National Building Museum in Washington, D.C., and work on timber modular waste units, a timber version of CMU made from timber waste that has won numerous awards.

Resources

Project Lead and Designer

[IKD](#)

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