Second Annual Report

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Submitted by

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Institute Purpose

WU+D is a multidisciplinary engine of innovation where foresters, architects, engineers, constructors and building industry stakeholders coalesce to design advancements in wood-based products through education and training, product research and development, and technology transfer of technical and design solutions. WU+D will focus on engineering innovative new wood products that can better compete with steel, concrete and other building materials used in the non-residential buildings.

Activities Towards Goals

1) Support new businesses and industry to South Carolina to take advantage of its proximity to vast tracts of southern pine and hardwood forests, unique prototyping and testing facilities at Clemson, and opportunities to collaborate with faculty having expertise in wood-related applied research and building design;
   a. Met with the SC Department of Commerce (SCDOC) about how to collaborate with their business team to recruit businesses to SC (along with State Forester Gene Kodama and Tim Adams)
   b. Invited presentation to 2016 Mass Timber Conference in Portland Oregon to promote CLT in the Southeastern US. (this now on YouTube)
   c. Met with Weyerhaeuser SmartLam, LignaTerra, Nordic, Structurlam and several other interested companies at Mass Timber
   d. Had meetings in SC with one potential CLT firm, which included a tour of potential sites. That firm continues to look and is in contact with SCDOC,
   e. Had one meeting with another firm at Clemson University and had SCDOC attend the meeting.
   f. Had at least 2 other firms’ contact me after the YouTube video came out.
   g. One firm not interested in CLT and already invested in SC has visited and we hope to help them with potential investments in their SE operations
   h. Another company has visited several times and plans to become founding partner; they may choose to invest in SC in the future.
i. Fellows presented information about the Institute at 1) an industry meeting sponsored by the Baruch Foundation, 2) the Oconee Business Development Forum, 3) the City Council of Clemson University, 4) the “New Languages of Wood” Symposium at the Fay Jones School of Architecture, University of Arkansas, 5) 20/15 Forestry Summit (SC Forestry Commission), and 6) SC AIA meetings around the state.

j. Meet with the Georgia State Forester about Building Codes and Cross Laminated Timber issues. Robert Farris is a national leader with the National Association of State Foresters. This was a meeting that was recommended by USFS and Weyerhaeuser/Plum Creek connections.

2) Prepare the next generation of architects, builders, engineers and material and wood scientists, and prepare business and policy leaders to manufacture and promote wood products and utilize these products in sustainable construction of the built environment;

a. Worked closely with the Indigo Pine Team and Creative Inquiry groups to develop their knowledge of building with wood. In October 2015, the team built the Solar Decathlon entry in California. [http://newsstand.clemson.edu/students-faculty-design-a-whole-new-way-to-build-a-home-no-nails-required/?utm_source=feed](http://newsstand.clemson.edu/students-faculty-design-a-whole-new-way-to-build-a-home-no-nails-required/?utm_source=feed)

b. The Institute supported the spring 2016 Architecture studio to redesign the house and create a Pavilion for the Pee Dee Research and Education Center, this project has been closed however and the house will be sent to State surplus.

c. Previous submission to Binational Softwood Council did not get funded due to time constraints after a lengthy negotiation process

d. Submitted a proposal to the USDA NIFA to develop and implement online certificate programs in Civil Engineering and Architecture, awaiting notification on this award

e. The WU+D sought and hired its first student, a Ph. D. student in Civil Engineering to continue with our structural engineering research at the lab. His name is Lancelot Reres and he joined Clemson in August 2016.

f. The Institute supported Michael Stoner, MS student in CE to spend 3 weeks working at the US Forest Products Laboratory on Cross Laminated Timber safe rooms.

g. The Civil Engineering Department completed the first major renovation of the Structural Engineering Research Laboratory, installing a strong floor where we are finishing the original CLT
3) Attract undergraduate research teams wanting to innovate new wood products that meet the needs of the building construction industry, while knowing that these developments will eventually benefit the economy of South Carolina. Students will have the opportunity to travel abroad to see how other countries manufacture and utilize wood-based construction materials;
   a. Solar D CI teams concluded work on the house. Decipher magazine for 2015 featured their CI work.
   b. Presented the CI idea to several companies this year but have not established any projects to date.

4) Foster broad collaborative research across Clemson’s main campus and research and public service centers throughout the state of South Carolina:
   a. The Pee Dee Project, which has been canceled, was a major emphasis in the spring and summer for this effort.
   b. We continue to work on the RREA grant that began last year which will train extension agents.
5) Solicit industry partnerships to contribute funds and direct the mission and research operations for WU+D.
   a. Founding Partner funding secured from:
      i. Collum’s Lumber
      ii. Huber Engineered Wood Products
      iii. Mac Rhodes
      iv. SmartLam

   b. Have proposals out to request Founding Partner funding from:
      i. Simpson Strong-Tie
      ii. Boise Cascade, Southeast Division
      iii. Weyerhaeuser
      iv. LendLease
      v. LignaTerra Global, LLC

**Significant Activities for the Year**

The Institute held its first member/board meeting in December. Bo Shaw acted as Interim chair for this meeting. Draft bylaws and other materials were briefly discussed but did not get completed for ballot. The members were presented with summaries of all research ongoing in the Institute.

The attendees spent most of the board meeting discussing research needs on CLT following a presentation by LendLease about their CLT hotel at Redstone Arsenal in Alabama. The board also discussed the need for a CLT manufacturer in the Southeast, preferably SC. This discussion pushed the fellows and development to work with Commerce more on recruitment of companies to SC.

The Sim[p]ly system was submitted to CURF for patent application. There has been some interest in this system and the fellows continue to look at the next development steps in the process.

The team continued to seek members for the Institute, including Lendlease, Plum Creek (now Weyerhaeuser) SmartLam, LignaTerra, Boise Cascade, Ingram Lumber, and others. WE have hosted many of these companies on visits to Clemson University and organized speakers, lab tours.

Presentations and papers by the Institute Team were numerous. The complete list is attached.
Our students, which are our biggest product, are being highly sought. Architecture graduates received more than one job offer. Both MS students that finished in Civil Engineering were employed with Greenville engineering companies.

The major effort of the Fellows to fund and build the Clemson University entry in the US Department of Energy’s Solar Decathlon was a major push continuing from 2014-2015. This effort culminated in publications, social media, news releases and audience awareness of Clemson University for many.

Building the SC Wood Innovation Team and hosting the workshops, Building Sustainable with Wood in SC, was a major effort activity. This increased visibility for our Institute and allowed us to partner with other organizations that will benefit us in future years.

Produced reports for State Engineer John White about Fire Retardant Treated Wood and the changes that have been made in the product since its development. The state of SC has a policy against Fire Retardant Treated wood in buildings that the state builds.

Worked with Structurlam in British Columbia, we had southern yellow pine CLT manufactured into panels for our hollow core floor panel testing. To our knowledge these are the first “publically accessible” SYP CLT panels manufactured. They have been shipped to Clemson University and are being tested. After testing we are reusing to make “gifts” for visitors and interested companies.