

Composite Materials & Engineering Center

Collaborative research hub to advance bio-based & hybrid composite materials for infrastructure applications

- I. Wood and natural fibers.** Characterize materials, design and develop bio-based materials, process and manufacture and evaluate performance.
- II. Structural Design & Analysis.** Analysis of structural components and systems, modeling, probabilistic analysis and design, structural dynamics, earthquake engineering.
- III. Cementitious & Bituminous Materials.** Behavior and design of reinforced & pre-stressed concrete and masonry structures, highway materials, sustainability of cementitious materials, and microstructure characterization.
- IV. Polymeric Materials.** Utilization and valorization of renewable resources for the development of novel bio-based polymers, chemicals, and composites.
- V. Industry and Academic Collaborations.** One of the founding institutions of NSF IUCRC, Center for Bioplastics and Biocomposites, developing high-value biobased products from agricultural and forestry. CMEC is also an accredited testing laboratory by International Code Council (ICC).

Pullman
Washington



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Affiliated with Voiland College of Engineering & Architecture at Washington State University





CMEC Funding: Federal, State, and Industry

- Sponsored Research
 - National agencies
 - USDA, USFS, NSF, DOE, DOD, HUD
 - SBIR, STTR
 - WA-based
 - WTC, WA-Dept. of Ecology, JCATI, WSDoT
- Industrial Contracts
 - Service centers
 - Processing, testing, analytical
 - Center for Bioplastics & Biocomposites
 - ICC-ES Reports for structural systems
- Other
 - Professional and trade associations
 - Gift funds – from companies
- **Since 2010: Over \$21 Million in Federal Funding**





Outcomes of Federal Funding

- ✓ Established Wood Plastic Composite Materials Research
- ✓ The Northwest Advanced Renewables Alliance (NARA) -- <https://nararenewables.org>
- ✓ NSF Industry-University Cooperative Research Centers (IUCRC) Funding -- <https://cb2center.org/home>
- ✓ Integrating Renewability & Recyclability for a Circular Polymer Future
- ✓ Mass timber panel and modular hybrid buildings research
- ✓ Advance Building Science through development of panelized construction systems – reduces cost & the environmental burden



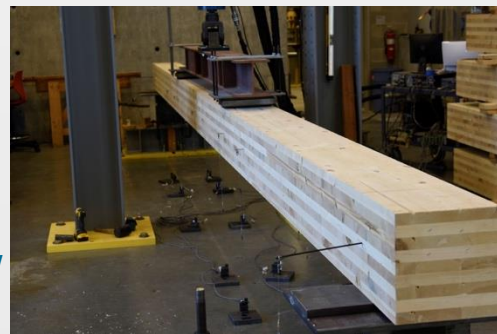


Composite Materials and Engineering Center (CMEC)

CMEC is in two locations on Pullman Campus

Paccar Environmental Technology Building

- International Cod Council (ICC)-Accredited Structural Testing Facility 96,000 sq. ft.
- High-bay structural lab with over 2,300 sq. ft. of strong-floor lab space and an 18 ft. tall strong-wall
- Offering comprehensive testing, evaluation, consulting, and reporting services for structural systems.



Research and Technology Park

- 28,000 sq. ft facility
- Pilot scale processing facility
- 6-ft x12-ft Cross Laminated Timber (CLT) press



<https://cmec.wsu.edu/e-and-f/paccar-building/>

CMEC Virtual Tour

cmec.wsu.edu/e-and-f/research-technology-park-facilities/