



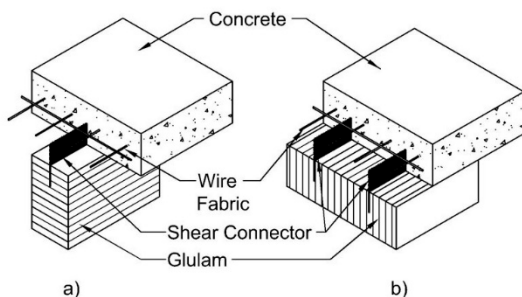
# WOOD-CONCRETE COMPOSITE FLOORS

## BCT RESEARCH SPOTLIGHT

### About

Wood-concrete composites are floor and deck systems which comprise of a concrete slab integrally connected to wooden beams or a laminated wooden slab beneath (e.g. cross-laminated timber) by means of a shear connector.

Use of a shear connector can significantly **improve a deck's strength and stiffness** when compared to that of a non-connected structure – resulting in a highly efficient use of materials. **Sound and vibration performance** as well as **fire resistance** are also improved when compared to timber floors. The concrete slab can also provide added **lateral rigidity** to a building.



This technology was used in the construction of the **John W. Olver Design Building at UMass Amherst** where approximately 50,000 sf of floor area employ a glued wood-concrete composite system that makes this building the largest installation of its kind in the US.

BCT conducted multi-year research and helped with the development of this novel floor system. The top image on this page shows this installation.

### Key Publications

CLOUSTON, P.; SCHREYER, A. *Design and Use of Wood-Concrete Composites*. ASCE Practice Periodical on Structural Design and Construction., 13(4), pp. 167-175

CLOUSTON, P.; BATHON, L.; SCHREYER, A. *Shear and Bending Performance of a Novel Wood-Concrete Composite System*. ASCE Journal of Structural Engineering. 131(9), pp.1404-1412

**LEARN MORE: [bct.eco.umass.edu/research](https://bct.eco.umass.edu/research)**