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Duration of Load and Creep Effects of Wood Composites

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Duration of Load and Creep Effects of Wood Composites

The Duration of Load & Creep Effects Lab at the UMaine Advanced Structures and Composites Center has a complete creep testing facility capable of evaluating duration of load effects on wood composites such as panel products, structural composite lumber (SCL), and wood-plastic composites (WPC). The system includes a well-engineered set of fixtures capable of testing 60 specimens simultaneously under loads up to 2,500 lbs., a computer controlled loading device, and continuous, digital measurement of deflections using calibrated string potentiometers. Testing is conducted within a temperature and humidity controlled room which reduces mechano-sorptive effects, i.e., deflection due to changing environmental conditions. Temperature and humidity may also be varied to study mechano-sorptive properties.



Testing is conducted according to ASTM D6815 - Standard Specification for Evaluation of Duration of Load and Creep Effects of Wood and Wood-Based Products.

Purpose of Creep Testing

Creep testing is recommended for all composite materials, especially those going through modifications such as changes of resin systems. While not required in all product standards, an understanding of the creep behavior of new/modified materials is important. Knowing that a product behaves similarly or better than solid wood in creep allows for use of well-known duration of load design adjustment factors, simplifying product acceptance and specification.

About the UMaine Composites Center

The UMaine Advanced Structures and Composites Center helps clients take a technology from the design state to a commercially viable product. The 100,000 ft² (8,100 m²) laboratory employs over 180 personnel with expertise in multiple disciplines including large-scale and coupon-level testing, composites manufacturing and analysis, FEA and other modeling techniques, and more. The Center may be hired to jointly develop a product, or solely as a contractor to manufacture and test wood composite products.



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