



## Biomimicry as a Generator of Optimal Volumetrics in Wood

<https://research.thinkwood.com/en/permalink/catalogue2195>

Organization: Université Laval  
Topic: Design and Systems  
Keywords: Biomimicry  
Environmental Adaptation  
Digital Fabrication  
Material efficiency

Research Status: In Progress

Notes: Project contact is André Potvin at Université Laval

### Summary:

The biomimetic approach in architecture explores the genius of organic natural forms resulting from a long process of environmental adaptation. These forms often have a high compactness and an optimal material / volume ratio in line with the importance of reducing the material in the building to limit its environmental impact in terms of energy and resources. What are the natural forms and processes of growth of the form most appropriate to the physical properties of wood? What design process promotes the integration of a biomimetic approach from the earliest stages of design? Based on a review of the main achievements claiming this approach, this project will develop a taxonomy of the different biomimetic typologies and identify the most promising in the context of a wood realization. A digital manufacturing process will be developed to reflect the complexity of natural shapes and flows in an organic architecture that optimizes environmental performance and aesthetics.