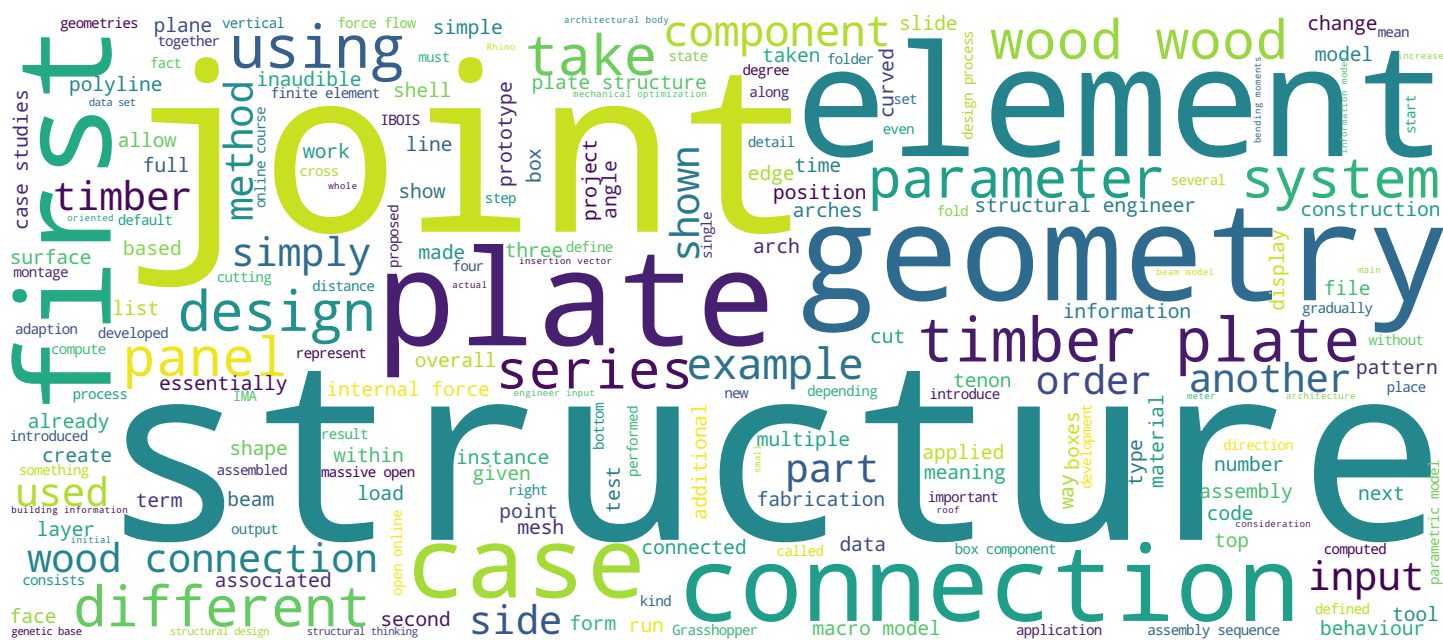


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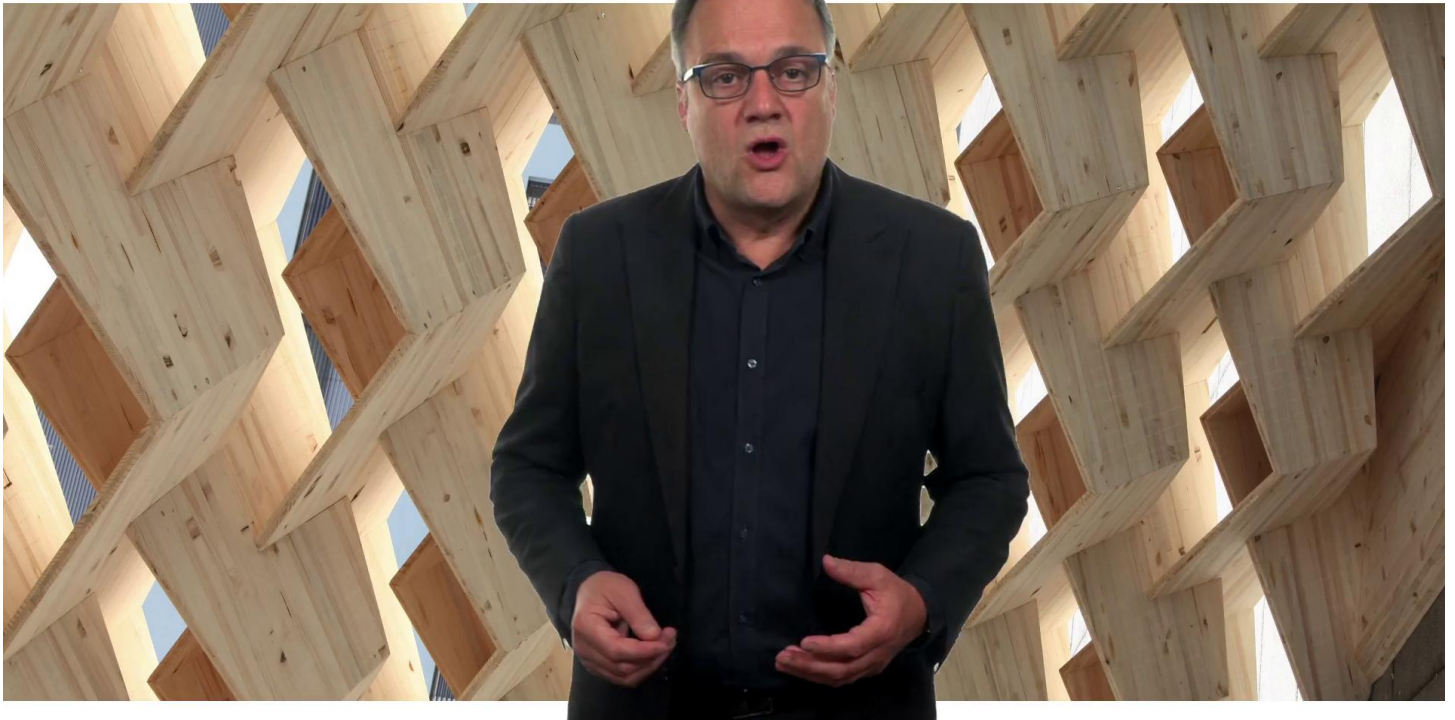


## Search MOOC



## Video





This massive open online course opened up for the design of a new generation of structures. The traditional separation between primary and secondary structural building elements disappears throughout all presented case studies and buildings. But we also exposed a new type of structural thinking applied to those structures. The bearing systems, which is also the building envelope, evolves. Each modification or adaption is applied to the whole systems since its genetic base is a parametric model in which parameters of different kinds can be easily defined. Our mechanical optimization case studies show how parameters of geometric nature can lead to mechanical performances, solely geometrical parameters. But those parameters are not more separated from the architectural body. They are part of it, and they define the architectural body in its accents and style. This is of particular interest also for structural engineers. Structural design thinking and mechanical optimization processes may flow freely into the design and the adaption of the constructed model. As shown, the force flow can be controlled and modified. Overloaded areas of the structural envelope can be unloaded by manipulating the envelope's inherent inertia in those zones.

Notes

Summary



0m 04s





By doing so, the force flow will dislocate and search for another path, guiding those loads towards more rigid, adjacent zones. Integrated mechanical attachments, or wood-wood connections, allow for another aspect. It is the potential controlled separation of each of the three internal forces: normal forces, shear forces, and bending moments. The individual geometric design of each tenon allows for the selection of one of the predominant internal forces to be absorbed as a primary force. The overall solution will be a better distribution and a distinct distribution of all internal forces to be taken, but separately. Wood-wood connections can be designed specifically for predefined internal force to be taken, and each connection can take one internal force as the predominant one. A new link is established between structural thinking and digital fabrication. Choose the role and influence of structural engineers could revive. Of course, we have seen how renowned structural engineering companies also take up the lead regarding building information models in construction management constellations. But in most cases, the sense of the constitutive quality of a given building information model is not questioned.

Notes

Summary



1m 46s



# Conclusion

Prof. Dr. Yves Weinand

Its properties are not pushed further, and the quality of those beam model stays at the state-of-the-art level without further development. This massive open online course illustrates a design flaw where the separations between general, static construction documents and structural detailing on the other disappear. One holistic system that defines space, structure, and envelopes. The system evolves since its genetic base is a parametric model from which all construction partners may benefit. Over the last century, the importance and the input of structural engineers have been reduced. Part of the engineer's input was reduced by the solving of a small-scale problem. Showing a constitutive evolution of what a beam model could become as an evolving parametric toolset, the structural engineer's input might add to the decision process upstream during the design process. Introducing and enhancing a more active role for structural engineers is a more further discussion for contemporary architectural construction systems in and within sustainable considerations.

Notes

Summary



3m 18s