

Beyond the “Norm” – Finding the Relevant Parameters for Board and Furniture Optimization

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Abstract

International standards such as the EN 310 are the basement of trustful collaborations between manufacturers of wood based panels and the furniture industry. The standards guarantee reliable minimum values in a wide range of mechanical material properties. However, in specific use cases of board materials in a furniture, some material properties become more important than others. Due to improved furniture manufacturing processes and new material combinations, some of the now most relevant material properties are not even defined in the standards yet.

IKEA Industry and Light Approach started at the interface between board and furniture manufacturing to investigate the demands in IKEA's furniture constructions regarding their optimization potential. The focus was put on solid and lightweight sandwich constructions of the high volume top sellers produced by IKEA Industry. Materials investigated were thin HDF in different qualities and particleboard in P2 and according to IOS-MAT 0162 the new PB-1 and PB-2 qualities.

The collaboration between IKEA Industry and Light Approach identified two major questions:

- How is the MOE determined and does it meet the mechanical needs in the furniture?
- Is the bending MOE the right value when sandwich constructions are produced?

A combined approach working with FEM simulation and real furniture testing was chosen to confirm the findings.

This presentation shows the optimization potential for boards and for furniture when focusing on the relevant parameters. How can the relevant material values be identified? How should they be defined to request the right board quality? Two out of many examples will be presented to demonstrate the optimization potential.