



Wind-Induced Vibration of Tall Wood Buildings

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CLT (Cross-Laminated Timber)

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Connections

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Along-Wind Vibration
Vortex Shedding

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Summary:

Wind-induced vibration is an important design consideration in tall buildings in any structural material. The two main forms of wind-induced vibration - across-wind vibration due to vortex shedding and along-wind vibration due to turbulence - were taken into consideration when undertaking this study. Both types are addressed in Eurocode 1.

This research summary discusses a study which, following a sensitivity study into the effect of stiffness and damping on wind-induced vibration, addresses a shortfall in current knowledge of stiffness in dowel-type connections. This type of connection is found in the glulam frame and CLT structures currently at the forefront of tall timber construction, and its behaviour was investigated by measuring and analysing stiffness and damping under oscillating loads representative of wind-induced vibration.

This research summary covers a number of factors relating to wind-induced vibration which must be considered when constructing a tall timber building, such as how to assess connection stiffness under in-service vibration. The various conditions were then applied to a case study - the proposed Barentshaus building.

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Resource Link

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