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Comparison of viscoelastic finite element models for laminated glass beams

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Highlights

- Four different layer-wise formulations suitable for modeling of non-linear behavior of laminated glass beams with viscoelastic interlayer have been introduced and compared.
- The formulations differ in the beam theory adopted at the layer level (von Kármán/Reissner) and in the constitutive law for the interlayer (temperature-sensitive viscoelasticity with timeindependent bulk modulus/Poisson ratio).
- For both fixed-end and simply-supported beams, it has been shown that the four formulations provide very close results.
- The most straightforward formulation, based on the von Kármán model and the constant Poisson ratio assumption, has been thoroughly verified against two-dimensional finite element simulations and partially validated against experimental data.

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