# Some Remarks on the Assembling of Thin Linearly Elastic Plates

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### Abstract

First by using our approach to the derivation of asymptotic models for the bonding of elastic bodies, we derive various models for assemblies of two thin linearly elastic plates by abuttting or superposition through an asymptotic analysis taking into account small parameters associated with the size and the stiffness of the adhesive. They correspond to the linkage of two Kirchhoff-Love plates by a mechanical constraint which strongly depends on the magnitudes of the previous parameters.

Next a study by variational convergence of a periodic distribution of classical linearly elastic thin plates softly abutted together shows that it is not necessary to use a different continuum model nor to make constitutive symmetry hypothesis as starting points to deduce the Reissner-Mindlin plate model which, due to its ability to account for shear effects, is often preferred in the engineering literature over the Kirchhoff-Love plate model.

Eventually we derive several models of thin plates equipped with a periodic distribution of stiffeners. The various ratios between the orders of magnitude of the different parameters involved lead to diverse situations, from classical Kirchhoff-Love behavior with additional energy term to full rigidification.

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