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VIRTUAL ELEMENT METHOD FOR PLATE BENDING PROBLEMS

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We discuss the application of *Virtual Elements* to linear plate bending problems, in the Kirchhoff-Love formulation. We will show that, in the Virtual Element environment, the treatment of the C^1-continuity condition is much easier than for traditional Finite Elements. The main difference consists in the fact that traditional Finite Elements, for every element K and for every given set of degrees of freedom, require the use of a space of polynomials (or piecewise polynomials for composite elements) for which the given set of degrees of freedom is *unisolvent*. For Virtual Elements instead we only need unisolvence for a space of smooth functions that *contains* a subset made of polynomials (whose degree determines the accuracy). As we shall see, the non-polynomial part of our local spaces does not need to be known in detail, and therefore the construction of the local stiffness matrix is simple, and can be done for much more general geometries. Various elements will be presented, showing the ductility of the method, and numerical results will be provided.