1113-35-195 **Henry C Simpson*** (hsimpson@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37996. *The Complementing Condition for Elliptic Estimates in Elasticity.* Preliminary report.

We examine the static equations of elasticity on a bounded domain in R^2 or R^3. We consider boundary-value problems consisting of a system of elliptic partial differential equations with first-order traction boundary conditions. Central to corresponding elliptic estimates of ADN is the complementing condition. This is an algebraic requirement between the linearized differential equation and boundary operator (keeping highest-order derivatives), and it is necessary and sufficient for the validity of the estimates. We also look at the closely related Agmon's condition pertaining to spectral properties of the operators. For isotropic elasticity in R^2 we present closed-form expressions characterizing these conditions in terms of coefficients in the equations. We also consider certain cases in R^3. (Received August 21, 2015)