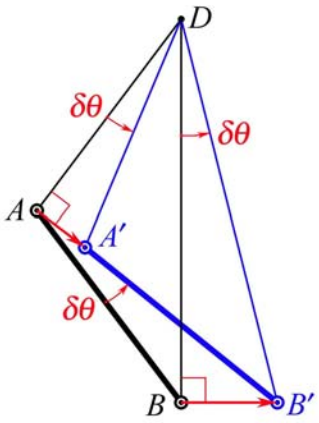
Compatible Virtual Displacement



A **compatible virtual displacement** of a member *AB* is an imaginary displacement resulting from a *first-order* differential angular displacement $\delta\theta$ of the member about a certain point *D*, called its **displacement center**, during which the member *deflects* from position *AB* to another position $A'B'$ and the following conditions exist

$$\overline{AA'} \perp \overline{AD} \qquad \overline{BB'} \perp \overline{BD} \qquad \overline{A'B'} \geq \overline{AB}$$

With member *AB* undergoing a virtual angular displacement of $\delta\theta$, the value of $\overline{A'B'} - \overline{AB}$ can be shown to be, at most, of the second order of $\delta\theta$. A compatible virtual displacement is compatible with the virtual work method.