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CORRIGENDUM

Yunqian Qi and Norman F. Knight, Jr. A refined first-order shear-deformation theory and its justification by plane-strain bending problem of laminated plates. *Int. J. Solids Structures*, Vol. 33, No. 1, pp. 49–64, 1996.

This corrigendum is necessary for two reasons. First, Fig. 4(b) in the original paper is incorrectly duplicated from Fig. 4(a). The actual results are shown in the figure below. As can be seen, the transverse shear strains for moderately thick laminated plates ($R = 10$) are very close to the exact results. As the plate becomes thinner, the results become coincident.

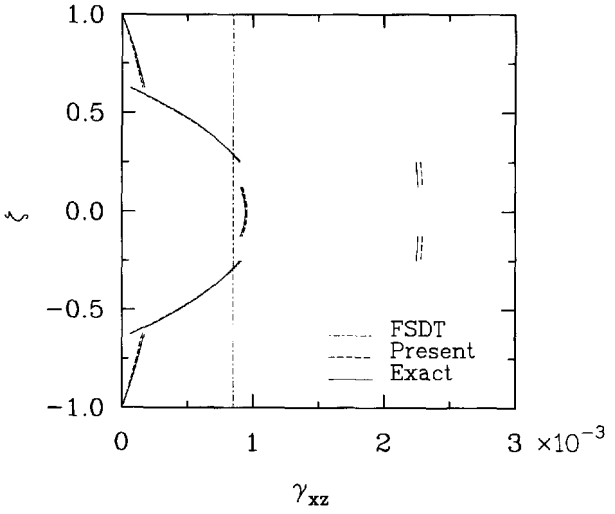

Fig. 4. Transverse shear strain distribution for $[90_3/0_3/90/0]_s$ laminate. (b) $R = 10$.

Second, some additional comments on First-order Shear-Deformation Theory (FSDT) are needed for clarification, and the authors acknowledge Professor Reissner for his comments and insight. FSDT, first proposed by Reissner (1945), is based on the assumptions that the inplane stresses are distributed linearly over the thickness of the plate while the form of the transverse deflection field through the thickness is not assumed. However, as pointed out in the same paper, these assumptions are consistent with those leading to linearly distributed inplane displacements and constant transverse deflection over the plate thickness, and later explicitly re-stated by Reissner (1950). Such a displacement field is assumed by Bolle (1947) in an obscure publication and also in the frequently cited paper by Mindlin (1951). Furthermore, in contrast to Mindlin (1951), Reissner (1945) did not require the introduction of a shear correction factor since a parabolic distribution of transverse shear stress is incorporated.

REFERENCES

Bolle, E. (1947). Contribution au probleme lineare de flexion d'une plaque elastique. *Bull. Tech. Suisse Romande* **73,** 281–285, 293–298.

Mindlin, R. D. (1951). Influence of rotary inertia and shear on flexural motions of isotropic elastic plates. *J. Appl. Mech.* **18,** 31–38.

Reissner, E. (1945). The effect of transverse shear deformation on the bending of elastic plates. *J. Appl. Mech.* **12,** A69–A77.

Reissner, E. (1950). On a variational theorem in elasticity. *J. Math. Phys.* **29,** 90–95.