References

[1] Melosh, R. J., "Basis for derivation of matrices for the direct stiffness method," AIAA J. **1**, 1631–1637 (1963).

[2] Pian, T. H. H., "Derivation of element stiffness matrices by assumed stress distributions," AIAA J. **2**, 1333–1336 (1964).

Reply by Author to J. L. Tocher and K. K. Kapur

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TOCHER and Kapur have corrected algebraic and typographical errors in the plate stiffness matrix based on the function given in Ref. 1. They have demonstrated that this matrix has no advantages over that given in Ref. 2.

Shortcomings of this matrix are due to the error in deriving the Lagrange-Hermite first-order interpolation formula.[3] Schmidt[4] has obtained the correct form of this formula and derived the corresponding stiffness matrix. The correct form does satisfy the continuity requirements, includes rigid body modes, and provides monotonic convergence.

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References

[1] Melosh, R. J., "Basis for derivation of matrices for the direct stiffness method," AIAA J. **1**, 1631–1637 (1963).

[2] Melosh, R. J., "A stiffness matrix for the analysis of thin plates in bending," AIAA J. **28**, 34–41 (1961).

[3] Steffenson, J. F., *Interpolation* (Williams and Wilkins, Baltimore, Md., 1927), pp. 33–34.

[4] Schmidt, L. A., "Energy search methods of structural analysis," First Conference on Matrix Structural Analysis Methods, Wright-Patterson Air Force Base, Ohio (October 1964).