14.73   SOLID73 — 3–D 8–Node Structural Solid with Rotations
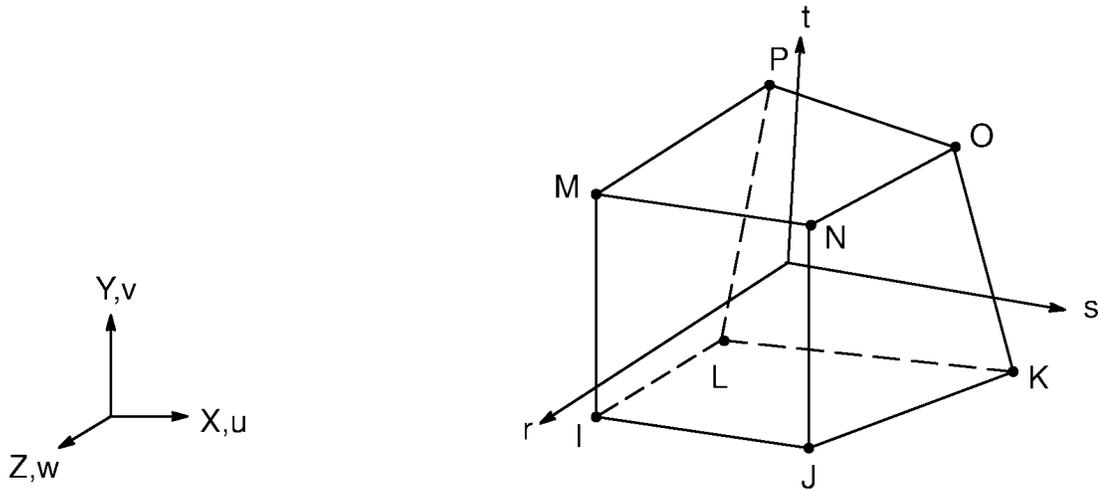

Matrix or Vector	Geometry	Shape Functions	Integration Points
Stiffness Matrix	Brick	Equations (12.8.21–1) thru (12.8.21–3)	2 x 2 x 2
	Wedge	Equation (12.8.15–1) thru (12.8.15–3)	3 x 2
	Pyramid	Equations (12.8.8–1) thru (12.8.8–3)	2 x 2 x 2
	Tet	Equations (12.8.3–1) thru (12.8.3–3)	5 (direct stress) 1 (shear stress)
Mass Matrix	Same as stiffness matrix		Same as stiffness matrix
Stress Stiffness Matrix	Same as stiffness matrix		Same as stiffness matrix
Thermal Load Vector	Same as stiffness matrix		Same as stiffness matrix

Matrix or Vector	Geometry	Shape Functions	Integration Points
Pressure Load Vector	Quad	Uses shape functions for stiffness matrices, specialized to the face	2 x 2
	Triangle		3

Load Type	Geometry	Distribution
Element and Nodal Temperatures	Brick	Equation (12.8.18–20)
	Wedge	Equation (12.8.11–20)
	Pyramid	Equation (12.8.6–20)
	Tet	Equation (12.8.1–20)
Pressure	Bilinear across each face	

Reference: Yunus et al.(117)

14.73.1   Other Applicable Sections

Chapter 2 describes the derivation of structural element matrices and load vectors as well as stress evaluations. Section 13.1 describes integration point locations.