14.186 SOLID186 — 20–Node Structural Solid
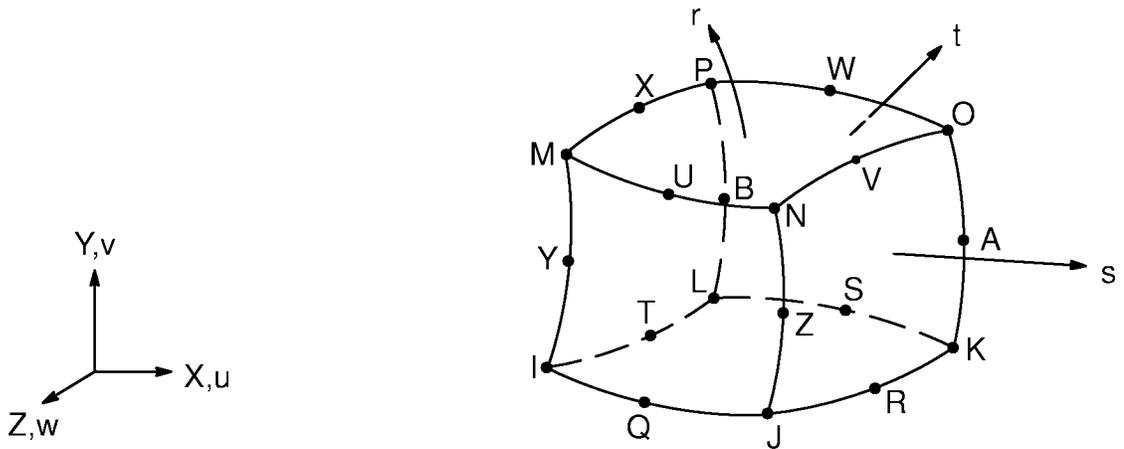
Matrix or Vector	Shape Functions	Integration Points
Stiffness Matrix	Equations (12.8.20–1), (12.8.20–2), and (12.8.20–3)	2 x 2 x 2
Mass Matrix	Same as stiffness matrix.	3 x 3 x 3
Stress Stiffness Matrix	Same as stiffness matrix	Same as stiffness matrix
Thermal Load Vector	Same as stiffness matrix	Same as stiffness matrix
Pressure Load Vector	Equations (12.5.10–1) and (12.5.10–2)	3 x 3

Load Type	Distribution
Element Temperature	Same as shape functions thru element
Nodal Temperature	Same as shape functions thru element
Pressure	Bilinear across each face

Reference: Zienkiewicz(39)

14.186.1   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.