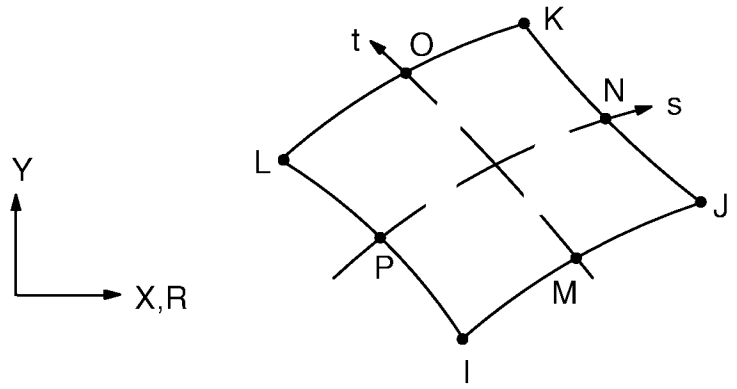
14.77 PLANE77 — 2–D 8–Node Thermal Solid



Matrix Or Vector	Geometry	Shape Functions	Integration Points
Conductivity Matrix	Quad	Equation (12.6.7–20)	3 x 3
	Triangle	Equation (12.6.2–20)	6
Specific Heat Matrix	Same as conductivity matrix. If KEYOPT(1) = 1, matrix is diagonalized as described in Section 13.2		Same as conductivity matrix
Heat Generation Load Vector	Same as conductivity matrix		Same as conductivity matrix
Convection Surface Matrix and Load Vector	Same as conductivity matrix, specialized to the face		2

14.77.1 Other Applicable Sections

Chapter 6 describes the derivation of the thermal element matrices and load vectors as well as heat flux evaluations. Section 13.1 describes integration point locations. If KEYOPT(1) = 1, the specific heat matrix is diagonalized as described in Section 13.2.

14.77.2 Assumptions and Restrictions

A dropped midside node implies that the edge is straight and that the temperature varies linearly along that edge.