Notations

A	area
b	width
c	generalized displacement of the support
d	panel
E	elastic modulus
f	arch height
F	force or generalized force
F_{P}	concentrated load
F_{H}	horizontal thrust
F_x, F_y	components of force in horizontal (x) and vertical (y) directions
F_{N}	axial force
$F_{\mathrm{N}x}$, $F_{\mathrm{N}y}$	components of axial force in horizontal (x) and vertical (y) directions
F_{S}	shear
$F_{\mathrm{S}}^{\mathrm{L}}$, $F_{\mathrm{S}}^{\mathrm{R}}$	shears at the left and right sides of section
$F_{\mathrm{S}}^{\mathrm{F}}$	fixed end shear
F_{R}	generalized reaction or reaction resultant
$\overline{\boldsymbol{F}}^e$	force vector of elemental member end in local coordinate system
$\boldsymbol{F}^e$	force vector of elemental member end in global coordinate system
$\overline{\boldsymbol{F}}_{\mathrm{P}}^e$	fixed-end force vector of the element in local coordinate system
G	shear modulus
h	height
i	bending linear stiffness
I	sectional moment of inertia
$\boldsymbol{I}$	identity matrix
k	stiffness coefficient or nonuniform coefficient of shear stress distribution
$\overline{\boldsymbol{k}}^e$	elemental stiffness matrix in local coordinate system
$\boldsymbol{k}^e$	elemental stiffness matrix in global coordinate system

$\boldsymbol{K}$	structural stiffness matrix
l	length or span
m	mass or distributed bending moment
M	moment, couple moment or bending moment
M^{F}	fixed-end moment
n	degree of static indeterminacy
p	intensity of uniformly distributed load in horizontal direction
$\boldsymbol{P}^e$	nodal load vector of element
$\boldsymbol{P}$	nodal load vector of structure
q	intensity of uniformly distributed load in vertical direction
R	radius
r	radius or influence coefficient of reaction
S	static moment
t	temperature
$\boldsymbol{T}$	coordinate transform matrix
U	strain energy
u	horizontal displacement
v	vertical displacement or deflection
w	vertical displacement
W	work, computational degree of freedom, or weight
W_{e}	external virtual work
W_{i}	internal virtual work
X	generalized unknown force or generalized redundant unknown force
y	displacement
Z	response for influence line
α	linear expansion coefficient
Δ	generalized unknown displacement
$\boldsymbol{\Delta}$	displacement vector
$\boldsymbol{\Delta}^e$	nodal displacement vector of elemental member end
δ	flexibility coefficient or displacement influence coefficient
ε	linear strain
μ	Poisson ratio
κ	curvature
φ	angular displacement or chord angle
γ_0	mean shear strain
θ	rotational angle of section
$\boldsymbol{\xi}$	elemental locating vector
ρ	material density
Π	total potential energy