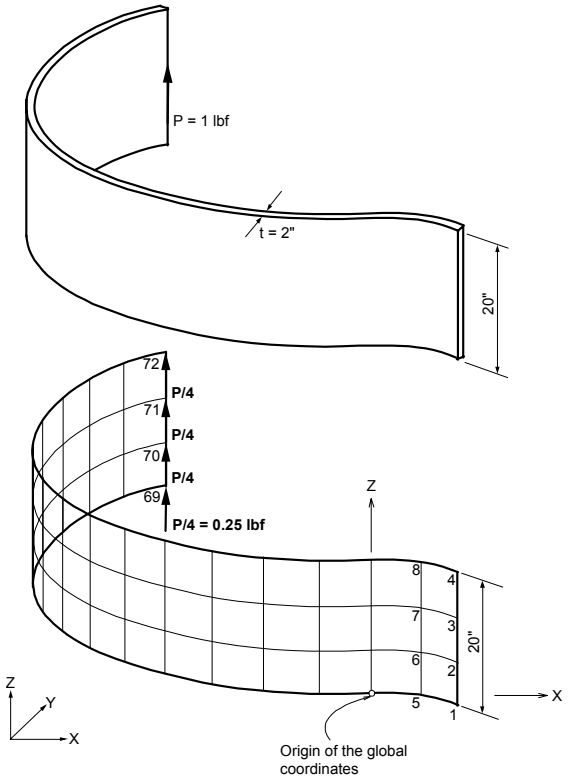
Static-43

Title

Example of divergence

Description

A curved plate is subjected to a concentrated load at the free end in the Z direction. Determine the convergence of a vertical deflection at the free end.



Structural geometry and analysis model

MODEL

Analysis Type

3-D static analysis

Unit System

in, lbf

Dimension

Height 20 in Thickness 2 in

Element

Plate element

Material

Modulus of elasticity $E = 3.3\times10^3$ psi
Poisson's ratio $\nu = 0.35$

Sectional Property

Thickness 2 in

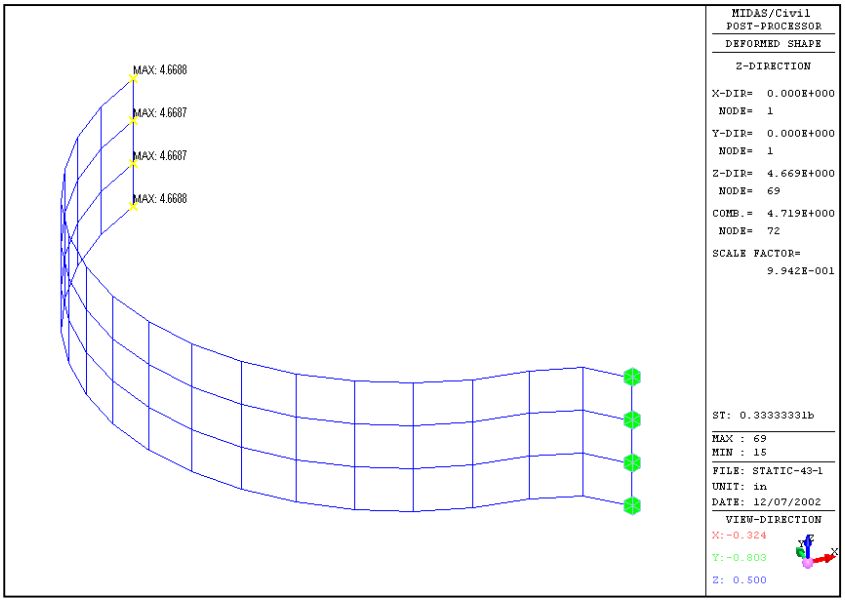
Boundary Condition

Node 1~4: Constrain all DOFs

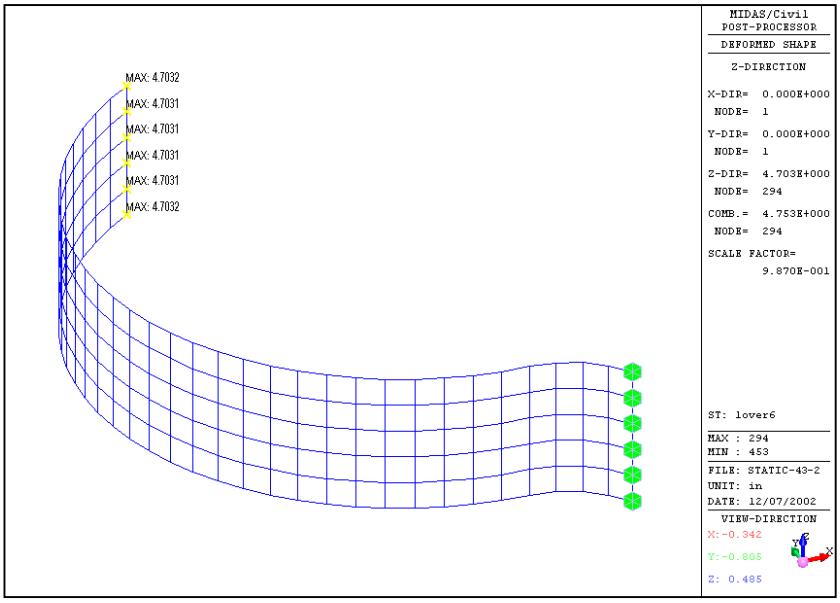
Load Case

A concentrated load, P = 1 lbf is applied at the free end in the Z direction.

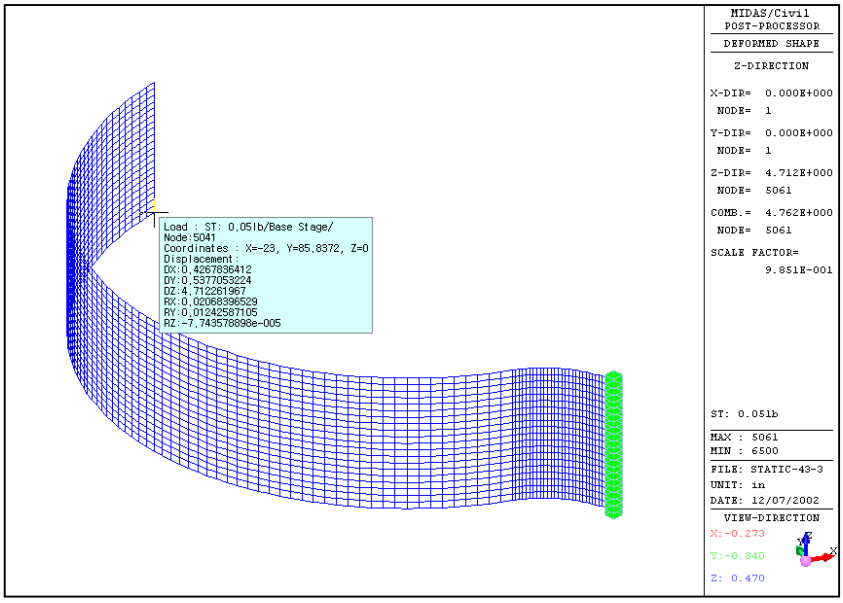
Results



Z-displaecment (δ_Z)-mesh 3×17



Z-displacement (δ_Z)-mesh 5×34



Z-displacment (δ_Z)-mesh 20×105

Comparison of Results

Unit: in

Result	MIDAS/Civil		
	3×17	5×34	20×105
Displacement (δ_Z)	4.6688	4.7032	4.7122