

Linear elastic stress

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Small-strain, linear-elastic verification problems: analytic stress fields and stress-concentration factors compared against textbook references and body-fitted Abaqus simulations, with h/p convergence under mesh refinement.

Verification studies

The badge on each card identifies the study's current release level.

Production

Prescribed displacement of a unit cube

Verify standard zero and nonzero face-displacement conditions, maximally smooth linear, quadratic, and cubic bases, multi-point probes, and output-database surface results on a minimal immersed solid.

[Open study →](#)

Production

Stress concentration in a thin plate with hole

Verify the stress concentration at a circular hole in a coupon under uniaxial tension.

[Open study →](#)

Production

Cantilever beam bending

Verify Abaqus gravity, body force, pressure, traction, and end-moment loading against Euler—Bernoulli closed forms using trimmed solid discretizations.

[Open study →](#)

Production

Cantilever bimetallic beam bending

Verify a two-material solid against transformed-section solutions while exercising merged-part and tie-constraint interfaces.

[Open study →](#)



Production

Multi-planar material interfaces

Verify that retained interface faces, edges, corners, and three-material junctions leave a homogeneous beam's response invariant.

[Open study →](#)

Production

Thick-walled spherical pressure vessel

Compare a curved trimmed solid under internal pressure with the exact Lamé solution and a body-fitted Abaqus reference.

[Open study →](#)