Hinge response when yield point changes

Test Problem

Name:	Hinge response when yield point changes
Description:	Behavior of a concentrated plastic hinge when the loading applied to a nonlinear frame object causes the yield point of the interaction surface to change position.
Program:	SAP2000
Version:	14.2.0
Model ID:	na

This test problem evaluates hinge response when the yield point on the interaction surface changes. Since the yield point is defined by coordinates which couple axial and bending behaviors, post-yield changes in loading conditions will also cause the yield point to change.

For evaluation, a concentrated hinge is assigned to the fixed end of a cantilever beam. A moment and axial-compressive force are applied to the free end. Hinge response is then reviewed for a series of several load sequences which are assigned to a time-history load case.

The attached PDF file presents analysis details and results. Also attached is the SAP2000 model used to conduct analysis.

Report

Attachments

- SAP2000 V14.2.4 model (zipped SDB file)
- Analysis notes with screenshots (PDF)