

New features in Z_Soil v2007

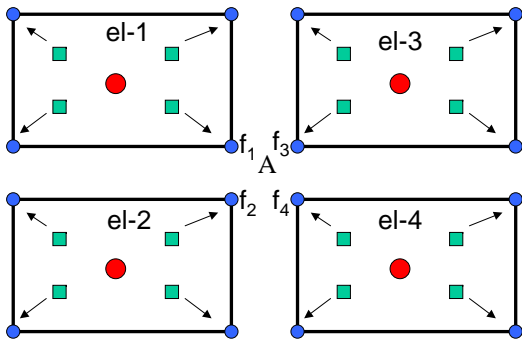
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Stress recovery techniques v6 vs v2007

- v6 - Local smoothing
- v2007 - Superconvergent patch recovery (SPR)

Local smoothing

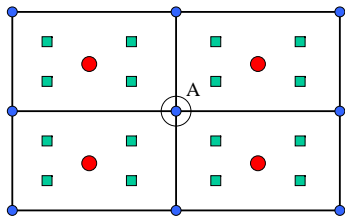


$$f_A = \frac{\sum_{i=1}^{n_Patch} f_i}{n_Patch}$$

NB. Results must be stored in all Gauss points

Superconvergent patch recovery (SPR)

Patch of elements around node A



- Superconvergent integration points
- Standard Gauss points
- Nodal points

Solution is written in polynomial form:

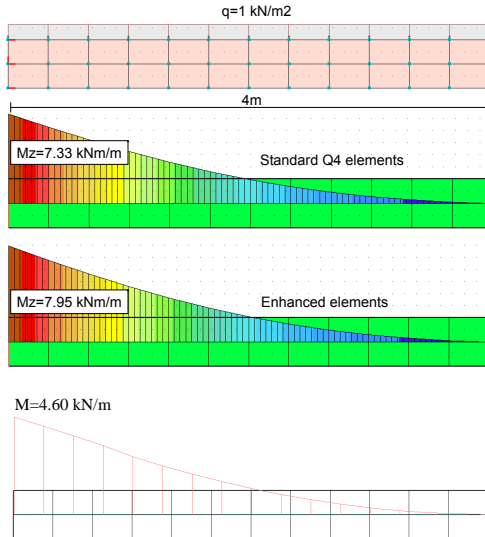
$$f(x, y) = a + b x + c y + d x y$$

Goal: find a, b, c, d such that: $\sum_{i=1}^{n_Patch} (f(x_i, y_i) - f_i)^2 = MIN$

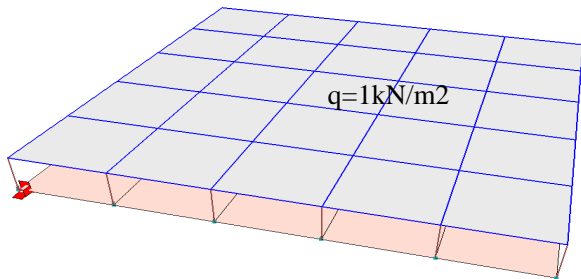
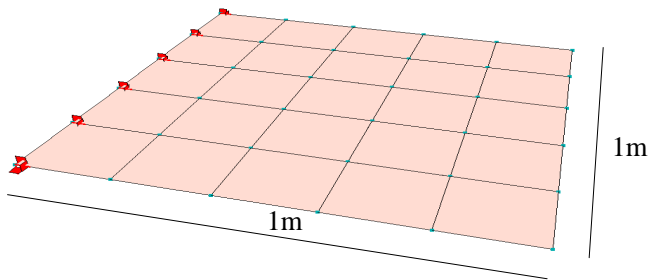
Then: $f_A = a + b x_A + c y_A + d x_A y_A$

NB. Results are stored only at centroids

Example of cantilever beam (v2007) (Standard continuum vs continuum for structures)

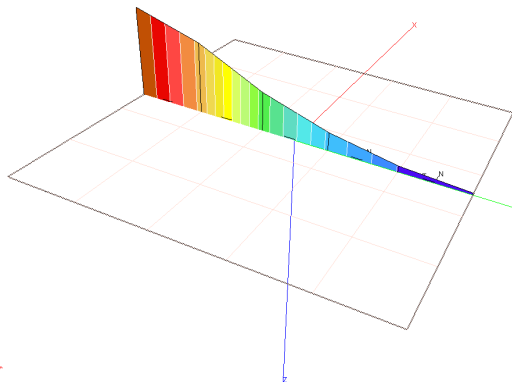


Shell-test



Shell-test: bending moment distribution (v6)

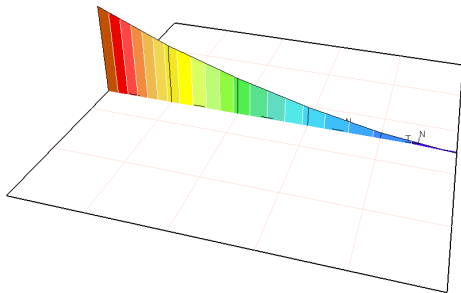
$M=0.426 \text{ kNm/m}$



SECTIONAL QUANTITY: Moment-T-T
TIME = 1.000 [sec]
Z SOIL 3D v 8.96 Project: shell Date: 26. 8.2007 h.21:12

Shell-test: bending moment distribution (v2007)

$M=0.499 \text{ kNm/m}$



SECTIONAL QUANTITY: Moment-T-T
TIME = 1.000[s]#
Z_SOIL_v.7.18 Version type: Custom License: DEVELOPER Project: shell Date: 26.8.2007 h.21:15

Recovery of M, N, T from continuum (v2007)

Watch video

video

Multiple cross sections

Watch video

video

Watch video

video

1-st eigen mode for pushover analysis

Watch video

video

Using option **Misc./Record movie** one may register avi file with selected result for set of selected time steps