

## #1319: OptiStruct – Fatigue Analysis based on a Local Submodel

**Product:** OptiStruct

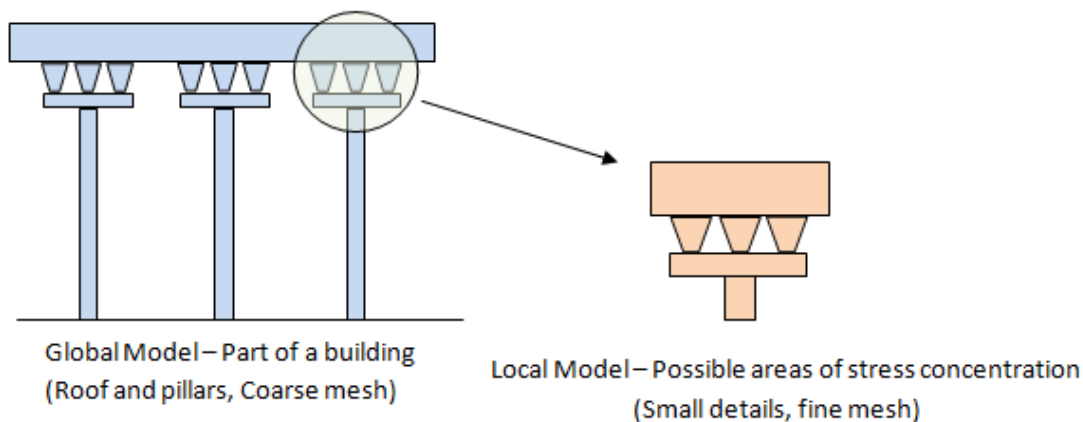
**Product Version:** OptiStruct 14.0.220 or above

### Topic Objective

Fatigue analysis based on a local submodel in OptiStruct.

### Topic Detail

In Global-local analysis, a full model is solved using two or more submodels. One submodel represents the full structure, and parts of the structure with small details, which require relatively higher accuracy, can be modeled as local submodels with a fine mesh. Displacements from the coarser global model are interpolated and applied to the finer mesh of the local model at the transfer zone. This allows for the local model to be driven by the results of the global model.



- This feature may help improve results in models with local stress concentrations. It allows faster solution time as only parts of the structure is being resolved with a fine mesh.
- Solid-to-Solid, Shell-to-shell, and shell-to-solid zooming are supported.
- It is an approximate solution, under the assumption that the displacements are correct in the coarser global model.

Until Version 14.0.220 only linear static analysis was supported

In V14.0.220 Fatigue analysis is also supported

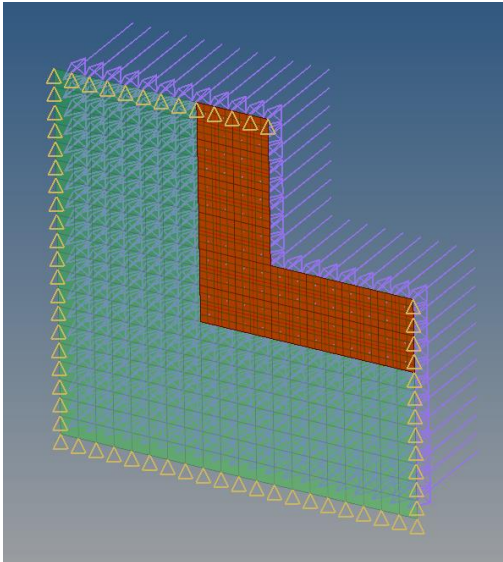
#### Setup is similar to setting up any fatigue analysis

Can pick either global subcase or a local subcase

Can pick either global element set, or local element set

## Example

- Symmetric Boundary Conditions
- Pressure Load applied on the plate
- Fatigue Analysis of both global and local submodel



## Results

