framatome

Structural Analysis for Increased Seismic Loads

Update of building design for increased seismic excitation

Framatome has technical skills to perform design check for the building structures for requested increased seismic excitation level

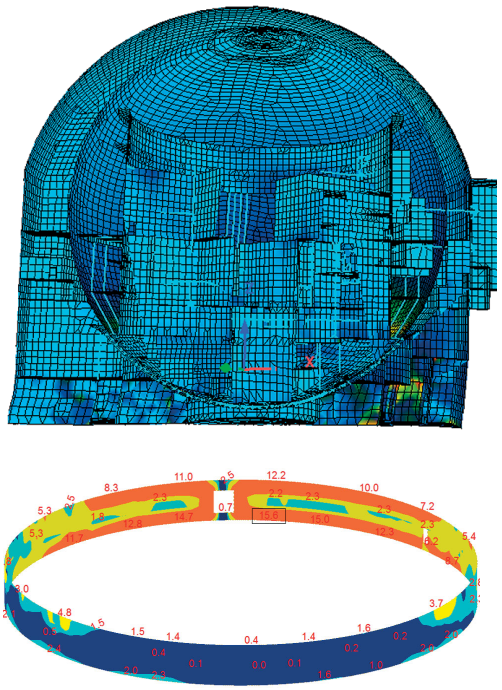
Challenge

- Postulation of new seismic excitation level for existing nuclear facilities
- Building structures have to be checked for increased seismic loads to confirm the sufficient structural resistance.

Technical information

- The design check for the building structure is performed for higher seismic loads
- Non-linear direct time integration analysis or non-linear static analysis with equivalent seismic loads acting on the building structure used
- Finite element model includes existing reinforcement ratios for critical sections
- The non-linear material properties for concrete and reinforcement bars
- The analysis is performed considering the redistribution of internal forces due to crack propagation and plasticity effects and so less conservative compared with linear elastic calculation

Ultimate limit state (Capacity)



Evaluation of plastic strains in reinforcement bars for critical floor level in reactor building due to increased seismic loads

Customer benefits

- Significant increase of the structural capacity by consideration / update of non-linear material behavior compared to elastic calculation method
- Gain structural margin for building resistance at higher seismic excitation levels
- Verify safe long-term operation or life-time extension of NPP systems at increased seismic conditions.

Your performance
is **our** everyday **commitment**

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