Development of Components for Weight and Performance Optimized House Boats in Hybrid Construction

´05 - ´08

Problem

- The house boats presently consisting of a welded steel body are relatively heavy
- Increasing their operation area to streaming waters requires higher traveling speeds which cannot be obtained simply by increasing the efficiency of the propulsion units without reducing the weight at the same time.

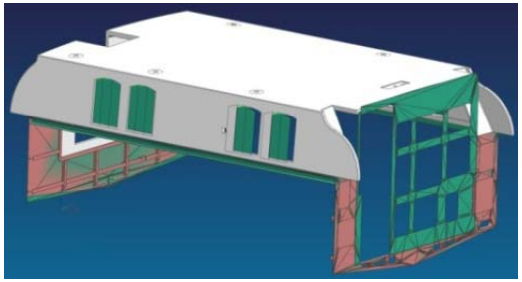
Completed boat before lacquering

Solution

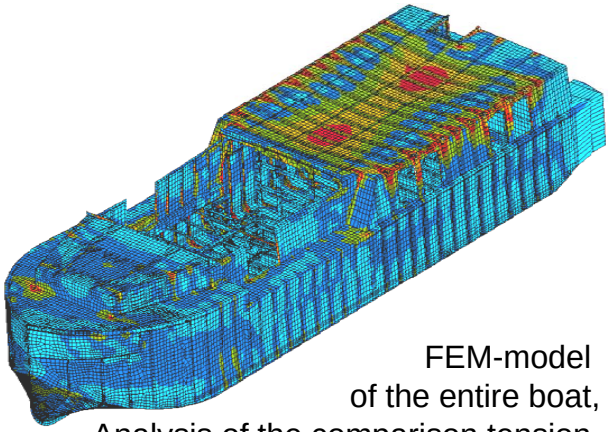
- Optimization of the house boat construction in view of light-weight construction by using Finite-Element methods
- Partly substitution of steel by glas fibre reinforced plastics
- Development of a efficiency-optimized propulsion system

Benefit

- Reduction of the boat weight
- Reduction of the fuel consumption
- Increase of the maximum speed without installing additional propulsive power



CAD-model of the upper shell



FEM-model
of the entire boat,
Analysis of the comparison tension,
stress case according to German Lloyd

Fraunhofer IPA

KUHNLE WERFT