



# Status Report

## The Steel Floor Innovation

July 2023

# The Task

## Renewal of container floor design



Need to eliminate woods for container floors

Prevent introduction of invasive species through floor structure



Develop new floor design of comparable or better quality and strength



Specific needs and requirements/expectations related to the respective stages of the product life cycle



# Step 1

## Reproduction of current container design

### 3D-Modeling

- 45G1
  - Tare acc. Specification: 3,800 kg +/- 2 %
- 22G1
  - Tare acc. Specification: 2,200 kg +/- 2 %

### Standards and regulations to be considered

- ISO 1496-1 - Series 1 freight containers – Specification and Testing
- ISO 1161 - Series 1 freight containers – Specification of Corner Fittings
- ISO 6346 - Freight containers – Coding, Identification and Marking
- ISO 668 - Series 1 freight containers – Classification, Dimensions and Ratings
- ISO 830 - Freight containers – Terminology
- UIC 592 - International union of railways – Requirements
- CSC - Convention for Safe Containers
- TIR - Customs Convention on the International Transport of Goods

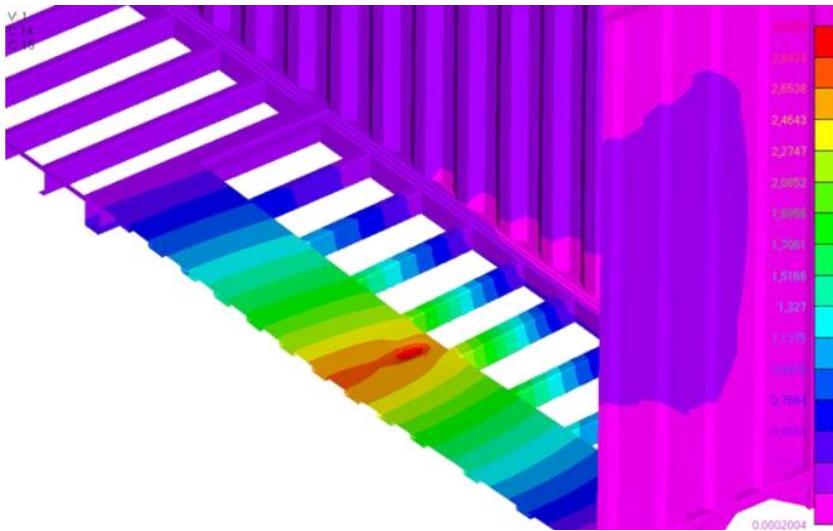




# Step 1

## Reproduction of current container design

FEM calculation model: 45G1



Wood/Bamboo Floor and  
U-Shape Cross Member  
Standard Design



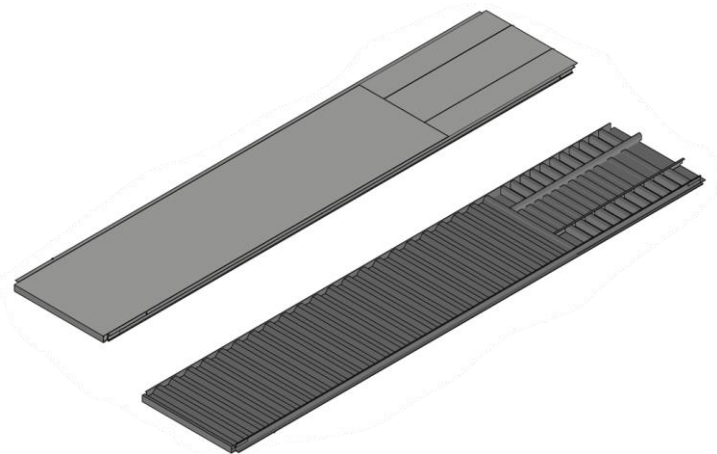
3,2 mm Plate with Corrugations  
and L- Shape Cross Member  
Current Hapag-Lloyd Design

**Conclusion: Calculation models reflect actual values to a high degree**

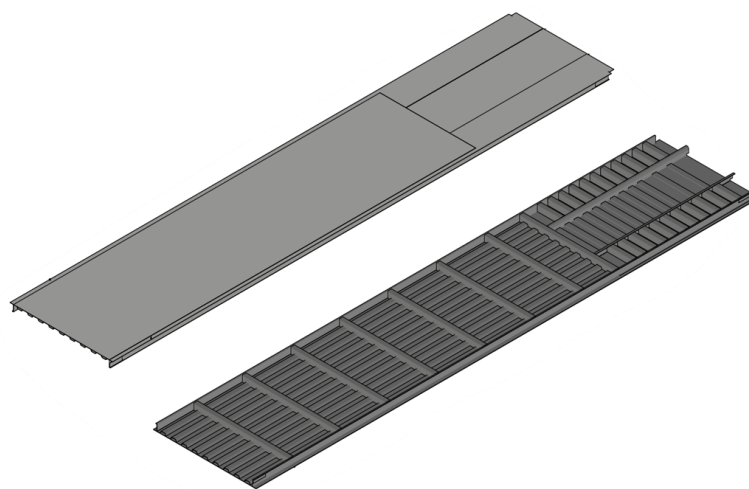
# Step 2

## Engineering Design

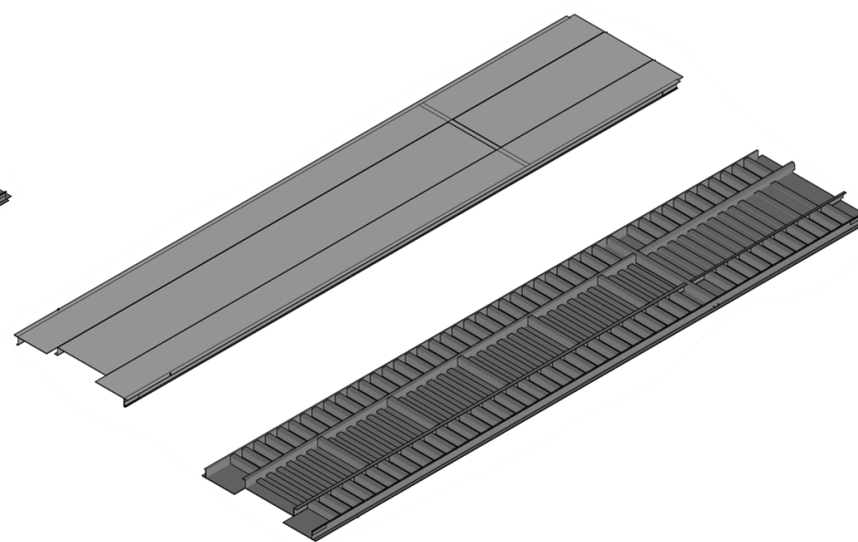
### Concept Study



**Sandwich**



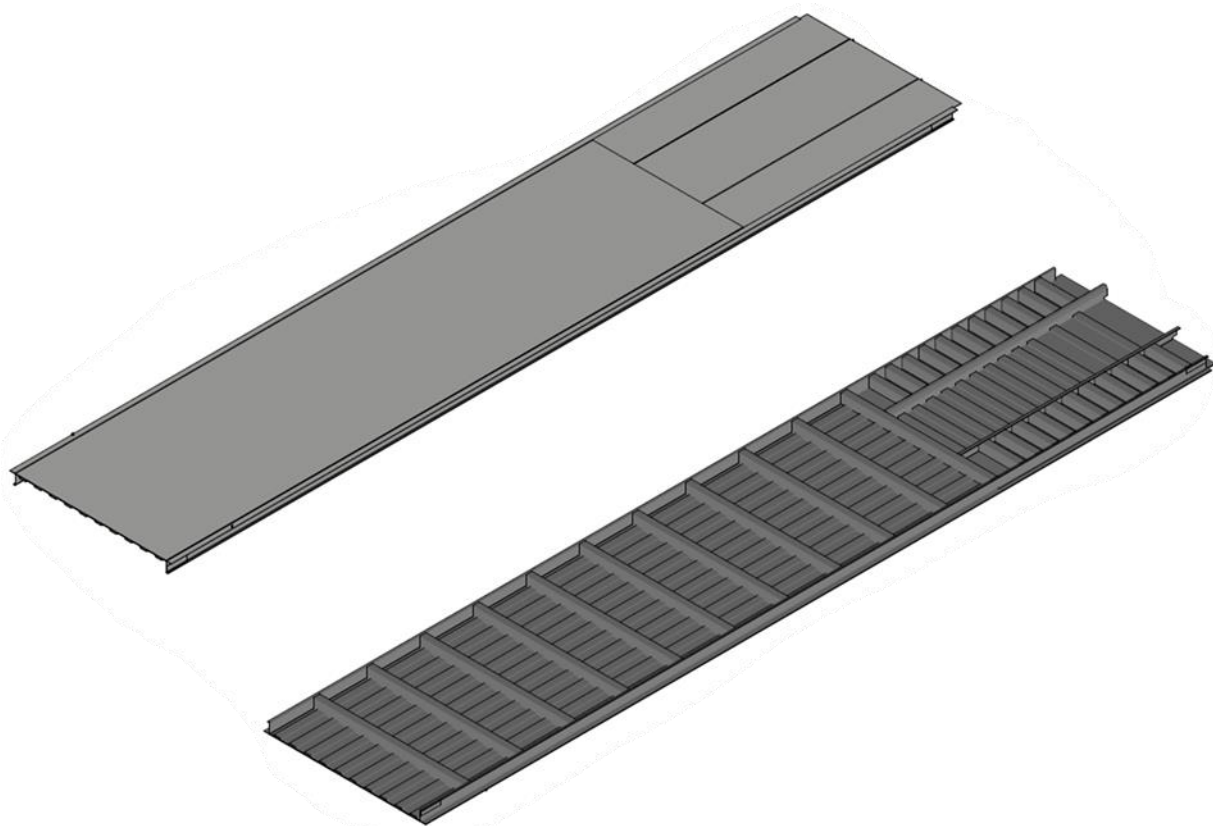
**U - Profiles**



**Extended Gooseneck**

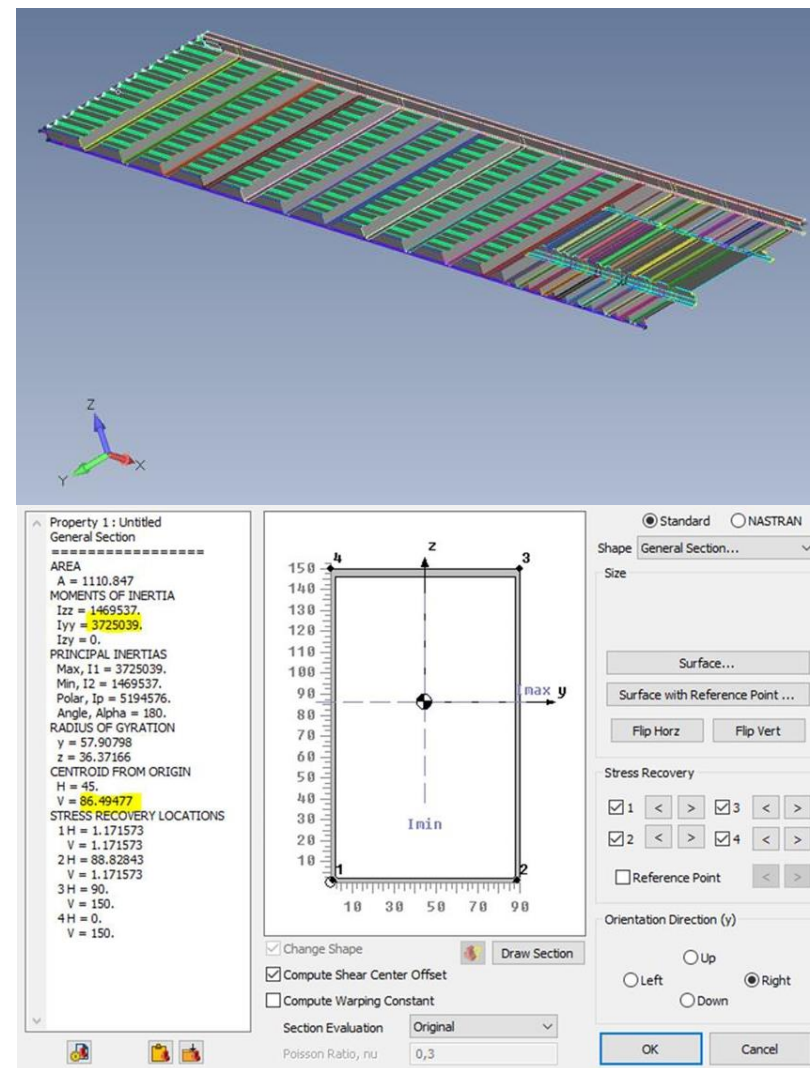
# Step 2 Engineering Design

Most promising Concept\*



Combination of corrugated panel and U – Profiles

- No open Profiles -



# Next Steps

## Renewal of container floor design



Building a Test piece and conduct Tests – ⌚ In progress



Comparison of test data with the calculation



Construction of a prototype and execution of the entire test pattern



Comparison of test data with the calculation



Starting trial production – 🎯 Q4 2023



Mass production – 🎯 Q1 2024





# Thank you!

## Contacts

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