SPEECO 1: IMPROVED PAINT AND PACKAGING FOR IMPORTED STEEL BEAMS

Overview
Steel log splitter beams are fabricated and powder coated in China then transported via ship, rail, and truck over a 28-day period to an assembly facility in Golden, Colorado. Beams are damaged during transport, the unloading process, and in transferring the beams to an assembly line. The damaged beams cost the company over $11,000 in rework annually.

Objectives
The objective of this project is to come up with a packaging method to minimize damage to the imported steel beams. In doing so, packaging materials, methods, and configurations will be examined, as well as the stacking and unloading processes. New bundling configurations and packaging materials will be designed and examined to find an ideal combination that minimizes damage to the beams. Packaging solutions will also be evaluated on the size of the new package and the total cost of shipping.

Approach
- The team obtained information about the problem from SpeeCo and CIU
- The problem was formally identified and the scope was created
- SolidWork models of the beams were created from engineering drawings provided by SpeeCo
- Various configurations of beams were formed in SolidWorks
- SJTU students took multiple trips to the Changzhou facility to work with the workers and engineers to test the feasibility of the configurations
- Evaluated different lifting methods to move the beams onto the assembly line
- Assessed different packaging materials to reduce beam damages
- Performed cost/benefit analyses on the final two configurations
- Created the process steps for packaging and unloading methods

Outcomes
- The team created a new packaging configuration for small beams
- SpeeCo will save $9682.28 using the new configuration with associated packaging materials
- A lift magnet will be utilized in the Golden facility when moving beams to the assembly line to reduce unloading damages