ANALYSIS

Reducing the Cost of Field Repairs

Our customer, Amber Waves, produces a variety of agriculture-related products, including large bin storage hoppers. These bins are built to hold grain or other 'flowable' material with extra heavy steel that is made-to-order and made-to-last. The combination of welded steel and aeration prevent contamination of the stored material.

The Challenge

Amber Waves wanted to reduce costly field service repairs and evaluate structural stability because the bin's capacity can exceed 500,000 pounds. Their primary concern was the design. Specifically, where the side walls met with the bottom cone and connected to the rest of the structure. Physical prototypes were too costly because of the short-run nature of each project and the size of each bin.

Our Solution

Applied Engineering went to work and gathered the information to create the digital prototype specifications, storage crop data, and grain loads.

Applied's experienced engineering staff used advanced 3D design and finite element analysis (FEA) software to analyze the proposed design. Static structural analysis was used to verify and optimize the strength of the design to ensure field performance and minimize repairs.

As a result, creation of a digital prototype was less than 10% of the cost to build a physical prototype. Applied gave Amber Waves the assurance that the new design would withstand the unique crop loading conditions in the field as a significant cost reduction.

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