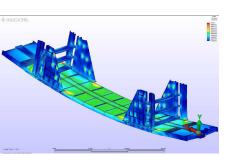**BNSF** LOGISTICS

CONTACT

Roger Roby
Director of Engineering

engineering@bnsflogistics.com
+1-817-722-5486
www.bnsflogistics.com

3200 Olympus Blvd, Suite 200
Dallas, Texas 75019

AAR Compliant 60' Flat Car Design with Rail Detection System

Company Profile

A U.S. based railcar manufacturer that provides custom railcar fabrication and fleet management services for various shippers, ports, and logistics companies.

Business Challenge

The challenge of this project was to design a 60' flat car to be used as a rail train, while meeting all design and structural requirements of the Association of American Railroads (AAR). The customer required the design of a flatcar to haul 1,600' long 140 pound rails and three different features for shipping this commodity. BNSF Logistics was also required to incorporate and update the rail detection system that was used on the tunnel cars at both ends of the train.

Solution

BNSF Logistics' engineers carefully reviewed governing car requirements to deliver a compliant flatcar design capable of carrying a gross rail load of 286,000 lbs. that met all required structural load cases. Finite Element Analysis (FEA) methods were used to verify the design. Currently, the railcar is still in successful operation today.

Process/Procedure

This design was completed successfully by fully understanding both the customer's needs and AAR's structural requirements for this railcar type.

- Perform FEA stress calculations using non-linear, large deflection analysis.
- Incorporated a tie down car at the center of the train to secure the 1,600 ft. rail.
- Worked in conjunction with the customer on the air and hydraulic systems applied to the tie down car
- Roller cars were included to support the rail throughout the body of the train, while two tunnel cars were placed at each end.
- Communicated closely with the client and satisfied all required components of the flat car design.

Benefits Achieved

- Designed an AAR compliant railcar
- Maximized the value of the customer's rail fleet
- Increased customer satisfaction