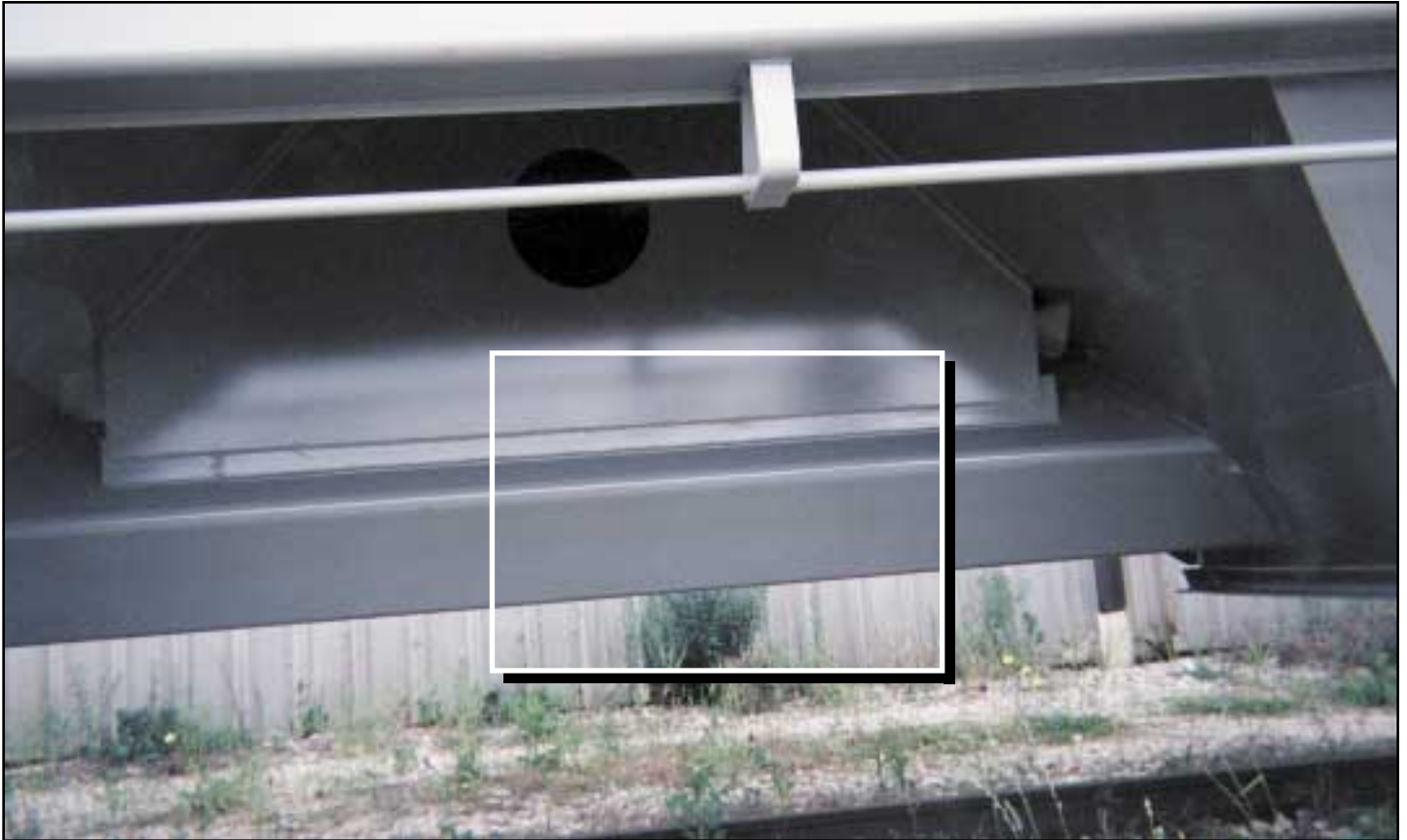


HSS: DESIGNS FOR THE 21st CENTURY



14" square HSS (located just above the wheel) provide the structural "spine" for railroad grain cars.

HSS GIVES RAIL CAR MANUFACTURER A NEW WAY TO DESIGN HOPPER CARS



Strength, Uniformity, Ease of Fabrication All Are Benefits

HSS is workin' on the railroad, thanks to a new application of steel Hollow Structural Sections (HSS) by Trinity Industries, a diversified Dallas-based manufacturing company.

One of the products manufactured by Trinity's Transportation Products business segment is specialized rail cars. Recently Trinity collaborated with a tubing



supplier to offer an optional design for its covered hopper cars.

The modification involves the use of 14" square HSS for the center sill section of the cars, in place of a welded assembly of hot rolled steel channels that previously did the job, especially when the cars are to have an interior lining applied.

Helps Give Car Its Structural Strength

The center sill serves, essentially, as the spine of the car, between the couplers and wheels at each end. Together with the steel car body that supports the load, the center sill comprises an integral part of the car's strength.

The strength, uniformity, cost effectiveness and ease of fabrication of HSS all played a role in



Trinity Industry's decision to use steel Hollow Structural Sections. The square HSS sections, which have a wall thickness of 5/16", have the required strength for railroad service.

Use of HSS Simplifies Design, Fabrication

The use of HSS simplified Trinity Industries' fabrication operation.

It eliminates the need for welding channel sections together. And, since the tubing is tilted at a 45° angle to the body of the car, it eliminates the need for welding angled plates to the channel sections to form the hoods over which grain or other products flow from the cars. Other parts required by the previous sill design were also eliminated.

The simplified fabrication provides benefits for Trinity Industries' customers—who include a number of well-known companies. Trinity Industries is also using large HSS sections for railroad tank cars with full underframes that carry a varied assortment of liquid cargoes.

