



June 6, 2014

Paumac Tubing, LLC
305 Cuttle Road
Marysville, MI 48060

RE: Stable Boy® Horsetrailer Kit

Paumac Tubing, LLC, manufacturer of Stable Boy® has retained BMJ Engineering to complete numerical analysis of the materials and components of a horsetrailer kit that consists of stall railings and a floor extension for trailers. As a result the component and connection observations, information gathered and analysis it is concluded that the kit meets acceptable performance criteria.

The analysis concentrated on the material capability of the specified materials, inventoried loads calculated from criteria for common horse trailering configurations, situations and recommended practices. The kit is constructed of Alloy 6061-T6 Aluminum Tube covered under ASTM B221. The floor plate is constructed of the same alloy covered under ASTM B209 for aluminum plate. Aluminum tubing rails were modeled as single components in a simple bending beam configuration loaded at mid span where the largest scalar moment value is predicted. The major components of the kit modeled were center and side rails, front and rear restraint walls as well as the floor insert. The initially reviewed kit was a product of quality workmanship and utility. Material choices indicated an understanding of the requirements of horse trailering and current standards of animal trailering as the regulatory and industry standards exist at this time. The proposed configurations met a reasonable performance standard for the intended purpose. Additional recommendations were made in the development process to improve the strength of the components to meet more heavy duty requirements.

This most recent improvements to the kit modifies the support configuration such that the retrofit kit is a freestanding frame. Additionally, the side and center stall walls are now made in a more robust configuration with curved return corners at the top back end of the kit and a square corner at the top front end. Bottom support is by pinned connection at the front end of the frame and slotted insert in the floor of the prototype. Most of the material specifications utilized in the previous analysis have remained the same but with additional wall thickness.

Factors of safety were increased significantly by the improvements in wall configuration, material thickness and the precision of the connection devices. The materials used for the kit provide sufficient strength in the constructed configurations to be considered heavy duty equipment.

Sincerely,

A handwritten signature in black ink that reads "Michael W. Quaine". The signature is written in a cursive style.

Michael W. Quaine, P.E.
Senior Project Engineer

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