

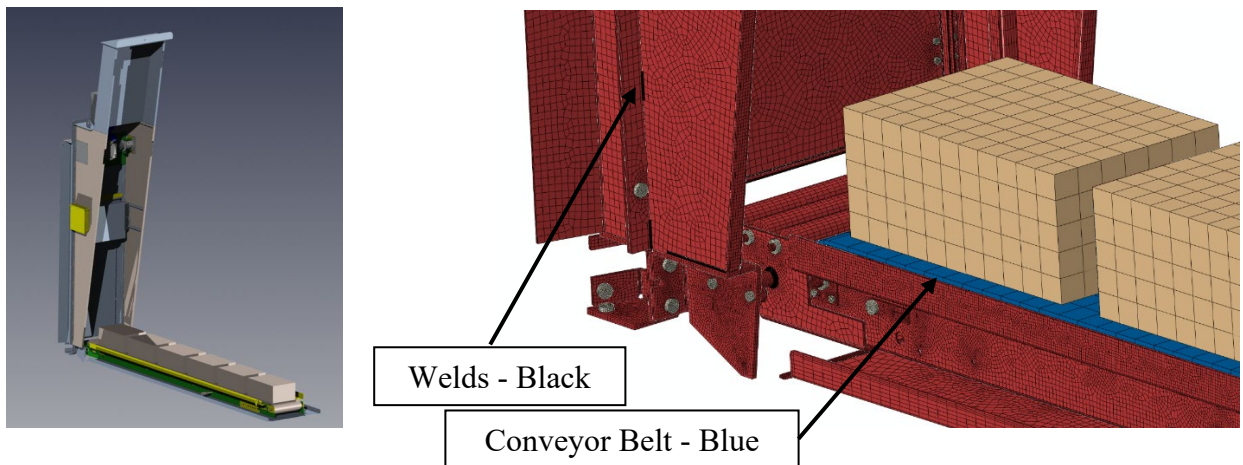
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Baggage Chute – Mechanical New Design Evaluation (Finite Element Analysis, ASME Section VIII Div. 2 Limit Load)

Project Description: A new baggage chute required load certification. Using provided drawings and shop measurements, the equipment was 3D CAD modeled and then converted into a finite element analysis model (FEA). Evaluation of the design was performed according to ASME Section VIII Div. 2 non-linear elastic-perfectly-plastic materials (with small displacement theory). Fillet welds were explicitly defined in the model. Code safety factor of 1.5 was applied.

3D CAD and FEA Models: Both CAD and FEA models are shown below:



FEA and Code Results: With consideration to belt tension loading, dead-weight of equipment and luggage, along with evaluation of various inclination angles and opening/closing, the new chute was found acceptable for the required industry loads.

