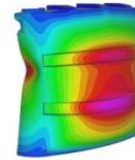


Date: February 2026
Client: Schaefer Systems International (SSI)



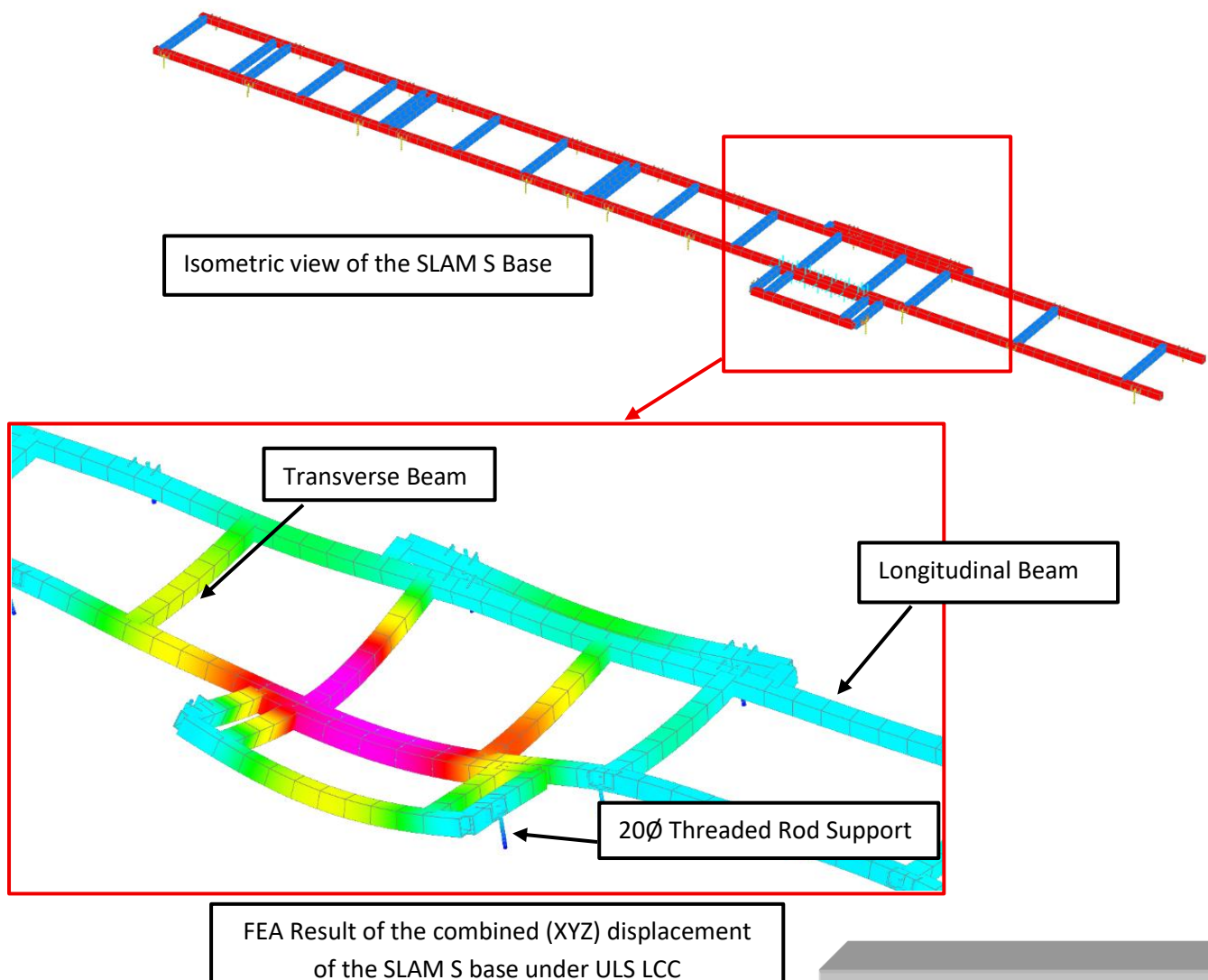
David Beneke Consulting
Finite Element Analysis for Engineering

Amazon BWU4 - PID and SLAM Base Support Frames

Project Description:

David Beneke Consulting was commissioned by Schaefer Systems International (SSI) to undertake 3rd party proof checking of PID and SLAM S and XL base support frames for the Amazon BWU4 project located in Horsley Park, Sydney. The aforementioned bases are supports for various systems in the Amazon distribution system, such as labelling equipment for outgoing packages.

The finite element analysis (FEA) model of the support structures used 1 dimensional line elements to represent longitudinal and transverse beams, outriggers and threaded rods. Key live loads are represented as concentrated point loads at specific spots, covering the longitudinal and transverse beams. A Linear Static and Linear Buckling Analysis was conducted to determine the maximum axial compression and buckling in the 20mm diameter threaded rod respectively, under an ultimate limit state (ULS) load case combination (LCC). Additionally, a Fibre Stress Analysis under an ULS LCC was used to determine the worst-case fibre stresses in each individual member, to check that it is below the factored yield stress (ϕF_y) according to Australian Standard AS4100-2020. Finally, the FEA model was subjected to lateral accelerations under seismic conditions with similar member and connection checks undertaken.



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