



Ergonomic Design Solutions

Design for Assembly: Guidance to Ergonomic Product Design

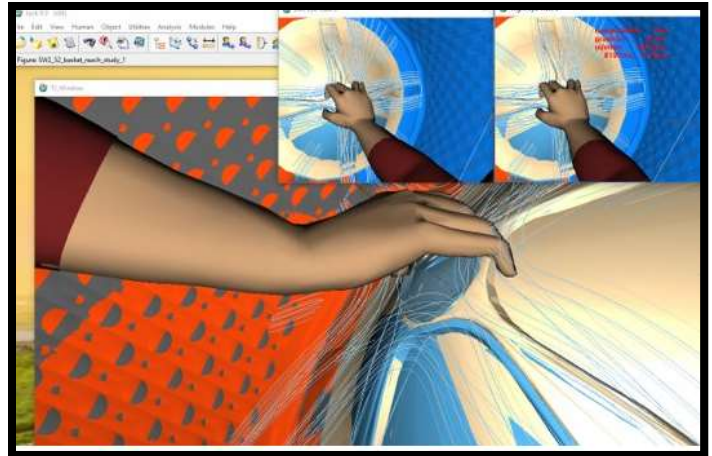
Client:

Large appliances manufacturer

Objectives:

1. Review product design and part list in early design phase to give constructive feedback on assembly feasibility.
2. Develop insertion force limit targets prior to prototype creation.
3. Present previous model legacy assembly issues, working with design team to develop solutions
4. Confirm assembly process feasibility including hand and power tool clearance and human capability/repeatability

Design for human capability and efficiency

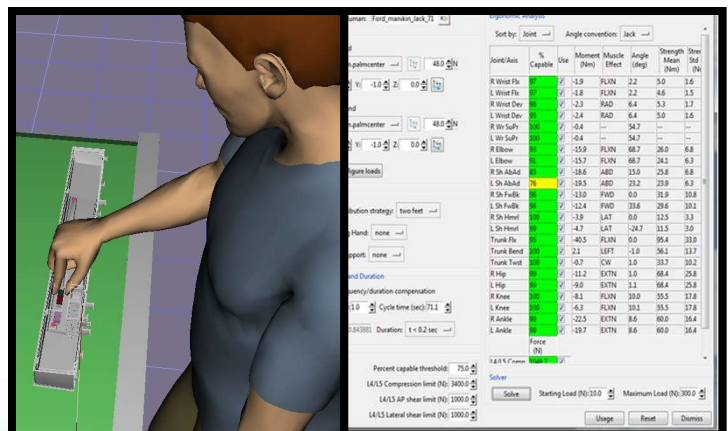


Project Description:

Sandalwood was engaged for the initial phase of new model design to evaluate for ease of assembly. The priority was to minimize product **cost** through design and **process** improvements. Sandalwood used digital human modeling (Jack 9.0) and research based tools to analyze the product for potential assembly roadblocks and ergonomic stressors. Collaboration with design team led to optimal design for insertion, handling, retrieval, and automation. As prototype parts were made, lifting and insertion limits were developed and measured against. Where assembly exceeded safe human limits, recommendations were made for processes to be automated. Sandalwood followed product through all design phases to confirm product assembly feasibility. For future projects, part standards were proposed to speed design practices toward ergonomic solutions.

Results:

- Four “no-build” situations identified before prototype stage saving client at minimum eight weeks rework time and retooling
- Determined necessary platform heights and processes requiring hoists and assembly aids
- Identified opportunities for future design standards to streamline ergonomic designs
- Delivered ergonomic training to 50+ engineers



Sandalwood is an engineering and ergonomics consulting firm. Since starting in 1989, Sandalwood has designed over 2,000 projects that have executed strategic solutions for manufacturers. By providing their knowledge, research, technology, and resources Sandalwood supports its clients from the executive level to the factory floor so you can

Work Smarter. Work Safer.