Airplane Seat Privacy Doors-B/E Aerospace

Overview
The objective of this project was to design, prototype and test airplane seat privacy doors that meet various technical, aesthetic, and functional requirements. The privacy doors will be used to partition sections of business class into a private suite for the passenger. This type of suite already exists for first class passengers, but B/E Aerospace would like to bring this luxury to business class as well.

Objectives
The team broke the problem down into three main components. A sliding mechanism, a latching mechanism, and a hold open mechanism. All of these components had specific technical requirements they had to meet.

Approach
- Background and patent search for existing airplane suite privacy configurations as well as mechanisms used for sliding doors
- Brainstormed various options for each component of the project
- Designed a sliding mechanism similar to the way a minivan door slides and created CAD models
- Ultimately procured our sliding mechanism from a manufacturer that designs linear rail systems
- Performed calculations to confirm the sliding mechanism could withstand the requirements
- Fabricated a proof-of-concept prototype to show how the privacy doors would function

Outcomes
- The goal for this product is to be installed on airplanes within the next year
- B/E Aerospace has a solid outline of how to quickly and effectively conquer the problem
- The sliding mechanisms are an economic solution that will easily support all of the necessary loads that were required.
- The latching mechanism is magnetic for aesthetic purposes as well as durability
- The hold-open mechanism used for taxi, take-off, and landing can be operated with a foot to allow the flight attendant to still have use of their hands.