Modular Residential Wheel Chair Ramp System

Overview
Current modular wheel chair ramp systems are visually unappealing and are not as aesthetically pleasing as most new permanent ramp systems. Our sponsor tasked us with developing a modular ramp system that was adjustable, modern looking, compatibly with any house and easy to assemble.

Objectives
Our group produced a final prototype that exceeded our sponsors’ goals and proved that an aesthetically pleasing modular wheel chair ramp system was an achievable, marketable idea.

Approach
- Performed a detailed patent search to prevent any infringement on existing products
- Polled customer requirements pertaining to clientele age group and sponsor requests
- Utilized a scoring matrix to methodically select the best generated concept
- Communicated regularly with project sponsor to ensure timely outcomes and deliverables
- Hand built, machined and welded a complete aluminium wheel chair ramp frame
- Simulated early and final prototypes in computer aided design programs
- Provided computer drawings to sponsor for future use
- Performed loading and stress testing after final prototype was built
- Presented final product at spring design showcase and gained public feedback
- Measured deflections and observed areas that need improvement for future prototypes

Outcomes
- The sponsor will be able to pursue the original idea as a possible company start-up
- Predicted manufacturing cost would make the new modular ramp competitive in the current
- The project revealed a niche market that could be developed
- If the project resulted in a new/unique product/approach/simulation, make sure to convey that as well.