

Senior Capstone Design

Project: **Goat Stanchions for Commercial Milking**

Primary Author: **Luke Johnson**

Team: **Billy Goats Gruff**

Date: **July 30,2017**

Design Validation Plan & Results (DVP&R)

Requirement	Test	Test Subject	Target Date	Result	Recommendation
The total system shall weigh no more than 120 lbs.	Use solidworks material properties to get estimated weight.	Solid Model	7/21/19		
The ramps shall weigh no more than 45 lbs.	Use solidworks material properties to get estimated weight.	Solid Model	7/21/19		
Scaled modules shall connect as full scale modules connect.	Attempt to connect scaled prototype modules together.	Scaled prototype.	9/17/19		
Scaled prototype doors shall connect and function to allow model goats to enter and access food trays.	Film model goat entering doors and accessing food trays	Scaled prototype.	9/17/19		
Scaled stands shall hold modules up double the scaled weight of two goats.	Apply weight to scaled stand and observe	Scaled prototype.	9/17/19		
Weighted scaled stands shall have less than 1/8 in deflection on a horizontal plane	Position dial indicators on two opposing planes and observe deflection.	Scaled prototype.	9/17/19		
Scaled feed gates should open and allow model goats to exit stanchion	Film model goat exiting prototype after manually raising scaled feed gates.	Scaled prototype.	9/17/19		
Scaled prototype should be able to be packaged to scaled version of stanchion packaging.	Package the scaled prototype.	Scaled prototype.	9/17/19		
Scaled prototype should be able to be assembled by consumers given same assembly instructions.	Provide peers with disassembled scaled prototype and instruction package.	Scaled prototype and instruction package.	9/24/19		
Flooring material shall not exceed forces provided by the goats.	Model force concentrations in Abaqus.	Solid Model	10/1/19		
Solid model annimation should replicate desired goat stanchion process.	Use solidworks motion annimation to simulate goat stanchion process.	Solid Model	10/1/19.		
Cost of manufacturing shall be below \$2500	Use solidworks mass properties to estimate cost at \$2 per pound	Solid Model	10/1/19.		

Team Scaled prototype testing