Group M1.02- RSI

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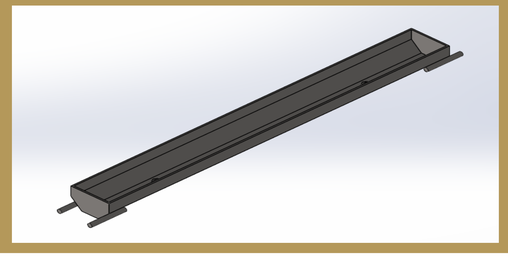
Problem

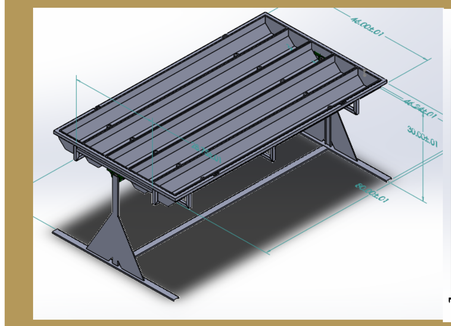
- Creating a faster manufacturing method with less of a work force. Which will be easier on the worker and improve the profit margin of the company.
- The process used now by RSI (Roadway striping Inc.), involves flipping 225, 200 lb. concrete wheel stops by hand every other day.

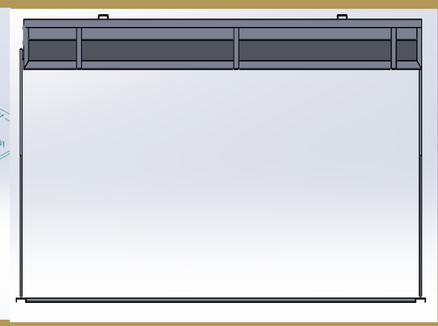
Current issues

- The current process uses manual labor.
- It takes two days to make 225-wheel stops.
- The sponsor always wants an inventory of 5000 – 8000 wheel-stops.
- Five people are required to get all the concrete wheel stops out of the steel molds within the required time.



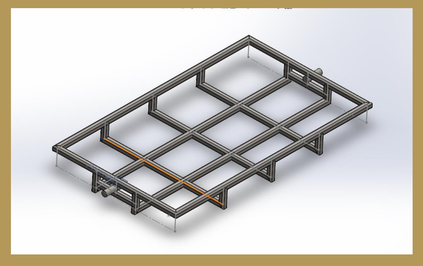
Proposed solution



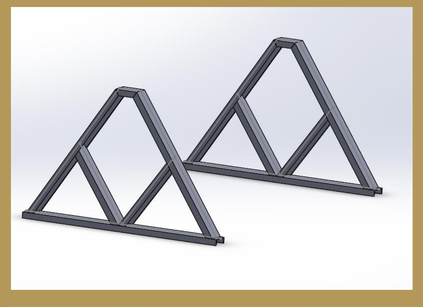


- The design idea of this table is to take away most of the manual labor of the worker.
- Flipping five molds with the cured concrete wheel stop 180 degrees and hold in place until a forklift comes to lift and move the wheel stops into inventory.

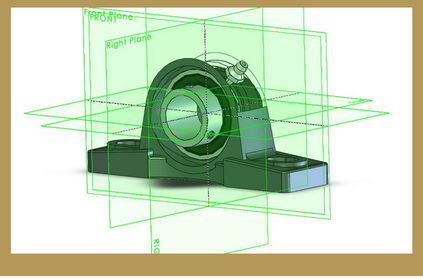
- Initial concept was approved by the instructor, but the structure needed more stability for the rotational forces and static loading forces.



- The cage for the top of the table was designed to hold five of the concrete molds.
- The cage is made of 2-inch square tubing and weighs 289 lbs.



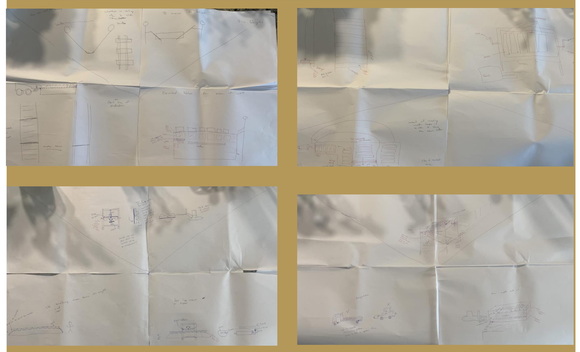
- This image contains the final design for the table's legs. This differs from the legs seen on the top image, the design was changed to allow more distribution of weight.
- The legs will be built out of 4-inch C-channel metal which will be capable of supporting 1500-2000 pounds.

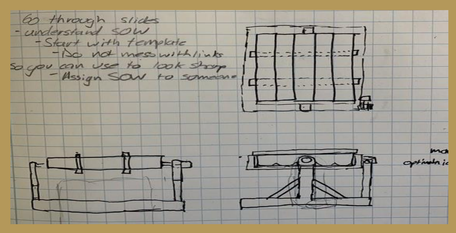


- Bearings were used on both legs to create a better support for the cage. This will also facilitate the rotation of the cage.
- Finding the data sheet from Grainger supply company these bearings have a static load capacity of 1,795 lbs.

Process

Conceptualization





- With the use of the 6-3-5 exercise, we were able to create the current design of the table
- With constraints from the sponsor to have a product design that will be cost efficient.

Future Design Tasks

- Complete Stress analysis for cage top
- Create latching mechanism to lock the table in place.
- Create added support for the table to rest on.
- Start fabrication of table.
- Testing of fabricated table.