

Prototype Testing:

Engineering Metric Being Tested: Number of Components that need Modification after Assembly

Purpose:

The intent of this study is to ensure that the product will require minimal to no modification once it is assembled and installed in a user's home.

Goals:

As briefly stated in the previous section, it is the goal of this prototype to be all-encompassing and allow for ease in adjustment on part of the user in integration into a user's family's life. The ideal resultant would be identifying that all parts of the toilet require no attention or modification to work as intended. The marginally acceptable resultant would be requiring less than or equal to two part adjustments for integration into a user's home and unique lifestyle. Two is the maximum acceptable amount as the parts that have historically required modification have been for customization unique to specific situations and not typical of a majority of users (ie. unique urine jug only a few users have that would require manually shortening the urine diverter nozzle, etc.).

Conclusions:

It was anticipated that the urine diverter designed by our RIT MSD team may have needed to be modified to fit the existing SOIL toilet model by cutting the height of the spout to be compatible with the existing urine jug. However, this was not the case; the length of the spout of the urine diverter was compatible with the existing urine jug as designed. Although the designed urine diverter works with the prototype toilet built at RIT, the exact dimensions of the toilet are not the same as the model in Haiti, something we learned after our guide, Sarah Brownell, realized when visiting the SOIL manufacturing facility in Haiti. At this point we are unable to say whether the diverter will have to be modified to fit the toilets built in Haiti.

Materials:

The materials required of this test protocol simply require the assembled toilet prototype and nothing more than user information provided from SOIL according to the proposed design of the toilet.

Procedure:

This experiment is simple in that it calls only for a surface level analysis of the toilet across the various use cases identified by the client, SOIL. Conclusions will be drawn from a thorough conversation with those at SOIL who have the most exposure to user interaction with the product.

Results:

Component	Needs Modification?
Diverter	No
Toilet Seat	No
Urine Jug	No
Feces Bucket	No
Cement Base	No

Analysis:

Based on the prototype built at RIT, no components needed any modification post assembly in order to function properly. However, our prototype toilet is not the exact dimensions as the ones built in Haiti. Even though we were able to fit the newly designed urine diverter into our toilet model without any additional modifications, that may not necessarily mean that the diverter will fit as easily into the existing toilets manufactured by SOIL in Haiti.