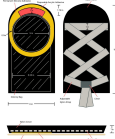
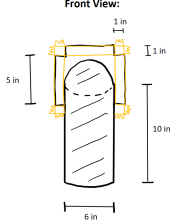
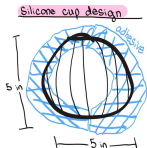


OstoSeal Design Matrix

Ostomy Shower Pouch Design Matrix

		Adhesive Mix and Match 		Adhesive Strips on Flaps 		Silicone Cup Design 	
Criteria	Weight	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Waterproofness	25	4/5	20	5/5	25	2/5	10
Ease of Use	20	4/5	16	3.5/5	14	5/5	20
Reusability	15	3/5	9	2/5	6	5/5	15
Comfort	15	4/5	12	4/5	12	2/5	6
Ease of Fabrication	10	3/5	6	4/5	8	5/5	10
Adjustability	10	5/5	10	2/5	4	0/5	0
Cost	5	4/5	4	5/5	5	5/5	5
Total	100	Sum	76	Sum	74	Sum	66

Design Criteria

- 1. Waterproofness:** The waterproofness criterion evaluates the estimate of how much water the design allows through its adhesive seal and waterproof cover. The ideal product would let absolutely no water through this barrier and would therefore earn a perfect score. Because this criterion addresses the core issue that this product aims to resolve, waterproofness has a stronger score weight than any other criterion. The Adhesive Strips on Flaps design received the highest score of 5/5 because it uses the most pouch material and adhesive to thoroughly ensure no water leaks through the barrier. The Adhesive Mix and Match design received a slightly lower score of 4/5 because of the small area where the barrier is only composed of silicone adhesive, which has not been as thoroughly tested for waterproofness as the disposable adhesive. The Silicone Cup design received the lowest score of 2/5. The nature of the one-suction design that the silicone cup utilizes might allow for leakage as the user moves, which could be quite often during usage. Because in-shower use has never been the intended use of a silicone cup, very little testing of the waterproofness of the product has been carried out.
- 2. Ease of Use:** The ease of use criterion assesses how easily the product can be applied, removed, and stored by the client. The product should be able to be quickly and easily applied by the user to the area surrounding the stoma and ostomy pouch. After showering, the user should then be able to remove the product easily, without damage to the ostomy pouch, and store it until the next use. The Silicone Cup Design received a score of five because there is no adhesive that would need to be removed and replaced in between uses. Also, the ostomy bag could be easily inserted and removed from the opening in this cover and there are no absorbent materials in this design that might retain water post-shower. No retention of water allows for quick, easy drying of the pouch before storing. The Adhesive Mix and Match Design received a lower score of four because one of the adhesive components is removable and disposable and would need to be replaced periodically. The ostomy bag itself would still be able to be easily inserted and removed from the opening in the cover, and there are no absorbent materials that might retain water after showering. The Adhesive Strips on Flaps Design received a score of 3.5 because there is no permanent silicone component to the adhesive design. So, the entire adhesive component would need to be applied/replaced. However, this design also allows for easy insertion and removal of the ostomy bag and does not include absorbent materials.
- 3. Reusability:** The reusability criterion addresses the ability for the entirety of the contraption to be used for multiple showers. The waterproofed compartment of the design should last for at least 35 showers without any damage inflicted on the material causing leakage. For the adhesives, the quantity of adhesives needing replacement between showers should be minimized to reduce waste. The entire contraption should be able to withstand repeated contact with shampoo, condition, soap, and any other shower products the client may use, while retaining its integrity and ability to adhere. The Adhesive Mix

and Match Design received a rating of four in this category. Both the waterproof bag system and the silicone seal can be continually reused, and only the small acrylic adhesive located at the top of the design must be replaced after every shower. Similarly, the four large adhesive strips must be disposed of after every use in the Adhesive Strips on Flaps Design. Despite the reusability of the bag, this design causes large amounts of waste each use, resulting in a reusability rating of two. In contrast, the Silicone Cup Design received a rating of five due to the fact that the entire contraption can be completely reused without causing any waste. The silicone cup simply has to be cleaned and set out to dry after use. Overall, the Silicone Cup Design received the best rating in the reusability criterion because of the ability to reuse 100% of the contraption.

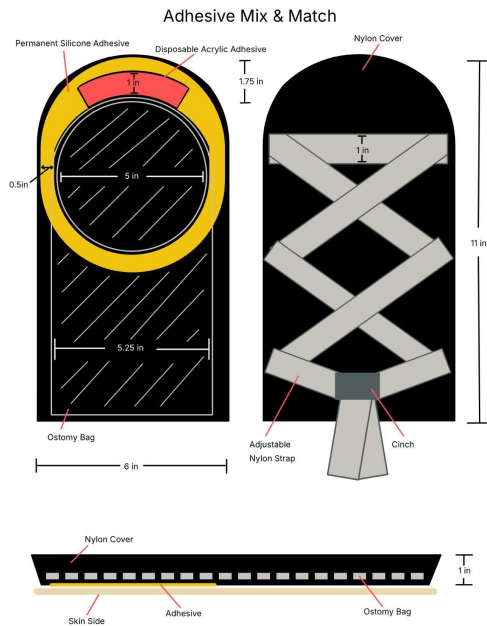
4. **Comfort:** The comfort criterion assesses how comfortable the product is to wear during the user's regular shower activities, such as washing the body or bending to shave. It is based on weight, bulk, and the freedom of movement the device allows. The design should allow the user to shower normally without causing discomfort or irritation. The Adhesive Mix and Match and the Adhesive Strips on Flaps designs both received scores of four out of five because they utilize silicone tape. This adhesive requires only minimal, irritation-free contact with the user's skin. Additionally, the Adhesive Mix and Match design incorporates adjustable straps that allow the user to secure any excess length. It is designed to accommodate larger pouches out of the way, reducing unnecessary bulk and interference in the shower. The Silicone Cup Design received the lowest score in this category because the cup used to create suction could become uncomfortable if worn for longer periods of time. This could especially be an issue because the suction needs to be strong enough to create a waterproof seal. Also, this design may require the user to occasionally adjust the cup in the shower, which could add to the discomfort.
5. **Ease of Fabrication:** Ease of fabrication is an important factor for the device because the design needs to be realistically manufactured within the time frame of the semester. A simpler fabrication process will allow more time for testing and making changes to improve the final design. The Adhesive Mix and Match design received a score of three, the lowest of the three designs. This design requires multiple components, which increases the number of assembly and fabrication steps. Comparatively, the Adhesive Strips on Flaps design received a score of four because it consists of a relatively simple cover with adhesives attached to the surrounding flaps. This reduces the number of separate components and makes the assembly more straightforward. Finally, the Silicone Cup design received the highest score of five because it consists of relatively few components and requires minimal assembly once the silicone cup is formed. The adhesive can then be applied around the perimeter of the cup, which is a simple final construction.
6. **Adjustability:** The adjustability criterion evaluates the device on how it can conform to different body and ostomy pouch shapes and sizes. This is particularly applicable to the ostomy cover with differing user waist circumferences and contours. The Silicone Cup

design received a score of zero because it is a completely rigid product that would not conform well to a body. The Adhesive Strips on Flaps design received a two because the product is more flexible with silicone tape strips that adapt to waist shape. However, the hanging bag section has no way to be tightened. The Adhesive Mix and Match has crossing straps over the hanging section in order to adjust to the varying sizes the ostomy pouch might take on. This design received a five because it has a tightening ability and it is also flexible enough to conform to the waist.

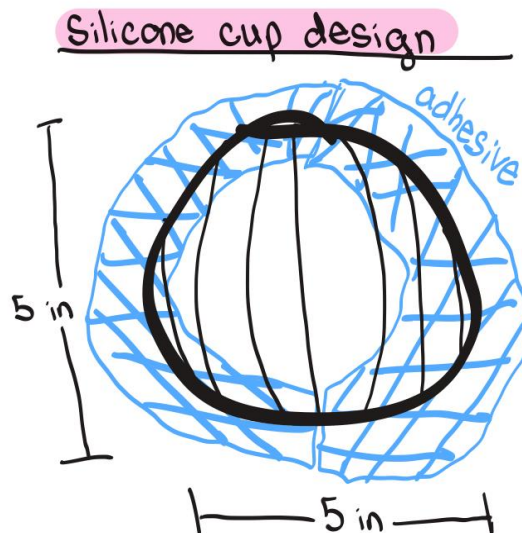
7. **Cost:** The cost criterion refers to the expense of each design as a whole. This is important to take into consideration because this product may have to be re-bought - more than a few times - over the course of a user's lifetime. The Adhesive Mix and Match design received a score of four because, while the materials used are not costly, the straps add on to the total expense of the product. The Adhesive Strips on Flaps design received a five because the materials used in the design are relatively inexpensive. Plus, there is not a large amount of total material used, bringing the cost down more. The Silicone Cup Design also received a score of five because of the simplicity of the product and the affordability of the silicone material.

Designs

Adhesive Mix and Match



Silicone Cup Design



* Cup: Rigid silicone material.

* Adhesive: Silicone tape.

Adhesive Strips on Flaps

Front View:

