OstoSeal: Waterproof and reusable ostomy pouch shower cover

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Advisor: Prof. Duc-Huy Nguyen
Team Members:
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Lilli Tanner (ltanner5@wisc.edu) - BSAC
Lana Schardt (lschardt@wisc.edu) - BPAG
Date: October 22nd, 2026 - October 29th, 2026

Problem statement

This project will work towards the creation of a safe, comfortable and effective ostomy pouch and wafer adhesive cover meant to keep the two components dry during showering. Current methods of keeping ostomy pouches and adhesives are often unreliable or inconvenient which negatively impacts the users quality of life. This cover is intended to work with a schedule of at least daily showers, and must be durable and easy enough to use in order to accommodate this stipulation. This device should be firmly waterproof and compact to support a schedule of daily use. Also, it must fit the variety of pouch sizes and waistline shapes and sizes that a person could have.

Brief status update

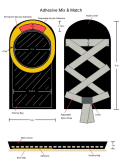
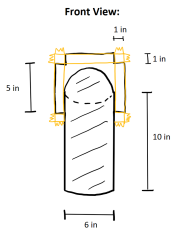
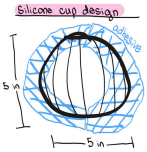
- BioThane elastic strap material has arrived!
- We have 3D printed another ring prototype. Our second material to test for durability and flexibility is TPU. The material is significantly less expensive than resin and is qualitatively more durable.
- We have created an updated design drawing to account for bag and ring shape changes and the dimension changes that consequentially occur. Further slight dimension changes are probable to account for a higher sewing tolerance than previously anticipated.

Difficulties/advice requests

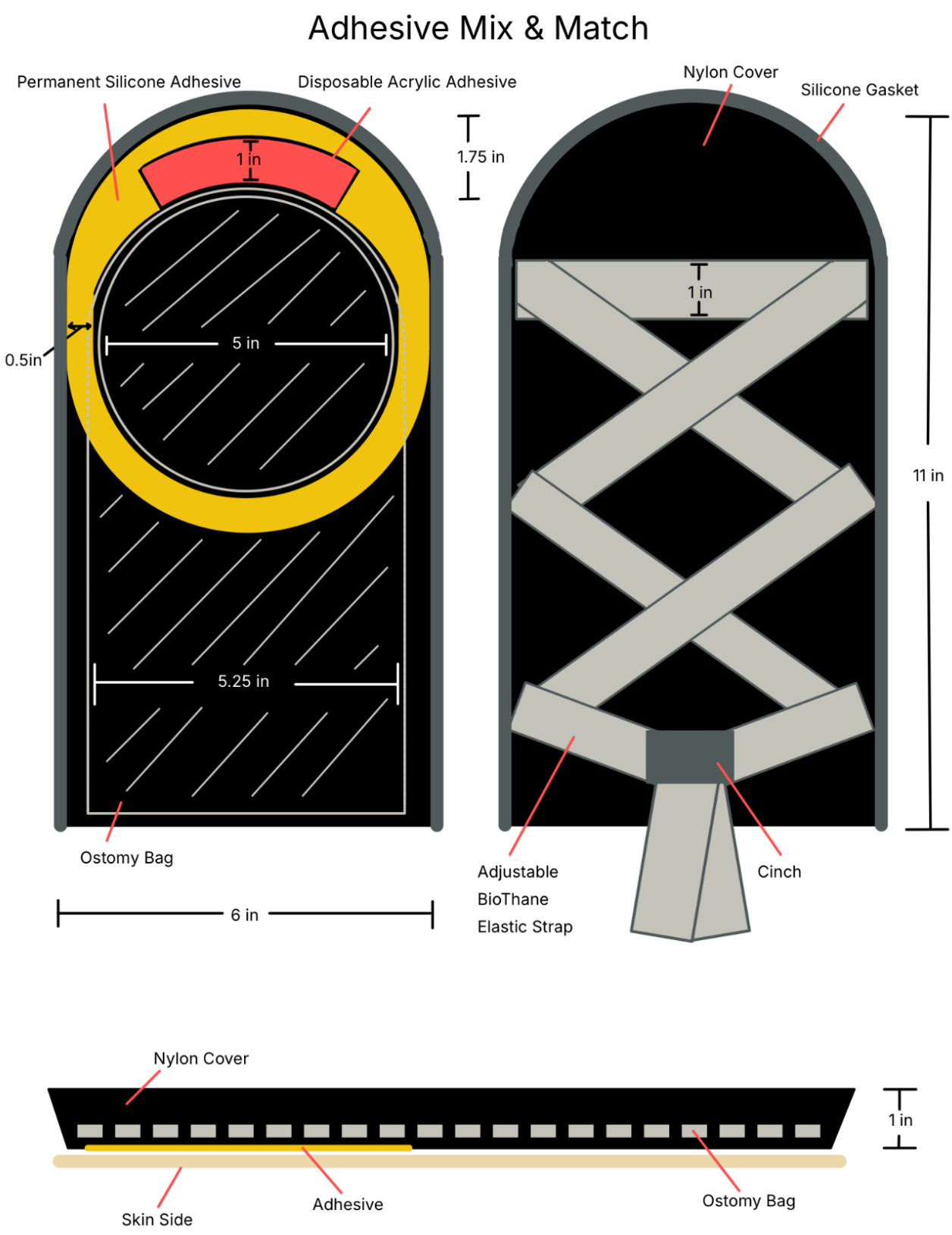
None at this time

Current design

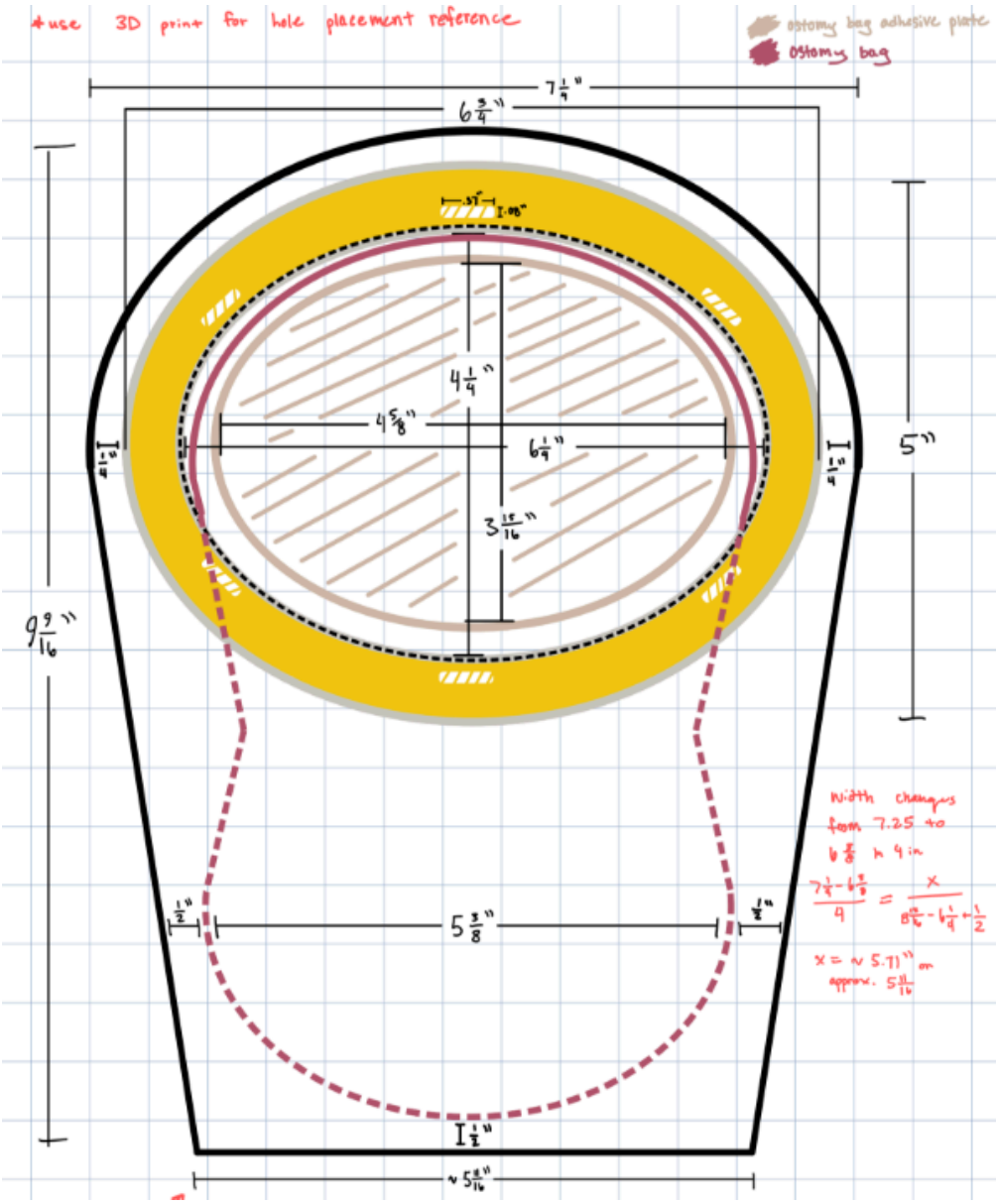
Ostomy Shower Pouch Design Matrix

		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**

Leading Design (9-30-2026)



Updated Design (10-27-2026)



Materials and expenses

BPAG Expense Spreadsheet

The team has ordered a silicone adhesive tape for skin attachment, waterproof silicone-coated polyester fabric for pouch fabrication, and Biothane elastic strap material for the adjustable component. The team has also completed 3D printing with resin filament provided by the UW–Madison Wendt Commons Makerspace (no reimbursement needed).

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Non-UW										
	Silicone Scar Sheets	LotFancy	N/A	Walmart	N/A	10/10/2026	1 pack	$27.41	$27.41	https://www.walmart.com/ip/LotFancy-Silico

										ne-Scar-Sheets-10-Pcs-Silicone-Scar-Tape-for-Scar-Treatment-Reusable-4-x-7-in/5440459187
	1.1oz Silpoly (Black)	Ripstop by the Roll	N/A	Ripstop by the Roll	N/A	10/10/2026	1 yd	$17.43	$17.43	https://ripstopbytheroll.com/products/1-1-oz-silpoly
	BioThane®, 520 Beta, 2.5mm Thick	Buckleguy		Buckleguy		10/19/2026	6x1ft	$1.38	$18.21 ($8.28 + $8.99 shipping)	
UW Makerspace (@Wendt)										
	Resin Filament			Wendt Makerspace		10/20/2026			$1.87	
									$0.00	
								TOTAL:	**$64.92**	

Major team goals for the last week

1. Prepare for show and tell
2. Add the 3D-printed ring to our prototype and begin testing on it

Major team goals for the next week

1. Finalize design (with specific materials, dimensions, fit) of the two rings.
2. Start testing how the material interfaces will work in the design (ring to silpoly, ring to silicone adhesive).
3. Begin connecting different parts of the first prototype that will contain the finalized materials.

Last week's individual goals

- Addison Tanner: Add to the initial prototype by including the 3D-printed ring. Begin testing on the ring connection to the bag to make sure that no water is able to leak through. Prepare for show and tell and hope that our material for our bag shows up this week.
- Eve Vosters: Reiterate the initial prototype including the 3D printed ring. Perform testing on the ring connection to the bag to ensure waterproofness of the connection. Brainstorm and design a connection mechanism between the silicone adhesive and the 3D printed ring that will ensure reusability and the ability to replace the adhesive.

- Kira Schienke: Do additional research for further design options for the adhesive ring. Draw an updated design drawing.
- Lana Schardt: Prepare for show and tell by starting to brainstorm our elevator pitch. Work with team to design adjustable straps that work with our current prototype, and determine if any additional iterations are needed.
- Lilli Tanner: Continue prototyping now including the 3D printed ring and brainstorm possible ways to connect the ring/bag to the silicone adhesive ensuring reusability and ease of use. Brainstorm and prototype connection for the adjustable straps. Prepare for show and tell.
- Cassity Dechenne: 3D print the notch and wedge rings with the improved Solidworks design. Discuss budget with client to ensure multiple printed ring prototypes will be suitable for the project. Prepare for show and tell.

Next week's individual goals

- Addison Tanner: Cut the fabric using a stencil that we will create from the laser cutting machine and then use that to cut our material. Start conducting waterproofing testing.
- Eve Vosters: Create a prototype using the Silpoly material and 3D printed ring. Perform testing on the rims of the sewed seams of the silpoly to ensure their waterproofness. Brainstorm ring and bag connection techniques that will ensure security of the ring.
- Kira Schienke: Test laser cutting silpoly material using a small piece of fabric. Create a prototype using silpoly fabric and TPU ring. Change dimensions of design drawing.
- Lana Schardt: Cut silpoly fabric using the solidworks stencil. Ensure that bag dimensions can accommodate the TPU ring. Attach the straps to the prototype. Start conducting waterproofness testing.
- Lilli Tanner: Finalize dimensions (adjusting for ample sewing tolerance, ring connection, and ease of use) and create a prototype using the SilPoly material and 3D printed ring. Test fraying/ripping of silpoly from creating holes when our purchased silicone glue surrounds the holes due to attachment of the ring.
- Cassity Dechenne: Test out ring design and make sure ring wedges/holes fit with each other. Decide on a final method of fabric cutting and continue design fabrication. Make a final decision on material of both rings.

Timeline

OstoSeal Project Timeline

Activities

Name	Date	Activity/Previous Week's Accomplishments	Time (h)	Week Total (h)	Sem. Total (h)
Addison Tanner	10/29/2026	• Changed the initial prototype using the Silpoly material at Wendt • Prepared for show and tell • Brainstormed how to connect the ring to the bag and also how we would laser cut the Silpoly material	2 0.5 1	3.5	29

Eve Vosters	10/29/2026	• Reiterated the initial prototype using the Silpoly material at Wendt Design & Innovation Labs. • Brainstormed ring and bag connections by testing different sewing techniques and joint methods. • Testing seam waterproofness using the rough prototype to get a feel for the water permeability of sewn seams. • Prepared for show and tell by practicing elevator pitches.	2 1 0.5	3.5	33.5
Kira Schienke	10/29/2026	• Created an updated design drawing to account for changes in cover and ring shape • Created a comprehensive list of ring modifications and material testing to complete in the next 2 weeks. • Worked with Cassity to complete initial material testing on silpoly fabric • Completed required training • Prepared for show and tell	3 1 0.5 2 0.5	7	29.5
Lana Schardt	10/29/2026	• Visited the Wendt Makerspace with the team to discuss prototype revisions and plan fabrication • Identified a fabrication approach for the silpoly fabric: cutting it directly on the CO2 laser cutter, with a backup plan to laser-cut a stencil from another material and cut the fabric by hand if laser cutting doesn't work • Created a SolidWorks drawing of the bag with exact dimensions, ready to use as the cut file for fabrication • Prepared for show and tell by brainstorming an elevator pitch and design points we would like feedback on	1.5 1 0.5	3	27
Lilli Tanner	10/29/2026	• Reiterated the initial prototype at Wendt seeing if cutting by hand was a viable option/practicing marking dimensions and cutting • Brainstormed possible ring to bag connection mechanisms • Prepared for show and tell	1.5 1 0.5	3	28.5
Cassity DeChenne	10/29/2026	• Reiterated both wedge and notch	2	4	27

		ring designs on Solidworks to fit new specifications. ● 3D printed both rings in TPU. ● Tested out different forms of cutting fabric to investigate possible fraying/tearing ● Prepared for show and tell	 0.5 0.5		