

Sameness and differentness while using a wheelchair: a custom lab coat to fit in

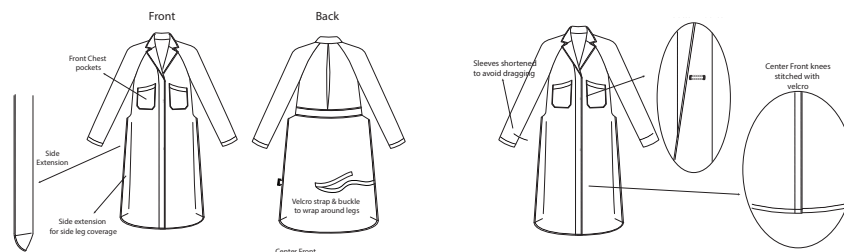
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Adaptive, functional, uniform

In Fall of 2018, an art conservation program in the United States requested a fashion designer to collaborate on a lab coat design for their curators and staff. The goal was to create a lab coat that not only met the unique demands for each curator’s discipline but also provided a professional, branded uniform that was representative of the institution where they worked. Design choices were made for movement, color, fiber and fabric type, pocket placement, lapel style, closures, sizing, durability, safety, and protection. One of the employees uses a wheelchair, so after the original design was approved, further considerations were implemented to make the lab coat accessible and adaptive for the individual. The purpose of this design is to create a lab coat for a wheelchair-user that meets professional and individual needs.

I followed the “Inclusive Design Framework” (Carroll & Kincade, 2007) to guide my designing. This framework describes five steps to effectively design products to satisfy multiple consumers regardless of their physical ability (Carroll & Kincade, 2007). The framework is designed for eventual mass production of a design and although this lab coat is meant for a single-user, because it is a uniform, this design can apply to many professionals who use a wheelchair. I completed the first three steps that included determining needs and preferences, generating design ideas, and creating a prototype. The intention is to continue through to the last two steps that include industry evaluation and implementation.

I also looked to the research of Strickfaden, Johnson & Tullio-Pow who wrote, “People with disabilities want clothing that allows them to blend in and appear the ‘same’ in order to represent themselves as capable while at the same time marking ‘differences’ in experiences they have triumphed over.” This lab coat design has the dual challenge of balancing the user’s desire to simultaneously be the same *and* different.



Like the original coat, it is white and the fabric is a 6-ounce, 65% polyester/35% cotton twill. There is a classic notched lapel, raglan sleeves, and an inverted box pleat in the back that is secured by a waistband. Modifications included minimizing and moving the hip pockets to the chest to prevent objects from falling out, the removal of the back skirt so the coat will not shift while sitting, and

shortening of the sleeves for easier wheel maneuvering. The front placket was kept but sewn down to create a faux closure. There is the addition of invisible zippers at the side waist for easier donning and doffing, and front side extensions that cover the legs and give the appearance of a complete coat. Finally, to secure the front skirt across the legs and prevent exposure, there is a removable strap and the knees are covered and fastened with a gusset and zippers. Overall, the garment is crisp, professional, and the adaptive component are almost imperceptible.

I followed the Inclusive Design Framework (IDF) steps one through three to guide my designing. I researched online for general adaptive clothing ideas and closure techniques in performance garments since there are no adaptive lab coats on the market. I met with the employee, shared my initial ideas, and we discussed their specific needs and the limits of the existing design. Some modifications included the need to have one's knees covered, being able to put it on while sitting, and reducing the amount of fabric to avoid the wheels. From there, I took measurements and compared them to the sizing of the non-disabled prototype to assess general fit. I created technical flats and callouts to illustrate my ideas. In the second round of sketching, the employee shared that they could now stand for limited time, so the coat would now need to function standing as well as sitting so I added the invisible zippers at the knee to allow the extension to hang free if needed and a removable back skirt. A final prototype was made in the twill fabric. Because the intention is to eventually manufacture the coat, I replicated industry manufacturing methods and operations. For example, the pattern was drafted with consideration for ease of sewing and include 3/8" seam allowances to avoid clipping and grading of seams. It was sewn on industrial safety-stitch and Merrow machines, and pressing was completed when the coat was completely sewn. Once finished, the final garment was given to the user for approval and wear-testing.

This design is a user-centered, adaptive, and designed specific to an individual's needs. It is also a professional uniform that is meant to democratize and act as an extension of the organization for which one works. By balancing the concepts of sameness and differentness, this design supports the role clothing plays in creating one's social identity. This lab coat maintains consistent design details across able and non-able-bodied designs, offers subtle modifications, and the potential for the wearer to personalize even further. Finally, the garment and corresponding pattern have been engineered to be consistent with factory standards and are "manufacture ready." These technical specifications and sewing operations further allow the coat to avoid the stigma of being a homemade, retooled, hacked product.

There are many brands that offer adaptive garments but few meet the diverging demands of sameness and differentness. There are no adaptive lab coats on the market, so this design could successfully continue onto the following steps of the IDF that describe industry evaluation and feasibility of mass production.

The number of employed women with disabilities in the United States is increasing (Americans with Disabilities Act of 1990) and there is little choice for professional apparel for working women with disabilities (Carroll & Gross, 2010: 4). A lab coat is often the required dress for numerous types of jobs

and are gender neutral so this design can provide a professional solution for women *and* men in wheelchairs.

### References

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