



FREEFORM

ACKNOWLEDGEMENTS

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CONTENTS

4

Research

Stats
Problem-
Statement

11

Analysis

Market Research
Design Criteria
Opportunity
Mood Board
User Profiles

19

Development

Sketching
Prototyping
Patterning
Final Prototype

25

Solution

Features
Materials
User Journey
Branding
Packaging

36

Appendix

Comparison
Works Cited



RESEARCH



STATS

My initial idea for thesis stemmed from one of my childhood best friends. She explained that with sensory issues, she has **trouble finding clothing that she is comfortable in**. She talked about various incidents where her daily life was impacted by the clothing she was wearing. After hearing these, I thought it was the perfect place for a design intervention.

I created a survey that received **94 responses**. All of the respondents have sensory issues that stem from Environmental Sensitivity (ES), Sensory Processing Disorder (SPD), Autism Spectrum Disorder (ASD), Attention-Deficit / Hyperactivity Disorder (ADHD), or Obsessive Compulsive Disorder (OCD). The responses were overwhelmingly in agreeance:

73%

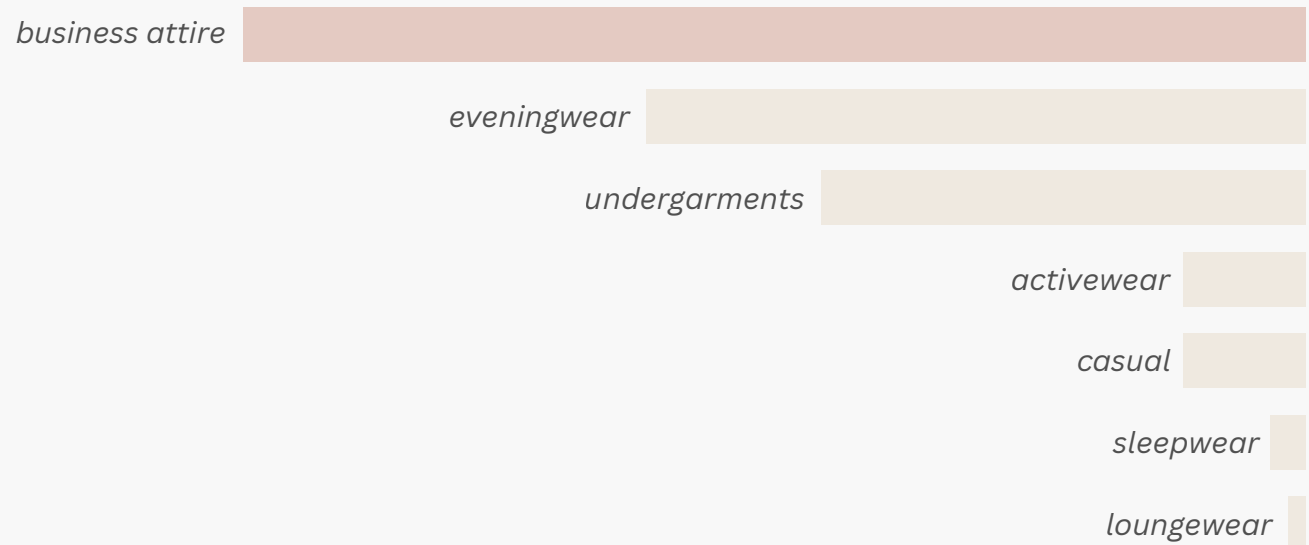
agree that it is **hard to find clothing** that they are comfortable in

77%

agree that their clothing **negatively impacts** their daily experience

33%

Find business attire to be the **least comfortable** type of clothing



This was also how I focused the scope of my project. **I pursued business attire because it was chosen as the least comfortable category of clothing.** This is where I began to sort through 400 individual comments left by the 94 respondents. Some of them were short, explaining specific details that make their clothing painful. Others shared intense emotional stories from times that their clothing led to them being late to work, reprimanded, or even fired.

"Collars often feel heavy and rub against my neck, zippers are rigid and cause "lumps" in clothing as well as a rough texture. Cuffs on sleeve cause similar issues to collars and I become "hyperaware" of loose fabric around cuffs of sleeves and pantlegs flowing as I move"

"Collars are often **constricting** and make me feel like I can't breathe, on top of often having a large seam or ridge that rests right against the sensitive skin of my neck and/or collarbone. Most reasonably modern clothing doesn't do anything to sew seams down or minimize rough or universal edges that brush against the skin in ticklish or irritating ways; especially if the clothing is also more fitted"

"Even mildly tight clothing feels really **restrictive**, like a can't move properly"

"Rough fabric feels very unpleasant and sharp pokey things like tags or sharp seams make me feel **like I'm being attacked**"

"Extra features on clothing that disrupt the construction of the garment distract me, especially when they're tight. This includes any extra textures as well, like ruffles"

"It **takes 50% of my brain away**. A good amount of my sensory experience is put towards trying to ignore (and usually failing) the clothing"

"Ever see a movie where the camera focuses in on one sound and everything else is muted. Like the tale tell heart from Poe. That's what wearing something uncomfortable is like. 60% of my attention moves towards whatever the issue is"

Physical

"I feel pain both acute and severe when I wear clothing with these things. I have **trouble breathing** with tight clothes - I get **intense stomach pain** and bloating with any elastic waist on pants and anything that is even slightly tight around my belly or chest"

"Poorly-placed seams tend to **cut off circulation**"

"Soft textures make me feel physically ill. I need my clothing to fit tighter to help with my low proprioception- I feel anxious when I can't feel where the edges of my body are"

"Seams can become thick depending on thickness of fabric / sewing style and can then dig into skin"

"I find seams and tags physically painful. They **sting**"

"I have trouble breathing, really hot, very itchy, loosing my mind, feel like I'm **seconds away from dying**, can't focus"

"I literally experience pain and spend all of my time checking in on my symptoms instead of having the clothes make me feel good, trendy, cute"

"I feel anxious and constantly on edge, and/or physically ill. I **may gag** or feel the need to immediately "brush off" the texture"

Emotional

"I feel **angry, irritated, and distressed**. I cannot think clearly. I get obsessed about when I will be able to remove the item. It occupies a lot of my energy."

"Extremely **anxious and uncomfortable** and unable to focus on anything else"

"I get very **agitated** and feel cramped to the point that I want to jump out of the clothing right then as if it was made out of thousands of ants crawling over your skin and you get panicky and want to get rid of every single of these ants as soon as possible"

"I get upset because the discomfort is so overwhelming and distracting. I **feel like crying sometimes** and I wish I could leave my body"

"Sometimes I can't even do my day because I cannot get dressed and have **severe meltdowns**. Sometimes it's just a **constant frustration** or discomfort through the entire day"

"I **feel panicked**. I **feel distracted**, all I can focus on is the uncomfortable clothing. I get angry and sweaty sometimes if I have to keep wearing that article of clothing. Sometimes I cry from the panic I feel"

"Irritable that eventually turns to **extreme agitation**"

"It **increases my stress level**, so my "window of tolerance" for other stressors / triggers is much smaller. The uniform pants I have to wear cause me physical pain from digging into my crotch if I sit up straight. I have to sit leaned to one side or slouched in them, which gives me back pain. All so I can look "PROFESSIONAL" while I sit at a computer in a basement where no one can see me"

"I **haven't been able to participate in certain sports** due to meltdowns over the uniforms"

Workwear

"Business attire often involves layering clothing, causing me to feel **restricted**"
Layers for sensory needs - optional compression under layer?

"These are often **less forgiving** in how they fit and they are **more uniform in what fabrics they use** so it's hard to find sensory friendly alternatives"
Cotton stretch fabric

"Little to **no give in fabrics and especially waistbands and shirts**, can't move my arms much without feeling like everything's restricting my movements and getting pulled out of place"

"Lots of sitting with bunched fabric in crotch, **pressure on knees and elbows, armpits**"

"Businesswear is more constricting, because it doesn't stretch as much and usually fits closer to the body"

"I find business pants to be either very **tight and restrictive** or **loose and cheap feeling**"

"**Over-structured**, inhibiting, socially expected"
Limited number of panels

"Hard to find women's business attire that is appropriate without **tight/boxy construction and seams** that I can feel. I dread putting on work clothes because the **seams feel constricting**"

"Professional" clothing is the bane of my existence. Its always made of horrible polyester-blend fabric and the importance is always placed on looking like a lego person rather than comfort and function"

"Polyester uniforms (usually shirts) can **stop me from applying for a job**"

"I have **gotten in trouble at work** for wearing the same clothing over and over again because it started to smell, and because I was wearing too informal of clothing"
Sold in sets? - enough for a week of work

"I **had to call out of work one day** because my job required business wear, and I could not find a single thing in my closet that day that I could tolerate. I remember trying on and ripping off multiple tops trying to find anything that would work."

"My **job options were somewhat limited by clothing** because I'd never be able to handle wearing dress clothes everyday"

"My **uniform at work negatively impacts my job performance** every day"

everything else about it"

"I'd also suggest looking at some brands which have recently expanded to producing adaptive clothing: JCPenney and Victoria's Secret/Pink are a couple. They're doing great work but my complaint is the very narrow range of sizes they offer for their adaptive clothing lines. This might be a topic to explore in a literature review if you're doing a thesis or dissertation"

"I highly highly prefer colorful clothing or clothing with preferred patterns, because of my adhd stimulation needs. This isn't the case for everyone but it would be nice to have more options than just the typical "black blue grey white" sensory avoidance options, because I personally feel mentally taxed when I have to wear things without much color"

"A lot of autistics prefer plain functional and practical clothing that allows us to not have to think about our clothing. So details like useable pockets are valued. I'd also suggest having a limited selection of good quality clothes"

"I know that my clothing related sensitivities are opposite to those of many other autistic people in terms of texture. I think to be truly sensory friendly, a clothing line needs to have options at both ends of the texture and fit spectrum"

"Natural fibers; especially cotton for under garments"

Comfort

"Beyond Yoga Joggers. They are VERY soft. have **no tags, stretchy, baggy**, exact right length, waist and ankle bands are very wide and just feel like very stretchy material rather than elastic"

"I like soft fabric and breathable materials"

"I buy 5 packs of v-neck undershirts from Target, I can count on them being the correct texture and the neckline doesn't bother me, also they fit right on my body so I don't have to "see how they feel" before I decide whether to wear them every time - basically, they are predictable"

"**Stretchy but not tight, wide waistband, no hardware**"

"Long sleeve cotton t-shirts light enough to not "touch" me all the time. The fabric is soft enough to move well"

"Any shirt that is made of **super soft, flowy, stretchy** fabric"

"**Wide legged cotton** overalls"

"A **100% cotton shawl-collar** top. The collar sits comfortably loose yet warm around my neck and doesn't pull down my back at all. The fabric has more weight to it than women's tops usually do"

"Soft breathable fabric, **no seams, no lace, no ruffles, no skinny straps**, no weird line fabric texture"

"**Freedom of movement and soft fabric without looking like I'm wearing pajamas all day**"

“

Business attire has

little to no give in fabrics and waistbands,

I can't move much without feeling restricted”

“

Businesswear is more constricting because it

doesn't stretch and fits closer to the body”

I knew that there was a problem here to address. For the following few weeks I spiraled into additional research, trying to create a generalized set of “rules” that a garment must follow in order to be truly sensory friendly. The largest road block I encountered was that every person’s sensory preferences differ. **The amount of overlap wouldn’t even please 50% of the survey respondents.**

I came up with two options: **either creating a line of garments to target different sensory preferences or choosing a more specific target area and finding a way to accommodate as many people as possible.**

With the allocated timeframe for this project, I pursued the second option and **began studying the waistband, as it was the most mentioned part of business attire from the survey.** But, this was only the first part of a larger turning point.

Seam Treatment	Garment Structure	Fabric	Systematic Approach	Notes
<p>Feb. 27</p> <p>Lining that covers seams</p> <p>Outside seams <i>Covered with bias tape?</i></p> <p>Blind hem stitch</p> <p>Flatfell seams <i>Felled seams</i> <i>Flatseam</i></p> <p>French seams</p> <p>Flatlock <i>With serger/overlocker</i></p>	<p>Potential Sleeves</p> <p>Dolman</p> <p>Batwing</p> <p>Kimono</p> <p>Cowl</p> <p>Drop Shoulder</p> <p>Split</p>	<p>Soft</p> <p>Stretchy</p> <p>Natural fibers</p> <p>Loose-fitted</p> <p>Tight-fitted</p> <p>Flowy</p> <p>Simple</p> <p>Baggy</p> <p>Cozy</p>	<p>Compression</p> <p>Different cuts</p> <ul style="list-style-type: none"> ◦ Pants & top ◦ Different fabric types ◦ Different neck lines <p>Different packages</p> <ul style="list-style-type: none"> ◦ A standard work week of outfits ◦ Neutral colors (plain and functional for people with ASD) ◦ Colors and patterns (provides mental stimulation for people with ADHD) <p>Adaptations for men’s clothing (with photoshop and rendering)</p>	<p>“Options for sleeve/trouser lengths would be very helpful (eg: same design with options for sleeves up to wrists/elbows/shoulders) as I have had issues with the length of clothing due to the sleeves when I lined everything else about it”</p> <p>“I’d also suggest looking at some brands which have recently expanded to producing adaptive clothing: JCPenney and Victoria’s Secret/Target. They’re both doing great work but my complaint is the very narrow range of sizes they offer for their adaptive clothing lines. This might be a topic to explore in your review if you’re doing a thesis or dissertation”</p> <p>“I highly highly prefer colorful clothing or clothing with preferred patterns, because of my adhd stimulation needs. This isn’t the case for everyone, but I’d like to have more options than just the typical “black blue grey white” sensory avoidance options, because I personally feel mentally taxed by wearing things without much color”</p> <p>“A lot of autistics prefer plain functional and practical clothing that allows us to not have to think about our clothing. So details like waistbands, collars, etc. also suggest having a limited selection of good quality clothes”</p> <p>“I know that my clothing related sensitivities are opposite to those of many other autistic people in terms of texture. I think to be truly sensory friendly, clothing line needs to have options at both ends of the texture and fit spectrum”</p> <p>“Natural fibers, especially cotton for under garments”</p>

I explained the idea of a better-fitted adjustable waistband to my mother, to which she responded, “**I wish my slacks had that**”. The same sentiments were **shared by every single woman** I talked about my project to over the next few weeks. I began to notice that this discomfort was much more widespread than just people with sensory issues.

I created another survey and **out of 27 women,**

67%

agree that it is **hard to find clothing** that fits their specific body shape

67%

own garments that **no longer fit them** properly

50%

agree that the comfort of their clothing **changes throughout the day**

I was shocked by the level of discomfort many women experience in their day to day clothing. If our bodies are in a constant state of change, why aren't our clothes? Why should a person have to fit into a garment, rather than a garment fitting around a person?

PROBLEM STATEMENT

A lot of professional clothing is rigid and structured, even though bodies are in a *constant state of change*.

How can professional slacks be tailored to the wearer on a day-to-day basis to always ensure a proper fit?

MARKET RESEARCH



bulky

Closure digs into body and creates pressure points



not durable

Elastic stretches out and becomes brittle over time



unprofessional

Visible fasteners create an unpolished aesthetic



careless

Adjustability is often an afterthought

DESIGN CRITERIA



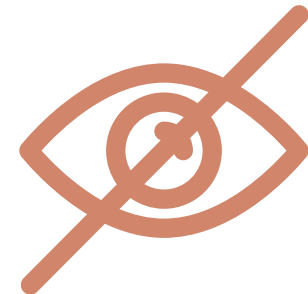
intentional

Creates a sense of value and importance



flexible

Conforms to wearer's body without digging in



discreet

Maintains a higher level of professionalism

OPPORTUNITY

adjustable



professional

casual



fixed



RUFFLES, DECORATION

BC

LOOSER CUT

LOWER NECKLINES

COLORS AND PATTERNS

RUCHING

THIN, AIRY FABRICS

TIGHTER CUT

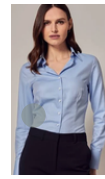
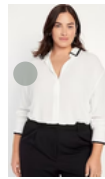
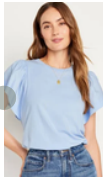
DARK, NEUTRAL COLORS

STRAIGHT EDGED, NO DECORATION

HIGHER NECKLINES

BP

W



M



DENIM
SHORT SLEEVES

KNITWEAR

CUFFED SLEEVES

COLLARS

VISIBLE
BUTTONS

PLEATED
COLLARED

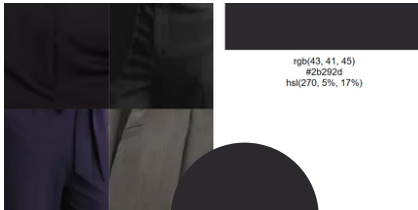
LONG SLEEVES

LAYERED
WOVEN FABRICS

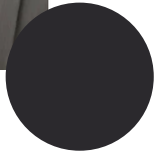
PLEATED

INVISIBLE CLOSURES
STRUCTURED

TAILORED TO
INDIVIDUAL?



rgb(43, 41, 45)
#2b292d
hsi(270, 5%, 17%)



rgb(122, 103, 85)
#7a6755
hsi(29, 18%, 41%)



rgb(218, 204, 192)
#dacc00
hsi(28, 26%, 80%)



rgb(107, 120, 143)
#0b788f
hsi(218, 14%, 49%)



MOOD BOARD



USER PROFILES



FAITH

Finance

”

I need clothing choices that support my active lifestyle.

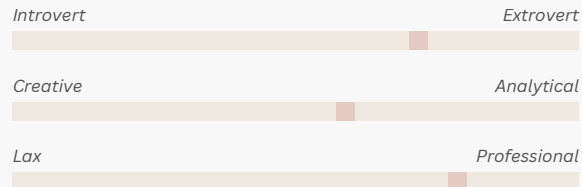
Bio

Faith is a regional director with a passion for innovation and efficiency. She is constantly on the move overseeing operations and leading her teams. She experienced sensory issues when she was a kid, but has mostly outgrown them. Now, she usually only notices them on busy days. She understands the importance of looking polished and professional during corporate meetings but also prioritizes comfort and flexibility throughout her busy day. Faith needs clothing choices that support her active lifestyle without sacrificing professionalism.

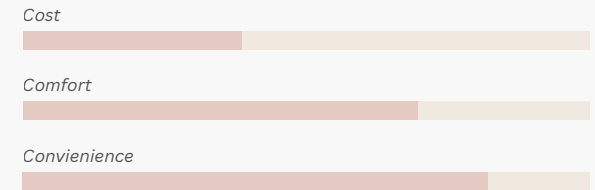
Goals

- Change clothing fit throughout her busy day
- Enhance confidence and presence
- Advocate for inclusive workwear

Personality



Motivations



Frustrations

- Tight, boxy construction
- Restricting waistbands
- Hard zippers

Needs

- Professional appearance
- Versatility
- Freedom of movement
- Durability



JILL

Receptionist

”

I need comfortable clothing that adheres to my dress code.

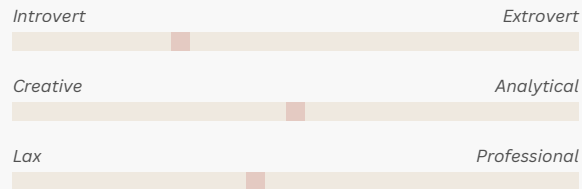
Bio

Jill is a dedicated receptionist whose passion for her work is matched only by her resilience in facing daily challenges. She spends around 6 hours of the work day sitting at her desk. She experiences severe sensory issues caused by ADHD and ASD, so the most daunting part of her day is getting dressed. The dress code for the office she works in forces her to wear clothing that makes her uncomfortable. On occasion, this even causes her to call out of work. She needs more functional work clothing that allows her to sit comfortably for hours.

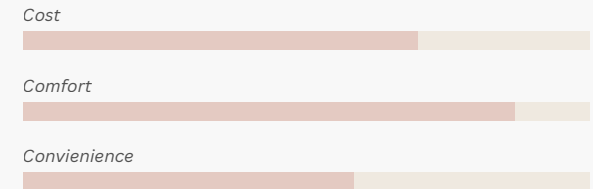
Goals

- Maintain consistent work attendance
- Enhance self-care strategies
- Feel excited to dress up for work every morning

Personality



Motivations



Frustrations

- Seams
- Rough fabric
- Rigid construction that doesn't stretch

Needs

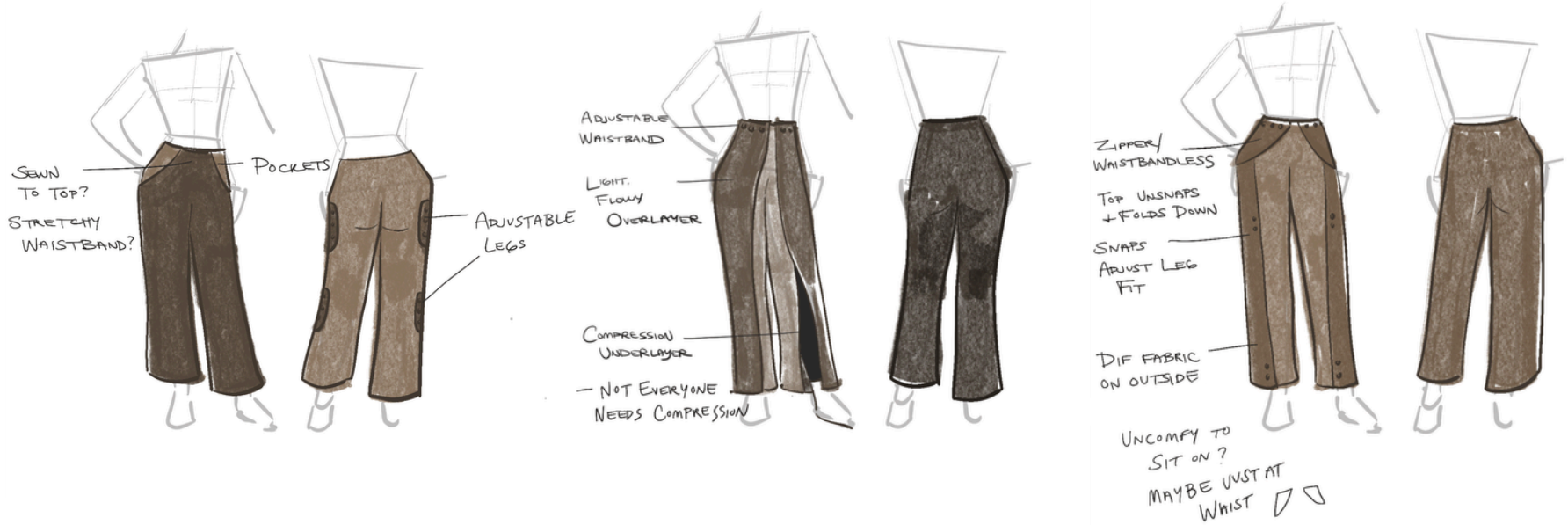
- **Comfort**
- **Non-restrictive fit**
- **Minimal sensory triggers**
- **Adherence to dress code**



DEVELOPMENT



SKETCHING



I began by sketching out concepts that **prioritized adjustability and versatility** without compromising on style. I experimented with different layers and cuts, but decided to simplify it by **hiding the adjustability system within the pleat of the pant.**

PROTOTYPING



I started prototyping with existing fasteners like buttons and snaps, but realized that I wanted to **create a different variation of hardware that is less noticeable** to be hidden inside the pant. To make these, I started with lasercutting, then moved onto silicone pours and 3d prints that all tested different shapes, sizes, and material hardnesses.

PATTERNING



I deconstructed pairs of business pants and modified existing patterns 7 times to **test different pleat locations**. I considered multiple points of adjustability, both around the waist and down the leg. I started with muslin and moved onto a cotton-polyester blend fabric more similar to that of the final garment.

USER TESTING



As I got closer to the final garment, **I conducted focus groups and wear tests to gather feedback.** This enabled me to fine-tune sizing details, ensuring that **the adjustability system works for both small and large adjustments**, while maintaining a professional look at each setting.

FINAL PROTOTYPE





SOLUTION



FEATURES

Adjustable

Waistband allows for fluctuation up to one full size up or down

Professional

Pants maintain a clean, professional look no matter the setting



Flexible

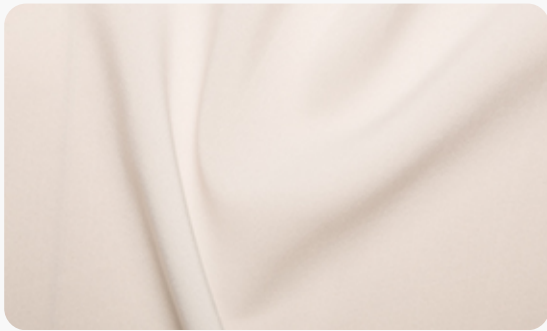
Adjustability system
conforms to the
wearer's body

Secure

Button pushes fabric
through the slotted piece
to create a snug press fit



MATERIALS



Pants

Blend of 94% cotton
and 6% spandex

Soft
Stretchy
Lightweight



Button

Resin colored to
match the fabric

Discreet

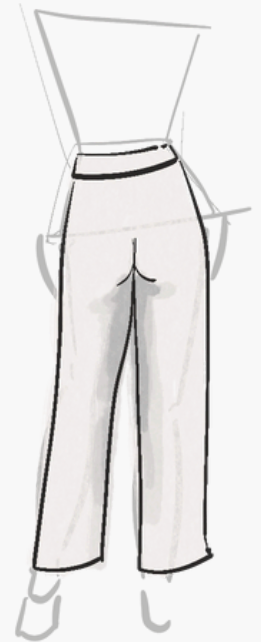


Adjuster

Soft-touch
white silicone

Flexible
Durable

VARIATIONS



USER JOURNEY



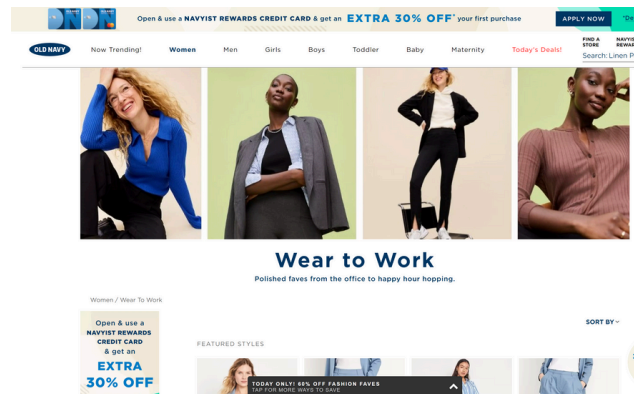
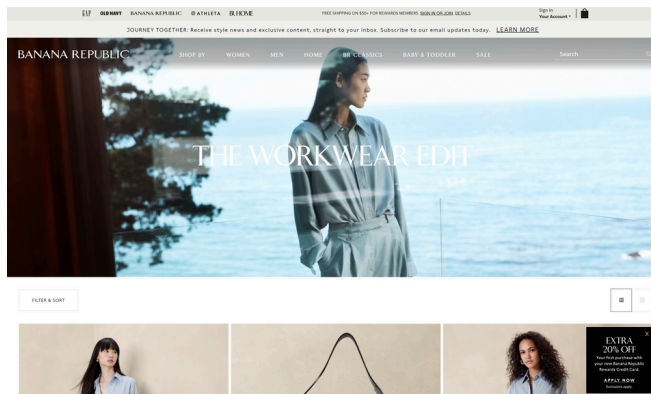
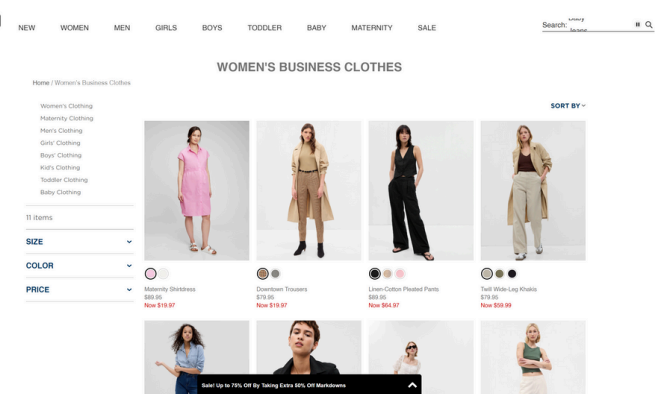
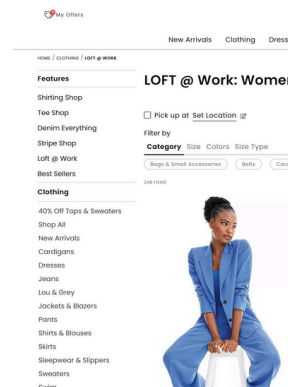
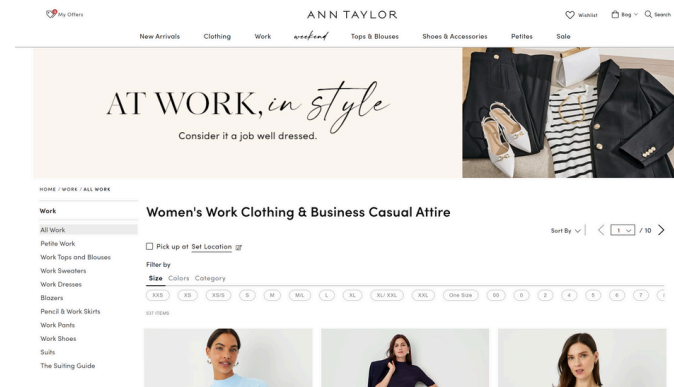
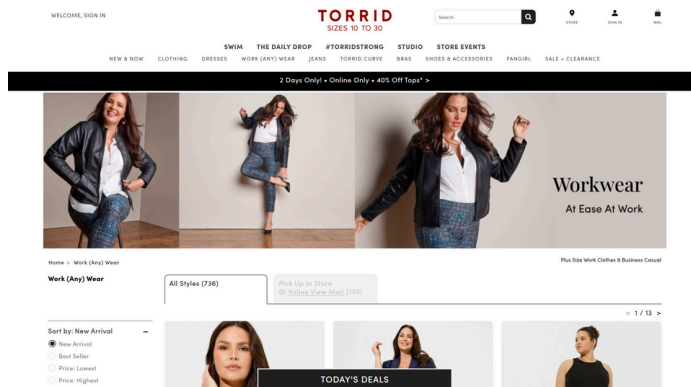
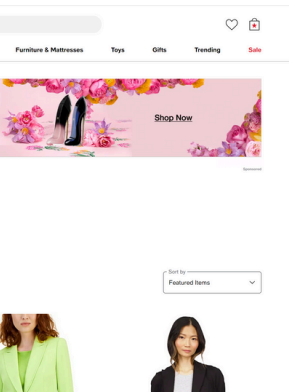
When getting dressed, the user steps into the pants, grabs one of the plastic buttons on the outside of the pant, pinches the fabric near their waist, folds it over towards themselves, and inserts the button into the matching slots that are hidden inside the waistband.

BRANDING



There is a market opportunity for a **larger line of business garments** under the brand Freeform that **utilize the same adjustment system**. When you're comfortable in what you're wearing, you're also more confident. Freeform embodies this and **focuses on bringing empowerment into the work world**.

WEBSITE ANALYSIS



To develop and explain the brand, I visualized what a few of its website's pages could look like. I used competitor brands for inspiration, but wanted to create a **simpler variation**.

LANDING PAGE

FREEFORM

Categories ▾ Women Men New Sale



Login/Register

10% of proceeds from every purchase support the STAR Institute, empowering families and individuals with sensory processing disorder.

Looks good, Fits right.

With a simple adjustment, our pants conform to your body's unique shape, allowing for unrestricted movement and maximized comfort, no matter the task at hand.

Pants Collection

Featured Products

All

Pants

Tops

Jackets

Dresses

Skirts

ITEM DETAILS

FREEFORM

Categories ▾ Women Men New Sale

🔍 📖 🛒

Login/Register

10% of proceeds from every purchase support the STAR Institute, empowering families and individuals with sensory processing disorder.

Women / Pants



Mid-Rise Straight Freeform Pant

★★★★★ (94)

\$62.00

Color: Eggshell



- 00 0 2 4 6 8
- 10 12 14 16 18 20

F [What's my size?](#)

Add to Bag

Say goodbye to the frustration of fluctuating sizes and embrace the convenience of versatile clothing that grows and shrinks with you. Our adjustable system ensures that your slacks remain a reliable wardrobe staple, adapting to your changing body shape or preferences

Fit & Sizing

Adjustable waistband: With a simple adjustment, our slacks can comfortably fit up to one size smaller and larger.

Materials & Care

94% cotton
6% spandex
Machine wash normal warm, tumble dry low



PACKAGING



A brand that cares about the user should also care about the environment. I chose the company **Vela** for packaging because I felt like their **goals aligned with Freeform's brand identity**. These recyclable bags **ensure lightweight shipping while keeping the garments clean and protected**.

APPENDIX



COMPARISON



Professional
High-quality



Professional
High-quality
Adjustable
Moves with you
Grows with you

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A woman with blonde hair is standing in a library aisle. She is wearing a brown, short-sleeved, off-the-shoulder top and light-colored, high-waisted trousers. She has her right hand on her hip and is leaning against a dark metal locker on the right. The background shows bookshelves filled with books and a wooden ladder. An 'EXIT' sign is visible above the ladder. The text 'FREEFORM' is overlaid in large, white, rounded letters across the center of the image.

FREEFORM

Looks good, fits right.