

SWITCH

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OUTLINE

INTRODUCTION (3)

CONTEXTUAL INFORMATION (4-13)

Background

The Modern-Day Ski: Manufacturing

Lifecycle

Sustainability

Who do we look to?

Design can make a difference: Artist inspiration in and out of the industry

METHODOLOGY (13-14)

Initial Idea

Reality Check

Research and Revision

CREATIVE WORK (14-17)

Campaign

Designs

The future of SWITCH

Final Presentation

CONCLUSION (17-18)

BIBLIOGRAPHY (19-21)

INTRODUCTION

Picture this: You walk out your door on a mid-December day in Michigan, a state notorious for its cold and snowy winters. Bundled in a parka, perhaps a hat and gloves, you open the door to find a beautiful 60-degree day. Yes, you may be thrilled with this break from the snowy weather and cold fingers, but you also have a sinking feeling. Its December, it's the Midwest, it *should* be cold. That sinking feeling is what we must hold on to, what must drive us in our individual and group initiative to have our own positive impact on Climate Change.

Growing up a skier, I live for a cold winter. When the snow falls, it signifies to me that long winter days and fresh powder tracks are coming. It seems like I learned to ski just after I learned to walk, and from that point on I was hooked. For me, it is my memories that drive this project, my passion for a sport, and my fear for the future that has been cultivated by early season snow-melt and 60-degree December days.

The way that people remember famous artists and paintings, I remember ski graphics, specifically my first pair of K2 Mamba skis. The sketchy drawing style, whimsical and wonky buildings, bad-ass vibe, and hints of color changed my perspective: skis too are art, just on a more unconventional canvas. Cabell Maddux of Paste Magazine said it best:

Some of the most talented and creative artists choose not to put their work in a frame and don't get velvet-roped shows.... We're talking about tattoo artists, graffiti artists, and finally, skateboard deck designers...[who] must marry functionality and creativity on their curved and oblong oval-shaped rolling canvas.¹

Skis are a moving billboard for change, and with designs, and partnerships, passionate people can advocate for change in a new way. I created the SWITCH campaign to utilize ski graphics as a platform to spread knowledge and awareness of issues surrounding

¹ Maddux, Cabell. "25 of the Best Skateboard Deck Designs." Pastemagazine.com. September 8, 2014. <https://www.pastemagazine.com/articles/2014/09/25-of-the-best-skateboard-deck-designs.html>.

climate change as they relate to the ski industry. With each pair of SWITCH skis purchased, the campaign grows and gains visibility, while in turn contributing to the cause. Through partnerships with organizations, businesses, mountains, and industry leaders, SWITCH aims to become a staple in the ski community at the forefront of change.

CONTEXTUAL INFORMATION

I choose to use design as a way to tackle climate change and sustainability within the ski industry. This choice was informed by research of everything ranging from climate change and sustainability, to ski manufacturing and designs, to organizations and businesses that address sustainability and the environment in their company culture and manufacturing. In order to create both the SWITCH campaign and the designs, I considered other ways to combat environmental issues, such as using sustainable energy sources in mountain operations, sourcing environmentally friendly materials for manufacturing, cutting down by-product, etc., as part of the process of creating my final project.

Background

Skiing has come a long way from its Nordic roots in Scandinavia. What was once a lifestyle that helped people trek through snow has transformed into a multi-million dollar and person industry. Skis themselves have developed from wooden planks covered in animal skin, to manufactured, high-tech materials created in a pressure mold. They are made and shaped for a variety of purposes, each pair, each company, with its own physical characteristics.²

The Modern-Day Ski: Manufacturing

In order to understand the environmental impact of skiing, I first researched and identified the full life cycle of a ski. This includes the extraction of raw materials necessary to

² Lund, Morten, and Seth Masia. "A Short History of Skis." A Short History of Skis | International Skiing History Association. <https://www.skiinghistory.org/history/short-history-skis-0>.

manufacture, understanding how skis are made, and reflecting on the way in which skis are disposed.

Skis are made through a process of turning raw materials into materials that can be used in the manufacturing process: wood, fiberglass, plastic and metal. In understanding the manufacturing and materials of a ski, I can better understand their origin, and the material's impact on the environment. A mold is made for the skis, which creates the arced shape, in which different components are layered and pressed together using heat and pressure, and then cut to give them their oblonged shape.³

There are 5 main components of a ski:

Top-sheet: The top-sheet is the focus of my project: a transparent material that displays the graphics of the ski, while simultaneously protecting the ski from the elements.

Core: For the purpose of this project, we will focus on the wood core ski, considered to be "the gold standard for ski construction," for "the past 40 years." Despite the technology to create new materials that we have today, the wooden core has a near-perfect ability to store energy needed in the mechanics of skiing and turning.⁴

Composite: Composite is commonly made of fiberglass, a two-part material made up of fabric and epoxy⁵, and is used to hold the ski together and provide stiffness. The combined properties of this soft fabric and gooey epoxy change through the pressure and heating process to achieve that stiff end-quality. According to Backcountry.com, "90% of all skis on the market use only fiberglass as their fabric...it's an awesome material," that is strong, inexpensive and responsive.⁶

³ Leang, Kam S., Kam K. Leang, and Kelvin Wu. "Ski Building: An Overview." SkiBuilders.com: How to Build Your Own Ride. Accessed April 17, 2018. <http://www.skibuilders.com/howto/>.

⁴ "Ski Construction Explained: How Do Materials & Manufacturing Affect Performance?" Backcountry. January 8, 2014. <https://www.backcountry.com/explore/ski-construction-explained#1>.

⁵ "Fiberglass." How Products Are Made. Accessed April 17, 2018. <http://www.madehow.com/Volume-2/Fiberglass.html>.

⁶ "Ski Construction Explained"

Base: Made of ultra-high-molecular-weight polyethylene. It is “tough and durable,” varies in thickness, “comes in many colors and can be cut to form intricate designs,” and “slides well on snow.”⁷

Edges and Sidewall: The sidewalls are made of plastic, and the edges of metal, allowing you to turn your ski in the snow with control.⁸

While the process is fairly environmentally friendly, trees must still be cut down, materials must be made and transported, by-products created, and scraps wasted. This brought me to explore companies like Libtech⁹, Grown, and Burton¹⁰: ski and snowboard manufacturers using renewable, sustainable forests to source their wood, non-toxic materials, recycling their by-product, recycled base plastic, new resin technology that allows for environmentally friendly disposal, etc.¹¹ Essentially, they all work to reduce their impact, mitigate waste, and lead the industries in more sustainable practice.

Lifecycle

After extraction and manufacturing, materials and skis must be transported, using a large amount of CO₂ with a significant environmental impact. Skis are then bought, sold and used, having a suggested life span of one hundred days. Whether a ski is broken, overused, or planned obsolescence runs its course, a ski must be disposed of, falling subject to four main options: sell, donate, repurpose or recycle. Eventually, they will no longer be useable, which is when recycling comes into play. Snow Industries of America created a recycling program called the Snow Sports Recycling Program, which collects and shreds used gear, turning it into “component materials [which] are then sold to manufacturers,” with the goal

⁷ "Ski Construction Explained

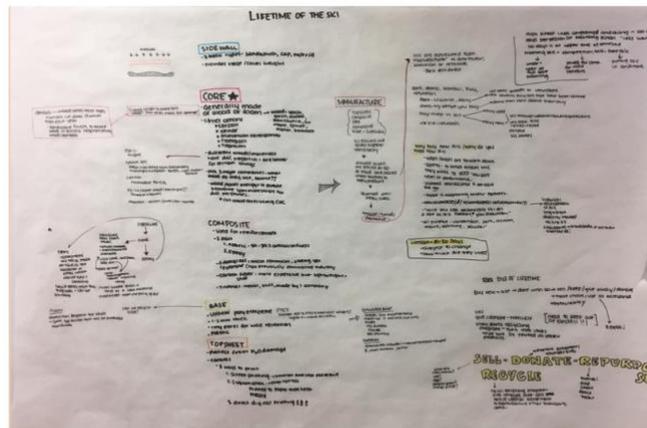
⁸ "Ski Construction Explained

⁹ Lib Tech. "Environmental." Lib Tech. Accessed April 19, 2018. <http://www.lib-tech.com/environmental/>.

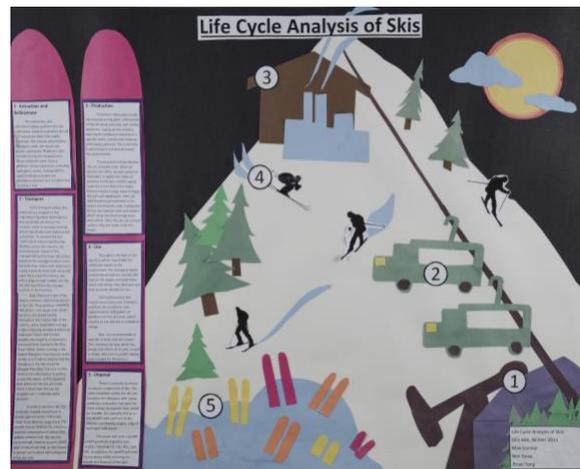
¹⁰ "Sustainability." Burton Snowboards. Accessed April 19, 2018. <https://www.burton.com/us/en/sustainability-people>.

¹¹ COskier. "Sustainability in Ski Manufacturing." *Teton Gravity Research*, May 2, 2011. Accessed April 16, 2018. <https://www.tetongravity.com/forums/showthread.php/220998-Sustainability-in-Ski-Manufacturing>.

of “turn[ing] the materials back into skis and snowboards,” as well as “composite lumber, pavers, and cultured rocks.” This process aims to be both cost and carbon neutral in all of its practices, whether that is the actual process of shredding, or transportation. As of 2013 “700,000 pounds of used gear have been collected- diverting it from landfills and turning it into usable, valuable products,” with a goal of soon “diverting at least one million pounds of gear from landfills each year”¹². This program addresses the problem of skis and snowboards going to the landfill by providing an environmentally friendly alternative.



A compilation of research illustrating the lifetime of a ski from the raw materials through until the end of the cycle. This early research guided the rest of my research in identifying problems, as well as solutions and areas of focus. Source: Research



Life Cycle Analysis of Skis found from a school project, illustrating the process of creating skis from the extraction of materials to the distribution of the finished product, and the respective environmental impacts.¹³ Source: Connor, Geva, Yang

¹² "Snow Sports Recycling Program Gives New Life to Old Gear." Outside Online. July 24, 2017. <https://www.outsideonline.com/1912361/snow-sports-recycling-program-gives-new-life-old-gear>.

¹³ Connor, Max, Ben Geva, and Brian Yang. "Life Cycle Analysis of Skis." Digital image. Design Life-Cycle. 2013. <http://www.designlife-cycle.com/skis>.

Burton addresses a similar issue through choices to minimize their impact, using renewable resources and energy, working to uphold all sustainable standards and integrate sustainability in every practice possible. They write, “we’re designing our products with end of life solutions in mind. If a product comes back to us, we first aim to repair it. If we must replace it, we work to keep everything out of the landfill. Last year, we diverted 60-85% of every board from the landfill by down cycling them into items like beer sample holders for our local breweries, shelving units, and employee name tags”¹⁴. They developed a new epoxy called ReRez, that “allows the snowboard to be disassembled and each material input able to be recycled,” and use local materials in their manufacturing¹⁵.

Sustainability

Understanding sustainability was integral to this project. Sustainability has to do with the ability to maintain. This is where the concept of sustainable businesses that ensure longevity, or zero net emissions, comes into play. The EPA defines sustainability as:

Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations.¹⁶

When you think about a sport that relies solely on the environment for its survival, sustainability *must* be in the discussion. How can we integrate sustainability into all of our practices? We must consider it in building skis, sourcing materials, in the clothing that we choose to wear, and in the energy forms that we choose to use.

¹⁴ "Burton Sustainability: End of Life." *Burton*(blog). <https://www.burton.com/us/en/sustainability-product>.

¹⁵ Burton Sustainability: End of Life

¹⁶ "Learn About Sustainability." EPA. October 18, 2016. <https://www.epa.gov/sustainability/learn-about-sustainability#what>.

Who do we look to?

In this research, I looked to leaders in sustainability, companies like Patagonia and Burton, manufacturers like LibTech and Grown, mountains like Vail, Aspen and those in the state of New York who are constantly looking to implement sustainability in their mountain operations. Patagonia writes in their mission that their “love of wild and beautiful places demands participation in the fight to save them, and to help reverse the steep decline in the overall environmental health of our planet. We donate our time, services, and at least 1% of sales to hundreds of grassroots environmental groups all over the world to help reverse the tide”¹⁷. They recognize their responsibility, “knowing we are part of the problem, we must also recognize that climate change—as a deadly condition of infinite human actions—is not an issue we can tackle outright. That’s why we try to stay focused on specific things that Patagonia can do to reduce, neutralize, or even reverse the root causes of climate change”¹⁸.

Climate Change is a result of human’s post-industrial revolution. We had our hand in causing the problem, and it’s approaching a time where it is too late to change it. Professional snowboarder Jeremy Jones started Protect our Winters (POW), an organization with a “focus on educational initiatives, political advocacy and community based activism,” driven by a “passionate crew of diehards, professional athletes, and industry brands mobilizing the outdoor sports community to lead the charge towards positive climate action.”¹⁹ The organization is a wealth of knowledge, addressing climate change on a large scale, as well as within the niche of skiing. It provides statistics, as well as solutions for a better future, abiding by the belief that “we all need winter”. POW writes:

“Right now, we have the luxury of worrying about how climate change might impact the outdoor industry. Right now, we get to help dictate the outcome rather than react to a foregone conclusion. If we sit on our hands for the next

¹⁷ "Patagonia's Mission Statement." Patagonia Mission Statement - Our Reason for Being. Accessed April 16, 2018. <http://www.patagonia.com/company-info.html>.

¹⁸ "Our Business and Climate Change." Our Business and Climate Change - Patagonia. Accessed April 16, 2018. <http://www.patagonia.com/climate-change.html>.

¹⁹ "About Us." POW. Accessed April 16, 2018. <https://protectourwinters.org/about-us/>.

two decades, we won't be worried about powder days, tourism or having fun. We'll be worried about the stability of our environment, our jobs and our economy"²⁰.

POW raises awareness by partnering with events, organizations, and companies, on different scales, such as North Face, Burton, REI Co-Op, Cliff, Patagonia, Teton Gravity Research, and thousands more. They partner with athletes in their Riders Alliance, to create a "community of the most accomplished professional athletes in the world, all committed to environmental leadership," using their power as professional athletes as a platform to spread awareness through a "social movement"²¹. The catchy name, the important cause, is a powerful draw to those that come across it, and it acts as a resource to truly understand the world in which we are living. POW inspired my realization that climate is a big issue, larger than any individual; but the power of being educated, of owning our own responsibility to do *something*, is what is important.

Design can make a difference: Artist inspiration in and out of the industry

When I sat down to figure out how I could make my contribution to the environment, I tried to think about what I could do with design. It is impactful, and it influences our daily life. It was with this that I wanted to utilize ski graphics as a platform to spread a message, and create a campaign about the environment and its impact on not only skiers, but humanity.

Jeff Koons, Takashi Murakami, Keith Haring, Andy Warhol, Shepard Fairey, and many others have collaborated with skateboard companies to feature their art on decks. Skateboarders, and non-skateboards alike view these pieces as works of art.

²⁰ "About Us." POW

²¹ "Riders Alliance." POW. Accessed April 16, 2018. <https://protectourwinters.org/riders-alliance/>.



Inspirational skateboard deck collaborations with famous artists (from left to right): Andy Warhol²², Takashi Murakami²³, Jeff Koons²⁴, Keith Haring²⁵. Source: Varying Sources

Skis, which have a very similar potential, are not viewed in the same way. Big artists are often not collaborating with ski companies, and if they are, there isn't much attention drawn to it. As a result, the artists behind skis go unknown, whether they are commissioned to design them or work internally.

While researching further to find out who these artists were, EVO was a source to articles featuring the artists behind skis, snowboards and skateboards, highlighting artists like Christopher Everhart, Lunar Solar Creative, Abe Kislevitz, and Eric Pollard²⁶. Specific companies have produced designs and have aesthetics that have inspired me since I started picking out my own ski equipment. The 2018 Armada ski collection for its graffiti style and color palette²⁷, the K2 retro skis for their ability to bring back an old, vibrant style

²² "Andy Warhol Set of 8 Colored Campbell's Soup Cans Skateboards." IMBOLDN. October 11, 2017. <https://www.imboldn.com/art-design/andy-warhol-set-of-8-colored-campbells-soup-cans-skateboards/>.

²³ "EHC Fine Art: Essential Editions II." Takashi Murakami | Set of 3 Skateboards (2017) | Artsy. Accessed April 19, 2018. <https://www.artsy.net/artwork/takashi-murakami-set-of-3-skateboards>.

²⁴ Moriarty, Ana. "Jeff Koons X Supreme." Widewalls. April 2, 2016. Accessed April 19, 2018. <https://www.widewalls.ch/skateboard-designs-supreme/jeff-koons/>.

²⁵ Haring, Keith. "Set of Five Skate Decks: TV, Liberty, One Love , and Two Others by Keith Haring | Paddle8." Set of Five Skate Decks: TV, Liberty, One Love , and Two Others - Keith Haring. June 19, 2014. Accessed April 19, 2018. <https://paddle8.com/work/keith-haring/33444-set-of-four-skate-decks-tv-liberty-one-love-and-one-other>.

²⁶ "Skis and The Artist Behind Them [Behind The Art]." Evo Culture, Community, Cause. October 31, 2013. Accessed April 16, 2018. <https://culture.evo.com/2013/10/skis-and-the-artist-behind-them-behind-the-art/>.

²⁷ "Men's Skis." Armada Skis. Accessed April 16, 2018. <https://armadaskis.com/mens/skis/>.

in a modern way, and Burton Snowboards, to name a few, are all elevating their designs with each year.

Shepard Fairey has been an inspiration through this creative process. His style of art is one that inspires my own, his use of phenomenology²⁸ with his Obey stickers inspired how I approach creating a campaign (including its message, visual impact, naming, etc.), and his work with impactful messages about climate and how he displays these messages visually inspire my ski designs.



(From Left to Right) Shepard Fairey's OBEY stickers²⁹, work from the *Earth Crisis* Collection³⁰, and an Obey skateboard deck³¹. Source: ObeyGiant

In his exhibition "Earth Crisis" he wrote:

I think that art is a way to engage people. Art can initiate conversations when other media fails. If a viewer likes my mural, if they like my installation, like my art pieces, that may make them consider what the image is addressing. This new body of work reflects on and builds upon, my entire history of environmentally-themed art. I hope that it appeals visually AND

²⁸ "Manifesto." Obey Giant. Accessed April 19, 2018.

<https://obeygiant.com/propaganda/manifesto/>.

²⁹ "STREET BOMBER Sticker Pack." Store - Obey Giant. Accessed April 19, 2018.

<https://store.obeygiant.com/products/street-bomber-sticker-pack>.

³⁰ Fairey, Shepard. *Earth Crisis*. 2016. *Earth Crisis*. In *Obey Giant*. Accessed April 19, 2018.

<https://obeygiant.com/exhibitions/earth-crisis-galerie-itinerrance/>.

³¹ "3 Face 25 Years Skateboard." Obey Clothing UK. Accessed April 19, 2018.

<https://obeyclothing.co.uk/collections/artwork/3-face-25-years-skateboard/>.

sparks the needed conversation about protecting our planet for future generations.³² – Shepard Fairey

The last line impacted me the most, helping me to truly understand the purpose of my project. While my designs and campaign aren't directly impacting the environment, I want to create awareness using visual appeal to create "spark conversation."

METHODOLOGY

Initial Idea

Jason Knight, Industrial Design student, posted a video where he made skateboard decks using a mold and recycled plastic bags.³³ He melted bags down in order to heat mold them into a deck, to which he then attached the trucks and wheels. I thought about skis, which were also made from a pressure mold, and initially began to think if a similar process to the skateboards could be applied, spreading a message about recycling and re-use. I came into the semester determined and excited to do this project, despite knowing the challenges.

Reality Check

After more research and a project presentation, I came to a conclusion: I am not a materials engineer, I am a graphic designer. Though I have this idea, and this passion, it wasn't where I truly wanted to focus my project, and it wasn't something that I felt I could accomplish to the best of my ability this year. When I have access to material engineers and

³² "Earth Crisis." Obey Giant. Accessed April 16, 2018. <https://obeygiant.com/exhibitions/earth-crisis-galerie-itinerrance/>.

³³ Stock, Matthew J. "A Neat Skateboard Trick: Recycling Old Plastic Bags to Make Boards." Reuters. July 06, 2017. <https://www.reuters.com/article/us-britain-plastic-bags-skateboards/a-neat-skateboard-trick-recycling-old-plastic-bags-to-make-boards-idUSKBN19R1W1>.

product designers, I believe this idea could become a reality, but for now, I chose to take my project in a different direction.

Research and Revision

To come to this conclusion required research. When I was looking at materials, I felt overwhelmed by the process of creating a new way to build skis. I sat down to speak with my teachers and they asked one question: “Are you interested more in graphic design, in product design, or sustainability and climate change?”

This was a clarifying moment, realizing my enthusiasm showed the most designing the ski graphics. With this, I could approach my project in a way that was driven by my research and developed understanding of climate change and my desire to take action, but still focus on designing.

So, I revised my project; from 10 skis to designing 3, from various calls to action, to one campaign that gets people involved in the conversation. Mostly, I am trying to communicate the need for understanding and change, and that if you care about something, you should take action.

CREATIVE WORK

Campaign

My physical project revolves around my campaign. From researching the content and facts, to creating the name, to designing the logo and website, this campaign unifies all of the separate components of my project. Each ski design is derived from an idea, a message, or an image of climate change. Stamped with the SWITCH logo, inspired by the phenomenology of “Obey”, each ski becomes part of the larger context. In utilizing partnerships with established ski manufacturers, and athletes with a strong platform, SWITCH strives to reach and impact all corners of the ski industry (and beyond), from the people that manufacture the skis, to the people that ski on them, and to the people that one day dispose of them.

SWITCH

Final SWITCH logo developed through iteration, crowd-sourcing, critique and collaboration. Uses the font BrownSTD Bold Reclining and Bold Italic. Source: Sydney Shaffer

Designs

Over the course of the semester, intertwined throughout my research, I sketched ski designs. Some designs were text based, while others pulled from imagery. Early on while searching the internet, I came across a NASA web-page called “Images of Change.” Without much thought, I brought these images into Photoshop, cropped them into skis as they were, and moved on, thinking of them as an initial sketch. Come the end of the semester, I looked back through my sketches as I prepared to refine my project, and found the potential in these images of change, particularly those images relating to snow, glaciers, warming temperatures, and snow melt.



Early sketches of skis designs, some of which were developed to become final products. Source: Sydney Shaffer sketching

The SWITCH 2018 collection was derived from these "Images of Change," focusing on visual evidence of climate change around the world. Each pair of skis abstracts these images through digital manipulation, vectorizing the images, controlling the number of colors, and changing the color palettes. One of the skis in the pair features the "before" image, while the other features the "after." These images drove this collection in creating visual pieces with an underlying message. Though you may not understand them at first glance, their purpose is to be visually appealing and striking, inciting questions and curiosity that drive the customer towards inquiry and perhaps even purchase.

The purpose of SWITCH ski designs is to impact- while future collections won't necessarily be satellite images from NASA, they will have similar characteristics in that they are vibrant, draw your attention, and are visually appealing.

The future of SWITCH

SWITCH designs are intended to *protect the context they are in*. Right now, I use ski designs to impact the ski community. SWITCH is in its earliest stages, but I want to grow, pulling inspiration from my research. Through this campaign, I plan to establish partnerships with different companies in the ski industry: with ski manufacturers, with engineers and industry leaders, and with athletes. I want to develop a ski that sources locally and renewably, uses scraps, and expand the lifetime of the product (ex. Burton's ReRez).

In the future, perhaps SWITCH expands further to designing surfboards to advocate for clean water and rising water levels. The proceeds from these purchases will go towards organizations that help to take action against climate change. While these skis will educate visually, and draw people to a cause, influencing them to take action, the industry will also take action through partnerships.

Final Presentation

My final project manifested itself as three pairs of skis, about 5'7" long and 4.5" wide, cut from ½ inch MDF. Using illustrator to create a "twin tip" ski shape, I then cut the skis on the CNC. To create the graphics, I digitally manipulated images from NASA in illustrator, creating vectors, altering shapes and colors, and running a series of print tests in

the lab to perfect the colors and paper weights. Once perfected, I printed the graphics in 7' by 5" rectangles on the plotter, and cut them down to adhere. After sanding the edges and painting them white, I used spray adhesive to mount the prints to the skis, and used an X-ACTO knife to create a clean edge. The logos were created using white vinyl adhered to the paper, all of which were covered in resin to give them a glossy, polished, and realistic finish.



Final presentation in the Work Commons Gallery of the Stamps School of Art and Design.

Source: Sydney Shaffer

CONCLUSION

This year and this project taught me that we all have a responsibility to the environment – SWITCH is my contribution. While it will take big changes among industry leaders, politicians and big businesses to make big changes, every individual holds the potential to have a positive impact. Whether your impact is through educating and raising awareness, recycling and turning lights off, or minimizing your impact, it is important to use your platform, your skills, and your passion to drive your individual change. My passion for skiing, my love for design, and my fear for the future drive me: drive SWITCH. I want my children, and my children's children, to be able to have similar experiences. I want to take part in the fight for the climate, and I created SWITCH as a way to spread a message, knowledge and

awareness through an object that every skier uses in order to do what they love, while simultaneously doing what I love. Reading statistics is truly terrifying, but when you see how some people are choosing to react to those statistics is inspiring. Through this project, I too hope to inspire.

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