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Figure 1

I'd like to thank my family, friends, and teachers for supporting me throughout my college career.

To my Mum and Dad: Thank you for pushing me to be the best I can be, I would not be where I am today without you. Every day you gave me strength and encouraged me to move forward and towards my goals. Although for the time being my education is complete, I will never be finished learning from you. All the inspirations surrounding this project are because of you. You are the reason that I know what a family is.

To my mentor Saeid Shakouri: Thank you for your patience and for sharing your knowledge with me. This project would not be what it is without your help. I look forward to learning from you for years to come.

To my Astound Family: Each one of you took me under your wing and taught me what I didn't know. You taught me more than my trade. You showed me that work can be fun. Thank you for your patience while I completed my degree. I look forward to joining your team full time.

Finally to my Papa: I hope you will be proud of my final project and how far I have come in the past few years. You have been one of the biggest inspirations that drove this project. Thank you for your help and guidance and your unfaltering support.

*It's not who hands you the
Umbrella.
It's who stands with you
Despite the rain.*

-Unknown

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Introduction

Choosing a project topic can be difficult, especially a project with as many possibilities as my fourth-year capstone. I decided to look inward and gather inspiration from what truly matters to me. My capstone project to be about the importance of family. My project will investigate family life and will draw attention to the most important parts. For example, one of the most important things in a family is the love that is shared between the members. A family lends strength to each of the members when needed and will support each other. Finally, a family shares unconditional love.

My family is the most important thing to me. I love the thought of my family growing over the years. My family is responsible for making me the person I am today. They've supported my every ambition and guided me throughout my life.

I have chosen this topic because family is something that is very important to me, and it is something that a lot of people connect to. Although this is more of a self driven project, I'd like to create something that others can look at and appreciate. I chose the topic of family because there are some areas that I would love to research and learned more about. An example is that I'd like to learn more about Scotland and my family's history there.

I want this project to act as a family heirloom. I hope to create something that will be a topic of pride and important to my family for generations to come.

My capstone project will live in my family's home. The piece of furniture is for my family. It is something that they have all had a hand in and therefore it is something that they will all have a connection to and appreciate. The users will be my family members for generations to come.

My research will dive into my past and the past of my family members. I will look into careers and homes. I'll use this information and add it to what I already know. I'd like to find a way to bring my work to life and create an engaging and beautiful piece.



Figure 2: Julia, Stephanie & Cameron ready for school



Figure 3: Thistle plant

Without my family I would not be the person I am today, and I would not have become a woodworker. Woodworking is something that my grandfather did. My family members have worked in manufacturing, and fabrication industries for many years. Although there are many reasons that I could use to justify why I've decided to base my final project off family, the biggest reason is that I find my family to be inspiring. My parents worked very hard to give my siblings and I everything that we have. The type of bond that my family members and I share is not one that you come across every day and it's something that should never be taken for granted. I find the

unconditional love that we share for each other to be inspiring as is the strength we gather.

Research

Scottish Roots

To fully understand my capstone project, it's important that you understand the history that led me to this point. My project is about my family. I have pulled inspiration from my history and family members going as far back as my great grandparents.

My family comes from a town in Scotland called Paisley. Paisley is a large town and has a heavy manufacturing and textile presence. This town is where the famous Paisley Shawl comes from. There was a point in time when my great grandmother worked in the thread mill. This industry was one that provided many jobs to the people of Paisley. There were also times when my great grandfather worked in metal shops and manufacturing shops. He worked just outside of Paisley for Rolls Royce working on aircrafts.

Over time my family members slowly began to make their way to Canada. This is where they started new lives and families. They established themselves and continued their work

Down the road my grandfather joined this manufacturing trade, alongside his father and has been a part of it ever since. Over the years my grandfather has worked as an engineer, he's worked in wood and metal shop and he was a high school teacher for many years.



Figure 4: Scottish flag

When I was learning wood shop in high school, there were days when my grandfather was my supply teacher. He was retired at the time and was one of the few in my school district who was able to teach the shop classes.

The other students always picked up on my grandfather's accent. I had never given much thought to it before, it was simply a part of my Granny and Papa.

Even today they often miss Scotland. It is funny because aside from their accents you can tell where they came from. They all have a certain demeanor, a seriousness with great humor underneath. My grandfather is a serious Scotsman, but he also knows how to have a good laugh or how to play a trick on someone. My mother's cousins are much the same. They all have a side of humorous mischief to go along with their seriousness.



Figure 5: Julia with Granny and Papa

To this day grandfather has taught several trades, and has had quite a presence in the manufacturing industry. He is an engineer as well as a metal worker and a skilled woodworker. Throughout his life he has taught hundreds of students the skills of these trades. As I have begun to develop my woodworking skills, he would often look at my work and comment on it or tell me how I could improve it. There have been times when he has helped me with projects I was working on at home or I have called him to ask him for advice. He has never doubted my skill, but he has encouraged my learning. I gained a lot of my creativity

from my family, and it did not stop with my grandfather. My mother has been creative over the years and my father has worked in manufacturing and trades since before I was born.

Now as it continues, I have become a woodworker and my brother has become an electrician.

Trades are passed down from tradesmen to apprentices. In my family they are passed down from parent to child



Figure 6: Great Grandparents



Figure 7: Julia & Stephanie - ROPSSAA Winners

Scottish Furniture



Figure 8: Side table by Scottish maker

In the early 1900s traditional Scottish furniture was made from Mahogany, rosewood, and satinwood. The forms of the furniture were often symmetrical or at least even and balanced. The designs involved geometric patterns and over time floral patterns began to appear in the work. The shape of the furniture was often either straight and clean lines or it was an oval or circular form. There were not many organic shapes. That being said, the furniture did have a natural appearance. The wood was left looking natural, while rich in color (not painted, no bright colors).

The photo above is a coffee table that was designed by a Scottish furniture maker. He is a member of the Scottish Furniture Maker's Association. This group is one of many Scottish people who are very talented woodworkers. Many of them pull inspiration from the Arts and Crafts movement however the work tends to look more natural. The many of the makers use clear finishes and they keep the material from looking overworked.

I liked this coffee table because of it's sturdy and bold shape. The design of the legs was inspired by historical furniture pieces . I was interested in the legs because I liked the strength and groundedness it added to the table.



Figure 9: Daniel Lacey

An interview was done with Daniel Lacey. He is a proud member of the SFMA and has made many beautiful pieces. When I saw his interview I connected to him and his work. Lacey works with wood however he uses fallen or dead trees in his work, however what stood out to me was the fact that his work focuses on creating something that has meaning and an emotional connection to his clients. Many pieces are custom and were made as heirlooms. An example is when he took a dead tree from a client's garden and he created a garden box out of it. The tree he used was the tree that the client used to climb as a child and had hope that their children could do the same. Daniel Lacey also two boxes for children to store items in as they grew up. Those two piece were intended to be passed down.



Figure 10: Gavin Robertson Writing desk

Another Scottish furniture maker is Gavin Robertson. He has been making furniture for more than 40 years. He has a wide range of furniture pieces and styles. He often uses walnut in his work but he has pieces that contain exotic woods. I like his furniture pieces because his designs are not so simple that they are boring, but they are not overly decorative. Robertson focuses on making products to a very high quality and standard. I like that he pays attention to the smallest of details. All of his pieces are functional and use the small details to uplift them. For example he has a piece that has a small black inlay added around a panel. This detail frames the grain pattern in the panel.



Figure 11: Ronnie Payne Dressing Table

Ronnie Payne has been making furniture since 2016. Before he was in the Royal Air Force as an engineer. As he learned to create furniture he found that clients were looking for something special in their furniture. He would work with his clients to come up with a design that was both feasible and met the needs of the clients. I enjoy the thought he gives to function in his designs, as well as the cohesive design language each piece / collection has.

Inspiring Scottish Furniture



Figure 12: Gavin Robertson Desk



Figure 13: Ronnie Payne Computer Desk



Figure 14: Stephen Finch Floating keepsake boxes



Figure 15: Daniel Lacey Chair

The Glasgow 4



Figure 16: Charles Rennie Mackintosh

The Glasgow 4 was very influential in Scottish furniture design. Today there are many designers that are inspired by their work. The Scottish furniture maker association is a perfect example of how the Glasgow 4 inspires people even today. Many of the artists make all kinds of beautiful furniture. I found that there are some elements that I really like. A lot of the furniture is very study looking. It manages to look strong and trustworthy while not coming off as chunky. The parts are thick and solid however the maker has added tapers and edge details to remove some of the mass.

On the topic of Scottish history and furniture it is important to mention the man who started the Glasgow 4. Charles Rennie Mackintosh was an architect and designer among other things. Mackintosh's work involved a lot of symbolism, especially male and female symbolism. Something that I found interesting was that some of his early projects were in designing a tearoom.

Thistle



Figure 17: Thistle crest

The thistle is the flower of Scotland, and it has several meanings. Besides being the subject of poems, One story is that during a battle hundreds of years ago, the thistle is what saved the Scottish soldiers. The soldiers were sleeping in a field when enemy soldiers began to approach them. One of the Soldiers stepped on the prickly thistle and screamed. His cry woke the sleeping Scots and allowed them the time to fight off the enemy.

This spiky flower is also a symbol of a great honor. The Order of the Thistle is an award of chivalry that is given to those who have “made an outstanding contribution to Scotland”. It is one of the highest honors someone could receive. The thistle also appears on the Scottish coat of arms.

The thistle also represents nobility, royalty, devotion, bravery, determination, strength, pain and pride. This flower is used in some areas of medicine. It also represents invasiveness, toughness, aggression and trouble.

The thistle is a symbol for Scotland. It is on money, sports uniforms and clubs, it is in

gardens, fields, and police officer uniforms.

As a plant, a thistle is categorized as a weed due to it’s invasive and tough nature. My family share some of these characteristics. My family members share that same stubbornness in a few different ways. My family is tight knit and inseparable, much like the thistle as well as tough and rather unstoppable at times.

During my material explorations I tried CNC cutting different textures that were representative of the body of a thistle. I explored adding this texture to different areas, as if it were invading the piece. Another exploration I had was adding the texture to the outside of the drawers or the cabinet doors. The rational behind this was that items would be hidden behind the tough thistle and anything with the texture would be treated as a weed and avoided.



Figure 18: Castle joint in progress

When I started off the semester I was interested in joinery. Although it appears differently in my final project, it is still something that was important to me while designing and fabricating.

The strongest traditional wood joint is a mortise and tenon. It has lots of side grain gluing area and can be reinforced with wedges. Half lap joints are also considered to be fairly strong because they also have a large surface area for gluing. Some sources suggest that adding fasteners (such as screws) would help to strengthen a connection however, this is not the type of approach I am looking at. I wanted to avoid using screws and fasteners. I feel that if a wood joint is made correctly, you should not need to put a screw in it to hold it together. My research found that butt joints and joints that involve an end grain connection are the weakest. I have found that interlocking forms offer the most strength because it becomes very difficult for the joint to separate. Dovetail joints are found to be some of the strongest



Figure 19: Castle joint

joints because they have a very good gluing surface and their angles prevent the connection from pulling apart. Finger joints are also a good interlocking joint; however, the straight edges make them slightly less effective than Dovetail joinery.

Strength is not the only important factor of a wood joint. Aesthetics are also very important. Joinery is often used to enhance the appearance of a project. It is important that a wood joint has room to move and that it has the ability to flex slightly. Sometimes a properly constructed joint is stronger than using one solid piece of wood. Where a piece of wood may have checks and other defects, a joint may be able to be built with using any wood that is defective.



Figure 20

Project Brief

What is an Heirloom

An heirloom is generally something that is passed down through a family from generation to generation. Heirlooms are usually old since they have been passed down over the years from loved one to loved one. The word heirloom can be broken down into two parts. The *heir* part comes from the idea that the passed down items are given to the next family heir. The *loom* part comes from the fact that in the past it was looms and tools that were passed down.

I aim to create a piece of furniture that is family heirloom and will have a connection to my family through references to hands on work and history. I want this piece to be beautiful and timeless. I will use traditional woodworking techniques through joinery and as well as additional textile materials how long to create my project. I aim for this piece of furniture to be a worthy representation of my skill my knowledge but I have acquired in the last four years at Sheridan college. I want to create a piece that is luxurious. This piece will have a deeper emotional connection to my family however I want it to be able to be widely appreciated. I will use the information I know and the information from the conducted to create a piece that is beautiful and functional. I want to bring symmetry and balance into the design along with strength.

Must:

- *Represent family with techniques, symbols, materials, etc.
- *Be strong, functional, and beautiful
- *Be a collection of objects
- *Be primarily made of wood
- *Be designed thoroughly and thoughtfully

Should:

- *Represent my skills
- *Teach me something new
- *Have storage space
- *Be able to be appreciated by many people but have more value to my family

Could:

- *Use leather (a material that ages well)
- *Use texture to reference a symbol
- *Have a tambour door
- * Include pen turning



Figure 21: Julia, Stephanie and Papa at High School Graduation

Going into my final year I knew I wanted to make a project that was special to me and my family. I have always had a loved for all things “old fashioned” or with a historical context. When I say historical it doesn’t necessarily have to be something very old. So long as the item has a story to it. I chose a writing desk because I wanted to create a space that was useful and could be appreciated by many different people. Reading and writing is something I have always enjoyed and that loved has been passed down throughout the years. Some of my family has made a career out of writing however our loved or literature and history is ever present.

I really love the time that writing allows for reflection and learning. I find that in a crazy busy world, time to sit quietly and process things is invaluable. As is the time we spend with our families.

This is a traditional piece that has subtle hints towards my family’s history tied into it. You will see the connecting joinery that

I use to symbolize connection. Inside you will see the sudden pop of color and bright purple velvet along with a texture that is symbolic of the thistle. I have added these details for a reason, as I mentioned above the Scots are a serious people, but they love nothing more than a good joke. I have created these moments around this piece of furniture. When you open the desk, you are greeted by a pop of color and some fun textures along with the textile background that represents Paisley. When the door is closed you have a leather that represents the textiles, but it will also age beautifully over time as do families and history. I have included pens as a part of my project. This is a skill that really interests me, and it is something that my grandfather did. When I showed him the first pen I made, my grandfather and my grandmother were excited. The Pen reminded them of what they used daily back in Scotland.

Mind Maps



Figure 22: Capstone mind map

I always found making mind maps helpful when I was trying to organize my ideas. I often colour coded my ideation because it helped me differentiate between the different categories I was looking at. I started out very broad and then made another mind map for each of the pieces of my collection that I was interested in making.



Figure 23: Desk mind map

I was looking for different ways that I could infuse my project with history and family, without making it too obvious. I started working with different materials, textures, and patterns to communicate stories and references to my history.

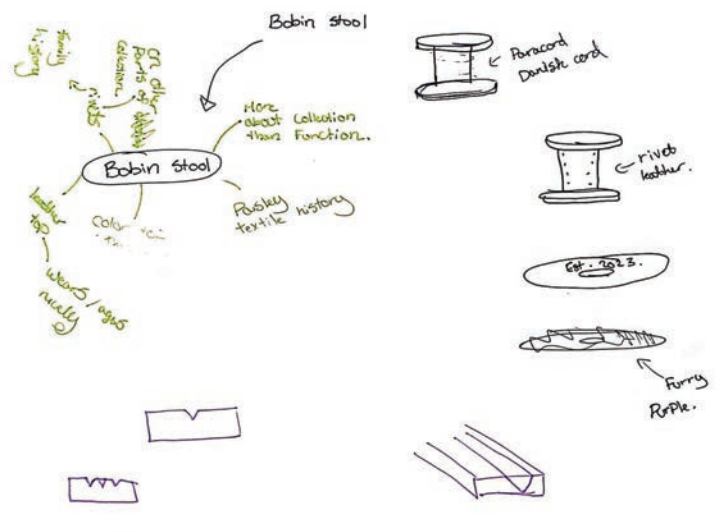


Figure 24: Mind map and sketches



Figure 25: Mind map and sketches

Sketches

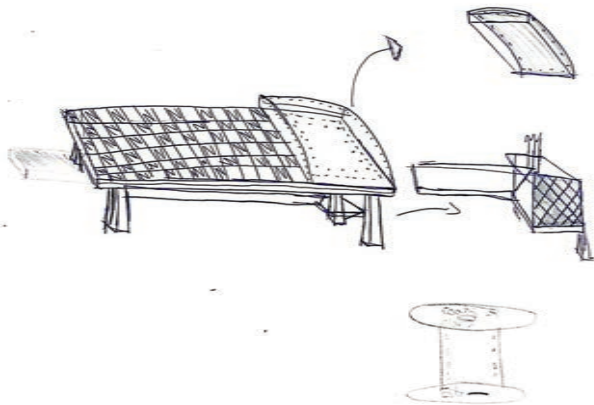


Figure 26: Desk and seating sketch

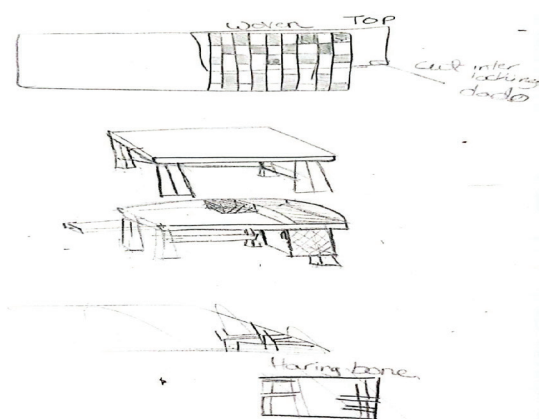


Figure 27: Table top considerations sketch

I started working with texture and patterns. I considered making the top look like the wood was woven.

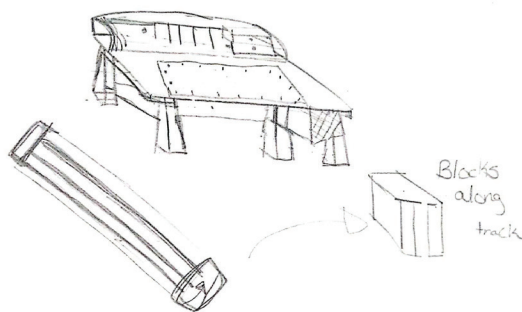


Figure 28: Desk, tambour and joinery sketches

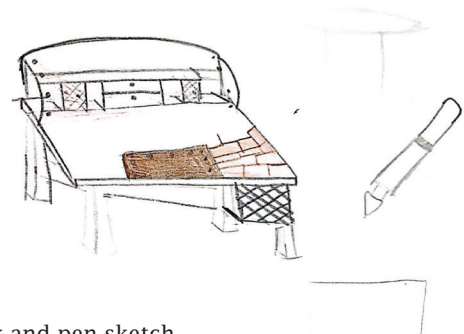


Figure 29: Desk and pen sketch

Samples and Testing

As a very visual person, I find that creating small sample pieces gives me the best sense of what something will look like and it helps me understand the process of making that item. This is where I would note any fabrication issues.

I created all sorts of different samples. Some of these were to gain a better understanding of the appearance it would give and other were about working through the process.

I had so many ideas and different ways that I wanted to use materials to represent my family.



Figure 30: Table top pattern sample



Figure 31: Table top Herringbone pattern sample

I wanted to find a way to represent the weaving and textile part of my history. I made sample pieces that would look like the wood was being woven into common weaving patterns. The problem with this was that it is not have a large gluing surface and the gluing space that there was, was an end-grain to side grain connection. I had considered using this for the desk top however I decided against it after the samples were made, due to the feasibility of creating this at a large scale and because the quality of so many small laminations many not be what I wanted for the desk top.



Figure 32: Thistle texture CNC tests

I used a V-bit on the CNC to create a texture that is reminiscent of the texture on the body of a thistle flower. I tried cutting different depths to more of a profile from the bit.



Figure 33: Deeper thistle texture CNC tests

I attempted to rivet leather. Riveting was something that was done by my grandfather and great grandfather while they worked in the metal shop.

Finally I decided that it would be better to pick one or two things and work on tying these things into the project.

At this point, I decided to focus on the leather tambour door and the thistle texture. Both of these things are noticeable however they are not so personal that nobody else can appreciate the desk.



Figure 34: Riveted leather sample

Sketch Models

I made a model early on into my ideation phase. I was trying to mimic the hills in the highland of Scotland as well incorporate some additional materials. After creating this model I realized that I really didn't like it so I moved on to other designs.



Figure 35: First Sketch model



Figure 36: Midterm Model

3D Modeling



Figure 37: Preliminary 3D rendering

This was the first 3D rendering I did. This was very helpful. I was able to see what parts of my design needed changing. It gave an idea of how the desk would look and how the proportions worked together. This rendering is what I showed the faculty during my tutor exchange. I was able to get really great feedback. The faculty brought up things like how the desk would look pushed up against a wall. One faculty member mentioned the demeanor of the desk and suggested that I add



Figure 38: Tutor exchange rendering

some fun to the piece. This connection came from the seriousness of the Scottish all while they loved nothing more than a good laugh.

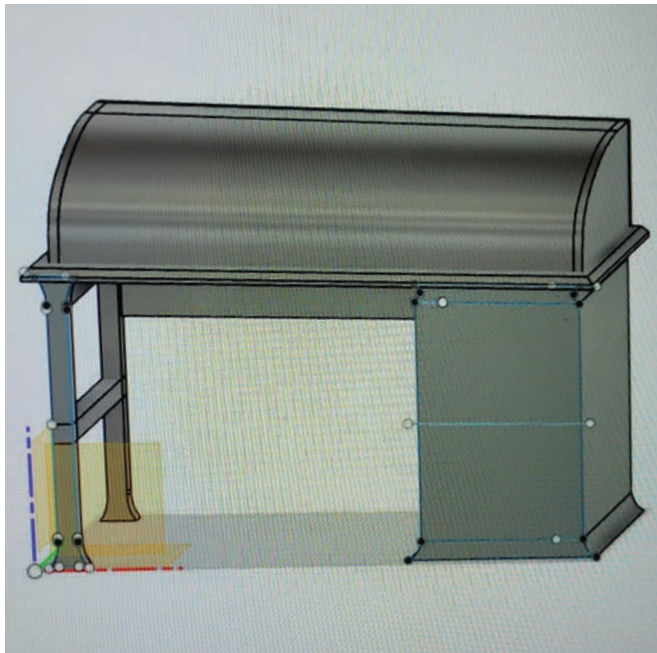


Figure 39: Rendering with full tambour door

Here, I was working on changing the form of the desk and treating it like a whole object rather than separate features put into one piece of furniture.

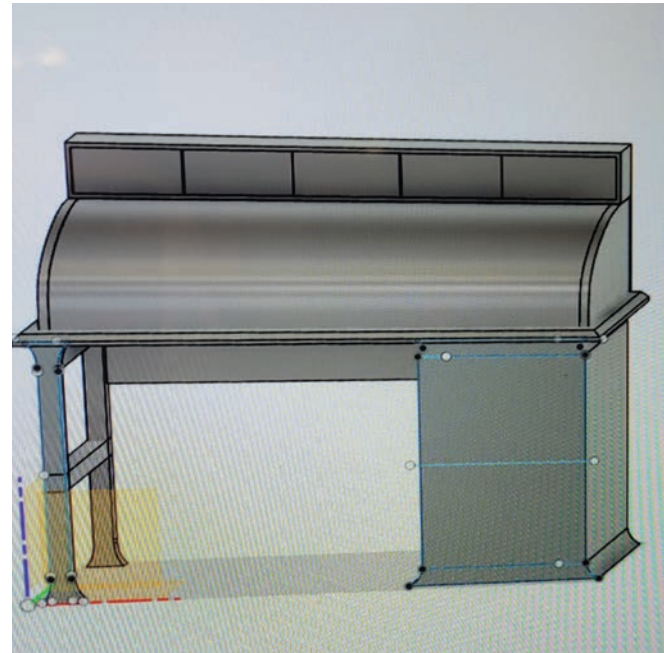


Figure 40: Rendering of desk with added storage

I realized that I liked the tambour door aspect of the design however I didn't want it to take up the entire desk surface. I wanted it to be able to be closed while still having a writing surface.

One of my priorities when designing this desk was function. As much as the connection to family was important, I also wanted to create a functional and useful piece.

Fall Semester Critique

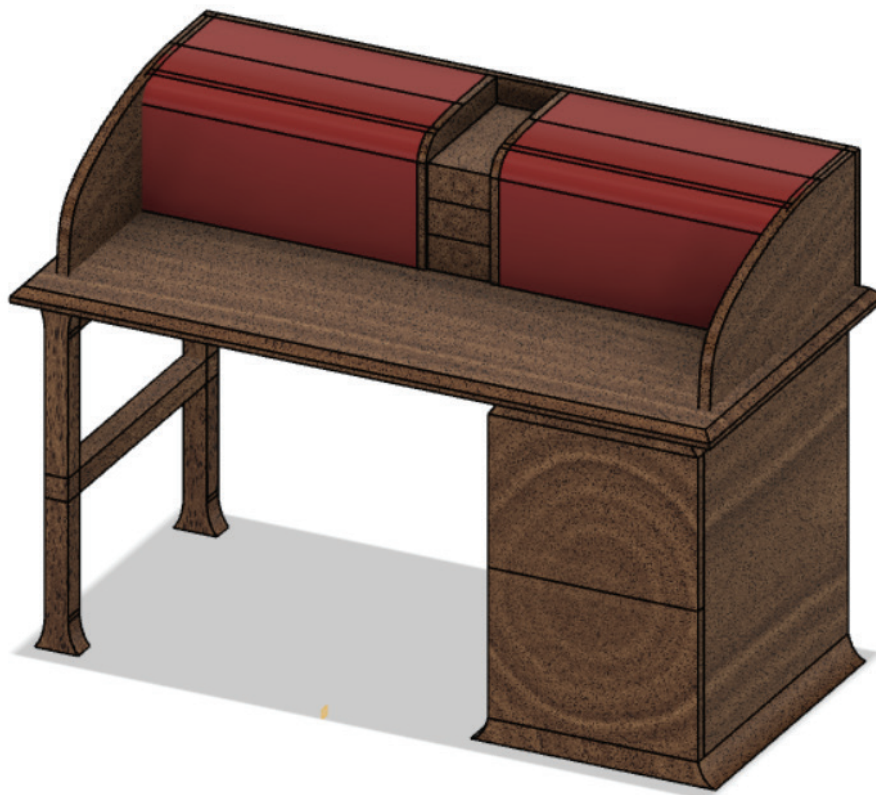


Figure 41: End of fall semester rendering

I chose to split the tambour door in two after I tried many mock ups. I was having a problem getting the door to slide nicely due to the length of the door. I found this design to be a functional solution yet it kept all the important parts of my project.

Some feedback I received during the critique was that one of the critics was concerned about laminating leather over the rolling door. He thought it may peel away over time. He also found the large drawers on one side to be distracting and chunky.

Below are some images of some material samples and mock ups that I had at the fall semester critique.

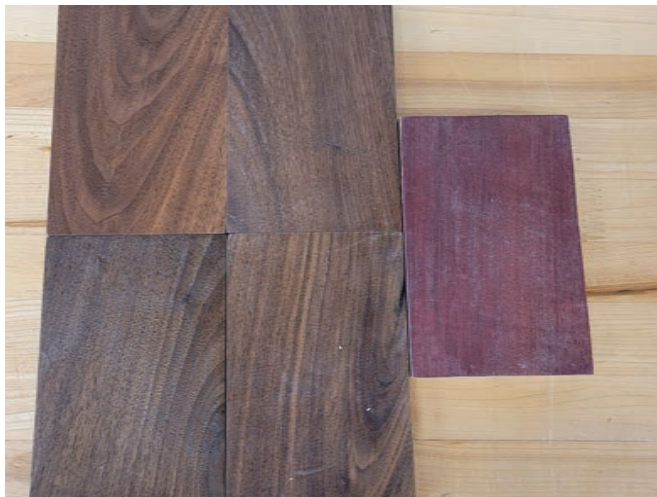


Figure 42: Material samples with different finishes



Figure 43: Side profile ideation



Figure 44: Walnut Model



Figure 45: Walnut Fountain Pen



Figure 46: Knobs that were a possibility.

Over the Christmas break I had time to reflect on everything that was said during my presentation and on how I felt about my project so far. I realized that I had been focusing on the project so much that I was becoming blind to the things that could be improved upon. I had gotten to a point where I was satisfied with the design, however I didn't realize that I also wasn't happy with it. After the break I was able to take a step back and look at the design in a new way. After some design and dimension changes, I made a full-scale mock up. I also changed some of the materials as well as the application of them. Another point brought up during the critique was that the hardware for this project could be more personal. For a piece with so much historical meaning and influence, standard off the shelf hardware did not seem fitting. A third point that I took from fall semester critique was that the desk seemed unbalanced because of the large cabinet on one side.

In the new year I made some significant design changes and came up with a design that is much closer to my final product. I decided to removed the leather from the rolling doors and use it for a writing pad since that would add to luxury of the writing desk. I made the big bulky drawers in smaller ones that would be used for things like paper and documents. The large drawers were unnecessary and offered a place to put random items. Finally, I sourced knobs that had the image of a thistle on them. After receiving the order I realized that I did not like the look of them and decided that I would make my own with the CNC. By doing this I was also able to bring CNC engraving back into the project. This was something that I had been interested in early on but struggled to find a place for it.



Figure 47 : Julia Working at her Full Scale mock up

The full scale mock up made me realize that it would be better to have the tambour door as a separate unit. This design change allowed for the tambour to be removed if it were ever damaged and it allowed for easier and more reliable fabrication. I also adjusted the overall size of the desk. It was very large and nowadays finding a space to put it would be difficult. I brought the size down slightly, although I still wanted a large desk. I was creating a luxurious space for reflection.

I work with proportions so that I could ensure that the desk would be comfortable to work at for extended periods of time.

Final Design Rendering

My final design is similar to my mock up, however there were many technical changes that I made as I started planning for fabrication. I made changes to the fastening methods that I was planning on using because I wanted to be sure that I had accounted for wood movement. I also adapted my fabrication methods so that I had slight wiggle room. My previous methods of fabrication were correct however every cut would have to be absolutely perfect for everything to come together properly in the end.

I changed the legs on the desk because originally they had tied into the under structure of the large cabinet. I decided to go for a lighter design, I changed the heavy looking drawer tower for smaller drawers and I chose to make the legs slimmer with a taper on one side.

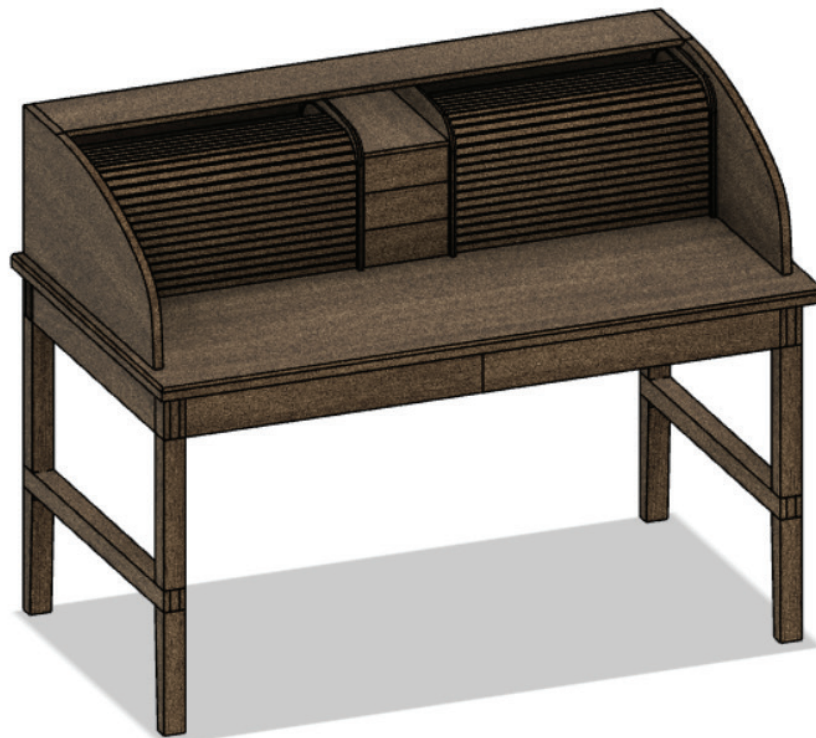


Figure 48: Final Design 3D model

Drawings

This project has approximately 150 parts. It was very a challenging piece to design and create technical drawings for. The project has many intricate parts that must be sized accurately. Like my fabrication method, I split my drawings up into three main parts. I learned a lot from my drawings. Every piece I made had to be put in a specific

location and made to a specific size or else the rendering would show the problem immediately. This allowed me to understand where problems would be that I hadn't noticed.

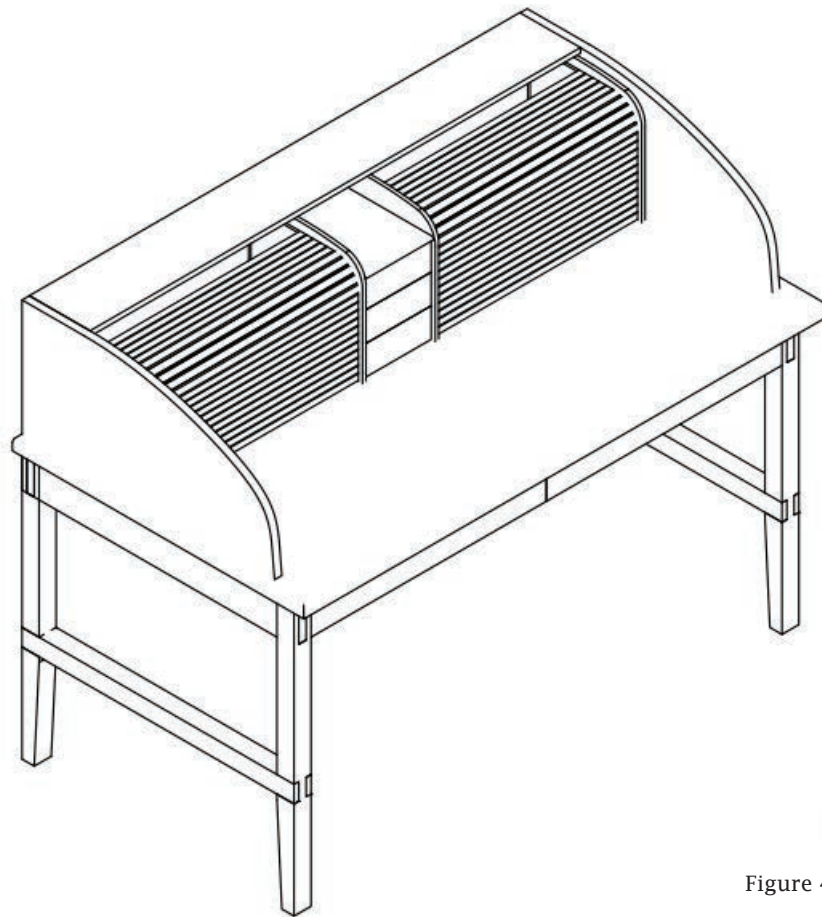


Figure 49: Perspective View

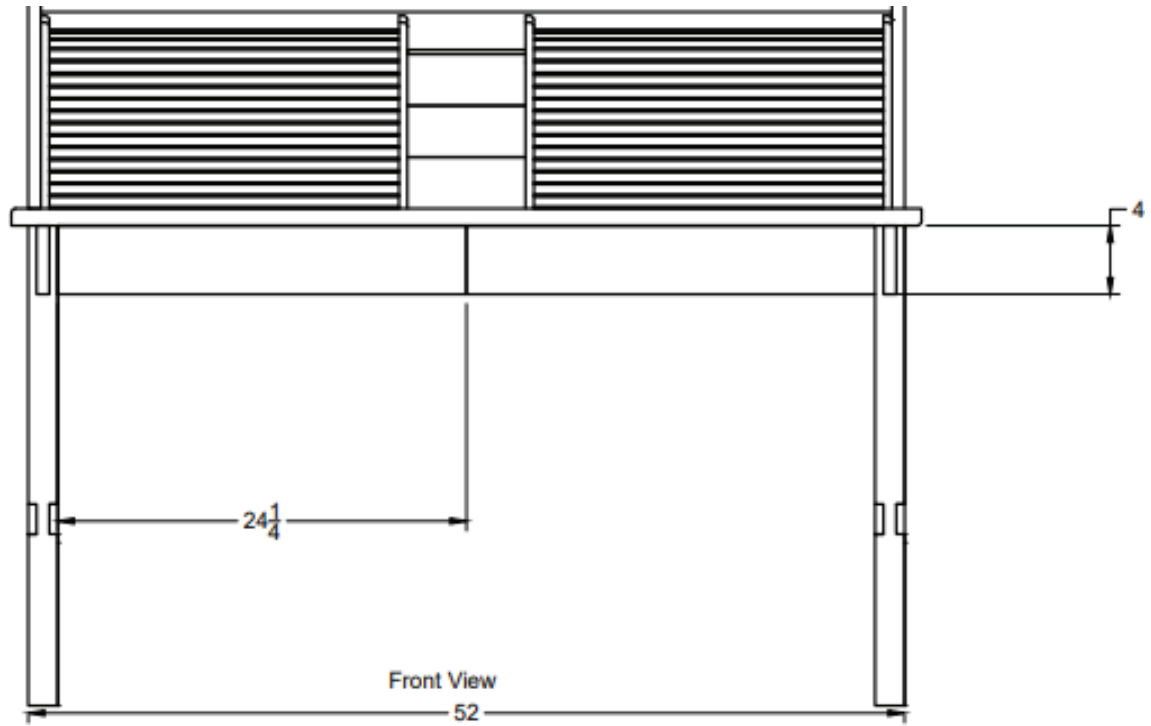


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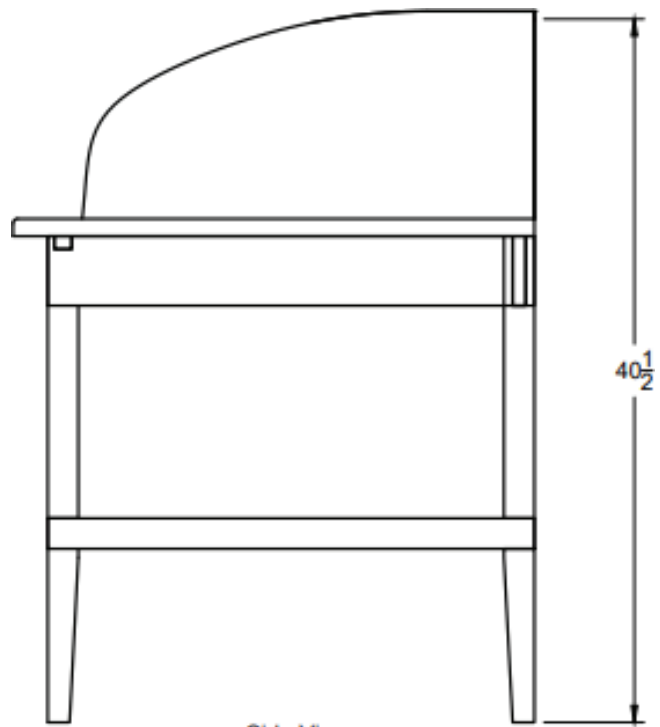


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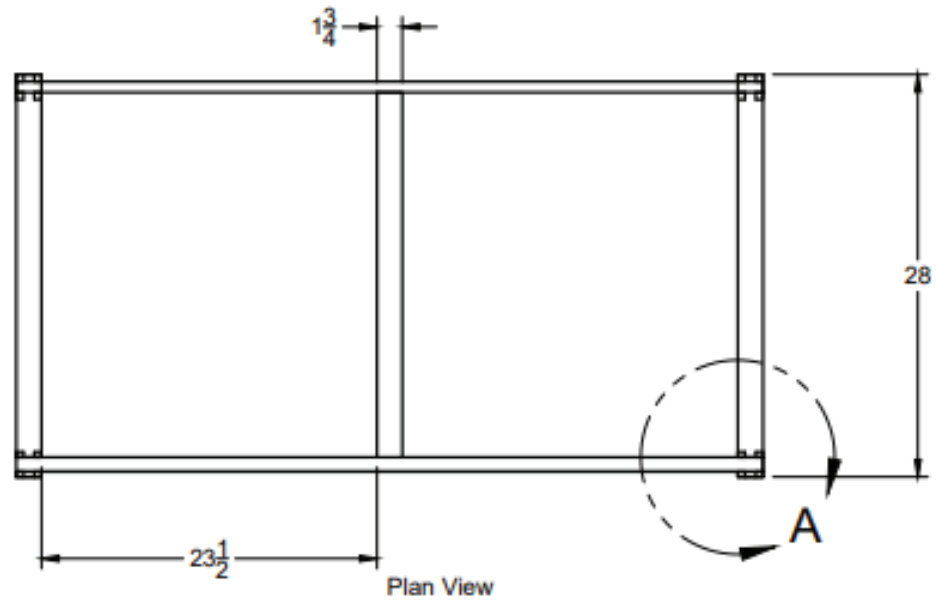


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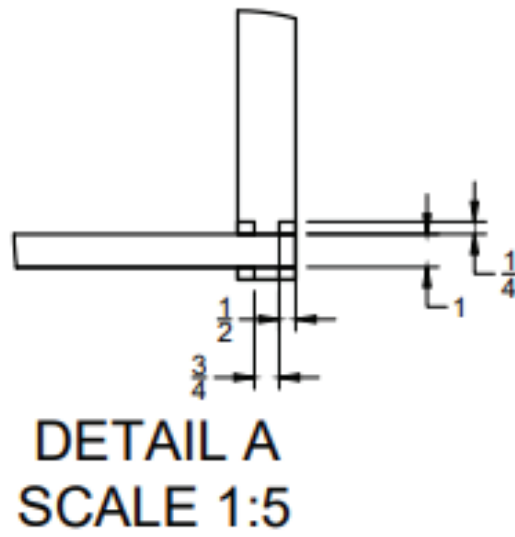


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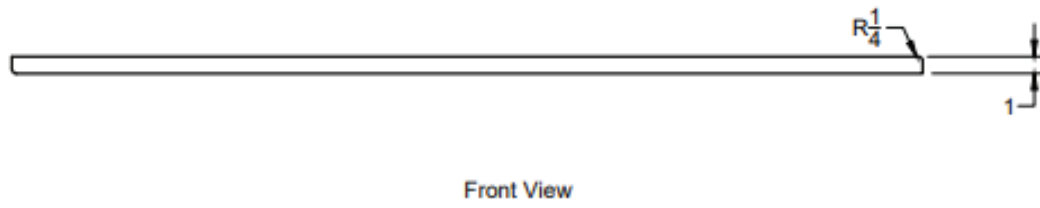


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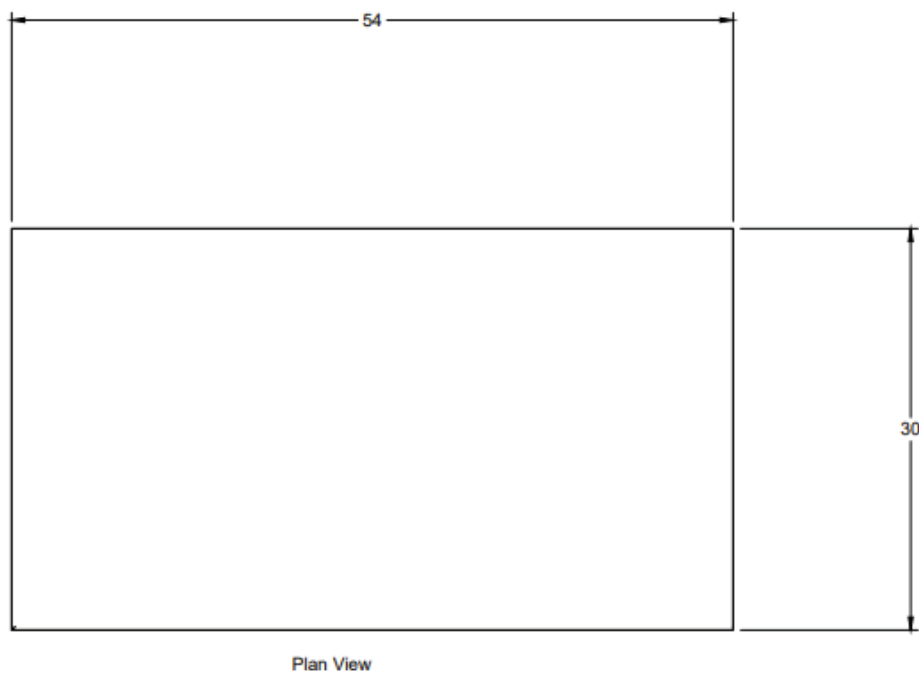


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Figure 56

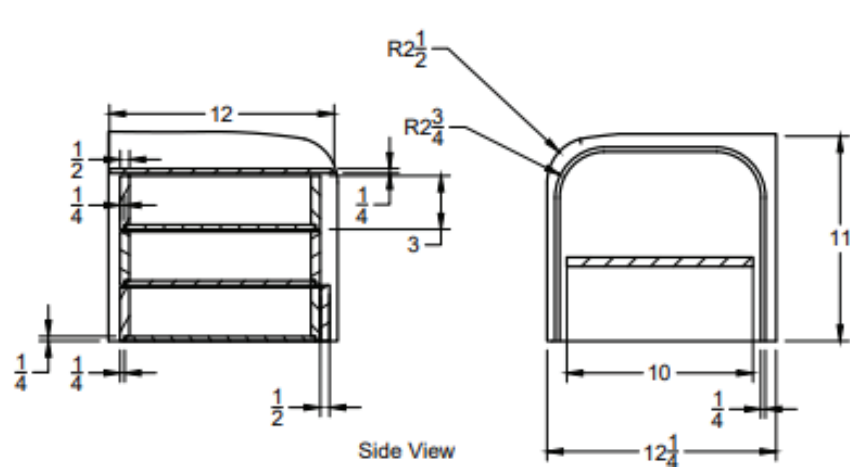


Figure 57



Figure 58



Figure 59: Tools ready to start working

Fabrication



Figure 60: Wood order

My project is made from walnut wood. It is mostly solid wood however there are some components where it made sense to use paperback veneer on Baltic birch plywood. This desk is made in three parts, the base, the surround, and the tambour units. The base is constructed with castle and bridle joints. I chose interlocking joinery because I wanted to reference how connection within families make each other stronger.

I went to exotic wood and hand selected each board for this project. I wanted to make sure that the quality of wood was the best it

could be. Many of my solid wood boards were re-sawn because the best boards that exotic woods had were thicker than I needed.



Figure 61: Julia Re- sawing



Figure 62: Julia & Ian Re-sawing



Figure 63: Highland Cow

This writing desk has more to it than meets the eye. The project has additional materials included that tell a story. I have lined the drawers with a purple velvet material. I chose this material because I wanted to include a textile since the textile industry in Paisley is very large and is a very important part of that area. The textiles industry is something that provided many jobs too many different people. I had family members that made their living by working in thread mills. I chose the colour purple because it is the colour of the Thistle flower however it is also my mother's favorite colour, the colour dress that my grandmother wore to my mother's wedding and it is the colour that my sister and I share. Growing up my sister and I were always very close, my favorite colour was always red and hers was blue. When we were kids if you looked around you would see two of everything only one was red and one was blue.

When it came time to choose a paint colour for our bedroom we each wanted our favorite colour at the compromise we decided to paint the bedroom purple. Since then purple has had some significance to me.

Another material that I have included in this desk is leather. I've chosen to include a removable leather writing pad because as I mentioned before I want to create a space that is luxurious and a space for reflection. I find that writing is something that demands reflection and quiet however it is also something that requires comfort. I want to include leather in my project because it is something that will patina and will wear nicely overtime. It is also something my family members worked with in Scotland. One of my relatives created patchwork leather accessories as a source of additional income.

Drawers

The drawers on this desk are floating drawers with wood slides. The boxes are put together with finger joints that are hidden under a false front. This was a common drawer joinery style on older furniture pieces, it was seen as something that increased the quality of a piece and the craftsmanship. Finger joints are not terribly difficult to make, however they do require accuracy and paying attention to the orientation of each part. After the purple velvet is applied to the inside of the drawers the slides are waxed to make the sliding motion smoother.

As I discussed earlier on I chose to make my own knobs for the drawers and tambour doors. Although my mother never made a career out of her artwork she is quite talented particularly when it comes to working with clay and ceramics in general. Although my expertise lies within woodworking and glassblowing I decided that I wanted to create personalized knobs for this project. After contemplating many different options, I chose to CNC cut them with the intricate pattern of a thistle. The cut end-grain soaked up a lot of finish which cause the cut design to pop.



Figure 64: Finger joint set up

Tambour Doors

The rolling tambour door is something that took many tests and experiments to create, however it is my favourite part of the desk. Making the doors was not difficult however it requires attention to detail and is time consuming. Creating the track on the other hand was difficult. I tested many different shapes before I had one that worked. The doors are made from solid wood strips of walnut. I used the rip and flip technique to create the piece so that it would be more stable and less prone to warping. The pieces were then glued to a canvas backing and put into the vacuum press to ensure that they were perfectly flat. There are nearly 60 slats between both doors. Each one was sanded and had the edges individually broken before the finish was then rubbed on. Once the tambour doors were finished I applied wax to the inside of the track to help them glide even more smoothly.



Figure 65: Tambours in jig

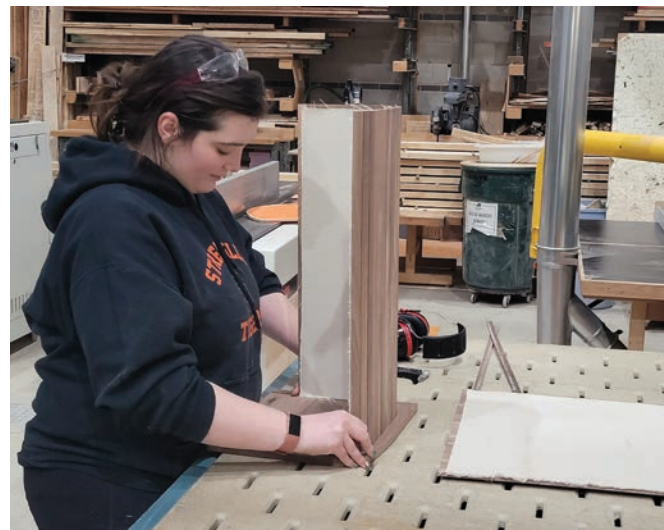


Figure 66: Julia Fitting Tambour door

Processes

I used the CNC to cut the parts that have the track and the sides of the surround. I'm very happy with the way the parts came off of the CNC. The track was being cut cross grain at one point and there was no tear out. I was able to put the tambour door in the track and slide it without any sanding or wax.



Figure 67: Track part on the CNC



Figure 68: Flattening warped wood



Figure 69: CNC in motion

Glue ups & Making Parts



Figure 70: Desk top glue up

This glue up took four people, 19 clamps and five sets of cambers. It worked out really nicely and the joints were nearly flush. After filling in the imperfections with epoxy, it received a through sand and then finish.

The final desk is sanded up to 150 grit and then it is finished with one coat of Rubio mono-coat oil finish. This finish is hand rubbed on with a cotton rag then it is buffed off and touched up wherever needed.

Accidents Do Happen



Figure 71: Veneer stuck to the top of the veneer press



Figure 72: Repaired Leg

This leg was knocked over by another student and broken along the grain. We managed to repair the break because of the long grain to long grain glueing area.

Courtesy of :

Final

Results



Figure 73





Figure 74



Figure 75: Bridle Joint



Figure 76: Writing Desk with Pen and Writing Pad



Figure 77: Drawer Pull



Figure 78: Writing Desk with Doors and Drawers Open





Figure 79: Four Handmade Pens



Figure 80: Fountain and Ballpoint pens

I decided to include fountain pen as part of my project because it was something I took an interest in early on in the semester. I learned that my Grandfather had made pens years ago and he had taught his students to make pens. When I showed my grandparents the one that I had created they were both very impressed and they liked it. It reminded my grandparents of the pens they used in school when they were younger back in Scotland. I decide to include two fountain pens in my project and I wanted to turn them out of Purple Heart. I love the vibrant colours of Purple Heart however as it is a difficult one to work with and is very expensive I decided to include it in a smaller part of the

project. I made two ballpoint pens out of purple heart and Bloodwood and one fountain pen out of each wood. Bloodwood is a very beautiful wood and turns beautifully with sharp tools. Purple heart is more prone to splintering but it also turned quite nicely.

The fountain pen is sanded on the lathe. It is sanded with many grits of sandpaper all the way up to 3000 grit sandpaper. Afterwards, I applied either baby oil or a light coat of Rubio mono-coat.

Final Reflections



Figure 81

I learned a lot from this project. I learned many new skills and built up the ones I had. More importantly I learned that I am more skilled than I gave myself credit for. In the past I have restricted myself on my projects for fear that I wasn't capable of creating something to a degree that I would be happy with. I spent countless hours fabricating this project and I am happy with the outcome.

Like any other, this school year has had many ups and downs. There have been moments of inspiration and excitement alongside plateaus and difficulties. I think one of the most important things was that Andrew checked in with us weekly and kept the lines of communication open. The check-ins were about more than the project's status. Andrew pushed us when we needed it and supported me when I was unsure or nervous.

Through it all my classmates, family and friends have been there for me and I can't wait to show them all my finished project. Looking back, this is my favourite project and I am most proud of this piece.

I will miss the late nights in the shop and the days we spent blasting music in our bench room. I'll miss our random pizza parties and the afternoons when we hung out doing nothing but talking about everything. I can't wait to see what the next chapter of life brings.



Figure 82: Roden Siblings

Biography



Figure 83: Julia Roden

Julia is a fourth year student at Sheridan College. She is graduating with an Honor Bachelor of Craft and Design with a specialty in Furniture and some classes in glass blowing. Julia started college right after high school and is heading out into the working world at the age of 22 years old. She loves the making process and finds pride and peace in creating. “ Woodworking is something that works your body and your brain. Focus is demanded of your mind while your hands work magic.” Julia has work in private collections and on display for the public. She started to learn woodworking in her high school wood shop class.

There is a full-time job in a wood shop waiting for her after graduation. Julia was selected as the Valedictorian for her studio. Although she is excited to graduate, there is no evading the fact that she will miss her friends and bonds they’ve built over the last 4 years.

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Figure 12 : Scottish furniture makers association, 2022
Figure 13 : Scottish furniture makers association, 2022
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