



WALTER KLASSEN

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My internship at Walter Klassen FX in the winter and summer months of 2019 gave me a taste of what working in a consultancy type environment is like. I spent the majority of my time there working for the prop shop and learning to deal with clients and the various mold making methods. This internship called upon my teachings from Carleton University Industrial Design program and helped me take them further. I spent time a lot of time prototyping and building in a quick paced environment along side a group of highly skilled individuals.

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COMPANY

GENERAL BACKGROUND

Walter Klassen was started in 1988 by a Walter Klassen himself. Walter Klassen is a mechanical engineer who found a niche in the film industry that involved making animatronic animals for feature films. As well as producing vests that protect camera operators from back strain and injury to help camera operators support the cumbersome cameras that are needed to produce films. The company has grown from being a small group of individuals who would come to work only when there was a job that was on the roster to a now much larger group of about 27 people that work with a much more certain schedule. Recently the company has begun to implement more structure by assigning department managers and creating a clear hierarchy that, to my understanding, was a lot more ambiguous before my time there.



FIGURE 1
Picture sources from: walterklassen.com



FIGURE 2
Pneumatic Deer

STRUCTURE

Currently, the way it is structured revolves around the fact that there are two categories of products that the company offers. One half of the company provides custom made props and accessories for films and tv shows, and the other half focuses on creating vests, and accessories for camera operators to support industrial cameras. The company, as a whole, consists of roughly 27 people. This is the largest amount of people that the company has ever had. Consequently, the company has started implementing new policies and strategies in order to maximize productivity and set guidelines to create company standards.

The division of power, albeit relatively new, helps manage the influx of jobs between the various departments within the company. There are four major departments in the shop; the leather shop, the machine shop, the prop shop, and administration. Each of these departments are run by one manager who must manage orders from both sides of the company. Each of the departments work primarily in creating products for one side of the company. For example, the machine shop works primarily in creating parts for various camera rigs, but on occasion will incorporate parts that need to be machined for the prop department, such as swords into their production line. (See figure 3). Every person on the team has their own set of skills that ensure that the shop has a well-rounded team capable of completing any problem thrown their way. The employees have specialties in areas such as 3d printing, electronics, prop design, leatherwork, pattern making, fabric work, Computer Aided Design (CAD)/ Computer Aided Manufacturing (CAM), mold making, and machining. They also have members of the team that have worked on set as property masters and thus are able to help anticipate the want and needs of current property masters.



FIGURE 3
Sword Display



FIGURE 4
Deadshots Wrist guns

Figure 5 : Some of the sewing machines in the leather shop



COMPETITION AND PARTNERS

The majority of the competition for the company revolves around other prop shops in Toronto. Namely, Acme FX and Movie Armaments Group. Although the word competition is relative in this sense seeing as each shop has its strengths and weaknesses, often the shops will refer the prop masters to the other shop if they think they can't fulfill their needs. This creates an interesting dynamic of competitors that also act as partners. There are also instances when the companies will work together. For example, in the movie *Suicide Squad*, Walter Klassen FX created the wrist guns used by Dead Shot (figure 4). DC needed a version of the prop that fired blanks, therefore Walter Klassen FX worked hand in hand with the Movie Armaments Group to fulfill this demand. The Movie Armaments Group is a specialist in firearms and tactical equipment for film and TV, making them critical to the completion of this prop.

ROLES AND RESPONSIBILITIES

The distribution of incoming jobs, particularly in the prop department, is done at the department manager's discretion. The decision is usually created by looking at precedent in addition to each employee's personal skill set, with certain employees becoming "the sword guy" or "the crystal guy". The first day at the company my manager had me clean and reorganize all the props in the display room. This gave me the opportunity to handle all the props and learn about past projects and the way the items had been created. It also let me interact with all the departments as I returned misplaced items to their proper locations in the shop. Initially, my roles within the company involved shadowing the full-time employees, trying to learn as much as possible while aiding them with whatever they needed help with, in order to complete the job on time. An example includes creating over 20 pairs of removable duct-taped gloves that would be placed on the extras to create the impression of having a group of teens playing the drinking game Edward 40 hands, as shown in figure 6 and 7.



FIGURE 6
EDWARD SICCOR HANDS

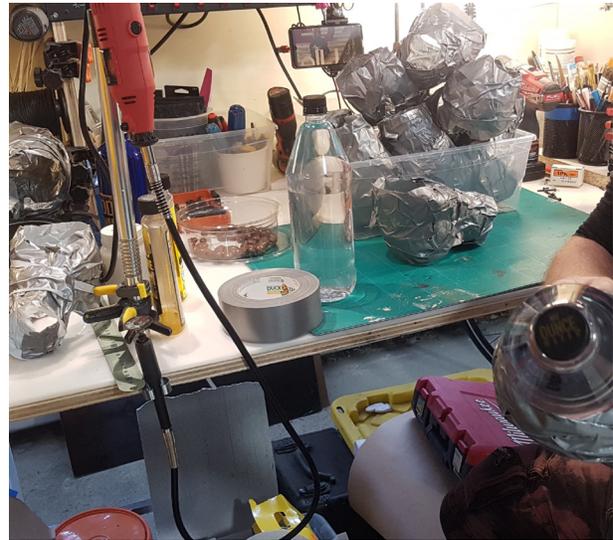


FIGURE 7
EDWARD SICCOR HANDS

After a period of shadowing, when they were confident with my skill set, they began to assign me simpler props. In scenarios where props needed to be done on a very low budget, they would be assigned to me as well. Creating these props still involved the complete design process in order to design a cost-effective piece, that was able to communicate to the viewers what they are seeing efficiently. Research had to be done to see and understand what aesthetics certain shows used as well as how they communicated certain concepts such as future medical tech, which, for example, often uses hexagons. Figure 8 shows a medical catheter that is being used a show set in a future that has advanced medical equipment, along with the final design is the various other design that were all presented to the prop master. This product was created by laser cutting acrylic of multiple thicknesses and creating a

small flexible black polyurethane tab that covered where the medical tube was attached. This prop, in particular, effectively demonstrates the importance of using proper visual language. The audience has moments to understand what is happening in the scene as the camera may rest on it for just moment.

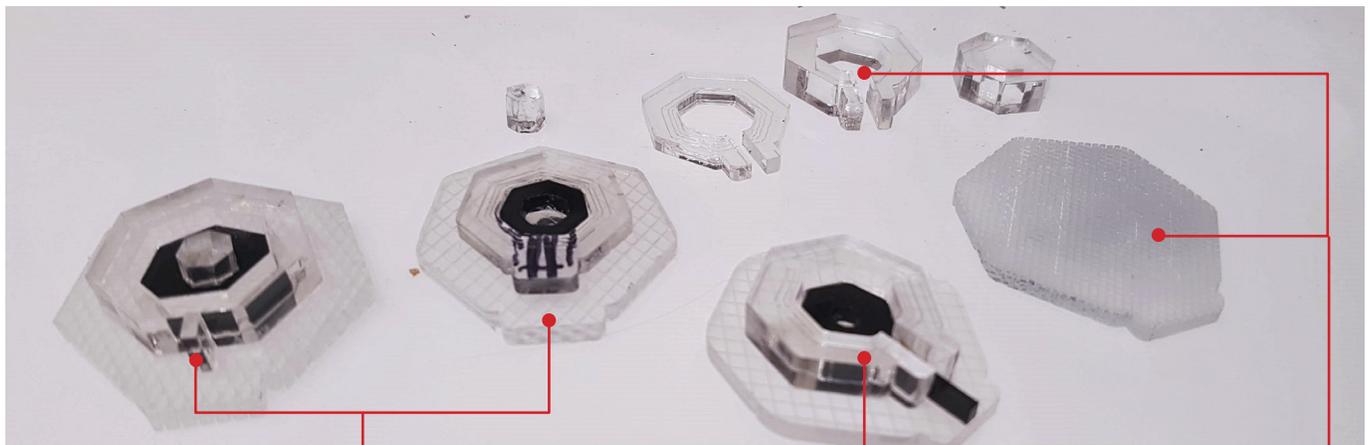


FIGURE 8
MEDICAL PROP

Various Prototypes

Final Prop

Various laser test

About three and a half months into my time with the company, I was given a more complex prop that involved mechanical aspects. This prop, in particular, was one of the most educational experiences in my internship. I was required to create a magazine for an airsoft gun with an internal retractable blade that could be deployed inside or outside the gun. Specific design challenges presented themselves throughout this process, including trying to devise a way to have a button that could be pressed without it extending beyond the edge of the magazine. The images in figure 9 helps illustrate this. The magazine also taught me about designing for parts with tight tolerances and how various 3D printing methods will affect tolerances. In this case, all prototyping was done by using an FDM printer, and when it came time to print the final version using SLS, the part was too large for the magazine well. Although my knowledge of the various 3d printing methods that I had gained from school did help, it was interesting to see the various properties and how the files needed to be adjusted for the different 3-d printing methods in real life.

Some of the more mundane tasks that were in my realm of responsibility throughout my eight months included jobs like finishing 3D prints to a level of professionalism that was considered camera ready as well as cleaning the 3D printers and troubleshooting or fixing the Prusa FDM printer whenever problems arose. Another machine I ended up working with a lot was the laser cutter. My roles involved setting up files for a

FIGURE 9



FIGURE 9
MAGAZINE PROTOTYPES

Preliminary mock up
made from scrap

FDM printed
prototypes

Final SLS Model
deployed



FIGURE 10
LASER CUT LED SIGN



FIGURE 11
STAR TREK ANGEL SUIT DETAIL

range of jobs that ranged anywhere from simple cuts to jobs that required a lot of fine-tuning of the cutting power and speed. (Figure 10 and 11) Just as frequently I found myself casting one-part or two-part molds, there were days where I would spend the majority of my time cycling through molds, pulling cured parts as I waited for other molds to cure. (Figure 12) Sometimes I would make scaled prototypes for larger props. Lastly, it was important for the shop to be kept organized and cleaned; it was my responsibility to see if any area of the shop could use some reorganizing and/ or cleaning. This was a particularly important job seeing as the shop had just expanded, and due to the high-speed nature of the shop, no one was able to dedicate time to complete this task. The messy shop was proving to be detrimental, because employers would waste time looking for particular tools.

FIGURE 12
CASTED KNIFE PROPS



RELATIONSHIP BETWEEN EDUCATION AND PROFESSIONAL PRACTICE

During this experience, I found myself pulling from the knowledge I had gained throughout my last three years in the Carleton Industrial Design program. Certain classes had explicit benefits, whereas others provided me with tools for successes that were not immediately obvious to me.

STUDIO

This was the class that most obviously provided me with the tools I needed to succeed for this internship, given that the majority of the days involved building and prototyping or finishing projects. Skills such as finishing 3D prints, machining, and, most importantly, prototyping was critical to my success at this job. Studio projects provided me with the opportunity to learn how to prototype, machine, and create models — Having a class where it is required to develop models provided me with experience that can only be achieved through a hands-on approach.

MASS PRODUCTION

Another course that was directly relatable was Mass Production. This course provided me the knowledge and experience with various materials and the different manufacturing methods. It was essential to know the various material types and their properties in order to choose a material and production method that would help me efficiently create what I needed to make. For example, if I needed to laser cut a component of a prop that would need to be attached to another element by fasteners, I knew that acrylic was most likely not the best choice. Teaching me about the various manufacturing methods and the things to look out for, such as warping and how to avoid it was particularly helpful when I created parts that were SLS printed or machined molds (figure 13). Due to the structure of this class and the projects, it (along with studio) allowed me to get hands-on experience that kept on proving to be so valuable.

ADVANCED COMPUTERS

Without a doubt, my ability to create CAD models was important. More so was the ability to constrain and dimension my sketches in a proper manner that would allow them to be adjusted later without the need to remodel the whole part. Due to the turnover speed and the ever-changing artistic direction of the prop master and director, models often needed to be altered after they are completed. Proper 3D modeling techniques allowed the majority of these adjustments to be changed in an effective, time-efficient manner (Figure 14).

SENSORY ASPECTS OF DESIGN

Some courses that helped me in a manner that was not initially apparent to me included Sensory aspects of Design. This course helped me with learning how important the various senses (although in this case often limited to sound and sight) would be in communicating an idea (or in this case prop) to the audience. The film industry uses a lot of tricks to create a convincing narrative, and because of budgetary or time reasons, sounds are often used to make certain materials sound like others. This exemplifies the teaching from this course nicely. For example, in order for metallic painted plastic props to appear to be metal, they add convincing sounds like the sound of metal on metal to convince the audience that what they are looking at is metal.

CONTEXTUAL NATURE OF PRODUCTS

Contextual Nature of Products was helpful due to its vast historical content aiding me in understanding what design was like in various eras. This was vital when creating props that were to be used in a timepiece. In order for a story to be told convincingly, all parts of the set must accurately convey a period piece (Figure 15).

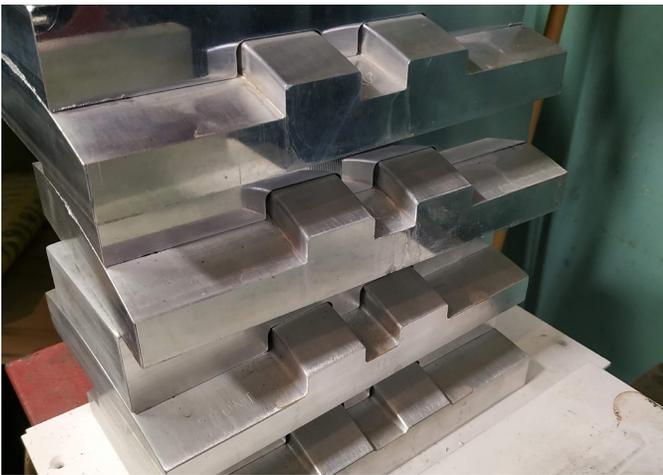


FIGURE 13
CNC LEATHER MOLDS

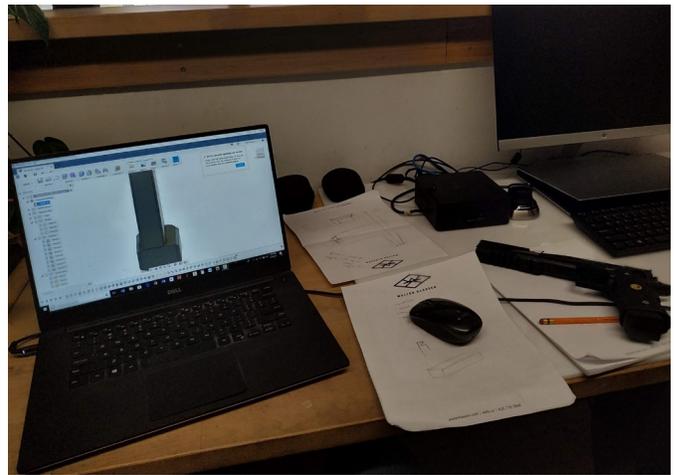


FIGURE 14
CAD WORK

OTHER RELEVANT MATERIAL

IMPORTANT INFORMATION

Working in this kind of environment is much different than working in a design consultancy or a corporate environment. It's important to understand that before taking a job at a place like this, structure and direction are not traits one should expect. Due to the nature of the job and the quick-paced environment, it's not uncommon to have props that are brought in the morning and need to be out the door by 5 o'clock that same day. The interns must be able to take the initiative and fill any holes that may present itself during the day. Whether that be cleaning the table that's become an accumulation of everyone's ongoing projects and cleaning or actually building a prop. Working without direct instruction will become paramount to their success. Due to the fact that individual members of the team do most of the props, there is a lot of pride that goes into each project and subsequently means that each member of the team has their own relationship with the Prop Masters. Maintaining that relationship is critical to the success of the company. The Walter Klassen FX team would like Prop Masters to feel as if they could come to the shop with any of their needs and not have to worry about quality or any issues arising when on set. If one prop does not work or fails to meet the Prop Master's expectation, it could mean that the shop loses all jobs for that entire movie or season. It's important to note that when deciding whether or not to take a job, the shop will consider aspects such as length of creating the prop, if they have to experiment with new processes, and how likely they are to profit. If they feel they will not be able to give the Prop Master a prop that they will be satisfied with, in a cost-effective manner, they will often turn down the project.

WHAT COULD HAVE HELPED?

Certain things would have benefited me before embarking on this internship. Some of which included hard skills, notably machining. I had spent some time in the shops on my own personal projects and school projects, so I did have very rudimentary machining skills. However, when I found myself working in the school shops, the machine set up, choice of bits, feed rates, and speeds were often taken care of by the shop techs, meaning I, honestly, had very little knowledge on how to properly machine. This would often leave me in a situation where I could spend upwards of an hour waiting to use a machine because I needed a member of the machine shop to check my set up. It proved to be particularly frustrating when the machining jobs were small tasks, like taking a tenth of an inch off a part.

Moreover, I felt that I lack some confidence with the teaching that we're assigned in the Mass Production class. A lot of the job required me to be able to recall and apply my knowledge of various plastics and metals, which were briefly covered in this class. It was nowhere near to the extent of information that was required of me to know on the job. I do think it would be beneficial to extend the teaching of this class over a whole semester seeing as this information proved to be the most vital for me, and I can comfortably assume it was for many other students as well.

It would have been extremely beneficial to have been required to create more looks-like models throughout my time at Carleton. Doing looks-like models really gives you the experience that teaching can't bring in terms of making beautifully finished models. It gives you firsthand experience learning how various materials finish and behave in different environments, all of which are critical to this kind of work. Moreover, model making requires you to deal with stock material. Designing with the stock material in mind can be extremely beneficial when trying to cut costs and reduce lead times. I found that this subject was not touched upon much in the curriculum and is crucial to most designers.

Finally, in terms of hard skills, the last thing that I felt that I lacked was knowing how to make proper technical drawings. Perhaps incorporating detailed tech-drawing lectures in second and third year studio would be helpful to younger years. In my case, in particular, I'm referring to tech drawings for machining as I often would have to design a part and then later machine it by hand myself.

DISCUSSION

PREPARED FOR

If you're interested in working at a place similar to Walter Klassen FX, you need to be prepared for a very fast-paced workplace. Your ability to adapt and think on your feet will be critical to your success at a place like this. Due to the nature of the work, once you are more accustomed to the shop, you will be required to be aware of the budgets and how much time you're spending on each project. While your ability to follow directions is important, you must be able to take the initiative and be able to find what needs to be done and take care of it. That being said, the team at Walter Klassen FX is fantastic and will go out of their way to help you succeed in all avenues of the job, just don't be afraid to ask questions. Every day at the job, you're going to be dealing with crazy new props and concepts, you will be working with stuff like animatronic deer to Star Trek weapons. Expect a creative environment with a crew that seems to never grow up.



FIGURE 15
VINTAGE POLICE BADGES

ADVICE

If anyone looking to pursue a job or internship in this field, below I've listed some of my advice. Make cosplay or replicas. My boss would often tell me stories of people who would come in for job interviews, and after asking them if they were passionate about this field would flip through their portfolios only to see them filled with furniture or car sketches. He repeatably told me that he wanted to see people who were making props in their spare time. He wanted to see that the passion for this line of work was there. It's particularly important to have a real passion in this field because when shoot dates are coming up, it's easy to spend 10+ hours a day at the shop.

Take toys apart. This was advice that my boss gave me when trying to build the magazine with a blade in it. Toys are a great tool. Look at them and figure out how they work. They often make mechanisms work without the need for tight tolerances. That leads me to my second point; if possible, avoid tight tolerances. Tight tolerance requires a level of precision that cannot be achieved with the time frame that the props are produced. Avoiding tight tolerances saves you an enormous amount of time and money.

Machining. Learn how to set up and use the machines confidently. This will save you lots of time and enable you to make props and experiment entirely independently. It will also free up time for the rest of the Machine team, so they don't need to spend time supervising you. Furthermore, learn about different screw types. Walter Klassen FX used the imperial system for everything. Know the various screw and thread types in addition to knowing how to tap various materials.

Lastly, have confidence. My boss also gave me this advice and illustrated it well with a story: If someone is going to give a prospective firm 50,000 dollars to build something, they won't give it to the firm that sounds unsure about their ability. People respond to confidence. This is true in every aspect of life, and any potential internship.

HOW TO OPTIMIZE YOUR EXPERIENCE

Take advantage of the shop's resources. After work hours, they encourage you to spend time working on your own projects and learning various skills. Take the time to become a well-rounded designer. Shadow the employees and take notes. This place is flowing with useful information as long as you take time to explore and learn. Don't be afraid to ask questions, the whole team is happy to share tips and tricks when they have a moment.

WHO I AM NOW?

After my time at Walter Klassen FX and the various experiences I went through helped me grow as a designer. I feel that I am now much more equipped to design products with a better understanding of production and finishing methods along with a much more developed ability to understand how certain design decisions will affect cost and lead times. This experience has given me valuable insight into the whole design process and interestingly enough, a new appreciation for branding and the visual language. I find the ability for a product to be able to communicate its function within seconds of looking at it incredibly fascinating, and it's all thanks to my time trying to create a strong visual image for the smaller props. These props needed to have quite a strong ability to communicate their function, seeing as they were often shown on screen for a matter of seconds. Equally as important is the new found skills that I learned that better prepare me for dealing with clients. I was able to learn a lot about how to pick jobs and work with clients so that both the client and the designer walk away content. My time at Walter Klassen FX helped me take my academic learning and apply it in real life, and in doing so, took my education to the next level.