Want to be an Architect, Designer or Engineer

Everything created has a beginning and for each creator, there is a time when skills have to be honed and ideas like seeds need cultivating. This is not our first book, nor will it be our last. However, these series of papers will contain important thoughts that will help future architects, designers, and engineers to complete their projects.

Why should anyone listen to anyone else? They should not. Why should they listen to us? Maybe they should not. However, some individuals have trained many successful architectural designers, programmers and engineers, and during a long career, we have seen what works and what does not. In the pages of this manuscript, we are laying concepts like bread crumbs on the trail of what should be a challenging career. Over the years, we have learned to be bluntly honest so that while we struggle to hatch out another product, we can look one another in the eye knowing we never took advantage of another's time and ability.

Design is Hard

Here is lesson one. Design is hard. We can spend a lifetime in pursuit of an idea only to discover that it is now dated, not useful or that the world does not have the current technology to make our dreams a reality. If we are lucky enough to have successes, then in many instances, our family and friends do not get to share those accomplishments because we are at the factory, office or lab working long hours to get to another level. In other instances, we are short money and material or we have supervisors that do not share our convictions. For whatever the project or contraption we are dreaming of, there are hundreds and thousands of reasons not to accomplish the feat. Just ask anyone around us and he or she will probably say that it cannot or should not be done.

Requires Soft and Hard Skills

With design, we have to have skills, both soft and hard. We need to be able to conceptualize, contrive, persuade, and evaluate. We need to know Computer Aided Design, mathematics, physics, and chemistry. We have to be able to mold, cast, machine, and finish. We even have to acquire knowledge on shipping and receiving. We have to communicate with individual specialist, computer programmers, groups of front line workers, people in accounting departments, concerned customers and managers. At the beginning of the project, those around us will listen to ideas and fantasize of reaching the moon and when reality steps in, fear of the unknown can eat away their confidence. In every instance, from the beginning to the end, our leadership during the entire project timeline will make the difference whether we are efficacious or the notion will be terminated.

So why would we do what we do? We have to ask ourselves what we would give up to achieve the pinnacle of success in design. Even now, we can transport ourselves to the end of our career and we can see our self walking through a local campus showing our escorted guest all of our accomplishments that we built or remodeled. We can describe to this person the benchmarks of personal design from past to present-day. While we reminisce, we can see all of the people who are today moving in and out of the doorways we contemplated years before. We see visitors standing for pictures in front of an ornamental passage that was a weekend's work. Small children in front of us today have turned a short wall sketched years ago into a playground, because the surfaces on the edifice are curved and smooth to please the eye. Yet, we did not know then that this would be a place for people to rest and enjoy. We will never have to tell most who pass by our story, but we can just realize that we have brought some order and aesthetics into our world.

Great career stories

So we can give ourselves a thousand reasons not to try to change our environment and to just cope with our surroundings and only use what is provided by other generations and from the Earth. Or we can begin today to change. Change begins in our skills, our bearing, and our attitude. Yes, one minute ago, we did not know what we were going to achieve in our lives, but now we have decided to design and build. As mentioned before, the seed is planted and we need to practice our self-cultivation daily. That means when we are queried about our future, we say that we will be builders, constructors and inventors. When pursued for a more definite answer, we add sketches, a model or use our hands to allow others to visualize our ideas. We tell people our concepts, fess up with what we do not understand but also excitedly explain that we will be learning something today to increase our comprehension of the world and how to manipulate it. People will call us nerds and geeks and we still continue to pursue dreams. We learn to use tools and technology. We build diminutive at first and then a little bigger and on and on. Throughout a career, attitude is paramount; ideas are the start of each project and a collective skillset involving groups allow for reaching higher in our design attempts.

We need to practice our self-cultivation daily

Within the universe and in nature, we can see examples of creative design. A jet looks very much like a bird. The intelligence of the bird is up front just as the crew that flies the Boeing 777. The bird's wings span from the body looks just as those on the plane's aluminum frame. Both bird and machine also have tails and landing gear. We can study our universe, nature and the work of previous and current artist, crafts people, and engineers to see how everything works. We can replicate the designs of

Within the universe and in nature, we can see examples of creative design

Africans, Asians, Europeans and the rest to understand their challenges with materials, obstacles and time. The greatest of our engineers have realized the solution to many of our problems is right in front of us. We just have to do the math, make the model, turn over the stone, or page, or just think through the experiment. We have never met anyone who knew or had the ability to build everything, so each day in our career we can strive to break new ground in our profession.

What type of engineer do you want to be?

Many years ago, a designer was asked "What type of engineer do you want to be" by a very reputable and very senior department manager. The response was "a mechanical engineer". The wise mentor immediately responded that we should be every type of engineer. If we want to be involved in car manufacturing, we would specialize in mechanical design. Yet, cars have to fit in architectural structures and they will typically ride on concrete roads. They burn liquid fuel and cruise aerodynamically through the air. Therefore, we can specialize in one discipline, but we need to know much of each design field. That is what he said and after working many years, we recognize our advisor was right on target and that all mechanical parts are pieces of the whole assembly whether inside the motor or riding on the ground. Designers typically attain a single specialty title, but they earn many others through certifications and on the job training. We should always keep our ears and our mind open to new input and ask questions to gain understanding.

Training is the key to many of our challenges

Training is the key to many of our challenges. When we observe a company that always uses concrete to solve a problem it pretty much says everything. They probably do not have any other ideas or they do not know how to use other materials. An organization is just a group of people with technical skills and they can accomplish some of them with great finesse. Various jobs are done with average ability and other tasks they pursue need work. Cities and municipalities are the same. Many times, we are trapped in our traditions and we will go to our ruin following the old ways. In every field, creators and inventors have had to fight to bring their technology to the forefront. In our era, the inventors of the light bulb, the computer and those who want to replace the fossil fuel burning automobile engine have to fight those defending predecessor technologies. Most of the time, it is people in a community trying to save an outdated system so they can control the flow of money and wealth. To keep from becoming antiquated, we must continually train ourselves, our team, and those in our surrounding area to bring ideas into fruition. Having just one person knowing something does not solve problems, so we must know how to teach.

Sometime in your career, we may have to say no to a request to substituting a material for a lesser one that cannot operate under the same stresses. The new material will probably cost less and we will make a larger profit on each sale, so we will receive pressure from managers, purchasing agents and suppliers to make the alteration. We can only say that the problem is an ethical one and we need to make the decision based on worker and customer safety first and profits second. The public and maybe even the courts will scrutinize our decision for years, especially if we make the wrong one. We could lose the entire business or a major portion of it if we have to make a large settlement in the court system. Short-term money may seem important to those around us who will benefit from the cost cutting, but do not alter a design without testing.

Make ethical decisions

Money is rarely a problem for the individuals who chose architectural or engineering career paths. Professionals in the design fields typically make above the average median salary in most communities. In addition, as long as we retain our competency and work well with others, we can expect a long career. We will see a percentage of designers that will stay strongly in their discipline during their years of service. Where a percentage of us will work in our degree path, a portion will go into management and another segment will learn to sell or maintain products. There will be several out of 100, who will even start their own business. As those who work in the design field, we can expect to join professional societies and participate in training the next generation of workers who will replace us.

Make above the average median salary

Throughout our lives, we will participate in regular production of new structures or assemblies used in our towns, but we will also be close to research and development that is helping to solve critical challenges in our lives. In our age, people spend money for fuel, food, housing and environmental concerns. We can be asked by our own companies or government to contribute to find cheaper fuel, safer food distribution, housing for more people, and ways to protect our water, land and air. For these efforts, we could receive payment or maybe we will give of our personal time and expertise to create a better world.

Research and development that is helping to solve critical challenges in our lives

So we want to be an architect, designer or engineer. We want to leave a positive mark on the planet. We want to be recognized as a contributing member of society. We want to have fun

and pursue ideas. We want a profession that requires thinking and communication where we can use a computer but a machine will not replace us. We want to have a great career, so then choose a path that incorporates creativity and design.

By Charles Robbins, Designer