

Honolulu, Hawaii

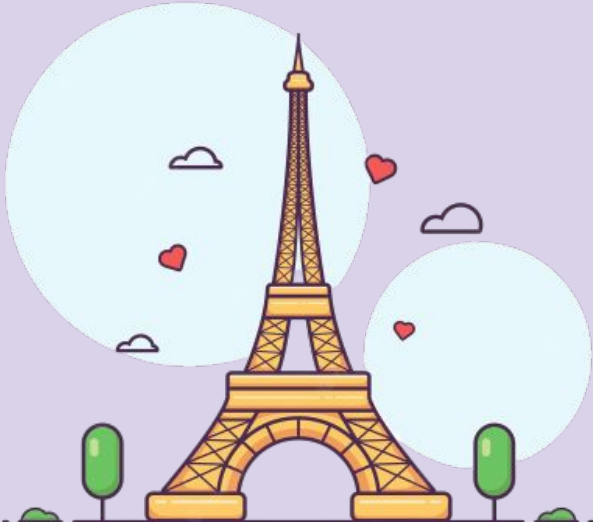
Architecture 101

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By: Zoe, Kaiya, Tala, and
Emerson

10142A

Manoa Green Tigers



Don't you find structures like the Golden Gate Bridge and Eiffel Tower fascinating? What about the interior of some hotels? Who could be the amazing people who created them? Did you say architects? If you did, your right! Architects design many amazing buildings and structures using the engineering design process just like us, team 10142A! This entry to the career readiness online challenge talks about architects and how Vex IQ is related to their work. Without any further ado, let's get started!

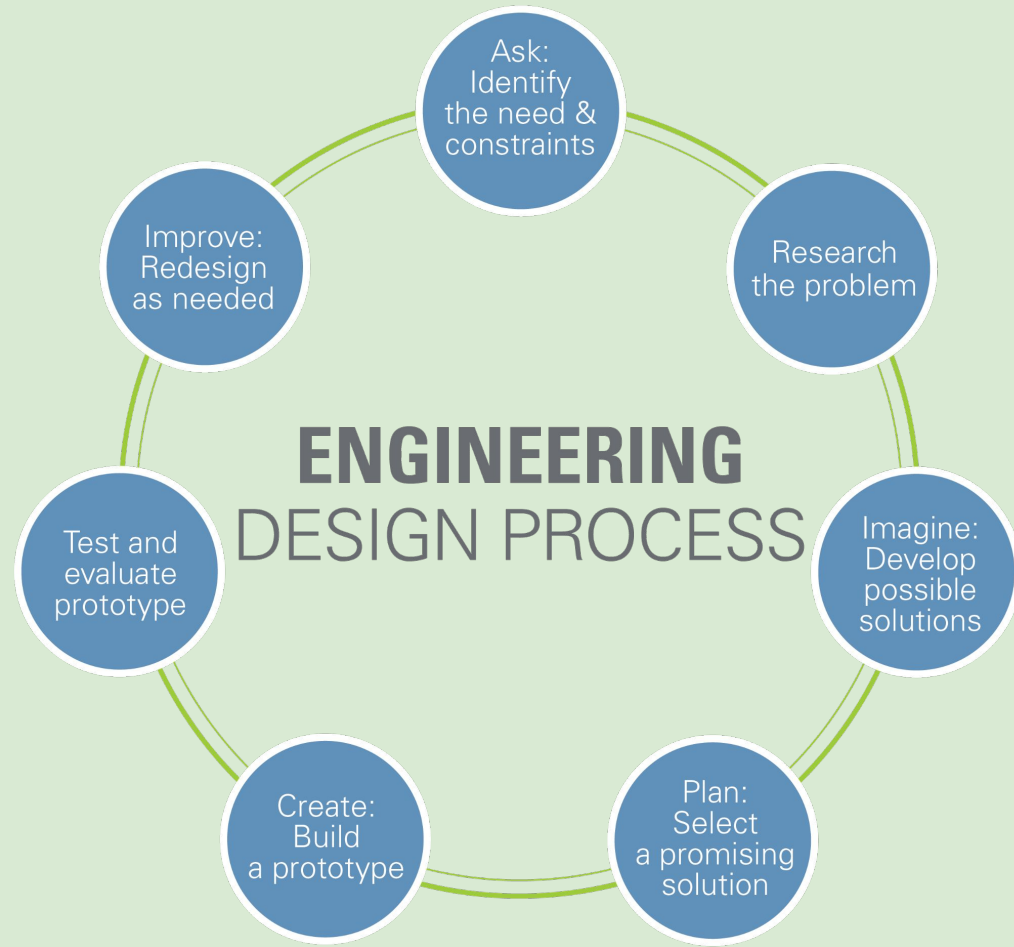
Architects, just like us, use the engineering design process! However, the process they do may differ in small ways... The way architects use the engineering design process (EDP) is basically the same but it is sometimes called other names (engineering process, design process, and etc.) However, some ways both EDPs differ is that the different steps have different names. As an architect, you are finished with a design, as long as it satisfies the clients and is efficient and satisfies the client by meeting all the criteria. Architect's EDP's work like this: First, define if a customer has any problems or would like a design to meet certain criteria, then start analyzing and collecting more data, this is called the feasibility phase, The next thing to do is draw sketches. After deciding on the mass of the building, start building models and adding more details on softwares such as Revit. After testing, if it meets the criteria, finally make a blueprint to start construction on the building. However, our EDP's work like this: 1. Identify the problem, 2: Explore solutions 3: Design, 4: Create, 5: Test, 6: Do it again. The 2 different processes are different in wording but are still similar if you compare them and look closely at all the steps.

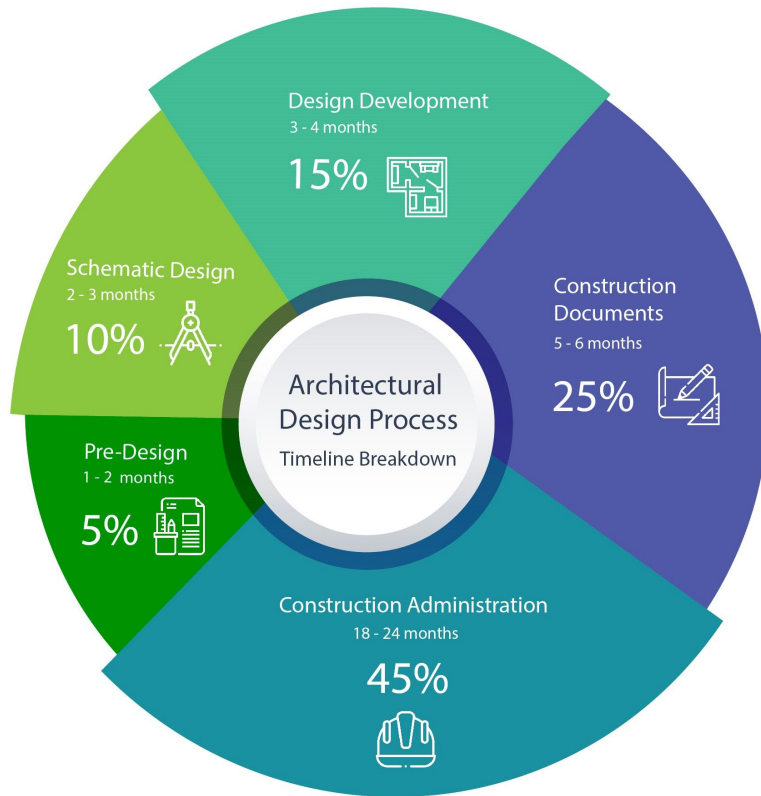
Reference for Architects EDP: Tala's Mom, Lama Younes

Robotics

Engineering Design Process picture
found at:

<https://www.teachengineering.org/popular-topics/designprocess>





Architect EDP picture found
at: <https://bcarchitects.com/the-project-design-process-step-by-step/>

We chose the architect because we have 3 people on our team with connections to architects. Another reason we chose the architect is because we have multiple architects for feedback. We could find what a general architect does and see if that job was what we needed. After we did the interviews all of them matched and we decided on the architect for our job.



Pedro Baries



St. Louis Gym

Image from: Kendall Ellingwood: Architect

Different architects apply different steps of the. Architects help to design buildings, like how we design ideas for our robot. Depending on what architect you are, you might use different steps for your job. Like how a Residential Architect builds houses, or a Commercial Architect who makes commercial building designs. In robotics, we use the EDP to solve a problem with our robot, driving strategies, or robot programming. In robotics everybody does every step of the EDP. Even though this is a big difference these professionals all use at least one of these steps in their job and company whether it is designing a house or building a commercial property.

We learned and got our information about architects by interviewing several local professionals. The way they use the engineering design process is by asking the customers problems like if they wanted a renovation of a room, a new house, a hotel, etc. Then, they explore by asking the customer what design they want, for example if they would like a cozy theme, or a lively theme, basically what kind of style they'd like and then they look at different ways to replicate the theme. After exploring the design they draw the object and then show it to the customer. If the customer likes it then they start the next step. The next step is to create. They take the design and start building it. When they are done they test it out and if it works they give it to the customer.

Pic of another architects
building



Participation in VEX Robotics has prepared us for a future career. STEM related or not, VEX has taught us that to be successful you first might fail but you can't give up after one try. Besides trial and error, we also learned teamwork and *an understanding of the Engineering Design Process (EDP) is key.* Writing down/documenting the work you and your team do is also important so you know the work that has been completed, and the work that is not completed. You might be wondering, "How is this going to help me?" Well, that's a good question.

VEX Robotics teaches us all of this: whether you're at competition, practice, or completing an online challenge, VEX gives you something to learn! Trial and error, patience is key to get the best option. Trial and error is shown in robotics many times like building your robot and your driver strategies. Teamwork has many positive results on your team and yourself as a person, but you will most likely get into several arguments. We do this in robotics by working in a team to make a robot that can be driven in Teamwork Challenges, driven alone, and programmed autonomously. The EDP (Engineering Design Process) is used every day to solve problems. Robotics uses the EDP to create a documenting process and so students can learn how to solve a problem using it! Documentation, a way to write down what you've done. In robotics, we do basically the exact same thing, but we also add important decisions the team has made and how to play the game (Game Outline).

By: Zoe, Tala, Kaiya, and Emerson

Architects: (Tala's mom) Lama Younes, (Kaiya's uncle) Pedro Baries, (and Zoe's basketball coaches) Kendall Ellingwood, Yoon Hwang, and Romeo Gampong

All images of real life buildings (not clip art) are first hand from our information sources.

Others may be taken from the internet, our sources will be put below

- ❖ Engineering Design Process pic found at: <https://www.teachengineering.org/populartopics/designprocess>

Architect EDP picture found at: <https://bcarchitects.com/the-project-design-process-step-by-step/>

Thank
You!

