



Aircraft Designer



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I am a conceptual airplane designer. What this means is that I, and other members of my branch, design airplanes at a very basic level. We don't get into the nuts and bolts details that are necessary when someone actually sits down to build an airplane. Instead, we use previous designs, advanced analysis tools, and engineering judgment to estimate what we think a particular design is capable of doing. In a way, it is like trying to tell the future. We start with a set of requirements to get a basic idea of what the airplane should look like. We think about how big the wings are, whether the wings are swept, what kind of engine to use and other pretty basic questions. Our job is to take a look at all of the requirements and constraints and see if we can fit in technologies that make sense, considering things like cost limitations. In the end, we come up with the basic configuration of an airplane.

My areas of expertise

- Conceptual Airplane Design
- Analysis tools
- Personal Air Vehicles

How I first became interested in this profession

I was kind of a nerd when I was a kid. I used to ride my bike over to the library an awful lot. I read just about every book they had on airplanes and boats and models. I have actually built many airplane and boat models. I also enjoy flying model gliders. I've flown real airplanes, too, but I haven't finished getting my license. While there weren't any adults who nurtured my interest in airplanes, I have had good science and math teachers who made a difference. They helped me learn the things I needed to. While I don't find math and science really interesting by themselves, they allow me to pursue the work that I do find interesting. It's kind of like getting excited about a wrench. You don't get excited about the wrench itself, but when you can take the bolt off and fix your bike, then you're happy. You need to have the tools to be able to do the job.

What helped prepare me for this job

I grew up in Buffalo, New York. I have had a basic interest in airplane, car, and boat design since I was small. Besides having the basic interest, I needed a good foundation in science or math and English. I tried very hard in school because I knew it would give me the best chance of achieving my dream of designing airplanes. I did pretty well, and I went off to college, not knowing how difficult it would be.

My education and training

- Degree in Aerospace Engineering from Embry-Riddle Aeronautical University, Daytona Beach, FL
- Masters Degree in Aerospace Engineering from Stanford University

My career path

- Getting the job at NASA was really an accident. I wasn't looking for a job at the time, but my roommate had a job, and he asked if I could come with him. NASA said yes, and two days later we left Florida to take co-op positions at the Ames Research Center in Northern California.
- I finally got my Masters degree in aerospace engineering and am applying all of my education on a daily basis. Learning more has allowed me to do more.

What I like about my job

Job satisfaction is one of the things that keep me getting up in the morning. It's very important to enjoy what you do. My job requires creativity, enthusiasm, curiosity, and interpersonal skills as well as the more obvious technical skills. I like the people I work with and have a lot of freedom to choose the projects I work on. I especially like to learn, and working at NASA provides both the opportunity and the means to learn many things. It's exciting because I get to work on a lot of very different airplanes. I also really enjoy taking time out to talk to and mentor young people because they are so refreshing and excited about my work. They are our future and remind me of why I started doing this in the first place.

What I don't like about my job

There are always parts of your job you don't like. Sometimes you're forced to work hard on certain details that are not particularly interesting, but you need to work on them in order to be able to prove that you are right. Sometimes there is time pressure because you owe somebody some analysis and the deadline is getting close. Of course, there's always administrative problems that seem to take too much time to work out.

My advice to anyone interested in this occupation

Follow your heart. It doesn't matter if it's airplane design or anything else. You will spend a lot of your life working so it is really important that your job be a rewarding part of your life. Sometimes this will require sacrifice. Sometimes you will not get what you want, but you have to try. If you try for something, you might achieve it. If you don't, then it is guaranteed that you won't achieve it and you will always wonder if you could have.