



Mike Merrill:

Hello, and welcome to the Mobile Workforce Podcast. I'm your host, Mike Merrill. And today we are sitting down with Keyona Wells, a virtual design and construction technology professional. And if that isn't cool enough, Keyona is also a freelance drone pilot. So really excited to have Keyona on and talk about her wealth of knowledge in all aspects of virtual design. And although we could spend a whole day exploring the world of drone technology, we'll focus in on a few things that hopefully the listeners will find helpful.

Keyona's going to share with us what it takes to start and train as a pilot for drones, and also what using a drone looks like on the job site. We'll also be talking about her experience in construction and also talk about how she feels the industry is evolving. So hello, Keyona, and thank you for joining us on the podcast today.

Keyona Wells:

Thanks, Mike. Happy to be here.

Mike Merrill:

Awesome. Well, I guess first of all, I have a lot of questions, but to start out, what made you want to be a drone pilot?

Keyona Wells:

Oh gosh. Well, I picked up my first drone on a construction site actually about a little bit over a year ago. So that was my first introduction to actually flying unmanned aircraft. But if we go back a little bit further, I actually worked on underwater submersibles in high school. I almost forgot about that, but yeah. Yeah. So it was part of a robotics competition where we built it, designed it, and then we spent so much time building and designing it that we didn't really get to test it out very well. But it looked really cool, and it did function a little bit.

Mike Merrill:

Right. Awesome. Well, that's cool. Well, obviously, there's that kid in all of us that wants to be a drone pilot. Everybody sees a drone... I, every time I see a drone, I'm like, "Oh, I want to do that." Right? Everybody seems to want to do that. But on a more serious note, if somebody's really going to put that on a resume, if they want to truly work in a field that they can use that skill, what kind of background or what can they do to try and launch into something successful with that?

Keyona Wells:

Yeah. Well, a drone specifically, there's a certification process here in the U.S., it's called the FAA, Part 107 exam. That exam basically gives you a license to fly in commercial uses in the United States. And so that would be the first step in order to fly a drone, on a job site or any type of commercial usage.

Mike Merrill:

Okay. Is it like an online class or course? Or how do they go about taking that?

Keyona Wells:

So the course is offered in person, and there's no mandatory courses that you have to take in order to pass the exam. But there are institutions out there that do offer training to get you up to speed on all the regulations and things you need to know in order to pass that exam. And I would definitely recommend going that route. You can study on your own. It's just a little bit more cumbersome, because you're filtering through a lot of resources, a lot of YouTube videos and helpful things like that on the internet. But yeah, I actually had the privilege of taking the class through an online institution and was able to really study for it that way. And then did some self learning on my own and then able to pass the exam. I think I got a 93 or something on it.

Mike Merrill:

Wow. Nice. Cool. Well, is it expensive to get that certification or take the exam?

Keyona Wells:

The certification? No. I've seen it from \$130 to \$160. It depends on the location and where you take it. So I'm in Raleigh and I took mine at an institution at the airport, so RDU International.

Mike Merrill:

Okay. And Raleigh-Durham, North Carolina, right? Is that right?

Keyona Wells:

Yep.

Mike Merrill:

Okay. Cool. Well, so with that process, obviously online, you're not going to learn how to fly a drone or you're not going to have hands-on experience. So what does it look like to go from liking the idea of certification to getting certified, to actually being able to successfully fly a drone without crashing it?

Keyona Wells:

Yeah. I definitely recommend getting some professional training, obviously not everyone does, because all that is required in the U.S. is have that Part 107 license to fly commercially. There are a lot of pilots that out there who fly recreationally. You don't need a license or anything for that. And they basically just figure it out trial and error, but where possible I would definitely suggest going to get a training or some type of hands-on flight operations course. There's just so much knowledge you don't even realize, even if you're already a pilot with some years experience, there's always something you can learn from someone who does it professionally. Right?

Mike Merrill:

Yeah. Got it. So would a class like that be taken on a football field or a city park? Or where did you learn?

Keyona Wells:

Oh, so I recently just took a class at the local community college here. I just happened to be on LinkedIn, I think. And I saw that they were offering partnering with a local drone technology firm here, and went ahead and registered for the course. And it was a great experience. That particular course was two days, 8:00 to 5:00. I think that's the most that I've flown in one particular span of time. First it was about four hours of in-classroom instruction where you're learning the drone anatomy. It's all hardware, the software and just getting that textbook, obstacle-avoidance type class or tech knowledge. And then we went into the field and flew around for about four hours, just switching out batteries.

Mike Merrill:

I was just going to say, "That's a lot of batteries."

Keyona Wells:

Yeah, yeah. A couple batteries and parts.

Mike Merrill:

That's really fun. No pun intended, but a crash course like that would be probably super helpful. Right?

Keyona Wells:

Right. Hopefully, no crashes.

Mike Merrill:

So is that how you first learned or did you already know your way around before that or tell us about that?

Keyona Wells:

So before that, I actually already knew my way around. So really just going out into an empty field and practicing the controls. Depending on the type of drone you have, you can actually do a simulator on the computer or on the controller without taking the drone off into the sky. So I just did a little bit of those and felt my way around the controls, like a video game.

Mike Merrill:

Yeah, sure. So if you were to start all over again from scratch now knowing what you know, is there something you would do different?

Keyona Wells:

I'd probably get the hands-on instruction sooner. I think it'd just cut out a lot of guesswork and figuring stuff out on my own and just that intensive to... With that particular course, they offered the drones for you. So they had an extensive amount of batteries. So you could just keep playing around and really build that thumb dexterity to fly.

Mike Merrill:

Interesting. So your fingers are awkward positions, is it... Do your hands get tired from flying the drone?

Keyona Wells:

They can cramp up a little bit depending on what you're doing. If you're really trying to orbit around a particular target or anything like that, it really requires good thumb dexterity and holding that position perfectly, not hand tremors or anything like that will throw you off. So takes a lot of concentration.

Mike Merrill:

So how long have you been flying drones for at this point?

Keyona Wells:

This point I'd say about a year and a half. Yeah.

Mike Merrill:

Cool. So you're an expert.

Keyona Wells:

Well I wouldn't go that far, I still have a lot to learn.

Mike Merrill:

Yeah. Well, cool. So thinking about that again, really... In fact, I'm at an event right now out here in the Dallas-

Fort Worth area, and they took a drone picture of everybody out on the Dallas Cowboys practice football field at this event. And this drone was circling, and it was interesting, because I knew that we had this podcast recording and all these people are talking about, "Oh, cool. I want to get a drone," and then some people were, "Oh, we have a drone, but we don't use it." And it was just interesting, all of the different buzz around the idea of drones. So I think it's fantastic that you've actually dug in and learned how to do this. And I've got to imagine when you're a little girl you didn't always want grow up and be a drone pilot. Is that right?

Keyona Wells:

No, I can't say I did. I wanted to be an astronaut so that maybe that's close a little bit.

Mike Merrill:

Okay. Yeah. You're getting there, step baby steps, right?

Keyona Wells:

Right.

Mike Merrill:

So what is it? Is there something about your personality or about people that seem to have a knack for this you think? Are there traits that seem to be common among people that gravitate towards this or that are good at it that you've noticed?

Keyona Wells:

I think enthusiasm and passion for learning something new. You don't even really have to be gung ho about aviation or drones. But if you're just really excited and passionate about technology and how that can work for your business or your company or whatever it is you're doing, that seems to be the common denominator amongst many different backgrounds and people that I've met in the industry so far.

Mike Merrill:

Yeah. So are there... And I know this is a newer... I guess I think I'm assuming it's a newer industry, so to speak. Are there events or resources that are becoming more

common for people to continue to develop their skills in drone technology?

Keyona Wells:

Definitely. I'm actually on the leadership board of the local chapter of AUVSI, which is the Association for Unmanned Vehicle Systems International. And we offer a lot of information out there regarding safety, legislation and resources, just for learning how to fly and connecting with other pilots out there. In addition to that you also have local groups. Like I said, the drone community is growing. The industry is growing and just about in every major city area, there's at least a good handful of pilots and they probably have meet-ups regularly as well.

Mike Merrill:

Yeah. I love that. And I know obviously flying a drone in the park or out on a beach or somewhere for fun is a little different than on a job site. There's safety concerns and other things that you have to be aware of. It's a more professional environment or at least it certainly should be. What are some of the differences that you've had to either learn about or grow to understand so that you can operate safely on a construction site?

Keyona Wells:

Yeah. Well, safety is definitely the number one concern on a job site. And so flight over people, once you get the FAA license and everything, you understand that flying over people is not allowed. FAA regulations are changing that are allowing you to get waivers more readily in order to fly over people. But just because you can get the waiver doesn't mean you want to or have to. If you don't need to fly over people, then don't, right? So that's one of the number one concerns on a job site is because it's active. You've got people building things, so they're everywhere.

So a way to mitigate that is really flying on off-hours where possible. So whether it's super early in the morning or later in the day, once everybody's gone home. Possibly over the weekend, if they're doing a typical Monday through Friday schedule, even during lunch as well, while they're taking a break and there's less people on the job site. And for those cases where

you do have to fly where the construction site is active, you want to stay on the outside of the job site or around a perimeter. So you won't have to actually fly over people.

Mike Merrill:

Yeah. Well, that makes sense. So obviously, this process is still evolving. Probably the laws are changing. They're hopefully getting safer, and drones are coming out with better tools and things built within them, like you mentioned, the anti-collision stuff and other things that I think they seem to be safer than they were when I started seeing them pop up five or six years ago. Would you say that's the case?

Keyona Wells:

Definitely. Yeah. The drones that I fly now are all equipped with obstacle avoidance, which is great. You want to use that as a last resort though. You, as the pilot, want to be more aware of your surroundings, but in the event that you're too close to an obstacle, that is a fail-safe way, where it will stop and position with the drone. So there's definitely... The technology is really advanced now.

Mike Merrill:

Yeah. Cool. So what are some of the reasons that you're using drone footage today and that company or the companies that hire you are having you help them with your service?

Keyona Wells:

Yeah. So there are lots of different things that you can do with a drone. On a construction site, in particular, I would say the main thing that I do are progress photo and the videos. We'll use those for owner updates and internal updates. We'll also use them to track material, lay down yard usage, and just overall progress of the job site in the book condition. Other uses are 2D mapping. So we'll do what's called an orthomosaic map where the drone will fly an autonomous flat path and then collect the data and then stitch together the photos and sequence to create a 2D map, essentially. So you think like Google Earth or Google maps, Apple maps, similar to that, but just in a localized area to your job site. You can also use a drone to generate existing

topos as well. And so those are some of the uses that we use the drones for.

Mike Merrill:

Wow. It sounds like not only an efficiency tool, but also a marketing tool. Is your company using those? Are they using that for marketing quite a bit?

Keyona Wells:

Yeah. Yeah. Those drone videos, all that footage can be edited and videos that we do put out on LinkedIn, social media, that kind of thing. Owners really love the videos I've noticed, especially when you put a nice little soundtrack in the background, they really love them.

Mike Merrill:

Yeah. So how do you take these photos for progress? Is it just every so often, or do you have a schedule or is it random? Is there any format?

Keyona Wells:

It depends on the needs of the project. I've done some job sites where they wanted progress photos every week, usually on the same day, weather dependent. Some will want photos every month just to have that monthly aerial. And then some are every two months. But I would say the average is usually once a month.

Mike Merrill:

Yeah. Okay. Yeah. That's interest. Yeah. I imagine these projects that are multiple years, I think monthly is probably pretty good, I would imagine. And if they want something like time lapse, then that would be a mounted camera somewhere I would imagine. And a drone isn't really the right tool for that. Is that right?

Keyona Wells:

I would say so. Yeah. You would want to have a camera posted on the job site to do a time lapse, although you can create those with drones as well. There are a lot of autonomous softwares out there that allow you to take the pictures at the same location, same elevation, same angle every single month. If you were to do that

over the course of a year, say you can then put those photos together into a time lapse video.

Mike Merrill:

Wow. So it's using GPS technology to get the exact same angle as if the drone was mounted on a pole, so to speak.

Keyona Wells:

Yes. Yep.

Mike Merrill:

Wow. So what types of technology are you using for 3D modeling with drones?

Keyona Wells:

So we can use the drone... Again with some of those softwares like DroneDeploy or Propeller or Pix4D, you can do a 3D modeling mission. So the drone will fly in a defined path and essentially just capture 3D images. And once it's stitched together, there's a 3D model towards the end. And you can use that for... It's really good for visualization. I would say I've done it only a handful of times, more so for existing buildings, just to give the owner, the developer, a rough idea of a piece of property that they may be looking at.

Mike Merrill:

Okay. So that's used more for maybe a building that was built before BIM technology and those tools were available. Would that be right?

Keyona Wells:

Mm-hmm (affirmative). Yes. Yeah. I would say tools better suited for 3D model would maybe be like a laser scanner, actually just taking the handheld scanner out there and setting that up in various different areas.

Mike Merrill:

So do you do walkthroughs inside of a building with drones ever for people remotely?

Keyona Wells:

I've never done it personally. I've seen it done though. I would say you want to be careful with that just because drones generally generate a lot of wind. So if you're going through a building, that could mess up your shot. So I would use maybe more like a 360 camera as opposed to a drone doing a fly-through. Yeah. Because you can mount that onto a hard hat, for example, or just a pole and ride that through. But I have seen people fly a drone through a building towards the end for final photography, usually a little smaller mapping money or something like that.

Mike Merrill:

Nice. So what looks and responses do you get from reactions from people when you are out flying a drone on the job site?

Keyona Wells:

I get a lot of stares. This is pretty funny. For one, it's funny, because I'll be flying the drone and looking up and then you'll see someone walk by and then they start looking up and they look at you and they look up. And they're just like, "What is she? What's going on up there?" But yeah. And usually when I'm landing, people are really intrigued. Some are a little wary of it. Because they're like, "Oh, is it going to hit me?" or something like that. But I do get a lot of interest from other construction workers and subcontractors from the job site about it.

Mike Merrill:

Yeah. Are you seeing subcontractors and others using drones on those projects that maybe you're working for the GCO?

Keyona Wells:

Yeah. I've seen site contractors use them quite a bit. Yeah. I imagine they use them for site analysis tools, similar to what I've done, where you can fly it for a mapping mission, for example, get some existing topos and you can take that data, then do a cut fill analysis and that could help you with your pricing and bidding.

Mike Merrill:

Nice. So what's the craziest thing you've ever encountered while flying a drone out on a job site?

Keyona Wells:

I had an issue with birds on one job site.

Mike Merrill:

Oh, really? Wow. Tell us about that.

Keyona Wells:

Yeah. They came close to attacking the drone. Thankfully, they didn't. But I noticed them, I would say like the week before, before I was finishing up a mission and then I saw a couple of birds circling and thought like, "Okay. I need to be wary of birds. That's the first time I've seen them out here." And then sure enough, the next time I go out, they get closer and closer and they're starting to circle the drone. This was during one of those autonomous mapping missions. So the drone's going, not super fast, but at a steady speed and in different directions. So the birds are just following the drone around. I ended up having to land and restart the mission on that one.

Mike Merrill:

Oh, wow. Crazy stuff. I imagine if you keep doing this long enough, you're going to see some other crazy stuff shoot.

Keyona Wells:

Yeah. I've seen videos of people getting their drones attacked by birds. I did learn something recently too, that when you do run into birds, the best thing to do is to fly straight up, where my natural inclination is to go straight down, but birds can dive a lot faster than they can ascend. So it's better to just go straight up if there's any birds near them.

Mike Merrill:

Good to know. Well, Keyona, obviously, switching the conversation up just a little bit, you've been in the construction industry for five years plus, full-time and you're so much more than just a drone pilot, if

we're going to put a label on something. What have you learned so far in your experience? And what's been fulfilling for you in your experience in the industry so far?

Keyona Wells:

Yeah. So throughout my five years, I've had positions in operations, field management, office management, and now virtual design and construction. And I would say one of the best things is just having that service mentality and really being able to help the project team, help the owner and really provide a valuable service.

Mike Merrill:

I love that. That's great. Yeah. I know we're talking mostly about drones, but it's like you've done really well in all these different parts of the construction trades and working for a company. And I think this just sounds like another opportunity that you're making the most of and seeing where it takes you. Do you plan to continue being a drone pilot operator or doing something more or different as your career advances? Or what are your thoughts there?

Keyona Wells:

Oh, I definitely plan to keep up with piloting my drone and keeping up with the regulations and things as they change. I really like being involved in the community, teaching and helping others learn to fly and fly safe. It's a passion of mine for sure. So I don't think that's going to go anywhere anytime soon.

Mike Merrill:

Yeah. I like that you worded it that way. It's not just a hobby, right? It's a passion. That's a good term for it. I can see you enjoy it, and I can see why. So tell me this. How do you think your bosses have supported your career so far as you've advanced and done these different things? And what can you share other women and other young people out there that are looking at starting a career in construction?

Keyona Wells:

I would say that my leadership listens. They can see the passion that I have, and they were willing to take a chance and say, "Hey, you know what? Go ahead. If this is what you're really passionate about, let's help and equip you with the right tools to do this." And yeah, that's really great leadership listening. I would say for other employers really just believing in your employees and letting them show you what they can do. We're really capable of quite a bit, if you give us that autonomy to try.

Mike Merrill:

Yeah. I love that. I totally agree. I think a lot of times leadership again, is more defined by allowing people to bring their great ideas in and execute on those, not having all the best ideas, that's not leadership, right?

Keyona Wells:

Right.

Mike Merrill:

So are there some other ways that you're seeing in your company or your experience so far that they're leveraging young talent like yourself to help develop that for the future?

Keyona Wells:

I definitely would look at internships. I think recruiting the right people and bringing them in and having that internship pipeline is really beneficial. One, you're giving college students a real world opportunity to learn how to use what they're learning in the classroom and apply that. They're also coming in with really fresh new ideas and stepping out of the box. So giving them that voice as well.

Mike Merrill:

Yeah. These young folks have grown up in a world full of this technology that was new to some of us 20 years. It didn't exist even 15 year, 10 years ago. So I think you've got some great advice there for our leadership listeners and those that are in positions of authority to hire. So internships, listening to these young folks, giving them a platform and an opportunity to explore

their ideas. And it sounds like you're making the most of those opportunities in your company right now. So that's cool. So tell me this, we recently were recording an episode with a topic of mental health in the workplace. How do you think leaders can be more aware of this and help support individual team members that are having struggles with that?

Keyona Wells:

I would say definitely creating a culture where it's okay to talk about those things. I know it's September, so it's actually a Suicide Prevention Month.

Mike Merrill:

Yeah. Right.

Keyona Wells:

Yeah. It's something that my company has really touched on a lot, especially this past couple of weeks, even down to Toolbox Talks. So we actually talk to our trades out in the field and give that platform to talk about mental health and what we can do to better educate ourselves on the signs so we can help and get people help sooner.

Mike Merrill:

Are there signs that... I don't know if you're seeing much of this struggle within your own organization or not, or within your industry peers that you affiliate with, but if so, what are some of the signs or things that you think are adding to this epidemic really that we're having in society in general?

Keyona Wells:

Well, there's... The pandemic definitely isn't helping, and the brief period where we're working from home and really the instability, right? Now as cases are climbing, people who may have one, gone back into the office, now they're going back home. And it's just nothing's really stable in some areas. So that's an added stressor there. So just being aware of that and what's going on in the industry and just taking that into effect when you're talking to your coworkers or when you're as leadership talking to your employees.

Burnout is definitely another sign. When you see an employee who maybe was super passionate in the beginning, and then they get quiet, that could be a sign there of that they may just be really overwhelmed, whether it's with work or anything in their personal life. It's just being one of those leadership or those bosses who takes time to just notice that and just ask your coworker, your employee, "Everything okay? Anything I can help you with?"

Mike Merrill:

Sounds like just being aware and then also being ready to listen. Love that. Have you experienced burnout so far in your young career at this point?

Keyona Wells:

I have, actually. Pretty sure I experienced my first burnout, I guess, probably in college, just engineering school in general. I think the most important thing for me to realize is something that may not go away and it's prone to happen again. So having that awareness that things can get a little too overwhelming sometimes. So having that support system in place to help manage that as opposed to thinking that it will just up and leave and go away and I'll be fine.

Mike Merrill:

Yeah, that's the old school mentality that I was raised with that and even imagine my parents, "Rub some dirt on it, walk it off, you'll be fine. Don't talk about it and it'll go away."

Keyona Wells:

Right. I think sometimes recognizing and leaning into that anxiety or that discomfort, it sometimes takes that power away from it. Maybe you can sit here and say like, "Oh yeah. No, I'm really anxious about this one particular thing." And then it's like, "Well, cat out of the bag now." So you can take that and lean into and move on to whatever it's you're doing with that discomfort, as opposed to just trying to get rid of it.

Mike Merrill:

Yeah. Well, I think we all have a natural reaction too, when just as a greeting, when someone says, "Hey, how you doing?" You're like, "Oh, great." And sometimes you're not. You're not doing great. You're a train wreck, but you don't want to say that. So you don't, and then they think you're great and then they move on and you're still struggling, right? So I think your point of being aware is really, I think, pretty wise advice for all of us.

Keyona Wells:

Yeah. And even if some people may not feel comfortable being that person who can listen, they may think that, "Well, I'm not trained to be able to handle this particular person and mental health issues. So I don't want to be the person that they come and talk to." And that's okay, but leadership and companies can also offer resources and make sure that your employees know that they're out there. I was fortunate enough, I think, that my company had access to an app that gives you these mindful meditations on specific things, whether it's like public speaking or airplane stress. And that's been really beneficial. It was actually part of our health plan. And I had no idea until we had a HR person come and did a presentation on it. I was like, "Oh, that's a great resource. I'll use that." So having those resources out there and making sure that your employees are aware of them.

Mike Merrill:

Yeah. That's great. And I thank you for bringing that to the attention of myself and the listeners. I think a lot of us may not be aware of some of those things that are available to be taken advantage of. And we just need to talk about these things more and collaborate with our industry peers and our employees again. Ask them how they're doing and then listen. So I guess last thing on this topic. So if there was one takeaway that you would want the listeners to have from our conversation, what would it be?

Keyona Wells:

I would say to give yourself the benefit of the doubt, just like you would your closest friend, if they're struggling or going through something. You need your best friend, and give yourself a break.

Mike Merrill:

Oh, love that. Cool. All right. Well, a couple other questions, more on a personal note. So what's one thing in your life that you're grateful for professionally at this point in your career?

Keyona Wells:

My coworkers. Yeah. I would say no matter what space I'm in or what professional setting or company that I'm with at that particular time, people are... I'm just really grateful for people. They really make your day and the experience just that much better.

Mike Merrill:

Love it. So, Keyona, what is your superpower that you've developed so far?

Keyona Wells:

So far? My superpower would be learning any type of technology. Yeah, and just to explain that further, just about anything can be figured out thanks to Google and me too.

Mike Merrill:

Hey, good advice. More of us older generation need to remember that, right?

Keyona Wells:

Yeah.

Mike Merrill:

All right. Well, cool. Well, thank you so much, Keyona. This was so much fun having this conversation. You're a fun guest and fun to talk to.

Keyona Wells:

Yeah. Thanks, Mike.

Mike Merrill:

You bet. And thank you to the listeners for joining us on the Mobile Workforce Podcast today. If you enjoyed the conversation that Keyona and I had today about drone technology and the exciting opportunities that there are out there for young people everywhere and others that want to get into construction, please share this episode with your colleagues and friends. And, of course, give us a five-star rating and review on the podcast platform that you're listening to this on. We always enjoy those ratings and reviews to help us to get this out to more potential listeners. And, of course, our goal here always is to, not only help you improve your business, but also your life.