Episode 2 – Schneider Electric DC1415
Podcast Transcript

Susannah Howe: Welcome to the Design Clinic Download. In this podcast, we dig into the experiences of Design Clinic teams and classmates through the years. I’m your host, Susannah Howe from the Picker Engineering Program at Smith College. This episode features four alums from the class of 2015, Nicole DeChello, Emily Dixon, Emily Lane, and Melinda Pontes. Their Design Clinic project with Schneider Electric was on the design of a low flow measurement device for integration with a vortex flow meter.

Emily Lane, why don’t you start off and tell me what it is that you’re doing now? What are you in the middle of currently?

Emily Lane: I currently live in Fort Collins, Colorado and I work for Siemens Energy. I am a gas engine engineer, so I work on the services side of our gas engine business. I largely do parts order support. So I spend a lot of time updating manufacturing methods, updating drawings, obsoleting parts, and finding replacements, all for large gas engines that drive reciprocating compressors. So mostly working in oil and gas. Yeah, that's it. That's what I do.

Susannah Howe: Excellent. Great. Thanks. And Emily Dixon?

Emily Dixon: I currently live in Hong Kong. I'm in education. I'm the program manager of makerspaces in primary, middle school and secondary, at an international school in Hong Kong. And I also teach IB math.

Susannah Howe: Great. Nicole?

Nicole DeChello: I currently work for Con Edison, the New York City's gas, electric and steam utility. I work as a section manager, so I manage a group of supervisors who supervise electrical technicians who work on the grid. We work generally from 13,000 KV up to 345,000 KV. So we work on high voltage equipment.

Susannah Howe: Very cool. Melinda?

Melinda Pontes: I'm the assistant director of IT and operations at the University of Pennsylvania for the International Students Scholars Services office. So I'm in higher education, contrary to Emily Dixon's education. My work is more on the technical side where I'm managing all of our technical systems for our office.

I have a team... I have an office of about 21 of us. We serve a population of about 10,000 foreign nationals at the University of Pennsylvania, both scholars and students. So I'm helping international students and scholars maintain their immigration status as well as ensuring our technology is up and running to do so on both internally and externally.
Susannah Howe: Great. Oh, it's exciting to hear where you all are all around the world doing all kinds of different things. All right, so let's jump back to Design Clinic. Describe your project and in particular tell us the sponsor, the title of it, if you remember that, and a short summary, to the extent that you remember, of what the project was that you worked on.

Emily Lane: So we were working with Schneider Electric and we called ourselves Team Ocelot because Schneider names all of their project after big cats, I guess, was I think how that came about. And we were working on trying to develop a flow sensor that went down to essentially zero flow.

Susannah Howe: I'd forgotten about Ocelot. That was great. And you came up with that pretty early on as I recall.

Melinda Pontes: I still have the laser cut cutouts of Ocelot that I made as our logo. I still am at... They're on my desk at work.

Emily Lane: Will you take a picture and send it to us?

Melinda Pontes: Yeah, I'll send one out. It's like, yeah, I get a lot of compliments on it.

Emily Lane: So we were working with their liquid flow meter group and the solution we came up with at the end of it was using force sensitive resistors, which are exactly what they sound like. The resistance changes based on the force and we were trying to see if we could find a way to equate the force of the fluid with a flow rate and use that to get down to lower flows.

Melinda Pontes: I kind of forgot the correlation and then Emily was talking and I was like, "Oh wait, I remember Vortex shedding now."

Emily Lane: I fully forgot Vortex meters.

Nicole DeChello: I should have remembered that I wrote a thesis on how to model it. 3D-modeling.

Emily Dixen: I was thinking that.

Emily Lane: It's been seven years. It's fine.

Susannah Howe: It has indeed.

Melinda Pontes: That's crazy.

Susannah Howe: So let's think back to the beginning of that, the beginning of that project. What were your expectations coming into it and how did those expectations match the reality of your experience? Yeah, Nicole.
Nicole DeChello: So I'll say I've been thinking a lot about this since you emailed us. I was talking to Melinda before and I was just thinking about our first week in Design Clinic. I know one, we were really happy with the project we got put on and specifically the team. I know you know this, but we were really vying to work together and we were very excited going in. I think all of us were excited to see what it was. I don't know that we really had a handle on it. And then as it started to flesh out and we got the project, we met with our sponsors and then we started to have individual roles and who was the project manager for quarter one, and what ideas we got to come up with. I just remember thinking, "How are we ever going to find any solutions? How are we going to come up with any ideas about this?" I didn't even know this whole world existed.

And then I remember once we put together our matrix of all of our ideas and how they worked and rating all of them, I was like, "Look at all this research we did and look what we put together." And I just remember being really proud of the work we did and even all the way through to the end, every step that we built on. And I know you challenged us throughout the way, especially when we were like, "I don't know how we're going to move forward." And then we just somehow kept moving forward slowly but surely, working together and with you and with our sponsors, there was a lot of support. And I don't know that we knew that that was what it was going to be, but it was a really great experience as we moved forward to figure out what it was and shape it how we wanted it.

Susannah Howe: All right. So I want to transition a little bit away from Design Clinic and we'll come back to it. But let's think about in the seven years since you graduated. I can't believe it's been seven years. Time flies. Can you talk a little bit about the path that you've taken to where you are now? Because I know for some of you it was really quite a linear path and for some of you it was less linear.

Emily Lane: I was hired into a rotational program in what was at the time Dresser-Rand and is now Siemens Energy. It was a five year rotational program, supposed to be an engineering management development program. So I did five different rotations in different engineering or engineering adjacent roles. So I did some design work, I did some manufacturing work, I had a hot minute in sales and I realized that was not something I ever wanted to be involved in ever again in my life. I moved back over into the design side and then when I finished up my five years in the program, I moved into the full-time role that I'm in now with gas engine work. So I saw most of the product lines that the legacy Dresser-Rand portion of Siemens and then Siemens Energy does. And I saw some different areas and got some different exposure and mostly I didn't want to live out in Western New York anymore. And so I took a design role that let me move back to Colorado.

Emily Dixon: I also started with that job at Dresser-Rand. I spent I think a year and a half at Dresser-Rand. I was on an interesting project, compressor energy storage. So using the compressors that Dresser-Rand is known for but in a different application, I was really unhappy. I learned that I'm really motivated by people and the team around me and the team I was assigned to did not work well together. We did not have funding for our project and that was really hard. I enjoyed working on a
multicultural team in Pune, India and Bilbao, Spain, and getting on calls at all times. That was fun. But I mean I started definitely having panic attacks and being far away from my support system and that was really hard.

So I did some reflection, realized I was really happy when I was being a camp counselor in education and transitioned that way. And in the last couple years I’ve been teaching at independent schools and finally I’ve found this position where I am working with a lot of people from all different places in Hong Kong. I’m in a co-ed school, but specifically really curious about how to inspire girls, especially in middle school, to be excited and feel belonging within STEM. And so that’s sort of how I ended up in a makerspace in a middle and high school.

Nicole DeChello: I was a little more linear, more like Emily Lane. I have had this... Worked for the same company since we graduated. So I didn't know what I wanted to do. I took a lot of renewable energy related classes when we were at Smith. So I got into a rotational program much shorter, 18 months, with Con Ed. Didn’t really know what I was getting into and absolutely loved it. I was given... It's a leadership development program, they put you in three different areas of the company. I worked in steam, I worked in high voltage and then I worked out in the streets pulling electric services into customers houses. And so it was really three different areas that you just take for granted and it was so much fun. I got to learn so much. They put me in classes to develop my leadership skills and Emily Dixon touched on this, right, we're people people. I knew I didn't want to be an engineer in the corner.

So when I got this opportunity and I was a supervisor, my people skills really shined and a lot of the project management skills that I learned in Design Clinic, I was able to use those on managing large scale construction projects. And I really enjoyed working with people being out in the field. I worked in a steam plant and we were tubing boilers and I got to climb inside the boilers and I was like, "This is an adult playground. I'm having so much fun here." And so I just loved every minute of it. I was never meant to be an office person. So I’m really happy with that. And then in my time in Con Ed, they really have supported that development of my leadership side and I still get to develop my technical side. I still get to go through prints, I still get to figure out how a circuit works while I'm supporting my supervisors, helping them develop to understand how they can figure this out on their own, how they can develop their technicians, how they can build a better culture for our group and keep improving it.

So I’ve had increasing responsibilities and promotions along the way and I just keep getting more opportunities to help change the culture and also support leadership development program people now. And to Emily's point, I love to develop young women in STEM. So I've sort of adopted them along the way and helped them figure out Con Ed culture, figure out what they want, the pluses, the minuses, and just help mentor them like I've had people mentor me.

Melinda Pontes: Yeah, I started working after graduation for an environmental IT company in western Massachusetts, and actually in Northampton, called Windsor Solutions. It's
a pretty small company and my office specifically, was eight people. I really enjoyed it a lot. I was just an analyst so I was doing some transition work for different environmental agencies to our software. And I really liked it but similar to actually Emily Dixon, where I started to really feel disconnected from myself in the work. And I was having a really difficult time. I knew I really enjoyed my coworkers but I was not very happy where I was and I didn't really have a support system out in Western Mass, and I was really, really struggling with that and what I wanted to do and where I would want to go because I wasn't thriving as the kids say.

So I actually talked to Nicole a lot about it. I debated if I wanted to move to New York or if I wanted to go to Boston where my parents were, and I chose C, none of the above. And I moved to Philadelphia where I had some friends from college but I didn't really know a whole lot of people and I got a job at the University of Pennsylvania. I was same office but I was a data analyst and I absolutely fell in love with Philadelphia. I love living here. I made some really amazing friends through work who no longer work with me sadly, but I still see them all the time. I have a great community here. I'm getting my master's in computer information technology. So my goal is to go more project management on a technical software basis in the future. Which I kind of do that now, but I would want to be more team focused in general. I do also really like working with people. I'm in the office at least three days a week and part of what motivates me is not just our population of foreign nationals, but also how do I make my staff's job easier? How can I use technology and the information I have to make the process easier for them?

Susannah Howe: So some of you have touched on this already in talking about your careers, but I'm curious to know what skills you learned in Design Clinic that you've taken with you after you graduated? And in particular, what has transferred most effectively to the work that you're doing now?

Melinda Pontes: In my role I mostly, to piggyback on what Nicole said, is that I find that I use a lot of my project management skills from Design Clinic in managing the products that I do, and also the people I work with, I find that a lot of my job is actually managing other individuals and ensuring that other individuals do their job, which is a skill set on its own.

Nicole DeChello: I think for me in Design Clinic I didn't put together stakeholders and identifying those, to linking it to how I use my emotional intelligence to respond and interact with people differently. One of the pieces of feedback I've gotten since I graduated was that I'm good at working with different types of people and explaining things in different ways. And I didn't make that connection necessarily at the time, but knowing who you're talking to is half the battle because then you know how to say it, you know what words to use, you know how to talk to them. And that was a huge part of my success and you can apply that anywhere in all aspects of your life.

Emily Dixon: That's so true. The other thing I would add, this was a random experience in Design Clinic, but there was a meeting where we had this consultant about making agendas for meetings. Do you all remember that? And I think Design Clinic, something I use all the time is just how to value other people's time and how to
cancel meetings when they don't need to happen, make the goals of meetings really specific. And that one meeting with that woman really changed how I think about that. And then going into the workplace and realizing how much time is not used efficiently, that is really, really important to me and I think about that meeting all of the time.

Susannah Howe: All right. So you've talked a little bit about memorable experiences in Design Clinic and I'm curious, what was your most memorable or what are some of your most memorable or impactful experiences?

Emily Lane: I feel like the thing that I remember most is we were going to go deliver our prototype to Schneider at the end of the year and we had issues with our circuit board. So I just remember being down in the playground, like frantically trying to rewire things so we could turn in a functioning prototype with two weeks to go or something on the project. But I think we got it done. I think we gave them something that worked, but I'm pretty sure Nicole had to call the circuit board manufacturer to get support because it wasn't working the way it was supposed to.

Emily Dixon: And wasn't it the breadboard that actually was dysfunctional? It was a breadboard.

Emily Lane: Yes.

Nicole DeChello: I found that dysfunctional breadboard. I kept it for some reason and it was in my things when I moved apartments and I was like, "Why do I have this?" I feel like out of that though, I remember a lot of good signs of even when we were doing that right, we were laughing just like we are now and supporting each other. I remember I drove to Alabama for a weekend and these guys had a morning meeting on Mondays like we always did, and they conferenced me in. So they called me from there while I was on the road and we kept it going. So I just feel like we supported each other in taking time away and then also keeping each other in the loop. "All right, you're back now. This is what we've been talking about. We had a plan, this is where we got." And so we supported each other in that balance of having fun and also keeping the project moving.

Emily Dixon: Yeah, I think our team is really good at fostering a sense of belonging. And I think about that a lot in my work in the makerspace of how do I bring girls in so they know they're welcome in this classroom and so they can feel success and find their islands of competency so they can be successful in whatever they're doing in the school. And there is no time when I walked into that cubicle sea in Design Clinic where I felt like I didn't belong ever. And I don't know what that special sauce is, but that's a feeling that we all took away, I think.

Nicole DeChello: I love thinking about our time on Tyler lawn. We liked the science quad lawn because there weren't a lot of people there. It was usually just us, Emily Dixon always with the Frisbee so we could get a little bit of sunshine in between classes, some fresh air. And I think just taking that step back and sitting outside with your
friends away from a lot of pressures is just one of my favorite memories and MacLeish when we would go up there. I just loved that.

Susannah Howe: All right. So with the benefit of hindsight, how do you see Design Clinic fitting into your overall engineering experience at Smith?

Emily Dixon: Something that I really appreciated about Design Clinic is that it lasted an entire academic year and comparing it to a lot of other people that I know that studied engineering, a lot of their senior projects were semester long, but we did so many group projects at Smith and so that wasn't new at all. But we could actually fail and try again in Design Clinic. And as you said, our team, we did have a very smooth experience I think overall. But it always felt like there was a little bit of time to experiment, try something and we would come to that next weekly meeting with our chart of progress and our what are the fires we need to put out? And we had time to iterate and that was new for me.

Susannah Howe: What advice do you have for future Design Clinic students to make the most of their experience?

Emily Lane: I think going off of some of what Emily was saying is don't be afraid to try something that isn't going to work. Don't be afraid to try things out and see because you have time, you have plenty of time to workshop it, and you have time to work out kinks if you've got something that mostly works. I mean the entire point is you go through the entire design cycle and part of the design cycle is you try something and it doesn't work and you figure out why it doesn't work and what maybe did work, and you figure out how you can apply that to your next attempt. And so yeah, take advantage of the fact that you've got a whole year and try anything. Don't throw something away because you think it may not be the perfect solution.

Emily Dixon: Yeah, I'll jump in. Just get over that perfectionism, just throw that out the window. I feel like that's all I do every day. Perfectionism is such a problem and boy is it deep down ingrained in me. And it goes back to Melinda's, clay and Legos. Everything is clay and Legos, perfectionism doesn't get us anywhere. I also wonder, to choose teams and projects we had a point system. I think I'm remembering that right. I think we literally put all of our points towards the team, not the project. And I don't know how common that is, but I take that to heart and still operate on that to this day. The people who you work with and the people who you spend time with are magic. That is really important and valuing that, I would put a sticker on that. Super important.

Susannah Howe: Anything else you want to share? Any other closing words or things that you haven't had a chance to bring up that you wanted to make sure we captured?

Melinda Pontes: I think that Smith's has a really unique and interesting engineering program in general. And I think Design Clinic is definitely a huge aspect of what makes it unique and special. And the emphasis that so many of our professors, including
you, put on the importance of collaboration, creativity, and being able to think for yourself as well as work with others when you think about problems. To solve a lot of really complex problems, that's really critical. You need that diverse opinions, you need people working together, it's not going to be solved... Nothing is truly genius that comes from just one person I don't think. I think that that's also a lot of pressure. And going back to that perfectionism, there's the pressure that you have to have the solution and it comes from just you in the corner by yourself. But I think that Smith really taught me that that's not true. And that if I'm not communicating with others or even throwing ideas off one another, I won't really get anywhere.

Susannah Howe: Thank you all so much for your amazing responses. It's been really fun to have this conversation. So good to see you.

Melinda Pontes: Thank you. Good night.

Emily Lane: Nice to see you.

Emily Dixon: Goodbye.