



Sloan Career Cornerstone Center

Profiles of Civil Engineers



Lisa A. Brothers, P.E.

**Vice President of Operations
Judith Nitsch Engineering, Inc.
Boston, MA**

Education:

B.S., Civil Engineering, University of Massachusetts-Lowell
M.B.A., Northeastern University

Job Description:

"As Vice President of Operations, I oversee all the day to day operations of the firm. I am responsible for creating policies and implementing them with the other leaders of the firm to ensure that we remain profitable. I am also Principal-in-charge on the majority of JNEI's projects as well as Project Manager on select projects."

Advice to Students:

"Civil engineering students should take all the math and science courses they can while in high school and take advantage of any related summer job opportunities."

Video Transcript 1:

"For the autonomy and the responsibility that I have here, to me money isn't everything. But I think you'll find out as you get along in your career -- I mean, I've taken pay cuts to do things that I want to do. So money isn't my major motivator. It never has been. To me, as long as I'm challenged and doing what I want to do that's more important. So I've never really pushed that, because that's not what's driving me for -- you know, why I work."

Video Transcript 2:

"Everybody else has to deal with, you know, getting kids to day care, picking them up, dropping them off. And you'll find that more and more people, a lot of the men are doing the drop-offs or the pick-ups. In this company, for instance, three of the guys work flex time because they're in charge of one end of the pick-up. So it's not just a women's issue anymore. It's more, you know, both genders have to deal with flex time and being able to pick up their children and all that."

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Interview:

My name is Lisa Brothers. I work at Judith Nitsch Engineering, Inc. in Boston Massachusetts. I am Vice President of Operations and one of the owners of the firm. My most interesting engineering project was right out of college. I was assigned to a highway construction project that included the construction of a new highway bridge, a new interchange, and the relocation of a major highway. All of the work was new construction and there are not many opportunities to see a major highway constructed from the beginning! I was also the first female engineer assigned by Mass Highway in my district.

Q: What's a day like in your life?

Brothers: I really don't know what my day's going to be like because most of the time I'm on the fly. You know, problem solving, giving people support when they need it. Giving them technical advice. Reviewing projects, talking to clients. Working with accounting, making sure the bills go out. Making sure we get paid, calling for accounts receivable. The things that keep the operation moving. So I don't just strictly do engineering anymore. I manage fifty-something people.

Q: When did you decide to study civil engineering?

Brothers: I decided -- this is really actually an interesting story. I decided to study civil engineering. I was a junior in high school talking to my guidance teacher. I was taking an anatomy and physiology class. I was thinking of something in the medical field, you know, because it was a good course and stuff. And he said, well yes, you can be a nurse. And I said, well why not a doctor? And he was like, well, no, a nurse. I'm thinking, well, I don't know. And he says, well, if you really don't know what you want to do you should go to the local community college and maybe study business for two years, get an associate's degree, and then maybe you can figure out what you want to do. I was like, oh all right, whatever. Then I was taking typing. Typing was mandatory in my high school when I was there. And my typing teacher said to me, Lisa, you're good in math, you're good in science. What about engineering? And I thought about it, and because of her I researched what an engineer did, and basically applied to undergraduate school for engineering because my typing teacher suggested that was a good thing to do.

Q: You went to college thinking you would be an engineer?

Brothers: Yes. I applied for the civil engineering program. My favorite courses in school were structural courses. I really liked the structural analysis. And that was my major concentration, was structures. And then I got into the real work force and did that for about a year and it was something that wasn't right for me. I'm a person that always likes to be challenged and likes change. And after you designed one- and two-story steel frame buildings for a year it gets to be kind of routine. And the place that I was working didn't do other kinds of structures. So I decided to change and try something different.

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Q: So that's when you came here?

Brothers: I did construction for three years for Mass Highway which was a real learning experience. Then I did some structural work. And then I did some civil site work which is where I met Judy, my partner. She was one of the principals at another firm and she chose to start her own firm. And when she announced that, I followed her in her office and said you cannot start your own company without taking me along. Because I knew that she would do great things and we would have a wonderful, viable company and I wanted to be a part of that. And now in my current position, since the company has grown from the two of us to fifty, I really don't do very much engineering anymore. I mostly manage people.

Q: Did your education prepare you for this work?

Brothers: I actually have a graduate degree. I have my MBA. I got my MBA when I graduated from my undergraduate degree I knew I wanted to go to graduate school. And I always knew that some day I would probably be part of senior management. So I went part-time nights. I was out of school a year, I was working. It took me five years, nights. And I use that all the time in my current position. It was really good -- between the two is really good training.

Q: Are there certain electives that you think students ought to take in thinking of your eclectic background?

Brothers: Absolutely. What I picked up in graduate school that I didn't get as an undergrad was interpersonal communication skills. Writing -- I took a really tough writing course. The teacher was wonderful. I think writing is really important. And I took some public speaking courses which I use every day. And there were typical things that you can't really take as an undergraduate engineering student, but I took some organizational behavior courses. And those kinds of things really make you think about communication and listening and how certain things interplay with each other.

Q: How do you keep a balance?

Brothers: The balance comes from, number one, the position that I have at the company. I have a lot of flexibility just because of my position. Judy, my partner, is extremely aware of my family needs, and is really flexible with me. What I tell people when I go out talking to other engineers about how I balance my family and my work environment is that in order to be able to get the flexibility at your work environment, the best thing to do is to just make yourself invaluable. And people tend to flex more with those people that they know are worthwhile, and they want to remain. I balance it because I work four days a week in the office. I have one day off. I don't really call it my day off; it's my day out. I work at home, I work nights, I work weekends. I call in on my day out. But it gives me a full day with my children at home. My husband has a day off during the week during day care three days. It's a short day for them. My husband picks them up at 3:30. So between the two it really works for us. It works really well for us. And it's a good balance between work and home. And I work over 40 hours a week. I mean, I work like 50 hours a week. But some of it's from home and some of it's here.

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Q: There's obviously an issue, though, for a woman being an engineer. Having a family and trying to have everything. What advice can you give for women who want to into engineering? What should they do to make it possible?

Brothers: Well, I don't think it's necessarily the fact that because you're an engineer it's harder to have a family. I think -- as women enter the work force and move up in the ranks, it's always going to be there. It doesn't necessarily mean just because I'm an engineer it's tougher for me to balance. I think that again, you need to prove your worth to your company, and the people that are trusted in their workplace will have the opportunities to work from home. If you're not trusted someone's not going to trust you to perform that work from home. It's challenging to say the least. And there's never a perfect time to have children. And I think if I waited for the perfect time I wouldn't have any kids right now. So what I do say to people that want to have kids -- if you want to have them you just have to do it. Because if you wait for the perfect time that perfect time is never going to come. And then you just deal with it. Everybody else has to deal with, you know, getting kids to day care, picking them up, dropping them off. And you'll find that more and more people, a lot of the men are doing the drop-offs or the pick-ups. In this company, for instance, three of the guys work flex time because they're in charge of one end of the pick-up. So it's not just a women's issue anymore. It's more, you know, both genders have to deal with flex time and being able to pick up their children and all that. Working isn't for everybody. Some people would prefer to stay home. I have friends that are engineers that, once they had families, decided to stay home on a full-time basis. It really depends on the person's personality, and, you know, what they feel is right. And I don't feel like my children are short-changed at all. They love day care, they love going there. They have fun, and I'm fulfilled working. And if I stayed home I think I would be miserable if I stayed home on a full-time basis. And that wouldn't be good for anybody.

Q: What's the best part about being an engineer?

Brothers: I actually love construction. I worked in construction for three years when I first got out of school. I love the fact that you design something and you see it physically built. That's a really amazing feeling.

Q: What's the worst part?

Brothers: I don't really think there's a down side. I really enjoy being an engineer. I do.

Q: There's no down side to being a civil engineer and being a woman? In a male-dominated field, I mean?

Brothers: Not for me personally. I've had some ups and downs with certain people, but I don't have a problem dealing with it. I think I like the challenge.

Q: Is it everything you thought it would be?

Brothers: Yes. I have a real lot of responsibility here, and really do run the day-to-day operations of this place. And I enjoy my position tremendously. I love working with people. I think my staff would say that -- I hope they would anyway -- that it's challenging.

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Q: Is it financially rewarding?

Brothers: Yes. I think I get paid very well.

Q: Could you make more somewhere else?

Brothers: I haven't really marketed myself because I'm part owner of this. And I don't really know that answer. I am not at this point going to go out there and find out. I do know what other people make and I'm definitely compatible with that. Some of the bigger firms, you know, people within the larger engineering firms do make more money than I do and than Judy does. But for the autonomy and the responsibility that I have here, to me money isn't everything. But I think you'll find out as you get along in your career, I mean, I've taken pay cuts to do things that I want to do. So money isn't my major motivator. It never has been. To me, as long as I'm challenged and doing what I want to do that's more important.

Q: Tell me about your relationship with Judy.

Brothers: Judy and I have been together since 1988. She started her own company. I said, you know, I'd like to join you. I became an owner of the firm in 1993. I've put a lot of sweat equity into this place, it'll be eight years in September.

Q: Would you say that she's been a role model for you?

Brothers: She's absolutely been my mentor. And when I first started working with Judy -- she has the ability to draw out of people -- I mean, people perform their utmost potential with Judy. She just really, really pushes you. She's an unbelievable person. She would take me along to society meetings, introduce me to her network.

Q: What about networking?

Brothers: Judy is the ultimate networker. And her role in this company is to be out marketing and networking. And she loves it. She's an extrovert, I'm an introvert. I would prefer to sit in my office and take care of the day-to-day operations and not be out there networking. That's my preference. However, in my position it's important for people to know who I am. So I force myself to go to at least a couple of society meetings. I'm on a local society's board of directors. I force myself to some limited degree to go out and network because it's important for the company, and for the outside, to know who I am, and not just Judy.

Q: Do you ever face any ethical quandaries in your career?

Brothers: Yes, I actually have. And I think ethics is something that I wish was taught more as undergraduate. I never took an ethics course when I was in college and I know that it's not something that's routinely taught except for one local university around here I know has a really good ethics program. I don't think a lot of young engineers know what ethics is and what it means, and why it's important as a professional engineer that you have ethical standards. I worked at a place which -- I'm not going to give any names -- where the person who was stamping the plans pretty much didn't review the work that was being done in the office, and it was a really scary situation, one I considered extremely unethical. I'm talking about structural

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buildings that weren't having second reviews on calculations and stuff. And I left because it was like I just couldn't handle the fact that nobody, well, nobody's perfect. Everybody makes mistakes. You need to have the checks and balances. I mean, we're talking about public safety here. I mean, this person was registered to ensure public safety and this person was not checking our very junior engineers' calcs, and just stamping their plans. For a building that people are going to walk in, and work in. To me that was just extremely unethical and inappropriate. And I chose to leave that because I just didn't want any part of it. It was too scary a thought for me to have to deal with something like that. I reported it to the supervisor of the department, and I left before he took any action.

Q: What kind of advice do you have for students?

Brothers: Most of the time when I talk to either high school kids or college students, most of the time I get called because I am a professional with a family. So most of the time my focus is on family. I did recently talk to the Yulul (PH) section of Tau Beta about professional development because that's something I find really lacking in some of the younger students that are coming out of school -- is that they don't believe that they have some responsibility for their own professional development and don't take that extra step for themselves. And so I have this speech that I tend to give them which outlines, this is what you should expect from an employer, you know the things that the employer should provide you. But there's also this other side that you need to provide for yourself. You need to be able to go to those professional organizations and to network is important and to get registered is important. You know, it's important for the company to support that effort but it's also important for you as an individual to get registered as a professional engineer. So, I mean, so that's -- I think that's one of the bigger things, is that people have to realize that they have to take control of their own professional development and hopefully the employer will provide some support. But they also need to take some control of their own professional development, and it's important for them to do.

Q: What do you think is the biggest change you have seen in the field since you started?

Brothers: The biggest change? Since I started the biggest change has been technology. I mean when I was an undergrad we didn't have any PC's and that wasn't that long ago. Many people that had access to the PC's were the computer science majors. We were still using vacs and card files, card punches. So for me the biggest change has been technology. And I've only been out of school 13 years. So, it hasn't been that long. There's no more hand drafting, everything is computer. So you really do need to have that skill set, and that's been the biggest change that I've seen in the profession as far as technology goes. the graduates coming out need to know computers, to know how to design on the computers because everything is done on the computers. And when we look to hire young engineers, if they've had some experience working summers and they know Autocad or whatever the local software is that people tend to use, they have a leg up on the person that doesn't have that experience.

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Q: I thought you were going to say something about women in the workplace.

Brothers: Well, women, the thing is though, is I don't think there's that many more, to be honest with you. And it's interesting because like I said, I have a younger sister who's a civil engineer. She's four years younger than I am. We actively recruit female engineers. We have -- other than Judy and myself -- we have only one other female engineer here. They're still not out there. I once had somebody ask me, well you're a woman-owned firm. Does that mean everybody in your firm is female? And I laughed. I said, wouldn't that be nice. No, I'm kidding. I said no, that's not the requirement, to be a woman on the firm. I said besides that, there aren't enough female engineers to go around, I don't think. I mean, there were seven females in my graduating class of 63. And I asked the recent grads and it's still, you know, ten to twelve. I mean, it hasn't really increased all that much. People are definitely starting to notice that the female engineers are usually the cream of the crop because they get into it, and they have that extra because it is a male-dominated field. And I think people are starting to realize that most of the female engineers have worked a lot harder to get where they are, and they're really good, and they get picked up really quickly. So it's not easy to recruit them because, I think, they have a lot more opportunities. I think people are starting to realize that.

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