

The ag PE exam

On Double Secret Probation

To say that I was a farm kid who took the traditional path to agricultural engineering would be a stretch. I was born on Staten Island, N.Y., and lived there until I was eight years old. My dad was a New York City firefighter. He left the fire department in the late 1970s and moved us west—way, way west—to a place in the country called Pittstown, N.J., where, at the time, there were many dairy farms.

On Staten Island, foul balls during recess went into the street. In Pittstown, foul territory was an active cow pasture. Anyway, the place was rural then, and surprisingly, it's still rural now. So, although I didn't grow up on a farm, I did grow up around farms.

When I was a junior in high school, my drafting instructor asked me what I intended to do after graduation. I told him I wanted to be a draftsman. He thought that was fine, but I should consider being an engineer. He got me an after-school job with a civil engineering firm where I did drawing revisions (in ink!)—pretty low-level stuff that, nevertheless, convinced me to pursue engineering. Actually, I wanted to be a land surveyor, since I was then, as now, pretty keen on spending my time slogging through woods, fields, and streams, no matter what the weather or time of day. Little did I know that I'd be slogging through dairy cow manure instead—and loving it!



ANDREW WEDEL

*General Manager
Agricultural Systems Division
McLanahan Corporation
Hollidaysburg, Pennsylvania*

AGE: 39

RECENT READ:
Survivors Club by Ben Sherman

WORDS TO LIVE BY:
In business, your earliest loss is usually your least loss.

FAVORITE VACATION: Finding new favorite places all the time. Really, it's any place I am with my family, but we really enjoy Chincoteague Island, Virginia.

An ag engineer by chance

As I said, I wanted to be a land surveyor, so I applied to the University of Delaware's civil engineering program. While I was double-checking my application form, making sure the major was coded correctly, I saw something called agricultural engineering. I read the description, and I was hooked. I promptly changed my application from civil engineering to ag engineering. Yes, I was just that impulsive. Later, during my senior year, I met Dr. Bill Bickert (now retired) of Michigan State University's agricultural engineering department. Bill let me know there were opportunities at MSU for graduate assistantships in the dairy manure management area. While I was working toward my MS, a group of grad assistants, including a few undergraduates, took the Fundamentals of Engineering (FE, then called the EIT) exam.

Why did I take the exam?

First, my undergraduate professors stressed the importance of professional registration, and second, it just seemed like the natural thing, the next logical step in becoming an engineer—kind of like breathing.

After all, would you accept legal advice from a lawyer who hadn't passed the bar? Would you submit yourself, your spouse, or your children to an operation performed by a physician who was not board-certified? I

suspect the answer is “no” in all cases. So why seek engineering consultation from a non-certified engineer? This is not to say that non-certified engineers are incompetent, but PE testing ensures minimum competence. In a nutshell, that’s why I went for PE certification—it simply demonstrates professionalism.

At the time I took the exam, there was no clear need for me to be certified. I reasoned, however, that if some day, for some reason, somebody needed to compare my credentials to someone else’s, then my PE certification would give me a leg up, whether for a job, a promotion, a contract, whatever. Besides, what would it hurt—why not be certified?

Fast forward ...

... from back when I took the exam until now. I can see that a very clear need has arisen for PEs in the area of manure management. Manure systems at animal facilities need PE certification for all aspects of new construction, system modification, and permitting. In fact, in Pennsylvania, you can’t legally call yourself an engineer or represent yourself as one without a PE license. What’s the law in your state?

Becoming registered is one thing; the specific discipline in which to pursue certification is another. For me, the choice was clear—I would take the PE exam in agricultural engineering. However, for some people, the choice isn’t so clear. Today we have degree programs in agricultural engineering, biosystems engineering, bioengineering, biological engineering, and my favorite: food, agricultural, and biological engineering. If you graduated from one of these programs, then which exam do you take? The one your colleague took—the exam with a *War and Peace*-size review manual? I’ve heard many times from my soil and water colleagues that the ag PE exam has too much machinery. Well, here’s a news flash: if you are designing water control structures, irrigation systems, manure systems, or anything about pumps, then you’d better know something about belts and sheaves. The same goes for tractor frames. The principles of shear, bending, flexure, buckling, etc., are the same whether you are designing a tractor frame or roofing a barn.

What do the years ahead hold?

Looking at the future of the ag PE exam, there is good news and bad news. First, the bad news: a significant number of ASABE members and other perspective candidates for the ag PE exam are opting for the civil engineering exam instead, which is putting the ag PE exam at risk for lack of demand. The good news? There is a significant number of potential candidates for the ag PE exam. Of course, when selecting which exam to take, you need to consider which exam best reflects your practice area. The most recent PAKS survey identified “natural resource engineering” as the area in which

most respondents are working, followed by “machinery systems.” Consequently, this is reflected in the content of the new ag PE exam. As for those of you who took the civil PE exam but now work for the NRCS, how familiar are you with traffic planning? I’ll bet your job has more to do with applications of power and machinery than with designing off-ramps and cloverleaves.

Theatre popcorn and probation

Did you ever see the movie “Animal House”? It’s a great comedy about a misfit college fraternity that has some serious trouble with the school’s dean. In a famous scene, the dean declares that he is putting the whole frat on probation. When someone reminds him that the house is already on probation, the dean thunders: “They are? Well, as of this moment, they’re on DOUBLE SECRET PROBATION!” As an exam item writer, PAKS committee member, and PE task force member, I can tell you the ag PE exam is now on double probation (although not secret). What I mean is, the number of exam takers is less than sustainable. In my view, this is a result of fewer and fewer exam takers thinking of themselves as agricultural engineers.

If your professional background is more biological, don’t let the word “machinery” scare you. The test is pretty basic, and whether you are specifying irrigation components or hydraulic pumps, most of the principles and concepts are the same. Similarly, whether analyzing forces on a tractor frame or a roof structure, it’s all statics. In addition, in recent years, considerable effort has been made to keep the pass rate for the ag PE exam more in line with the pass rates of other PE exams. Let’s face it. In the past, the ag PE exam was tough, more difficult than most. That’s not the case anymore, with a pass rate of 80 percent as of the 2009 offering. If you are looking to take a PE exam, then consider the agricultural engineering exam for all of the reasons that I’ve just cited.

And here’s another good reason

There has never been a better time to be an engineer working in agriculture, whether you call yourself an agricultural, biological, biosystems, bio, food, or whatever engineer. Our profession is at the forefront of some of the most challenging issues facing the world: sustainable energy, environmental contamination, and food safety, to name a few. These issues are in the news every day, and our profession has the tools, the skills, and the minds needed to provide the answers. So support your profession, support engineering, and support agriculture by becoming a certified ag PE.

ASABE member Andrew Wedel earned his PE in 1999 and is registered in Delaware, Michigan, New York, Pennsylvania, Virginia, and Wisconsin; e-mail him at AWedel@mclanahan.com.